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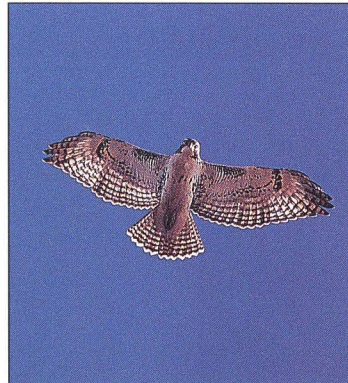
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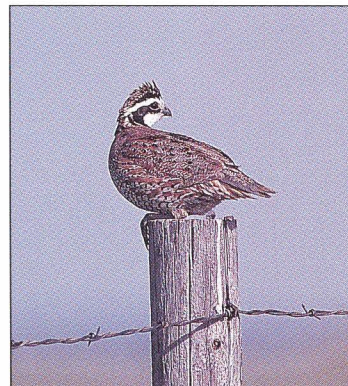
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2



8



15



About the Cover: A jumping mallard drake is a shower of color, demonstrating the fascinating process of flight. Mike Blair froze the action with a 600mm lens, f/5.6 @ 1/500 sec. **Back Cover:** September means doves at a waterhole and offers a prelude to Kansas' fall bird seasons. Mike Blair filmed this Reno County scene with a 55mm lens, f/8, @ 1/250 sec.

The Buck Stops Here

Kansas Public Hunting Land by Mike Miller

1

The Magic Of Flight

Men have been in awe of birds in flight since the first man watched in wonder as a bird soared overhead. by Mike Blair

2

Canada Geese Return To Marais des Cygnes Valley

With a local population established, Marais des Cygnes goose management is a year-round job. by Karl K. Karrow and Barry Allen

8

Guide To Kansas Public Hunting

A 16-page pull-out that lists all public land open to hunting in Kansas along with other important information.

15

Homegrown Walleye

Sagging walleye populations are a common symptom of aging, eastern-Kansas reservoirs, but this cooperative effort may change that. by Marty Burke

31

High Ground

The *\$@#! Swing-through Method by Mike Miller

45



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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THE BUCK STOPS HERE



Kansas Public Hunting Land

In this issue you'll find the newest Guide To Kansas Public Hunting. I hope anyone who hunts in this state will find this publication useful. We've tried to include all land open to public hunting, including those managed by federal agencies. I only wish we had a longer list.

Kansas ranks near the bottom on a list of public land acres per state. Only 2 percent of our land is public. I realize that a lot of Kansans fear large-scale government ownership, and that's not what I'm advocating. But I would like to see more land open to the general public for hunting and other outdoor activities. People need to believe they have a wild place where they belong; somewhere they can go to get away whenever they want. Just knowing that such a place is there is almost as good for the soul as the get-away itself.

Public land provides opportunities for those who might not otherwise get to participate. One of the most common reasons given for not hunting is lack of a place to hunt. For whatever reasons, many who would hunt have lost their ties with landowners and don't take the time or make the effort to get permission to hunt on private land. Rather than overcome that perceived hurdle, they simply stay home.

Would-be hunters hear the stories of trespassing and vandalism from landowners and fear they'll be angrily rejected if they ask to hunt. Even though that's usually not the case, they may also feel an imposition to the landowner if they get permission to hunt. To many, a lease agreement is the perfect solution. The hunter feels he belongs, the landowner is compensated and wildlife becomes a cash crop and habitat is preserved. But there may be a problem. What happens to "Average Joe" who's paying \$100 or so for the year's lease when "Big Bucks John" offers the landowner a \$1,000 . . . or more? Where will Joe hunt then. Ample public land might keep the price of private leases reasonable. Without it, hunting might become a paid-for activity only for the wealthy.

More public hunting land might also take pressure off of landowners who feel burdened with hunters asking permission. More public acres would spread out the hunting pressure, helping to dissolve the image that our public areas are crowded and overhunted. And public land managed by the Department is maintained specifically for wildlife without economic pressures that control use on private land.

It's true, many hunters turn their noses up at the thought of hunting on public land. We'd much rather hunt on exclusive private land where there's more game

Public Wildlife Area



and less competition. But, while a small number of public lands near urban areas may be crowded on certain days, most public hunting land in Kansas provides fantastic hunting opportunities.

The truth is there are many quality hunting experiences waiting on public land for those willing to scout and walk away from the roads and parking areas. In fact, considering how little public land we have, it's amazing how good the hunting can be. I know, I regularly hunt on several small public areas. I've taken waterfowl, deer, turkeys and upland birds on our public land, and I've never had an unpleasant confrontation because of crowded conditions. I won't try to hunt the public area on opening day of the pheasant season, and whenever I can, I try to go on a week day. And the farther away from the road I get, the better I like it. For those who want guarantees, a few public areas offer very limited access. Hunters who apply and get drawn for the special hunts know that only they and few other individuals will be hunting the area on that day.

Hunters from eastern states can't believe how little hunting pressure our public land gets. They also are surprised at how good the hunting is on the public land. I guess it's all relative to what you're accustomed to, and many of us Kansans are spoiled by generous landowners who give us nearly exclusive hunting rights to their land. I hope private land is always available to the average Joe, and I believe that increasing our base of public land will help keep it that way, aside from the invaluable wildlife and recreation benefits the public land will provide.

Mike Mill

The Magic Of Flight

photos and text by Mike Blair
staff photographer

The freedom of flight has made birds the envy of man, and even though we understand how birds fly, we can't emulate them without machines.

Birds; they capture our imaginations.

It's not only their alluring plumage that attracts us. Many colorful birds are unsurpassed for natural beauty. Neither is it their vocalizations, though bird song has inspired man with nature's gift of music. Nor is it the abundance of birds, which links even the sequestered urbanite with the natural world. Valuable as these traits are, they're overshadowed by a greater virtue.

Men love birds because they fly.

Since the beginning, birds have been free of the planet's stubborn grasp on *Homo sapiens*. Humans have walked, run and ridden at the interface of earth and sky, but always with their eyes upon those feathered creatures which soared above. And men have dreamed.

To watch a flying bird is to wonder at the feeling of rushing air—at the mastery of the heights. It is to ponder the freedom of touching the clouds. It is the wish to go where no

path leads. This is the dream of flying.

Birds are specially built for air travel. Their buoyant forms are fully streamlined. Skeletal structure and internal organs are light and efficient. The external covering of feather is durable and functional. Vascular and respiratory systems are modified for high-energy flight. Even reproductive organs shrink during the non-nesting season to reduce weight.

But wings are the real tools of the flier. These feathered arms, which may span several inches on a hummingbird or 10 feet on a condor, provide the sails which carry birds aloft. Wings, with their simple secrets, are the key to flight.

A wing has two working sections that provide different flight functions. The inner wing, extending from shoulder to wrist, provides most of the lift necessary for flight. It is relatively broad and thickest on its leading edge. In cross-section, the inner wing is arched above and flat below.



Slicing through air, this profile creates varying air pressures on the wing. Air passing over the arched top must travel farther than air slipping beneath the flat underside. The air above "thins out" and travels faster, making it less dense than the air below. Pressure is greater beneath the wing than above it, so lift occurs.

The amount of lift depends partly on the size of wings relative to the weight of a bird. A man-of-war bird, for instance, weighs less than 4 pounds, yet has a wingspan of nearly 8 feet. It flies more easily than the trumpeter swan, which may weigh 28 pounds with a 9-foot wingspan.

But lifting capacity also relates to the speed of air passing over the wing. Wings held outstretched in calm air do not provide lift; but add wind across them, and lifting occurs. This can be observed at eagle nests, where a nestling's first flight is comprised of spreading its wings into a moderate wind, and lifting its legs to "balance" airborne for a moment just above the nest.

Providing airspeed across the lifting surface is the function of the outer wing. The outer wing contains a series (usually 10) of special flight feathers called primaries. These act as propellers to pull the wing through the air. As air flows across the wings at sufficient speeds, flight is possible.

The outer wing works like this: a bird beats its wings forward and downward, causing the stiff primaries to flex at nearly right angles to the wing. Primary feathers are composed of a large central quill, a narrow front vane and a wide rear vane. This unbalanced construction not only provides a lift profile similar to the wing itself, but causes each primary feather to twist when struck against the air.

Together, the primaries scoop air as they flex on each downstroke. This draws the wings forward fast enough to create lift. During the upstroke, wings are partly folded against the body and the primaries twist open to reduce air resistance. Large birds must roll their wings backward to maintain propulsion during the upstroke, but this isn't necessary for small birds.

Wings alone easily propel a bird through calm air, but wind is a useful bonus. All birds routinely face the



Outer and inner wings are clearly defined on the barn owl above. The inner wings provide lift, while the outer primaries serve as propellers. Feather detail is evident in the bluebird below. Primaries are composed of a central quill with a narrow front vane and wide rear vane, to allow flex and improved locomotion.



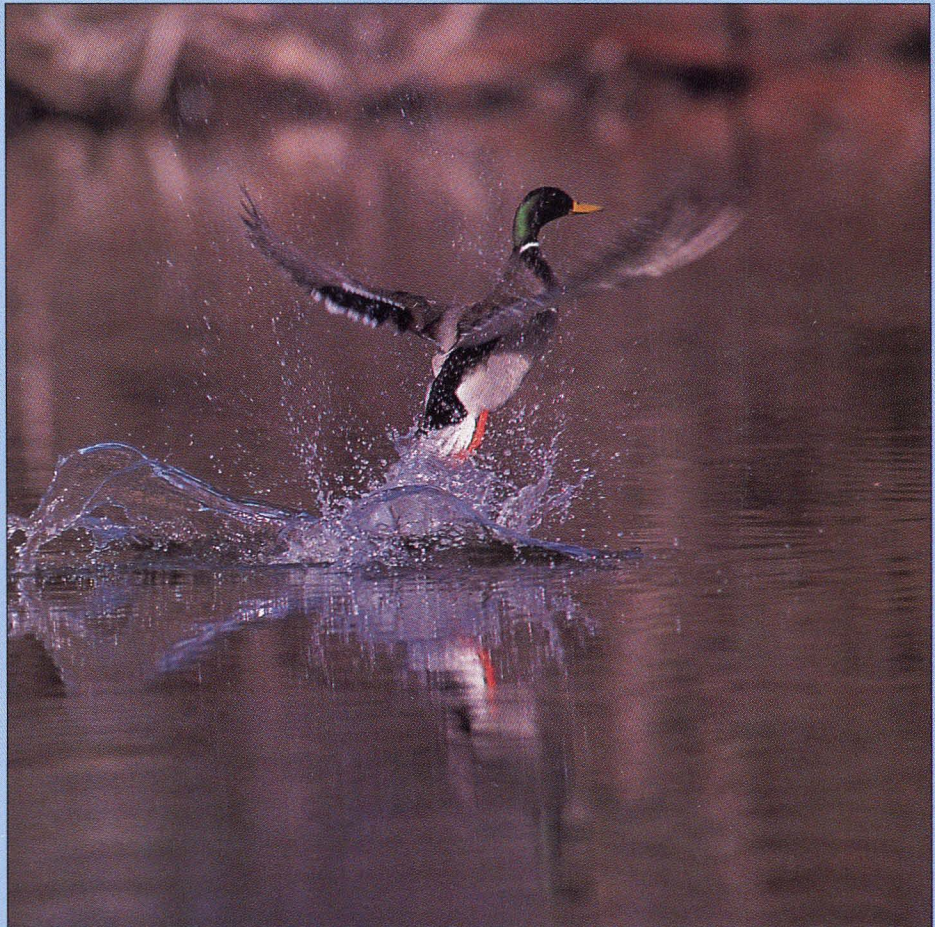


Taking off can be a difficult function, especially for large birds. Canada geese not only use a head wind, but they also run along the water to gain flight speed. Eagles and other raptors may dive from a perch to gain extra speed for takeoff.

wind for takeoffs and landings, since it provides extra airspeed across beating wings. Turning windward is so important to large birds that they must sometimes actually take flight toward upwind danger before veering away.

Takeoffs are the most difficult part of flight, and heavy birds often rely on special assistance. Some birds, such as loons, coots and swans, run along the water surface to generate enough momentum for flight. Turkey vultures use a similar running start on land. The length of the run depends on wind speed. Eagles and other heavy raptors often dive from perches to gain extra lift for flying. Dabbling ducks slap outstretched wings against the water to vault themselves into the air. Smaller and lighter birds simply leap skyward for easy takeoffs.

Wings power and sustain the flight of birds, but other body parts aid control. Tail feathers provide balance and extra lifting surface during hovering or slow flight. The tail also serves as brake and rudder. Small birds with long tail feathers, such as the chickadee, can turn sharply in flight. But birds with short tails, like the canvasback duck, must make more gradual turns.



A mallard slaps its wings against the water to launch it clear of the surface for unhindered wingbeats. This quick, vertical takeoff is necessary to elude predators.



The alula—sometimes called the bastard wing—consists of four small, stiff feathers at the “thumb” of the wing. In normal flight, these lie flat against the wing’s leading edge. But during maneuvers such as takeoffs, landings, emergency escapes or aerial chases, the alula is spread to control the front edge of the wing and increase its efficiency.

Flight speed is controlled by the rapidity of wing beats. The faster wings flap, the more air is displaced and the greater a bird’s speed. To slow down, all control surfaces may be used to create drag. Large birds slow down for landing by rocking backward and dropping their feet, cupping their wings, and craning their necks for maximum air resistance. Some birds, particularly white-fronted and Canada geese, may “roll” during a landing approach to reduce speed.

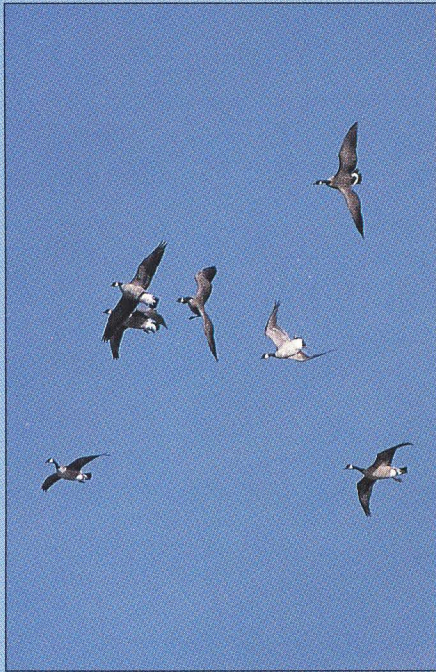
Actual landing is accomplished by throwing the tail section downward, fanning all brake surfaces, beating the wings rapidly forward and dropping the feet to grasp the landing site. Heavy birds may also swoop upward at the last moment to effect a stall, before settling. Timing is very important when landing, and inexperienced fledglings often make comical mistakes.

Five major types of flight are recognized among birds. The most common type is flapping, the second gliding, the third soaring, the fourth fluttering and the fifth is hovering. Most birds routinely make use of several types, and some use all five.

Flapping flight includes the great majority of bird species. This is demonstrated by a cardinal flying across a yard, a crow returning to a roost or a heron flying across a lake. The wings beat up and down in unison and resemble the motion of oars in rowing.

How rapidly a flying bird flaps its wings depends on the attitude of the bird and the conditions of the air. Small birds like wrens usually flap from 12-16 times per second, while large birds such as eagles may flap only one to three times per second.

Gliding flight often occurs together with flapping flight, in the manner of pumping and coasting by a bicyclist. Prairie chickens and bobwhite quail typically flush with whirring wings,



Some geese, particularly Canadas and whitefronts, often roll and tumble to lose altitude quickly and reduce air speed for landing.

only to glide long distances to distant cover. Canada geese often make long, gliding flights as they descend to a marsh. Small birds seldom glide, through mourning doves make use of this flight during courtship.

The length of a glide depends on the bird's speed as it starts to glide, the wind direction, the amount of rising air, and the weight and sail surface of the bird.

The third most common type of flight is soaring. Two types of wings are fitted for this flight: the broad expansive wings of vultures and hawks, and the long narrow wings of gulls and albatrosses. Both types of wings give their owners a very large sail area in proportion to body weight.

The size of soaring birds would make them appear quite powerful, but actually they are weaker fliers than smaller birds that flap. Soaring birds use their weight, size and wings to harness the energy of the atmosphere and may stay aloft for hours at a time.

Soaring birds in Kansas appear to defy gravity by sailing upward, but their actual flight is a gliding descent. They seek thermals—rising columns of air formed by uneven heating of the earth's surface—to help them fly.

By circling in thermals, the birds are carried upward faster than they glide downward. To descend, they simply fly out of the updraft.

Fluttering is the most difficult type of flight, and can be performed by only a small number of birds. Hummingbirds are its champions, hanging motionless before a flower on wings beating up to 75 times per second.

But a few larger birds also exhibit fluttering flight while feeding. Kinglets and many warblers may flutter at the top of a branch while picking off insects, and flycatchers flutter in midair while catching prey. Other birds, such as skylarks and purple finches, flutter during their flight songs.

The final type of flight is hovering. Hovering differs from fluttering by requiring the aid of a fresh headwind. Larger birds, such as kestrels, rough-legged hawks, common terns and belted kingfishers commonly hover as they search for prey.

In hovering, the bird turns toward the wind, drops and fans its tail, tips the rear of its body downward, and regulates the speed and angle of its wingbeats to hold a position. Usually, hovering lasts only five to 10 seconds before the birds swoops and hovers again.

Flight speeds vary widely among birds and depend on wind and air conditions at the time of flight. Birds have a normal flight pace and sprint speed used when chasing prey or eluding danger.

between 20 and 30 mph, while larger geese and ducks range from 40 to 50 mph. Some shorebirds on extended flight average up to 60 mph. Diving falcons may reach 180 mph, and swifts in Mesopotamia have been timed at the staggering speed of 200 mph.

Birds often use wind to boost their flight speed. Especially on long migration flights, wind helps conserve energy while pushing birds faster. Migrating birds seldom fly against the wind, waiting instead to hitch a ride on steady breezes in the direction of travel. This is why fall waterfowl often arrive in great numbers just before a norther moves in. They use the storm to ease their journey.

To illustrate, a flock of ducks migrating on a calm day might average about 45 mph. If they wait for a 20 mph tailwind, their ground speed is increased to 65 mph. If they flew against a 20 mph headwind, their ground speed is reduced to only 25 mph.

Gradually, humans have come to understand the flight of birds. On these principles, we have built machines that carry us through the heavens and into the solar system. Air travel is now accessible; it is routine. But even so, the whir of a hummingbird at a flower or the lazy spirals of a red-tailed hawk still inspire a moment's envy to earthbound man.

In spite of our technology, birds are still the masters of the air. And they always will be. 🦅



Even in a short fluttering flight while defending its booming ground territory, this prairie chicken displays the beauty and magic of flight.



Canada Geese Return To Marais des Cygnes

by **Karl Karrow**
field supervisor, Marais des Cygnes Unit
and **Barry Allen**
conservation worker, Marais des Cygnes Wildlife Area
photos by **Mike Blair**



Once a rare sight, Canada geese again rest, feed and nest in the valley of "Marsh of Swans."

What outdoorsman hasn't thrilled to the sight and sound of north-bound geese against a spring sky? Or shared the elation of a youngster after harvesting his first "giant" Canada goose? Even urban dwellers marvel as stately Canada goose parents escort a squadron of yellow goslings across a city park lake.

Although this magnificent species has been part of the Kansas fauna since time immemorial, exciting

changes have occurred in recent years. Nowhere are the benefits of effective management more evident than in the Marais des Cygnes (MDC) Valley of eastern Kansas, site of the state's first Canada goose restoration effort. Hunters and wildlife watchers are enjoying the benefits.

Prior to 1980, Canada geese were not abundant in the Marais des Cygnes Valley. Rick Warhurst, area manager at Marais des Cygnes Wildlife Area (MDCW) from 1977 through 1985, noted that fall sightings of 100 to 150 Canada geese were unusual. Typically, a few early migrants would pass through prior to the waterfowl season, and a few larger geese would be present in late fall. Harvesting a Canada goose was a rare prize.

In the late 1970s, the Kansas Department of Wildlife and Parks (then Kansas Fish and Game Commission) initiated a project to introduce local nesting Canada geese at MDCW. The wildlife area was chosen for the

first introduction for several reasons. First, it is managed primarily for waterfowl and has habitat capable of supporting large numbers of geese. Warhurst was knowledgeable about geese and was a strong proponent of the project. And, finally, La Cygne Lake, about 6 miles to the north, has open water available to the geese year-round due to warm-water discharges from an electrical generating plant.

In spring of 1980 a predator-proof goose pen of woven wire and heavy-duty poultry wire was constructed. The fence extended 18 inches below ground and 6 feet above with an electrified wire on top to discourage predators. Ponds, feeders and artificial nest structures were constructed within the pen. This original pen was expanded to encompass about 40 acres that winter.

In May of 1980 the first 22 pairs of geese arrived from the captive breeding flock at Northern Prairie

Wildlife Research Center near Jamestown, N.D. In July more geese were added from birds captured by the Illinois Department of Conservation. In 1981, contributions by the Shawnee Mission Chapter of Ducks Unlimited helped bring in birds captured in Colorado, and additional birds came from Wisconsin, Nebraska and the Wichita Zoo.

To ensure that geese remained at MDCW, most were pinioned and released into the pen. Pinioning involves removing a small part of one wing bone so the goose cannot fly out of the pen, but it does render the bird flightless for the remainder of its life.

Staff at MDCW provided food, maintained the pen fence and pond levees, and trapped predators that managed to get into the pen.

Pinioned geese nested, and the offspring were allowed to fly free and range throughout the surrounding area. Pinioned adults were unable to migrate, so no migration tradition was established. These free-flying geese nested in the MDC Valley, both within the pen and on nearby farm ponds, marshes and lakes.

To protect local geese, the area surrounding MDCW was closed to hunting of dark geese in 1982. Dark geese, which includes white-fronted geese, were stipulated because of the potential for mistaken identification between these two species. This closure remained in effect until 1987.

As goose numbers increased, some offspring in the pen were captured before they were able to fly and released in the MDC Valley to increase the distribution of nesting pairs. Some were transported to other sites in the state where the department is establishing nesting geese.

In 1990 the local population was considered self-sustaining, and pen rearing of geese was discontinued. Surviving pinioned geese were transported to the Mined Land Wildlife Area southwest of Pittsburg to help establish nesting geese there. Currently, the pen at MDCW is being torn down, and this site will be returned to wildlife habitat.

Goose habitat management at MDCW focuses on providing resources for local geese throughout the year as well as for migrating and wintering geese. Management for lo-



A bowl-shaped nest is constructed using materials the goose can reach immediately at the nest site.

cal and migrant geese is similar when these populations are present together.

To sustain a local population of geese, it is essential that geese reproduce successfully. Reproduction can be thought of as a two-stage event: nesting and brood-rearing, with each requiring different habitat.

Canada geese do not carry material to a nest site, but rather the female gathers forbs and dry grasses at the site from as far as she can reach with her outstretched neck. A compact nest bowl is constructed. As incubation proceeds, the female plucks down from her breast to line the nest, providing insulation and preventing the embryos from chilling.

Canada geese in eastern Kansas typically lay six or seven eggs over a 10-day period. Females incubate the eggs for 28 days and are relatively constant incubators, leaving the nest for only two 15- to 20-minute breaks a day in mild weather and not at all in severe weather. Because this schedule does not allow females time to eat, they lose up to 30 percent of their prelaying weight by the time eggs hatch. Ganders do not assist with nest construction or incubation but defend a territory around the nest site.

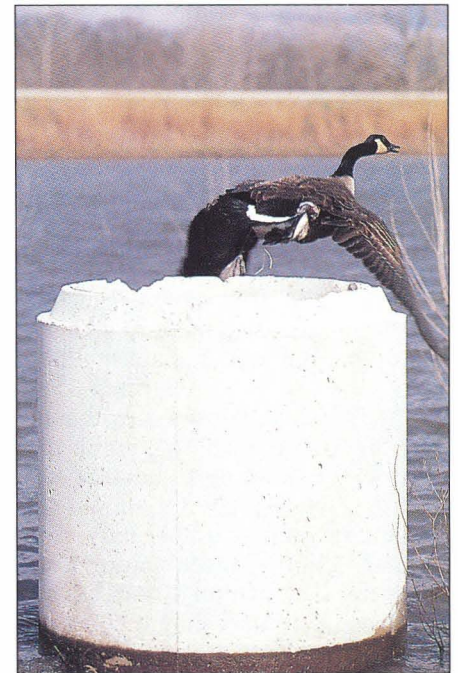
Geese require nest sites that are secure from predators, flooding, disturbance and other nesting pairs of geese. Many predators, including raccoons, foxes, coyotes, skunks and snakes will eat goose eggs. Heavy rains can raise water levels inundat-

ing nests and killing embryos. Disturbance from humans, or other sources, can cause females to abandon nests. If nesting pairs are too close together, frequent territorial fights may result, and one or both nests may fail.

In natural situations, geese nest on islands, points of land, or muskrat houses in marshes. These locations are usually not visited by predators, but if they are, the pair can usually defend the eggs. Marsh vegetation and spacing of nests minimizes territorial conflicts in natural situations.

At MDCW, and other locations intensively managed for geese, natural nest sites are inadequate for desired levels of production, so artificial nest sites are provided. Many designs have been employed such as tires attached to platforms mounted on stakes, wash tubs on poles, floating nests, and constructed islands, and all have their advantages and problems.

Concrete culvert nest sites are preferred at MDCW, because they are virtually maintenance free and last indefinitely. These nest structures consist of a 30-inch or 36-inch diameter, 4-foot long concrete culverts set on end in the marsh. They are filled with dirt, or a combination of gravel and dirt, so natural vegetation



The concrete culverts at Marais des Cygnes provide flood- and predator-proof nest structures.

grows and provides nest material. The culverts weigh 1,500 pounds or more and are usually installed when wetlands are drained.

Hatching the eggs is only half of the task facing Canada goose parents. Goslings must be reared to flight stage (about 60 days old) before the effort can be considered a success. Fortunately, Canadas tend to be very attentive parents.

Goslings leave the nest within 48 hours of hatching and do not return. Adults often lead goslings considerable distances to selected brood habitat. The authors have observed parents leading goslings over a mile, on land, within 24 hours of hatching. Wildlife researchers speculate that females may return to the wetland on which they were raised to rear their young. After leaving the nest, goslings usually stay with the adult pair through fall, winter, and the following spring until parents begin to nest again.

Goslings do not feed in water as do young ducks, but rather feed on tender vegetation and seed heads on land.

Often several families will rear young at the same location. Conflicts and brood mixing sometimes results in goslings being adopted by other pairs. It is not unusual to see "super broods" with 20 or more goslings of several different ages accompanied by a dominant pair.

Goslings face a precarious existence until they can fly. Coyotes, foxes, raccoons, snapping turtles, owls, and other predators readily prey on goslings. Both parents attempt to defend goslings from predators through aggressive displays or by rushing the family from feeding sites into the water.

At around 60 days of age, flight feathers are well developed and young geese go through the awkward stages of learning to fly. Within a few weeks they fly well and are hard to distinguish from the adults.

Quality brood habitat has five key features: 1) close proximity to nest site, 2) permanent water, 3) shorelines with gentle slopes, 4) short vegetation, and 5) freedom from disturbance.

Nearness to nest sites minimizes the distance that families must make dangerous overland moves after



Soon after hatching, the Canada parents may lead the goslings on a dangerous trek up to a mile long to a preferred brood rearing area. Ideal habitat for goose production provides brood rearing areas close to nesting sites.

hatching occurs.

The presence of a permanent body of water for escape cover seems obvious, but this requirement is not consistent with moist-soil management techniques employed on many wildlife areas and private duck hunting clubs. Moist-soil management requires spring dewatering of marshes to allow germination of beneficial wetland plants. To provide brood-rearing habitat, other management objectives may have to be compromised.

Canada goose parents rely on detecting mammal predators before they're near enough to capture goslings. When approached, one or both adults may attempt to bluff the predator, while the goslings run for protection in water. For this strategy to be successful, families must feed in short vegetation along gently sloping shorelines. If vegetation is tall or brushy, predators can approach without being seen, and the vegetation also slows goslings as they run to water. In addition, goslings may get separated from their parents in thick vegetation and perish.

Human disturbance can be a problem during this period. Parents will rush goslings into water to avoid the human "predator" just as they would any other intruder. MDCW staff have observed broods which were kept in the water all day as one person after another tried to approach

closely to observe goslings. Since goslings do not feed in water and can tire quickly or become waterlogged, death can result.

Management practices should provide these five components of brood habitat. Selecting appropriate sites for nest structures assures proximity to undisturbed brood-rearing habitat with gentle shoreline slopes. Water manipulation should consider brood-



Adults watch for danger while feeding on land. Good habitat provides short vegetation and gently sloping banks.



The management program at Marais des Cygnes is intricate because both local and migrant geese must be accommodated. A wide variety of habitats and food sources are developed and maintained.

rearing requirements, and shoreline vegetation can be kept short through grazing, burning, or mowing.

MDCW is managed with Canada goose production in mind. Unfortunately, some important management objectives dictate dewatering of marshes at a time that is unfavorable to goose broods. When possible, selected areas are left with water to provide brood-rearing habitat. Shoreline vegetation management techniques, except for grazing, are employed at MDCW, and the refuge at MDCW is a year-round sanctuary, in part, to allow geese a secure place to rear offspring free from human disturbance.

In fall and winter, managers try to provide food and refuge areas for migrating and wintering geese. Providing food might seem like a pretty straightforward task until one considers the number of geese involved at MDCW (more than 20,000 at times), changes in food requirements with season and risk of crop failure.

Moist-soil management is used to provide natural foods for wetland wildlife. This involves timely dewatering of marshes in spring to promote beneficial wetland vegetation such as wild millet, smartweeds, chufa, and foxtail. Marshes are then flooded before migrants arrive in fall. Although often thought of primarily as a duck management technique, it is also very successful for goose management. In addition to eating seeds produced by these plants, geese often grub for underground tubers. After intensive feeding for tubers the marsh bottom will appear to have been dug up with a spade. The large body size and long neck of geese allow them to feed in deeper water than do ducks.

One or more marshes are managed with moist-soil techniques at MDCW each year. Because of the variety of wetland habitats provided on the area, ideal conditions are usually present for Canada geese. It is not unusual at MDCW to see a flock of "white" birds feeding at a distance in the marsh, only to find on closer examination that it is a flock of Canada geese tipped up to feed on submerged vegetation. The white undersides of geese give a first impression of all white birds.

Geese are the most terrestrial of



Geese are the most terrestrial of waterfowl, feeding on land much of the time, so grasses, clovers and small grains are planted to provide year-round food sources.

waterfowl and often feed on dry land, seeking green vegetation to browse or grain left from agricultural operations. Green browse may be provided by annually-planted small grains, legumes, or perennial pasture. Winter wheat, oats, and rye are small grains that provide browse for geese. Several species of clover are also preferred browse. Geese also browse on cool-season grass pastures. All of these browse types are provided at MDCW.

Winter wheat is the primary small grain utilized for browse, although oats may be used in spring if wet fall conditions prevent planting of wheat. Wheat is planted by area staff, or by private farmers working under contract with the department. Red, ladino, and dutch clover are planted annually for browse. These clovers vary in their tolerance for wet soil conditions, palatability to geese, and resistance to intensive grazing. Two large fields within the MDCW refuge have been planted to provide perennial cool-season pasture for geese. Year-round feeding by local geese prevented these fields from being used for annually planted crops. As an alternative to annual crops, red-top, timothy, ladino clover, and red clover were seeded to provide perennial "pasture." Cool-season plants such as these two species of grass and two species of clover are much like

urban lawn grasses in that they remain green and palatable late in fall and are among the first plants to resume growing in spring. Studies of similar situations indicate that geese prefer and select fertilized pastures that have been mowed to provide succulent regrowth. These techniques are used at MDCW to attract and hold geese within the refuge. Although the species composition of these pastures at MDCW changes with time, they receive intensive goose use with modest management effort.

When the weather turns cold, geese seek high energy foods such as milo and corn. Moist-soil plants and browse crops may be thought of as "stoppers"—that is, those foods that attract and hold early migrating geese. Later in the winter, high-energy grains are necessary to attract and hold large numbers of geese.

MDCW staff plant grain within the refuge and in some hunting units, and the entire crop is left for geese and other wildlife. In addition, contract farmers leave a portion of their crops in the field as "rent" for farming on the wildlife area. Grain may be manipulated to be more available to geese after the close of hunting seasons but cannot be manipulated during hunting seasons because of waterfowl baiting laws. Grain is mowed or knocked down with cables

or poles dug between tractors. In addition standing corn is sometimes burned to remove leaves and husks, leaving ears unscorched. Some ears fall to the ground, but many remain on the stem, providing accessible food during periods of snow cover. Geese find the yellow ears against the black background almost immediately.

Staff at MDCW rotate crops to protect soil and minimize use of agricultural chemicals. A typical field may have eight 150-foot wide strips, each planted to a different crop. A typical rotation at MDCW uses three crops planted over a four year period: corn the first year, idle the summer of the second year, winter wheat that fall, and red clover planted in green wheat the third year. The wheat is harvested in June or July leaving small clover plants already growing. Clover remains in the field throughout the third and fourth year. The clover is then plowed into the soil to provide nitrogen, and the rotation starts again. In a given winter, a field of eight strips would have two strips of corn, two of green wheat, two of first-year clover and two of second-year clover. This provides a browse and grain smorgasbord for Canada geese.

Geese must have a safe place to roost and rest if they are to remain in the area. This is particularly true

during hunting seasons and other periods of high human use of the wildlife area. Refuge areas must be undisturbed by birdwatchers, photographers and other human users of the area to be effective.

The two refuge areas at MDCW comprise just over 1,100 acres (16 percent) of the 7,235-acre wildlife area. Both areas are closed to all activities year-round.

Spring management for Canada geese is not much different than fall management in that the essential components are to provide food and disturbance-free feeding, resting, and roosting sites.

Reproductive success of tundra-nesting geese is linked to the condition of birds when they arrive on nesting grounds. Canada geese arrive on the tundra before ice and snow melt and nest on the first available hummocks of land. Since no food is available when they arrive, all nutritional components necessary to produce and incubate eggs must be available during migration. Geese that find abundant food and safe sites to rest on the way north, arrive on the nesting grounds in good body condition and produce more offspring.

Unconsumed natural food and grain from fall and winter is available to geese at MDCW in spring. In addition, wheat, clover, and cool-season

grasses begin to grow in early spring and provide browse.

Human disturbance is energetically very expensive for geese in spring. Not only are valuable calories expended while fleeing from danger or disturbance, but feeding time is reduced. If disturbed several times, geese may avoid important food resources completely. Hunting activities cease at MDCW by mid-January. Other sources of disturbance, however, may conflict with good goose management. Examples include fishing, birdwatching and farming. Resource managers must make difficult choices between providing a wide variety of recreation and providing resources important to north-bound Canada geese and other waterfowl.

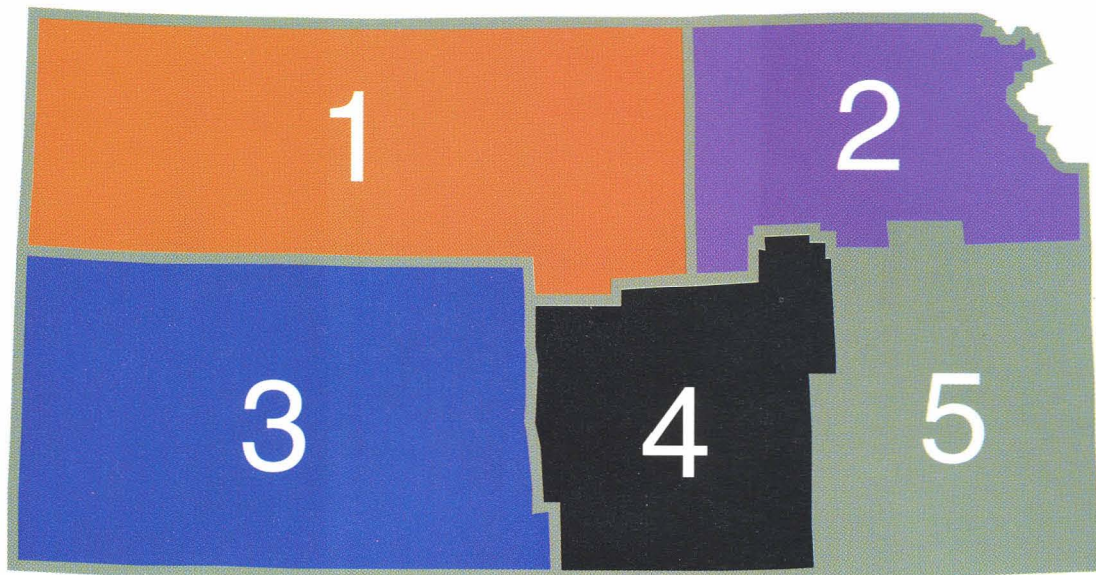
Editor's note: In the next issue, part two will explore various populations of Canada geese and management of the harvest of geese in the Marais des Cygnes Valley. Karrow studied Canada geese in North Dakota for his M.S. degree and subsequently has worked with this species in Minnesota and Kansas. Allen studied nesting Canada geese along Hudson Bay for four seasons as part of his M.S. degree. Both Karrow and Allen cooperated with Manitoba Natural Resource and Canadian Wildlife Service by assisting with goose studies near Hudson Bay on a voluntary basis.



Seeing a large flock of Canada geese in the Marais des Cygnes Valley was rare 10 years ago. Today, thanks to the reintroduction project and ongoing management practices, seeing and hearing Canada geese is a daily occurrence.

Guide To Kansas Public Hunting





Hunting In Kansas

A common question posed by first-time Kansas bird hunters is "What kind of hunt will it be?" Hunters want to be prepared, and they need to know what the weather will be like, what kind of terrain they'll be hunting and what species of bird they'll most likely encounter. That question can be answered simply: "Your Kansas hunt can be whatever you want it to be."

A bird hunt in Kansas might take place in a wide-open stubblefield, or it might be in rolling shortgrass prairie dotted with tangled plum thickets. Your Kansas hunt can take you to rough, broken country with cactus and yucca, or to tallgrass prairie dissected by steep, cedar-choked draws. A western pheasant hunt might start at the edge of a huge field enrolled in Conservation Reserve; endless grass, over your head in some places, but ideal cover for the ring-neck. A Flint Hills quail hunt might cover miles in the gently rolling hills, through tall grass and along short hedge rows and small crop fields. Farther east, the country is obviously wetter, with lush grasslands and small bean or corn fields bordered by thick hardwood timber stands; hardly the outsider's image of Kansas.

So you see, it's difficult to tell someone what to expect in Kansas . . . except that bird hunting opportunities can be unsurpassed. Of course, Kansas is no different than any other region. Bird populations fluctuate, depending upon a variety of factors. What sets



Mike Blair photo

Kansas bird hunting apart is the variety of hunting situations and bird species available. You can take your pick of some of the best quail hunting found anywhere in the U.S. in the eastern part of the state. Or if pheasants are your fancy, go northwest. If you want variety, hunt in the northcentral portion of the state, and if you're lucky, you might see three species of birds in a day: pheasants, bobwhite quail and greater prairie chicken. And for the real adventurer, the southwest corner of the state offers a rare quadruple treat: pheasants, bobwhites, lesser prairie chickens and scaled quail.

This guide is designed to help you discover the public lands open to hunting as well as let you in on the opportunities found here. Kansas doesn't boast a great deal of state-owned land open to hunting, but the wildlife areas listed in this booklet are managed for optimum wildlife benefits as well as recreation.

Wildlife areas provide not only prime hunting grounds, but also critical habitat for many nongame species.

It's fashionable for locals to turn their noses up to hunting on public land. After all, they usually have contact with a local landowner who will let them hunt. And perhaps this landowner generosity is what keeps our public lands from being overcrowded. Some public areas located near large cities may be crowded on the pheasant opener, but go back a month later and the area seems deserted. Or drive a backroad to a small parcel of public land in central or western Kansas. There are many of these public land oases listed in this guide, and you'll be surprised how good the hunting is.

There's no doubt that since such a large percentage of Kansas land is private, most hunting is done on private land. For those who don't have contacts with landowners, a good plan is to base a hunting trip on a large public hunting area. Hunt the public area and begin making contacts with local landowners, asking permission to hunt. Come well after the opening day of the season. Not only will the public land be less crowded then, but you'll also have a better chance of getting permission to hunt private land. Use this guide to locate areas that have the game you prefer to hunt, and contact the Department's operations office in Pratt for more detailed maps and brochures about wildlife areas. Good hunting!



Ring-necked pheasant

Usually considered a symbol of the Kansas farm country, the ring-necked pheasant is actually an exotic introduction. Native to Asia, the pheasant adapted well to Kansas' mix of agriculture and grassland since the first birds were released in 1906. The quality of bird hunting in Kansas is dependent upon a variety of factors, including changes in land use, winter severity, spring weather conditions, early summer heat, cover conditions and more. But usually, Kansas ranks in the top three states in the nation in birds harvested. The best hunting is generally in the northwest with the northcentral region running a close second. The southwest and southcentral regions' harvests are usually lower. Pheasant hunting can be excellent locally in the northeast. The southeast region offers no pheasant hunting.

Bobwhite quail

Kansas quail hunting is fast gaining deserved notoriety. Because quail generally inhabit more permanent cover, such as woodlands and grasslands, than the pheasant, their numbers fluctuate less. Barring long periods of snow cover and cold weather, bobwhite quail populations are remarkably resilient. Kansas quail hunting ranks right up there with the best in the nation. The very best quail hunting is found in the southeast and east-central regions of Kansas. But the northeast region also affords excellent quail hunting. The northcentral offers good quail hunting and excellent pheasant/quail combination hunts. Some of the grassland/farmland edge country in the southcentral and southwest can also offer excellent quail hunting. Kansas quail hunting can take a variety of faces, from wide-open shooting in the plum-thicket pastures of the west to the small crop field/timber borders in the southeast.



Prairie chicken

A true symbol of the Kansas plains, the prairie chicken is a unique bird that depends on vast areas of prairie for survival. Thanks to the Flint Hills, a strip of Kansas grassland protected from development by a shallow layer of rock, the prairie chicken maintains a last stronghold in Kansas. Kansas boasts the largest population of two subspecies, the lesser and greater prairie chicken, in the world. The lesser is common along the sandhill prairie in the southwest. They are most commonly hunted in late fall as large flocks fly from grassland to crop fields to feed. Fast flying, challenging quarry, the dark meat is a delight to the taste. In the spring they entertain watchers and photographers who hide in blinds on the booming grounds to witness the unique mating dance ritual.





Turkey

According to early pioneer records, turkeys were numerous in certain parts of Kansas. However, they were quickly wiped out as settler numbers increased. Thanks to reintroductions of wild birds and a solid management program, turkeys inhabit nearly every county and the population is still growing. The Rio Grande subspecies inhabits the west, and the eastern subspecies is common in the eastern one-fourth of Kansas. Proving extremely adaptable, turkeys are found in shelterbelts, old farmsteads and timbered areas other than streams and rivers, their more common habitat. The first spring season was held in 1974, with several hundred lucky hunters drawing permits. Today, more than 10,000 hunters pursue turkeys each spring.

Deer

Deer are another Kansas wildlife management success story. Nearly extirpated from the state at the turn of the century, deer have slowly made their way back through protection, habitat improvement and regulation. The first modern season was held in 1965 and has grown today to more than 70,000 hunters who enjoy a more than 60 percent success rate. But the real story behind Kansas deer management is the big bucks it produces. The limited permit program addresses regional population fluctuations, and requires harvest of does, allowing bucks to mature. Kansas whitetails grace both Boone and Crockett and Pope and Young record books in surprising numbers. While whitetails are the most numerous, the western part of the state also supports a healthy population of mule deer.



Mike Blair photos



Mourning dove

The mourning dove is the most numerous game bird in the nation, and in Kansas it's easy to see why. Each spring Kansas hosts the largest number of nesting mourning doves in the U.S. Some pairs may nest as many as three times through the summer, and their first brood may mature and raise a brood of their own before the summer is through. Kansas can literally be teeming with doves in September before fall's first cold snap. The season opens Sept. 1 and if it's hot and dry, stock ponds and windmill runovers are the best places to hunt the speedsters. Waterholes and roosts should be hunted in the evening, but feed fields, especially those with little vegetation such as burned or worked wheat stubble, can be great in the mornings.

Waterfowl

Kansas lies in the middle of the central flyway, and can provide excellent duck and goose hunting. In the western half of the state, hunters enjoy good early-season duck hunting and great Canada and white-fronted goose hunting. In the eastern half, great late-season duck hunting is complemented by some fantastic snow goose hunting along the eastern border. Several areas in the east have recently reopened to dark goose hunting after reintroduction programs that reestablished local flocks of nesting Canada geese. Some geographical units offer fantastic special-permit goose hunts. Most species of puddle ducks are popular with Kansas duck hunters including blue-winged and green-winged teal, wood ducks, mallard, pintail, wigeon and gadwall.



Mike Blair photos

Coyotes and furbearers

The coyote has adapted admirably to the changing Kansas landscape and has prospered in spite of efforts to eradicate it. Coyotes are common throughout the state and since high populations can be a problem to Kansas stockmen, permission to hunt or trap them is seldom refused. Predator callers have excellent success in late winter. Another large predator common in Kansas is the bobcat. Though seldom seen because of its secretive nature, the bobcat is most numerous in the southeast. Other furbearers common in the state include red and gray fox, swift fox, raccoon, beaver, mink, opossum, badger and muskrat.

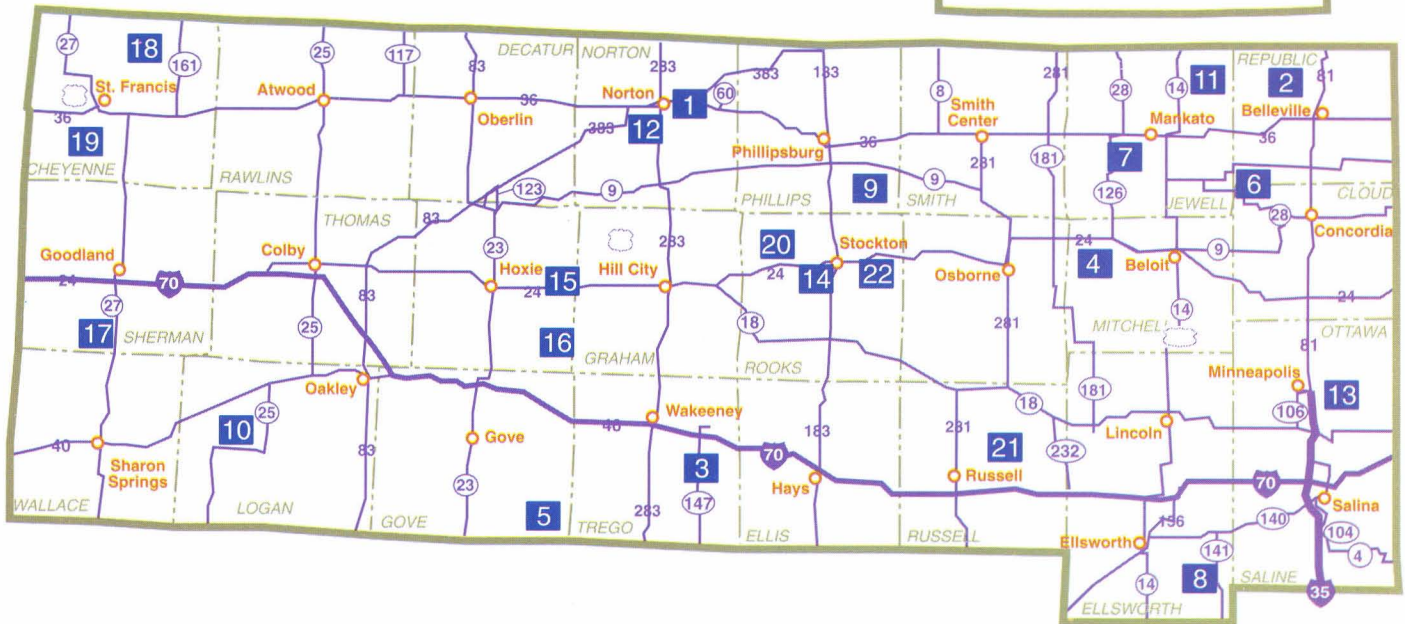
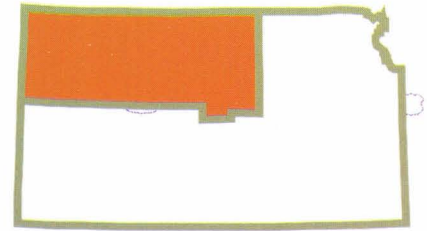
Rabbit and squirrel

Because so much emphasis is placed on Kansas bird hunting, rabbit hunting is overlooked. In fact, most local hunters rarely hunt rabbits, even though they see plenty while pursuing birds. Nonresidents, though, marvel at the rabbit hunting opportunity in Kansas, along with the long season (year round) and liberal bag limit (10 per day). Cottontail rabbits are common in every county in the state but highest populations are in the eastern half of the state. Since so few actually hunt them, great late-season hunts can be had on public land. Squirrel hunting may be even more overshadowed, but the heavily timbered eastern edge of Kansas has both gray and fox squirrels. Fox squirrels have migrated west along timber corridors and are now common to the Colorado border where suitable timber exists. Squirrel hunting is not a traditional pastime, so opportunities are easy to find and never crowded.



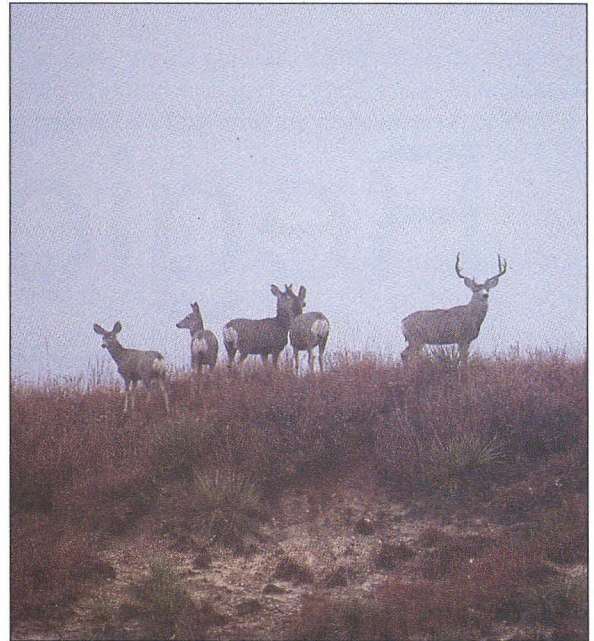
Gene Brehm photo

Region 1



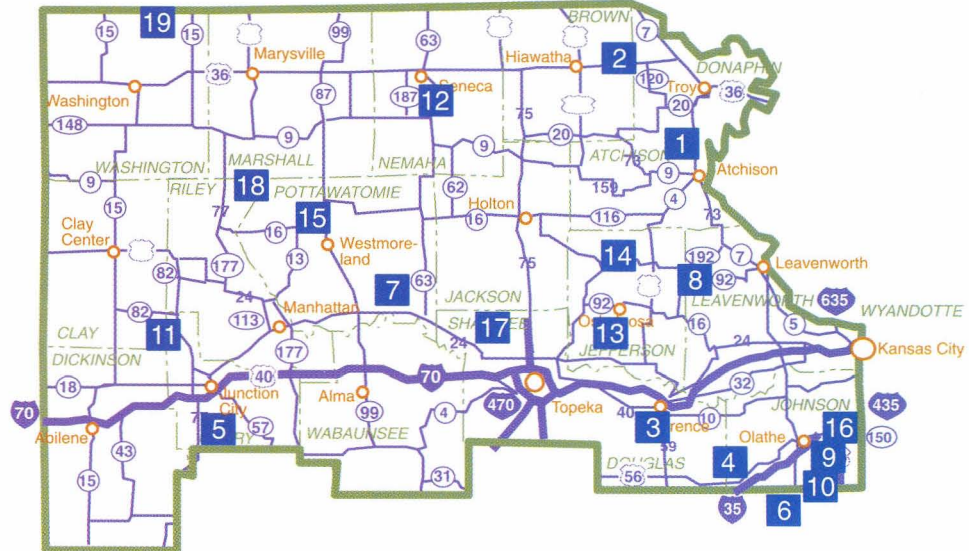
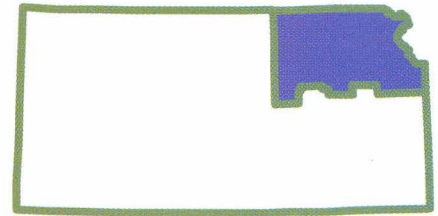
- 1 Almena Diversion Wildlife Area** -- 111 acres
2 miles south and 1 1/2 miles west of Almena -- Deer, quail, pheasant, dove, squirrel, turkey and rabbit.
- 2 Brzon Wildlife Area** -- 320 acres
6 miles north and 4 miles west of Belleville -- Quail, pheasant, rabbit, dove, turkey, deer and coyote. (*Special hunts available by permit; contact Lovewell Unit Office -- (913) 753-4305.*)
- 3 Cedar Bluff Wildlife Area** -- 10,273 acres
13 miles south of I-70 on Highway K-147 -- Pheasant, quail, deer, dove, turkey, squirrel, rabbit, waterfowl, coyote, bobcat and raccoon. (*West end refuge closed Sept. 1-Jan. 15. East end refuge closed Oct. 1-Jan. 31.*)
- 4 Glen Elder Wildlife Area** -- 12,514 acres
Tracts surrounding Cawker City -- Pheasant, quail, deer, turkey, waterfowl, squirrel, rabbit, dove, turkey, coyote, bobcat and raccoon. (*Special hunts available by permit. Contact Glen Elder Unit Office.*)
- 5 Gove Public Domain** -- 160 acres
22 1/2 miles south of Quinter, 1 mile east -- Deer and coyote.
- 6 Jamestown Wildlife Area** -- 3,438 acres
3 1/2 miles north and 2 miles west of Jamestown -- Waterfowl, pheasant, quail, rabbit, deer and muskrat. (*Steel shot required for all shotgun hunting.*)
- 7 Jewell State Fishing Lake and Wildlife Area** -- 165 acres
6 miles south and 3 miles west of Mankato -- Pheasants, quail and rabbits.
- 8 Kanopolis Wildlife Area** -- 12,500 acres
12 miles southeast of Ellsworth -- Waterfowl, turkey, pheasant, quail, deer, dove, rabbit, squirrel, prairie chicken, coyote and furbearers.

- 9 Kirwin National Wildlife Refuge** --3,700 acres
15 miles southeast of Phillipsburg -- Waterfowl, dove, pheasant, quail, turkey, snipe, rabbit, squirrel and deer. (*Steel shot is required for all shotgun hunting. Deer hunting is restricted to archery only. Call (913) 543-6673 for more information.*)
- 10 Logan State Fishing Lake and Wildlife Area** -- 271 acres
9 miles south of Winona -- Deer, pheasant, dove and waterfowl when lake has water.
- 11 Lovewell Wildlife Area** -- 2,229 acres
12 miles northeast of Mankato -- Waterfowl, pheasant, quail, deer, rabbits, squirrel and dove.
- 12 Norton Wildlife Area** -- 6,421 acres
6 miles west and 2 miles south of Norton -- Pheasant, quail, deer, turkey, waterfowl, coyotes, rabbit and dove.
- 13 Ottawa State Fishing Lake and Wildlife Area** -- 611 acres
5 miles north and 1 mile east of Bennington -- Pheasant, quail, rabbit, squirrel, deer and dove.
- 14 Rooks State Fishing Lake and Wildlife Area** -- 243 acres
1 1/2 miles south and 2 miles west of Stockton -- Pheasant, quail, deer, squirrel, rabbit, dove and waterfowl when area has water.
- 15 Sheridan State Fishing Lake and Wildlife Area** -- 248 acres
11 miles east of Hoxie -- Deer, turkey, pheasant and waterfowl.
- 16 Sheridan Wildlife Area** -- 458 acres
5 miles north and 3 miles east of Quinter -- Deer, turkey, squirrel, waterfowl, pheasant and quail.
- 17 Sherman Wildlife Area** -- 1,547 acres
10 miles south and 3 miles west of Goodland -- Deer, pheasant and dove.
- 18 South Fork Wildlife Area** -- 1,100 acres
11 miles north and 7 miles east of St. Francis -- Deer, turkey, pheasant, waterfowl and quail.
- 19 St. Francis Wildlife Area** -- 480 acres
1 mile west of St. Francis, then 3 miles southwest on River Road -- Deer, turkey, quail, pheasant and waterfowl.
- 20 Webster Wildlife Area** -- 8,018 acres
8 miles west of Stockton -- Deer, pheasant, turkey, waterfowl, coyote and dove.
- 21 Wilson Wildlife Area** -- 8,039 acres
7 miles northwest of Bunker Hill -- Pheasant, quail, deer, dove, waterfowl, turkey, rabbits, coyotes and furbearers.
- 22 Woodston Diversion** -- 210
8 miles east of Stockton -- Pheasant, quail, deer, turkey, squirrel, rabbit, coyote and dove.



Mike Blair photo

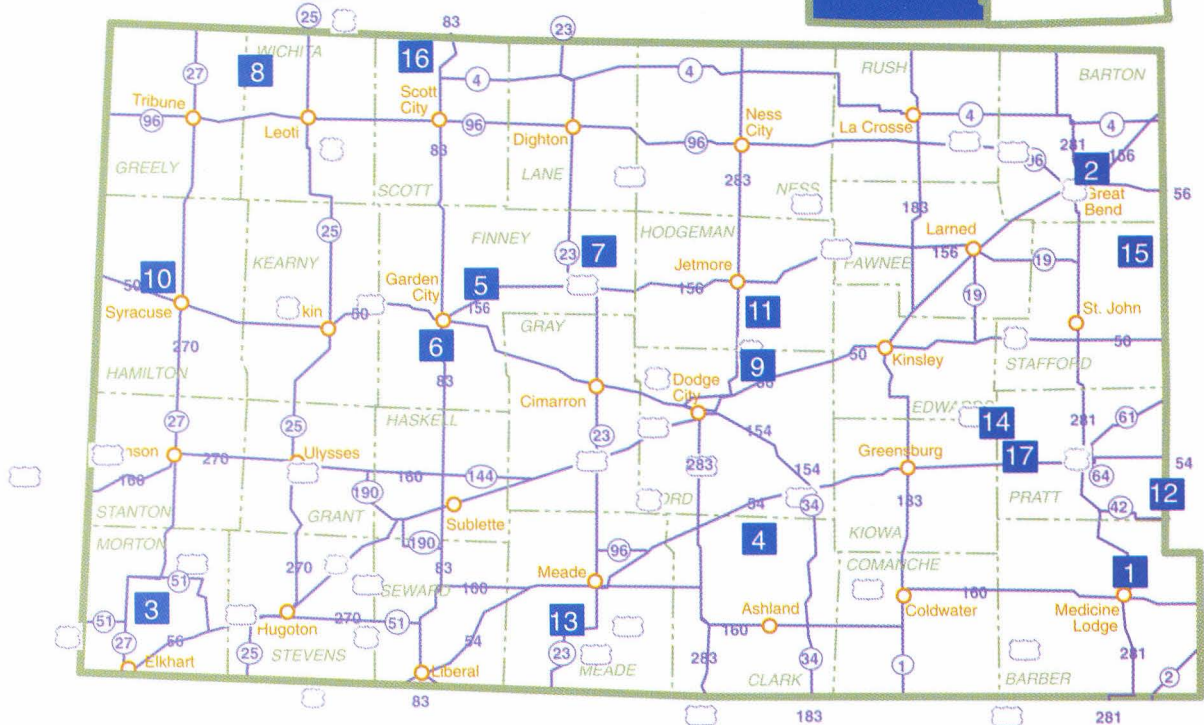
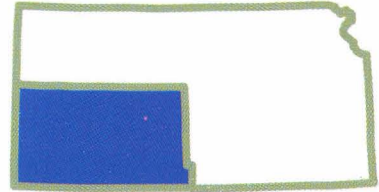
Region 2



- 1 Atchison State Fishing Lake and Wildlife Area -- 179 acres**
3 miles north, 2 miles west and 1/2 mile north of Atchison -- Pheasant, quail, turkey, deer, rabbit, waterfowl, squirrel and furbearers. *(East edge of lake to east property line is closed to hunting.)*
- 2 Brown State Fishing Lake and Wildlife Area -- 189 acres**
8 miles east of Hiawatha -- Pheasant, quail, rabbit, waterfowl, dove and furbearers. *(Hunting is allowed from November 1-March 1 on Thursday, Saturday and Sunday only.)*
- 3 Clinton Wildlife Area -- 9,190 acres**
8 miles west of Lawrence -- Deer, turkey, rabbit, quail, dove, squirrel, waterfowl, raccoon, coyote and bobcat. *(500-acre refuge area on upper arm of Wakarusa River.)*
- 4 Douglas State Fishing Lake -- 538 acres**
1 mile north and three miles east of Baldwin City -- Squirrel, rabbit, deer, turkey, coyote, bobcat, quail and waterfowl.
- 5 Geary State Fishing Lake and Wildlife Area -- 195 acres**
10 miles south of Junction City off Highway 77 -- Quail, pheasant, dove, rabbit, waterfowl and deer. *(No hunting is permitted on the dam, on the lake nor on any of the developed or undeveloped areas north and northeast of the lake.)*
- 6 Hillsdale State Park and Wildlife Area -- 4,500 acres**
15 miles south of Olathe on Highway 169, 3 miles west on 255 St. -- Deer, rabbit, quail, dove, waterfowl, coyote, bobcat, squirrel and raccoon.

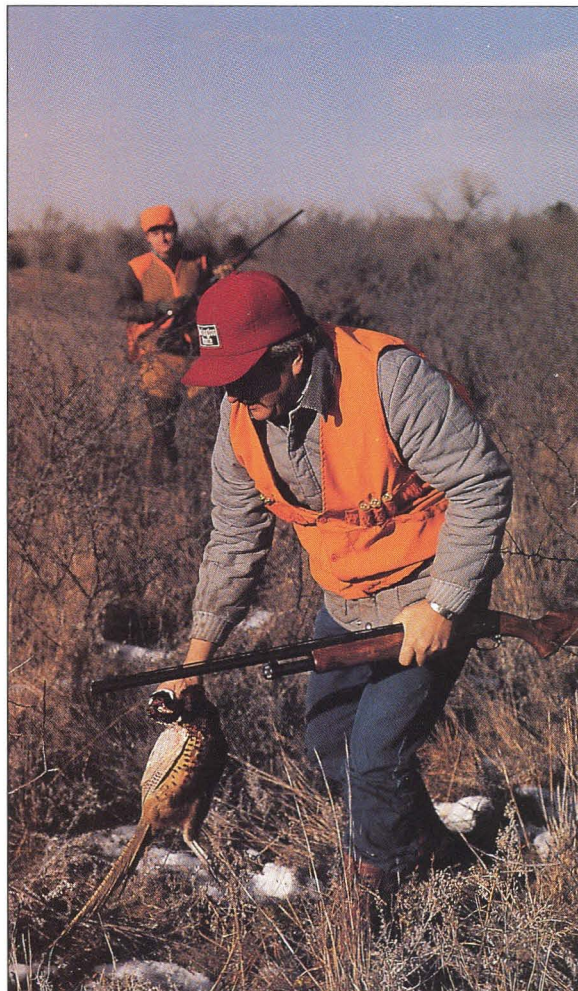
- 7 Jeffery Energy Center** -- Unit 1, 1,400 acres and Unit 2, 5,000 acres
3 miles north of St. Marys on Highway K-63 and 3 miles west -- Quail, pheasant, prairie chicken, rabbit, dove, deer, turkey and waterfowl. (*Unit 1 is open to the public, Unit 2 access is limited and requires a special permit available at front gate to the center. Shotguns, muzzleloaders and archery hunting only. Trapping and hunting of coyotes and furbearers is prohibited. Waterfowl hunters will be assigned specific blinds.*)
- 8 Leavenworth State Fishing Lake** -- 376 acres
3 miles north and 2 miles west of Tonganoxie on Highway 90 -- Squirrel, rabbit, deer, turkey, coyote, bobcat, quail and waterfowl. (*Waterfowl hunting is allowed on two arms of the lake, refuge areas closed year-round.*)
- 9 Louisburg-Middle Creek State Fishing Lake** --500 acres
7 miles south of Louisburg -- Deer, rabbit, quail, dove, waterfowl, coyote, bobcat, squirrel and raccoon. (*Shotgun and archery hunting only.*)
- 10 Miami State Fishing Lake** -- 267 acres
8 miles east and 5 miles south of Osawatomie -- Deer, rabbit, quail, dove, waterfowl, coyote, bobcat, squirrel and raccoon.
- 11 Milford Wildlife Area** -- 18,873 acres
5 miles northwest of Junction City, most of the wildlife area is on the west shoreline of the reservoir and it runs to the north end 8 miles north of Wakefield -- Quail, pheasant, dove, rabbit, prairie chicken, deer, squirrels, coyotes, bobcat, raccoon and waterfowl. (*1,100-acre refuge north and east of Wakefield is closed to any activity. Signs mark the refuge boundary.*)
- 12 Nemaha Wildlife Area** --710 acres
4 1/2 miles south of Seneca on Highway 63 -- Quail, pheasant, rabbit, dove, beaver, raccoon, deer and turkey.
- 13 Perry State Park-Delaware Area** -- 250 acres
Southwest corner of Perry Reservoir on Highway 237, 5 miles north of Highway 24 -- Deer only. (*Archery hunting only.*)
- 14 Perry Wildlife Area** -- 10,984 acres
25 miles northeast of Topeka -- Deer, turkey, rabbit, pheasant, quail, dove, waterfowl, squirrel, coyote, bobcat and other furbearers. (*Two refuge areas closed from Oct. 1-Jan. 15.*)
- 15 Pottawatomie No. 1 Wildlife Area** --190 acres
5 miles north of Westmoreland -- Quail, rabbit, deer, squirrel and raccoon.
- 16 Rutlader Wildlife Area** -- 60 acres
1/2 mile north of Louisburg-Middle Creek SFL, 355 st. and Metcalf -- Deer, rabbit, quail, dove and bobcat. (*Shotgun and archery hunting only.*)
- 17 Shawnee State Fishing Lake** -- 608 acres
7 1/2 miles north of Silver Lake -- Prairie chicken, pheasant, quail, dove, beaver, muskrat and deer. (*Open to shotgun and archery hunting only Dec. 1 through Jan. 31. Closed to any hunting the remainder of the year.*)
- 18 Tuttle Creek Wildlife Area** -- 12,200 acres
22 miles north of Manhattan on Highway 77 -- Quail, pheasant, prairie chicken, rabbit, dove, coyote, raccoon, bobcat muskrat, beaver, mink, deer, turkey and waterfowl.
- 19 Washington State Fishing Lake and Wildlife Area** -- 457 acres
12 miles north of Washington -- Turkey, quail, pheasant, dove, rabbit, waterfowl and deer. (*Developed areas east of the lake are closed to hunting.*)

Region 3



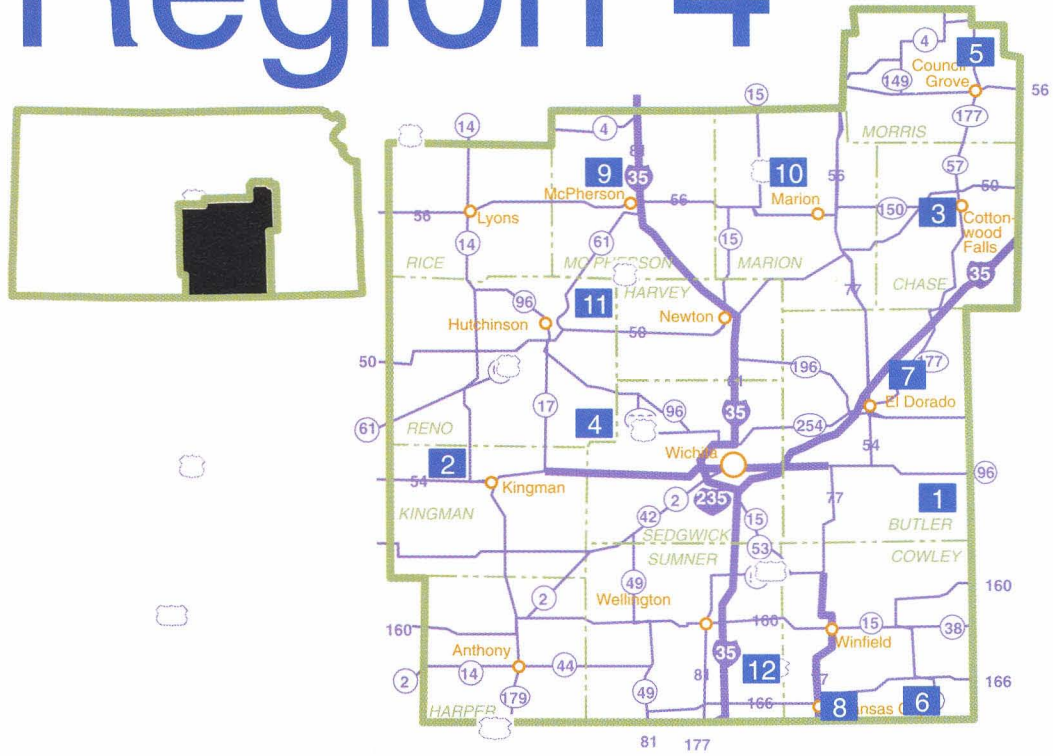
- 1 Barber Wildlife Area -- 179 acres**
 Upper end of Barber State Fishing Lake, northern edge of Medicine Lodge -- Quail, dove, squirrel, rabbits and deer. (*Deer hunting with archery equipment only. Shotguns are the only firearms allowed.*)
- 2 Cheyenne Bottoms Wildlife Area -- 19,857 acres**
 5 miles north and 2 miles east of Great Bend -- Waterfowl, pheasant, rabbit, bobcat, coyote, raccoon and deer. (*On weekends and holidays, permits are required to hunt in the blind areas. Steel shot is required for all shotgun hunting. Rules for certain areas change seasonally, so check with the area office before hunting.*)
- 3 Cimarron National Grasslands -- 108,000 acres**
 Morton County near Elkhart -- Bobwhite and scaled quail, pheasant, lesser prairie chicken, doves, deer, raccoon, bobcat, coyote and prairie dog. There is also a very limited elk season, with two to four permits issued each year. (*In portions of the Cimarron River corridor, travel is restricted to roads marked for driving. In the recreation area, camping is allowed only on designated sites.*)
- 4 Clark Wildlife Area -- 700 acres**
 9 miles south and 1 mile west of Kingsdown -- Deer, turkey, quail, dove, rabbit, bobcat, coyote and raccoon. (*Waterfowl hunting is prohibited on the state fishing lake.*)
- 5 Concannon Wildlife Area -- 800 acres**
 18 miles east of Garden City on Highway 156 -- Waterfowl, pheasant, dove, rabbit, coyote and deer. (*Walk-in traffic only.*)

- 6 Finney County Buffalo Refuge -- 670 acres**
 1/2 mile south of Garden City -- Pheasant, dove, rabbit, coyote and deer. *(Because the buffalo herd is rotated from pasture to pasture, certain portions of the area are closed to hunting at various times. Contact the area office, (316) 276-8886, or the regional office, (316) 227-8609, for more information. Walk-in traffic only.)*
- 7 Finney State Lake and Wildlife Area -- 863 acres**
 8 miles north and 3 miles west of Kalvesta -- Pheasant, dove, rabbit, coyote and deer.
- 8 Greeley County Wildlife Area -- 900 acres**
 8 miles north, 5 miles east, 2 miles north and 1/2 mile east of Tribune -- Pheasant, rabbit, dove, coyote and deer. *(No shooting within a 10-acre area around the house. Fences and boundary signs may not yet be established. Before hunting, contact the Lake Scott State Park Office, (316) 872-2061, or the regional office, (316) 227-8609.)*
- 9 Hain Wildlife Area -- 53 acres**
 5 miles north and 2 1/4 miles east of Wright off Highway 283 -- Waterfowl and dove.
- 10 Hamilton Wildlife Area -- 432 acres**
 3 miles west and 4 miles north of Syracuse -- Pheasant, dove, rabbit, deer, quail and turkey.
- 11 Hodgeman Wildlife Area -- 254 acres**
 3 miles east and 2 miles south of Jetmore -- Pheasant and quail. *(Walk-in traffic only.)*
- 12 Isabel Wildlife Area -- 200 acres**
 8 miles east of Sawyer -- Waterfowl, pheasants, quail, dove, rabbit, squirrel, deer, raccoon and coyote. *(Steel shot for all shotgun hunting.)*
- 13 Meade State Fishing Lake and Wildlife Area -- 420 acres**
 8 miles south and 5 miles west of Meade -- Pheasant, quail, dove, deer, turkey, rabbit and some waterfowl.
- 14 Pratt Sandhills Wildlife Area -- 4,757 acres**
 5 miles west and 7 miles north of Cullison -- Quail, pheasant, lesser prairie chicken, dove, turkey, deer, coyote, squirrel, rabbit, bobcat and raccoon.
- 15 Quivira National Wildlife Refuge -- 8,000 acres**
 13 miles north Stafford -- Waterfowl, pheasant, quail. *(Call refuge office for more information -- (316) 496-2393.)*
- 16 Scott Wildlife Area -- 160 acres**
 12 miles north of Scott City -- Deer, squirrel and quail. *(No hunting allowed immediately adjacent to the state fishing lake. Area open to hunting marked with public hunting signs.)*
- 17 Texas Lake Wildlife Area -- 1,040 acres**
 4 miles west and 1 mile north of Cullison -- Waterfowl, pheasant, quail, deer, rabbit, squirrel and dove. *(Steel shot required for all shotgun hunting.)*



Mike Blair photo

Region 4



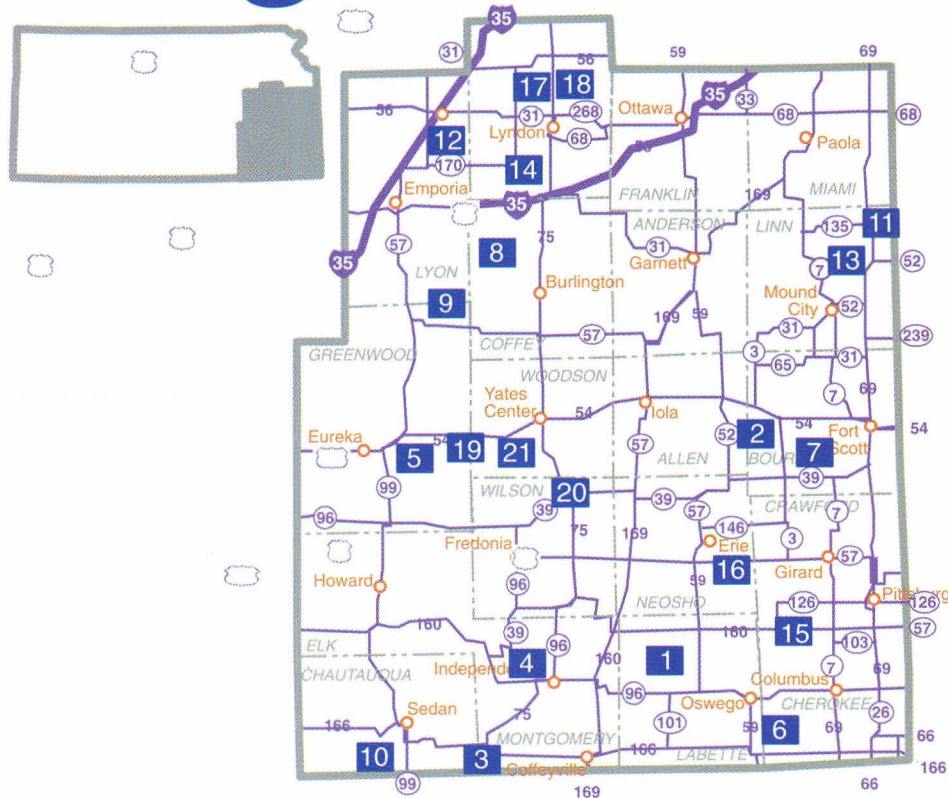
- 1 Butler State Fishing Lake And Wildlife Area -- 196 acres**
 3 miles west and 1 mile north of Latham -- Quail, waterfowl, rabbit, dove, prairie chicken, deer, turkey, squirrel and raccoon.
- 2 Byron Walker Wildlife Area -- 4,462 acres**
 7 miles west of Kingman -- Pheasant, quail, deer, dove, turkey, woodcock, waterfowl, rabbits and squirrel. (*Opening day youth dove hunt by reservation. No shooting zones around headquarters, bison pen, and eastern 1/2 of the state fishing lake. Contact area office for more information -- (316) 532-3242.*)
- 3 Chase State Fishing Lake And Wildlife Area -- 452 acres**
 1 1/2 miles west of Cottonwood Falls -- Quail, deer, waterfowl and prairie chicken. (*South Flint Hills Unit permit required for dark goose hunting.*)
- 4 Cheney Wildlife Area and State Park -- 9,887 acres**
 7 miles east of Pretty Prairie -- Pheasant, rabbit, dove, waterfowl, quail, deer, turkey, squirrel, coyote, bobcat, raccoon and red fox. (*Goose refuge marked, closed to all activities throughout fall and winter. Small area in the state park posted open to hunting with shotgun and archery only.*)
- 5 Council Grove Wildlife Area -- 2,638 acres**
 5 miles northwest of Council Grove -- Quail, pheasant, waterfowl, deer, turkey, rabbit, squirrel, dove, prairie chicken, raccoon, bobcat and coyote. (*Central Flint Hills Unit permit required to hunt dark geese.*)
- 6 Cowley State Fishing Lake and Wildlife Area -- 200 acres**
 16 miles east of Arkansas City on Highway 166 -- Quail, deer, rabbit, squirrel and waterfowl.



Mike Blair photo

- 7 El Dorado Wildlife Area and State Park -- 4,632 acres**
2 miles east and 1 mile north of El Dorado -- Turkey, quail, pheasant, prairie chicken, deer, waterfowl, dove, squirrel, rabbit, bobcat, raccoon and woodcock. *(Handicapped accessible waterfowl hunting blind by reservation. Portion of state park posted open to public hunting, vehicle permit required for this area. South Flint Hills Unit permit needed for dark goose hunting.)*
- 8 Kaw Wildlife Area -- 4,341 acres**
1 mile southeast of Arkansas City -- Quail, dove, waterfowl, deer, turkey, rabbit, squirrel, woodcock and bobcat.
- 9 McPherson Valley Wetlands Wildlife Area -- 1,500 acres**
2 miles north and 1 mile east of Conway -- Waterfowl, pheasant, snipe, and rail. *(Steel shot only for all species. Other restrictions are being considered. Contact the Council Grove Unit Office -- (316) 767-5900.)*
- 10 Marion Wildlife Area -- 4,022 acres**
2 miles south and 2 miles east of Durham -- Pheasant, geese, deer, quail, turkey, dove, rabbits, squirrel, raccoon and coyote.
- 11 Sandhills State Park -- 800 acres**
3 miles northeast of Hutchinson -- Quail, pheasant, archery deer and fall archery turkey. *(Hunting by permit only. Application deadline for permit drawing is September 1. Contact Cheney State Park for more information -- (316) 542-3664.)*
- 12 Slate Creek Wildlife Area -- 667 acres**
6 miles south and 1 1/2 miles west of Oxford -- Waterfowl, pheasant, quail, deer, rabbits, dove, squirrel, turkey, woodcock, snipe and rail. *(Hunting by permit only from early muzzleloader deer season through the upland bird season. Application deadline for drawing is September 1. Hunting without a permit is allowed for legal species after upland bird seasons until the early muzzleloader deer season. Steel shot required for all shotgun hunting.)*

Region 5



- 1 Big Hill Wildlife Area** -- 1,320 acres
 8 miles west and 4 miles south of Parsons -- Quail, deer, turkey, rabbit, squirrel and waterfowl hunting on area ponds. *(Southeast Unit Permit required to hunt dark geese.)*
- 2 Bourbon State Fishing Lake and Wildlife Area** -- 277 acres
 4 1/2 miles east of Elsmore -- Quail, deer, turkey, squirrel and waterfowl.
- 3 Copan Wildlife Area** -- 2,360 acres
 1/2 mile west of Caney -- Deer, turkey, squirrel, waterfowl, quail, rabbit, bobcat and raccoon.
- 4 Elk City Wildlife Area** -- 11,880 acres
 3 miles west of Independence. Waterfowl, deer, quail, turkey, squirrel, rabbit, dove, bobcat and raccoon.
- 5 Fall River Wildlife Area** -- 8,392 acres
 6 miles north and 1 mile east of Severy -- Quail, turkey, deer, dove, squirrel, rabbits, prairie chicken, raccoon, bobcat and waterfowl. *(South Flint Hills Unit permit needed for dark goose hunting.)*
- 6 Harmon Wildlife Area** -- 102 acres
 2 miles north, 1 1/4 miles east and 1 mile south of Chetopa -- Deer, quail, turkey, rabbits, squirrel and waterfowl. *(Southeast Unit Permit required to hunt dark geese.)*
- 7 Hollister Wildlife Area** -- 2,432 acres
 6 miles west and 2 miles south of Fort Scott -- Quail, deer, prairie chicken, turkey, dove, coyote and bobcat. *(3 day/week dove hunts on Tuesday, Thursday, and Saturday; contact Crawford State Park -- (316) 362-3671.)*

- 8 John Redmond Wildlife Area (Otter Creek Arm)** -- 1,472 acres
4 miles west and 2 miles north of Burlington -- Quail, waterfowl, deer, dove, turkey, squirrel and rabbit. (*Steel shot only area for all shotgun hunting.*)
- 9 Flint Hills National Wildlife Refuge** -- 7,500 acres
15 miles southeast of Emporia -- Waterfowl, quail, deer, turkey, rabbits and squirrel. (*Steel shot only for all species, no centerfire rifles or pistols. Refuge rules vary by location; contact the Flint Hills National Wildlife Refuge -- (316) 392-5553.*)
- 10 Hulah Wildlife Area** -- 844 acres
Scattered tracts east and west of Elgin -- Deer, turkey, squirrel, quail, bobcats and raccoon.
- 11 La Cygne Lake and Wildlife Area** -- 4,080 acres
5 miles east of La Cygne -- Quail, rabbit, squirrel, turkey, deer and late season waterfowl. (*Permit required for dark goose hunting. Shotgun, .22 rifle, archery, and muzzleloader hunting only.*)
- 12 Lyon State Fishing Lake and Wildlife Area** -- 562 acres
5 miles west and 1 mile north of Reading -- Quail, deer, rabbit, squirrel and waterfowl. (*Central Flint Hills Unit permit required to hunt dark geese.*)
- 13 Marais des Cygnes Wildlife Area** -- 7,235 acres
5 miles north of Pleasanton -- Waterfowl, squirrel, turkey, deer, rabbits and quail. (*Steel shot only for all species. Marais des Cygnes Valley Unit permit required for dark goose hunting. Waterfowl hunters must obtain permit at the area headquarters or check station before hunting.*)
- 14 Melvern Wildlife Area** -- 10,407 acres
4 miles north of Lebo -- Quail, deer, waterfowl, squirrel, rabbit, dove and turkey. (*Central Flint Hills Unit Permit required to hunt dark geese. Refuge closed to all activities from October 21-January 15 each year.*)
- 15 Mined Land Wildlife Area** -- 14,028 acres
Crawford and Cherokee Counties -- Deer, quail, turkey, dove, waterfowl, rabbits, squirrels and coyotes. (*Southeast Unit Permit required to hunt dark geese. Contact Mined Land Wildlife Area for other restrictions-- (316) 231-3173.*)
- 16 Neosho Wildlife Area** -- 3,975 acres
1 mile east of St. Paul -- Waterfowl, deer, quail, squirrel, turkey, rail and snipe. (*Closed to dark goose hunting. Steel shot only for all shotgun hunting. Waterfowl hunters must obtain permit from area headquarters or check station before hunting. Contact area office for more information -- (316) 449-2539.*)
- 17 Osage State Fishing Lake and Wildlife Area** -- 480 acres
10 miles south of Topeka -- Quail, rabbit, deer, dove, squirrel and waterfowl. (*Open to hunting November 1-March 1. Shotgun and archery only.*)
- 18 Pomona Reservoir Area** -- 3,600 acres
17 miles west of Ottawa -- Deer, squirrel, rabbit, dove, quail, waterfowl, coyotes and bobcats.
- 19 Toronto Wildlife Area** -- 3,981 acres
1 mile west of Toronto -- Quail, deer, turkey, waterfowl, prairie chicken, rabbit, dove and raccoon. (*South Flint Hills Unit permit required for dark goose hunting.*)
- 20 Wilson State Fishing Lake and Wildlife Area** -- 90 acres
1 mile south of Buffalo -- Quail and rabbit.
- 21 Woodson State Fishing Lake and Wildlife Area** -- 2,400 acres
5 miles east of Toronto -- Quail, deer, turkey, prairie chicken, rabbit, waterfowl, squirrel, dove and raccoon. (*South Flint Hills Unit permit required for dark goose hunting.*)

Kansas Department of Wildlife and Parks Offices

Office Of The Secretary

900 SW Jackson, Suite 502
Topeka, KS 66612
(913) 296-2281

Region 2

3300 SW 29th
Topeka, KS 66614
(913) 273-6740

Region 5

1500 W. 7th
P.O. Box 777
Chanute, KS 66720
(316) 431-0380

Operations Office

Rt. 2, Box 54A
Pratt, KS 67124
(316) 672-5911

Region 3

808 McArtor Rd.
Dodge City, KS 67801
(316) 227-8609

Kansas City Office

9539 Alden
Lenexa, KS 66215
(913) 894-9113

Region 1

P.O. Box 338
U.S. 183 Bypass
Hays, KS 67601
(913) 628-8614

Region 4

8420 N. Broadway
P.O. Box 317
Valley Center, KS 67147
(316) 755-2711

Emporia Investigative Office

1830 Merchant
Emporia, KS 66801
(316) 342-0658

Unit Offices

Cedar Bluff/Webster/Norton (913)726-3212
Cheney Unit (316) 542-3664
Cheyenne Bottoms Unit (316) 793-7730
Clinton Unit (913) 842-8562
Council Grove Unit (316) 767-5900
Crawford Unit (316) 362-3671
Eisenhower/Pomona Unit (913) 528-4102
El Dorado Unit (316) 321-7180
Elk City Unit (316) 331-6295
Glen Elder Unit (913) 545-3345
Hillsdale Unit (913) 783-4507
Lovewell Unit (913) 753-4305
Marais des Cygnes Unit (913) 352-8941
Meade Unit (316) 873-2572
Milford Unit (913) 238-3014

Mined Land Unit (316) 231-3173
Perry Unit (913) 246-3449
Scott Unit (316) 872-2061
Toronto/FallRiver Unit (316) 637-2213
Tuttle Creek Unit (913) 539-7941
Wilson/Kanopolis Unit (913) 658-2465
Kanopolis State Park (913) 546-2565
Pomona State Park (913) 828-4933
Prairie Dog State Park (913) 877-2953
Webster State Park (913) 425-6775

Federal Offices

Cimarron National Grasslands (316) 697-4621
Flint Hills National Wildlife Refuge (316) 392-5553
Kirwin National Wildlife Refuge (913) 543-6673
Quivira National Wildlife Refuge (316) 486-2393

Homegrown Walleye

by Marty Burke

wildlife information representative, Topeka

photos by Mike Blair

Young walleye have trouble surviving in some older eastern-Kansas reservoirs, so a project was developed to give the popular game fish a head start before stocking them.

The thought of walleye fillets in the frying pan is enough to send most Kansas fishermen into a feeding frenzy. Although frequently associated with northern waters, the walleye has found its way into the hearts and stomachs of Sunflower State anglers. Walleye are members of the perch family and can be found in Kansas reservoirs. With a sleek, slender body and a mouth full of prominent teeth, the walleye is highly sought as a game fish.

Walleye may have been present historically in eastern Kansas rivers but disappeared soon after settlement. Attempts to introduce the fish to Kansas waters were unsuccessful until the construction of large federal reservoirs in the 1950s. Walleye proved to be surprisingly tolerant of the warm, turbid water in Kansas reservoirs and grew faster than their northern counterparts. Early walleye stockings in Kirwin and Webster reservoirs quickly produced strong walleye populations, and similar results were anxiously noted in other new impoundments around the state.

Kansas fisheries biologists quickly developed techniques to collect walleye eggs and distribute young fish to the other waters. Successive stockings produced regular year classes of walleye in new reservoirs, which thrived with abundant food supplies and lack of competition from other species.

Problems began to occur as the reservoirs aged and fishing pressure and natural mortality depleted the initial supply of walleye. Flood control



After being fin clipped for future identification, a 6-month old walleye is ready for Melvern Reservoir. Nearly 10 inches long, the fish's chance for survival is very good.

operations on the more eastern lakes flushed fish downstream and reduced reproductive success. Fluctuating water levels exposed eggs and fry, and excessive turbidity covered spawning areas with silt. As other fish became established, competition for food and loss of young walleye to predators also limited walleye survival.

Melvorn Reservoir in east-central Kansas followed a common pattern. Walleye stockings from 1973 through 1975 along with staged filling of the reservoir produced an excellent walleye fishery, that continued until the early 1980s. However, biologists found that as fishing pressure and natural mortality reduced walleye numbers, few young walleye were surviving to take their place. Several strategies were developed to offset this trend.

Renewed stocking of walleye fry

met with limited success as young fish were affected by the same factors that limited natural replenishment. Water level manipulation to improve spawning and nursery conditions was limited by flood control operations and other reservoir uses. Stocking fingerling walleye failed to produce positive results as many of these fish were eaten by other predators.

To fisheries biologist Leonard Jirak, an obvious way to get past the bottleneck of first-year survival was to stock larger fish. Stocking larger channel catfish had provided a dependable method to offset low natural survival, and Jirak wondered if that the same thing might work with walleye. Unfortunately, techniques to raise larger walleye had not been developed.

Jirak wanted to create conditions similar to a new reservoir: a protected environment free from com-

petition with an extensive food supply. The technique to produce larger walleye was tested by building an 11-acre rearing pond at John Redmond Reservoir with assistance from the U.S. Army Corps of Engineers (Corps). Several adjustments were made, and the process was made more cost-effective by raising forage fish on site as a food supply.

Based on his years of experience at John Redmond, Jirak set out to improve the walleye fishery in Melvern Reservoir. A 30-acre swimming lake below the dam seemed to have potential as a walleye rearing facility, so Jirak contacted Melvern Corps project manager Mack Carlisle with the idea. Together they decided to drain the lake to improve water quality and check the potential for fish production.

Further investigation showed the swimming lake to be a good candidate for a walleye rearing facility. Being below the dam, there was only a small drainage to deal with. A fresh water supply line from the main reservoir was already in place, providing excellent water quality. Walleye propagation would not interfere with the existing use of the lake for swimming, and draining and refilling the lake would actually improve water quality.

At this point the Kansas Walleye Association (KWA) demonstrated an interest in the project. Founders Dan and Marlene Norris of Berryton were looking for a way to get the KWA directly involved in improving walleye fishing in the state. KWA members were well aware of Melvern's deteriorating walleye fishery, so the Norris' decided this was just the type of project they had been looking for.

Jirak, Carlisle and the Norris' decided to pool their resources. The Corps agreed to provide construction equipment and manpower. KWA agreed to provide \$5,000 in materials, and Wildlife and Parks would supply the fish, feed and technical support for the project.

The first step was to design a facility that would drain completely and allow collection of the walleye with minimal stress to the young fish. The bottom of the swimming lake was shaped to allow even drainage. An outlet and fish collection structure were constructed by the Corps and



The walleye rearing project required the cooperative effort of the Army Corps of Engineers, the Kansas Walleye Association and the Department. Here, members from each party gather for the harvest.

a 1,500-foot water line was installed to provide fresh water to the collection structure during harvest. Spawning habitat and an automatic feeder were installed. An inlet screen was added to prevent fish from entering the lake as it filled.

The modified swimming and rearing pond was now ready to produce walleye. The lake was filled in the spring of 1991 and 400 pounds of adult fathead minnows were stocked. In May, 6,500 fingerling-size walleye were stocked in the rearing lake. With a ready food supply, the hungry walleye grew an average of an inch a week for the first five weeks.

The rearing facility was monitored through the summer, and by August the supply of minnows had been exhausted. Due to the dual function of the lake, harvest of the young walleye was delayed until after the swimming season and the water temperature had cooled to 60 degrees. After draining the lake for about two weeks, the walleye were ready to be moved to the reservoir on September 21.

At first light, Corps staff, Wildlife and Parks biologists and about 50 volunteers from the KWA gathered at the outlet to witness the results of their efforts. The walleye were 8 to 10 inches long, and survival appeared good. Although 4,070 were ultimately released, slightly more than half failed to reach the collection

structure. Those collected at the outlet were fin clipped so biologists could monitor their survival in the main lake. The remaining fish had to be picked up by hand and transported to the reservoir by truck. A tired, cold and muddy group watched the last of the homegrown walleye disappear into Melvern Lake.

Early sampling indicates that fish from the rearing pond make up the majority of the 1991 crop of walleye. With an 18-inch length limit, the walleye should reach catchable size in two years. Until then, the smaller fish will provide catch and release fishing opportunities.

Improvements for the future include filling and grading of low spots in the rearing pond to allow more efficient collection of walleye and development of a minnow rearing impoundment. The increased food supply should result in the eventual production of 8,000-10,000 walleye each year.

The Kansas Walleye Association has been successful in securing grants from the Fish America Foundation and the U.S. Fish and Wildlife Service to offset the cost of the additional improvements. With the initial success of the Melvern project, plans are underway to produce home grown walleye at Yates Center City Lake and several other locations.

WILD CURRENTS

letters

Edited by Mark Shoup

Young Writer Praised

Editor:

I enjoyed reading "When Thunder Rolls," about Kansas thunderstorms, in the May/June issue of KANSAS WILDLIFE AND PARKS (Page 2). I hadn't read the byline before I started reading the article, so I was surprised to read at the end of the article that it had been written by 12-year-old Jennie Blair of Pratt. She is to be commended on her well-written, informative article.

You have an excellent magazine, and the photography is outstanding.

Joan Perez
Humboldt

Deer "Grass"

Editor:

I own a field near Lake Inman that has a nice woodlot and a creek running through it. I want to plant two or three acres near the creek into grass for deer and other wildlife.

I have been told that there is a grass that attracts deer. Where could I purchase it?

Marvin J. Neufeldt
Inman

Dear Mr. Neufeldt:

I don't know of any grass that might be especially attractive to deer, but red clover might do the trick. Also, there are a number of clover seed mixtures on the market designed to attract deer. Check with your local CO-OP or seed dealer for sources. --
Shoup

Hunter Reacts to Landowner

Editor:

I talked with a landowner a couple of years ago from Wallace, Ks., about hunting on his land. He gave my buddy and me permission to hunt antelope there. He also took time to show

us around and really treated us like long-time friends.

Now, because of a disagreement with Wildlife and Parks, the landowner wants to stop hunting on his land and is also asking his neighbors to do the same.

As a concerned hunter, I think Wildlife and Parks needs to resolve the problem with landowners so they don't feel that they are getting the short end of the stick. It is very hard for a hunter to gain permission, so when we have landowners like this one, gracious enough to permit hunting on their land, they should be treated with understanding and respect.

Danny Ewing
Hutchinson

Dear Mr. Ewing:

You don't say what the disagreement between the landowner and our agency was, so I really can't address the problem. However, I will make a statement about our relationship with Kansas landowners.

Many landowners buy licenses and permits, subscribe to KANSAS WILDLIFE AND PARKS, and are constituents of the department just like you. We want to provide our constituents information, education and any service they require concerning our natural resources and outdoor recreation.

But landowners are also part of a special group in Kansas. Because 97 percent of our state is privately owned, we understand that wildlife and all other facets of natural resources and recreation depend on private land stewardship. We have long provided benefits and assistance to landowners, such as half-price permits, reservation of 50 percent of permits in certain units, guaranteed permits, cost-sharing programs for habitat improvement, root plows, free fish for pond stocking, free technical assistance and more.

Unfortunately, we will have some conflicts with individuals over certain issues. We regret any of these.

I encourage you to contact your landowner friend and urge him to communi-

cate with department staff. Closing his land to hunting punishes you and others who may hunt but does little to solve the problem. As with most problems, open communication is the key to a solution. --Miller

Length Limit Objection

Editor:

Your magazine is very well done, with interesting articles on subjects pertaining to hunting and fishing in Kansas, as well as articles pertaining to the plants, birds and animals that we enjoy for other reasons. The photography is outstanding.

With that said, I want to voice my strong objection to the length limit on crappie at Melvern, Perry and Pomona reservoirs. One weekend, I observed seven crappie caught at Pomona within an hour. Only one was legal length, and the other six were released by fishermen who attempted to remove the hook carefully but found it impossible to do so. Within minutes, four of those fish were floating dead in front of me.

I also object to the length limits on other species not being consistent at all lakes. If length limits are necessary, and I realize they sometimes are, I favor them because they will improve our fishing. But different length limits on the same species dependent on which lake you are fishing is confusing, inconsistent and unnecessary.

However, because we do enjoy fishing, hunting and other aspects of the great outdoors that are available to us in Kansas, I will continue to support the regulations and laws of the department.

James E. Richards
Wellsville

Dear Mr. Richards:

I appreciate your concern for the natural resources of Kansas. Ironically, the regulations you object to are designed to enhance those very resources. It has been proven that on some reservoirs, 10-inch length limits on crappie significantly increase the size of harvestable fish. Fisher-

men are just now beginning to reap the benefit of this regulation.

Unfortunately, a few fish will die when they are caught and released. Despite the isolated instance you recall, the percentage of catch-and-release fish that die is really quite low. If it were not, the practice of catch and release bass and trout fishing would not be as successful as it is. The key is in the handling of the fish. Bass and trout fishermen have long been aware of the need to handle fish gently and ease them back into the water to make sure they survive. The 1992 Kansas Fishing Guide has a section on handling fish, which every angler should read.

Your objection to different length limits on different lakes is more complicated. Essentially, these differences exist because biology and fishing pressure are different on each lake. Some lakes are much more fertile than others, causing fish to grow at different rates. Length limits on a low-fertility lake, for instance, could cause the lake to stockpile smaller fish. On other lakes, high fishing pressure may make length limits necessary to allow a good number of fish to grow to harvestable size.

We appreciate your concern and interest in the resources you so enjoy. Our objective is to enhance that resource as much as possible. Sometimes this can be complicated, but I think most anglers enjoy the results. --Shoup

Reciprocal License

Editor:

I am a 68-year-old Kansas resident, and I have come up with an idea I'd like to pursue.

Like many senior adults, I do a great deal of travelling around this country. And like many other Americans, I'm an avid fisherman. Consequently, I'm always getting frustrated in my attempts to legally fish. As you're probably aware, a person needs a fishing license in order to fish. Getting a fishing license in every state you visit can be kind of a problem -- especially finding where and how to obtain one.

My idea is simple -- a national fishing license that enables a person to fish in any state. This would not be a free license -- though it would be nice to have a special rate for senior adults. But I, and many others I've

talked to, would be glad to pay for the convenience. Perhaps the licenses could be sold by the states along with the state licenses, with each state keeping the revenue raised from its own citizens. Other states would subsequently profit from the dollars spent visiting out-of-state fishermen.

I don't know how many reciprocal arrangements exist between states, but this seems to be something that should be done at the federal level.

Ed Lee
Olathe

Oklahoma Reader

Editor:

I have been a contributor to the "Chickadee Checkoff" program since it began, and I like the eagle poster [sent free to all contributors].

Although we have lived in Tulsa for 20 years, at heart I'll always be a Kansan. I'm so very proud to share KANSAS WILDLIFE AND PARKS magazine with my Oklahoma friends. My copy ends up at the Tulsa Zoo where many of the wonderful articles are used by the education department.

The photography is fantastic.

Carmen N. Miller
Tulsa, Oklahoma

Dear Ms. Miller:

Thanks for the compliment. It's good to know that the magazine reaches so far beyond our paid subscribers. In fact, your story supports research showing that for every subscriber, another five people actually read the magazine. With a current subscription rate of nearly 35,000, that means we reach approximately 175,000 people with our information about Kansas wildlife and natural resources. --Shoup

Thanks For the Mag

Editor:

Along with our renewals, I must comment on your fine publication. Our son in Illinois and our son-in-law in Oklahoma enjoy your articles and especially the excellent photography of Mike Blair.

Our first subscription was given to us by our son, Dean. Dean's sons, now five and six, also enjoy our magazines because they love wildlife and are pretty good fishermen already.

We thank you for the many hours of enjoyment and information.

Charles and Thelma Baum
Leoti

Don't Exempt Exemptions

Editor:

In the Sunday paper, there was an article about taking free licenses from senior citizens. I don't know what ages the commissioners are, but many senior citizens have been buying hunting and fishing licenses for 40 to 50 years. Now that we don't have to buy a license, someone wants to take that away from us.

Why don't they charge the nonresident and charge them as they do us. If I am not mistaken, the deer permit in Colorado is about \$150 for nonresidents.

We're not asking for much, but most of us are on fixed income and don't get to go often.

Glen E. Stoskoff
Wichita

Dear Mr. Stoskoff:

The issue you raise is a good one. Most people work hard all their lives and feel they should get a break when they retire. However, fishing and hunting license fees are the primary sources of income for the programs that enhance the very resources you and other sportsmen and women enjoy so much. Often, those who have the most time and opportunity to use the resource are those who are retired.

For this reason, some people feel that no one should be exempted from paying \$10 or \$13 for a permit to enjoy their sport for several months. After all, the argument goes, most people think nothing of spending \$10 for an evening at the movies or paying for a myriad of other types of short-term entertainment.

This argument might apply to those under 16, as well, whom we've all witnessed pouring quarters into video games at the local mall on Saturday afternoons. --Shoup

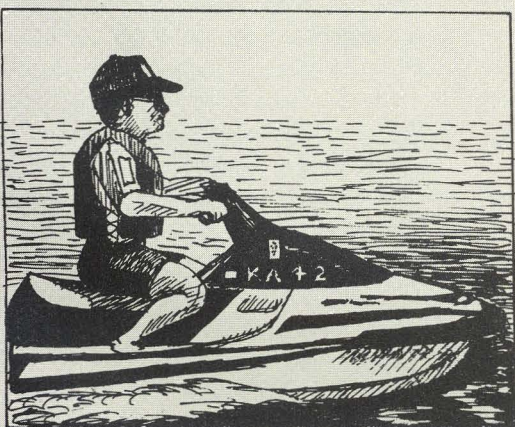
Nonconsumptive Outlaws

For several years, outdoor sportsmen and women have engaged in a concentrated effort to educate and police their own ranks in order to improve their public image. Selective enforcement (a concentrated law enforcement effort in an area of perceived concern) on fishermen at Perry Reservoir last February -- when warm weather brought crappie anglers out of the woodwork -- indicated that these education efforts are working. In two days, nearly 300 fishermen were checked, and only 6 percent were in violation.

Selective enforcement on boaters and park users this summer revealed that similar education efforts may be due among the ranks of these "nonconsumptive" users.

On June 20-21, law enforcement officers with the Kansas Department of Wildlife and Parks checked 126 park goers at Kanopolis State Park. Thirty did not have park permits -- a 24-percent violation rate.

Over the same weekend, officers used two jet skis and one patrol boat to check boaters for fishing licenses. In two days, 133 boats and 90 fishermen were checked. Forty-nine boating citations were written -- nearly a 37 percent violation rate. Three fishing violations were written for a violation rate just over 3 percent. --*Shoup*



Mended Ways

In early May of 1992, conservation officer Bill Ramshaw and I were patrolling the Verdigris River in Montgomery County, looking for fishermen along the river and checking

fishing licenses. We found a parked vehicle, stopped and went down to the river to find the probable fishermen. Two men were fishing from a gravel bar below a riffle, so we checked their licenses.

Both men were cooperative and produced valid fishing licenses. They seemed familiar to us, and in the course of the conversation, one of the men asked if we remembered him. He said that a few years ago, I had caught him fishing without a license and issued him a ticket. He didn't contact the court about the ticket, so a bench warrant had been issued for his arrest. Ramshaw and I had served the warrant and placed him in county jail.

The man said that now he would always have a license. He also said that meeting the officers was sure a lot more pleasant this time than it had been a few years earlier.

As it turned out, Ramshaw had issued the second man a ticket a couple of years ago. He, too, agreed that this meeting was better than the last. He had taken care of the fine and didn't want it to happen again, also allowing that he would always have a fishing license.

Both men were friendly and didn't seem to hold a grudge. They seemed to accept the result of their previous lack of responsibility in not buying licenses. --*Dennis Knuth, conservation officer, Independence*

Forest Poacher

State of Arkansas and federal courts have convicted a Waldron, Ark., man on a variety of illegal hunting charges, fined him and banned him from all hunting and from entering any national forest.

The man was arrested earlier this year during a multi-agency task forces investigation that began in November 1990. He was convicted on state charges of hunting deer from a public road, hunting at night and illegally killing a doe and a buck deer. He was fined \$3,000, given a 60-day suspended jail term and banned indefinitely from all hunting.

Then he went into federal court on charges of illegal night hunting in the Ouachita National Forest. He was given two years probation, fined \$50 and banned from all national forests for two years.

"He is not allowed access to Forest Service property unless he's travelling straight through on a paved state highway," said Russ Arthur, U.S. Forest Service special agent. "It's a pretty stiff penalty when you add his lost hunting privileges. These penalties will be a better deterrent than just invoking a monetary fine. This case is quite significant because it's the first time someone has been banned from the Ouachita National Forest for illegal hunting." --*Arkansas Outdoors*

Footloose

Last November, conservation officer Glen Cannizaro, Tonganoxie, received a message from the Wyandotte County sheriff's office concerning a deer poaching incident. A sheriff's deputy had a suspect in custody at 142nd St. and the Kansas Turnpike, but three other suspects had fled the scene on foot.

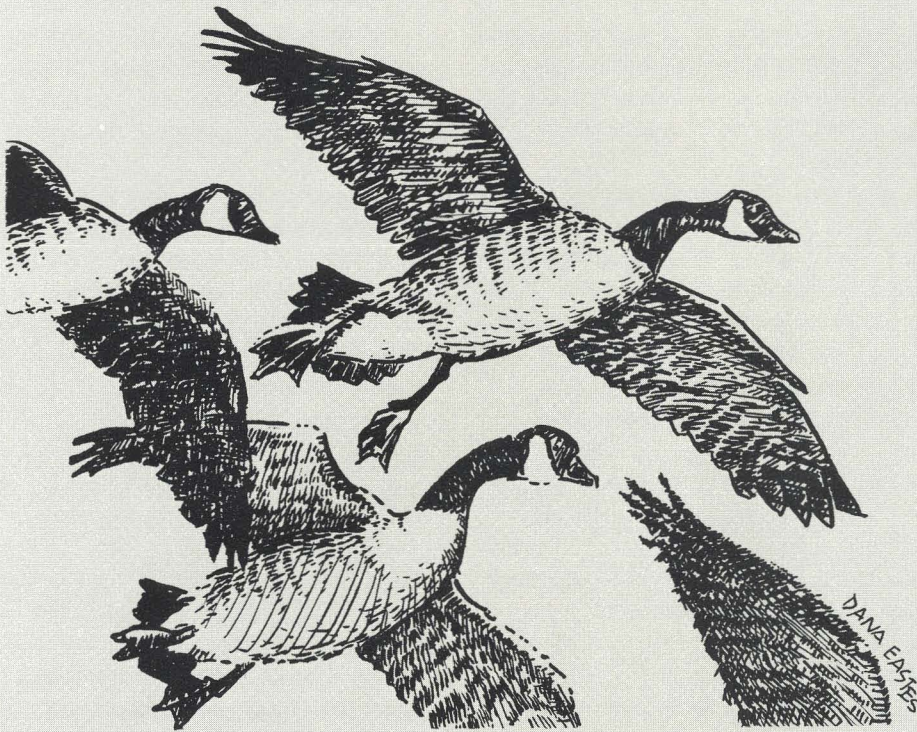
When Cannizaro arrived on the scene, he questioned the suspect in custody, who had also been the driver of the vehicle. The suspect gave permission to search his vehicle, where the footloose fugitives' wallets were located. Armed with information from these wallets, Bonner Springs police were able to stake out the suspects' homes.

Meanwhile, the driver told Cannizaro that they had spotlighted several deer and that they had shot and killed some, then taken the gun back to a vehicle in Bonner Springs. After they had stashed the gun, they had returned to retrieve the poached deer. The three at-large suspects had been in the field when the deputy had stopped.

By this time, other Bonner Springs police had arrived. While the driver took them back to town to locate the hidden gun, Cannizaro searched the field and found two dead deer. Cannizaro then went to the suspects' houses, where they had given up to the Bonner Springs police. The rifle was found, and one man admitted to the actual shooting.

The driver and shooter were each fined \$1,300, given 60-day suspended sentences and lost hunting privileges for one year. The two accomplices were fined \$750 each, \$250 of which was suspended.

Cannizaro credits the Wyandotte County sheriff's department and Bonner Springs police for their efforts to stop poaching. --*Shoup*



New Wildlife Refuge

After more than two years of complex negotiations, The Nature Conservancy (TNC) and the U.S. Fish and Wildlife Service (USFWS) are about to purchase 5,836 acres of land from Pittsburg and Midway Coal Mining Company, a subsidiary of Chevron USA, Inc. The transaction will establish the Marais des Cygnes National Wildlife Refuge in Linn County near the town of Trading Post, about 50 miles south of Kansas City.

Before this agreement, Kansas had three national wildlife refuges -- Flint Hills, Kirwin and Quivira. This fourth refuge, the first in 25 years, protects one of the state's richest concentrations of plants and animals.

Cooperation between the federal government and the private sector appears to be the key to success in this purchase, which will cost \$2.5 million. The USFWS and TNC will share in the initial purchase, with the federal agency taking title to the majority of the property. The remaining land will be purchased by the conservation group and held until the Fish and Wildlife Service can purchase it.

In addition to protecting considerable wildlife habitat, the refuge will add six miles of the Marais des Cygnes River to the public do-

main. This, when combined with the adjacent Marais des Cygnes Wildlife Area (managed by the Kansas Department of Wildlife and Parks) will provide more than 14 contiguous miles of publicly-owned river.

Both wildlife and people stand to gain from the transaction. Not only will the area be a haven for migrating and resident wildlife, it will also provide much-needed sanctuary for species on the federal lists of threatened and endangered species (T&E) and species in need of conservation (SINC). Peregrine falcons, least terns and piping plovers are among those protected species that use the area. The area is also expected to benefit songbirds significantly.

According to David Janes, Denver regional biologist for the USFWS, a variety of management concepts will also be used to provide diverse benefits to the area's human population, as well.

"We'll be working closely with Wildlife and Parks people at Marais des Cygnes Wildlife area to compliment the work done there," says Janes. "Between the two areas, I think we'll be able to do more than either could individually."

Janes notes that one of the first tasks will be to restore bottomland hardwoods, about 50

percent of which were converted to other uses over the years. Tallgrass prairie will also be enhanced. However, this doesn't mean that the new refuge will duplicate efforts on the state's wildlife area.

"We probably won't emphasize management for hunting as much as we'll emphasize management to include hunting," Janes notes. "While the area has tremendous value for migratory waterfowl, there are many other values there."

Interpretive programs will be provided to guide the public through the area, and trails will be developed "as time progresses," notes Janes. The area is also rich in historical interests, which will also be developed. The Ft. Leavenworth to Ft. Scott Military Post Road and the Mine Creek Battlefield -- site of Kansas' largest Civil War battle -- will be additional attractions to the area.

Because boundaries will have to be marked and some abandoned developments secured, it will probably be sometime next year before the Marais des Cygnes National Wildlife Refuge is open to the public. For more information, contact Dave Wiseman, USFWS, (316) 392-5553. --Shoup

EPA, USDA Sign Pact

The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) have signed a memorandum of agreement that aims to cut environmental harm to land and water stemming from pesticides, fertilizer and animal waste. The agreement is said to be significant in that it brings together two agencies that haven't seen eye-to-eye in the past.

The agreement calls for a senior-level interagency task force to develop a detailed agricultural pollution prevention strategy by Oct. 1, 1992, with an emphasis on voluntary action and public and private partnerships.

Four strategies were outlined in draft form that will be fleshed out in the October draft.

The basic goals of the strategy are as follows:

- implementation of a nationwide program to minimize agriculturally-related pollution;
- organization of a comprehensive mar-

keting strategy designed to promote voluntary pollution prevention;

-- evolution of coordinated research, technology development and technology transfer systems that will preserve the environment;

-- and strengthening the relationship between the two federal agencies. --*Land Letter*

Bottoms Honors

At their annual meeting in Montreal, Canada, last year, the American Ornithologist's Union, a scientific organization dedicated to disseminating information about birds, approved a "resolution of commendation" for conservation work at Cheyenne Bottoms Wildlife Area, near Great Bend.

Noting that Cheyenne Bottoms is "one of the five most important shorebird migratory stopover sites in the United States . . . and an important migratory wintering habitat for several species of waterfowl," the organization commended the Western Hemisphere Shorebird Reserve Network, the Save the Bottoms coalition, the State of Kansas and the Nature Conservancy for work accomplished to restore the wetland.

The Western Hemisphere Shorebird Reserve Network was noted for its recognition of the Bottoms "as a Hemispheric Reserve, which has a critical role in hemispheric shorebird migrations." The Save the Bottoms coalition -- a diverse group including the Kansas Audubon Council, Kansas Ducks Unlimited, the Kansas Ornithological Society and the Kansas Wildlife Federation, among others -- was cited for bringing "the importance of this wetland to the national scene." The State of Kansas was recognized for making "significant contributions toward the long-term conservation of Cheyenne Bottoms and funding a multi-million dollar renovation plan to better manage this wetland." The Nature Conservancy, which has purchased more than 5,400 acres of adjacent lands, was also commended for increasing the total area of the basin.

Cheyenne Bottoms Wildlife Area is owned and managed by the Kansas Department of Wildlife and Parks. Because of continued wetland destruction throughout the Midwest, the area's importance to waterfowl and shorebirds increases yearly. In the summer of 1990, renovation work began that will allow area managers to better manage water in the marsh in dry years and reduce flooding of nearby landowners in wet ones.

Money appropriated to date has come from a number of sources: \$2.5-million from the Wetlands Conservation Council (through the North American Waterfowl Management Plan), \$1.6 million from the U.S. Fish and Wildlife Service (USFWS), \$272,000 from Ducks Unlimited, and \$2.5 million from state-appropriated funds.

Work completed or in progress includes creation of a deep-water storage pool in Pool 1, extension of the inlet canal dike to the deep-water storage pool, replacement of a bridge on the inlet canal, creation of a mitigation marsh to replace marsh acres lost in the dike extension, and design of three pump stations and installation of one.

Once the project is completed, one wet year will fill Pool 1A, giving managers the ability to supply at least a minimum amount of wetland acres if drought occurs in the following year. The most important migration stopover for shorebirds in the Western Hemisphere may likely become a viable wetland most years in the future. Such a dependable natural resource would be invaluable to restoring and maintaining the Western Hemisphere's shorebird and waterfowl populations. --*Shoup*

Flint Hills Rail-Trail

Last May, KCT Railway, Inc., donated to the Department of Wildlife and Parks the first major rail-trail corridor in Kansas, a 50-mile stretch running from Ottawa, in Franklin County, through Anderson County and into Iola, in Allen County. Department officials plan to turn the rail line into a multi-purpose trail for all ages of hikers, runners and bicyclers, and possibly horseback riders. Historic sites, wildlife areas and parks will also be connected by the trail.

Federal grants and private donations are being sought to cover development costs.

Under the National Trails System Act, the rail corridor has been "railbanked," a voluntary agreement that essentially keeps the line intact for current and future use in case of national emergency or increased economic demand. In the mean time, the rail-trail will generate tourism for local economies and help support small-town restaurants, sporting goods stores, grocery stores, gift shops, bicycle shops, and bed and breakfast inns.

Currently, 42 states have rail-trails cover-

ing 4,925 miles. Missouri, Colorado, Nebraska and Oklahoma all maintain rail-trails. In fact, Missouri has one of the premier systems, boasting 205 miles open for public use. --

Shoup

Quenchable Quivira ?

According to a Kansas Geological Survey report, stream flow into the Quivira National Wildlife Refuge -- at the junction of Rice, Reno and Stafford Counties -- will continue to decline over the next two decades unless groundwater pumping decreases or precipitation increases. Funded by the U.S. Fish and Wildlife Service, the report is part of an ongoing study of water conditions in and around the refuge.

The refuge, an area of about 21,000 acres that includes the Little Salt Marsh and the Big Salt Marsh, is an important stopping point for migrating waterfowl and shorebirds. It is fed by Rattlesnake Creek, which begins to the southwest in Kiowa County.

Wildlife officials are concerned that lessened stream flows in Rattlesnake Creek will cut down on the amount of water available for the marsh. According to hydrologist Marios A. Sophocleous, records from the mid-1970s show that average flow in the stream, as measured near the entrance to the Little Salt Marsh in northeastern Stafford County, was about 70,000 acre-feet per year. An acre-foot equals about 325,000 gallons. In the late 1980s, stream flow averaged about 15,000 acre feet.

"It's clear that the general trend for stream flow, under current conditions, is a persistent decline," Sophocleous said. "There are short-term reversals in very wet years, such as 1987, but the trend is clear."

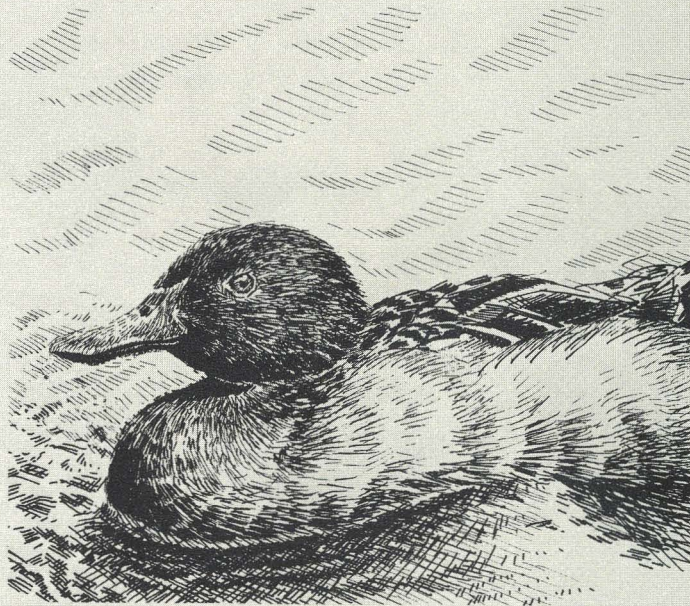
At the same time, groundwater pumping in the area around Rattlesnake Creek has significantly increased. The number of water wells in the area along the creek rose from about 100 in 1970 to more than 500 in 1990.

Increased pumping has resulted in a drop in groundwater levels, which means that less water enters Rattlesnake Creek. Historically, Rattlesnake Creek has been a gaining stream: that is, the creek picked up water from groundwater seeps and springs along its path through Stafford County. Today, with lower groundwater levels, the creek is largely a losing stream: the water moves out of the stream bed and into the surrounding aquifers or water-bearing rock formations. --*Lions Daily News*

Teal Season Is Back

For the first time in five years, Kansas will have an early teal season. Alarmed at the general decline in duck populations, the U.S. Fish and Wildlife Service (USFWS) -- which regulates migratory bird hunting -- decided to cut the early teal season in 1988. Although many state wildlife agency officials argued that habitat destruction, not hunting, was the primary cause of the decline, the USFWS cut the season as part of an overall reduction in duck hunting.

Unfortunately, the result was a reduction in the number of duck hunters and, thus, waterfowl stamp buyers -- an important source of revenue for wetland habitat restoration, enhancement and protection. In fact, green-winged teal were never in serious trouble, and although the prolific blue-winged teal's numbers were down significantly, many wildlife biologist felt these numbers would increase as drought eased and habitat was



restored.

The drought did ease, and the implementation of the North American Waterfowl Management Plan has made great strides in restoring wetlands, particularly in the prairie pot-hole region of the northcentral United States and southcentral Canada. These areas are the traditional breeding grounds for the majority of the Central Flyway's migratory waterfowl

population (green-winged teal excepted). As a result, blue-winged teal numbers have increased dramatically.

The newly restored early teal season should be a boon for waterfowl stamp sales and should thus add a much-needed boost to waterfowl habitat restoration efforts. It will also give old-time duck hunters -- and those who have left the hunt because of lack of opportunity -- a chance to return to what many consider the most pleasurable of all hunting seasons. It is also an opportunity to introduce youngsters to the fine art of duck hunting at a time when severe weather is not an in-

hibiting factor.

The early teal season runs Sept. 12-20 with a bag limit of four and a possession limit of 8. Federal and state waterfowl stamps are required. Federal stamps may be purchased at U.S. post offices. Kansas stamps are available at Wildlife and Parks offices and over the counter. --Shoup

Kansas Hunters Increase

For the first time in a decade, the number of licensed hunters in Kansas has increased, which is good news for Kansas hunters and good news for wildlife. In fiscal year 1991, the total number of licensed hunters was 196,116, an increase of nearly 8,000 over the previous year.

For hunters, this means renewed support for a pastime steeped in tradition and recreational and spiritual values. For wildlife, the increase means more money from license fees and excise taxes on hunting gear -- all of which support programs that help maintain and develop habitat for game and nongame species alike.

Wildlife and Parks officials attribute the rise to a refined hunter education program and greater awareness of the role of the hunter in the conservation movement. For more information on hunter education, contact Steve Stackhouse in the Pratt office. --Shoup

Spring Toms Tough

It wasn't easy, but Kansas spring turkey hunters took almost 8,900 birds this spring -- the largest harvest of this annual season, which began in 1974. While this may seem like a lot of turkeys, survey results from the Kansas Department of Wildlife and Park's Big Game Program indicate that it took hunters an average of 8.4 days to finally bag a bird.

Still, this is better than 1991, when hunters hunted more than 9 days for each bird taken. That year, 12,430 hunters took 6,602 birds compared to the 8,898 turkeys taken by 15,285 hunters in 1992. The 1992 success rate was nearly 54 percent.

Wild turkey management in Kansas is a true success story for the Department of Wildlife and Parks. Once found along most wooded streams, turkeys had been extirpated from the state by 1900. In the 1950s, some errant Rio Grande turkeys found their way into Kansas from Oklahoma. This led biologists to con-

sider reintroduction of the big birds. From 1959 through 1960, biologists trapped birds in Oklahoma and Texas and transplanted them to the Sunflower State. From that time, local populations flourished, and trap and transplant operations, which still continue, focused on trapping from Kansas flocks and moving the birds to areas where few birds exist.

This program was so successful that in 1974 the first spring turkey hunt was conducted. That year, 400 permits were issued to Kansas residents, and 123 birds were taken. In 1985, the birds had increased their numbers so much that a portion of the state offered unlimited spring permits. In 1987, the first nonresident permits were issued, and in 1990, a special unit was established to offer second turkey tags.

Today, huntable turkey populations can be found in nearly every county in the state. --Shoup

UNDER CURRENTS

Season Dates

Open - Close Bag / Possession

Small Game

Rabbits Open year around 10; 30
Squirrel June 1 - Dec. 31 5;20

Upland Game Birds

Prairie Chicken (*early*) Sept. 15 - Oct. 15 2:8
Prairie Chicken (*regular*) Nov. 7 - Jan. 31 2:8
Pheasant Nov. 14 - Jan. 31 4:16
Quail (*eastern zone*) Nov. 14 - Jan. 31 8:32
(*western zone*) Nov. 21 - Jan. 31 8:32

Migratory Bird

Dove Sept. 1-Oct. 30 15:30
Rail (Sora & Virginia) Sept. 1-Nov. 9 25:25
Snipe Sept. 1-Dec. 16 8:16
Ducks and geese not set as of this printing
Woodcock Oct. 10-Dec. 13 5:10
Teal (*early*) Sept. 12-Sept. 20 4:8
Crows Nov. 10 - March 10 no limit

Furbearer Hunting

Badger, bobcat, gray/red/swift fox, opossum, raccoon, striped skunk Nov. 18 (noon)-Jan. 31 (midnight) no limit

Furbearer Trapping

Badger, bobcat, gray/red/ Nov. 18 (noon)-Jan. 31 (midnight) no limit
swift fox, mink, muskrat, opossum, raccoon, striped skunk & weasel

Beaver (*eastern*) Nov. 25 - March 3 no limit
Beaver (*central*) Dec. 9 - March 3 no limit
Beaver (*western*) Jan. 1 - Jan. 31 no limit

Furbearer Running

Gray/red fox, opossum, raccoon May 1 - Nov. 1 and Feb. 15 - April 30 may not be killed

Doves Flock to Kansas

It's best to find a spot in the heart of farm country -- a quilt of fields, hedgerows, ponds and streams. A grove of trees along the water.

You'll know if doves are roosting in the area by 6 p.m. They appear suddenly -- in groups of two, three, five, nine, twelve -- darting, flaring, zooming over the trees, somehow always catching the hunters off guard. As the early September sun settles down, the sky comes alive with doves.

Kansas' earliest hunting season opens each year on Sept. 1, luring sportsmen out to meadows, fields and woods. Although some October dove hunting can be had, most doves flee Kansas for Texas and Mexico before mid-October. --George Stanley, *Wichita Eagle*



by Rob Manes

Near Paradise

"And behold, I saw a new heaven and a new earth . . ." I read the Apostle Paul's vision-inspired description of Paradise renewed. It (perhaps) had little to do with wildfowl on the wing and hidden marshes, but the sweet memories of teal hunts interrupted my concentration briefly. Then Paul's words returned and pressed hard on my heart. They gave me hope for a future full of rich and peaceful moments, such as those endowed by a marsh dawn.

I wondered, would Paradise really include a *new earth*, a place restored to its original, wholly natural beauty? Would teal race across the sky there? I hoped my interpretation of the apostle's words was accurate, not just wishful.

I remembered several years back to some almost-balmy September mornings among the cattails, sedges, and marsh grasses. The world always seemed so undeniably alive and luxuriant in the teal marsh -- all wet, still-green, cool and unspoiled -- Near-Paradise. Frogs and crawling creatures joined bird choruses in late-summer farewell songs. And there were teal -- bluewings, greenwings, and the occasional cinnamon. What excellent creatures!

For years I hunted September teal at the near-paradises of Kansas. Good dogs and good friends allowed me to accompany them. Together we laid in a harvest of memories -- watching teal in the sunset, sorting the quick-winged teal from airborne rafts of bigger ducks, the occasional full bag, and holding the

delicately decorated greenwing drake in my hand. Near-Paradise.

Then, about half a decade ago, the dream ended. The teal season went the way of the drained North American wetlands, evaporating like the long drought that burned and cracked the northern prairies. Certainly the hunter's gun was no suspect in the sorrowful teal demise. Rather, it was development and quick-profit advocates who killed the teal at their nesting grounds. A backhoe or a four-wheel-drive tractor under a skilled operator can wipe more teal from the sky in a single day than can a dozen hunters in an entire season. Still, the wildfowler was told his sacrifice was necessary.

I often mourned the loss of teal season. Oh, I suppose I could have gone to the September marsh anyway, just to watch the teal; but it wouldn't have been the same. Perhaps it was just too sad. The hunt, the taking, never was the most potent attraction. But the decoys, the dog, the shotgun and the smell of spent shells are important fixtures in my teal marsh. I found myself wading the marshes in the years that ensued, but not during September.

This late summer, the reign of sorrow is over. The prairie drought has ended for now, and ducks have a partial, if temporary, reprieve. I'll again enter the teal marsh and watch the sweet birds fly, shooting a few, but watching more than before.

I'll spend a few fleeting September days in Near-Paradise. I'll cherish it a little deeper though. Like a good pocket knife given by a grandfather, lost and then found -- I'll clutch the teal season a little tighter, a little closer to my heart. It will be neither a new Heaven or new earth, but Near-Paradise renewed.

Youngsters Land Lunkers

May was a good month for Kansas fishermen, especially young ones. In fact, two pre-teens proved that you don't have to be a seasoned veteran to catch big fish: one set a new state record for saugeye and another a near-record crappie.

The saugeye record was broken on May 3 when 10-year-old Philip Williams of Florence was wading in Council Grove Reservoir near the marina. He was casting a yellow and blue spinner jig near some submerged Christmas trees, a strategy that would yield more than one surprise.

"I was jigging pretty shallow when he hit, so I really felt it," says Philip. The fish gave him a good battle, but he had no idea it would be a state record. "It wasn't the biggest fish I've ever caught. I thought it was a walleye." Even so, it would have been a nice walleye. At the official weigh-in, however, wildlife biologist Tom Mosher confirmed that the 2.91-pound fish was a saugeye, a cross between a walleye and a sauger, and apparently a new state record. It was 19 13/16 inches long and 10 5/8 inches around.

Philip's record was confirmed by the Department of Wildlife and Parks on May 29. The old record saugeye was also caught at Council Grove -- just last February -- by Richard Swisher of Hutchinson.

On May 10, another amazing fish story unfolded. Lindsay Smith of Wichita was fishing with a minnow on a bobber inside the heated dock at Marion County Lake. Lindsay had only been fishing a few times, and she had yet to catch a fish. This day didn't seem much different until "Moby Crappie" hit her line.

"I was about to fall asleep when my dad tapped me on the shoulder and said that my bobber had gone under," says Lindsay. "Then I pulled on my line, and I thought the pole was going to come out of my hand."

With a little help from Pop, Lindsay managed to land the huge, 4-pound, 9-ounce fish. It was 19 inches long and 16 inches around.

There are a couple of interesting twists to this story. Lindsay and her father had the fish weighed at the marina, but the marina operator's scales had not been certified in a few years. State record status was put on hold until certification although this fish would have easily beat the old white crappie record

of 4 pounds, 1/4 ounce, caught by Frank Miller, Eureka, in 1964.

The rest of the story is a little more bitter-sweet. Although the fish weigh-in was witnessed and plenty of pictures were taken, no one immediately thought about it being a state record. Lindsay's dad filleted the fish before it could have been identified by a biologist.

As it turned out, the good meal was best enjoyed. Upon close inspection of the photographs, experts determined that the fish was a black crappie -- just one ounce shy of the state record caught by Hazel Fey, Toronto, in 1957. That, of course, is a minor detail. Nothing can take away Lindsay's satisfaction with such a fine fish. Most importantly, a young girl has gotten a taste of fishing. It's a good bet she won't fall asleep next time she goes. --*Shoup*

New Lake

With the opening of Centralia Lake in northeast Kansas, anglers now have a new fishing hole to test. The new lake, located two miles south of Centralia, covers more than 400 surface acres and was stocked with walleye, largemouth bass, channel catfish, bluegill and black crappie in the spring of 1990. Centralia lake also offers pleasure boating, overnight camping and hunting.

Wildlife and Parks contributed \$120,000 through the Community Lake Assistance Program to help complete the lake project.

Special creel and length limits at Centralia are as follows: for channel catfish, a daily creel limit of five; for walleye, a minimum length limit of 15 inches and a daily creel limit of five; and for largemouth bass, a minimum length of 18 inches and a daily creel limit of five. Fish populations in the lake are still developing, with good to excellent numbers of all three species. Only a small percentage of these fish exceed the minimum length limits, but the catch-and-release action should be outstanding. As in many new lakes, bullhead catfish are abundant while the crappie and bluegill populations are still growing. Although there are no creel or length limits on bullhead and bluegill, there is a statewide creel limit of 50 on crappie.

A Kansas fishing license is required to fish at Centralia Lake, unless exempt by law. The city of Centralia requires a vehicle entry per-

mit at \$3.00 per day or an annual permit for \$25.00. Additional permits are required for overnight camping and for power or sail boats. Canoes and unpowered boats do not require a city permit. Self-pay boxes are located around the lake, or permits may be obtained from the Centralia city office.

District fisheries biologist Chuck Bever says, "We have been looking forward to the opening of public fishing at Centralia Lake since fish stocking began. Thanks to abundant aquatic habitat and modern fish length limits, the lake should provide quality fishing for many years." --*Marty Burke*

Carp In a Can

Most people love salmon, even canned salmon, but we all know how expensive it is. If you love salmon patties and other dishes prepared with canned salmon, you can save a lot of money by canning the common carp. Although often overlooked as table fare, the carp is plentiful in waters throughout Kansas, and the meat is tasty if properly prepared.

This summer, try the following recipe and stock up on Kansas "salmon" for the winter:

Clean fish and skin them. Cut into pieces about two inches long. Pack pieces in clean pint jars. To each pint, add

- 1 tsp. salt,
- 3 tsp. vinegar,
- 1 drop Liquid Smoke.

Process in a pressure cooker for about one hour and 20 minutes at 10 lbs. pressure. Use as you would canned salmon. --*Leonard Jirak, fisheries biologist, Hartford*

Stocking Record

In 1992, fingerling (2- to 4-inch fish) stockings included walleye, wipers (a cross between a striped bass and white bass), and saugeye (a cross between a walleye and a sauger). Nearly 700,000 walleye and saugeye fingerlings were stocked. In addition, 405,000 striped bass and wiper fingerlings were stocked. In total, almost 1.2 million predacious fingerlings were stocked, the most in any single year. Combine this with annual stockings of 35-40 million predacious fry, and you have a considerable yearly boost to the state's fisheries. --*Shoup*

BIG Fish

The largest freshwater fish in North America is the white sturgeon. Although the largest documented is 1,387 pounds, this giant may grow as long as 20 feet and weigh as much as 1,800 pounds.

White sturgeons are anadromous -- they move from fresh to salt water -- although they may spend their lives in fresh water.

Considered a delicacy by most anglers, white sturgeon can be found in streams from northern California to the Gulf of Alaska. However, because of exploitation by commercial fishermen (both for caviar and meat), many populations of this long-lived fish are now threatened and are protected. --*Shoup*

Madstones and White Deer

Do madstones prevent rabies? Do they come from white deer?

Whether or not madstones prevent rabies is an issue shrouded in the mists of American folklore and superstition.

A madstone is a deer's gallstone, also called a rumen bezel because it comes from the rumen of a deer's stomach. The rumen is one of the four sections of the stomach of mammals such as cows, deer and goats. The madstone is a series of calcium deposits, and it is formed like an oyster forms a pearl. Calcium is deposited around a bit of matter then more calcium is added in layers. If you cut through the middle of a madstone, you'll find concentric rings like rings on a tree.

American pioneers used madstones for treatment of a person bitten by a dog. The madstone would be soaked in fresh "sweet" milk then put on the person's bite. If "poison" was present from the dog being rabid, the madstone would draw out the poison, turning green in the process. The madstone could be washed off and used over and over.

Persons possessing madstones were well known in some rural communities. Occasionally they charged fees for the use of the stones. Victims of dog bites were sometimes taken by horse-drawn wagon to other towns or communities where a madstone could be found.

Madstones were treasured possessions, usually kept carefully wrapped in a cloth, pouch or bag and secured in a dresser drawer or other safe place. They were usually passed down from one generation to the next within

a family.

Some stones came from cows and other animals. Oldtimers would go through the stomach contents of a deer or a cow to look for madstones. Sometimes, and in some places, the stones were used for snake bites, too, as well as for preventing rabies. Sometimes the stone was bandaged over the bite.

Some madstones are the size of a marble; some are like a golf ball; and some are as big as a baseball. They are much more common in eastern states where there is a high calcium content in the soil. In fact, that's what the stones are, calcium.

Of course, madstones can't prevent rabies. And no, madstones don't just come from white deer. They can come from any cud-chewing mammal. --*Arkansas Outdoors*

Simple Beauty

Is there a simpler bird than the mourning dove? Its gray color, its pleasant but unspectacular coo, its sheer abundance. No doubt it is a "commoner." So common, in fact, it is thought to be one of the most abundant bird species in America.

There are a couple of reasons for the dove's abundance. The primary one is their prolific reproductive capability. Doves begin nesting in early spring and raise young continuously through early fall. Normally, a mated pair will raise two or three broods per year, but occasionally up to six broods are raised. The complete cycle of nest building, egg laying, hatching and fledging takes only a month, so the potential for population explosions is always

present.

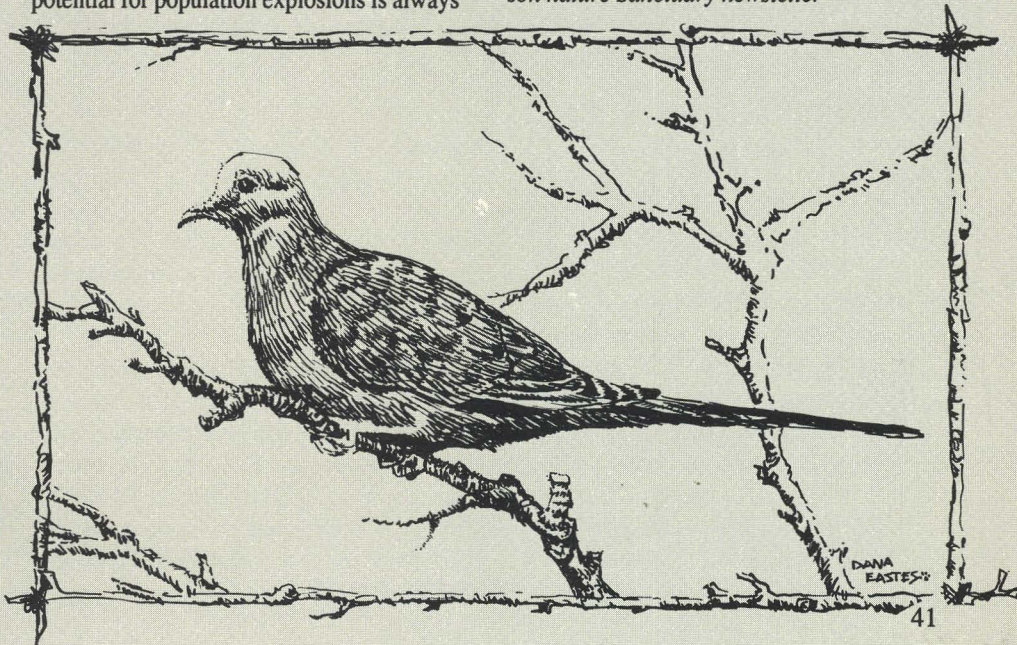
However, a number of factors keep this from occurring. Doves build flimsy platform nests made of loosely woven sticks and grass. These nests do not withstand high winds and heavy rains. Many times, the nest is destroyed and the pair must start over. The nest is seldom higher than 15 feet and is susceptible to many egg and chick predators such as raccoons, snakes, cats and other birds. Finally, doves are not aggressive nest protectors. In spite of these negative factors, doves still maintain and even increase their numbers annually.

Another reason for the abundance of mourning doves is their habitat preference -- woods, thickets, backyards and small grain fields, which are all very common in North America. Doves are found in Canada, Mexico and every state except Hawaii.

Their diet is almost exclusively seeds, but they also eat insects and berries. Preferred habitat and plentiful food sources add up to an ideal situation for this species.

Mourning doves are so successful at maintaining their population that 34 states have legal hunting seasons. However, no significant effect has been seen on the population from the 10 to 15 percent harvested by hunters. In fact, in states that allow hunting, dove numbers are actually increasing.

Hunting, predators and extreme weather all take their toll on mourning doves, but due to their prolific nature, this simple bird promises to continue gracing our backyards, farms and parks. --*Tom Hein, Martha Lafite Thompson nature Sanctuary newsletter*



Habitat Judging Contest

When most people think about farmers, they think of corn, wheat, combines and the various activities involved in producing food for bakeries, butcher shops and supermarkets. However, a new program sponsored by the nation's cooperative extension services and wildlife agencies, and supported by conservation groups such as Quail Unlimited and the Wildlife Society, promises to expand the farmer's image.

Now in its second year, the Wildlife Habitat Evaluation Contest offers future farmers the chance to analyze and rank wildlife habitat projects on farms. Contestants are asked to identify sources of food for different species of wildlife, to identify management practices that would increase various wildlife populations, and to interpret aerial photographs for potential habitat uses. They also must write one-page wildlife management plans for both rural and urban wildlife habitat settings, displaying the versatility of their knowledge.

Contests are held on the local, state and national level, with teams competing for the chance to advance to the national contest. In 1991, a 4-H team from Butler County placed thirteenth in the national contest in North Dakota. This year, the Labette County High School Future Farmers of America (FFA) won state honors in competition held near McPherson March 28. They represented Kansas at the national competition in Missouri's southern Ozarks the first week in August. (Unfortunately, this issue of KANSAS WILDLIFE AND PARKS went to press before this contest. Look to the November/December issue for results.)

"This contest has great potential for instilling habitat values in our youth," says Charlie Lee, agricultural liaison for the Kansas Department of Wildlife and Parks. "And the project is rapidly growing. In Tennessee, this is the largest 4-H program. More than 30,000 students participated this year."

Kansas State University extension specialist F. Robert Henderson, who has coordinated the project in Kansas, agrees. "This remains the best youth project I've ever been associated with, and in my opinion it's very worthwhile. It has a lot of youth talking about the project this year. The contestants really enjoy being involved, and the training is ex-

cellent in that the members learn about wildlife habitat management."

In Kansas, the program started in 1991 when Terry Messmer, North Dakota extension specialist, came to train a group of Extension Service, Wildlife and Parks and other volunteers in introduction and management of the program. In 1992, 17 teams of 4-H and FFA members were trained for the state competition. Although the Labette County team won overall honors, Luke Naylor, a young 4-H member from Sedgwick County won honors for the highest overall score in the senior division. The Harvey County 4-H team won the junior division.

For more information on the Wildlife Habitat Evaluation Contest, contact F. Robert Henderson, Cooperative Extension Service, Kansas State University, Call Hall, Manhattan, KS 66506-1606, (913) 532-5654, or Charlie Lee, Kansas Department of Wildlife and Parks, Kansas State University, Call Hall, Manhattan, KS 66506-1606, (913) 532-5734. --Shoup

Trail-Blazer Day

Hundreds of Kansans will hike, bike or ride horseback over much of Kansas on Sept. 12. They will be the central link of a coast-to-coast event to create awareness of the American Discovery Trail (ADT), the only east-west transcontinental recreation trail in the nation.

The goal of the event -- Rockport's American Discovery Trail-Blazer Day -- is to have someone travelling that Saturday on every mile of the 4,835-mile route, 570 miles of which pass through Kansas. Kansans are urged to participate in the event, which is sponsored by the American Hiking Society with support from The Rockport Company. The hiking society and Backpacker magazine established the multi-use trail in 1990.

A scouting team supported partly by The Coleman Company of Wichita travelled the proposed route through Kansas last year. The ADT corridor in Kansas was developed with primary assistance and counsel of the Kansas Department of Wildlife and Parks. The State Historical Society and the Departments of Commerce and Transportation also assisted.

Groups that provided advice included the Kansas Trails Council, Prairie Packers, Oz Bicycle Club, the Sierra Club and the Santa Fe Trail Association. Concerned groups such as the Kansas Livestock Association and the Kansas Farm Bureau were informed of the trail's development.

While the Kansas route generally follows the Santa Fe National Historic Trail, the ADT corridor here departs from that course at some points in order to reach certain scenic, geographic, historic or recreation areas.

Trail-Blazer Day coordinators are being established at Shawnee Mission, Lawrence, Topeka, Council Grove, Hillsboro, Lyons, Great Bend, Larned, Dodge City, Garden City and Syracuse. Local or area hikers, bikers, equestrians and other outdoor folks are invited to participate individually, in groups or by leading outings. Volkssport, Scout, Campfire, 4-H and other organizations are among those expected to be involved.

Those interested in Kansas participation in Trail-Blazer Day may get further information by contacting Dick Dilsaver, 304 Stratford Road, Wichita, KS 67206, (316) 684-1253 or (316) 261-3483. To learn about national ADT activity, call 1-800-343-WALK...--Dick Dilsaver, ADT Kansas state coordinator

Wild-Born Ferrets

Pop the corks and pass out the cigars: two of Wyoming's most famous residents -- a pair of captive-bred black-footed ferrets -- are proud new parents.

The greatest hopes of everyone involved with the black-footed ferret reintroduction program in Wyoming were surpassed July 14 when a crew of Game and Fish Department biologists located two wild-born ferret kits and their captive-raised mother near their release site in Shirley Basin.

The sighting proves captive-raised ferrets are capable of surviving and reproducing after being released into the wild.

The goal of the reintroduction program is to establish a minimum of 50 breeding adults at Shirley Basin and eventually to reintroduce this endangered mammal to historic range in Wyoming and other Great Plains states. -- Wyoming Game and Fish Department release

By Mark Shoup and Dana Eastes

A Prickly Subject

Porcupines in Kansas? "No way," you say. Or, "Where?"

"Many places," say Deb Bennet, Robert S. Hoffman, and James W. Koepl, who write about mammals in *Native Kansas*. Porcupines (*Erethizon dorsatum*), they say, can be found almost anywhere in Kansas "because they survive best along forest edges and can eat a wide variety of foods." Although this limits much of western Kansas, "forest" can apply to draws, canyons, and stream beds that are heavily treed. This, indeed, includes most counties in Kansas.

One of the reasons porcupines are found around trees is that they eat them, or parts of them. Besides clover and other green plants, leaves and twigs make up the bulk of porcupine diet. In winter, they even eat the outer bark of trees.

Shelter is the other reason porcupines like trees. Hollow trees, logs and tree-tops are favorite resting areas. They will also rest and nest in burrows in the ground or in holes in rocky bluffs.

Although they are slow-moving creatures, you probably wouldn't want to catch one. Porcupines, as everyone knows, are covered with sharp quills - about 30,000 of them - that protect them from predators. Each of these quills is tipped with dozens of tiny barbs that swell when they enter the victim's flesh.

While humans can remove these quills by clipping them (to remove air pressure) and then pulling them out, animals are often stuck with them, so to speak.

When threatened, a porcupine will duck its head, bristle and rock back and forth on all four feet. If this scare tactic doesn't work, it will slap the enemy with its

tail, leaving spines embedded in the intruder's face. This can be particularly dangerous for predators such as coyotes or bobcats, which may leave the encounter with a mouth or nose full of quills. Not only is this painful, it can lead to the predator's death by starvation. If stuck in the eye, quills can blind. Other wounds can fester and cause an infection.

For these reasons, dogs should always be kept away from porcupines.

Does this mean you should be afraid next time you wander into the woods or take a stroll down to your favorite stream? Not really. Although porcupines are widely distributed in Kansas, there aren't a lot of them. Porcupines are also primarily nocturnal - meaning they sleep in the day and come out at night to eat - so it's unlikely you will see one.

Also, porcupines are not as dangerous as some people think. Contrary to popular belief, they cannot throw or shoot their quills at people. In order to get stuck, you would have to brush against one or intentionally get too close. There are two reasons this shouldn't happen: 1) porcupines are slow-moving waddlers, easy to steer clear of, and 2) although they usually don't have much fear of

people, they seldom, if ever, look for a fight.

The porcupine's armor would seem to make it invincible, wouldn't it? However, there is one predator that regularly preys on porcupines - the fisher. A small mammal in the weasel family, the fisher can flip the porcupine over and quickly attack its unprotected belly. Mountain lions, bobcats and coyotes have been known to eat porcupines, too.

Because they are so slow, porcupines have been a



ready natural resource for people, as well. For centuries, native Americans used their quills for decoration and as needles for sewing buckskin. They also ate the prickly little critters. Surprisingly, people still eat them. In many states, they are protected, but people lost in the woods can kill them for food.

Porcupines can be destructive. They damage trees by stripping bark for food. Also, the porcupine appetite for salt can lead them to gnaw on ax handles, saddles, and other tools that have been soaked with sweat.

But in most cases porcupines are not a nuisance to man. They are fascinating mammals that have evolved one of the most unusual natural defense mechanisms in nature -- the quill.

Pine Cone Porcupine

Materials: Fallen pinecones, pine needles, glue and found objects.

Instructions:

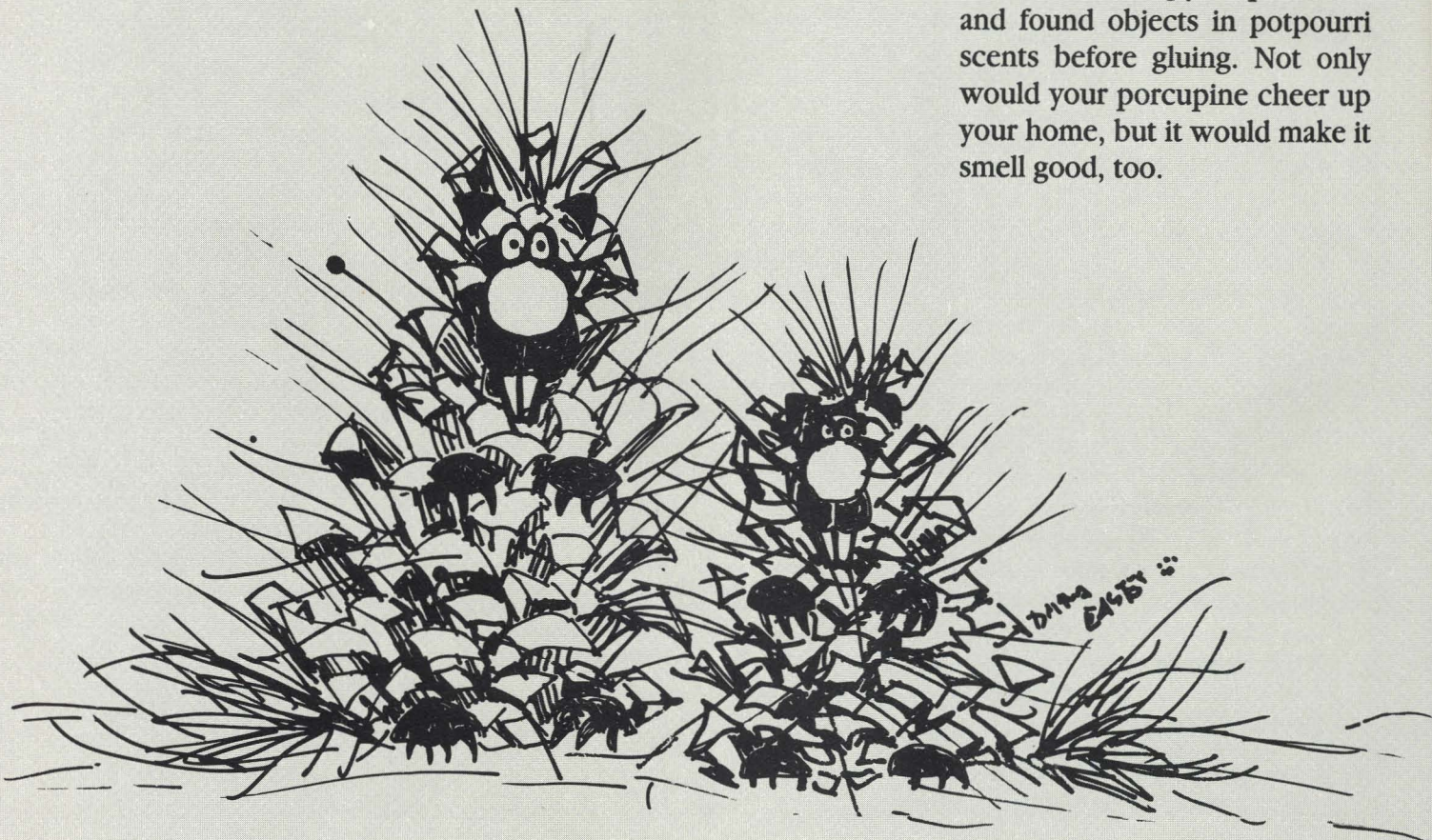
1. Gather several pine cones and pine needles, depending on the number of porcupines you want to make.
2. Next collect found objects from your house or outdoors that will serve as nose, ears, eyes and

paws for your porcupine. (Example: Pom poms -- nose; felt -- ears and paws; beads -- eyes.)

3. Begin by pasting the nose, ears, eyes and paws to your pine cone.

4. Next, paste the pine needles into your porcupine, making sure the needles stick out from the center of the cone.

5. An alternative to this project would be soaking your pine cone and found objects in potpourri scents before gluing. Not only would your porcupine cheer up your home, but it would make it smell good, too.





The *%#@#! Swing-through Method

I used to consider myself an able hand with a shotgun. I've been hunting birds with one since Dad gave me my first when I was 12; a used 20-gauge pump gun. A year later, Dad and I started shooting trap, and one of our state's better shooters tutored me for several months. I ran out of time for trap shooting, but did spend considerable time hunting birds through high school.

A few years ago I finally accepted that I was a mediocre wingshot, at best. I can be deadly on fish with a spinning outfit in my hands, but sometimes with a shotgun, I'm anything but deadly—noisy, but hardly deadly.

This realization invariably returns each dove season. Heck, I've shot well on quail and even on pheasants a time or two, but doves are another story. I know that even the most seasoned wingshots will struggle with doves, but I've had the bad luck of making friends with guys who make wingshooting look easy—even on doves!—even doves in a 20 mph wind!

I know it's my fault for associating with these individuals, but at this point, I kind of like them, so it's hard to break off the friendships. Besides, they're the only ones who'll hunt with me. So I've accepted the fact that I'm a mediocre dove shooter (that's really an exaggeration) and continue to hunt each September with these guys, even though I know what it's going to be like . . .

"From the north. Right over your head!" one of my "coaches" assists at the top of his lungs.

"I've got it," I say confidently. I swing the gun up too soon, wait for the bird to come into range, then try and catch up and shoot as it passes overhead.

"@#*%&!" I say. "That bird was going 100 mph."

I hear one of my "buddies" snicker, then I watch as he coolly nails a high, fast incomer.

"What did I do wrong?"

"You can't stop your barrel when you pull the trigger," one says.

"You're not leading them enough," another throws out. "You have to swing *thorough* the bird, then *puulll* the trigger, and keep the barrel moving."

I spy another bird coming my way and am determined to do it right. "Start behind the bird, swing the barrel through the bird, pull the trigger and follow through," I say to myself.

The bird's in range, I throw up the gun and snap shoot as the bird careens away from me.



Dana Eastes illustration

"*%#@#! Did you see that bird dodge my pattern? I can't believe the move that bird put on me," I exasperate.

"You shot too fast," one of my "pals" calmly says. "Take your time and remember what we've told you."

"I know, I know. Swing *thorough* the bird, then *puulll* the trigger." I repeat. Just then a bird pops over the horizon. Without thinking, I raise the gun, catch up to the bird, pull the trigger and cleanly drop the bird. I didn't even think about all the things my buddies told me. I just shot the bird.

"No sweat," I think. "I can hit these birds. I just gotta quit thinking about it."

Then another bird streaks into range. I raise the gun and hurriedly yank off a shot . . . about three feet behind the blur of a dove.

"No chance to kill that one. It's moving way too fast," I console to myself just as another buddy raises up and easily drops it.

So much for my confidence. I guess I'll just stick to the *%\$#@ swing-through method, and accept the fact that I'm mediocre . . . and look forward to a fishing trip with these guys. ♡

