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## Too much of a good thing

Take a spectacular mass of game animals, add an unscrupulous businessman, and you've got trouble. In South Dakota (see page 4), this combination has brought on a flurry of unethical shooting along the Missouri.

Canada geese can be the wariest or just plain dumbest bird to ever confront a hunter. When landowners along Big Bend and Oahe reservoirs learned of the dumb part a dozen years ago, they formed goose hunting "clubs" that turned goose hunting into what may be the most efficient "legal" goose killing operation ever devised.

A typical "goose hunting club" consists of a landowner, a manager and several guides or pit captains. Membership is gained by paying \$10 to \$20 each time you want to hunt. Members meet in the clubhouse, usually a mobile home or frame farmhouse, to wait their turn in the pit. The most successful clubs dig thirteen-man pits along the bluffs between the reservoir refuges and their cornfields. (Almost inevitably a refuge is located directly across from a club. The cause and effect relationship is not clear, but someone once mentioned the word politics.) By keeping the hunting action out of the fields, they are able to kill geese flying into breakfast without frightening those that are already dining. Rarely is all of the irrigated corn harvested before the close of the goose season. (Most corn farmers manage to get their crops

combined by mid-November.)

The pit captains discipline the paying customers to shoot only small bunches, usually family groups. That way few geese that hear or see hunters live to tell about it, and the flocks never get wiser. That's the dumb goose part. Any pit captain worth his magnum 12 gauge autoloader can knock down three geese before most of his charges can select a target. Often he has time to reload and finish off the cripples. Even the chronic poor shots find they seldom miss at the right club. After the excitement of booming guns and falling geese, they are handed a carcass, slapped on the back and commended for their fine marksmanship.

At least one pit captain was heard to brag he'd killed 100 Canada geese in one day.

As soon as a dozen birds are on the ground, the pick up truck is signaled to bring out another load of gunners and take the "filled" boys back. Some doctors, lawyers and other professional people enjoy this hunting experience so fully that they partake of it nearly every day before or after work.

A few years ago hunters who traveled long distances to join a goose club for a day reportedly liked the warm limit/cold limit policy in effect at some operations. The warm goose was a fresh kill for that day's limit. The cold one was a cleaned and wrapped carcass supposedly taken by the intrepid sportsman at least a day earlier to round out the possession limit. Club operators hated to see members

drive halfway across the state for one day's hunt that might last only fifteen minutes and reap one measely goose.

In spite of their usually phenomenal success, a few of the clubs have resorted to baiting to increase their odds. In 1980 a GFP warden flying the reservoirs for a weekly population count spotted a long, yellow path etched across a green winter wheat field owned by a hunting club. Shelled corn. The next morning state and federal wardens were hiding nearby. When the shots were fired and the geese were down, the officials revealed themselves and introduced the assortment of lawyers and doctors to the laws forbidding baiting. They pleaded ignorance, and the operator pleaded an accidental spill (a one-hundred-yard-long strip the width of a grain wagon in a wheat field right behind the pit blind?) Then they claimed officer brutality and offensive behavior and the sun was in their eyes. The judge let them off easy, for some reason.

Many shooters have also had trouble finding dead geese that turned out to be diminutive five pound *hutchinsii* subspecies, so they had to shoot again and settle for a ten-pound *maxima*. They usually found those.

Although hundreds of thousands of mallards crisscross the skies above the clubs, they are seldom bothered. Small potatoes in a garden of giant strawberries. Besides, the noise might alert the geese.

# Shortstopping

Ron Spomer

Dakota's cowboy capital city, Pierre, are. Or at least they were up until ten years ago. That's about when an enterprising rancher along the Missouri River turned sod buster by installing a center pivot irrigation rig. He planted corn under the apparatus and changed migration history for millions of ducks and geese, and hunting success for thousands of Kansas sportsmen.

In 1953, South Dakota's Missouri River goose population peaked in mid-November at 48,000. Mallards reached a high of 570,000. Most of them were down near the Nebraska border and on their way to wintering grounds farther south. In mid-



**T**he sight was ludicrous. A cornfield of black stalks, each supporting a black and white "ear" with a blunt bill. And they were moving, sweeping across the ground, gleaning the real corn dropped earlier by the combines. "Gawd, look at that! Will ya look at that! There's thousands of them!"

Even while seeing, it was hard to believe, but there they were, at least 20,000 of them in one 160-acre cornfield. We were looking at South Dakota's newest commercial crop—Canada geese.

Long-necked geese in a cornfield are nothing new, but 20,000 of them just a tumbleweed ride from South

November of 1980, a poor year for duck production, mallards on this same river topped out at 591,000, and the goose count exceeded 310,000, one for every two South Dakota citizens. More than six times the 1953 population. Up there, waterfowlers called this remarkable increase a "lucky break." Their coun-

terparts to the south called it short stopping.

Short stopping is neither a recent nor complex phenomenon. It is commonly defined as putting food and water where food and water didn't used to be in order to lure and hold waterfowl. It happened at least as long ago as the 1930's when the wintering mallard population in the Mexican highlands dwindled at the same rate it burgeoned in the new western U.S. grain fields. The birds weren't stupid. Why haul all the way to Mexico when there's plenty to eat hundreds, even thousands of miles to the north? You see, mallards and

February in a Texas coastal marsh for the past sixty years, then that's where they belong. No Yankee has the right to keep them up in South Dakota.

Of course, South Dakota sportsmen see that a little differently. In 1980, when South Dakota goose hunters had more targets than grandpa ever dreamed of, they were arguing goose migrations in the state capitol House chambers. The South Dakota Department of Game, Fish and Parks (GFP) had called a hearing to air views on its plans to push some of the geese on south to avert another lead poisoning epidemic

limit and opening the reservoir refuges during the last two weeks of the season. A majority of commercial hunting club operators and their clients interpreted that as "We don't want you to have any fun."

"These are our geese!" a stalwart commercial club operator told the assembled Commissioners. "Why do you want to scare them down to Louisiana for them boys to shoot? This is where them birds want to stay, there's plenty of good food and water, so let them stay. Let's take advantage of our resources. Make them Louisiana boys come up here to hunt geese."



Canada geese don't have any special reason for spending the winter south of the border. They're interested only in living the good life, wherever it may be. Hunters, on the other hand, have a big stake in where a goose decides to spend its winter. If honkers and greenheads have been whiling away December through

like the one that had killed 3,000 Missouri River Canadas the year before. Now they were recommending future action that would eliminate the lead shot and put more pressure on the birds in an attempt to move them south along their traditional merry migratory way. Specifically, GFP proposed increasing the bag

"Yeah," his buddy joined in with a bit of homespun logic. "You don't see Montana chasing their elk over here for us to shoot. They make us buy a two hundred dollar license."

"Two hunnert twenny five!" someone else shouted from the back of the room, and the chamber rumbled with approval. As far as the

hunters were concerned, possession was nine-tenths of the law. South Dakota had fed the flock for less than ten years, but that tenure was all it took to make the geese "theirs". And, if years of band returns are any indication, "their" geese weren't headed for Louisiana in any event. In the absence of South Dakota grain and water, the flock would be more likely to head for Kansas.

Used to be a man with a 12 gauge and a yearning for goose meat could look to the Kansas sky come Thanksgiving and see dinner winging his way, especially near Cheyenne Bottoms, Kirwin National Wildlife Refuge and Quivira National Wildlife Refuge. These had always been traditional staging areas for autumn migrants, mallards as well as Canada geese. As late as 1973 the honkers poured into Kansas in November. In that year, there were 140,000 of them, some kind of modern record. But the following year, goose numbers fell off to just 68,000, and, by 1980 and 1981, the annual peak had sagged to a sorry 37,000. Hungry hunters weren't too happy, and Marvin Kraft, Kansas Fish and Game waterfowl biologist, claims South Dakota corn was to blame.

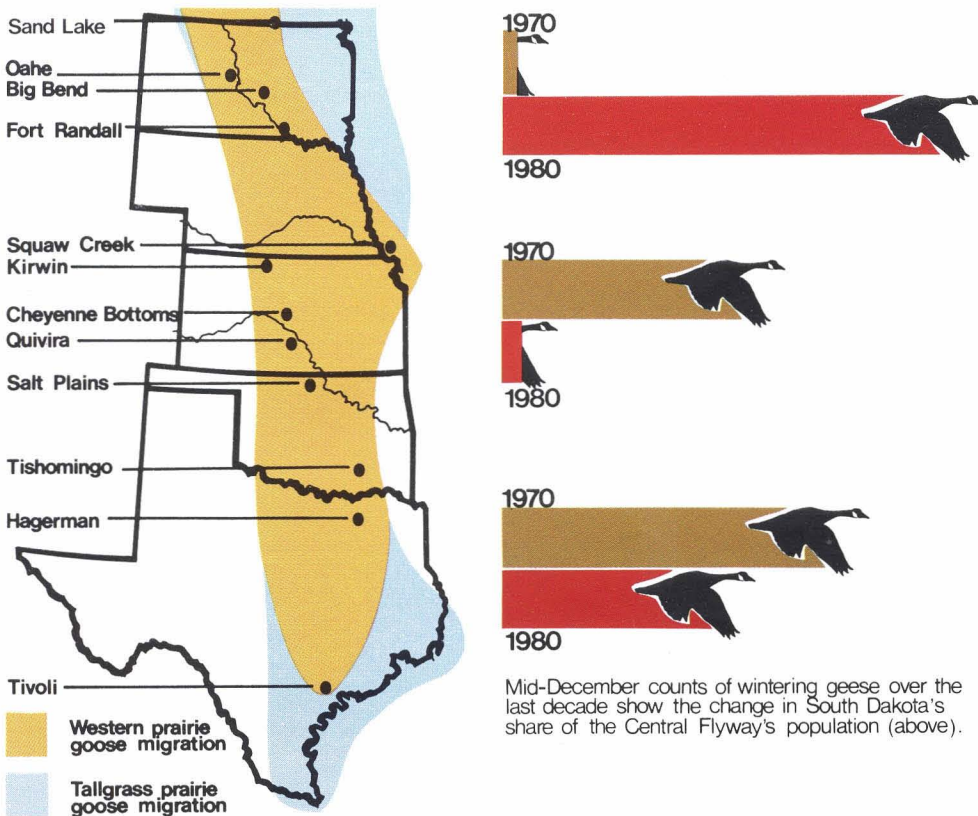
Canada geese have always been "homers," according to waterfowl expert Frank C. Bellrose, author of *Ducks, Geese and Swans of North America*. Even with eleven races or subspecies overlapping on breeding and wintering grounds, the geese manage to remain faithful to their traditional haunts. For example, most of the birds breeding in the northern reaches of the Waterhen Marsh area in Canada are harvested in Kansas. Those nesting in the south end of that habitat are usually bagged in South Dakota, indicating that family groups are returning to specific wintering areas without stopping long, if at all, in other parts of the flyway. The urge to migrate is intrinsic, dictated by instinct and physiological responses to changing seasons, but the route and ultimate destination must be learned. Because of their family social structure, adult Canadas are able to show their young the dependable roosting, feeding and wintering areas along the flyway. This information is handed down generation to generation. Without it, birds on their first autumn migration would waste time and energy searching for food and safety. Predation and accidents

would increase, jeopardizing the long term survival of the flock.

Fidelity, however, can also work against a flock, especially in man's mutable world where yesterday's marsh is today's parking lot. It has become mandatory to teach old geese new tricks. Fortunately, the adaptable Canadas have had enough pioneering spirit to teach themselves. And over the years, they've learned that two things are good for the goose and the gander—grain-fields and dams. And that is what's modifying goose tradition and stockpiling Kansas birds in South Dakota.

You can't blame South Dakotans for inventing grain. That commodity came to the Central Flyway with the immigrant farmers more than a hundred years ago. It was no big deal to the ducks and geese at first, because they didn't know the growing checkerboard of fields below them was edible. But eventually an adventurous Canada goose wandered up to a harvested cornfield near a river edge and pecked curiously at some of the waste kernels. Eureka! He discovered corn. But a swash-buckling mallard probably beat him to it by several years. The news must have spread through both species like wildfire. Soon mallards and Canadas were spiralling from the sky into incredible larders. Wheat, corn, beans, milo and even rice down Texas way. They started regular "feeding flights" morning and evening from distant marshes. Dabbling for tubers and grazing sedges were no longer the only ways to survive. They'd stumbled onto a whole new lifestyle and were waxing fat for it. Life was good all over, and man's demand for electrical power was about to make it even better.

In 1955, the U.S. Army Corps of Engineers dumped a heap of dirt more than a mile long across the Missouri River near Pickstown, South Dakota. They called it Ft. Randall Dam and herded the water through several big turbines. Man got his electricity, and waterfowl got 102,000 acres of reservoir and sev-



eral miles of wide river below the powerhouse discharge that never froze over. Downstream, the Corps closed smaller Gavin's Point Dam that same year, backing up 32,000 acres of water. In 1958, the eager beavers dropped the gates on Oahe Dam near Pierre, creating more sparks and 371,000 acres of reservoir with more miles of shoreline than the Pacific Coast from Mexico to Canada. In 1963, the last shovel of dirt completed Big Bend Dam north of Chamberlain, and ducks and geese had their final South Dakota waterhole, 61,000 acres.

By 1958, more than 20,000 Canada geese and half a million mallards were spending Christmas on South Dakota's Missouri. Most of them headquartered at Ft. Randall for two reasons. It was just a few miles from Lake Andes National Wildlife Refuge, a natural lake long popular with waterfowl, and it was the western and northern border of good corn production.

Local hunters were quick to capitalize on the winged concentrations, and Ft. Randall soon became a hunting mecca, complete with leased cornfields, trespassers, road-ditch skybusters and fist fights over downed birds. The state Department of Game, Fish and Parks decided to regulate the harvest and police the sportsmen by operating controlled goose shooting units on public lands next to the reservoirs. They sharecropped dryland corn production and sank blinds in the harvested fields. Hunters applied for the right to shoot from one of the pits, and GFP officials kept a parental eye on them. In later years, they even installed remote speakers in the pits so they could chastize unethical behavior seen through binoculars from headquarters.

Within two or three years of establishing the controlled shooting areas on the southern reaches of Ft. Randall reservoir, GFP was forced to abandon them. Hybrid corn had moved north, and the geese had gone with it. Chamberlain was the new goose hunting heaven. The

GFP Brule Bottoms goose unit north of town did a booming business during the mid 1960s, but, by 1977, it closed too. It seemed the honkers weren't flocking into the fields as they once had. It seemed they were staying farther north on Big Bend reservoir. It seemed some farmers had put in some of those center pivot irrigation systems. And corn.

By then the trend was obvious. Canada geese—and, to a lesser degree, mallards—weren't going to fly any farther down the Missouri than the nearest concentration of that golden maize. So, during the mid-1970s, the landowners irrigating atop the bluffs bordering Big Bend virtually owned the geese. They charged eager hunters \$20 for a turn in their pit blinds and smiled all the way to the bank. But their monopoly was short lived. In 1980, a rancher near Oahe reservoir north of Pierre installed ninety-one center pivots. That's twenty-two square miles of corn. Naturally, he inherited the geese, and that's where they are right now, enjoying the good life and waiting for man to make the next move. There are still one hundred fifty miles of Oahe water stretching north.

Although the South Dakota short stopping has been largely inadvertent—after all, who would construct billion dollar dams and invest millions in irrigation just to attract a few dumb birds—it has had far-reaching effects, some of which puzzle professional waterfowl biologists as much as unhappy hunters. The biggest question in 1980 was where the heck all those geese came from.

The Canada geese that normally associate with South Dakota's Missouri River belong to what is known as the Western Prairie Population (WPP). This consists of probably (biologists make no guarantees) three subspecies including the large *interior*, *moffitti* and *maxima*. What ties them together as a population is their common nesting grounds in eastern Manitoba and western Saskatchewan and their wintering grounds from South Dakota to

Texas. For years, wildlife managers estimated the WPP at 40,000 birds, determined by counting them in December on the Missouri River, South Dakota; Squaw Creek National Wildlife Refuge (NWR), Missouri; Kirwin NWR and Cheyenne Bottoms, Kansas; Salt Plains NWR and Tishomingo NWR, Oklahoma; and the Tivoli, Texas area. Imagine their surprise in 1980 when a new aerial photographic count uncovered 310,000 Canadas on the South Dakota Missouri in mid-December. They knew breeding success had increased, but not that much. And they knew smaller Canadas, the *hutchinsii* subspecies, were shifting their traditional migration routes toward the Missouri, but not that many. As recently as 1978, the South Dakota mid-winter count stood at just 33,000 Canadas, including some *hutchinsii* birds. How did they mushroom to eight times that number in four years? With the aid of mild weather and human error.

Miscalculating the visual count of the 1980 flock was probably South Dakota GFP's most embarrassing mistake. Their estimates, made at the same time the 310,000 geese were photographed, were but half that number. The inference was that they'd been short changing the Missouri River population for decades. That may or may not have been the case. Group counting techniques have been tested and proven reasonably accurate over the years, but a small percentage error on a flock of 40,000 is never going to involve as many animals as the same percentage miscalculation on a flock of 300,000. Still GFP counters probably were underestimating previous years' populations, so the 1980 count didn't represent an eight fold expansion of the WPP flock.

There was, however, a significant increase, helped by a most uncommon climate. In 1980-81, South Dakota never did see winter. Duck hunters were splashing through shallow marshes in late November when they should have been skating over them. December daytime tem-

peratures hovered in the balmy forties and fifties, and Florida probably got as much snow. Oahe Reservoir never did freeze over. As a result, the geese that normally enjoyed a Thanksgiving feast on Dakota corn and then pushed on south when cold and snow made life miserable, stayed for Christmas, New Year's Eve and Valentine's Day. That winter waterfowl biologists from Oklahoma, Kansas, Nebraska, North Dakota, South Dakota and the Fish and Wildlife Service met in Pierre to study the huge flock. They discovered that a third of them were small geese. More than 100,000 birds from the Tallgrass Prairie Population to the east had shifted migration corridors. At the same time, counts of the wintering Eastern Prairie Population in Missouri, Iowa and Illinois were coming up 100,000 geese short. Apparently they'd moved over to South Dakota too. Then there was argument that a Great Plains Population, consisting of *maxima* geese raised south of the Canadian border, was unaccounted for. There should have been about 20,000 of them mixed in with the Missouri River conclave. That knocked the hypothetical WPP back down to a more reasonable 80,000 birds. No doubt about it. South Dakota was not only stopping most if not all of the WPP, it was also luring converts from two or three other populations, birds that should have been roosting at their traditional winter homes. Those from the Tallgrass Prairie Population usually rest and feed at Cheyenne Bottoms and Quivira NWR. The extremely low 1980 Kansas goose population of 37,000 substantiates claims that the birds were being shanghaied.

This unnatural collection of goose flesh in a normally harsh climate like central South Dakota worried waterfowl managers. Here was a significant portion of all the geese in the Central Flyway, balanced on the cutting edge of disaster. What would keep them alive when a foot of snow dropped over those cornfields? How long would they last in a typical

three-day Dakota blizzard? Would they have the urge to migrate farther south after the winter solstice when the sun began slowly moving north again, lengthening the days and pointing to spring? The lead poisoning problem of the previous winter had been virtually eliminated by adoption of steel shot regulations, but it had shown just how vulnerable the birds were. What if fowl cholera or another disease swept through the congregation?

To its credit, the South Dakota GFP did implement hunting regulations to nudge the geese out of their Pierre area stronghold during the tag end of the hunting season. They increased the bag limit and opened several reservoir refuges to disturb the flocks. Enlightened local sportsmen applauded these moves for the good of the geese, but many selfish hunters remained bitterly opposed to this "harrassment," fearing the goose that laid the golden egg would forget the cornfields and never come back. About as likely as a bull never returning to the heifer pasture.

Unfortunately, the GFP plan didn't work. The reservoirs proved so expansive that geese spooked off one area simply hopped to another undisturbed spread of water. The number of open water hunters trying to get to the flocks was kept low by a combination of laziness (it was easier to take a limit from a dry, comfortable field), lack of proper equipment (floating decoys and big boats are expensive), and fear of high speed bullets (commercial operators had dropped hints that they'd be sighting in on anyone violating the "refuges" directly below their bluff shooting fields). The geese stayed, and by spring they had beaten the odds. The weather had held. But what would happen next year?

Well, the winter of 1981-82 brought a sigh of relief from the biologists and a shout of joy from Kansas goose hunters. Winter progressed more or less normally in South Dakota, bring cold and snow in its due season, keeping many of the geese on their more traditional

migratory schedules. The mid December count in 1981 showed 113,800 Canadas in South Dakota, 145,000 in Kansas, 23,000 in Nebraska and 1,000 in Oklahoma and Texas.

Still, wildlife managers continue to wonder. It's inevitable that a balmy early winter in South Dakota will lure the geese into staying, only to catch them in a blizzard with their migratory mood gone. It is generally accepted that geese which have stayed in an area through Christmas are inclined to remain in spite of the weather. Could this predilection devastate the flocks? Evidence suggests maybe.

In 1962 a February snowstorm buried feed fields at Lake Andes NWR where 12,000 Canadas were wintering. A few died from malnutrition, but the flock shrank to 7,000, so 5,000 must have moved. When the weather broke with a thaw a week later, the flock jumped back to 12,000. During the same storm the local mallard population dropped from 340,000 to 110,000. Some starved, but the majority was back a week later. A small mallard flock in Montana last year wasn't so lucky. When snow covered their one small feed field, 500 ducks died out of a 2,500 bird flock before game officials began feeding them. It was apparent they were too weak to migrate. Still, there is no conclusive evidence that large flocks, especially Canadas, will sit and starve *en mass*. But, as the ever cautious biologists say, there's always the first time.

The fact that most goose flocks are thriving indicates their new wintering grounds are keeping them in good stead. As Frank Bellrose said, waterfowl seem to be able to choose the lifestyle best for their survival. Now that generations of them have learned to stay where the corn is spread, sportsmen will have to learn to live with it and Kansans will have to hope for cold, snowy Novembers to hustle the honkers out of South Dakota while they're still in a moving mood. Shortstopping is here to stay. □



# *Hunting Guide to Kansas*



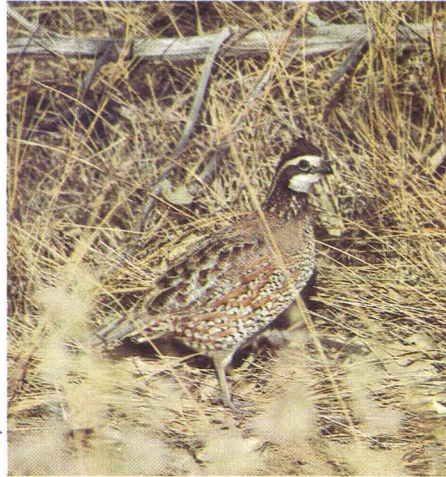
**K**ansas is a state for a hunter. A deer specialist can choose between whitetails and muleys, and, either way he goes, his chances of taking a trophy head are better than in most other states. Even though Kansans have only hunted deer since 1964 and then only under limited permit, fifteen Kansas deer appear in the Boone and Crockett record list. Big game enthusiasts can also

take advantage of an expanding western Kansas antelope population and exploding populations of eastern and Rio Grande turkeys.

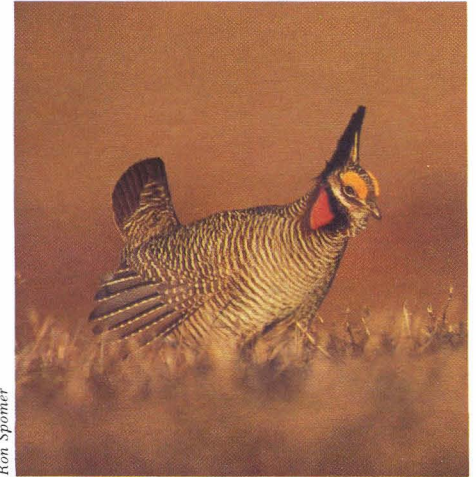
But, as bright as the big game possibilities are, they pale when compared to the state's small game productivity. Pheasants are Kansas' staple game bird. Annual harvest always approaches and sometimes exceeds a million birds, putting Kansas



Gene Brehm



Ron Spomer



Ron Spomer

### **The pheasant**

Introduced to Kansas in 1904, the ringneck pheasant has thrived on intensive agriculture that has handicapped most native game birds. Pheasant habitat consists of almost anything but bare ground. A hunter may find ringnecks in grain field stubble, shelterbelts, weedy corners, grassy waterways, cattail sloughs, pond banks and tailwater edges, or mixtures of native grass and brush. Even the skimpiest fencerow may hold a complement of birds, especially in the first few weeks of the season when weather is mild. Kansas' historic pheasant stronghold was in the western third of the state, a region that still offers superb pheasant hunting, but the ringneck is abundant almost anywhere in the western two-thirds of Kansas and is expanding its numbers in the northeast as well. The mysterious southern boundary of Midwestern pheasant range cuts through the southeastern corner of the state, leaving it without ringnecks in spite of repeated stocking efforts by sportsmen's groups.

### **Quail**

Bobwhite quail have expanded their range and population in Kansas as native prairie has given way to farming and shelterbelts. Today, the bobwhite is found throughout the state, although populations are sparse in the western third of the state. In the west, brushy cover is the limiting cover ingredient; where there is a weedy shelterbelt, a strip of bottomland woods, or an abandoned farmstead, there is probably a covey. The state's best quail cover is found in the southeast where a varied patchwork of woods, brush, grass, and cropland combine with mild winters to produce some of the best bobwhite shooting in the U.S. The northeastern corner of the state, Flint Hills region, and southcentral part of the state also support good quail populations. Kansas also has a second quail, the desert-loving scaled quail, an elusive bird that would rather run ahead of a dog and hunter than flush. Scaled quail are fairly common in the extreme southwestern corner of the state.

### **Prairie chicken**

Kansas is the plains' prairie chicken stronghold, thanks in large part to the extensive rangeland of the Flint Hills, a north-south strip of rolling country in the eastern part of the state. Most of this region has kept its native grass and, as a result, its chickens. Most hunters pass shoot the birds as they fly into corn and milo fields to feed early and late in the day. Upland hunters may also get an occasional shot at a chicken flushing out of grassy roosting cover. The greater prairie chicken common to the Flint Hills is also becoming more common in northcentral Kansas. A second species, the lesser prairie chicken, is found in the southwest, mainly in the sandsage prairie associated with the Arkansas River. Extensive irrigation development has drastically reduced lesser prairie chicken populations, but areas that still have tracts of native grass provide some hunting. Both the greater and lesser prairie chickens congregate in flocks of from ten to fifty birds for spectacular mating displays during the spring.

consistently in the top three pheasant harvest states in the nation. Our bobwhite harvest usually tops two million, also one of the best in the country, and we have more prairie chickens than any other place on the continent. The best part of these harvest figures has to do with the number of hunters doing the harvesting. Kansas hunting is a surprisingly well kept secret. Fewer than 200,000 people hold Kansas

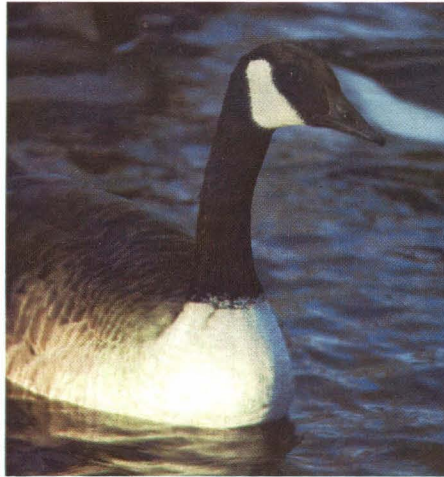
hunting licenses. Of these, almost 43,000 are nonresidents, the twelfth largest number of nonresident hunters in the U.S. They have just discovered what Kansans have known for years—when it comes to chasing a bird with a shotgun, it's hard to beat the Sunflower State.



Ron Spomer

### Game mammals

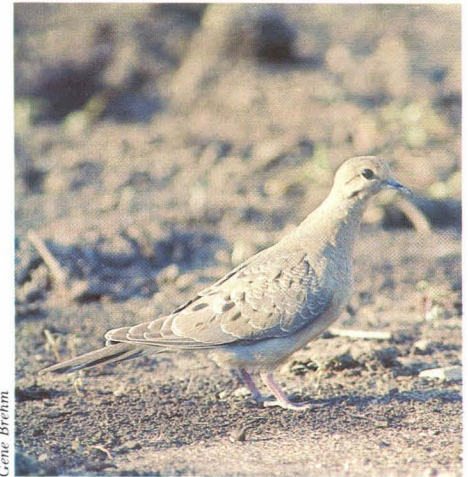
Like the bobwhite, gray and fox squirrels have moved west since settlement of the plains. Fox squirrels are now found all the way to the Colorado border in bottomland timber and shelterbelts. In these western habitats, the squirrels feed on a variety of grains, elm and locust seeds, and osage orange fruits. Because of their restricted habitat and a lack of hunting pressure, they are easy marks for the occasional rifleman who stalks them. East of the Flint Hills, fox squirrels are abundant, and the gray squirrel, an even more tree-loving species, has also established itself. Both squirrels divide their time between crop fields and timber in the eastern part of the state, feeding on waste grains, buds, wild fruit, and a variety of nuts. The cottontail rabbit, America's favorite game mammal has also done well in brushy cover across Kansas. Compared to his eastern kin, the Kansas cottontail is an easy mark for a hunter simply because he is less heavily hunted.



Chris Madison

### Waterfowl

Central Flyway waterfowl move across Kansas in three corridors, one east of the Flint Hills, one through the middle of the state, and another in the western quarter. In wet years when the shallow playas of the High Plains fill with water, the western corridor offers excellent hunting, but waterfowling is generally more dependable in the eastern two-thirds of the state. Early migrants like pintails and bluewinged teal stop over in large marshes like Cheyenne Bottoms, Quivira, Marais des Cygnes, and Jamestown as well as in privately owned potholes and ponds across the state. Reservoirs like Glen Elder, Webster, Lovewell, Elk City, John Redmond, and Milford also attract early migrants and hold large flocks of mallards later on in the season when smaller water freezes. Canada geese migrate down all three corridors; whitefronted geese are common in the western half of the state, and snow geese use areas as far west as John Redmond and Perry reservoirs.



Gene Brehm

### Mourning dove

The mourning dove is easily the most common game bird in the U.S. and probably the most popular. The dove isn't hampered by the lack of cover that threatens most other plains wildlife. It nests successfully in town and around farmsteads, gleans grain from wheat, sunflower, and milo fields, and loafs happily on the margins of trampled waterholes in fields so overgrazed the grasshoppers carry lunchbuckets. Doves may hatch three or more clutches a summer. Although the states north of Kansas have dove seasons, their September opening dates are usually too late to catch the majority of home-grown birds. As a result, Kansas hunters have the luxury of shooting these northern doves as well as Kansas-reared birds. The Fish and Game Commission has begun an effort to concentrate doves on selected wildlife areas by establishing specially managed food patches of wheat, millet, and sunflower. Shooting pressure on these areas is controlled to increase hunter success.

# SOUTHEAST

**1** *BIG HILL WILDLIFE AREA* (8 W and 4 S of Parsons) 1,320 acres. Deer, squirrels, quail, rabbits, doves, and waterfowl.

**2** *BOURBON WILDLIFE AREA* (4½ E of Elsmore) 350 acres. Quail, squirrel, deer, and some duck hunting.

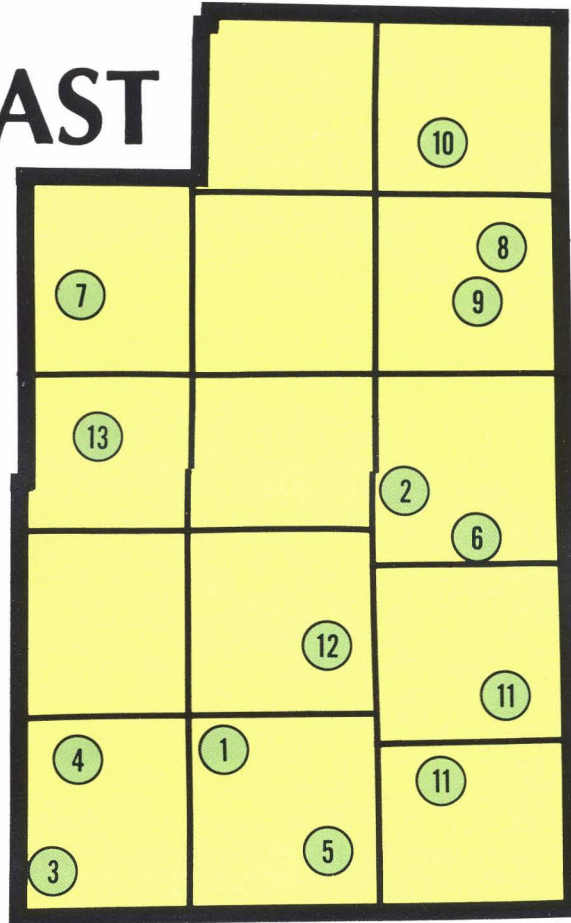
**3** *COPAN WILDLIFE AREA* (½ W of Caney) 2,360 acres. Quail, deer, rabbits, doves, and wild turkeys.

**4** *ELK CITY WILDLIFE AREA* (3 W of Independence) 10,966 acres. Ducks, geese, deer, quail, rabbits, doves, prairie chickens, and squirrels.

**5** *HARMON WILDLIFE AREA* (1 N and 1 E of Chetopa) 102 acres. Deer, squirrels, and rabbits, with limited quail hunting.

**6** *HOLLISTER WILDLIFE AREA* (6 W and 2 S of Fort Scott) 2,432 acres. Quail, rabbits, squirrels, deer, with some prairie chicken and furbearer hunting.

**7** *JOHN REDMOND WILDLIFE AREA* (NW of Burlington) 1,700 acres (Otter Creek Arm) managed by Fish & Game, plus 4,000 acres managed by the Corps of Engineers, plus 9,000 acres (Flint Hills National Wildlife Refuge)






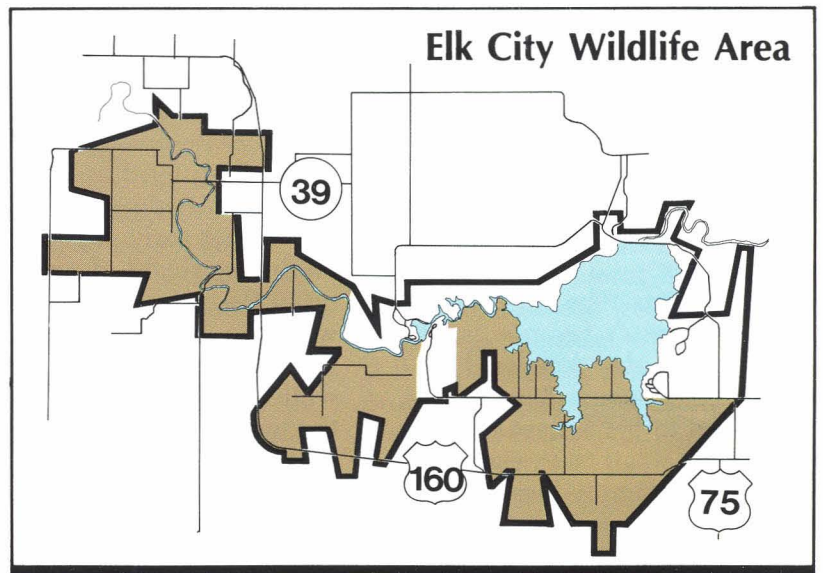
managed by U. S. Fish and Wildlife Service. Ducks, geese, quail, deer, squirrels, rabbits, furbearers, coyotes, and greater prairie chickens.

**8** *LA CYGNE WILDLIFE AREA* (5 E of La Cygne) 4,080 acres. Firearms restricted to shotguns and .22 caliber rifles; no high-powered rifles allowed.

Ducks, geese, deer, squirrels, quail, rabbits, and furbearers.

**9** *MARAIS DES CYGNES WILDLIFE AREA* (5 N of Pleasanton) 6,376 acres. Managed primarily for ducks and geese, but also offers good hunting for squirrels, and deer, with some rabbit and quail hunting.

-  Land owned or managed by the Fish and Game Commission; open to hunting except where otherwise posted
-  Water areas; check local regulations for zones open to hunting
-  Land managed by other agencies; check local regulations for zones open to hunting





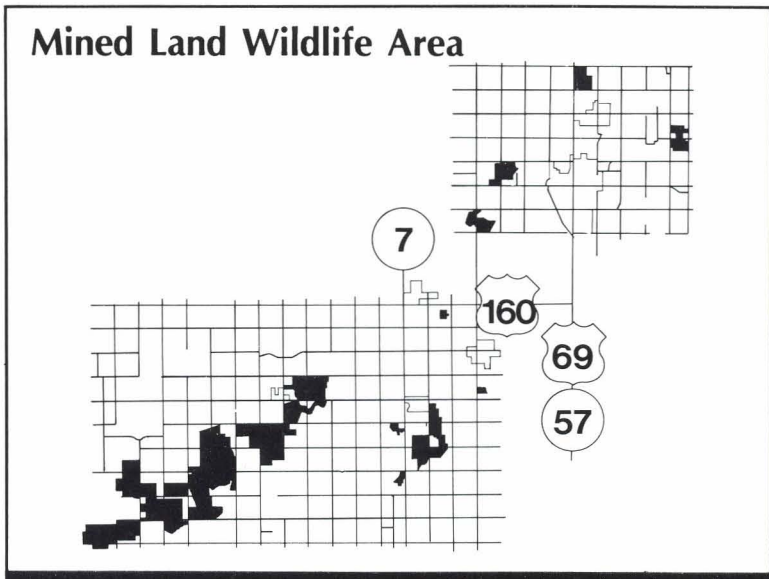
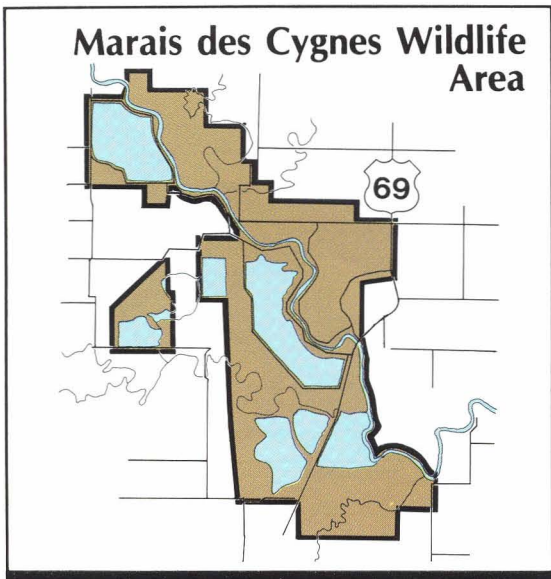
**10** *MIAMI WILDLIFE AREA* (8 E and 5 S of Osawatomie) 267 acres. Primarily squirrel and deer hunting, with limited waterfowl hunting.

**11** *MINED LAND WILDLIFE AREA* (Scattered tracts in Cherokee and Crawford counties) 14,015 acres. Deer,

quail, and rabbits, with some waterfowl hunting.

**12** *NEOSHO WILDLIFE AREA* (1 E of St. Paul) 2,016 acres. Primarily managed for waterfowl hunting, but also offers hunting for deer, quail, rabbits, squirrels, and doves.

**13** *WOODSON WILDLIFE AREA* (5 E of Toronto) 2,400 acres. Prairie chicken, quail, rabbit, squirrel, deer, with some hunting for furbearers, doves, coyotes, and waterfowl.



# SOUTHCENTRAL

1 **BUTLER WILDLIFE AREA** (3 W and 1 N of Latham) 351 acres. Open from October 1 through March 1 each year. Rabbits, ducks, quail, and prairie chickens.

2 **CHASE WILDLIFE AREA** (1½ W of Cottonwood Falls) 452 acres. North shoreline is refuge. Rabbits and quail, with a little duck hunting.

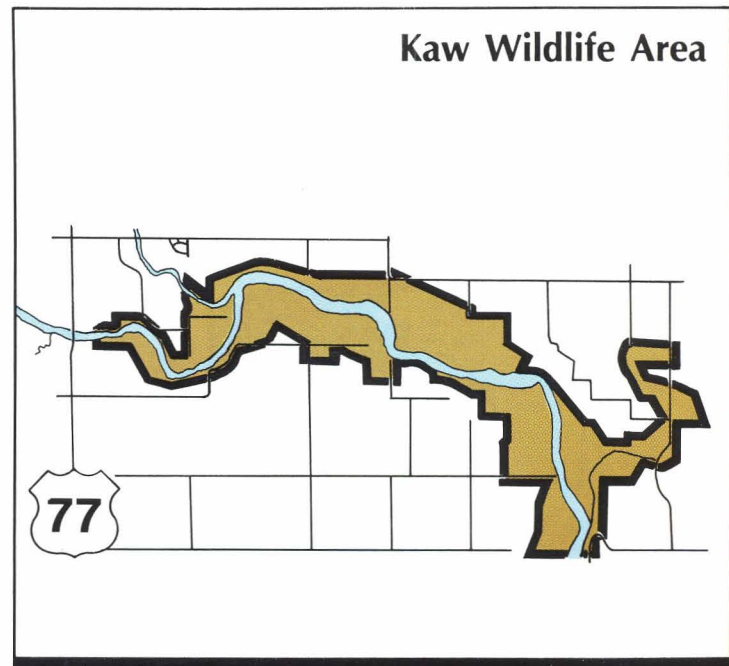
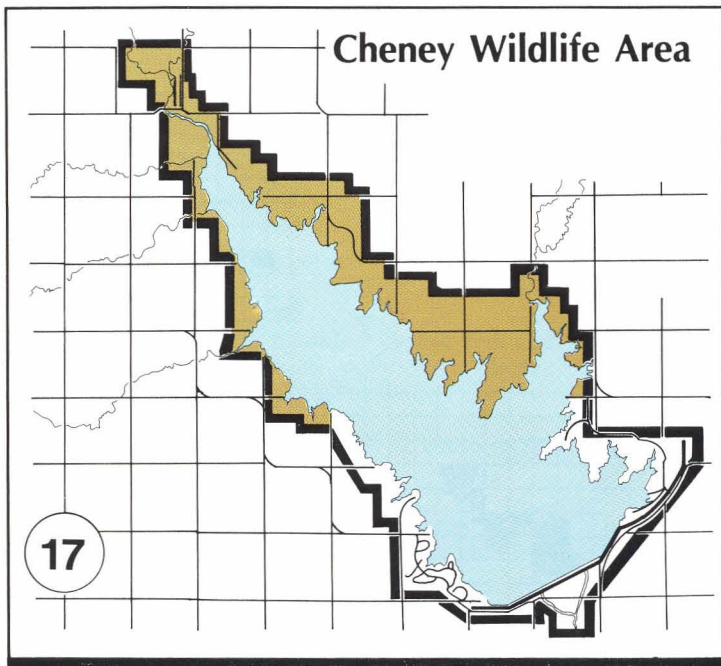
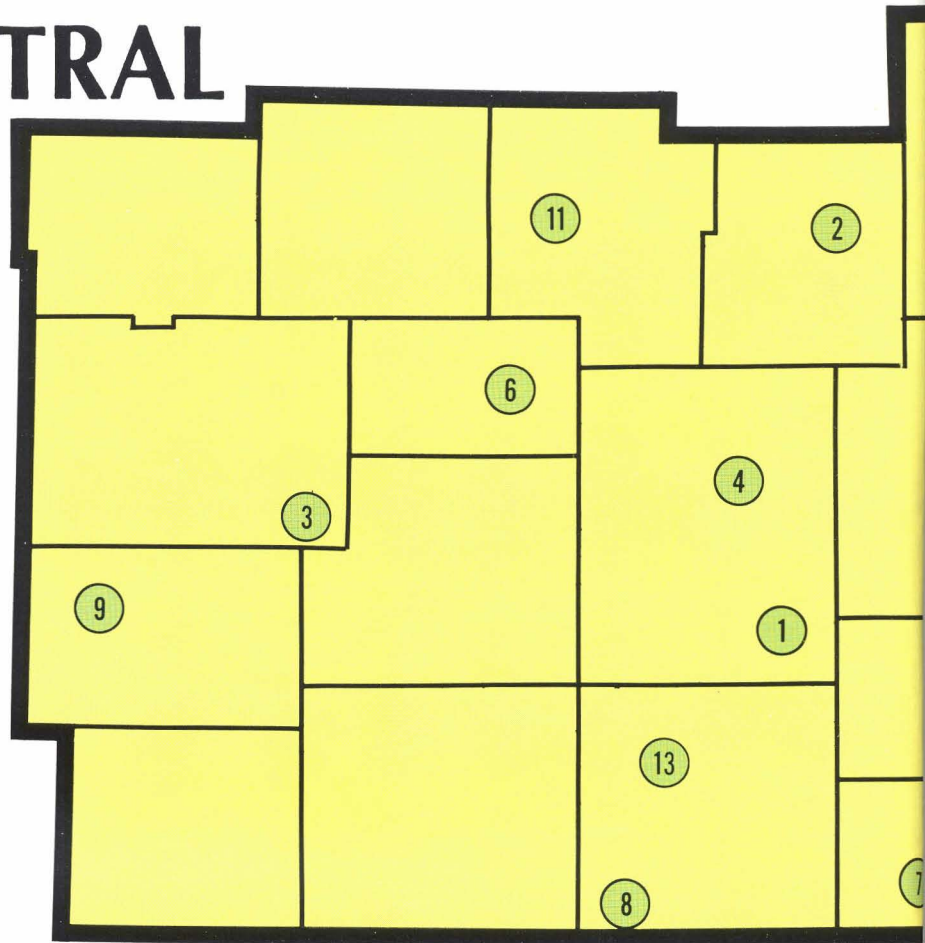
3 **CHENEY WILDLIFE AREA** (7 E of Pretty Prairie) 5,249 acres of land, including a 1,200-acre refuge which is closed to all activities from Labor Day through February 28. Waterfowl, pheasants, deer, rabbits, doves, and squirrels are main species hunted at Cheney, with a few quail, turkeys, and furbearers also taken. A special feature is Eagle Day, the first Saturday in February each year.

4 **EL DORADO WILDLIFE AREA** (6 NE of El Dorado) 2,300 acres managed by the Corps of Engineers. Quail, prairie chickens, deer, doves, rabbits, squirrels, waterfowl, and furbearers.

5 **FALL RIVER WILDLIFE AREA** (7 SE of Eureka) 10,342 acres, including 700 acres in two refuges for a restoration giant Canada goose project. Quail, squirrels, prairie chickens, deer, turkeys, rabbits, doves, waterfowl, and furbearers.

6 **HARVEY COUNTY EAST LAKE** (6 E and 1 N of Newton) 375 acres. Dove, quail, pheasant, rabbit, and squirrel hunting. Fees are charged.

7 **HULAH WILDLIFE AREA** (Several tracts east and west of Elgin) 844 acres. Dove, quail, rabbit, squirrel, deer, and turkey hunting.



10

8 **KAW WILDLIFE AREA** (SE of Arkansas City) 4,341 acres, plus five miles of Grouse Creek float stream. Quail, deer, dove, squirrel, and rabbit hunting, with some waterfowl, turkey, and furbearer hunting, also.

9 **KINGMAN WILDLIFE AREA** (7 W of Kingman) 4,043 acres, plus a lake and land refuge of another 280 acres. Pheasants, quail, rabbits, squirrels, deer, doves, turkeys, and waterfowl are main species sought. A display herd of buffalo also is maintained here.

12

10 **LYON WILDLIFE AREA** (5 W and 1 N of Reading) 562 acres. Quail, rabbits, doves, and waterfowl.

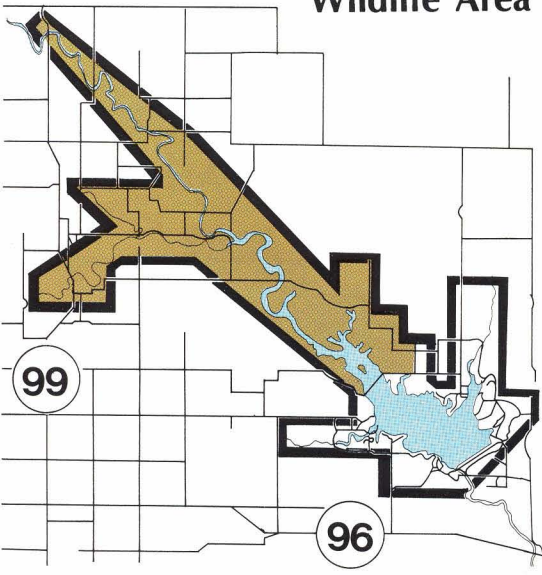
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11 **MARION WILDLIFE AREA** (5 NE of Hillsboro) 3,522 acres of land managed by Fish & Game, and an additional 1,100 acres managed by the Corps of Engineers. Doves, pheasants, rabbits, and waterfowl, as well as deer, quail, and furbearers.

12 **TORONTO WILDLIFE AREA** (1 w or 1 S of Toronto) 4,366 acres. Toronto floods regularly. When flooded, it is good to excellent for waterfowl hunting only. When water levels are low, there can be good to excellent dove, deer, quail, and squirrel hunting.

13 **WINFIELD CITY LAKE** (10 NE of Winfield) 1,200 acres of water open to waterfowl hunting only, by permit. Fees are charged.

### Fall River Wildlife Area



# SOUTHWEST

**1** **BARBER WILDLIFE AREA** (¼ N of Medicine Lodge) 80 acres. Quail, rabbits, doves, and pheasants, with limited waterfowl hunting.

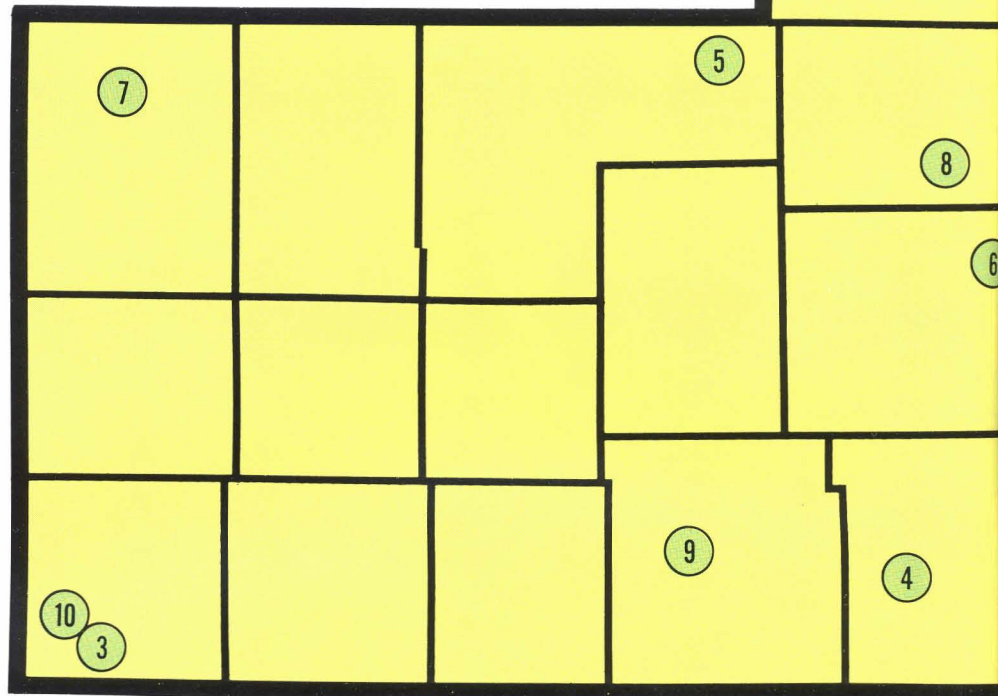
**2** **CHEYENNE BOTTOMS WILDLIFE AREA** (5 N and 5 E of Great Bend) 13,416 acres. Primarily managed for waterfowl, annually attracting great concentrations of migrating birds. Also offers some pheasant, snipe, and rail hunting. Widely recognized for bird-viewing potential.

**3** **CIMARRON NATIONAL GRASSLANDS** (N of Elkhart) 106,000 acres managed by the U. S. Forest Service. Bobwhite and scaled quail, turkey, lesser prairie chicken, mule and whitetail deer, pheasant, dove, rabbit, and coyote hunting.

**4** **CLARK WILDLIFE AREA** (9 S and 1 W of Kingsdown) 1,040 acres. No migratory waterfowl hunting allowed. Deer, turkey, pheasant, quail, and rabbit hunting.

**5** **FINNEY WILDLIFE AREA** (8 N and 3 W of Kalvesta) 863 acres. Pheasant, quail, and dove hunting, with some deer hunting.

**6** **HAIN WILDLIFE AREA** (5 W of Spearville) Migratory bird hunting only.



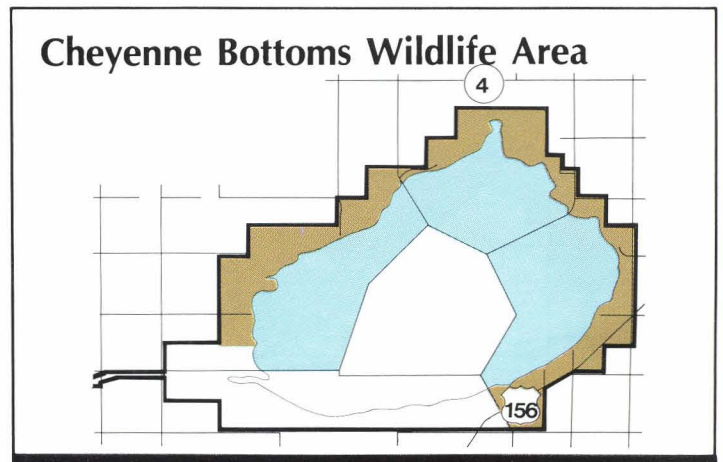
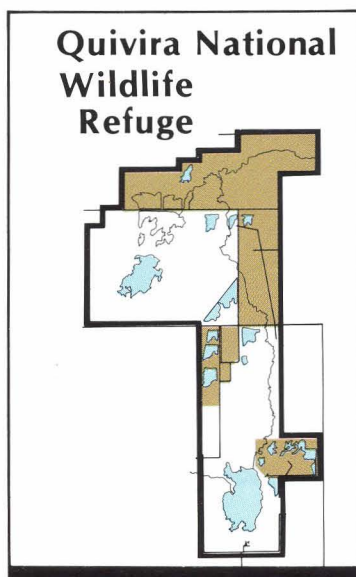
**7** **HAMILTON WILDLIFE AREA** (3 W and 2 N of Syracuse) 432 acres. Pheasants, quail, rabbits, and doves.

**8** **HODGEMAN WILDLIFE AREA** (4 E and 2 S of Jetmore) 254 acres. Pheasant and quail hunting.

**9** **MEADE WILDLIFE AREA** (8 S and 5 W of Meade) 400 acres. Pheasants, quail, doves, deer, turkeys, and rabbits, with some waterfowl hunting.

**10** **MORTON WILDLIFE AREA** (7 N of Elkhart; located within the Cimarron National Grasslands) 533 acres. Bobwhite and scaled quail, wild turkey, lesser prairie chicken, mule and whitetail deer, pheasant, dove, rabbit, and coyote hunting.

**11** **PRATT SANDHILLS WILDLIFE AREA** (5 W and 7 N of Cullison) 4,757 acres. Lesser prairie chickens,





# the yellow pages

edited by Ron Spomer

## WRITING READERS “?&..!”

### EAGER BEAVERS

Editor,

Having just returned from a trip back home (Tonganoxie) was very impressed with all the water retainment with beaver that has taken place in the eastern part of the state. Also sighted deer. Someone is doing something right.

Thanks for a great magazine. All my friends look forward to it also.

Lawrence Siegrist  
Lewiston, N.Y.



Dear Mr. Siegrist,

On your recent visit you undoubtedly witnessed the work of our special Fish and Game Habitat Enhancement Beaver Corps (FGHEBC). We take full credit for all the beneficial projects this crack team completes across the

state. Such destructive acts as cutting hardwood trees, flooding cornfields and blocking road culverts are done by non-commissioned renegade beavers from Oklahoma and Missouri. A tiny, yellow sunflower shoulder patch identifies our beavers. If you wish to commend any one FGHEBC member, send his badge number to Fish and Game Headquarters. We'll see that he gets an extra cord of willow twigs for Christmas.

### DOGGONE THIEVES

Editor,

I always prided myself on saying that I would be the last to put up No Hunting signs. Well, I'm afraid that all that might have to change.

On November 14 somebody drove by my farm and stole my labrador retriever. It pains me that somebody had the nerve to do so. Also ruining the hunting on my land for other hunters.

I hate putting up No Hunting signs, but what I hate more is people coming in and taking what doesn't belong to them.

Dale Elias  
McCracken

Dear Mr. Elias,

The word is out. I'll bet thousands of our readers are watching for your dog

already. Stealing property is bad enough, but abducting someone's friend is despicable. Still, nothing is beyond today's criminals.

Some protection can be afforded pets by tattooing identification numbers on them. Ask a vet about this painless procedure. Dognappers have a difficult time selling marked animals.

It's unfortunate that even if all the land in your county was posted No Hunting, criminals and poachers would still steal game, livestock and property. They pay no more attention to signs than to laws. The only people hurt by posting are responsible sportsmen who respect the wishes of private landowners. Our best defenses against law breakers continue to be concerned citizens working with law enforcement officers.

P.S. I hope you and Scotch get together again.

### PESTICIDE PROFITS

Editor,

I just finished reading the article on endrin and other pesticides, *You Are What You Eat*, in the Sept.-Oct. 82 issue of KANSAS WILDLIFE. The article is a warning that everyone should be taking seriously. The facts speak for themselves.

Modern fence-row to fence-row, and chemical farming is not only one of

the most serious threats all wildlife has ever faced, but it is a threat to us all. There is such a surplus of farm products that prices are lowest in years, so farmers sure don't profit from these modern methods.

The only ones that profit are some of the chemical companies and some of the "ag experts" that preach such methods to farmers, and everyone else. Their profits, however, might prove very short term. It is just possible that our environment can stand only so much poison.

Sincerely,  
Larry Miller  
Caldwell

### WE'RE LATE, WE'RE LATE...

Dear Editor,

At the Kansas State Fair this year I subscribed to your magazine "Kansas Wildlife" for my husband. To this date we have not received a magazine. Would you please check into this.

Thank you.  
Mrs. Leon Black  
Sedgwick



# ...FOR A VERY IMPORTANT DATE!

Dear Sirs,

We have just received our Sept.-Oct. issue of Kansas Wildlife today; that seems a bit late to us. We haven't received Nov.-Dec. issue as of yet and it would seem we should have gotten it by now. Could you please check into this matter?

My husband and I really enjoy the magazine and would like to receive the issues we are supposed to. Thank you.

Mrs. D.W. Brown  
Parsons

Dear Faithful Readers,

*We've always wanted to use that salutation, and this seems to be the perfect time for it. Kansas Wildlife has been late lately, but for good reasons. Or at least reasons over which we had little control.*

*As you can imagine, we don't like a late magazine any more than you. It upsets the readers we'd rather entertain, and it forces us to write apologies like this. Unfortunately, a combination of changes recently has left us shorthanded.*

*Late last year our staff was diverted onto a large publication project for almost a month. At about the same time, we lost three writers and replaced only one here at headquarters. We list two new writers on the magazine masthead, but these individuals are setting up new regional Fish and Game offices in Kansas City and Wichita and haven't been able to contribute to the*

*magazine yet. We lost our typesetter and had to send copy out for much of the Sept.-Oct. issue. Then our illustrator landed in the hospital for two weeks, forcing us to contract with a freelance artist. Finally, we suffered through our biennial bit letting for a printer, and the two of us are ironing out the kinks in our new working relationship.*

*We are committed to give you top-flight photography and pertinent, well researched articles in an attractive package. On time. Thanks for your patience and concern.*

## MYSTERY

### BEHIND THE SIGNS

Editor,

In re-reading your *Stories Behind the Signs*, I just thought maybe you'd be interested in "Mystery Behind the Signs."

I am a month-and-a-half from 80 years of age. We own a country home of 15 acres. We built a catfish pond, with cattails and willows too. We keep some brush piles and heavy cover. We also keep the place posted "No Hunting" as we have some young hunters in the family. However, we have never turned down any kids who asked to hunt or fish.

A few years back, a hunter from Herington drove in, parked in the center of our yard, got out and took off his coat, put on his shell vest and got his gun. I walked out and asked him what he was

doing; he replied that he was going hunting. He did not ask for permission. Just stated the fact. I said, "I don't believe you are." He replied, "Well, I am going hunting." I said, "Mister, I just don't believe you are." He left very angry. But he or someone else sure got even with me.

We left the place to eat Thanksgiving dinner with relatives, and when we got home a neighbor told us a car load of men with 3 dogs worked back and forth across the place until there wasn't a bird left. We were never able to find out who they were.

Another time, we came home to find only one rooster left in a pen of fine fancy chickens we had raised for the feathers for my wife to use in her doll making business.

Another fall we had a large flock of white and colored (green head) ducks which we allowed to go to the pond. We came home one day to find 8 to 10 of the green head drakes shot out of the flock. Some of the green head hens scooted to the yard on their bellies and we had to destroy them.

Some hunters from close by came along and saw the only quail we've had since the day we were cleaned out with the 3 dogs in our hedge. They walked them down the hedge onto the neighbors place, which was also posted "No Hunting." So they were no longer my quail. From there they flew them over the road on land that was not posted. They shot as many as they could down in heavy cover and then came back to

my place to borrow my old Weimaraner, Dutchess to hunt their birds that they had downed. And later on they told me they had started walking that covey at my driveway.

I used to hunt a little. I kept a good dog, and I asked for permission to hunt. And I have several mighty good reasons for the "No Hunting" signs along the road.

Melvin L. Christner  
Burdick

## SPORTSMEN THANKS

Editor,

The Kaw Valley Sportsman Association held its first Farmer Appreciation Dinner on October 3 at De Soto, Kansas. We had a great turnout. Frank NeSmith, Chief of Law Enforcement for your Commission, was our guest speaker.

This was an appreciation dinner to the farmers to let them know that there are still a lot of sportsmen left in this country. We would like to thank all of the farmers for working with us, and we hope to see more of them at our dinner.

We'd also like to thank the Fish and Game Commission for the great work they do for the state. As a Sportsman Association we will back the Fish and Game Commission and work with them in any possible way.

Kaw Valley Sportsman  
Association  
Steve Jenks, Secretary

# RED HOT STRIPERCICLES

## FISHING



Fishing is the hottest under the ice at this time of the year, especially on Wilson and Cheney reservoirs where the striped bass keep anglers fired up all winter.

As soon as the ice forms, usually around Christmas, stripers from four to thirty pounds start hitting jigs fished just off the bottom. Bruce Zamrzla, fisheries biologist for Wilson Reservoir, said 1/4 ounce jigs of nearly any color are the most popular, but a few innovators have been using spoons effectively. They're fishing as deep as 35 feet. Years ago the average depth was twelve feet. That's what it still is at Cheney, according to Gordon Schneider,

fisheries biologist working out of the Newton Fish and Game office. He claims big stripers are occasionally pulled out of water no deeper than three feet on this big, open southcentral reservoir. Jigs are the preferred bait here, too. Although some fishermen tip them with minnows, they don't seem to have any edge over bare lures.

Both biologists noted the jigs do not need to be manipulated much in order to induce a strike. Zamrzla said to slowly lift the bait four feet off the bottom and let it drop back down. Cheney anglers wriggle their lures almost imperceptibly. Some just hold the rod still. Stripers never really "hit." The take is a rather soft mouthing—a heavy feeling on the line. That's the signal to strike. Because the water temperature is usually between 37 and 39 degrees, the stripers aren't sizzling with their usual summer energy, and can be handled

efficiently through a hole in the ice. More than a few lucky fishers have discovered a fifteen pound striper won't fit through the four to six inch hole a standard ice auger cuts. Some gaff the monster below the ice and then bore the hole larger. Others start out with a seven to eight inch hole in the first place.

It's a good idea to work sharp edges from the hole so they won't cut the line.

Zamrzla's studies have shown that one striper is caught for every eight hours work. That sounds like a boring day, but white bass and crappies keep everyone company between the big fish, which travel in schools. When school is out, little fish are the mainstay, but when school is in, watch out. The eight hour pay-off could be one of those twenty-pounds-plus leviathans.

Light lines behave better than the thicker, heavy stuff in the cold, and because even the biggest fish are

lethargic, even four pound test mono works. The thin thread invites more strikes, too. Many anglers use regular fishing rods, but shorter, responsive, light action rods are better. Other important gear includes insulated footwear, some type of wind-break, warm clothes and a supply of dry gloves.

On Wilson the action starts in the Cedar Creek area where the creek and old river bed join. As the ice thickens and moves east, so do the fish and fishermen—as far as Duvall Cove and Elm Creek but again out in the old river channel, not back in the coves. As many as 400 fishermen take to the ice on a nice weekend.

Fish Cove, appropriately, is the center ring at Cheney. Fish out in the channel, be cautious of thin ice, and don't drive your vehicle out on it, or you'll soon wish it had floats.

RS

## NATURAL ISSUES



# AMERICA: FOR SALE

## Conservation Group Sues Watt

Charging that the Reagan Administration is continuing its "whimsical ways of mortgaging the future to balance today's budget," the National Wildlife Federation has joined eight other organizations in filing

lawsuits against the Interior Department's planned coal leasing program and its proposed sale of federal lands.

Interior Secretary Watt's coal leasing program would lease coal—most of it in six

western states—to meet the coal industry's demand for reserves, rather than to meet the nation's projected demand for coal production in the foreseeable future, which had been the previous policy. The land sale involves

the proposed sale of 35 million acres of federally owned land to private owners without first analyzing the environmental effects of such a sale, and in clear violation of laws concerning the disposal of federal lands.

## Watt

Commenting on the actions, Jay D. Hair, National Wildlife Federation executive vice-president, said the coal leasing program "would permit a wholesale giveaway of our coal resources" and, he said, the land sale "is based on a policy of selling as much land as quickly as possible with little regard for social or environmental consequences."

The lawsuit on coal leasing asks that Interior either return to the prior federal coal leasing program, or stop all leasing until new rules can be written. The lands lawsuit seeks to block the sales.

"In both cases, the Administration clearly shows little regard for the public interest, environmental quality, or the value of natural resources," Hair said.

## 1080 Use

An administrative law judge has recommended that the Environmental Protection Agency lift its 10-year-old ban on the use of 1080 to control coyote predation in the West, according to the Wildlife Management Institute.

Judge Spencer T. Nissen said, however, that the use of 1080 should be restricted. He said the compound (sodium fluoroacetate) should be used only in single lethal dose baits applied by experienced federal predator control specialists and in rubber collars attached to the necks of sheep and goats. Ranchers would be permitted to use the collars but not the lethal baits.

## Wetland Woes

Destruction of America's wetlands has been slowed significantly by the permit system established under section 404 of the Clean Water Act, administered by the Army Corps of Engineers. More than 600,000 acres of wetlands would have been destroyed last year if the corps had approved all the applications it received for permission to dredge or fill wetland areas. But under the 404 program, destruction was held down to 300,000 acres.

Most wetland acreage that has been saved by 404 was protected not by denial of a permit, but by project modifications that minimized or mitigated effects on wetlands. Fewer than 2 percent of the applications for 404 permits have been denied.

Even so, the Reagan Administration believes 404 is another case of excessive regulation that is hampering business with red tape, delays and added costs. William Gianelli, Assistant Secretary of the Army, has issued regulations reducing the Corps role in wetlands protection and has reduced the role of other federal agencies as well.

Specifically, he approved nationwide or regional permits for activities in wetland areas in a number of specified categories, such as strip mining, small hydroelectric facilities, and outer continental shelf development. There will no longer be opportunity for review of projects in these categories on a site-by-site basis.

Even more damaging, he ordered nationwide permits

that allow unregulated development in certain categories of wetlands, including vast acreages of prairie potholes, lakes, and bogs of unlimited size. Formerly, this type of permit was granted only for work in bodies of water and wetlands of less than ten acres.

At the same time, Gianelli published revised memoranda of understanding with the Environmental Protection Agency, Fish and Wildlife Service, and other agencies, severely restricting their roles in permit review.

Not content with these revisions, Gianelli plans to propose regulations limiting the Corps' jurisdiction to "navigable waters." This would rule out 85 percent of the wetlands currently covered by 404—fresh and salt water marshes, bogs, wet meadows, prairie potholes and bottomland hardwood swamps.

## Forest Sale

John Block, U.S. Secretary of Agriculture, has announced that 144 million acres of the 190 million-acre National Forest System will be reviewed and that 15-18 million acres likely will be offered for sale.

## 5 Big Threats

Doomsday prophets have been forecasting the demise of this, that and the other thing ever since the first human died. But just because most of them are a few bricks shy of a load, we shouldn't dismiss all prognosticating about our

future. After all, volcanoes have erupted, and the earth has rumbled and species have been wiped off this good earth forever. A healthy knowledge of current events and the direction they might lead us may help us avert a disaster.

Russ Peterson, president of the Audubon Society, recently listed the following "major threats to our global ecosystem" during a keynote address to an international hearing sponsored by the United Nations:

"First must be the threat of nuclear war" he said. "Every other threat to the environment pales in comparison.

"Second is the growth in human population. Now the world is adding its fifth billion in just ten years. It is the growing number of things each person wants which affects the environment. Wasteful use of resources magnifies the impact of population growth.

"Third is the impact poor people have on the Earth's resources in their struggle to fulfill basic human needs. A hungry person couldn't care less about killing protected game, overfishing a lake or overcutting firewood. We must work to reduce poverty.

"Fourth is the production and use of energy. Mining of coal and uranium damages the land. Burning fuel pollutes the air, causes acid rain. Excessive forest cutting causes soil erosion and depletes watersheds. Oil spills defile coasts. Nuclear plants produce huge quantities of radioactive wastes.

"Fifth is the production, transport, and disposal of toxic chemicals. With the advent of modern chemistry, tens of thousands of new compounds have been

created, many of which are highly toxic and cannot be recycled by nature. Hardly a day goes by that we don't receive news of a hazardous waste dump, seepage of toxic material into drinking water, a spill along a highway or into a stream, and so on."

## Those Dam Builders

It hasn't rained much in western Kansas since last July. That's been tough on the fish and game associated with streams.

As the water slowly evaporated last fall, mink, raccoons, herons and other meat eaters congregated at scattered pools where fish and amphibians were trapped. They feasted for awhile, but eventually the shallow pools dried up and the terrestrial wildlife was in big trouble. Unless there was a beaver in the neighborhood.

Nature's buck-toothed engineers are the salvation of thousands of critters during dry periods. Their dam building seems to peak just when water is scarcest, and the deep pools they create become the last refuges for fish, amphibians, reptiles and mammals. If the drought doesn't last too long, this "seed stock" spreads out to repopulate the valley, and once more we are blessed with muskrats, catfish, kingfishers and the hundreds of other species that make outdoors interesting.

All because a few beavers give a dam.

## Wildlife Hinders Ag?

Concern has developed within state governments of the prairie pothole region in recent years that the U.S. Fish and Wildlife Service's recommendations for mitigating water development projects take valuable agricultural land out of production and off the tax rolls, the Wildlife Management Institute reports. The record does not support that contention.

The State of South Dakota has recommended that the Service count wetlands purchased under the Small Wetlands Acquisition Program as mitigation for wildlife habitat lost to water development projects, even though the programs are not related by any stretch of the imagination. The Fish and Wildlife Coordination Act mandates that water development agencies purchase lands for intensive wildlife management to mitigate habitat lost to water projects. The Small Wetlands Acquisition Program uses Duck Stamp receipts and loans from future Duck Stamp receipts to buy easements on wetlands to protect migratory bird habitat.

Wildlife mitigation has been and is an insignificant part of water project costs, contrary to what the State of South Dakota claims. A recent analysis by the U.S. Fish and Wildlife Service found that more than 1.1 million acres of South Dakota land had been gobbled-up by federal water

development projects. However, only 500 acres had been purchased by the development agencies for wildlife mitigation on all the projects. Furthermore, most of the 500 acres were leased back to original landowners for existing agricultural uses. Obviously, habitat mitigation has not eroded the agricultural land base in South Dakota.

## Five Hunters In One

A hunter is really five different hunters, but at different times in his life, according to a field study by Dr. Bob Norton and Dr. Bob Jackson of the University of Wisconsin.

During the first stage of a hunter's evolution, he is a "Shooter." Satisfaction is measured by how many times he pulls the trigger.

The "Limiting-Out" stage finds the developing hunter striving to kill his limit every time out. Success is measured by how much legal game is taken.

The next step is the "Trophy" stage. By now, the hunter has developed his skills and knowledge enough that he can take pride in killing selectively. Big bucks or nothing but drake mallards or long bearded turkeys, for instance.

During the "Method" period, technique becomes all important. Ducks must be shot only when decoying to handmade blocks. Equipment is essential: calls blinds, dogs, specific firearms. Deer can only be shot after

tracking or stalking. Drives or stump sitting aren't quality enough for the Method hunter, who bags to hunt, rather than hunts to bag.

Finally the hunter reaches the "Sportsman" stage. He mellows out, finding satisfaction in the total outdoor experience. The weather, companions, scenery, nature and time spent outdoors become pleasurable, satisfying measures of the hunt. The Sportsman no longer need judge his worth or control his world by the taking of game. According to Norton and Jackson, few hunters reach the Sportsman stage before they are 40 years old.



## Poison Ban Request Made

The Central Flyway Council has asked for a complete ban on heptachlor. The insecticide is already banned for most uses, but significant amounts are still found in the flyway's waterfowl.

# Nature's Notebook

## by Joyce Harmon

Wildlife Education Coordinator  
Kansas Fish and Game Commission

### A HORSE IS A HORSE\*

\*(Of course, Of course)

Animals. There are all kinds of them! There are meat eaters and plant eaters, furbearers and feather wearers, tall ones and small ones. Some are noisy, some are quiet, some like daylight, others night. Many run and many fly and some with scales just slither by. There are horses, mosquitoes, frogs, coyotes, hawks, bluegills and lizards. The list is endless. How does anyone begin to organize all these critters? Through TAXONOMY.

TAXONOMY is a system of classification that groups animals according to their similarities. For instance, all animals that have backbones are grouped as VERTEBRATES. Vertebrates with feathers are grouped as birds while those with hair or fur are recognized as mammals. These broad groups are further separated. Mammals that grow antlers are deer, those that gnaw with large, curved incisors (like beavers and mice) are rodents. The more physical characteristics animals have in common, the more closely they are related.

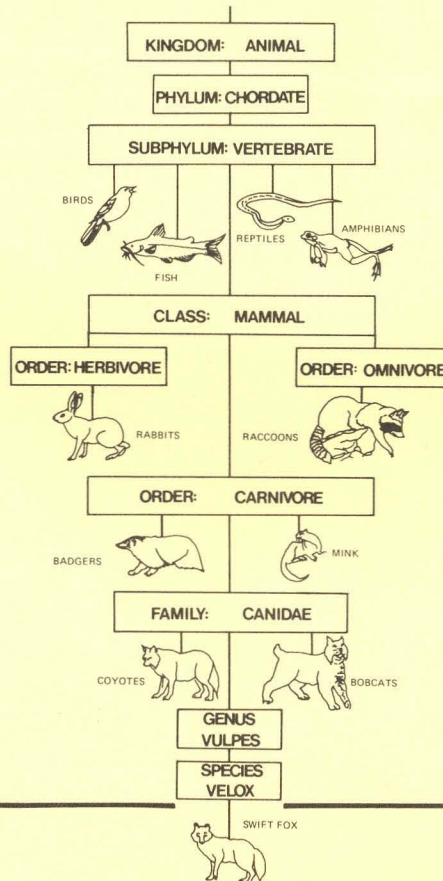
The standard ranking system classifies creatures from broad similarities to specific similarities in these categories: Kingdom, phylum, class, order, family, genus, species. Here is what the classification of a horse looks like:

- KINGDOM: Animal
- PHYLUM: Chordate
- SUBPHYLUM: Vertebrate
- CLASS: Mammal
- ORDER: Perissodactyl
- FAMILY: Equidae
- GENUS: Equus
- SPECIES: Caballus



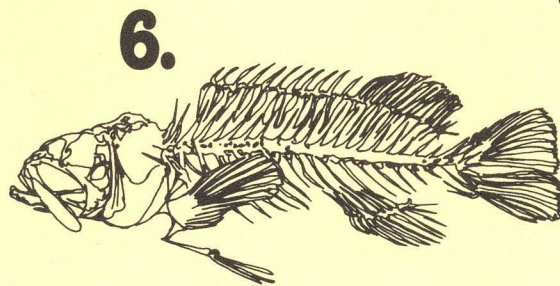
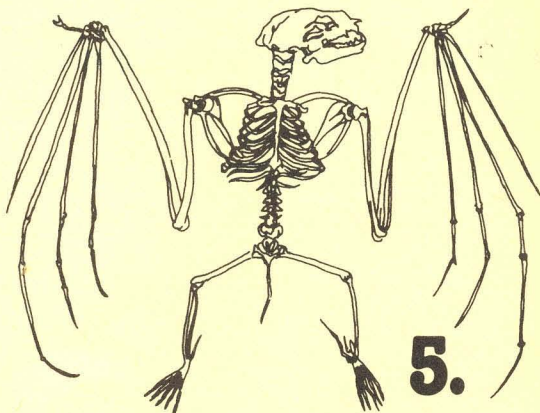
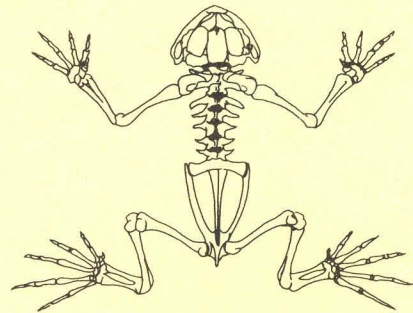
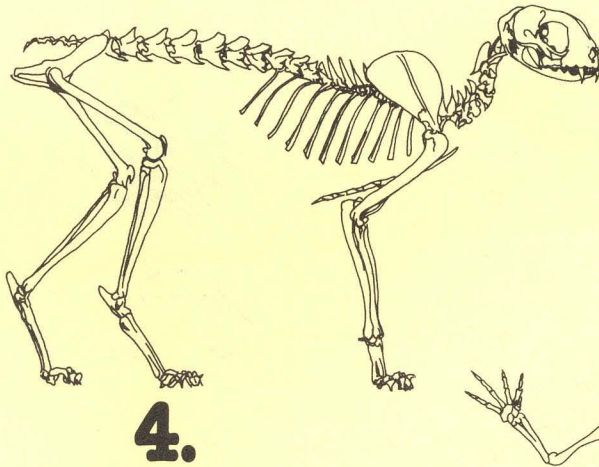
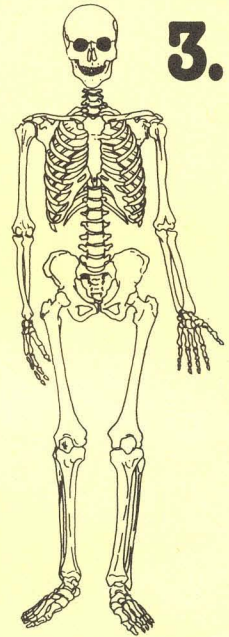
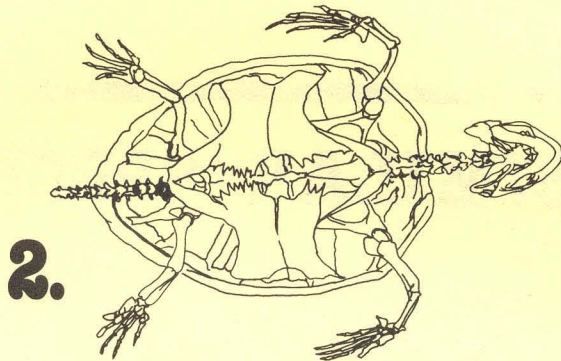
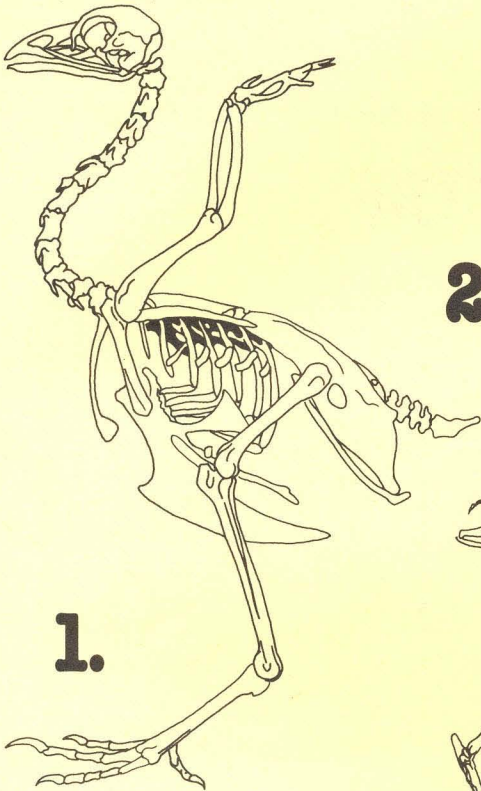
As you can see, most of these taxonomic titles are Latin words. After a little study, you should be able to place living things in their proper Kingdom through Class, but because there are so many Orders through Species, you'll need to look them up in a text or identification book.

Try your hand at classifying an animal by building a mobile. Attach pictures and names to a cardboard backing and hang them beneath one another in the appropriate order. This mobile classifies Vulpes velox, the Swift Fox.



# make no bones about it...

X-rays have been made of several vertebrates (animals with backbones). See if you can name the animal by looking at its bones.




- 1. bird
- 2. turtle
- 3. human being
- 4. bobcat
- 5. bat
- 6. fish
- 7. frog


# BULLETIN BOARD IDEA

Empty bulletin board or wall space can be put to practical use with the following idea. Children review classification skills by deciding how the following groups of animals are alike. Answers can be placed in an envelope and discussed at the end of the week. Start over with a new group of animals the next week. Below are a few suggestions; add your own ideas.

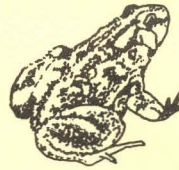
## SIMILAR SPECIES




How are they alike?




salamander



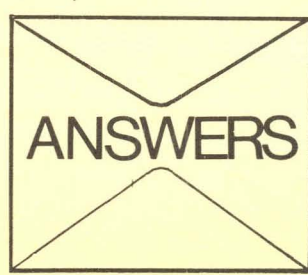
toad



newt



frog



channel catfish  
bluegill  
walleye  
paddlefish  
(FISH)

rattlesnake  
turtle  
alligator  
chameleon  
(REPTILES)

mouse  
coyote  
whale  
antelope  
(EACH END IN SILENT E)

whale  
otter  
elk  
bat  
(MAMMALS)

brown recluse  
owl  
skunk  
firefly  
(NOCTURNAL)

passenger pigeon  
Labrador duck  
Stellar's sea cow  
Audubon's bighorn  
(EXTINCT)

deer  
grasshopper  
beaver  
antelope  
(HERBIVORES)

western kingbird  
largemouth bass  
plains leopard frog  
red-sided garter snake  
(VERTEBRATE)

bobcat  
eagle  
hawk  
scavenger beetle  
(CARNIVORES)

black-footed ferret  
whooping crane  
gray bat  
peregrine falcon  
(ENDANGERED SPECIES)

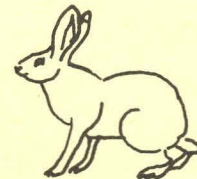
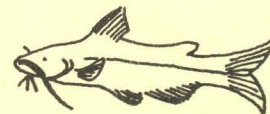
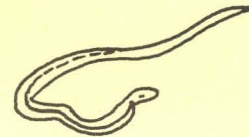
scissortail flycatcher  
Mississippi kite  
winter wren  
osprey  
(BIRDS)



# Taxonomic Terms

**Taxonomy** is the study of animal and plant classification. See which questions you can answer right away. Complete the remaining questions with further study.

- Putting animals into groups to make study easier is called
  - phylum
  - cold-blooded
  - classification
  - herbivore
- Animals with backbones are
  - invertebrates
  - vertebrates
  - characteristics
  - mammals
- The five main groups of vertebrates are
  - mammals, birds, reptiles, amphibians, and fishes.
  - mammals, insects, birds, amphibians, and fishes.
  - mollusks, mammals, reptiles, fishes, and insects.
  - reptiles, spiders, fishes, mammals, and birds.
- Animals that maintain a constant body temperature are
  - amphibians.
  - cold-blooded.
  - reptiles.
  - warm-blooded.
- Herbivores are
  - hungry.
  - plant-eaters.
  - meat-eaters.
  - eat both plants and meat.
- Animals that change body temperature to match their surroundings are
  - cold-blooded.
  - mammals.
  - vertebrates.
  - warm-blooded.
- Reptiles breathe with
  - air pockets.
  - gills.
  - lungs.
  - both gills and lungs.
- Omnivores eat
  - plants.
  - animals.
  - both plants and animals.
  - fish.
- Animals that are active during the day are
  - hibernators.
  - nocturnal.
  - tired.
  - diurnal.
- Amphibians are covered with
  - hair.
  - scales.
  - moist skin.
  - feathers.



KEY: 1) c; 2) b; 3) a; 4) d; 5) b; 6) a; 7) c; 8) c; 9) d; 10) c.

## BONUS:

Why are animals classified? \_\_\_\_\_

List at least three ways that animals are classified. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

## Tag Comes Home

PORTIS—Tag, Tracy Coop's 5-year-old Brittany dog that distinguished itself as a pheasant hunter, has returned home after a year's absence.

Rick Grabill, editor of the Osborne County Farmer, tells the tale in his "Farmer of Main Street" column. Tag disappeared a year ago, sending Coop on uncounted search missions, all of which proved fruitless.

Gene Coop, Tracy's father, speculated that because Tag relished hunting, he followed hunters into the

field and was picked up. He further speculates that those hunters returned to the area this year, giving Tag an opportunity to bolt for home.

Perhaps that explains why one recent day the family found the dog on the front lawn. Tag, the Coops report, is in good condition and seemingly was well cared for during his absence.

From the  
Hays Daily News

## A Hunting Midget?

The Fish and Game Licensing Division got a little suspicious when it received a Lifetime Hunting and Fishing License application from a 30-inch tall, twenty-five pound person with no driver's license, no Social Security number and no Hunter Safety number. He claimed to be a lifetime resident of Kansas, and investigation proved him to be correct.

No, he isn't the world's smallest outdoorsman. Riley Alan Buster of Manhattan, Kansas, is the state's youngest

lifetime license holder, born August 22, 1981. He doesn't realize it yet, but his future hunting and fishing is inflation proof. His dad saw to that by investing \$400 in the combination license. Of course Riley won't be able to hunt until he earns his Hunter Safety Certificate, but if he inherited any of his dad's enthusiasm, he'll get more than his money's worth. And 20 years from now, while his buddies are buying annual licenses, Riley will be saving his money for a new shotgun.

# BOUNCING BUNNIES

## HUNTING



The dull season is here. When the bird seasons close and the spring fishing is still months away, outdoor life tends to get boring. Unless you chase cottontails.

Late winter is the perfect time to hunt bunnies. It's the only game in town, and it's a fun one to boot. This year the Sunflower State is hopping with rabbits. They're flourishing in the thick cover that sprouted during last year's rainy season. Most of us ignored them during our pheasant and quail hunts, but we couldn't help noticing how

many there were. If you're like me, you probably vowed to bag a few when things slowed down later in the season. Well, the time has come. Grab your coat and let's go.

Shotguns are the most commonly used rabbit harvesting tool for two reasons: They're efficient and most hunters have one. They'll work especially well this winter because all that cover will make seeing bunnies almost as hard as hitting them. Expect fleeting glimpses of grey ghosts zipping through the vegetation. Shoot fast and straight. And don't forget to follow through. If you're like me, you'll find it ridiculously easy to stop your swing on a ground target.

If it snows an appreciable amount, riflemen have reason to rejoice. Snowbound cottontails

usually hole up in a brushpile or thick stand of vegetation. In the late afternoon and early morning you'll find them along the edges of these fortresses. Sneak into position early and snipe them with a .22 rimfire. If the weather has been really nasty, you'll find them sunning themselves throughout the next clear day.

Shelterbelts or any other strip cover can be "drive hunted." Put shooters on each edge while men and dogs flush the middle. Resident bunnies should squirt out the sides for a clear shot. You might also try posting a shooter at the end of a short strip of cover. Spooked rabbits will run to the undisturbed end and usually pause, giving the hunter easy shots. Safe gun handling is mandatory in this situation. Don't shoot toward the walkers.

If the cottontails don't "hole up," they'll eventually circle back to their starting point, so take a stand where you have a good view and clear shot.

Of course, trained dogs make for an entirely unique method of hunting. As I understand it, the hunters walk through cover with the hounds until they strike a hot trail. Then the dogs enjoy a merry chase until they run the bunny past one of the shooters.

There are more ways to hunt our abundant, brush-loving rabbits. You'll probably think of several once you get out in the fresh air. And when you finish cleaning your take, you can begin discovering the dozens of ways to prepare them for the table.

—RS

# GAME VIOLATORS PAY



## Big Bucks Buck

One deer can be awfully expensive when four people take it illegally. Daryl E. Johnson and Huebner B. Howlett of Andover paid fines and court costs totaling \$2,076 for illegal possession of a deer which was killed on Glen Elder Game Management Area Sunday, November 14, 1982.

Game Protectors Doug Sonntag and Arch Moberly discovered one quarter of the deer meat during a routine roadside check near Glen Elder. The rest of the carcass was en route to a Butler County farmstead. Harley Bennet of the Butler County Sheriff's Department intercepted it and its shippers later that night.

Since the deer was taken in Osborne County, District Magistrate Judge Shirley Henderson heard the case and leveled some fines, \$500 per man plus \$19 court costs each.

## Altering Ego

Fishing without a license is a great way to get a

free lunch—unless you get caught. Harold E. Unruh of Wichita got caught.

When Game Protector Bruce Bertwell cited Unruh for fishing without the required \$8 license, the unhappy angler agreed to his wrong doing. But instead of paying the \$50 fine and \$19 court costs, Unruh changed his plea to not guilty, and brought the Judge his license. The Judge studied the document, questioning an apparent alteration. Sure enough, Unruh had bought the license after his arrest and changed the date of purchase.

The Judge charged him \$19 for court costs on his initial guilty plea, \$200 for altering a fishing license, and \$84 in court costs.

It's not nice to fool the Judge.

## Archers Rifle Deer

Taking your venison with a bow and arrow isn't the easiest task, but failing to do so doesn't give anyone the right to shoot a deer with a rifle to fill an archery tag.

Kenneth Poston shot a deer November 8. His friend Gary Gerber put his archery deer tag on it, and Monte and Ray Whitaker hung the carcass in their garage. Acting on a tip from an anonymous caller, Game Protectors Tracy Galvin and Jack Dunbar investigated and ticketed the man with possession of an untaged

deer, taking deer out of season, and illegally placing an archery tag on a rifle killed deer. Poston paid a \$550 fine, was sentenced to six months in jail and forfeited his rifle to the State's Hunter Safety Program. The other men paid \$250 fines each. All were from Anthony, Kansas.

## GP's Know All

Psst! Hey. Wanna buy a deer license? It's easy. Just apply for a landowner permit. They get half of all available licenses at reduced cost. Those Fish and Game people in Pratt will never know you don't own any land.

That's what Charles E. Justis and Leila Justis of Greenleaf, Kansas, thought. They ended up paying \$269 each to find out just how much Fish and Game really does know. Game Protector Terry Clotier discovered their "misrepresentation" ploy, took their illegal permits away, and ticketed them.

License recipients for all special permit hunting seasons in Kansas are recorded on computer print-outs which are sent to game protectors across the state. They check with Registers of Deeds when they suspect someone may be trying to cheat.

Often other hunters, who are unlucky in the annual draw for limited hunting permits, report

aquaintances who cheat to get more licenses than they deserve.

Either way, the cheaters learn that it doesn't pay to try beating the system designed to give all Kansans a fair chance at limited big game hunting licenses.

## Rabbit Catchers Caught

Seven southwest Kansas men, including one police officer, recently learned you can't get rich trafficking in illegally taken wildlife.

The men had been catching live blacktailed jackrabbits for sale to racing dog trainers at \$8 each. At midnight, September 22, Game Protector Bruce Peters turned the tables and caught the entrepreneurs—and that ended up cutting into their earnings.

Arrested were Lyle Lashmet, Lakin; and John Lashmet, Sr.; John Lashmet, Jr.; Marlin Hogie; Robert Hale; Andrew Worm, Jr.; and Wes Loader, all of Manter, Kansas. They had been driving through pastures, spotting rabbits with artificial lights, shooting over their heads to frighten them into "freezing," and catching them in nets. They wouldn't have been in any trouble if they'd purchased the special rabbit catching permit, gotten written permission from the landowner, used the proper

ammunition (.22 shorts or longs), and all bought hunting licenses. As it was, the Judge levied a total fine of \$712 divided among the men according to their violations.

## Alabama Man Sets Record

An Alabama man has been sentenced to 20 years in prison following his conviction of three felony counts stemming from an assault on a Federal wildlife officer, illegal sale of deer meat, and drug violations. The sentence was the longest ever imposed for a conviction on a Federal wildlife-related charge.

Russell Harris of Brewton, Alabama, was sentenced in Mobile Federal District Court to 10 years in prison for assaulting a Federal wildlife officer and five years for violating the Federal Lacey Act, which prohibits the interstate movement of wildlife or wildlife parts taken illegally in the States. It is illegal in Alabama to sell any part of a wild deer. Harris was also sentenced to another five years for sale of marijuana. Federal District Court Judge Emmett Cox stipulated that the five-year sentence for the drug charge and the ten-year sentence for assaulting an officer be served consecutively.

The stiff sentence for the assault charge was the maximum permitted for assault with a deadly weapon. This is the first time the maximum sentence was imposed.



Snow is silly stuff. I found that out a long time ago when I took some into Mom's kitchen.

I'd caught a big flake on the back of my brown jersey glove. It had all these jagged corners and edges, but they looked the same. I'd have called them symmetrical if I'd known what that was. They caught my fancy, though, and I ran in to ask Mom about them. When I got there, the snowflake was gone. There was just a dark spot on my glove where that sparkling crystal had been moments before. The spot didn't have any symmetry. I did my snow study outside after that. Couldn't trust the stuff inside the house.

While snowflakes themselves are a delightful mystery, a snowfall is magic. Suddenly there are all these flakes appearing in mid-air. You can look up to see where they're coming from, but there's never anything there. Just thousands of flakes instantly materializing at the edge of your vision. Sometimes they come at you fast and hard, and no matter how much you try, you can't open your eyes to watch. Other times they drift down slow and gentle and even when they land in your eyes it doesn't hurt, so you can watch them a long time. You can't hear the slow snowflakes land, but you can hear the fast ones. They hiss in chorus, and if you spend enough time out in the snow

# Let It Snow Let It...

you might hear how just one sounds. There aren't any words to describe it.

One kind of snowfall puzzled me as a boy—the blizzard. Instead of falling from the sky, it started up north somewhere and shot across our yard horizontally. The snowflakes in a blizzard were always nervous and ghostly. They traveled in confusing masses, and even when they managed to hit ground they bounced up and went flying off again. Big clouds of them would billow up behind drifts and go racing into the night. Even the ones that dropped on the doorstep out of the wind jiggled around in fits and stops.

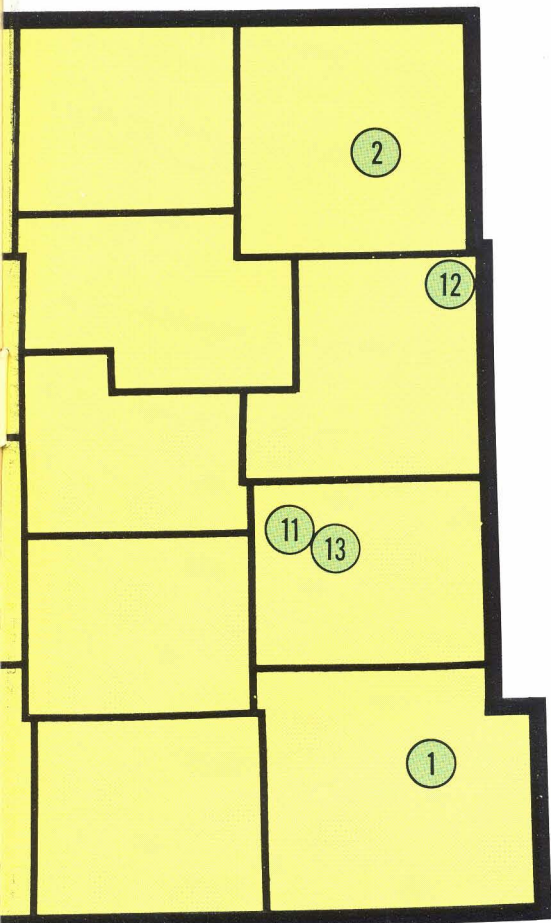
As exciting as blizzards were, the gentle snowfalls worked the most magic for me, especially from 5:30 to 6:00 p.m. when Mom shooed me out of the kitchen and I went into the December dark to wait for Dad to come home from work, the car tires squeaking up the driveway. Most nights an old broom handle was my companion, and after making a few angels' wings and looking up at the snow falling in my eyes, I'd turn it into a rifle. I was Sergeant Preston of the Yukon with my dog what's-his-name. I knew it back then. He helped me fight many an escaped crook. We chased them through the Arctic wastes, shot a few and wrestled the rest over and over through a tumble of snow, driving it up my sleeves and down my boot tops. With my rifle I vaulted over drifts that were

chasms or ice-swollen rivers. Many a night I lay mortally wounded in a cold bed of snow, only to be rescued by Mom's call to supper.

On the plains of my youth, the only sledding hills were the ones Dad built. When he shoveled out the driveway, he heaped the snow beside it, sloping one side down to the packed tire tracks. Sometimes he sprinkled water over it to make it faster. Then we could coast almost all the way to the road.

Snow mountains were good for climbing over and digging into. Sometimes the wind created them, but usually the street crew piled them up. We used them at night, scooping out long passageways that led to a central room lit with a candle and big enough to sit up in. No one knew you were inside these snow mountains unless they found the small entrance hole. Sometimes we disguised it with big chunks of snow we pulled in after ourselves. We could hear our school chums playing King-on-the-Mountain above us, their feet thumping and their voices dull like they were talking through pillows. We felt smugly safe until someone asked what would happen if they stomped in the roof and buried us. We scrambled out wildy.

Years later when I was 14 and hunting jackrabbits, I discovered that they dug snow caves. They went bounding over the frozen fields when I came stomping up above. I knew.



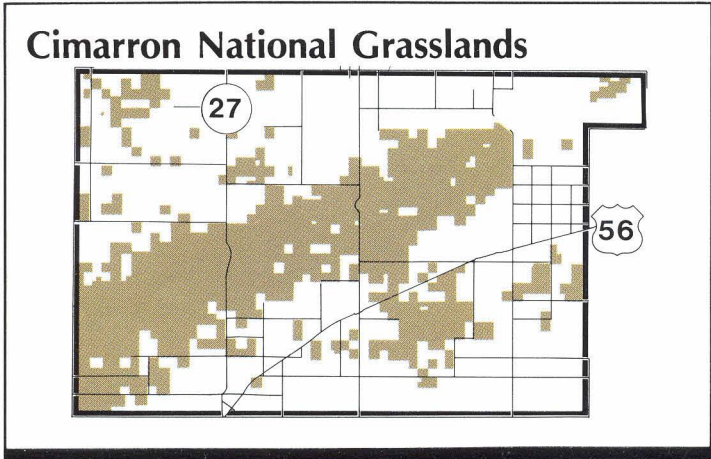
pheasants, quail, doves, deer, coyotes, and rabbits.

**12** *QUIVIRA NATIONAL WILDLIFE REFUGE* (13 NE of Stafford) 6,350 acres. Waterfowl, pheasants, quail, deer, squirrels, rabbits, and doves.

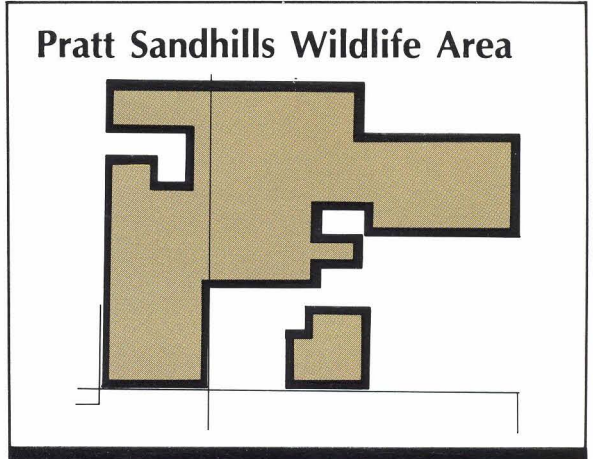
**13** *TEXAS LAKE WILDLIFE AREA* (4 W and 1 N of Cullison) 560 acres. Waterfowl, pheasants, quail, rabbits, and doves.

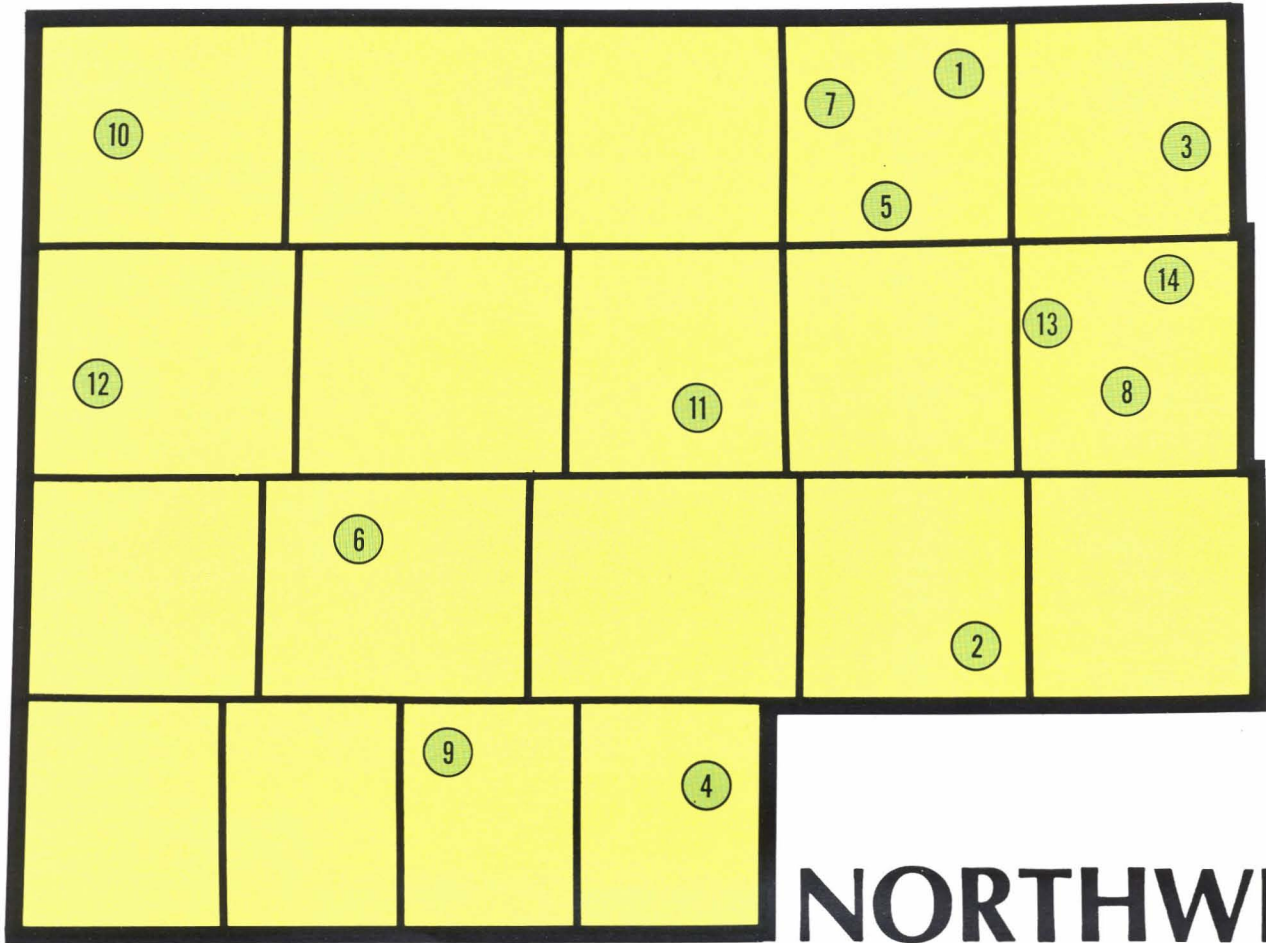


Gene Brehm



Kansas Wildlife





# NORTHWEST



**1** *ALMENA DIVERSION WILDLIFE AREA* (2 S and 1½ W of Alma) 111 acres. Primarily deer, quail, and pheasant hunting, but some waterfowl, dove, turkey, squirrel, and rabbit hunting.

**2** *CEDAR BLUFF WILDLIFE AREA* (13 S of I-70 on K-147) 11,834 total acres, with about 2,000 water acres. Primarily hunted for pheasants and deer (whitetail and mule); also hunted for coyotes, waterfowl, quail, turkeys, doves and rabbits.

**3** *KIRWIN NATIONAL WILDLIFE REFUGE* (15 SE of Phillipsburg) 3,700 acres. Most of area is refuge but parts are open to public hunting. Geese and archery deer, primarily; also good for quail, pheasants, doves, and rabbits. No rifles or handguns.

**4** *LANE WILDLIFE AREA* (3 E and 6½ N of Dighton) 42 acres. Area is an abandoned lake bed with good weed growth and some trees. Good hunting for pheasant and dove.

**5** *LENORA WILDLIFE AREA* (2 E of Lenora) 150 acres. Quail, deer, and pheasants, with some rabbits, doves, and squirrels.

**6** *LOGAN WILDLIFE AREA* (9 S of Winona) 271 acres. Good for dove and pheasant hunting, with some mule deer. When lake has water, duck hunting is good.

**7** *NORTON WILDLIFE AREA* (6 W and 2 S of Norton at Keith Sebelius Reservoir) 5,656 total acres, with about 750 water acres. Primarily hunted for pheasants but also good for quail, mule and whitetail deer, ducks, geese, turkeys, coyotes, rabbits, and doves.

**8** *ROOKS WILDLIFE AREA* (1½ S, 2 W and 1 S of Stockton) 243 acres. Quail and pheasants, with some deer, squirrels, rabbits, and doves. With good water, waterfowling can be excellent.

**9** *SCOTT WILDLIFE AREA* (12 N of Scott City) 160 acres. Located on Timber Canyon arm of Scott Lake, a heavily wooded area with good hunting for deer, squirrel, and some quail. This is adjacent to Scott State Park, where no hunting is allowed.

**10** *ST. FRANCIS WILDLIFE AREA* (2½ W and 2 S of St. Francis) 480

acres. Dove, whitetail deer, pheasant, and quail. Timber offers some squirrel hunting and the river, with associated pits, attracts ducks for limited duck hunting.

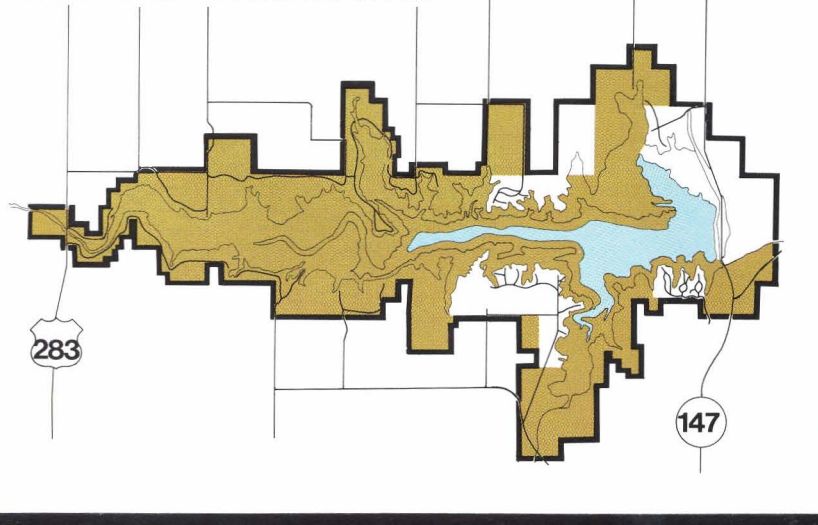
**11** *SHERIDAN WILDLIFE AREA* (11 E of Hoxie) 335 acres. Pheasant, dove, and quail hunting. A 75-acre lake offers duck hunting, and associated timber provides deer and squirrel hunting.

**12** *SHERMAN WILDLIFE AREA* (10 S and 2 W of Goodland) 1,547 acres. When lake has water, there is good duck hunting. Best hunting is for pheasant. Mule deer, antelope, and dove hunting is also available.

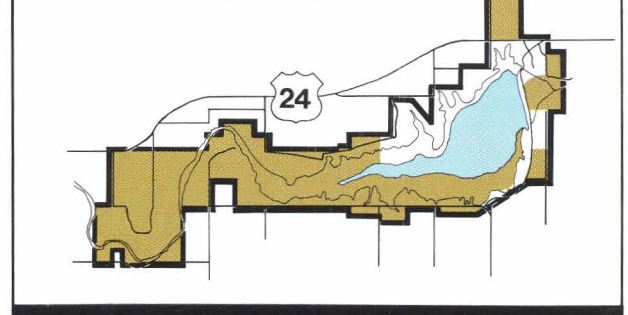
**13** *WEBSTER WILDLIFE AREA* (8 W of Stockton) 7,539 total acres, with about 1,500 acres of water. Deer, pheasant, and quail, with some turkey, waterfowl, rabbit, coyote, and dove hunting.

**14** *WOODSTON DIVERSION WILDLIFE AREA* (8 E of Stockton) 210 acres. Pheasants, quail, and deer, with some squirrels, rabbits, coyotes, turkeys, and doves.

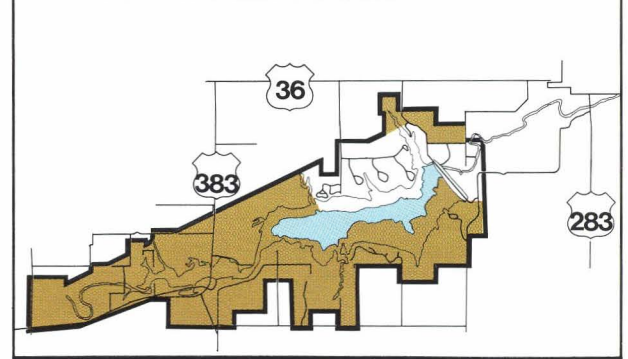
### Cedar Bluff Wildlife Area

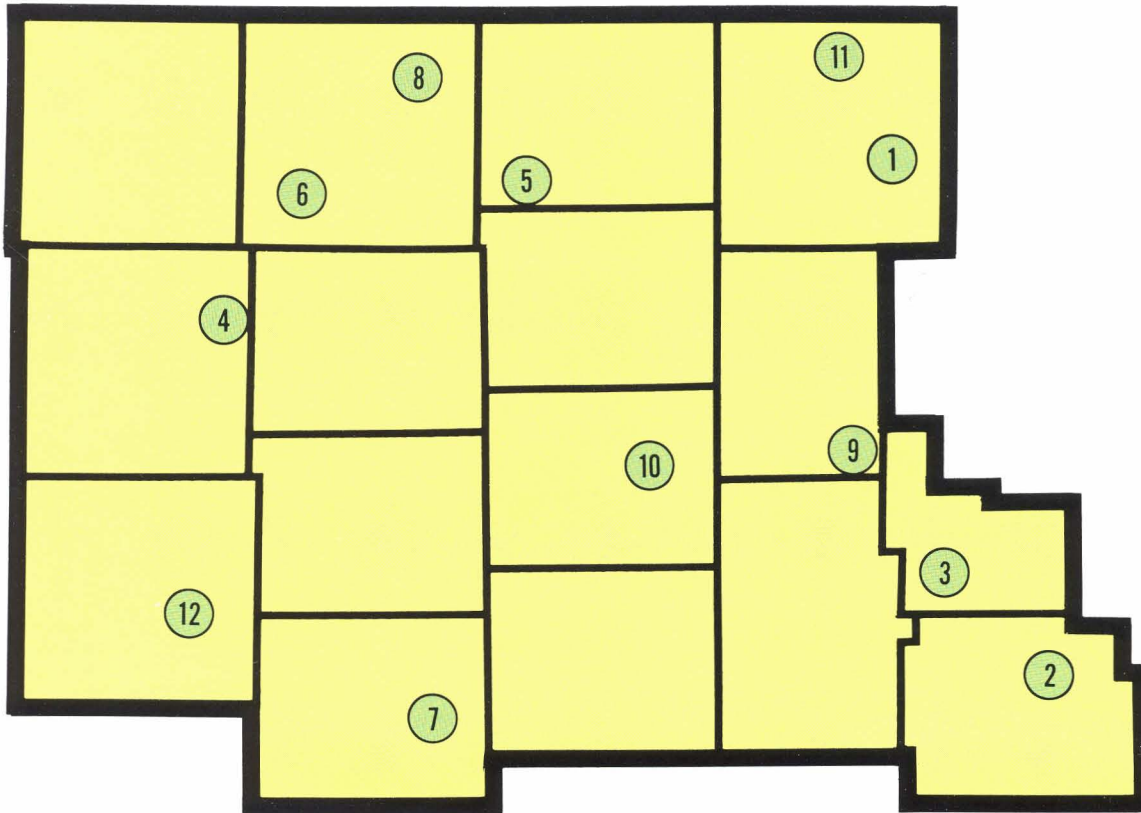


### Webster Wildlife Area



### Norton Wildlife Area





# NORTH CENTRAL

**1** *BLUE RIVER WILDLIFE AREA* (2 S and 7 E of Washington) 35 acres. Limited squirrel, rabbit, and deer hunting.

**2** *COUNCIL GROVE WILDLIFE AREA* (5 NW of Council Grove) 2,638 acres. Quail, deer, doves, rabbits, and furbearers, with some pheasant and waterfowl hunting.

**3** *GEARY WILDLIFE AREA* (8 S and 1 W of Junction City) 195 acres. Quail, prairie chickens, and deer, with some pheasant hunting.

**4** *GLEN ELDER WILDLIFE AREA* (Tracts surrounding Cawker City) 12,500 acres (plus 12,500 water acres). Ducks, geese, pheasant, doves, quail, deer, squirrels, rabbits, and furbearers.

**5** *JAMESTOWN WILDLIFE AREA* (3½ N and 2 W of Jamestown) 2,728 acres. Primarily managed for waterfowl, with some pheasant, quail, and rabbit hunting.

**6** *JEWELL WILDLIFE AREA* (6 S and 3 W of Mankato) 165 acres. Pheasants, quail, and rabbits.

**7** *KANOPOLIS WILDLIFE AREA* (12 SE of Ellsworth) 13,040 acres

managed by the Corps of Engineers. Waterfowl, pheasants, quail, deer, rabbits, doves, squirrels, prairie chickens, and furbearers.

**8** *LOVEWELL WILDLIFE AREA* (12 NE of Mankato) 2,209 acres (plus 3,000 water acres). Waterfowl, pheasants, quail, deer, rabbits, squirrels, and doves.

**9** *MILFORD WILDLIFE AREA* (Tracts from southwest side of Milford dam extending up the lake to 8 miles north of Wakefield) 15,714 acres. Ducks, pheasants, quail, rabbits, squirrels, doves, deer, furbearers, and some geese.

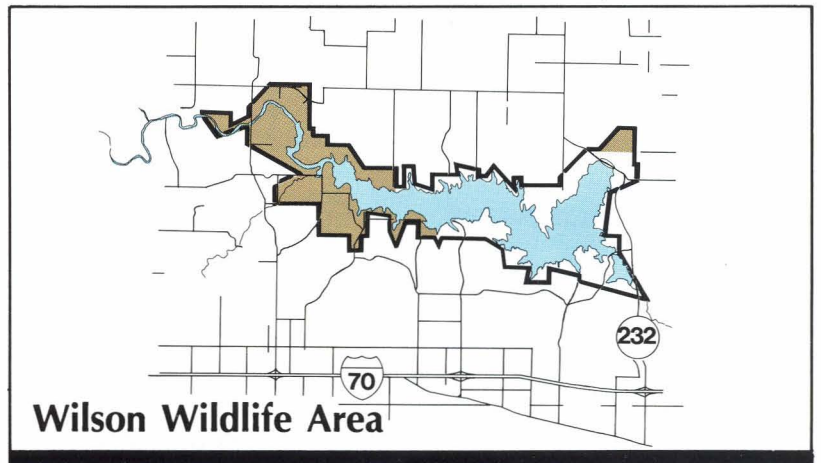
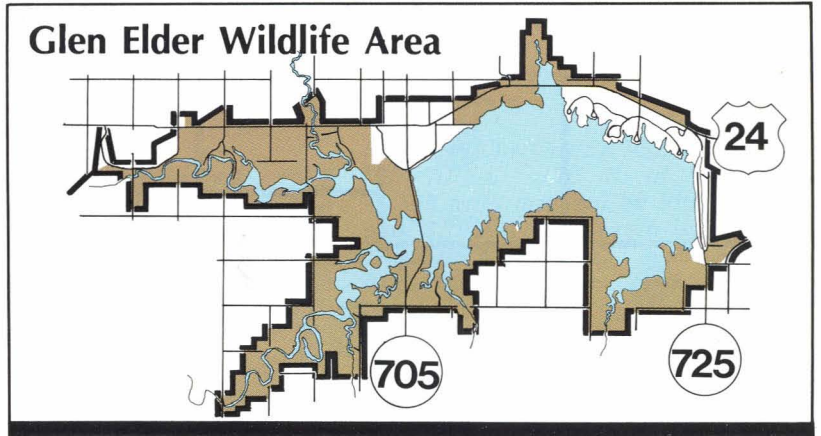
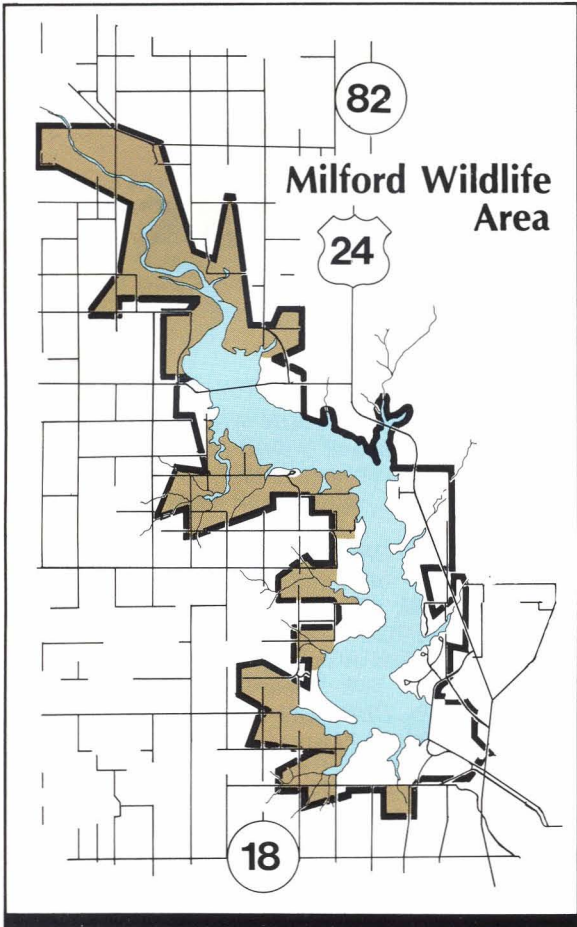
**10** *OTTAWA WILDLIFE AREA* (5 N and 1 E of Bennington) 611 acres. Pheasant, quail, rabbits, squirrels, and deer.

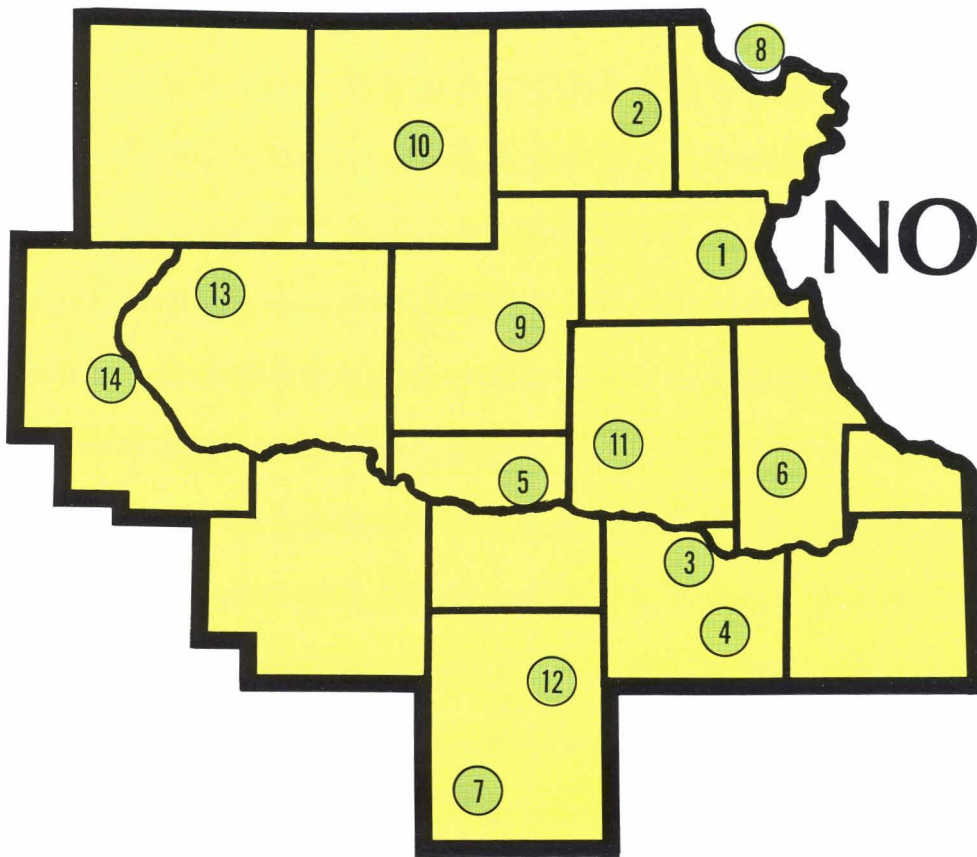
**11** *WASHINGTON WILDLIFE AREA* (7 N and 3 W of Washington) 457 acres. Deer, quail, pheasants, rabbits, squirrels, doves, furbearers, and some waterfowl.

**12** *WILSON WILDLIFE AREA* (7 NW of Bunker Hill) 8,039 acres. Pheasants, quail, deer, doves, waterfowl, rabbits, and furbearers.









# NORTHEAST

- 1** *ATCHISON WILDLIFE AREA* (5 N and 2 W of Atchison) 179 acres. Quail, pheasant, dove, whitetail deer, furbearers, squirrel, and waterfowl.
- 2** *BROWN WILDLIFE AREA* (8 E of Hiawatha) 129 acres. Pheasant, quail, whitetail deer, rabbit, waterfowl, and furbearers. Occasional large concentrations of snow geese.
- 3** *CLINTON WILDLIFE AREA* (SW of Lawrence) 9,923 acres managed by Fish & Game, plus 1,933 acres managed by Corps of Engineers. Cottontail rabbit, fox and gray squirrel, whitetail deer, quail, raccoon, and waterfowl.



Gene Brehm

**4** **DOUGLAS WILDLIFE AREA** (1 N and 1 E of Baldwin City) 500 acres. Fox and gray squirrels, rabbits, whitetail deer, quail, raccoon, and waterfowl.

**5** **KANSAS RIVER** (110 miles of river open to hunting, with access points at Manhattan, Wamego, Topeka, Lawrence, Eudora, and Edwardsville.) Primarily waterfowl and furbearers. Good late season hunting, especially below Perry Reservoir.

**6** **LEAVENWORTH WILDLIFE AREA** (3 W and 1 N of Tonganoxie) 332 acres. Good for squirrels, as well as quail, rabbit, whitetail deer, and furbearers.

**7** **MELVERN WILDLIFE AREA** (40 S of Topeka) Includes 10,016 acres managed by Fish & Game, plus 4,000 acres managed by Corps of Engineers. Major species include quail, greater prairie chicken, rabbit, fox and gray squirrels, whitetail deer, raccoon, dove, and waterfowl.

**8** **MISSOURI RIVER** (120 miles of river, with access points at Wathena, St. Joseph, Atchison, and Leaven-

worth; also, limited access at White Cloud.) Major species are waterfowl and furbearers. Excellent late season duck and snow goose hunting south of Atchison near Itan Power Plant.

**9** **NEBO WILDLIFE AREA** (7 E and 1 S of Holton) 6 acres. Waterfowl and furbearers.

**10** **NEMAHA WILDLIFE AREA** (1 E and 4 S of Seneca) 462 acres. Whitetail deer, pheasant, quail, rabbit, squirrel, raccoon, ducks, and occasional snow geese.

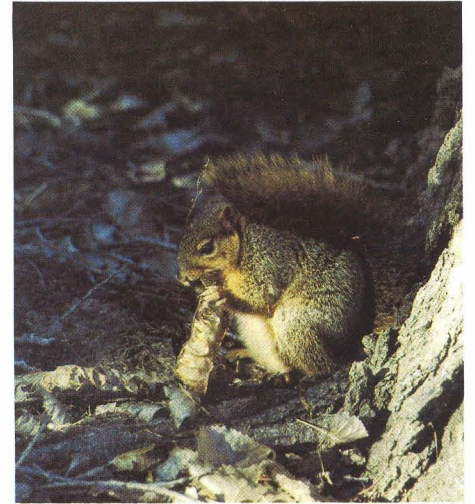
**11** **PERRY WILDLIFE AREA** (20 NE of Topeka) 10,984 acres managed by Fish & Game, plus 3,000 acres managed by Corps of Engineers. Quail, pheasant, deer, squirrel, rabbit, waterfowl, and furbearers. Excellent teal and early migrant duck hunting on 1,000 acres of man-made marshes.

**12** **POMONA WILDLIFE AREA** (25 S of Topeka) 3,600 acres managed by Corps of Engineers. Rabbit, squirrel, whitetail deer, quail, dove, and some waterfowl.

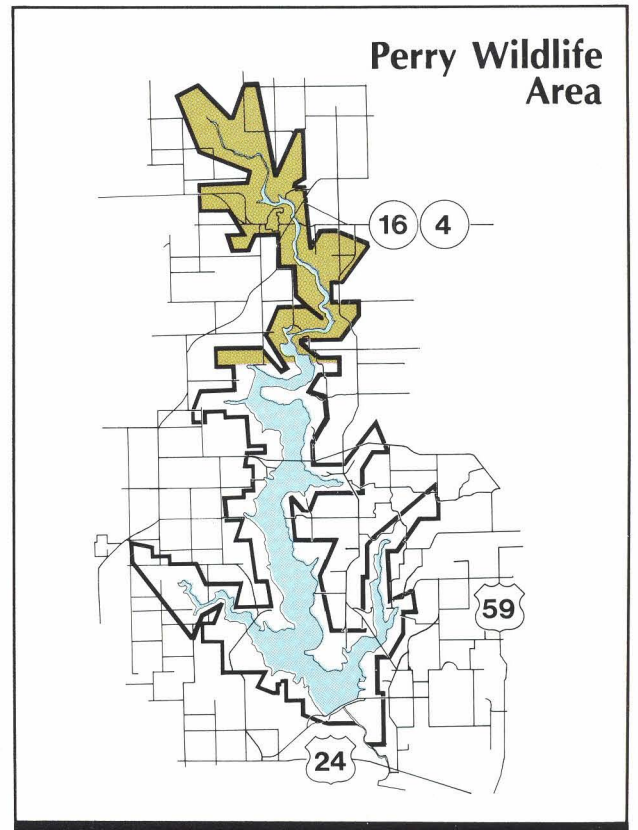
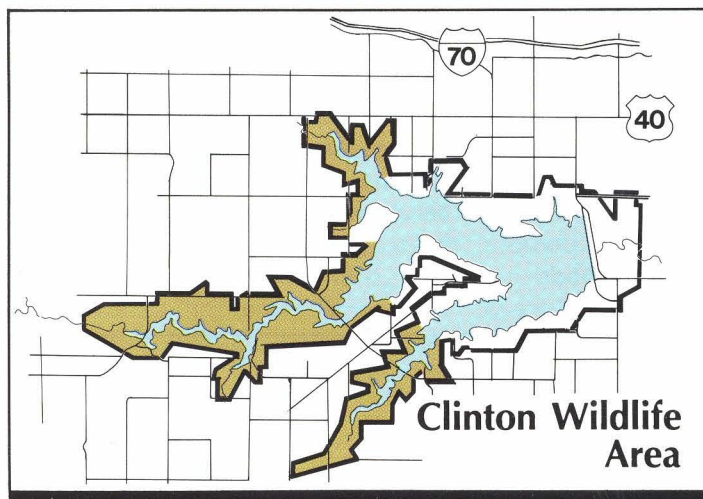
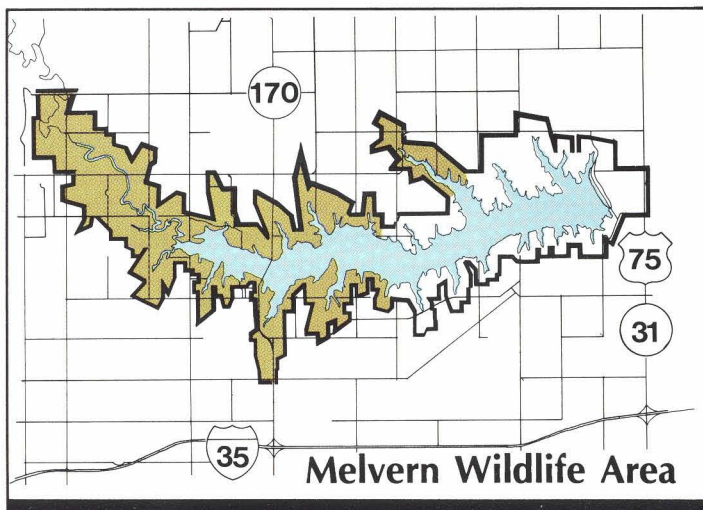
**13** **POTTAWATOMIE NO. 1 WILD-**

**LIFE AREA** (5 N of Westmoreland) 166 acres. Rabbit, quail, whitetail deer, squirrel, raccoon, and an occasional prairie chicken.

**14** **TUTTLE CREEK WILDLIFE AREA** (20 N of Manhattan) 10,469 acres managed by Fish & Game, plus 3,703 acres managed by Corps of Engineers. Pheasant, quail, whitetail deer, rabbit, squirrel, prairie chicken, ducks, geese, and raccoons.



Ron Spomer



The public areas outlined in these pages amount to almost 240,000 acres of land, a substantial piece of real estate until it's compared to the size of the entire state—almost 53 million acres. In fact, more than ninety-eight percent of Kansas is controlled by private landowners. Much of the state's best hunting is on this private ground, waiting for the hunter who is enterprising enough to find it.

The finding isn't often easy. Most of us have lost the ties we once had with the land. We don't own farms and, in most cases, don't know anyone who does. And there is an even more basic problem—lack of cover. The pressures of more intensive agriculture have eliminated thousands of acres of wildlife habitat, making the search for good cover more difficult than it has ever been. As a result, the urban hunter is faced with a two-fold challenge—he has to get to know the land well enough to find the cover that remains, and he has to get to know the landowner who controls it.

There are a few ways to take some of the pain out of locating good cover. Maps are an invaluable aid. Topographic maps show major wetlands and woods as well as the drainages, bluffs, and ravines that often protect good coverts. County platt maps, usually available from the abstract office at the county seat, are another critical reference. The platt map is an up-to-date guide to who owns which piece of land in the

county. Armed with these two maps, a hunter can make a day-long reconnaissance with a pair of binoculars and turn up more good cover than he could hunt in a year. Such scouting trips are probably best made a month or so before the season opener. The cover will look about the same as it will for opening, and there will still be plenty of time for the second, more critical step in finding a place to hunt—meeting the landowner.

In these days of large farms and absentee landowners, finding the man who works a given piece of ground can be a chore. Combined with a platt map, a rural telephone directory can save a lot of time and effort in the search. The rural directory contains a map of every township in the county which shows each occupied house and gives the name and telephone number of the occupant. Without it, you may spend hours knocking on doors or working your way through the urban phone book's listings of people who have the same last name as the man you want to reach.

Once you've found out how to get in touch with the man who controls hunting access to the habitat you're after, there are a number of ways to contact him. A few hunters write to landowners before showing up at the doorstep. Some hunters simply call. Most sportsmen, however, prefer to ask personally. No matter what technique appeals to you, there are a few things to remember.

First, try to avoid making your first contact on opening day. You are far more likely to get permission if you ask before the shooting starts or after the opening day crowds have retired to their living rooms for the year. Second, you are beginning an acquaintance, possibly even a friendship, if you're lucky. Have the courtesy to introduce yourself. Most important, remember that you are asking a favor, not demanding a right.

There are a few hunters who don't want to be bothered with asking permission. They are the reason Kansas trespass laws have stiffened over the last few years. They are also a public relations disaster for other hunters. A recent study in New England indicates that most people aren't bothered by the idea of hunting itself; they are upset by the legal and ethical abuses attributed to hunters. A slob hunter does more than convince landowners to close their property; he also lends strength to the urban anti-hunting movement.

Learning to hunt is a process of honing skills that even the best hunters never fully master. Hunters take pride in this skillfulness as they should since it sets them apart from the mainstream of outdoor users. Trespassing after game is a blight on that pride. No hunter can develop a respect for his own skill when he steals into another man's coverts, looking constantly over his shoulder for the owner's pick-up coming down the road behind him.

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*absent  
since  
1904,  
a longtime  
resident of  
the plains is  
coming home.*

## *the otter*

*Chris Madson*

*Illustrations by Neal Anderson*

**A**s a family, the mustelids are about as light-hearted and fun-loving as the Mansons. The wolverine, mink, and weasels are all ruthless assassins, easily capable of taking prey much larger than themselves and not at all shy about it, either. The badger doesn't share his cousins' enthusiasm for mayhem, but he's a dour recluse, about as cuddly as a pit bull and addicted to a life of earth moving. Then there's the skunk, half-bright shirrtail relation with a lucky talent for gas warfare. Impressive in their specialization, admirable in their efficiency, they're a group that seems to have lost its light side. It's as if they've left all humor, theatrics, and general joy of living to just one family member—the otter. And he revels in the role.

The problems that haunt most other wild things never seem to bedevil an otter. Food? Of all the predators on the continent, the otter may enjoy the happiest combination of physical endowment, skill, and rich hunting grounds. His year-round staple is fish. Nearly any kind or size will do. Adult otters have

been observed in coves of eastern reservoirs, driving schools of bait fish into shallows where young otters could join in the foraging. Most studies of the otter's food habits show that the greatest percentage of an otter's fish diet consists of rough fish, but, given the chance, he'll take game fish as well. Emil Liers, a native of southeastern Minnesota who kept pet otters for most of his life, tells of exercising his animals along a trout stream much to the displeasure of the anglers he passed. After a number of trips to the creek with his pets, Liers heard that a local game warden had been detailed to watch his activities, and, not too long after that, he found himself in court where it took a demonstration in an aquarium to convince the judge that the otters preferred crayfish to trout. Before and after the legal confrontation, Liers stoutly maintained that otters would not eat trout.

Luckily for Emil, the prosecution didn't have access to later studies from Oregon, Michigan, and Montana, all of which showed that otters will take a trout or salmon when the opportunity arises. The key word here is "opportunity." Like any predator, an otter will eat a variety of animals, depending on what is available and how hard it is to catch. In the salmon country of Oregon, thirteen percent of otter stomachs examined contained salmon. Otter stomachs in the Great Lakes region were also found to contain trout, although the percentage was very low, and a Montana investigator found that otters in his state commonly take trout. Otter sampled in a Maryland reservoir, on the other hand, never took the brown, rainbow, brook, or lake trout that were available, apparently preferring sunfish and yellow perch. Many observers have witnessed otters literally outswimming trout in a fair chase, no mean feat, but that kind of feeding must be a hard way to make a meal, even for an otter. Research has shown what common sense suggests—otters don't often waste the

time and effort it takes to catch a big trout or largemouth bass. They're just as happy with a sucker, large minnow, or carp.

When an otter isn't eating fish, he'll settle for nearly any live meat. Snakes, frogs, insects, turtles, salamanders, mussels, ducks, and shorebirds have all been found in otter stomachs. Otters seem particularly fond of crayfish as an appetizer; the crustaceans show up in small amounts in as many as half the otters examined in one study. Trappers in the Carolinas and other parts of the South have blamed otters for declines in muskrat populations, but food habits research shows that other mammals very seldom fall prey to otters.

Agile and intelligent, the otter is simply more predator than most cold-blooded aquatic animals can handle. As a result, otters in unpolluted marshes, lakes, and rivers eat well in all seasons. A recent Idaho



*Leonard Lee Rue III*

study estimates that otters along Idaho salmon rivers spend only about forty percent of their waking hours feeding or foraging, far less than other top predators.

Enemies? No problem. In spite of the otter's good humor, he is still a weasel with all the fearlessness and

ferocity of any weasel. The difference is that this weasel may weigh from fourteen to twenty-five pounds as an adult. Naturalist Enos Mills offers this tale of the otter's ability in a scrap: "The otter is a fighter. One day I came upon records in the snow far from the water, that showed he

had walked into a Wild-cat ambush. The extensively trampled snow told that the desperate contest had been a long one. The Cat was left dead, and the Otter had left two pressed and bloody spaces in the snow where he had stopped to dress his wounds on the way to the river. On another oc-

## ***Kansas furharvesters bring back the otter***

**I**f all goes according to plan, river otters will return to Kansas this winter after a seventy-eight year absence thanks mainly to the support of the Kansas Furharvester's Association.

In early 1981, two otter reintroduction projects were submitted to the director and commissioners of the Fish and Game Commission. The two were essentially identical except for the funding sources involved. One was designed to be a part of the Commission's new nongame wildlife program funded by the Chickadee Check-off on state income tax forms. Both the advisory council for Chickadee Check-off projects and Fish and Game officials were enthusiastic about the idea until someone pointed out that the otter is still technically a furbearer and, as such, could not be managed under the nongame program.

That technicality left only one other option—to fund the reintroduction through normal Fish and Game channels. Unfortunately, funds were so tight that any agency support was doomed to a delay of at least two or three years.

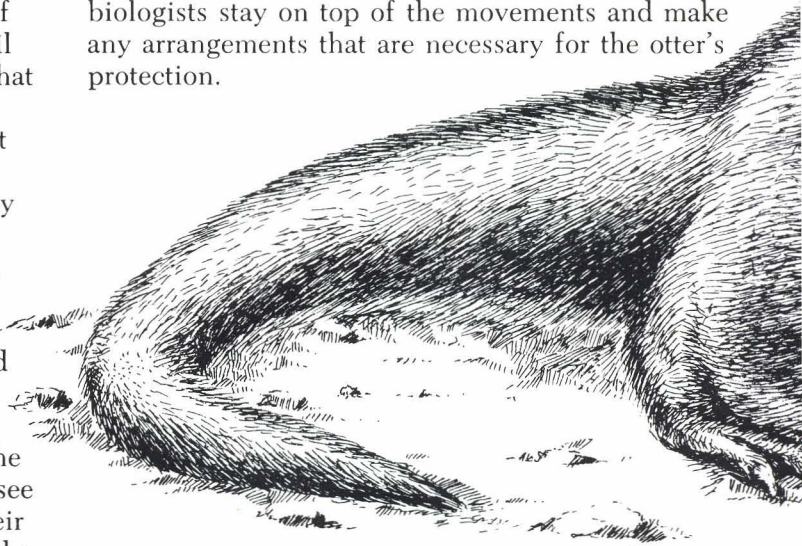
In a spring meeting with the eastern chapter of the Kansas Furharvesters, furbearer biologist Neil Johnson happened to mention the dollar pinch that was holding up the otter transplant. The furharvesters were enthusiastic about the concept and immediately began laying plans to ease the budget problems by coming up with some money themselves. They raised more than \$300 at their October convention and another \$500 soon after. The \$800 nest egg was donated to Wildtrust, specially earmarked for otter reintroduction, and arrangements got underway with a two-year head start.

Establishing a self-sustaining otter population takes time, and it's highly unlikely that any of the trappers who donated to the project will live to see even a limited otter season. They don't care. Their primary interest is in bringing a unique part of the original Kansas landscape back to the state, and, with luck, that will happen sometime this November.

Since Neil Johnson's departure earlier this year, big game biologist Keith Sexson has been in charge of the otter reintroduction. "Minnesota's Department of Natural Resources will supply us with twelve to fifteen otters in the next few months," he says. "We'd like to get all the animals this fall if possible, but we'll be lucky to get three or four before the trappers in Minnesota have to stop because of ice."

A group of three or four otters would be plenty for a first release. The other six or eight could be released in the same vicinity next spring. Keith plans to release all the otters Minnesota has promised along the south fork of the Cottonwood River. If the Cottonwood releases are successful, there are plans to introduce another twelve or fifteen on Mill Creek.

The biologists plan to keep tabs on the otters with radio telemetry equipment. All the animals will carry surgically implanted transmitters with a range of one-quarter to one-half mile and a two-year battery life. If the otters decide to leave the release area, the signals from these transmitters will help biologists stay on top of the movements and make any arrangements that are necessary for the otter's protection.



casian, the fierceness of the Otter was attested to by two Coyotes that nearly ran over me in their flight after an assault on the rear guard of a ban of overland Otter emigrants." As is always the case among wild animals, young otters beyond their parents' protection and old and sick

individuals may be lost to any one of a host of predators. But a healthy otter in the prime of life is not an easy meal for any predator.

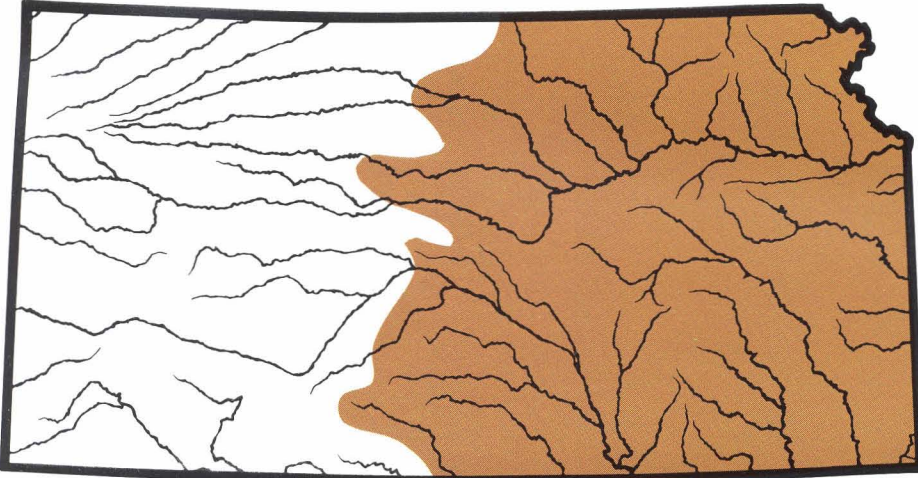
Freed from the threats of predation and hunger, otters have a lot of time on their paws. Another animal would spend its leisure snoozing,

and the otter isn't insensitive to the pleasures of a nap. In fact, until you've seen an otter sleeping belly up in the sun or draped on a flat rock, you can't fully appreciate the concept of relaxation. Otters are also quite fussy about their fur and spend a substantial amount of time grooming themselves, and rolling and rubbing. Still there is only so much time that can be invested in napping and personal hygiene. Siestas completed, the pangs of a pinched belly satiated, fur dried and brushed, most otters can think of only one other thing to do—play.

People seem driven to see something human in animals. The furrer the critter, the bigger the eyes, the more we try to explain the animal's doings in human terms. We've made villains out of predators like the red fox, heroes out of cottontail rabbits—in the main, it's a ridiculous exercise that leads us into misunderstanding and mismanagement. The otter's motives for many of the things it does are known only to the otter. But considering the shenanigans attributed to otters by reputable observers, "play" is about as good a word as any to apply to an appreciable part of what an otter does with its day.

The best known form of otter recreation is sliding. Otters will slide on mud or wet grass, but the classic slide, and the one that seems to appeal to otters the most, is in snow. Plowed out on a steep slope often over water, the slide is packed and wetted until it is almost solid ice. The run may get so slick that the otters using it are forced to brake with their feet on the way down. They usually go down these slides nose first, but they may go belly down, belly up, or on their sides as the mood strikes them. Where slopes are rare, otters will slide along flat ground after a running start; in fact, an otter pressed for speed on snow will take three or four loping strides, slide for fifteen or twenty feet, then get in another quick sprint. It's an odd looking way to run, but it works well for an animal built so close to

## Otter water





the ground. Two New York biologists on a snowmobile once paced an otter for four miles across a frozen lake at fifteen to eighteen miles an hour.

But back to playtime. When otters tire of bobsledding, they show unending inventiveness in dredging up other games. One observer reports otters entertaining themselves with a riverbank version of "Button, Button" with a small fish. One of the otters hid the fish in a clump of

grass, leaving the others to home in on the smell. When another otter finally found it, he often batted it around like a playground ball before finding a new hiding place.

Otters have been reported wrestling, playing tag, laying ambushes for each other, and playing "keep-away" with a variety of objects. Oregon writer Ed Park once saw a pet otter in the water juggling something so tiny that Park couldn't immediately identify it even at close

range. When he got within a few feet, he finally figured out what it was—one number six pellet from a shotgun shell. Wild otters have been seen pushing sticks or other floating objects with their noses, for no other apparent reason than the challenge of keeping the piece of flotsam balanced in front of them against the current.

Deprived of anything even remotely resembling a toy and separated from his companions, an otter can





*Otters tailor their hunting methods to the prey they are after. Family groups of otters may cooperate to drive schools of fish into shallow water where they can be easily captured. Lone otters can even catch fish in open water. When an otter is after mussels or crayfish, however, he hunts like a raccoon, feeling over the bottom with his paws until he puts his paws on a victim. (Photo by Leonard Lee Rue III).*

it's part of the day's business. For the otter, comfortable and mobile on land and in the water, swimming is more than a skill. It's a passion. He can swim on his back or stomach, push up a foot or more out of the water to get a better view of something that has piqued his curiosity, outmaneuver almost any fish and dive as deep as sixty feet. On the surface, otters can swim at least six miles an hour. Underwater, they may make four miles an hour or better. At these top speeds, they push with their hind feet and porpoise with their entire bodies, using their flat, heavily muscled tails to good advantage.

Some sources report otters staying under water for at least four minutes and swimming more than a quarter mile without coming up for breath. This ability is the result of a number of physiological adaptations. When an otter is submerged, its heart rate automatically slows, and circulation to the lower extremities decreases. Otters also have a high tolerance for carbon dioxide and wastes that cause fatigue in muscles when there is a lack of oxygen in the bloodstream.

At the turn of the century, trappers who were inclined to stretch a story speculated that river otters migrated to salt water to spend the winter. The tall tale was based on the lack of otter sign after freeze-up. No one had seen hoards of otters jammed into riffles or spring-fed reaches of stream where open water was available; where else could they be except the ocean? When naturalists began paying more attention to the otter, they quickly found that otters could spend most of the winter under the ice if necessary. Many otter dens have underwater entrances, and when an otter is caught

still have an uproariously good time as long as he has a swimming hole. In their first encounters with deep water, young otters need a little convincing. The adult female is solicitous of their feelings for awhile and generally tries to lead them into their first swim by example. If the young still balk, she may finally force them in, dragging them by the scruff until they have no choice except to paddle. A few writers have even suggested that she will ferry

them out into deep water on her back before sinking out from under them.

But it's impossible for an animal so beautifully adapted for swimming to stay clear of the water for very long after its first introduction. Within days, the youngsters have discovered the possibilities of the new medium with an enthusiasm they will carry with them all their lives. The muskrat and beaver swim because they have no other choice;

under the ice in need of a breath, he finds all the air he needs in irregularities on the underside of the ice itself. If he can't find fresh air, he will exhale under the ice, allowing the bubble to rise to the surface before rebreathing it. The stale air probably loses a little of its carbon dioxide to

under a patch of bubbles and disappeared, probably in search of a pocket of air. There was no sign of panic, no attempt to escape, only a straight, fast swim a few inches ahead of the pounding skates. There's only one explanation of his behavior that makes much sense—the afternoon had been a little boring and he was looking for a race.

The first detailed information on the sex life of otters was compiled in the early 1940s by Emil Liers. His description of courtship behavior and breeding were widely accepted, but problems arose when he estimated the otter's average length of pregnancy at between nine and twelve months. To begin with, the period seemed too variable to most mammalogists, and it was at odds with definitive work that had already been done on the closely

done in the usual way until the egg is fertilized and begins to divide. The difference is that the embryo stops developing after it has grown to a few hundred cells or so. Barely the size of a pin head, the young otters float around in the female's uterus in suspended animation for eight to nine months before they find a place on the uterine wall and continue to develop. This final growth period just about matches the sixty-one day gestation of the European otter.

Biologists call this kind of embryo development delayed implantation. Unique to the mustelids, it allows the female to hedge on a pregnancy. If she runs into hard times after she has been bred, she will abort the young or reabsorb them rather than

the water and may even pick up a little dissolved oxygen along the way.

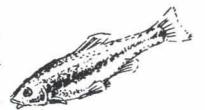
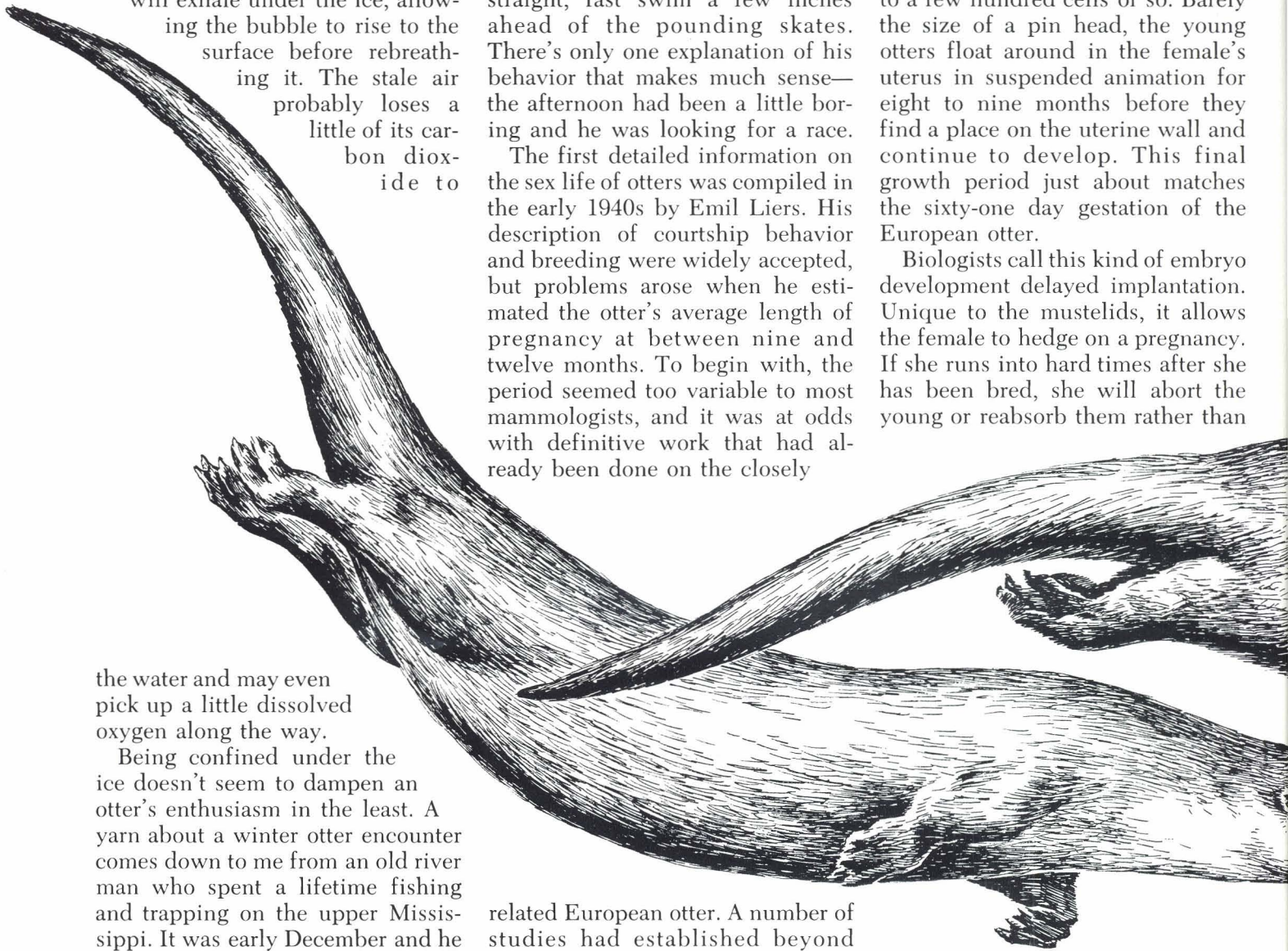
Being confined under the ice doesn't seem to dampen an otter's enthusiasm in the least. A yarn about a winter otter encounter comes down to me from an old river man who spent a lifetime fishing and trapping on the upper Mississippi. It was early December and he was out on the Lansing Slough checking muskrat sets. The backwaters had just frozen and there had been no snow, so he skated from set to set on six inches of the blackest, clearest ice he had ever seen. He was on a particularly clean piece when he noticed a flicker of movement under his feet and looked down to see a four-foot javelin shape flying through the water below. An otter. The animal gained on him a little, so he picked up the pace and the sprint was on. The two of them covered a hundred yards or better neck and neck before the otter peeled off

related European otter. A number of studies had established beyond doubt that the European otter carried its young for sixty-one days. Faced with this discrepancy, a Carolina biologist took a look at a number of otter carcasses he had gotten from trappers and concluded that Liers' estimate was wrong and that the European gestation period also applied to the American otter. The controversy still wasn't settled, however. It took detailed dissection and tissue studies by two New York technicians to confirm Liers' work.

As it turns out, most mustelids including otters have an odd way of starting a pregnancy. Everything is

risking their lives and hers in an attempt to bear and raise them. Since otters seldom have trouble finding food during the winter, their delayed implantation serves only one apparent purpose. It allows them to breed in the spring and bear their young the following spring at the beginning of the year's best weather and easiest hunting.

An otter's life span in the wild may approach fifteen years, plenty of time to produce enough young to keep the population stable. As a

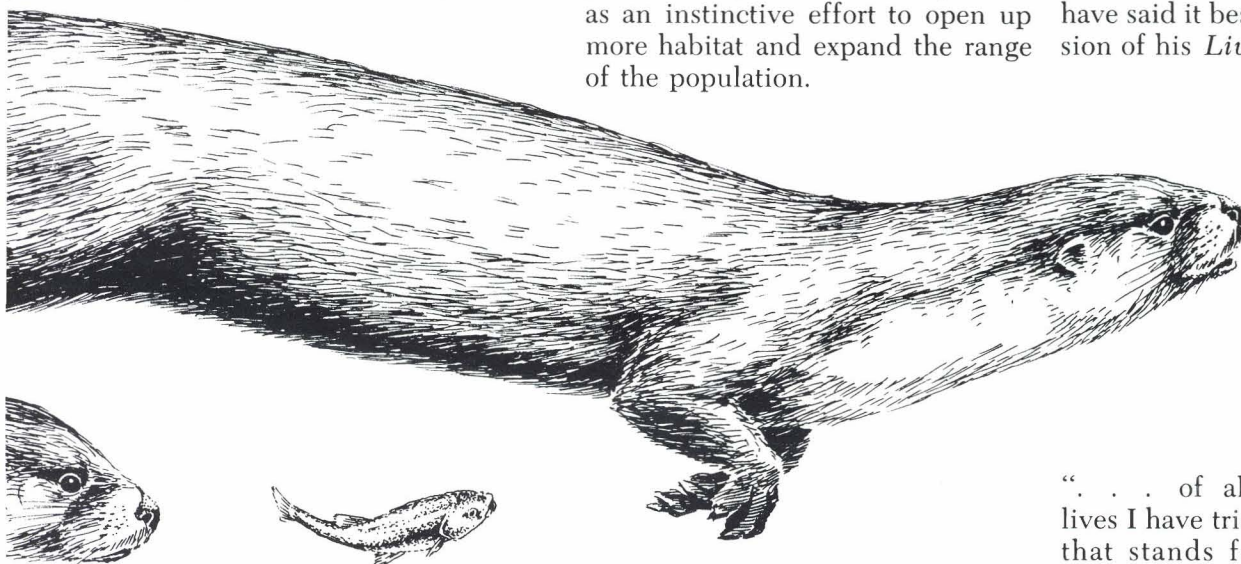


result, otters don't have huge families. An average litter contains two to four young; the largest litter on record is six. The female usually remodels an abandoned groundhog burrow, muskrat house, or beaver lodge for her nursery, although she may resort to a hollow log or a nest in a secure streamside brushpile if other accommodations are in short supply. The young spend their first two or three months in the den, hardly showing their faces until their first swimming lessons. When they have learned to get around in the water, their mother leads them away from the den and weans them as they begin to hunt successfully.

Otters spend much of their time in these family groups. Most authorities report that the male rejoins the

In their first year, otters usually stay in the country their parents have shown them, but, as they become yearlings, the wanderlust seizes them. One yearling male tracked in Idaho traveled more than fifteen miles in one night and covered more than seventy miles before settling down. One of his litter mates, a female, traveled 120 miles before she found a stretch of water she liked. These movements aren't attempts to find mates since yearling otters don't generally breed, and they aren't always meant to get the youngsters out from under mother's feet—a young otter's new home range often includes parts of the drainage where it was born and raised. Among otters, dispersal of juveniles is probably best explained as an instinctive effort to open up more habitat and expand the range of the population.

tigator estimated there was one otter for every 1.4 miles of stream. Researchers in North Carolina have estimated otter densities at one per 367 acres in a few particularly rich and secure coastal marshes. Through most of its range, however, the otter is more thinly distributed and because of its taste for night hunting (quite possibly the result of long-term threats from man) is seldom seen. What a pity. In a natural scheme that is obliged to be hard, unforgiving and often brutal, the otter injects grace, innocent curiosity and good spirits. Gavin Maxwell, keeper of many European otters, captured the essence of the otter well in the title of his book—*Ring of Bright Water*. And the popular naturalist Ernest Thompson Seton may have said it best of all at the conclusion of his *Lives of Game Animals*.



family when it leaves the den, although a recent Idaho study speculated that many of the additional adults seen with families were non-breeding females, not males. In either case, there is no doubt that mother and young stick together at least through the summer and sometimes into the following spring. When the youngsters finally do leave their mothers, they often travel with one or two litter mates for a month or more before striking out on their own.

Some otters, especially adult males and non-breeding females, retain their taste for travel throughout their lives. Zoologist E. Raymond Hall estimates that otters may hunt along sixty or seventy miles of river in the course of a year, although their movements are usually confined to a much smaller area. More than any other factor, the richness of local food sources determines how far otters range and how many of them can occupy a given area. In Idaho where spawned-out salmon are available for two to three months during the fall and fishing is good through most of the year, one inves-

“ . . . of all the beasts whose lives I have tried to tell, there is one that stands forth, the Chevalier Bayard of the wilds—without fear and without reproach. That is the Otter, the joyful, keen, and fearless Otter; mild and loving to his own kind, and gentle with his neighbors of the stream; full of play and gladness in life, full of courage in his stress; ideal in his home, steadfast in death; the noblest little soul that ever went fourfooted through the woods.” □

Photographer Leonard Lee Rue's new book, *Furbearing Animals of North America* is an excellent source of information on otters.

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