

# KANSAS FISH & GAME



WINTER 1967

The American Hunter  
A Bonus for Sportsmen  
What Price Pollution?

# Kansas Fish and Game

Vol. XXV

No. 1

Published Quarterly  
by the  
**KANSAS FORESTRY,  
FISH AND GAME  
COMMISSION,**  
Pratt, Kansas  
67124

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32-1711

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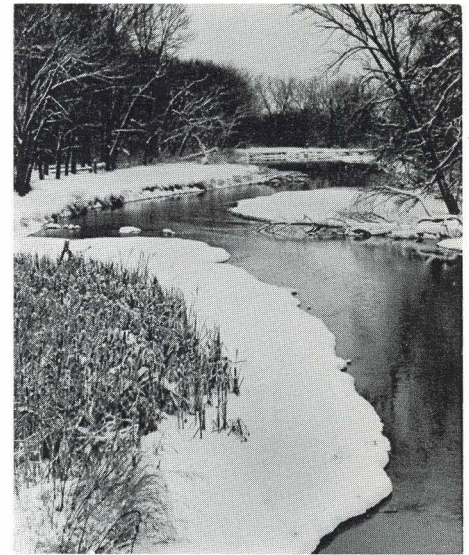
With winter in full swing, there's always a lull in outdoor Kansas—a period of inactivity between fall and early winter hunting and the fishing runs of March and April.

It's not a time, however, when the sportsman should neglect the outdoors completely.

With the introduction of walleye and Northern pike, Kansas has become a winter fishing state. For the hardy at heart, big strings of fish can be taken, even on the coldest days and when the snow is flying.

For the nimrod, rabbit hunting is at its best this time of year, and Kansas is blessed with good crops of both cottontails and jackrabbits. It's a good time for varmint shooters, too, and Kansas is tops in this sport.

Trapping—considered by some as a lost art—opens January 1, and provides considerable recreation for a few stout-hearted Kansans. In fact, this issue contains a fine story about one such person—Gregg Garst of



Pratt, who traps throughout the season on the Ninnescah River.

Perhaps it's only fitting, therefore, that a photo of the Ninnescah near the fish hatchery and Fish and Game headquarters at Pratt adorns our cover, and proves that winter in Kansas is a scenic time of year. (*Photo by Thayne Smith.*)

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# A Challenge in Cold Steel

By LEROY LYON

"Well, I've finally caught something," murmured Gregg Garst, 17-year-old trapper as he rounded a bend in the Ninnescah River near Pratt.

Disregarding icy water and bone-chilling temperatures the young trapper deftly removed a muskrat from his water-set trap, stroked its long guard hair and remarked that it was a premium pelt.

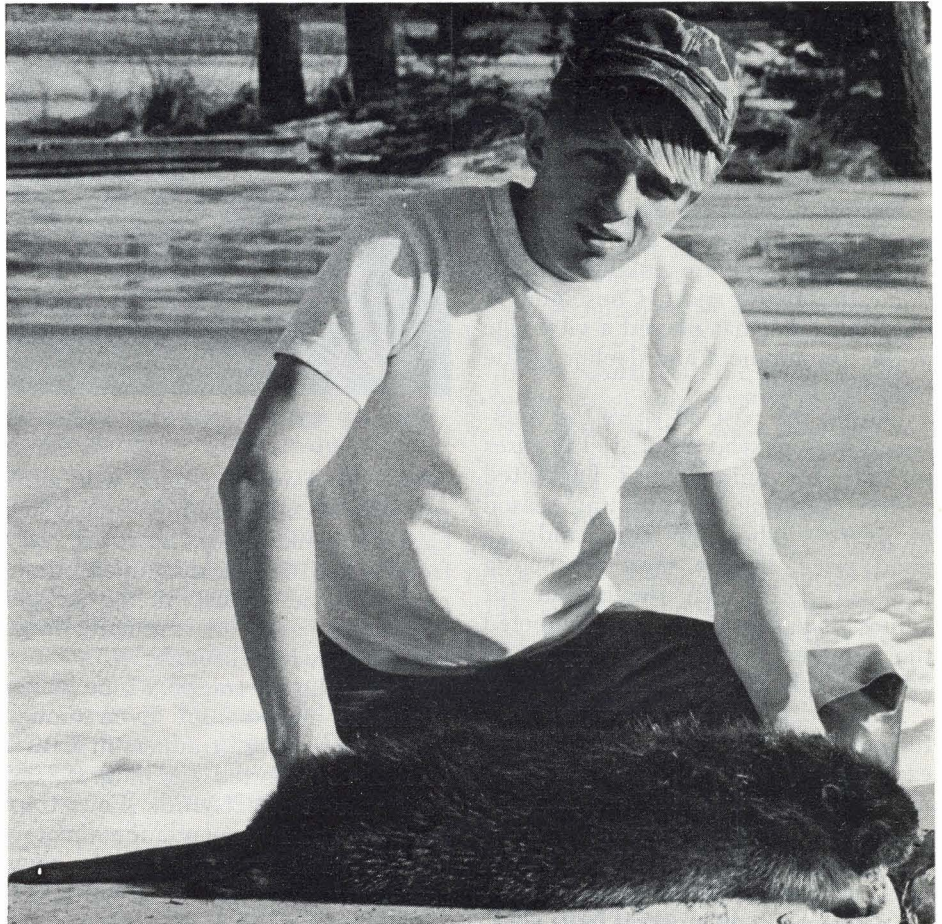
"This has already been my best season," the slender Pratt junior college student declared in reference to the trapping season. Tucking the prized muskrat in his pack, he carefully reset the trap, taking extra pains to conceal the steel among a heavy growth of cattail roots, a favorite food of muskrats.

Young Garst first caught trapping fever as a sophomore in high school after listening to experiences of some close friends. With their help and with the aid of his father, Paul C. Garst, Jr., and grandfather, Paul C. Garst, Sr., the youth began to learn the art of setting traps, skinning the various types of fur animals and preparing the pelts for market. He will soon start his fourth winter of trapping.

Twice a day during the trapping season, before and after school, young Garst can be found along a mile stretch of the Ninnescah, checking and resetting his legal limit of 20 steel traps and observing the habits of the animals he seeks.

Much of the remainder of his spare time is spent skinning, fleshing and stretching the various pelts. The skins are stretched on boards he has made, fur-side turned inward to protect it from fading and damage during storage and shipment.

Garst, like a majority of Kansas trappers, prefers muskrats. A "rat," averaging two pounds in weight and 22 inches in length, is one of the easiest of all furbearers to trap and



**TRAPPER'S PRIZE**—Gregg Garst, proudly displays large black beaver trapped along Ninnescah River. Most Kansas beaver are brown. Black and white ones are rare. (Fish and Game Commission photos by Leroy Lyon.)

skin. Muskrat fur is stylish, soft, warm and durable and is highly popular with the fashion world.

That muskrats are the most important species to Kansas trappers is revealed by the furbearer survey compiled by the Kansas Fish and Game Commission at the close of the 1965-66 trapping season. It indicated that muskrats were pursued by 84 percent of all licensed trappers and 82 percent reported success. A total of 53,338 muskrats were harvested during the season, more than any other single species. The total economic value of the trapped muskrat furs was placed at \$66,672.

Many methods of trapping muskrats have been devised. Each trapper

has his favorite method; techniques which may not work for another. Garst favors the water set with the trap placed at feeding stations, resting spots, den openings or animal runs. In these places the trap is set firmly on the bottom under at least two inches of water. The trap chain extends into deeper water where it is fastened to a stake. Caught with this type of set, the trapped animal will drown quickly with no harm to the pelt.

Garst has learned his trapping lessons well. During his first three years at the new trade, he has snared a total of 183 muskrats, 10 beavers (including one black beaver), 11 mink and 6 coons. His

yearly average of 61 muskrats is well above the average indicated by the survey where successful trappers averaged 40 muskrats each.

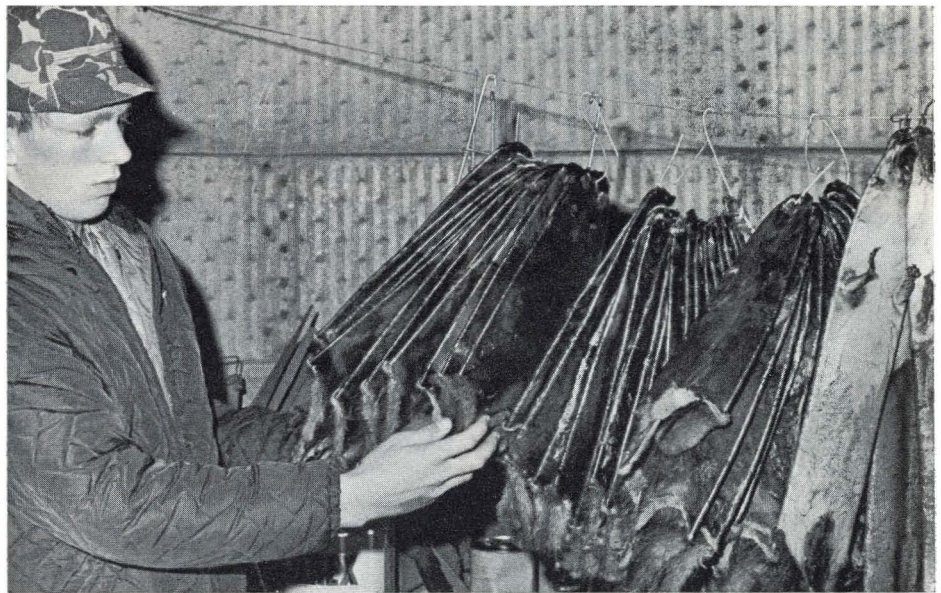
The species of furbearers trapped by Garst closely parallels the choices of a large majority of Kansas trappers. Next to muskrats, mink are the most sought species followed by raccoon and beaver. Less than one-third of the trappers reported seeking opossum, coyote, striped skunk, spotted skunk, badger and fox.

Despite newcomers like Garst, trapping is becoming a lost art. For many years it was a money-making proposition rather than a sport. Consequently the fur market has played a vital role in the development and decline of the trapping trade.

During the past 30 years the number of persons who purchased licenses to take fur animals has fluctuated widely. During the trapping season of 1929-30, when furs commanded a good price, license sales reached a peak of 28,147. A decline in fur values since that time has plummeted the number of Kansas trappers to 2,140 in calendar year 1966.

A majority of today's trappers trap for sport, not for money. This is best expressed by the oft-repeated comment, "I'd trap if mink were bringing a dollar and "rats" a dime."

But even today pelts from leading furbearers bring a fair price. "Last year my 40 muskrat pelts sold for \$1.10 apiece," Garst said. "This year the price dropped to 70 cents each. But the sale of 120 muskrat pelts at even 70 cents apiece isn't bad loot."



**A LOT OF WORK, AND FUN—**Youthful trapper examines wide assortment of skins, proof of his trapping prowess.

Several years ago a good wild mink pelt would command a \$35 price tag. Current mink prices, however, vary from \$4 to \$10 depending upon prime-ness and size. Garst hit the jackpot last winter with an unusually large boar mink which brought \$15.

Those who say trapping is no longer profitable are wrong. Even though the season is short, trappers in Kansas in 1965-66 reported catching 122,985 pelts valued at \$263,878. Each trapper averaged income of approximately \$146.00 while expenses for the same season averaged \$51 apiece.

Not only are furs of economic importance to the state but money spent by trappers for expenses also adds to the economy. The 1,600 trappers active in 1965 spent just slightly less than \$82,000 for traps, gasoline, boots,

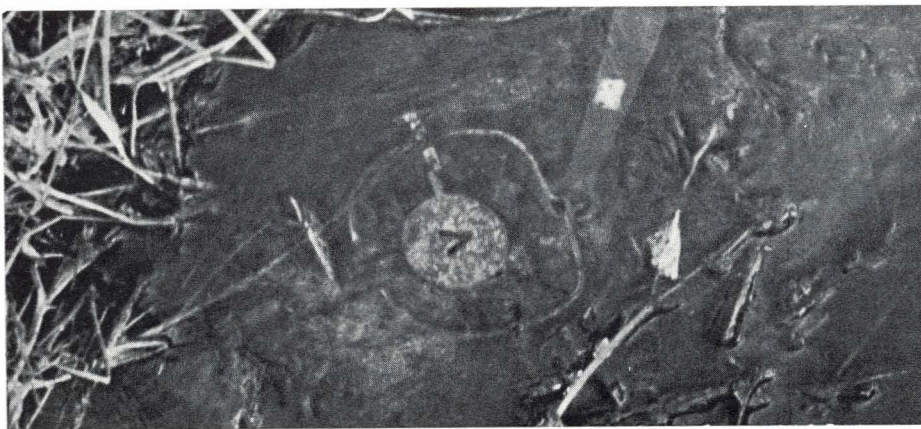
wire, fur stretchers, lures and other equipment.

As with any wildlife resource, it is difficult to evaluate furbearers in terms of money. The economic importance of these animals should be measured not only by the income of trappers and fur dealers, but also by aesthetic and recreational values.

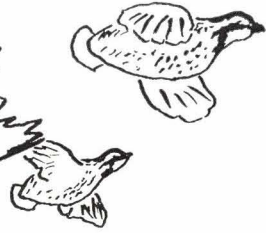
**Outdoor knowledge gained and the appreciation of aesthetics often fostered by trapping far exceed the value received for pelts. Recreational benefits are also received by those who pursue furbearers. The trappers, walking many miles to check traps each morning and evening, may consider their sport recreation, not work.**

Garst's father, who is Pratt's chief of police, is one of the first to admit that there is more value in trapping than monetary rewards. "Money from the sale of the furs may not pay the gas bill but at least we know he isn't getting into trouble," the elder Garst says of his son's exploits.

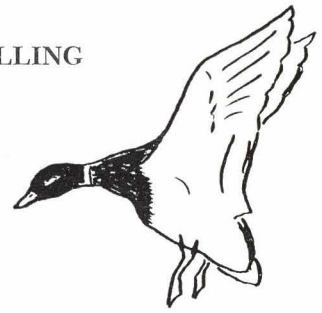
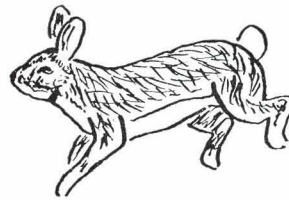
It seems ironic that trapping is on the decline when practically everyone is seeking pleasure and relaxation in the great out-of-doors. While fishing and hunting license sales climb many sportsmen ignore one of the greatest challenges offered by any outdoor sport—the matching of the trapper's skill against the cunning of the fur animal he seeks.



**SET TRAP—**Clear river water provides good view of trap set firmly on bottom, near muskrat run.



By MARVIN SCHWILLING



Winter is the season of most enjoyment for the hunter. It gives him opportunity to pursue and enjoy the sport he has financed and perpetuated over the years. Now he may harvest the crop his Game Department has determined Nature's surplus and established a hunting season to harvest—still leaving sufficient breeding stock to produce as many individuals as the habitat will support another year.

Have you ever had to defend your sport of hunting to a do-gooder that calls himself, or herself, a conservationist? Certainly many of us have. I still recall my first encounter with such a person. It was a crisp November afternoon, my brothers and I returned home from an enjoyable and successful quail hunt and found we had company, friends of the family. Young as I was I had to show the quail I had bagged to our friends. I was flabbergasted when the lady said: "You should be ashamed for killing those beautiful little birds." I could say nothing, but what she said bothered me for many days. I now am better prepared to answer such remarks.

**Most people do not realize that without hunters there would be little game of any kind. This country's 18 million hunters do more for conservation than the remaining 180 million put together.**

Hunters were the first group to insist that market hunting which threatened various wildlife species be stopped. They were the first to ask for seasons and bag limits. They now contribute \$77,000,000 annually in license fees for the support of the nation's 50 state game departments. This money supports all wildlife, including hundreds of non-game species such as songbirds and shorebirds. This also pays for wildlife refuges and management areas that support more non-hunted wildlife than game.

Thirty years ago hunters also asked

to have an 11 percent excise tax on sporting arms and ammunition. They also requested that this tax be continued in 1965 when many excise taxes were lifted. During 30 years this tax has supplied over \$300,000,000 to wildlife management and conservation. No group has done one-hundredth as much for conservation. No general tax fund monies are necessary for game management. The hunter pays his own way.

**In addition hunters add \$1,500,000,000 into the general economy each year in pursuit of their sport. And spend over \$100,000,000 improving wildlife habitat on private lands.**

Sportsmen are not bloodthirsty, with an aim to slaughter wildlife. They are taking only a surplus crop provided by nature for predators, of which man is one. Many hunters are also dedicated bird watchers, wildlife photographers, former G. I.'s, doctors, fathers, even loving mothers, Ph. D's, scout leaders and clergymen. It's significant, too, that hunting rarely appeals to the vicious young punks or the adult criminal type.

With a blanket of snow on the ground, the boys and I took our guns and the big lab and set off up the creek. We soon learned that the cottontails were at an unusual disadvantage in the snow. It was too fluffy to hold their weight and when the big lab forced them to leave their trails they soon played out and could be caught by hand.

Only a few times in my hunting years have I seen Mother Nature place cottontails at such a disadvantage. This was no sport so we gave up the hunt.

As we returned to the house we decided to check the elevated brush pile in the corner of the west food plot to see what might have used it during the period of prolonged snow. A covey of quail burst from the far edge and flew directly to another elevated brush pile. They knew where they were going. The boys and I built these brush piles with limbs that were broken on trees around the house and in wildlife plantings during a "Kansas Type" wind and rain storm in July. We elevated the brush on a frame about 12 inches above the ground, permitting only enough of the twigs to reach through to the ground to be about as dense as a plum thicket, at quail-eye level.

**I picked up a black phase of an American rough-legged hawk on the way home recently. The bird had been shot with a 12-gauge shotgun. The empty shell lay in the road and the bird a short distance beyond the pole out in the field. If a sportsman did this he surely doesn't know a friend from a foe.**

This man should have been afield last September when these and other big "buzzard" hawks were at their migration peaks. Cotton rats were abundant and the big hawks were having a field day. Perhaps the bird this man shot had caught enough cotton rats to permit another pheasant sufficient food to get through the remainder of the winter and into the production period next spring.

# The American Hunter

By JOHN MADSON

It's no secret that a wave of anti-hunting sentiment is building behind the current anti-gun legislation.

Some of it is being directed by organized protectionist groups. Most of it stems from critics who don't really want to protect anything, but who feel uneasy about sharing society with men who shoot guns at wild animals and seem to enjoy it.

I have never known a militant critic of hunting who really knew anything about hunting, and it's hard to talk to such a man. It's even harder when you're a hunter who doesn't understand himself—and most of us don't.

**I am puzzled by the forces that lead me afield. But I am more mystified by the double standard emotions of the anti-hunter.**

I remember a raw December evening when I had just come in from a pheasant hunt. A neighbor was passing and stopped to talk. She looked at the brace of rooster pheasants in my hand and said: "Oh, I feel so sorry for the poor things! How could you bear to shoot them?"

Before I dressed those birds that evening, I sat for a long time and looked at them. But my neighbor and I must have seen different pheasants. Try as I might, I could find nothing in those birds to pity.

They were splendid ring-necked cocks. Each had been the warlord of his own covert—smart, tough, bold and strong. They were birds of great integrity, thriving in our northern midwest under conditions that no other game bird today can endure in numbers.

I sat there and tried to relate those dead birds to human tragedy, and failed. I didn't feel debased for having shot them. It had been a hard hunt, and the pheasants and I had conducted ourselves well. The events of the day had been closely woven into a fabric of action and response, and there was no place in that ancient fabric for kindly neighbor ladies.

Furthermore, I knew those pheasants far better than did my neighbor, and had infinitely greater reason to

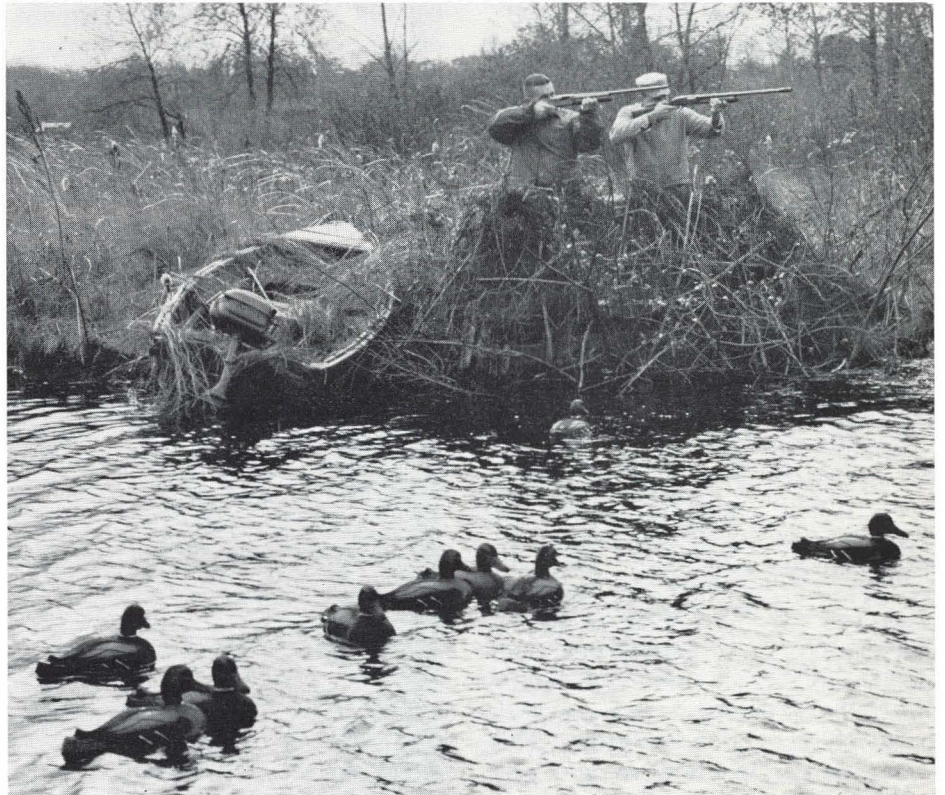
respect them. I had felt no claim on those birds as I went to hunt them. My hunting license was a lottery ticket, not a coupon for goods receivable. My neighbor had just as much moral right as I to enjoy those pheasants, yet she had never chosen to exercise her option. Their actual existence was apparently a matter of indifference to her. She said she pitied them, but she would have been just as happy if there wasn't a pheasant in the world. I did not pity them, and even sought to kill them, but I would be bitterly unhappy if there were no more pheasants in our cornfields.

Pheasants have always been part of the spirit of place of my home

country, and hunting them is part of the spirit of place, and perhaps my six-mile hunt through horseweed thickets and marsh edges was greater testimony to the value of those pheasants than was pity.

**Yet, killing those pheasants or any other wildlife is basically indefensible in our time. The hunter can no longer rationalize a day afield with physical survival. He may condone his acts with talks of exercise, relaxation, or communion with nature. Yet, many sorts of outdoor excursions will fill those needs, and some do so even better than hunting.**

But few can meet the need that so many men have for elemental competition and the ancient, basic tests of manhood. In its fullest sense, hunting is an atavistic game that bridges time and permits our plunging race to wistfully reach back and



A WELL-BUILT blind on the edge of a lonely, quiet marsh or lake or stream can produce some of the finest recreation known to man—duck and goose hunting at its best. A good bunch of decoys adds to the prospects of the day, too.

touch our racial childhood and the old toys of our youth.

The hunter often deludes himself and buries his motives. Yet, his ultimate motive in hunting is to kill. All other reasons, however important, are secondary. Remove the conscious intention of shooting something and a hunt is simply a walk in the country.

There are days when that's all the hunter wants—an aimless walk through good scenery. All predators have days like that. The grizzly may find a snowfield to slide on; the otter may play with a pebble. A man may be distracted by fall mushrooms or a patch of blueberries.

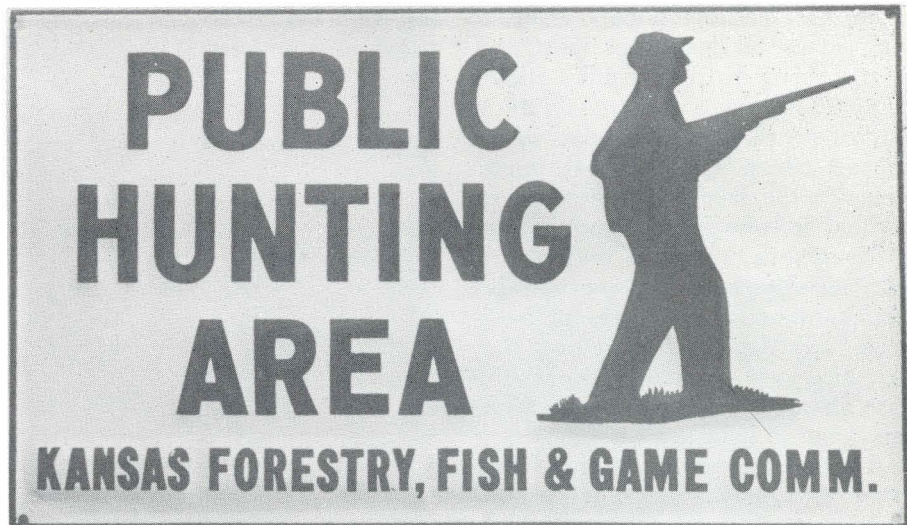
But those are exceptional days, even though they are vital to a hunter's experience. For always there must be a gun in the hunting picture, and the possibility of using it with effect. I doubt that any birdless hunter, however lovely the October fields and however fine the dogwork, is quite as happy as if he had made at least one clean double on a covey rise.

**It is this death motive that is so indefensible to our critics, and logically so, for the non-hunter may equate hunting only with the death factor—the only aspect of the sport that he understands.**

But while killing may be the endpoint of hunting, this death-dealing is so bound with tradition, ethics, and poignant yesterdays that the sport becomes a unique folkway. The emotions attending it are infinitely subtle and personal.

The non-hunter is often unable to comprehend these emotions and is likely to over-simplify hunting. He may regard hunting as a moral offense—a basic irreverence for life. But the veteran hunter, beyond an outspoken love for his sport, has few such clear-cut convictions. His original motives have become fused in a sort of spiritual matrix that defies analysis. He cannot explain hunting's deep appeal. He only knows that hunting is an integral part of his world and spirit, and that neither would be whole without it.

If hunting were a simple act of butchery, there would be few sport-hunters today. It is the host of at-



**POPULAR is this symbol and sign, which says "welcome" to the hunter, telling him that the land which the sign borders is open to his pleasure, and that game on that land is being managed under modern methods to provide him the largest harvest.**

tendant factors that lift sporthunting beyond mere killing, and invest it with an elemental dignity that is unique.

Ask an old hunter if he goes afield just to kill, and he'll probably sputter with indignation. Ask him, then, why he really hunts. He'll likely stammer like a schoolboy, searching for words and making lame remarks about "being out amongst 'em in prime country," and if the hour is late and the company convivial, his eyes will kindle with old dreams and old doings and he will soar off in a long, rambling anecdote that really conveys nothing—except to another hunter.

**Yet, such an experienced hunter would never claim that hunting is good for all men—nor that all men are good for hunting.**

Hunting has the connotations of vigor and manliness, but such blanket attributes are often as false as the blanket condemnations of the anti-hunters. There are social hunters, bent on bagging an admission ticket to the doggy set. There are dilettantes who dabble at hunting as they dabble at everything else. There are lost men seeking proof of themselves in the field because they have failed to find such proof in business, war, love or society. There are tiny men who feel larger with guns, and boors who ride roughshod over common right and decency. Hunters are only men, after all, and they mirror all of men's common failings.

But the individual is overshadowed by the aggregate, and the great faceless American hunter remains one of this nation's strongest and most remarkable natural resources.

**This aggregate hunter is a simple man, with simple aims and tastes. He may be as ascetic to a marked degree, and as solid as the rough land he hunts. He is outspoken and quickly roused by intrusions on his rights or privacy. In many ways he is the prototype American, embodying the attributes of a younger nation. He is a citizen who has kept his nationalistic youth in a society that is becoming sophisticated and jaded. He is an anachronism of the sort we should cherish.**

Within his own lifetime, this hunter is likely to reflect his own racial history. As a boy with a gun, he may have sought tribal honor by shooting all he could, equating manhood and recognition with the weight of his game bag. Many hunters never grow beyond this.

But with his years afield, the genuine hunter achieves something more than bag limits. He gains a personal tradition, and a measure of freedom that he can find nowhere else. He becomes an unbridled sentimentalist cherishing old guns, old partners, old dogs, old boots, and memories that are burnished a little brighter with each year's telling, and he becomes a walking litany of the "good old days."

He may be immature, as his critics

claim, for the real hunter seems to seek elemental tests that most civilized men try hard to avoid. Such a hunter develops a marked ability to endure stress. In thirty years afield, I have never heard a real hunter whine in the face of physical adversity that he knew he could not change. If Hemingway's "grace under pressure" definition of bravery is valid, then most real hunters are probably brave. In their own parlance, they are "good men to walk the river with." I am also convinced that they can be good men to fight wars beside.

**There is no such thing as the stock hero or the stock coward in combat. All men are cowards; all men are brave. Some hunters turn out to be Sergeant Yorks or Joe Fosses. Most of us don't.**

But taking men as they come, I'd as soon throw in with a seasoned hunter as anyone else. When bellies are empty and tonight's bed is a muddy pit, the hunter isn't likely to melt from self-pity. Hunger, cold, weariness and uncertainty are old companions, and he knows how to meet them.

He also knows the gun, although this may be less important in a soldier than being able to endure long periods of critical stress. But when a lifelong skill at arms is combined with a stolid ability to endure, there's a first-class fighting man in the making.

I grew up with a shirt-tail cousin who looked like an Apache delinquent and thought like a red fox. If Russ ever held a job in his teens, I never knew of it. He hunted. He didn't contribute much to his community. But, oh, he was a grand rifle shot!

**At seventeen he was hickory-tough and tireless, with an infinite capacity to endure. He enlisted in the Marine Corps in 1942, and wrote home just often enough to reveal that he had been assigned to a sniper unit in the Solomons.**

When I saw him again in 1945 he was trained fine as a whiplash, eyes yellow from atabrine and face burned dark by the tropics. He had earned his pay as a sniper for two years and had survived the terrible island campaigns without a scratch, either physical or mental. If any man ever en-



**A KANSAS hunter takes aim at part of a large covey of Scaled (Blue) quail flushed from an abandoned farmstead west of Garden City. Scaled quail, found throughout Southwest Kansas, stay around old machinery and abandoned farms which provide cover and food.**

tered his war equipped to survive, it had been Russ.

But he wasn't unique. When Russ had been hunting along Squaw Creek, a few miles away my friend Cole was working the South Fork of the Skunk, market-hunting rabbits. It was a tough way to turn a dollar, and I've known Cole to walk nearly 40 miles on a winter weekend. He wasn't much of a wing shot, but he was pure poison in a weedpatch with his .22.

He was apparently just as effective in French hedgerows and German forests. As a rifleman, Cole faced the Wehrmacht from Normandy to Aachen. He endured, and he prevailed.

These are grim attributes of hunting, but it has been my experience that they are valid ones. So long as men practice the art of war, the art of hunting will help school them in the old disciplines of weapons, wits and will.

**But the greatest attributes of hunting do not lie in anything as cold and empty as war.**

Hunting can develop strange reserves in the men who go afield all their lives—reserves that accrue interest and can be drawn upon in times of spiritual bankruptcy. It develops a fiber of purpose that justifies yesterday's doings and gives substance to tomorrow's.

To the small boy who hides behind the door long after bedtime to eavesdrop on the old hunting yarns, hunting is the promise of manly adventure. To the old man who has hung up his guns, hunting evokes a multitude of lofty days, the shadowy corps of men and beasts that he knew in the quiet places, and the personal tests that he met there.

His sport is often branded as callous, as a childish lack of depth and compassion. For how can a man deliberately kill for pleasure and still profess any reverence for life?

**The hunter is ill-equipped to defend himself against such accusations, for he is rarely an intellectual**



and he rarely "loves" or humanizes animals.

Instead, he allows these creatures the dignity of their own identities. They are simply the wild ones, each endowed with superb gifts for survival, and for the hunter that is enough. His animals do not inhabit enchanted forests, and are not imbued with human virtues and mischiefs. He knows that Chippy Chipmunk is a vector of tularemia, and that Bambi becomes a swollen-necked fury during the Rutting Moon. He knows that wild creatures have guts and blood, that they starve, that they are ravaged by sweeping epizootics, that they freeze and suffer and die, and that of all the deaths they may die, the hunter-death is infinitely the most merciful. Yet, in knowing the wild ones for what they are, the hunter feels a bond that is less tenderness and tears, and more respect and pride.

The protectionist is inclined to think as a civilized moralist, and observe lofty motives of compassion. The dedicated hunter is simpler and more direct. In regard to life-taking he may seem to be amoral. However, he kills within a rigid ethical framework, out of a basic need to participate in wildness in a traditional role. And it is not the place of our critics



**MALLARDS** by the hundreds take flight from a lonely cove at Kirwin Reservoir, near Phillipsburg. The highly-prized mallard, found on all Kansas waters, is world's most popular duck.

to say that this role is obsolete in modern culture.

**As long as wildlife has such enemies as the modern hunter, it hardly needs such friends as the outdoor moralist.**

For all his alleged irreverence for life, the hunter has done the most to restore and sustain today's wildlife populations. Without him, it is unlikely that any effective wildlife conservation programs would exist today. The hunter himself is directly responsible for the great modern populations of deer, antelope, turkey, pheasant, geese, elk, and a host of non-game creatures associated with the wildlife habitat that the hunter has caused.

It is inaccurate to say that if it had not been for hunting in the first place, wildlife would never have had to be conserved. America's original wildlife was not spent by the sport-hunter. It was decimated by relentless shooting by settlers, by commercial hunters, and by vast changes in the habitat.

**Yet, the modern hunter must expect to be criticized, for he has openly assumed responsibility for game species. He is apparently the only one willing to do so. He can also expect to receive full blame if wildlife declines, and no credit if it increases.**

Brilliant arguments against hunting have been advanced by such thinkers

as Albert Schweitzer, who once said that man is really ethical only when he goes out of his way to avoid injury to any living thing.

In his own fashion the modern hunter may be among the most ethical, for the consummate injury to any living thing is extermination. By causing and supporting professional wildlife conservation, it is most unlikely that the modern hunter will ever cause the extinction of another animal species. If anything, he has declared open war on the broad cultural and economic factors that threaten wildlife today.

Our good friend Dr. C. H. D. Clarke of the Ontario Department of Lands and Forests, offers this rebuttal to Dr. Schweitzer:

**"Any concept of life that does not comprehend the whole organic cycle is inadequate. The reluctance to accept death, evidently a predominant Schweitzer characteristic, reveals an unseeing devotion to the vital spark. It is death that makes it glow, measure for measure."**

Today's hunter will not snuff out that spark. If anything, he will feed and fan it—whatever his motives. And when the spark glows most brightly he will go out on his own as he always has, and let it light his way through the best places of America.



**A FAMILIAR sign in Kansas—the Refuge Area—No Hunting sign marking boundaries of refuges controlled by the Kansas Fish and Game Commission, assuring wildlife and waterfowl of a safe place to rest, feed and nest.**



**UGLY DEATH**—Thousands of dead fish line shores of Neosho River, following recent fish kill, in grim testimony of wholesale slaughter and widespread destruction which accompanies water pollution.

# What Price Pollution?

By LEROY LYON

"It's terrible," said a Neosho Rapids woman, hand held resolutely over her nose as she surveyed a stretch of the Neosho River near her home. As she spoke, the historic, scenic Neosho, now stained and fouled by the abuse of man, continued flowing on its way casting bloated bodies of its inhabitants ashore. The river's rippling laughter was subdued by tons of brown muck sliding over its rocky bottom. The clear water, for centuries a home for a large variety and countless numbers of fish and other forms of aquatic life, was now stained a dark brown.

**The sight was repulsive, the odor nauseating. The magnitude of the fish kill, extending for miles upstream was almost beyond comprehension.**

The woman was correct, it was terrible—but, unfortunately, not uncommon.

Scarcely a day goes by but that somewhere in the state deadly pollution seeps or floods into fresh, clean water bringing death and devastation, despoiling landscapes and ruining for a time, if not forever, recreational opportunities only clean water can provide.

Water pollution has been defined as any material or condition which alters the physical or chemical character of water to the extent that its value for any beneficial use is impaired.

Basically there are two types of pollution, natural and man-made. The most common natural pollutants are dissolved minerals, silt and organic materials. Natural organic pollution such as leaf-fall does cause fish kills especially during drought periods when water levels are low and there is little or no flow of water. However, investigations reveal that large numbers of fish are not affected by natural pollution.

The major sources of man-made pollution are municipal, industrial and agricultural. Since settlement by white man, this type of pollution has existed in the Sunflower State. With the passage of the Water and Sewage

Law in 1907, Kansas became the third state in the nation to launch a program of water pollution abatement. Responsibility for water pollution control was placed and continues to be vested in the State Department of Health.

**Originally the legislation was concerned primarily with control of municipal water and sewer systems with protection of public health a prime consideration.**

Several amendments have been added since 1907 extending the Department's authority for pollution control to cover other potential pollution sources including oil wells, petroleum refining plants, slaughterhouses, and all industrial wastes in general; all contributors to the spoiling of the state's rivers and streams.

Since the original legislation was enacted, municipalities and industries have taken major steps to halt the pollution of Kansas streams. Kansas municipalities have expended approximately one-half billion dollars for sewerage systems and major industries have spent a similar amount. The State Department of Health estimates that approximately \$20 million is spent annually by municipalities for collection and treatment facilities.

Although legislation controlling and preventing gross abuse of the state's water resources by industry and mu-

(EDITOR'S NOTE: This is the first of a series of articles by Leroy Lyon, information specialist for the Fish and Game Commission, on water pollution in Kansas. Another will appear in the Spring 1968 issue of *Kansas Fish and Game Magazine*.)

nicipalities has been adequate, control of agricultural effluents has only recently been placed under jurisdiction of the State Department of Health. For the first time water pollution from feedlots came under control of the Department with the passage of House Bill 1497 by the 1967 session of the Legislature. With the new legislation, the Health Department has adopted supporting regulations for control of water pollutants from agricultural feedlot operations; a significant and historic step.

A significant increase in water pollution problems across the state has been noted during recent years causing concern among some of the state's citizens and sportsmen. Despite denials by a minority of stockmen and other individuals, statistics, investigations and research all attribute a large share of the blame to livestock feeding operations, an industry which has grown from infancy in the mid-1950's to its present status as one of the state's most important enterprises.

**Water pollution generally results in dramatic fish kills although the water may still be made safe for human consumption with careful treatment. Such a kill may involve several miles of stream resulting in huge losses of fish life. The frequency of fish kills and numbers of fish killed by water pollution have risen correspondingly with the increase of livestock in feedlots.**

In 1956 only 30,000 head of cattle were confined in commercial feedlots (feedlots having capacities of more than 1,000 head). By 1962 the number had climbed to 99,000 head then increased to 311,000 by January 1, 1967. Currently there are an estimated 468,000 head of cattle in feedlots scattered across the state.

As the feedlot industry grew, frequency and numbers of fish kills also increased. In the 17th Biennial Report of the Kansas Forestry, Fish and Game Commission, the fisheries divi-

sion reported 18 fish kills during the two-year period from July 1, 1956 through June 30, 1958. No fish kill during the period was attributed to feedlot runoff.

The reverse occurred in 1966 when cattle in feedlots reached a new record high. During the year a total of 23 fish kills, resulting in the death of approximately 1,144,500 fish, were investigated—15 of which were directly attributed to runoff from feedlots.

Cattle in feedlots are confined in small pens or corrals where they are fed for great weight gains in short periods of time. This feeding system results in great concentrations of cattle in small areas, normally 200 to 300 cattle per acre, where natural processes cannot stabilize the animal waste without the possibility of polluted water runoff during periods of rainfall. Feeding of nutritionally balanced feed for maximum weight gain results in body wastes having greater water pollution potential than is found with grassland-grazed cattle.

Operation of a cattle feedlot requires periodic removal of waste accumulations from pens with return of solids to farmland as fertilizer. However, most feedlot operators find it normally impractical to clean the pens except after removal of cattle and prior to placement of the next group in the corral. As a result, wastes are allowed to accumulate within the lot for as much as three to six months before they are removed.

When heavy, local runoff rains occur, large slugs of organic wastes or dissolved pollutants wash into streams. A large majority of feedlot runoff occurs in the spring after large amounts of wastes have been allowed to accumulate on the lots. A feedlot with a capacity of 10,000 produces wastes every day equivalent to a human population of 100,000 persons.

"We know feedlots are the prime offenders," said J. Lee Mayes, Chief Engineer and Director of Environmental Health Services for the Kansas Department of Health. "Feedlot wastes in streams are characterized by extremely high bacterial populations, high ammonia content and depletion of oxygen in the water," Mayes added. "In addition,



**HUGE LOSS**—Large channel catfish, their bloated bodies spewing golden eggs, lie on shore of Neosho River after dying in oxygen-depleted water. Pollution hit when fish were upstream from John Redmond Reservoir to spawn. (Fish and Game Commission photos by Leroy Lyon.)

when the polluting runoff first reaches the stream, it looks like water from a feedlot and smells like it, although, at a later stage, when the oxygen in the water has been used up, the stream turns black and has a definite septic odor characteristic of pollution from any source."

The Health Department has conducted intensive water quality studies to determine causes of the many fish kills. These water analyses show an extremely high bacterial count of the specific types which live in the digestive tracts of warm-blooded domestic animals and are therefore traceable to manure wastes. The major cause of fish kills is the depletion of the dissolved oxygen in the water as the organic wastes are utilized as food by bacteria. Sometimes, depending upon the flow of the stream, the bacteria may not consume enough oxygen in the water to suffocate fish until the pollution slug washes as much as 50 miles downstream, another reason feedlot pollution is so devastating.

Urine, washed from the soil of the feedlots, combined with decomposing manure wastes, gives a high

ammonia content to the polluted water and in some instances causes internal and external bleeding of fish in addition to suffocation from lack of oxygen.

A large majority of the fish kills have occurred along a section of the Cottonwood-Neosho river system from west of Emporia to the upper reaches of John Redmond Reservoir. Of the 1,144,500 fish estimated killed by water pollution in Kansas in 1966, slightly more than 1,021,000 died along this section of river. In the first four months of 1967, an estimated total of 845,000 fish have died from water pollution in this hard hit area.

In the summer of 1963, Dr. Carl W. Prophet, Associate Professor of Biology at Emporia State Teachers College and his research team began detailed studies of the Cottonwood-Neosho river from a point west of Emporia to the dam at John Redmond Reservoir. Purpose of the project was to study the stream and determine, if possible, the overall effect of the dam, physically and chemically, on the water.

Thus, a research team has been on hand to witness and record the gross

abuse of one of Kansas' finest fishing streams, although such an endeavor was not the original purpose.

**"Our survey is not by any means complete," Dr. Prophet says. "But the results we have obtained reveal that runoff from feedlots has altered the chemical and physical nature of the river."**

Dr. Prophet's team has conducted systematic sampling of the river since the study began and consequently has developed a continuous picture of seasonal trends.

"The coliform bacterial density level in the river is rather low during normal river flow," Dr. Prophet said. "Coming on upstream the count increases slightly below the local sewage plant and local slaughter house, then gets higher just below the mouth of the drainage ditch which empties the local feedlots." "Upstream from the feedlots the bacterial count is again low," Dr. Prophet added.

"After a one- to two-inch rain, our sampling at the same positions indicated a decrease in dissolved oxygen and a great increase in ammonia and coliform bacteria at and below the point where local feedlots are draining into the river, but upstream from the feedlots the river conditions were normal," Prophet says.

"We have also discovered that fish kills do not occur with every rain," Dr. Prophet said. "A heavy, general rain provides surplus water diluting the pollutants thus preventing widespread destruction to the existing fish populations."

Conditions more likely to cause a kill according to Dr. Prophet's study are low flow conditions of the stream and from one to two inches of heavy, local rain where runoff is rapid but not sufficient to cause a rise in the river. The slug of pollutants in this case moves very slowly wiping out fish populations as it moves downstream. The oxygen depleted water may travel many miles before becoming normal again.

While a large share of the blame for water pollution has been laid squarely on the shoulders of the feedlot industry, it must be remembered that feedlots are not the only contributors to pollution. However, statistics from 1963 through 1966 emphasize

the role of feedlots in fish kills. During that time there were a total of 93 major fish kills in the state of which 60 percent were attributed to runoff from feedlots, 18 percent to industry, 13 percent to unknown causes, 5 percent from municipal wastes and 4 percent caused by miscellaneous sources.

**Statistics compiled by the Federal Water Pollution Control Administration indicate it's high time for Kansans to start worrying about the ills of their own water instead of clinging to the erroneous belief that all of the nation's pollution occurs in the states "back East."**

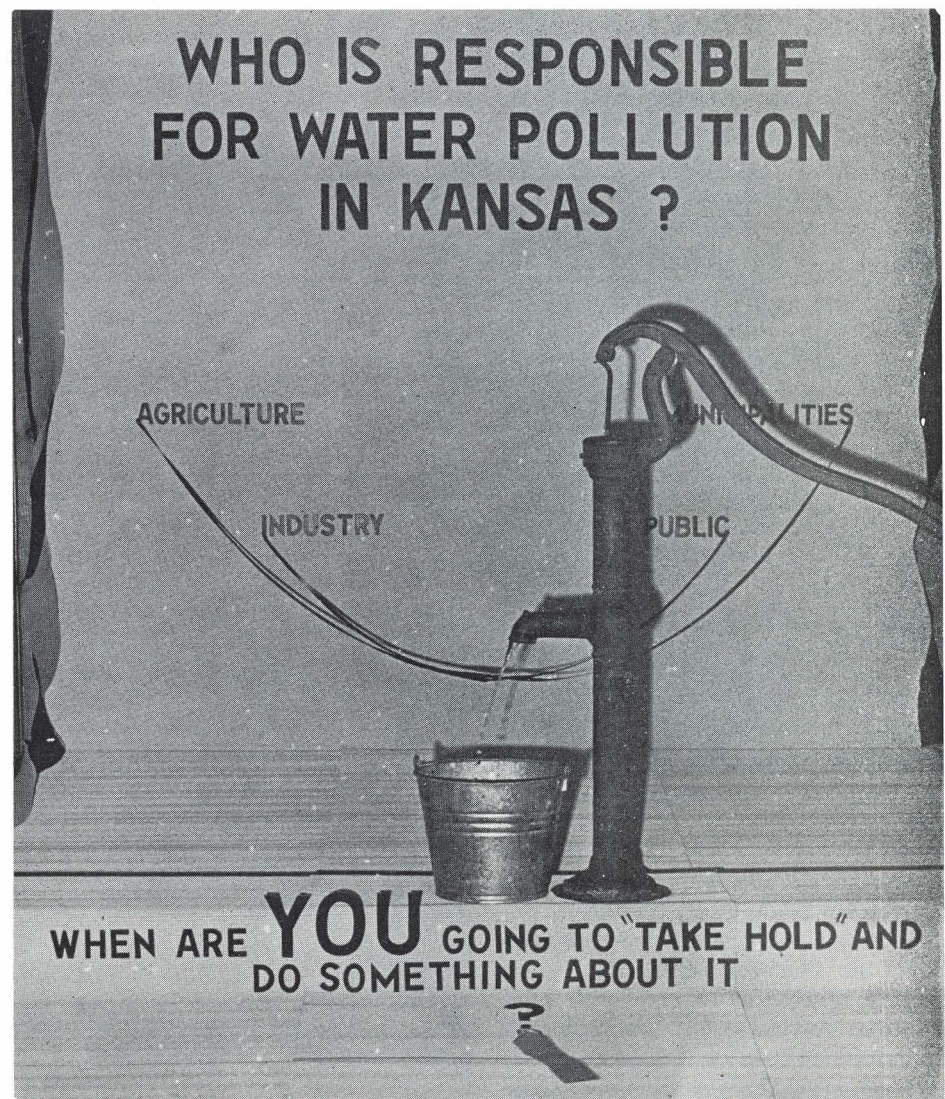
According to the Federal report, Kansas, in calendar year 1966, tied with California for fourth place in the total number of fish kill reports. Only

Pennsylvania, Ohio and Texas exceeded the 23 reports submitted by Kansas and California.

In total numbers of fish killed, Kansas was the second highest state in the nation with its total of 1,144,500 fish killed. Pennsylvania barely prevented Kansas from claiming the dubious title with a total of 1,493,819 fish lost due to water pollution.

There is no longer any doubt—Kansas has experienced and is continuing to be confronted with serious water pollution problems resulting in immeasurable losses, both esthetically and economically.

An article in the next issue of the *Fish and Game* magazine will probe into these losses and later issues will present other aspects of the pollution problem as it relates to Kansas.



**TIME TO ACT**—Exhibit by Eskridge FFA Chapter at Mid-America Fair, Topeka, provides timely reminder about water pollution problem in Kansas.

# A Bonus for Kansas Sportsmen

By DICK HAGER  
*Southeast Regional Game Manager*

Three years before the coming of the first big, man-made reservoir in Kansas, Congress enacted a law which has proven a "bonus" to every Kansas sportsman.

It has enabled the state to utilize land adjoining big reservoirs for the management and development of fish and wildlife. It's called the Congressional Fish and Wildlife Coordination Act of 1946.

The Kansas Forestry, Fish and Game Commission has taken full advantage of the act to acquire 96,510 acres of high-quality, federally-owned reservoir land, placing it under management for development of wildlife resources.

**Most of these lands are located adjacent to 12 major reservoirs in the state. Planning and preparation for management starts long before a dam is constructed. First steps are taken before actual purchase of the land by the government.**

Before Congress appropriates money for the lakes, detailed economic studies are made by the construction agency—either the U. S. Army Corps of Engineers or the Bureau of Reclamation.

At the same time, the Fish and Game Commission in cooperation with the U. S. Fish and Wildlife Service, determines wildlife present on the proposed lake area. Results of this survey are submitted to Congress along with the economic report, and recreation is considered along with other aspects of the project.

When land acquisition is completed, the Commission, Wildlife Service and the construction agency draw up a general recreation plan for the reservoir. The document stipulates what lands and waters on the project are to be given wildlife priority. It is given final approval by the signature of the Kansas Fish and Game Director and the Secretary of Interior. In the event the project is under the control of the Army Corps of Engineers, the Secretary of Army also signs the document.

As the project becomes operational,

the Commission and construction agency draw up a final license, which corresponds to a lease in today's business world. It generally covers a 25 or 50 year period.

**The area is next placed under management of the Kansas Fish and Game Commission, and sportsmen begin reaping rewards of the Commission's planning and work.**

The Commission acquires the lands with two primary purposes in mind. One is to provide sportsmen with places to hunt, at no charge. Boundaries of the project are marked with "Public Hunting Area" signs. The yellow and black signs are located about 300 feet apart around the property. All corners, interior roads and trails are marked by the tag-sized sign.

All major roads leading into the public hunting areas are marked with large "Game Management Area" signs. White with black lettering, the signs

measure 15 by 34 inches. They are also used along trails and entrance roads.

The second purpose of the Game Management Areas is to produce the highest number of native game birds and animals that the land is capable of producing and to make the lands as attractive as possible to migratory game birds.

During preliminary planning and early management stages, the land is divided into areas for species control. Lands best suited for particular game species, primarily Bobwhite quail, cottontail rabbit, ringneck pheasant or squirrel, will be managed for one, or a combination, of those species.

Lands which appear to be best suited for waterfowl are managed for waterfowl and not for other game species. This does not necessarily mean that ducks and quail cannot be found on the same quarter section, rather that all lands will be managed with more emphasis on certain types of game species than is placed on others.

In Eastern Kansas, for example, areas best suited for production of Bobwhite quail will be managed pri-



**ONE-YEAR GROWTH**—Multiflora Rose bushes, planted in clumps to provide cover, show excellent one-year growth. Grass strips are planted between clumps, and will eventually be covered by spreading roses.

marily for quail, perhaps cottontails and even squirrels. In this case the existing quail habitat will be greatly expanded by creating brush piles, planting of desirable foods and providing high quality nesting cover.

Additional habitat is provided by expanding the necessary food, cover and nesting areas by planting grass, legumes, trees and shrubs in existing crop fields where there is a void of desired habitat. Where possible, it is connected to the existing habitat making a larger desirable area for the game species to carry out their life cycle.

Areas which have larger crop fields are utilized for the production of wildlife food. Local farms are permitted to farm these lands under a share-crop agreement with the Commission. In general the farmer produces the crop he desires, for his share and produces a crop for the Commission which will be beneficial for wildlife. This technique of management benefits not only wildlife but also boosts the local economy by keeping thousands of acres of lands in production by local farmers, which would otherwise be lost.

For upland game such as quail and cottontails, the state's share of crops is left standing near old building sites, fence rows, hedge rows, creeks, draws and timber. Standing crops provide necessary food during critical winter months. When the Commission plants grass strips for nesting cover and shrubs for escape cover, the state's share of the agricultural crops is left along these areas for easy access to food.

The following example depicts the procedure used by the Commission in its management program in most areas.

Let's take a quarter section of land that is in a newly acquired management area. The field is relatively flat and has been used for milo, corn, and wheat production and is located in the eastern Kansas quail range. On one side of the field is a hedgerow which has not been destroyed. In the past there may have been one covey of quail in the hedgerow during normal years and perhaps two coveys during the best quail years.



**YOURS FOR BETTER HUNTING**—Game management areas open to public are clearly marked with standard signs. There is no charge for use of areas, provided proper license and stamps are obtained. (Fish and Game photos by Dick Hager.)

The first step by the Commission is to trim some, if not all, of the hedge making brush piles for additional cover. A strip of native grass, approximately 50 feet wide, will be planted to provide additional nesting cover. The strip is located along the hedgerow where trees sap moisture from the crops.

Across the quarter from the hedge-

row, another strip of grass about 75 feet wide will be planted to provide nesting cover. In addition to the grass strip, four or five clumps of Multiflora Rose bushes will be planted to provide cover for the birds. Each clump, consisting of four rows of bushes per clump, is about 65 feet wide and 75 feet long.

Three or four more grass and

shrub strips will be evenly spaced across the quarter to provide additional cover. The farm agreement calls for the state's share of crops to be left standing along the habitat strips to provide winter food.

Now let's evaluate. Prior to proper management techniques there was habitat for only one or possibly two coveys of quail along the hedgerow. Now, the same area will support from eight to ten coveys of quail.

In addition, the new habitat is hunttable and will provide many hours of recreation. Unhunttable habitat produces wildlife that is wasted. It should be remembered that game animals such as quail cannot be saved and banked like money. They must be hunted to be a justifiable crop, just as corn and wheat must be harvested by the farmer before he realizes a profit.

Side benefits derived from habitat development for quail will provide additional food for squirrels, rabbits, raccoon, deer and perhaps prairie chicken, creating more hunting. In addition, this area will attract many species of song birds that previously did not visit the hypothetical quarter section before management techniques were applied.

If the area was located on one of the western Kansas reservoirs, in the pheasant range, the grass strips would probably be a little wider and Multiflora Rose clumps would likely be replaced with wild plum. The wild

plum bushes would be larger, farther apart and fewer in number.

The pheasant will utilize them to the fullest extent as the quail did his new habitat in eastern Kansas. In good years there will be quail in these strips along with pheasants, cottontails and other birds and animals, an ideal place for the hunter to spend many enjoyable hours and days.

**The production of habitat is like the production of any crop; it takes time to mature. On the hypothetical quarter section, it will take from two to four growing seasons before much habitat value is realized.**

Then there is a period of occupancy, a lapse of time before the carrying capacity of the land is realized. The new habitat may be compared to the erection of a new apartment building in a city. For a short period of time following construction, there may be a shortage of occupants. But, once filled, neither the apartment nor the parcel of land can support any additional dwellers. Once the land has been filled to capacity, the annual production is available for the hunter to harvest.

Migratory birds managed on reservoir areas include ducks, geese, mourning doves and numerous shore birds. The mourning dove responds readily to areas managed for upland game, and is often hunted in those areas.

Most of the shore birds which frequent the management areas are not

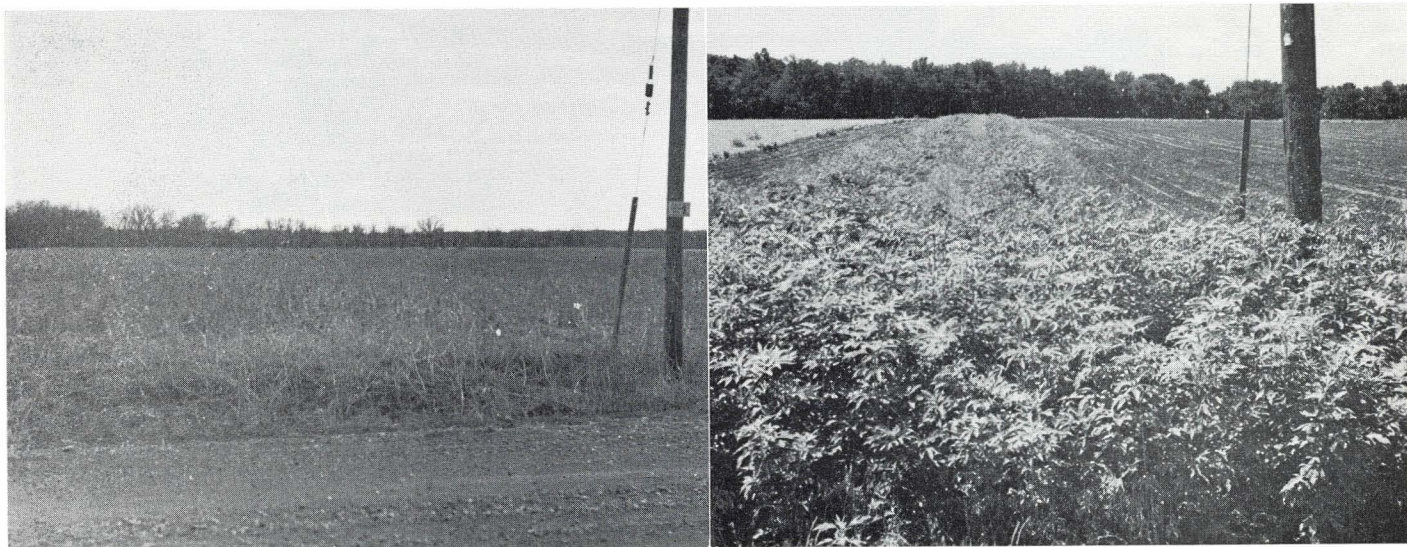
game birds and are therefore protected by Federal law. However, these birds provide many enjoyable hours of entertainment to those interested in bird watching and nature studies. Some reservoirs have habitat conducive to minor migratory game species such as rails, gallinules and snipe and are available to those desiring to pursue these species.

A majority of the reservoirs in Kansas are flood control units. This means that portions, in some cases large portions, of the areas are subjected to periodic flooding. Often several thousand acres will be flooded every one to two years with additional acreage subject to flooding every three to five years. The frequent flooded regions are not conducive for management of upland game.

**The most practical use of these regions is management for waterfowl. The reservoirs attract and concentrate large numbers of waterfowl, especially when additional management techniques are added.**

Contrary to popular belief, water alone does not attract and hold large numbers of waterfowl for a long period of time. Water, marsh areas, large feed fields and sanctuary sites are the necessary requirements for this.

In general, reservoirs provide water and large tracts of high quality lands which can be used for production of waterfowl food such as milo, corn and wheat. In most cases, the reser-



**BEFORE AND AFTER**—Land which is ideal for farming but poor for wildlife is shown at left, then pictured again after planted to strips of Multiflora Rose and grass.



voirs do not provide extensive marsh areas, which must be man-made.

Waterfowl sanctuaries, or refuges in the strict sense, are absolute necessities to stop and hold migratory birds for long periods of time during the hunting seasons for the following reasons: (1) The refuge provides a feeding area where the waterfowl is unmolested; (2) Waterfowl foods must be made available early in the migrating season by such techniques as rotary mowing of milo and corn adjacent to large blocks of wheat to provide goose browse. This technique is impossible on an area where hunting is permitted because it is in conflict with the Federal Baiting Law which stipulates that migratory birds cannot be shot over a baited area; (3) Refuges provide resting and roosting sites where waterfowl are not molested.

Without these things, waterfowl would be subjected to hunting pressure when they first arrive on the scene. This would result in an early departure from the management area and they would not be available to the hunter throughout the rest of the season.

Shallow marshes can be created and maintained in one or two ways . . . either by pumping or by using the normal rainfall that is available. The most practical way is the utilization of normal rainfall, especially on eastern Kansas streams. In such areas, where sufficient drainage and topography make it possible, shallow marshes can be constructed by trapping normal runoff water. The water is ditched to areas encompassed by terraced-type dikes. However, in many instances simple economics and an inadequate water supply makes it impractical to provide shallow marshes.

**Two effective marsh management techniques used are:** (1) Waterfowl food plots such as corn, milo or millet can be produced in diked areas and flooded in late September or early October for an effective waterfowl attraction; (2) The diked areas can be drained in late spring, allowing native foods such as smartweed, barnyard grass, and rushes to grow wild and be flooded in a manner similar to the domestic crops mentioned in (1).

Both techniques are effective, however, domestic crops such as corn, milo and millet often provide larger quantities of waterfowl food and are thus effective for longer periods of time. Both techniques result in high quality waterfowl hunting.

Large fields managed for waterfowl on the reservoir areas provide Kansas hunters with top-notch shooting that is new to the Kansas hunting scene and overlooked by many. Late in the seasons, large concentrations of waterfowl on the reservoirs feed twice daily on food provided on the management areas. The feeding flights occur both in the morning and evening hours.

Hunters can find top-notch shooting simply by constructing a shallow blind from cornstalks or milo stalks in the feed fields. A few duck or geese decoys placed near the blind will help. Large numbers of waterfowl can be attracted to the decoys, allowing the hunter to take birds without getting muddy and wet and having his dead birds drift across the lake. During heavy feeding flights, decoys are not needed.

Foods provided for migratory waterfowl are utilized by wintering birds during the fall and by northern migrating birds in the spring. Food available in the spring is of the utmost importance and occurs at a critical time in the waterfowl's life cycle. On private lands much of the domestic crops have been harvested, plowed under or otherwise depleted. An inadequate supply of food results in semistarved, unhealthy birds which in turn are poor breeders. Adequate food on reservoir waterfowl management areas helps place the birds on their northern breeding grounds in good, healthy condition. This results in higher reproduction.

**Many of the reservoir game management areas are not only conducive to small game species but are equally attractive to large herds of deer which may be hunted under special regulations in Kansas.**

Wild Rio Grande turkeys have been introduced on a few of the reservoir game management areas. This challenging game bird may provide hunting in the future as the turkey

crops expand to a huntable population.

In summary, let's take a look at what the Kansas Forestry, Fish and Game Commission has done for hunters who desire to take advantage of an opportunity surpassed in no other state:

(1) The reservoir game management areas are provided to hunters at no initial cost to the Fish and Game Commission;

(2) The public hunting areas are provided to hunters by the Commission with no user fee charge;

(3) All native upland game species, waterfowl, mourning doves and deer may be hunted on the licensed areas at these Kansas reservoirs: Cedar Bluff, Cheney, Council Grove, Elk City, Fall River, Lovewell, Milford, Norton, Toronto, Tuttle Creek, Webster and Wilson.

**The Kansas Fish and Game Commission takes full advantage of cost sharing monies provided by the Pittman-Robertson Federal Aid funds in the operation costs of these lands. This money is made available to the state from an 11 percent federal excise tax on the sale of sporting arms and ammunition. The tax is levied at the point of manufacture, then apportioned back to the state at a rate of 75 cents on each dollar spent.**

The excise tax is made available to states in proportion to the population, number of licenses sold and land area. It is used on projects approved by the Federal Aid section of the U. S. Bureau of Sport Fisheries and Wildlife.

Public information maps and bulletins on most of the individual reservoir management areas are available from the Information-Education Division, Kansas Fish and Game Commission, Box 1028, Pratt, Kansas 67124.

Beavers can work under water sawing poles with their teeth without getting water in their mouths. The lips are so designed that they close in back of the long, front incisor teeth.

**At Your Service!**

# Publications Galore

By THAYNE SMITH

A letter from a 9-year-old Topeka boy is typical of many received by the Information-Education Division of the Kansas Fish and Game Commission at Pratt. "I want to know everything about the Fish and Game Commission," he wrote. "I need the information for a school report."

Every state agency, undoubtedly, receives similar letters many times each year. They come from elementary and high school students, and even some college scholars apparently seeking help in writing a master's thesis, or a research project.

In addition, there are similar requests from Boy Scouts, Girl Scouts, camping groups, and plain old hunters and fishermen. Generally, they want only one specific item, such as a hunting season list, but often apply the "everything" tab just to be sure they get what they want.

In order to answer these queries, and hundreds of others received each week for specific information about one of the many facets of the Fish and Game Commission, the Information-Education Division keeps a complete and somewhat complex group of maps, brochures, booklets, information sheets, bulletins and magazines on hand. It is a never-ending task to write, lay out, print and update these publications.

All of these items, of course, are free to the public, simply for the asking. Some items—such as a list of fishing regulations, season lists, and booklets on where to hunt and fish in Kansas—are printed in the thousands. Others, not as popular but equally important to the person who requests them, are printed in smaller numbers, some of them on a small printing machine maintained at Fish and Game headquarters.

A majority of the printed material produced by the Information-Education Division is printed by the Kansas State Printer in Topeka.

In addition to this material, the Division also keeps a lot of booklets and leaflets on hand for public dis-

tribution which are produced by other agencies. For instance, fish and game information sheets are traded to the Highway Commission for their fine Kansas Highway Map, and to the Kansas Department of Economic Development for its excellent tourist-promotion brochure entitled, "Four Seasons of Fun In Kansas."

Many of the pamphlets and brochures produced by the Commission are used as "handouts" at shows and fairs, where the agency maintains a booth or permanent display each year. Included are the Kansas City and Wichita sports Shows, the Three-I Industrial Show, and the Mid-America and Kansas State Fairs.

Many times, inquiries are received asking if the department has information on a certain subject or topic. As a service to readers of *Kansas Fish and Game*, who might desire information of a specific nature, a list of the major publications of the department follows. Copies in limited quantities may be obtained by writing the Information-Education Division, Kansas Fish and Game Commission, Box 1028, Pratt, Kansas 67124:

1. Kansas Fish and Game magazine, published four times yearly, is available to any Kansas resident by written request, free of charge.
2. Maps are available of most of the federal reservoirs which have been completed or are under construction at present.
3. A brochure, "Public Hunting in Kansas" lists all areas in the state open to public hunting, totaling more than 270,000 acres.
4. "Hunting Seasons and Regulations," gives all hunting dates, bag limits, major regulations, etc.
5. "Fishing Regulations," lists various species of fish available, limits on certain types of fish, major fishing restrictions, laws, etc.
6. "Waterfowl Identification Guide," an excellent book of drawings showing identity characteristics of the various species of ducks and geese and shore birds found in the Central Flyway.
7. "Ducks at a Distance," a color guide on duck and geese identification, listing all major species hunted in the United States.
8. "Four Seasons of Fun in Kansas," a bright, colorful brochure produced by the Kansas Depart-



**YOURS FOR THE ASKING**—Publications of many kinds, just a few of them pictured above, are available on most phases of outdoor recreation and conservation in Kansas from the Fish and Game Commission's Information-Education office.

ment of Economic Development outlining the major lakes, hunting areas, fishing waters, parks and their facilities, and other recreational facilities throughout the state.

9. "Kansas Highway Map," a four-color map of the state showing all major roads and highways, lists and populations of counties and cities, mileage chart, list of state lakes and reservoirs, and other information. Produced by the Kansas Highway Commission.

10. "What Have I Caught," a booklet with appropriate drawings and information to tell the angler exactly what he has caught when he pulls a fish from Kansas waters.

11. "Where to Fish in Kansas," an excellent guide to all fishing waters in the state, with a listing of every reservoir, state, county, township and city lake. Also lists other facilities available at the lakes, and contains sectional maps showing major highways leading to lakes and streams.

12. "Kansas Farm Ponds," a booklet produced by Kansas State University and the Fish and Game Commission, containing basic information on the construction and maintenance of farm ponds.

13. "Production of Channel Catfish," a booklet produced by Kansas State University and the Fish and Game Commission on the raising of channel catfish.

14. "Flint Hills National Wildlife Refuge," a booklet by the U. S. Fish and Wildlife Service on the new refuge established at John Redmond Reservoir.

15. A map showing all major rivers in Kansas.

16. Federal Waterfowl Regulations — a pamphlet explaining the federal framework for setting of waterfowl seasons, and listing all federal regulations dealing with all types of waterfowl.

17. "Habitat Improvement Means More Birds," an excellent new book written by Bob Wood, biologist with the Fish and Game Commission, listing basic conservation and farming practices needed to increase upland game bird populations.

18. "Careers in Wildlife Conservation," a booklet by the Olin-Matheison Chemical Corp., containing information on basic game and wildlife management, courses which students are required to take in game management, schools offering wildlife management curriculums, and other valuable data for the student interested in wildlife.

19. "A Career for You in Wildlife Conservation," a brief outline of requirements students must meet to pursue a wildlife management career, produced by the Wildlife Society.

20. "Conservation Is Our Business," a new booklet by the Fish and Game Commission, containing a brief history of the agency, descriptions of the programs and activities of the six divisions of the Commission, and information on the headquarters, aquarium-museum at Pratt, and other data.

21. Pamphlets on various types of water pollution, entitled "What You Can Do About Water Pollution," "America's Shame — Water Pollution," and "Action for Clean Water."

22. "Guide to Kansas State Parks," produced by the Kansas Park and Resources Authority, listing all parks under its jurisdiction, information on the Kansas Park Vehicle Permit, and all facilities available at the various parks.

23. A booklet, "You and Your Lawmaker," produced by the National Shooting Sports Foundation, describing basic gun laws of the nation, the right to bear and own arms, a history of sporting arms, etc.

24. Information guides and sheets on the following:

Hunting and Fishing in the Strip Pits.

Game Management areas at Toronto, Lovewell, Webster, Tuttle Creek, Wilson, Cheney and Council Grove Reservoirs.

The Cheyenne Bottoms, Neosho, and Marais des Cygnes Waterfowl Refuge areas.

Kingman County Game Management Area, the Cimarron National Grassland, and Quivira National Wildlife Refuge.

Bobwhite Quail and Ringneck Pheasants, the Mallard Duck, First Aid, All About Fish, Largemouth Bass, Smallmouth Bass and Spotted Bass, Crappie and White Bass, the Sunfishes, Channel Catfish and Flathead Catfish.

Law Enforcement (Fish and Game Laws), Control of Undesirable Aquatic Vegetation, State Lakes in Kansas, Girl Scout Ranger Aid, Information for Girl Scouts, Unprotected Hawks and Tips for Deer Hunters.

There are many others, too numerous to mention.

The Commission welcomes your inquiries about these publications, and your questions and comments about Fish and Game activities in Kansas.

We're at your service!

# Kansas Lad Top Angler

You don't have to have a lot of years behind you to be a good fisherman.

Proof of the point is a 19-year-old sophomore at the University of Kansas—Dwight Keefer of Overland Park.

Keefer is the new world's champion freshwater fisherman, in the lure division. He won the title recently in the World Series of Sportfishing at Long Lake, Spooner, Wis., competing with 30 other state and regional champions.

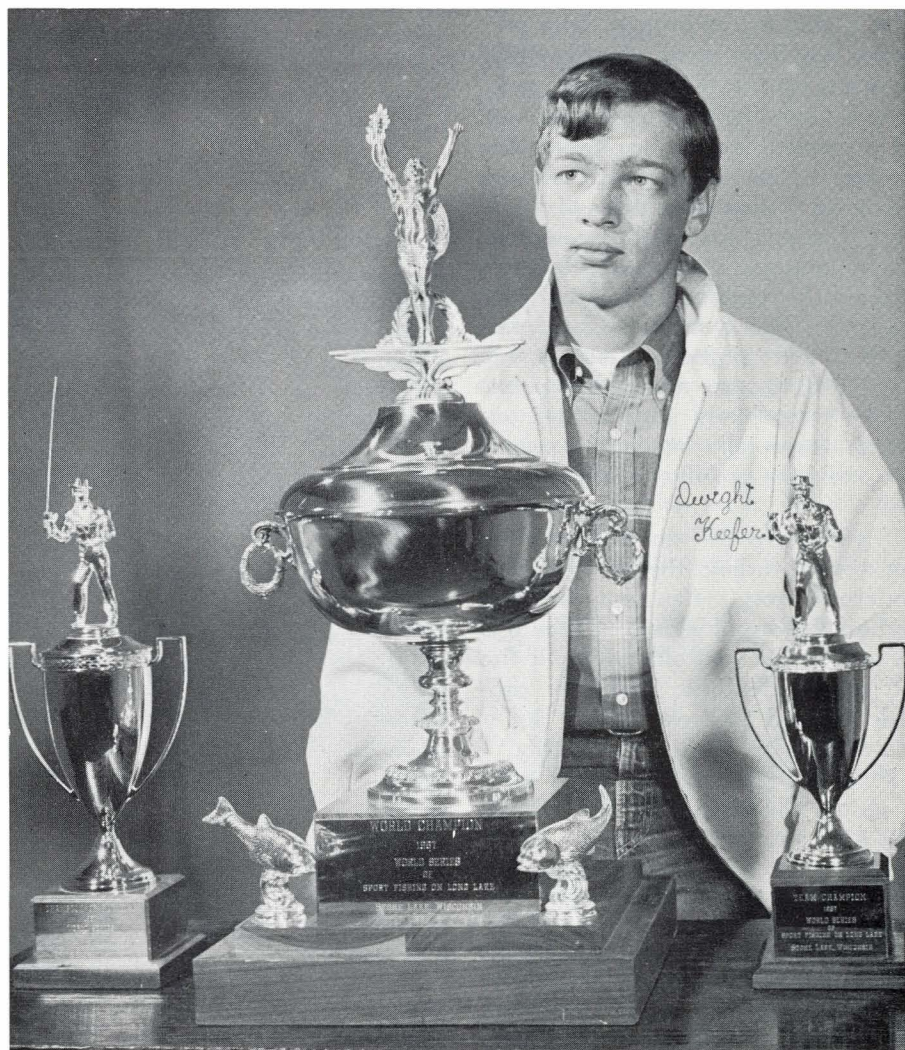
Keefer earlier walked away with the Kansas fishing championship, sponsored by the Kansas Wildlife Federation, at Norton Reservoir, winning over 14 other contestants.

"I've been fishing since I was seven,"

Keefer said, "and I try to fish every evening. When I want to catch channel cat, however, I go out early in the morning. But as long as there's no ice, I'm strictly a bass fisherman."

Keefer tried to qualify two years ago in the state tournament, but finished in 15th place. This year, catching two big Northern pike at Norton Reservoir clinched him the championship.

On the payroll of a sporting goods company, Keefer traces a lot of his interest in fishing and conservation to membership in the Shawnee Mission North High School Fins and Feathers Club, which is devoted to an understanding and promotion of conservation.



WORLD'S CHAMP—Dwight Keefer, Overland Park, and his world championship fishing trophies. (Photo by the Kansas City Kansan.)

# Tests for Tenderness

This ever happen to you? You bring home a full game bag, anticipating fine eating ahead. Your wife agrees to do the cooking, and hauls out the recipe book. Then, while you're out back pluckin' feathers or peelin' fur, comes the call, "Henry, are those things young or old?"

Before you can ask why in blazes that should matter, she points out that the book gives several recipes for your game, depending on age. If it's young and tender, a few minutes' broiling may do the job. But an old critter may have to simmer four days before you can carve the gravy with a hacksaw.

**Friend wife makes it plain that you—the mighty hunter, all-wise in the ways of the forest—should have the answer. And you should. So to regain your self-esteem, and eat like a king in the process, here are some tips from game identification experts of the Kansas Fish and Game Commission.**

In young ducks and geese, the outermost tips of the tail feathers end in a V-shaped notch. In fall, these feathers are molted, or lost, one by one, and replaced by feathers with neatly rounded or pointed tips. So, if the bird you shoot has even one V-tipped tail feather, it's a young one. If all tips are rounded or pointed, it's most likely an old bird, although—especially late in the season—it could be a fully molted young bird.

If you have the good fortune to bag a wild turkey, there's a surefire tenderness test. Fan out the tail feathers (before plucking). If the tips are all even, it's an older bird; if the two central feathers obviously protrude beyond the rest, you've got a bird-of-the-year and prime eating.

There are plenty of old-wives' tales on aging pheasants, but two simple tests give an accurate answer. First, check the leg spurs. On young ring-necks, they're light-colored, dull, relatively short and often cone-shaped. In oldtimers, they're dark, glossy, sharp-pointed and often slightly curved like a thorn. If you're still in doubt, hold the bird by his lower bill with your thumb in his mouth

and give a little shake. If the lower jaw breaks, odds are he's a youngster, fit to fry or broil.

**Age doesn't make so much difference when cooking smaller game birds. But, for the record, the best clues for grouse, quail and Hungarian partridge are the main wing-feathers. The tips of the outermost two on each wing are more pointed than the rest, in young birds.**

According to the Remington biologist, one rule holds pretty well for all upland game birds, and is especially handy if you've plucked your birds before remembering to age them. In old birds, the tip of the breastbone is rigid; in most young 'uns you can bend the tip easily with one finger.

**If squirrels are your meat, look**

**at the underside of the tail in good light. If there are two or three dark bands running the length of the fur on either side, near the outside, that's a youngster. Older squirrels have only one such band.**

You'll have to check the other end of a deer—the head. Not the antlers—they're not reliable, despite what you may have heard. Look at the back or "cheek" teeth in the lower jaw. A six-months' fawn has only four full-sized teeth on either side. A yearling (about 18 months in hunting season) has five fully developed teeth to a side, with the sixth and last visible but not yet fully out of the jawbone. From 2½ years on, all six teeth are fully visible, and the amount of wear they show is the only measure of age.

Keep these tips in mind and tailor your recipes to the age of your game. The only complaint after the next game dinner will be that there wasn't enough for thirds.



“. . . And then we transfer at Beto Junction to a Greyhound Bus. . . .”

# Duck Hunting Has Changed

By TIM RENKEN

Duck hunting, as the old salts are so fond of saying, isn't what it used to be. But, then, what is?

Hunters who can recall hunts before 1940 talk of limits of 10 and more birds with no species restrictions, uncomplicated methods and seasons that stretched out three and four months.

"Those were the days when duck hunting was duck hunting and when duck hunters were duck hunters," they growl.

They're half right, anyway. Duck hunting 30 years ago may have been something else but the duck hunters then weren't necessarily anything special. If anything, today's duck hunter is the better man. He should be anyway, his sport certainly demands more.

Today's duck hunter must be able to identify ducks the way no hunter of the 1930s ever dreamed of doing. Today's duck hunter must be able to shoot more consistently and he must be able to call better. In fact, the modern duck hunter must be able to do everything better. And, quite possibly, the sport is better for it.

If there is one way to capsule the greater demands that today's hunters face it would be this: He must make each opportunity count. How many chances during his day on the marsh is the contemporary hunter going to get? He has no idea, usually, when he first arranges his spread and sits down in his blind to await the dawn. He might get twenty or more or he might get none. But he must treat each as if it will be his only opportunity.

What, specifically, does this entail?

Well, let's start with that spread. The experts today don't put nearly as much emphasis on the geometry of the stool as in past years, but there are a few basics to remember.

For one thing, use as many decoys as you can conveniently handle. If two dozen is good, four dozen is twice as good. Nothing will attract a crowd as fast as a crowd. Try to get some of the decoys out into the wind or current—they give the spread life

through motion. And don't forget that wind. Ducks, like airplanes, always land into the wind. If possible, position the spread so that ducks coming in to land in the decoys will present as attractive a shot as possible. There is no such thing as getting ducks in too close.

**Blind construction isn't a complicated subject but there is one point that hunters sometimes forget. In their efforts to build a blind that offers good concealment hunters sometimes go overboard and build a castle when a stanty would do. The bigger the blind, the easier it is to spot. Ducks learn to spot blinds mighty early in the course of their migration down the flyway.**

And, speaking of education, there's probably more to be learned about duck calling than any other aspect of waterfowling—and nothing can cause more missed opportunities.

Under present conditions of short seasons and scarce birds, it is virtually impossible to learn duck calling in the heat of battle. The hunter who buys his call in the evening and takes it hunting with him the next morning is not only an optimist—he's a presumptuous jackass, in the unfettered idiom of the marsh fraternity.

A duck call, like a clarinet or a violin, is never any better than the guy operating it. Learning calling, like learning anything else worth knowing, takes effort—and practice.

This isn't to say, though, that one call is as good as another. There are good duck calls and also the other kind. One of the most popular duck calls in America the past 20 years have been made by the P. S. Olt Co., of Pekin, Ill.

**That's enough about calls, except the only way a guy can learn to call ducks—unless he can acquire the unlimited services of a**

tutor—is by getting hold of an instructional record and using it.

So much has been said about the highly important art of duck identification recently that it won't be discussed here, but there is one more aspect of duck hunting and that is shooting.

Just as no one can learn duck calling by duck hunting anymore, no one can become a good wingshot by hunting. For one thing, there just aren't enough chances. If a guy gets 10 shots in the course of a hunt he's had good shooting. For another thing, conditions in the heat of a hunt are hardly conducive to concentrating on doing all the things that must be done to put the shot where the bird is going to be.

**It is a vanity with many hunters that they are completely untutored in the art of wingshooting and that the only shooting they do is in actual hunting. I say that such a hunter is, 99 times out of 100, a lousy shooter and is a poor conservationist to boot.**

Scattergunning is a science. It has many facets of which the average hunter isn't even aware. Instruction is available most everywhere now at commercial and private gun clubs and wise hunters are discovering that the quickest way to become a good wingshot is with competent instruction and practice—practice under the clinical, classroom-type conditions that can be obtained only through the use of clay-birds.

Shooting is, after all, the final link in the chain that leads to ducks in the bag. A hunter gets only as many ducks as he can shoot, and in this day and age one can't succeed in duck hunting—or anything else—by missing opportunities.

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Pollution killed more than 11,750,000 fish in the United States last year, according to the Interior Department. Municipal pollution accounted for more than half of the total, industrial pollution for one-third. Agricultural operations ranked next in line.

# Hunting a Privilege

One of the major fallacies handed down by sportsmen from one generation to another is the belief that hunting (or fishing) is a right rather than a privilege.

The origin of this misconception is not altogether clear but more than likely it stems from the fact that fish and wildlife are the property of the state and therefore available to the public for harvesting.

The latter premise is indisputable, but it does not automatically grant a hunter or a fisherman the right to enter upon another man's land without permission of the owner. The game may be public property, but the land is private.

The landowner-sportsman problem did not present itself in major proportion in Kansas until after World War II when land suddenly became a highly profitable item for speculation or investment and an increased interest in hunting swelled the ranks of sportsmen to record numbers.

Some Kansas landowners needed only this increase in hunting pressure as an excuse or reason to post their properties. Others, reluctant to follow suit because they either fished or hunted themselves, waited with tolerance. They didn't have long to wait.

With the new breed of sportsman came a peculiar brand of behavior. It embraced the belief that a hunter or a fisherman had the unquestionable right to venture upon another man's property, whether that property was posted or not.

It also included fringe benefits. If a fence blocked access, it could be cut. If a pheasant broke cover too close to the landowner's house, the harvest of that bird was more important than the safety of inhabitants within, or the property damage that might result.

If posters were present prohibiting trespassing without permission, they could be peppered with birdshot or torn down. If a farmer's barn lot was the only convenient place for parking a car, the car could be parked and the farmer left with the problem of getting his cattle out.

If a tree or a shrub struck the fancy of this peculiar breed of sportsman, he would dig it up and take it home. If he chose to eat lunch while afield there was nothing wrong in littering the landscape with rubbish.

If he needed a little target practice, what better objects than the window of a dwelling, a piece of farm equipment, or a water tower?

Such irresponsible behavior, all apparently based on the belief that the hunter has all the rights and the landowner none, has resulted in the mass posting of land and strained relations between both parties. There is no question that the sportsman has lost ground in the skirmish.

Few sportsmen seem to exert an effort in attempting to understand the landowner's position. They view land posting as a hostile act, an indication that the property owner is against hunting and fishing. They fail to see such action as a defensive measure, a final resort on the part of any self-respecting man to protect what belongs to him.

Many sportsmen will find, if they take the time and trouble, that a landowner will gladly allow hunting or fishing if he is asked for permission, regardless of the signs that might rim

his property. He needs only to know that you hold some respect for him.

Kansas sportsmen cannot afford to ignore this problem much longer, or to fight it with hostility or acts of vandalism. Land is being swallowed up too rapidly by commercial developers. That which is still suitable for hunting need not remain idle and wasted behind "No Trespassing" signs.

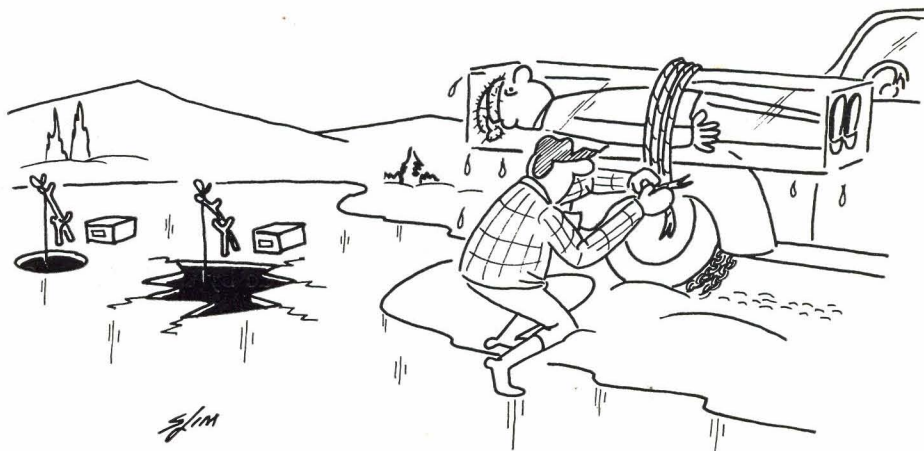
The man who trespasses upon another's property without permission, or abuses it in any way, would be the first to post his land if the situation were reversed.

With hunting seasons present throughout the state, let every sportsman pay particular attention to this most urgent problem. Visit the man on whose property you plan to hunt, ask for permission where it is necessary, and let him know you appreciate the privilege.

You'll find he's a regular guy. He may even show you where the best bird cover or deer stand is. And you'll enjoy your sport with the feeling that you're welcome, not with the guilt of a trespasser.

Accept the fact that you are a guest on his land, enjoying a privilege made possible only through his generosity, that you have no right there unless he says so.

Remember that hunting or fishing another man's land is a privilege, not a right. The future of our outdoor sports depends on it.



# Hunting Holds Key to Wildlife Management

PRATT—For most practical purposes, the big push in Kansas hunting is over for another year. It's not too late, however, to reflect just a bit about hunting in the Sunflower State, and to take a look at what the future might offer the nimrod.

For too many years, hunting has been regarded as a by-product of wildlife management, a sport that had no other meaning or purpose than to provide shooting pleasure for the hunter and game for his bag.

Even today there are many sportsmen who cling tenaciously to this misconception. However, evidence continues to show the importance of hunting in managing a wildlife resource. The gun, indeed, is a necessary tool for managing such resources.

Much of this evidence is coming from national wildlife refuges where game is protected. Populations build up to a point where food supplies become inadequate and starvation is the result. The obvious resolution is to cull the wildlife population in question.

In some areas of the country sportsmen have not been asked to help. The culling is done by hired marksmen and the meat sold.

Such an approach has its limitations. The job is done, to be sure, but not with regard to the maximum benefits available. Had sportsmen been permitted to execute the plan under controlled conditions, many hours of hunting pleasure would have been enjoyed, a natural resource would have been put to its maximum use and the job required for scientific management would have been done.

Where the federal government has allowed sportsmen to participate in such programs it has found in some cases that the man with the gun is not ready to accept his role, probably because he does not fully understand what is involved. He is either misinformed or downright suspicious.

A case in point developed last year in a western state where hunters opposed a plan to hunt deer in a national park. The herd had exceeded the capacity of its grazing

range and had to be thinned out. Strangely enough local hunters would have no part of the hunting bonus that was made available to them. The job was done anyway and sportsmen lost out as a result.

When a similar problem cropped up in a midwestern state, sportsmen there took a more astute approach. They cooperated with state and Federal officials in a plan designed to reduce the deer herd while providing additional outdoor recreation.

A 10-day season was authorized,

3000 permits were made available, and 1109 deer were harvested. In the process hunters enjoyed a healthy outdoor sport and a natural resource was utilized to its fullest extent.

The other alternative would have been less beneficial. Had the job been done by paid marksmen there would have been no fringe benefits. To do nothing would have resulted in overgrazing of the range and waste of a natural resource. Deer lacking the strength and nourishment normally provided by adequate food supplies would have had little chance of surviving a severe winter.

It is encouraging to note that Federal officials are giving more thought to the sportsman when problems of this nature need to be solved. Sportsmen, too, should give more thought to such management problems. They should cooperate with officials rather than fight what needs to be done.



BOSERMAN

"Now, would you mind giving me a start?"



**SCENIC AND SILENT**—A small fish pond on the Fish and Game Commission's headquarters grounds at Pratt provides a scenic, snowy setting following a Winter storm, and proves that beauty can be found in your own "back yard."