

KANSAS

FISH & GAME



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MARCH-APRIL 1972

KANSAS FISH & GAME



March-April, 1972

Vol. 29, No. 2

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COVERS

Front cover—Copperhead by Vic McLeran
Back cover—Colorful but harmless garden spider by John LaShelle.

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PRINTED BY
ROBERT R. (BOB) SANDERS, STATE PRINTER
TOPEKA, KANSAS
1971



34-2622

PROCLAMATION

By the Governor

Executive Department
State of Kansas
Topeka, Kansas

TO THE PEOPLE OF KANSAS,
GREETINGS:

WHEREAS, there is an urgent need to promote a broader awareness and understanding of the environmental crisis facing each and every state in the United States; and

WHEREAS, there is a compelling need to encourage a continuing commitment by all interests including education, agriculture, business, labor, and civic and private organizations, to work to solve these fundamental environmental problems;

NOW, THEREFORE, I, ROBERT B. DOCKING, GOVERNOR OF THE STATE OF KANSAS, do hereby proclaim April 17-23, 1972, as

EARTH WEEK

In Kansas, and seek the broadest participation in its activities.

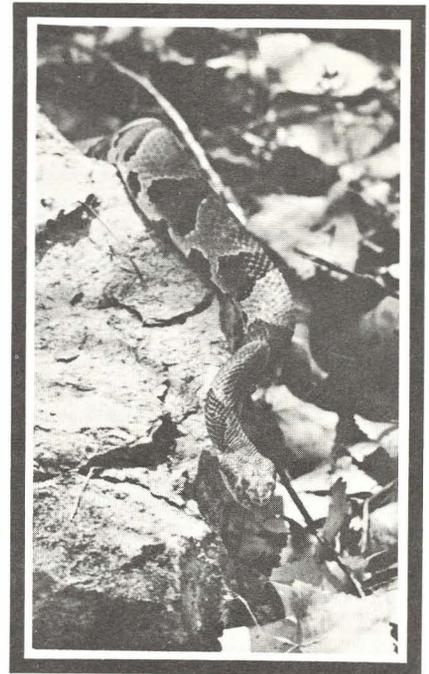
DONE At the Capitol in Topeka
Under the Great Seal of
the State this 15th day of
November, A. D., 1971

BY THE GOVERNOR

Elvill M. Shanahan

Secretary of State

C O P P E R H E A D



Story and Photos by Vic McLeran

Something was wrong!

From her nest in the wild grapevine, the brown thrasher fluttered down with quick, nervous wingbeats, obviously upset. Upon alighting, she began circling in a strange, erratic manner. With wings and tail drooping, she made short, choppy hops, darting

forward occasionally to peck sharply at something in the tall grass.

From a nearby blackberry thicket, I watched the thrasher's curious antics for several moments, puzzled by her behavior. Then I saw it—a coppery blur in the grass as something lashed out toward the bird with astonishing speed.

Curious, I moved in to investigate. When I was several feet away, the bird flew and I then saw the object of her concern.

There in the dew-covered grass lay a copperhead, coiled and ready! Shafts of light from the early morning sun struck the reptile obliquely, making its rich, coppery pattern contrast sharply

with the emerald foliage. The snake's ominous, wedge-shaped head was tilted back and the deadly jaws were open wide. The reptile's cat-like eyes followed my every move. For what seemed like an eternity, the snake remained coiled in its threatening position with fangs erect. Then, slowly and cautiously, the reptile began slithering away, pausing occasionally to check the air with its forked tongue. Soon the copperhead was lost from view in the dense foliage.

What I had just witnessed was one of Nature's little dramas. Since songbirds recognize snakes as natural enemies, they usually harass the reptiles on sight or attempt to lure them from the area, especially if the snake is near the bird's nest.

Agkistrodon contortrix, as the copperhead is known scientifically, is probably the most common poisonous snake in eastern Kansas, and the one which outdoorsmen in that part of the state are most likely to encounter.

RANGE, DISTRIBUTION AND HABITAT

The copperhead ranges throughout the southeastern quarter of the United States. In Kansas, the copperhead is found mainly in the eastern third of the state, although it has been recorded as far west as Winfield in Cowley County.

Throughout its range, the species tends to associate itself with wooded rather than prairie habitat. It prefers ground which is shaded by foliage and covered with leaf litter. Copperheads are also fond of moist areas such as marshy glades, swampy brush and low-lying habitat like creek or river bottom timber. Then too, the species utilizes rocky ridges and ledges. Most moderately-wooded areas in eastern Kansas which contain moist and rocky habitat will probably harbor a copperhead population.

PHYSICAL DESCRIPTION

Garbed in various shades of coppery-brown, the copperhead generally exhibits a series of alternating light and dark crossbands on its skin. This series of dark brown hourglass bands



The copperhead is probably the most common poisonous snake in eastern Kansas, and the one which outdoorsmen there are most likely to encounter.

and the lighter tan-colored saddle markings allow the reptile to blend smoothly with its surroundings. These camouflaged markings are so effective the copperhead is almost impossible to spot against a leaf-littered forest floor.

Dr. Robert Clarke, herpetologist and professor of biology at Emporia State Teachers College, cites a fairly typical situation which illustrates this camouflage ability. "I was on a collecting trip early one fall in Osage County when I noticed a copperhead lying several feet in front of me. I stepped back and began adjusting the noose which I use in capturing the reptiles. While doing so, I began looking closely at the leaf-covered ground. To my surprise, I counted five more copperheads in the immediate area, including one on which I was standing! The reptile made no attempt to strike but simply remained coiled beneath my boot. The snake was almost impossible to see there in the leaves."

"Chunkhead," as the copperhead is nick-named in some areas, is an apt description due to the reptile's stubby or chunky appearance. Copperheads average 22 to 36 inches in length with the male about one-fourth larger than the female. From time to time, one reads about copperheads of monstrous six to seven foot proportions being killed. However, the largest copperhead on record was a 53 inch specimen captured near White Plains, N. Y. Most Kansas copperheads fall within the two to three foot range.

VENOM AND FANGS

Since snakes swallow their food whole and don't chew it, their venom contains powerful enzymes which assist digestion. Yellowish in color, copperhead venom contains several protein poisons which attack blood cells, blood vessels and the central nervous system of the victim. Interestingly, copperhead venom has been used medically as a blood coagulant and in the treatment of epilepsy.

Copperhead venom, when compared with that of its close relative, the cottonmouth water moccasin, and various rattlesnakes, is much less potent. In fact, most rattlesnake venoms are from two to six times more potent than copperhead venom.

MATING AND YOUNG

Although mating may occur anytime during the copperhead's active season, most copulation seems to take place right after the snakes come out of hibernation—usually during April or May in Kansas.

Like most members of the viper family, copperheads don't lay eggs but instead, give birth to live young. The five or six young copperheads are usually born in the early fall months from August through October. There's some evidence female copperheads can store the male's sperm and delay fertilization for months or even years. An adult female copperhead was taken from Texas and sent to a Pittsburgh zoo in July, 1954. A year later she gave birth to a litter of five. Dur-

ing the interim, she had no contact with male copperheads. The advantage to this prolonged sperm life is obvious—especially in areas where the copperhead population is small.

At birth, copperheads closely resemble the adult snakes except for a couple of details. The end of the juveniles' tail is greenish-yellow on top and bright yellow on the bottom. This distinctive coloration apparently serves a purpose for the young vipers—that of luring prey within striking distance! The late Dr. Raymond Ditmars, world-famous herpetologist wrote, "Quite frequently, when food is introduced into a cage containing small copperheads, the tails of the little snakes wriggle and twist in a manner that instantly suggests their remarkable similarity to yellow grubs or maggots." Copperhead prey items like frogs and small snakes which normally feed on grubs and maggots evidently spot the wriggling tail, mistake it for an easy meal, move in to take advantage and zap—it's all over!

In the past there's been some difference of opinion regarding the newborn copperhead's ability to produce venom and deliver an effective bite. But there's no limit to what some researchers will do to establish scientific facts. To prove young copperheads are born with a venom supply and an effective bite, one scientist allowed a newborn copperhead to bite his forearm for 60 seconds. He proved it! In fact, reaction was so severe that his arm swelled steadily for the next 21 hours. Evidently though, the scientist's dedication diminished because in future experiments he used mice instead of his arm. For the most part, it's now believed newborn copperheads possess effective venom.

HUNTING ABILITY

The copperhead hunts like a cat. It combines long periods of motionless watching with shorter intervals of stealthy prowling and culminates the hunt with a quick strike. Copperheads, like several other poisonous snakes, possess an unusual heat-detecting apparatus called the facial pit. This organ, which is sensitive to body

temperatures, allows the copperhead to detect the presence and position of warm-blooded mammals, even in total darkness. This device takes the form of a small depression or "pit" directly in front of and below the snake's eye.

Once having located prey, the copperhead's actions from that point vary according to the size of the intended victim. On small food items like insects, lizards and birds, the snake usually strikes with a lightning-like jab and holds on until the victim succumbs. On larger, stronger prey which is able to resist vigorously, the snake strikes, injects its venom and releases, allowing the poison to do its job. The strike itself is usually delivered as a short jab, often traveling less than six inches, even for a two or three foot copperhead.

FOOD ITEMS

Dr. Henry S. Fitch, director of the Kansas University Natural History Reservation, has studied copperheads extensively. His publication, "Autecology of the Copperhead," is probably the most comprehensive work in the world on this species. During a 15 year study on the species, Dr. Fitch who literally lived with these snakes compiled the following list of prey items for Kansas copperheads: prairie voles, cicadas, white-footed mice, short-tailed shrews, ring-necked snakes, five-lines skinks, brown skinks, caterpillars, pine voles, harvest mice, toads, leopard frogs, lizards, cotton rats, worm snake, house mice, garter snakes, wood rats, cottontails, Dekay's snakes, box turtles and rarely, small birds.

Copperheads, like most snakes, gorge themselves on one meal and then often go weeks before eating again. One large copperhead found near Arkansas City had eaten a goldfinch, a small box turtle, two voles and a racer snake. Dr. Fitch estimates the typical Kansas copperhead consumes eight meals totaling approximately twice its weight during a growing season which extends from April or May when the reptiles come out of their hibernation dens to October when they return for the winter.

NATURAL ENEMIES

The copperhead, with its venomous armament, would appear safe from most woodland predators. And for the most part this is true since the majority of predators seem to have an instinctive fear of poisonous reptiles. However, there are exceptions.

Dr. Fitch found that in the area around Lawrence, copperheads were a common prey item of red-tailed hawks. Although hawks are active during the day and copperheads are nocturnal, their activity overlaps during the twilight periods. The actual attack hasn't been witnessed but the hawk probably swoops down unseen by the snake and secures a death grip on the reptile's head or neck.

The great horned owl, that old woodland toughy, also preys occasionally on copperheads. Dr. Fitch described one such encounter saying, "After grabbing the snake, the owl carried it a short distance. During this short flight, the copperhead struck the owl one or more times on the thigh. The owl uttered scolding

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Since snakes swallow their food whole and don't chew it, their venom contains powerful enzymes which assist digestion.

sounds and dropped the snake. Almost immediately the owl showed signs of distress and ceasing its usual activities, perched quietly, shifting position from time to time. After several hours an oozing substance was noted on the owl's thigh and a small pool of blood collected where the bird was perched. Approximately eight hours after being bitten, the owl suddenly collapsed and died!"

There exists in Nature, a curious phenomenon where certain animals, ordinarily thought of as prey species, occasionally become aggressive, preying on other species viewed mainly as high level predators. A case in point is the mole-bullfrog-copperhead relationship. Ordinarily, moles and frogs are considered prey items often included in the copperhead's diet. Occasionally though, the tables are turned. Dr. Fitch twice placed young copperheads in a terrarium containing two moles. Each time, the snakes were immediately attacked by the moles, dragged underground and eaten.

Joseph T. Collins, herpetologist and vertebrate preparator at the University of Kansas Natural History Museum, observed some aggressive bullfrogs

capturing and swallowing copperheads.

"For study purposes, I was releasing a brood of seven young copperheads along the edge of a pond," Collins said. "The snakes were about three weeks old and had been born in captivity. Upon being released three of the young snakes swam toward the middle of the pond. I then noticed several large bullfrogs resting along the pond's edge. As soon as the frogs spotted the snakes they swam vigorously toward the young reptiles. Upon reaching the copperheads, each frog grabbed a snake and swallowed it whole."

Along these same lines, rodents, normally thought of a prey species, can become aggressive and attack venomous reptiles. Collins, in charge of the Museum's collection of snakes, described this unusual situation. "When feeding mice to our captive snakes, we make sure the rodent is well-fed before being placed in the snake's compartment. We also have to be sure the snake is ready to feed. If the reptile isn't hungry, it simply ignores the rodent and a hungry mouse will often start chewing on the snake. When this happens, some snakes become aggressive and strike the rodent while others merely thrash about trying to escape. The reaction varies with individual snakes," Collins said, "but we've had both copperheads and rattlesnakes die as the result of attacks by hungry rodents."

Dr. Fitch says there is some indication this predation occurs in a natural state with mice and shrews feeding on hibernating snakes. Being sluggish and defenseless during hibernation, the reptiles are simply viewed as "meat in cold storage," by hungry rodents.

In addition to those who kill snakes simply because they're snakes, some people hunt reptiles for food. People who have eaten it, say copperhead meat, like that of the rattlesnake is tasty.

The king snake, with an immunity to most snake venom, has no qualms about dining on an occasional copperhead. In a Louisiana study, 17 copperheads were found among the stomach

contents of 301 king snakes. Gary K. Clarke, director of the Topeka Zoological Park, once witnessed an encounter between the two.

"I was working for the Kansas City Zoo at the time," Clarke said. "We had an eastern king snake which got into a compartment that contained a large copperhead. Upon spotting the king snake, the copperhead coiled immediately. As the king moved in, the copperhead struck five or six times. But once the king got its coils around the copperhead, it was all over and the king snake eventually, swallowed the viper."

"You'll never find snakes around a hog pen," is a common saying in the South. It's true to some degree since hogs will eat snakes—both poisonous and nonpoisonous species. Although swine are not immune to snake venom, their thick skin and heavy layer of fat are thought to retard absorption of the venom.

The copperhead's life span is thought to average seven or eight years under natural conditions. In zoos, where life is much easier, copperheads have been recorded as reaching 18 years of age.

CONTROLLING COPPERHEADS

The public's attitude toward snakes, particularly poisonous snakes, has long been one of fear and misunderstanding. Ophidiophobia, the extreme fear of snakes, was once so prevalent in Connecticut that the state placed a bounty on copperheads. For the most part, this fearful attitude is unjustified since snakes would rather flee than fight. Then too, they perform a useful function of eradicating rodent and insect pests. For this reason, snakes should be left alone when encountered away from areas of human activity.

However, in areas where people are likely to encounter venomous snakes, control measures may be feasible. Outdoor recreation areas like children's play grounds, campgrounds, public parks, and picnic spots may need control measures if copperheads are present. People living in farm houses or lakeside cabins also may want to remove copperheads from the immediate vicinity.

Although there is no method of eliminating snakes completely, it's possible to discourage them by destroying their habitat and food supply. Piles of old boards, slabs of roofing paper, rock piles, dump heaps, corrugated iron sheeting, discarded burlap bags, cardboard cartons, brush piles and similar areas provide hiding places for snakes and their prey items like rodents and insects. Ridding the premises of these hiding places will invariably reduce both snake and pest populations. Cautious and discriminate use of a pesticide can further reduce rodent and insect populations.

SNAKEBITE

Volumes have been written regarding various treatments for snakebite and there is still a great deal of controversy over each method. Since there are many variables associated with each snakebite, no single form of first aid is always best. Persons who are bitten should attempt to remove the venom by sucking the wound, remain as calm as possible and seek immediate medical help. Whisky and other stimulants should be avoided as they stimulate circulation and quicken the action of the venom.

Bear in mind that the vast majority of persons bitten by copperheads recover. An adult in good health is almost always assured of total recovery. Persons in poor health and children are another matter. Former Vice President Alben Barkley's career was almost terminated at the age of six when he was bitten by a copperhead as he crawled under the family cabin after a chicken.

Although copperheads account for the largest number of snakebites in the United States, their bite is rarely fatal because of the relatively weak venom. After a review of the literature and statistics, Clifford Pope, eminent herpetologist, concluded that five species of snakes were responsible for 95 per cent of all snakebite deaths in this country. The copperhead was not among these five.

PRECAUTIONARY MEASURES

That old saying, "an ounce of pre-

vention is worth a pound of cure," is probably never more true than when dealing with venomous reptiles. Avoiding snakebite is obviously preferable to treating it.

Outdoorsmen in eastern Kansas, by the very nature of their activities, are often in close proximity to copperheads. Hunters and trappers, who are afield mainly during cold weather, don't have too much contact with snakes since the reptiles hibernate during fall and winter months. On the other hand, fishermen, mushroom hunters, campers, hikers, frog hunters, picnickers and others who are engaged in outdoor activities during warm weather, run a greater chance of encountering snakes.

Fishermen and boaters should be especially careful when moving boats left on shore for several hours. Copperheads often hunt near the water and boats resting half in and half out of the water provide excellent cover for reptiles.

Campers and picnickers, when gathering wood for a fire, should be particularly observant and fuel should be gathered while there is still enough light to see. When camping, sleep as high as possible off the ground. If this is impractical, and you have to sleep on the ground, avoid areas containing heavy undergrowth and brush or rock piles. Since many camping trips involve children, the kids should be shown color photos of the copperhead and instructed to tell their parents if they see any similarly marked reptiles.

Copperheads tend to be nocturnal, especially during hot summer months. Also, they're fond of frogs. Accordingly, frog hunters should wear hip waders when working streamside vegetation and scan the area carefully before moving in to grab their frog.

Mushroom hunters are often abroad in prime copperhead country during April and May. Before you stoop to pick a mess of morels, check the surrounding leaf litter. It might harbor a well-camouflaged copperhead.

When climbing hillsides or rocky

areas where copperheads may occur, be watchful of where you place your hands and feet. Hikers traveling through copperhead country, should wear hightop leather boots. When hiking, don't simply step over logs, step on top of them and look before stepping down.

The best defense against snakebite is an ability to recognize poisonous species coupled with some knowledge of the reptile's habitat. Bear in mind that poisonous snakes, regardless of what you've heard, are not truly aggressive. They would rather remain concealed or crawl away quietly than risk an encounter. However, if they're disturbed, either accidentally or intentionally, they'll strike.

In the May-June issue of *KANSAS FISH & GAME*, we'll take a look at our native rattlesnakes. So until then, if you're in copperhead country, keep your eyes open!

The copperhead hunts like a cat and combines long periods of motionless watching with shorter intervals of stealthy prowling. It terminates the hunt with a quick strike.



NO ORDINARY MAN

By LEROY E. LYON
Photos by Ken Stiebben

Market hunter at age ten, a 30-year-old deputy fish and game warden for the State of Kansas, duck hunter for 72 years, successful contractor and businessman, philanthropist, friend of Kansas sportsmen, and Kansas Forestry, Fish and Game Commissioner for three terms. That's the life of Charles Hulme of Great Bend, better known as Charlie to both friend and foe.

Charlie is no ordinary man. Perhaps that's partly because he was born in a not so ordinary place. If fate can smile kindly on an individual, Charlie must have been that man for he was born in Great Bend, gateway to the waterfowler's paradise, Cheyenne Bottoms. Although his father was not a duck hunter, Charlie and his older brother, James, developed a keen interest in waterfowl and wildfowl hunting in a period of time when wildfowl numbers defy our present-day comprehension.

Growing to adulthood so near Cheyenne Bottoms undoubtedly had a great influence on young Hulme since the natural basin of some 12,290 acres provided top waterfowl hunting during wet years.

Charlie admits there were few hunters in those days compared to today's waterfowl hunting crowd. In Charlie's time, most people, youngsters included, had plenty of work and only a few hours, if any for leisure. Those who did hunt were the irrepressible lovers of the outdoors to whom hunting came as the very breath of life.

As Charlie talks of his first hunting season, in 1899 when he was ten years old, you begin to realize that he was no ordinary youngster but one who thoroughly enjoyed spending all the time he could at the basin northeast of Great Bend.

As Charlie reminisces you can practically hear the deafening roar of whirring wings. "I can remember those days when ducks used to rise

from the water so thick you couldn't see the sun through them," he says. As you allow him to take you on a trip back through time you have to believe the stories he tells for he speaks of an age which is foreign to most of us—an era now relegated to dusty history books.

"That was a long time ago," Charlie says with a chuckle as he remembers his first hunting activities. Then, after pausing a moment for his own personal reflection, he continued to recall memories from the past.

"The most ducks I have killed in one day was back in the market hunting days," Hulme says. "I believe it was my second hunting season when I shot 90 ducks in a single day."



Since all of Charlie's early hunting was confined to the Bottoms, his reminiscing also provides some interesting details about the basin area which is now the Cheyenne Bottoms Waterfowl Management Area under jurisdiction of the Kansas Forestry, Fish & Game Commission.

"Back in the market hunting days

there were at least five hunting camps at the Bottoms," Hulme claims. "Some had a tent and some had a cook shack. Every morning someone would come out from town to pick up all the ducks and take grocery orders. The following morning they would take groceries to the camps, pick up the ducks, and take new grocery orders."

According to Charlie, the shippers would pack the ducks in big wooden slat barrels which wouldn't hold water. "They would put in a layer of ducks then a layer of ice—a layer of ducks, a layer of ice—until the barrel was full. Then they would take a gunny sack and lay it over the top. The barrels were then shipped by railroad express to the markets in Chicago and New York.

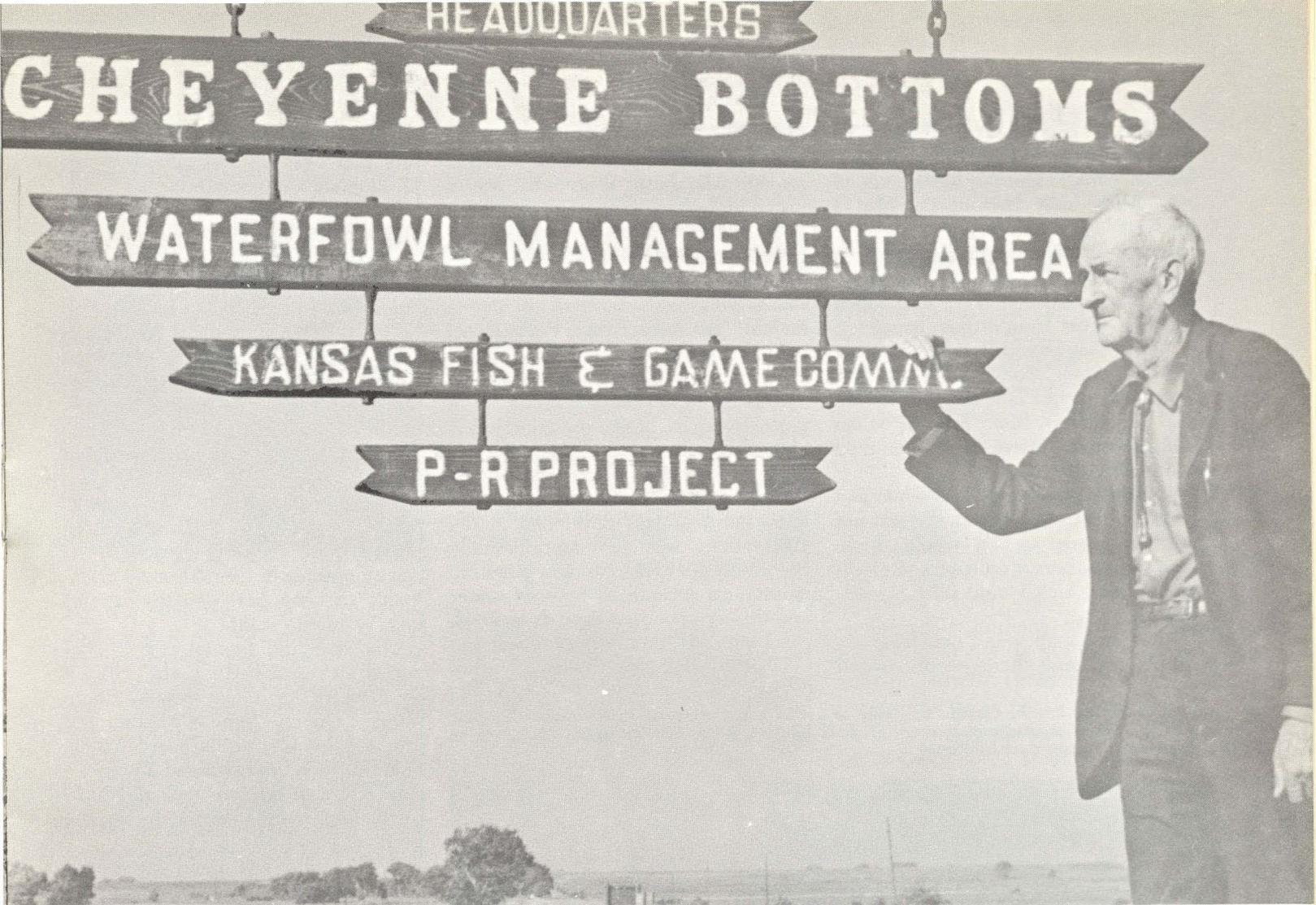
"It wasn't unusual for the shipper to ship out a bunch of ducks every day," Hulme says. "To my knowledge I don't think we ever shipped geese back east. It was always ducks. There have always been more ducks at Cheyenne Bottoms than geese but geese have always come through just the same as they do today. "When ducks came through here in fall and spring they had to rest. There were no bodies of water around like we have today. The Quiviria Salt Marsh wasn't developed then either."

While it seems almost incredulous to us, the ducks were never cleaned or field-dressed prior to shipment. Rather, they were shipped whole just the way they dropped after being shot.

"I can't prove it but they always said those who bought the ducks didn't want them until their heads were about ready to drop off after they were hung up," Charlie said.

While others toiled to make enough money to eat and pay living expenses, young Hulme soon discovered duck hunting was not only fun but also provided money as well. "When you killed those ducks it was just like so much money laying there."

Charlie doesn't recall how much money could be earned by a good day's duck shoot since prices paid for



Charlie Hulme probably knows more about Cheyenne Bottoms than any other man living today. He has hunted waterfowl on the area for 72 consecutive years and is probably the last remaining hunter who gunned the famed waterfowl area for the markets. When the natural basin was developed during the 1950's into the present-day waterfowl management area, Charlie dipped into his pocket to assist with the project.

ducks varied according to species. But he does remember well the prices paid for various ducks.

"Teal brought 15 cents apiece while mixed ducks—widgeon, spoonbills, pintails, and gadwalls—brought 12½ cents apiece. Mallards and redheads brought 65 cents apiece while a canvasback was worth 75 cents."

Not all the money received was clear profit, however. Shells also cost some money during those days but not much compared to current prices. "Black powder shells cost 25 cents a box," Hulme says with certainty. "When we shot these shells we would run to the side to see if any ducks fell. The smoke was so thick you couldn't see through it. Then the semi-smokeless shells came out which were 45 cents a box. When the smokeless shells came out, they cost 70 cents a box.

"I also gave away quite a few ducks to lots of people: I didn't have to buy hardly any shells. There were always some people around who would say, 'I've got some shells, can't you get me a duck or two?'"

As Charlie remembers it most market hunting occurred prior to the 1920's. However, Jim Robinson, Hutchinson, federal game agent, said some hunting for markets continued until the late 1920's.

Most market hunting started around the turn of the century when there were no state or federal laws regulating the shooting of ducks and geese and selling them on a commercial basis. However, in 1903 migratory waterfowl were added to the protected list of game birds. Because of this new state law, shooting of ducks and geese was prohibited between April 24

and September 1 of each year. It was not until 1905 when the first bag limits were established on ducks and geese. Under this law the daily bag limit on ducks was restricted to 20; for geese and brant the daily limit was set at ten.

But even before this new legislation was enacted most hunting was done from September through March when waterfowl were migrating through the state, since few remained to nest in Kansas. Warm weather was also a factor since ducks shot during late spring and summer months would spoil before they arrived at the markets.

While there may be one, or possibly two, old-time duck hunters still living in the Great Bend-Hoisington area, Charlie acknowledges he may be the last remaining market hunter who

hunted at Cheyenne Bottoms. "To my knowledge I don't think there is a solitary market hunter left outside of me. There may be but not that I know of."

Since his first hunting season in 1899, Charlie has hunted waterfowl for 72 consecutive years, a feat which sets him apart from ordinary men.

While Charlie recalls many hunting seasons when flocks of migrating waterfowl would blacken the sky, he also remembers some seasons when the Cheyenne Bottoms basin would be completely dry.

"There were several years when you couldn't hunt out there at all. But not as many years as you would think. Quite often there would be some rain in the fall which would fill the mud-holes."

Early newspaper and magazine accounts indicate there were several

buffalo wallows and other depressions which would fill with water when it rained. The basin reportedly was a prime buffalo hunting area for Indians and Charlie remembers early settlers telling of buffalo hunts in the basin.

Contrary to what some people may think, Cheyenne Bottoms is not a marsh. "It's harder than the hubs of hell out there when it's dry," is the description given by Charlie.

Actually Cheyenne Bottoms is a large natural basin, or sink-hole," about six miles wide and ten miles long. Two streams, Blood and Deception Creeks, flow into the basin but until the area was developed in the 1950's there was no outlet. Usually the drainage area was too small to maintain a substantial body of water and during periods of drought agricultural interests took over the area.

Charlie remembers with pleasure

the year of 1927. "There was a big rain that year up the valley west of Hoisington," he recalls. Old newspaper clippings indicate that a lake of about 20,000 acres was formed from that rain. "It was not until either 1930 or 1931 when the basin became dry again," Charlie recalls.

"I had 7,500 acres of the land in the basin leased when that big flood came," Charlie says. Such an arrangement provided some additional revenue for Hulme since he charged \$1.00 per man for hunting privileges that fall.

The large lake, billed by some as the "Inland Sea of Kansas," soon proved quite a tourist attraction. "It wasn't nothing to see 50 or 60 Oklahoma cars up here looking at our lake," Hulme recalls.

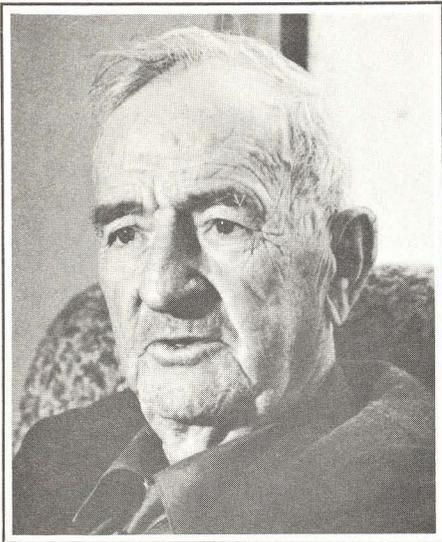
The lake and the interest it generated also provided Charlie with an opportunity to make a few more bucks. "On one Sunday another fellow and I took one outboard motorboat out there and charged 25 cents a ride. On that day we took in \$80.25 for hauling people around to see the Bottoms."

While Hulme tells many interesting stories about his activities at the famed waterfowl hunting area, one of the highlights of his life came at an early age. In 1910, just shortly before his 21st birthday, the young duck hunter was named a Deputy Fish and Game Warden for Barton County by L. L. Dyche, State Fish and Game Warden. Charlie served in this capacity for two years—his first association with the Department of Fish and Game. At that time state law empowered the state fish and game warden to appoint one or more deputy fish and game wardens in each county in which ten taxpayers had requested such action. There was no paid game protector force as there is today.

Hulme's second association with the Kansas Forestry, Fish and Game Commission came in 1961 when Gov. John Anderson appointed Hulme as Commissioner for the third district (southwest Kansas). His first term expired in April of 1963 but in 1967 he was again appointed to the Commission by Gov. Robert Docking. After serv-

Despite failing health, Charlie was able to get in a few days of duck hunting this past season. After 72 consecutive years of duck hunting, Charlie is recognized by some as the dean of Kansas duck hunters.





ing this four-year term, he was re-appointed to the Commission for another four-year term.

Through the years Charlie has made some valuable contributions to Kansas sportsmen although most of his philanthropic activities have gone unnoticed by many.

In 1951, for instance, Charlie paid \$3,000 out of his own pocket to ensure a water supply for the Cheyenne Bottoms Waterfowl Management Area which was then undergoing extensive development. An inlet canal had been constructed south and west of the Bottoms to Wet Walnut Creek and another ditch was planned which, when finished, would carry water from the Arkansas River to the Dry Walnut Creek. The water would then flow into Wet Walnut Creek and on to the Bottoms through the Wet Walnut Canal. Such an arrangement, when completed, would provide a permanent supply of water. The Bottoms is about 45 feet lower than Wet Walnut Creek which flows about two miles south of the basin.

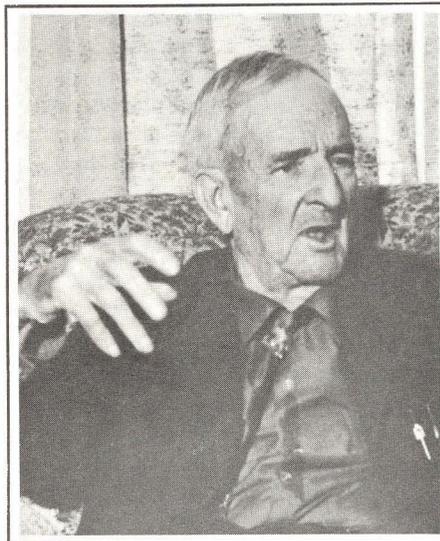
"By late summer the ditch had only been completed to the Wet Walnut," Hulme recalls, "and water was needed if there was to be any hunting at all that fall. By paying \$1,000 each I was able to persuade three landowners to use their irrigation pumps to pump water into Wet Walnut which then flowed on into the Bottoms."

Hulme also used his own construction equipment and employees to

build up temporary dikes in pool four so water would be retained around the blinds.

Charlie also figures he donated a little more than \$3,000 again in 1953 or 1954 when he used his own equipment to haul a mixture of sand and clay to the Bottoms to cover the north-east bank of pool number one. Hulme is particularly proud of this accomplishment since this clay and blow-sand mixture has proven to be resistant to wave erosion resulting in a relatively maintenance free dike while other dikes have required periodic maintenance and placement of rip-rap materials.

Charlie figures his biggest savings



to Kansas sportsmen came in 1955 when construction started on Cowley County State Lake near Arkansas City. While Hulme was the contractor for this project, he was able to persuade Dave Leahy, Commission director, that a proposed \$27,500 solid concrete spillway for the lake was not needed since the dam was being built on solid rock. Charlie won the argument and the \$27,500 proposal was scrapped.

But as far as Kansas sportsmen are concerned perhaps the benevolent nature of Charlie is best exemplified by his conduct as a Commissioner. Since first being named to serve on the five-man board, Charlie has never accepted

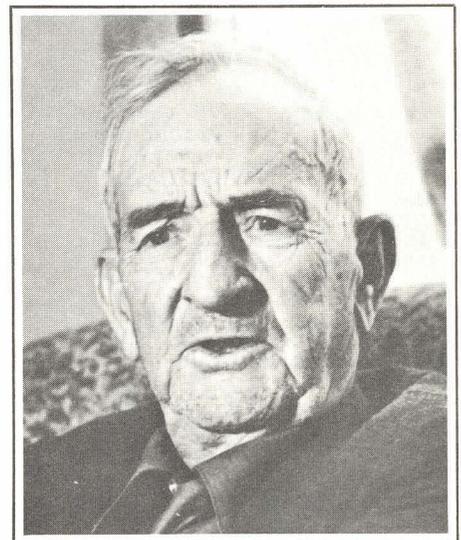
reimbursement of any kind for his expenses. His travel expenses to Commission meetings and other official expenses have been paid out of his own pocket. He has never filed for reimbursement of expenses expenditures.

From market hunter to Commissioner, Charles Hulme, the dean of duck hunters, has lived a full and rewarding life. And in doing so he has found his share of enemies who find Charlie has strong opinions and is not afraid to speak his mind.

Even so, Kansas sportsmen will have to agree that Charlie is indeed no ordinary man. He has seen waterfowl in unbelievable numbers then witnessed those years of declining waterfowl migrations. But he has lived also to see the day when numbers of waterfowl winging through the Kansas sky are once again becoming impressive. He served as a guardian of the wildlife resource when the Department of Fish and Game was an infant; he has lived and worked to see that infant grow into a healthy, self-reliant agency.

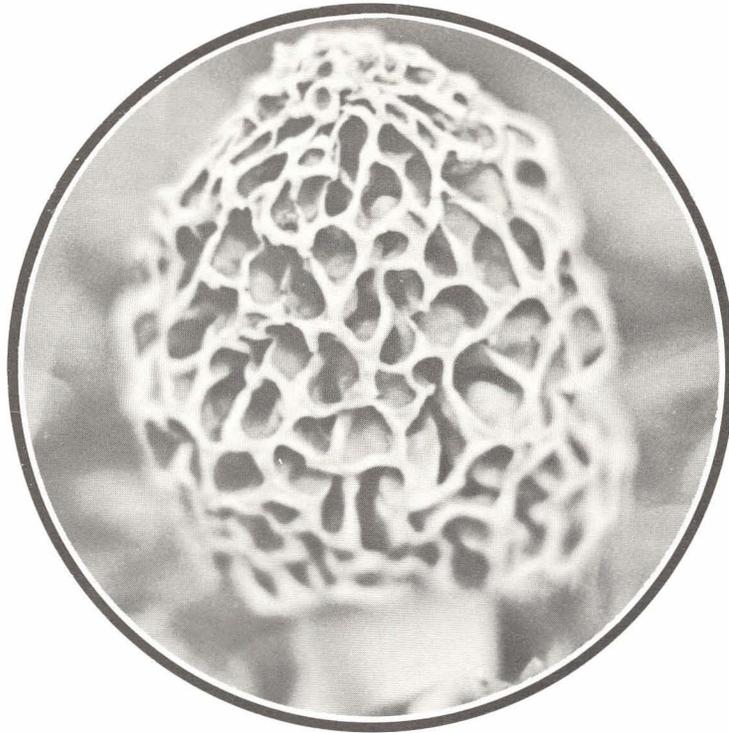
In the twilight years of his life, Charlie can look back with pride knowing he has performed a valuable service in making Kansas a better place for all sportsmen.

That in itself makes Charlie no ordinary man.



Fun to hunt, easy to identify, and delicious on the table—that's the morel mushroom!

'Morels and Morals'



Story and Photos by Vic McLeran

Remember that old saying about the fun things in life being illegal, immoral or fattening?

I guess it's true in some cases but it sure doesn't apply to mushroom hunting—especially when it's morel mushrooms you're after.

Each April, thousands of Kansans are out hunting these little woodland delicacies. And there's nothing illegal about it—you don't even need a license. Better yet, there's no limit to the amount you can take home. The pastime of hunting mushrooms can hardly be termed immoral since Sunday school teachers, sweet little old ladies in tennis shoes and other "nice" people like that are among the thousands who search wooded glades each spring for the delicious morel. In fact, morels are the only type of mushroom which the Moslem religion allows its followers to eat. This mushroom was so highly regarded by Polish people in the Baltic regions it was

used as a medium of exchange during World Wars I and II. People there strung dried morels on string much like "wampum" in our Colonial days. And the little goodies certainly can't be called fattening since they don't contain a single calorie.

Maybe it's only the appeal of something for nothing, but the excitement of finding a fresh, juicy morel peeking through spongy leaf litter beneath spring foliage draws a large number of enthusiasts. The activity is so popular some eastern states hold annual mushroom festivals. Boyne City, Michigan holds a morel mushroom hunt each spring with winners receiving prizes in addition to all those delicious morels. In Europe, the quest for morels is so great that dogs have been trained in an attempt to "sniff out" this delicious species.

Down through the years, a lot of people have been discouraged from mushroom hunting simply because

they were afraid of being poisoned. Make no mistake about it—some species can kill you. It's been said that the amanita or "destroying angel" group of mushrooms and its relatives, cause a higher percentage of deaths than do rattlesnake bites. Morels however, are probably one of the easiest mushroom species to identify and they're certainly one of the most delicious.

PHYSICAL DESCRIPTION

Sometimes called a "sponge" mushroom, *Morchella esculenta*, as the morel is known scientifically, has a pitted or pocked, cone-shaped cap which actually resembles a sponge. The color of the cap varies from pale cream to brown or even gray. Both the cap and the paler, whitish stem are hollow. The shape of the cap varies somewhat but the pitted, "corn-cob" appearance of the morel makes it fairly simple to identify. Both the stem and the cap may be eaten. In Kansas, most morels average two or three inches in height. One giant morel in Ohio was 12 inches tall and six inches across. Another big morel in West Virginia weighed 13 ounces.

Even though it's difficult to confuse the morel with other types of mushrooms, it's not impossible. One dangerous mushroom which is occasionally mistaken for the true morel is *Helvella esculenta*—the false morel. Although many people have eaten the false morel without ill effects, it should be considered poisonous, since it has been responsible for several deaths.

In the spring of 1935, several members of a Pine River, Minnesota, family died after eating false morels. The family was on relief and had run out of supplies. Both true and false morels had been gathered for food. When the meals consisted almost entirely of false morels, some of the family were fatally poisoned.

There seems to be some indication that various individuals possess a sensitivity to certain types of mushrooms while others can eat the same species safely. This is especially true of false morels. Alexander H. Smith, author of "The Mushroom Hunter's Field Guide," wrote of the false morel, "This



Foxes, deer, squirrels and mice all like morel mushrooms too. Here, one of the "natural" mushroom hunters beat the author to these morels.

species, on the basis of my own information acquired in teaching the identification of mushrooms at the University of Michigan and Wayne State University, is clearly poisonous to some people and not to others. Some class members who ate small amounts (knowing what the possibilities were) experienced definite symptoms of poisoning where others did not. In two cases it was found that one member of a married couple could tolerate the species whereas the other could not. Each person must try it for himself or herself, and it follows that this species should never be sold as an edible fungus on markets or at mushroom festivals. Krieger, in his 'Guide to the Mushrooms of New York' states that 160 people are known to have died from eating this species. I am not prepared to accept these figures, but the fact remains that those who use the fungus for food are taking a considerable risk. At least in the central part of Michigan this species ranks with the true morels in the number of pounds collected for human consumption. Many people parboil it and throw out the water, but this procedure does not offer complete protection."

The false morel is a spring mushroom like the true morel but it is larger—four or five inches in diameter. The cap is usually dark brown, irregular in shape and wrinkled with numerous convolutions. While the cap of the true morel is pitted and pocked, the cap of the false morel is crumpled and folded, resembling brain tissue.

Since there's always the possibility of confusing poisonous with nonpoisonous mushrooms, it's good advice for the beginner to check his local bookstore or public library for a couple of field guides on mushrooms. Study the characteristics and color plates of both the edible and poisonous varieties.

The most comprehensive book I've seen is Smith's work, mentioned earlier. Another, more localized guide is entitled, "Wild Mushrooms of the Central Midwest," by Ansel H. Stubbs, a native Emporian. The book is published by the University of Kansas Press.

In addition to studying the texts, a novice mushroom hunter should make arrangements to go hunting with a veteran. Don't expect him to reveal all his favorite spots as these are often closely guarded secrets, but he should be able to give you some good advice about identification, characteristics and habitat of morel mushrooms.

People aren't the only mushroom hunters! Deer, foxes, squirrels, chipmunks, mice and turtles are also fond of mushrooms. Deer, lacking a gall bladder, can eat certain poisonous mushrooms safely and the lowly box turtle has been observed eating the deadly amanita without ill effects. However, don't think because animals eat certain poisonous mushrooms with impunity that these same mushrooms are edible for people.

Another good tip for the neophyte mushroom hunter is to forget all the old myths about various tests designed

to distinguish poisonous from nonpoisonous mushrooms. The only way to be safe is to be sure of your identification.

WHERE TO FIND MORELS

Morels are where you find them and they can turn up in the darndest places. From the neighbor's backyard to dense, wooded areas, mushroom spores will fruit wherever proper conditions are met. For the most part, morels grow best in rich, aereated soil which contains a high amount of humus. Since mushrooms are mostly water, they require certain conditions of temperature, humidity and soil moisture. Consequently, dry spring weather is not conducive to mushroom growth. On the other hand, frequent warm showers during April and early May can make the morel season a good one. Even though morels require soil moisture, they can't tolerate wet feet. Therefore they grow best in well-drained parts of the woods.

An interesting fact about mushrooms is that they often grow in association with certain types of trees. In Kansas, morels have been found growing in close proximity to elms, beech, maple and oak. They are also found on leaf-littered sand and mud bars among willow trees. Old apple and peach orchards also occasionally produce morels.

Burned-over areas too, seem to provide a suitable habitat for morels. During medieval times, Central Europeans made note of the morel's preference for burned areas. In an attempt to provide this type of substratum for the morel, they often burned down entire forests. Blackberry patches, small clearings and areas on a slope where late snow has thawed quickly are other good spots to look for morels. South-facing slopes often have the first morels of the year since the sun warms this soil first. Deep woods and north-facing slopes are usually the last to yield as the shade keeps the ground temperature low.

Creek or riverbottoms where high water drift piles have been deposited are other good spots. Since it's possible the spore was washed "down"

some mushroom hunters check upstream for the "parent" mushrooms. Morels occasionally even turn up in public parks and lawns.

Carl "Red" Gray, Junction City, president of the Geary County Fish and Game Association, once spent several days searching fruitlessly for morels along the Republican and Smoky Hill Riverbottoms. Upon returning home empty-handed one evening, Gray happened to glance at his neighbor's backyard. There they were—morels by the dozens!

If favorable conditions persist year after year, the mushroom hunter can continue to harvest the delicacies annually. Scientists have estimated some patches of mushroom spore are as much as four hundred years old. Although you usually find morels in the same general vicinity year after year, it's not always true. "I've gathered morels by the sackful from some areas only to go back the next spring and not find any," said Wayne Berneking, park superintendent at Milford's Pleasant View State Park. "Even so, I think it's a good idea to always check areas which were productive in years past," he said.

The Kansas Forestry, Fish & Game Commission leases land adjacent to many of the Federal reservoirs. This land, especially in the eastern part of the state, often yields morels in large numbers.

The high annual precipitation of eastern Kansas generally provides better conditions for abundant morel growth than do the more arid conditions of Western Kansas. Nonetheless, morels can be found in the western part of the state along rivercourses like the Arkansas, Cimarron and Ninnescah. Charles Stuckey, Kansas Highway Patrolman from Pratt, and an avid mushroom hunter, noted a relationship between morels and certain types of trees in western Kansas. "In the western part of the state, I find most of my morels in groves of cottonwoods or near cedar trees," he said.

Morels are short-lived. They appear during the first couple weeks in April and continue into May. They are rarely found after May 30. Joe Disberger, veteran mushroom hunter from Junction City, describes what he believes are ideal weather conditions for mushroom growth; "I think damp, rainy weather, followed immediately by warm, sunny days with night temperatures remaining above 60 degrees, constitute excellent growing conditions for morels, at least in our area," he said.

There is probably no other hobby which goes so well with fishing as mushroom collecting. The saying, "Where anglers go, mushrooms grow," is pretty close to the truth since anglers often pass through prime mush-

room habitat on their way to and from fishing areas. So keep your eyes open—what you find may be better than the fishing. And the end results of both fishing and mushroom hunting blend beautifully in the skillet and on the table. A couple years back, a friend and I had just finished taking some frying-sized bass from a farm pond. As we cleaned and dressed the fish in a nearby creek, I noticed some morels peeking through the streamside leaf litter. I'll never forget the delicious aroma later that evening around the campfire as those morels sizzled in their juices alongside bass fillets in the iron skillet.

EQUIPMENT AND HUNTING METHODS

About the only thing required in the way of equipment for the mushroom hunter is a container for his "goodies." Paper bags, tow sacks, wicker picnic baskets and buckets are items commonly employed by mushroom enthusiasts. Some ardent mushroom hunters recommend mesh bags like the ones in which citrus fruits are packaged. They say the open mesh material allows sand, particles of dirt and other debris to fall free while carrying the mushrooms through the woods. I've tried these bags and found them helpful since mushrooms are hard to clean once dirt and debris has sifted through them.

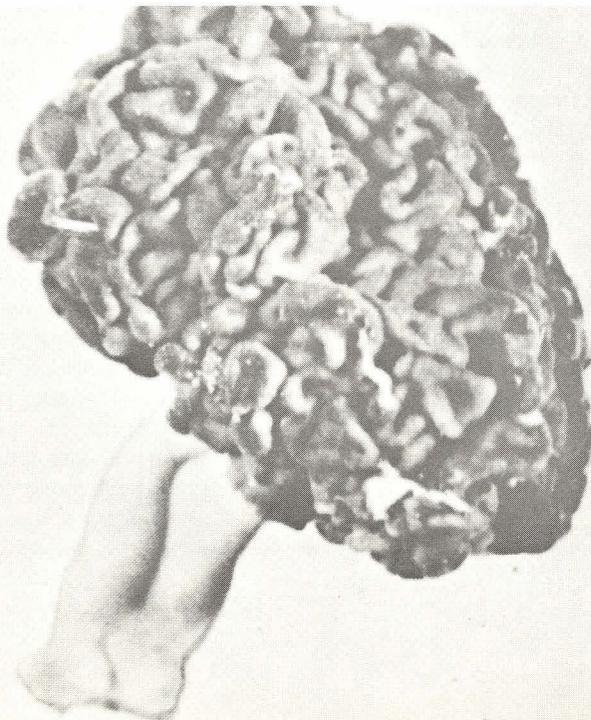
In addition to a sack, it's a good idea for beginning morel enthusiasts to take along a field guide for on-the-spot identification.

The novice mushroom hunter, if he is unable to locate a veteran for his first few trips afield, will often have to go it alone. The best bet here is to search wooded areas along a creek or river. If the beginner is unsuccessful in these locales, he can branch out to some of the other morel habitat which we've described.

Before entering private land, be sure and obtain the landowner's permission. You might even want to share a few morels with him if you're successful in your hunt.

Once you've located your first morel, throw down your hat, handkerchief,

The cap of the poisonous false morel is crumpled and folded, resembling brain tissue while the cap of the true morel is pitted and pocked.



POISONOUS



In Kansas, most morels average two or three inches in height. One giant morel in Ohio was 12 inches tall and six inches across. Another big morel in West Virginia weighed 13 ounces.

or some other kind of marker to denote the spot. The marker serves as a reference point from which the hunter can search the immediate area in a systematic manner. Try to search each of these areas in a way that allows you to view the locale from several different angles. Hunting in this manner, you often spot mushrooms which were not visible from a single viewing point.

If, after picking some mushrooms and referring to the text and color photos in your guide, you're still not sure of the mushrooms' identity, take the specimens to a local mushroom expert for positive identification. If no one can positively identify the species as safe, throw them away. **With mushrooms, it's better to be safe than sorry.**

MUSHROOM PREPARATION AND COOKERY

One of the nice things about mushrooms is that they don't have to be prepared immediately. Instead, they may be dried, canned or frozen for later use. When drying morels, it's important to have a constant circulation of warm air. A series of screens arranged one on the other works well, especially with a hot plate at the bottom providing a source of steady heat. A sheet of flame-proof canvas wrapped around the screens provides a "chimney" effect. When the mushrooms are crisp they should be removed from the screens and placed in moisture-proof jars. To freeze morels, they are simply cleaned, placed in plastic bags and frozen.

Recipes for cooking morels run the

gamut from simply frying them in butter to the more exotic recipes involving wine. Following are some fairly simple yet popular recipes.

French-fried morels—Use large morels split lengthwise. Dip in regular fish frying batter and drop in hot grease or cooking oil. Deep fry for three to five minutes at 375-400 degrees. Remove and serve.

Morel Omelet—Simmer morels in a little butter and their own juice until liquid has evaporated. Pour over regular omelet mixture and dust lightly with salt and pepper.

Stuffed Morels—Sauté eight or ten large morel caps in butter until about half done, then remove and keep them warm. Next, sauté one finely minced onion and the stems of the morels. When they look done add one-quarter pound of ground beef, one teaspoon of salt, some cooked rice and a dash of monosodium gluta-

mate. Chopped veal, pork or chicken may be substituted for the ground beef. Let this mixture cook for about a minute, then turn the heat off and add one-half cup of cooking sherry. Now stir in enough dry bread crumbs to make a fluffy mixture and carefully stuff the morel caps without breaking them apart. Set them in a casserole dish and bake for 30 minutes in a medium oven. Serve hot.

Morels will give off a great deal of juice when they are being cooked and the sautéing soon resembles boiling or stewing. The juice is rich in flavor and should never be thrown away. Use it in your recipes or thicken it with flour and serve as a sauce. When cooking with morels, seasonings should be added lightly since you'll want the subtle flavor of the mushroom to dominate the finished dish. In addition to the recipes above morels may be chopped and added to scrambled eggs, gravies, casseroles and meat loaves.

An excellent book on mushroom cookery entitled "The Savory Wild Mushroom" by Margaret McKenney, is available from the University of Washington Press in Seattle.

The delicately delicious flavor of morels can become almost addictive. I once watched a friend push back from the table after finishing a platter of fresh-fried morels. "There's nothing in the world I love more than a good mess of morels," he sighed, rubbing his stomach contentedly.

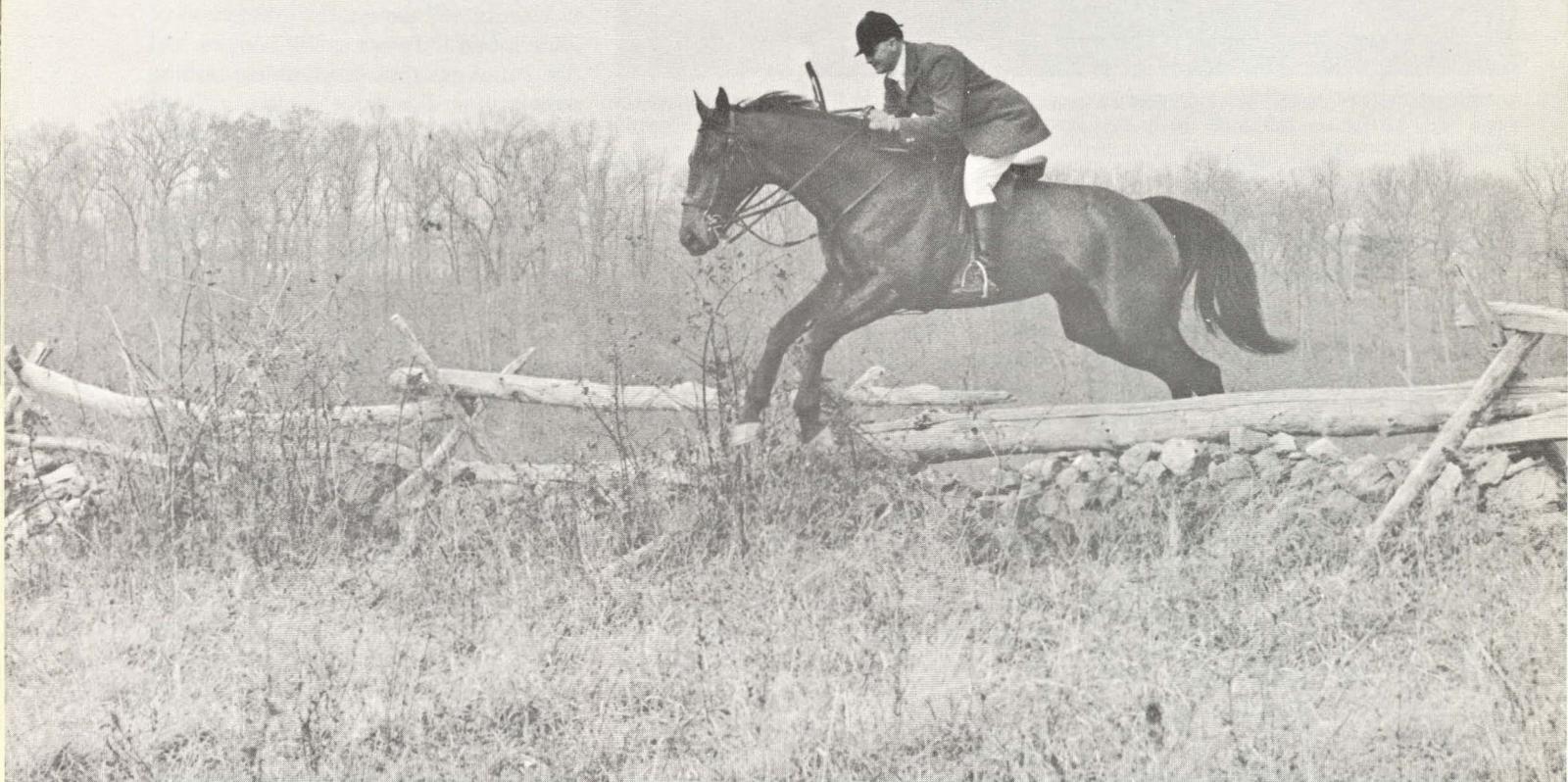
Maybe it's not immoral, but that kind of love comes awfully close!

Since there's always the possibility of confusing poisonous with nonpoisonous mushrooms, it's good advice for the beginner to check his local bookstore or public library for a couple of field guides on mushrooms.



We Ride to Hunt

By R. Ross Manes
Photos by Leonard Lee Rue



A coyote crossed the road, traveling in the typical, lazy lope they use when not really pressed. In the distance the excited bawling of a half dozen English and American foxhounds echoed from wooded hills, almost concealing the thin, yet mellow notes of a hunting horn. Suddenly dogs, horses and riders broke into the park-like clearing. A horse stumbled and fell, its rider jumping clear, rising and racing after his already recovered mount. In less time than it takes to tell of it the hunt has passed my station. Only the confused yelp of a trailing young hound remained to prove that the Fort Leavenworth Fox Hunt was in the field.

Riding to hounds in pursuit of the

wily fox is one of the oldest, but least known forms of sport hunting in this country. It owes much of its development to the Army. The first organized fox hunt in this country to be recognized by either of the two national organizations was that of the Fort Gibson Hunting Club, at Fort Gibson, Oklahoma, in 1835. Military personnel organized a hunt in Kansas as early as 1896. The Fort Leavenworth hunt was first established about 1929, and is presently the only officially recognized hunt within the Armed Forces of the United States.

If fox hunting owed a debt to the Army, it has probably been paid, and then some. Throughout army history, up to a point sometime after World

War I, good horses and horsemanship were absolutely essential. Riders with sufficient skill, and horses with the stamina and speed to pursue fox and hounds over rugged terrain were products the army needed.

World War II forced the hunt to a temporary halt at Fort Leavenworth, but it was reactivated in 1964 and is now a twice-weekly event involving about sixty members.

Although traditionally foxes were the primary quarry in this type of hunt, and club names hold to the tradition, coyotes are an acceptable part of the chase in this area of the world. Both animals inhabit eastern Kansas in relative abundance, and most farmers would prefer fewer of both species.

A food habits study conducted in Missouri, involving 770 coyotes indicated that domestic animals made up only about twenty percent of the diet of the average coyote, while rabbits and rodents constituted approximately sixty percent. Of course, a farmer who loses a few animals to coyotes each year can't afford to be concerned with averages, and the percentages vary from area to area, from one individual to another.

The red fox is an even smaller threat to livestock than the coyote, but history has given him a reputation as a chicken thief. Unfortunately, much of the reputation is probably well-earned. Another study, involving some 886 red foxes indicated that less than fourteen percent of the average diet was made up of poultry. None of this was destined to make either the fox or the coyote very popular with mid-western landowners, a fact that hunters have capitalized upon.

Through much of each year, the Fort Leavenworth hunt is conducted on Wednesday and Sunday of each week. The weekend hunt is a splendid affair, with the huntsman and his staff attired in the traditional pink coats and white jodhpurs. The mid-week hunt is somewhat less formal, with fewer of the members participating and the hunt more loosely organized.

The hunt is steeped in tradition, and the terminology used reflects that condition. The huntsman is responsible in general for conducting the hunt. He must, with some assistance, control the hounds and direct them to likely spots. His staff consists of whippers-in who ride at the fringes of the hunt watching for the fox and errant hounds, or hounds that might be endangered by traffic. Another staff member is the field master whose responsibility is to see that the "field," those who follow the hunt, stay with the hunt, but do not interfere with its progress. Even the hounds have a reference in tradition, being counted in "couples," a term that comes from an earlier practice of tying two dogs

together with a short couple. This practice facilitated control of large numbers of hounds while moving them from place to place.

If the mid-week hunt is less colorful than the weekend version, it is certainly no less exciting to the observer. About 5,000 acres of privately owned cropland and woodlots have been added to the twenty square miles of military reservation to provide a rugged variety of terrain. Jumps, or panels, have been strategically located in fences, and those who are not inclined or equipped to take the fences can follow the hunt by riding the ridges and using the gates.

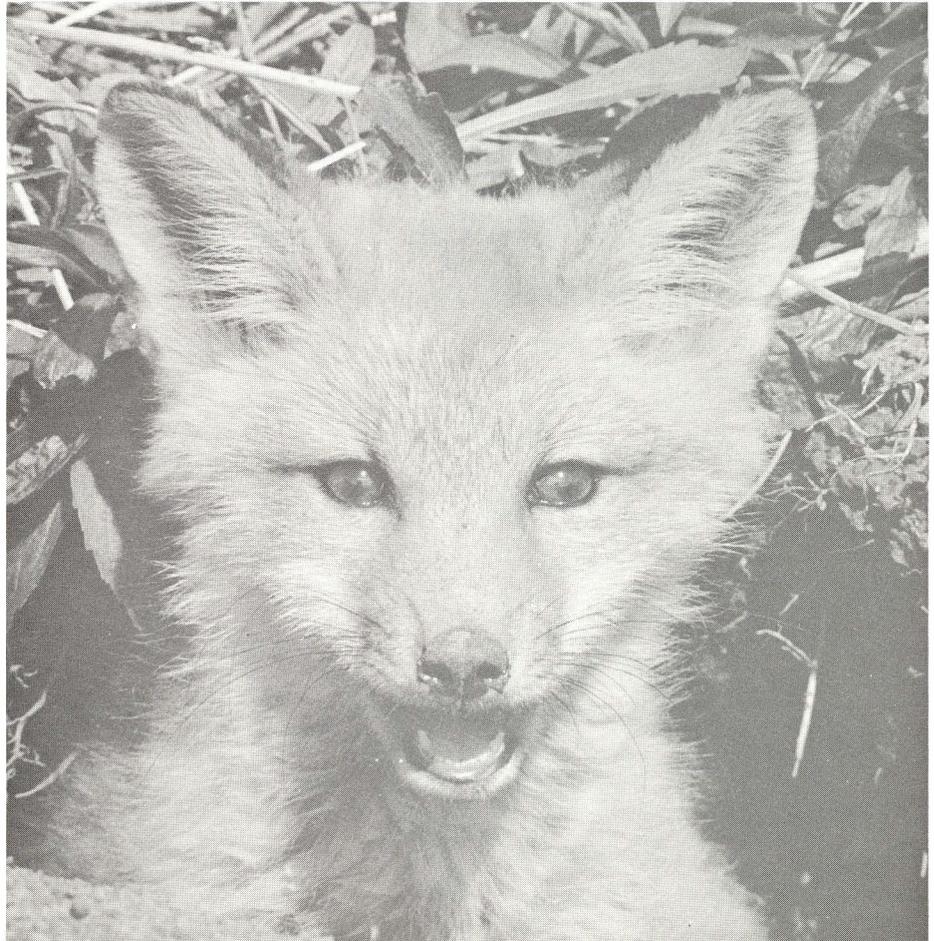
A typical Wednesday hunt begins about 2:30 p. m. at the stables, where 98 stalls are available for members' horses. From the stables the field rides to the kennels where the huntsman and assistants will pick up from eight to fifteen couples of hounds and proceed to a selected hunt area. Hounds give voice in noisy anticipation and spirited horses prance, pitch and shy from imagined dangers.

Across paved roads and down maintained parkways the procession moves to the selected area. Eagerness is ap-

parent in hounds, horses and most of the riders.

The huntsman casts the hounds and takes the first fence. If it's a good day the horses will take the fences readily and cleanly and the hounds will strike a hot trail in Jesse James Canyon or along the Missouri River bluffs. With luck, a whipper-in will spot the fox and the hunt will be on for fair. It is nearly certain that the quarry will eventually slip away, to lead the chase another day. The huntsman says that they run a fox or coyote on most hunts, but in his several years of hunting at Fort Leavenworth they have never caught an animal. He is not unhappy about the club's record.

As I watched the hounds dodging hooves, diving through barbed wire, and saw horse and rider sailing over fence and ditch, it seemed apparent that the fox was the party in the least danger. The excitement of the hunt is in the cry of the hounds, and the exhilaration of hard riding. It is the hunt, however, not the riding that is most important. A whipper-in summed it up, "We don't hunt to ride, we ride to hunt."



ecology: a wild idea

by George Valyer



Photo by Frederick Kent Truslow.

It may be a wild idea, but there are people in America who believe it is possible for man to live in harmony with nature—to live in a land populated with wildlife as well as humans. It may be a wild idea, but so was one that fostered the independence and personal respect of a new nation nearly 200 years ago.

“**ECOLOGY: A WILD IDEA**” is the theme of this year’s wildlife week being observed from March 19 to 25. National Wildlife Week, sponsored across the nation by the National Wildlife Federation and in Kansas by

the Kansas Wildlife Federation, is a week dedicated to drawing attention to the problems facing the wild creatures around us and the ecological problems of mankind as he relates to his environment.

This year’s theme focuses on the fact that wildlife is a part of the environmental crisis and is dependent upon quality natural surroundings. The bald eagle, national emblem of the United States, has been chosen to symbolize the plight of the endangered wildlife species in America today. The eagle, along with many

other species, is threatened by extinction due to man’s interference with the natural world.

“The bald eagle is more than a decoration for dollar bills, postage stamps and antique clocks,” says Robert Redford, national chairman of Wildlife Week. “It is a symbol of strength, freedom and a quality of life.”

“It may be a wild idea to believe we can reverse environmental destruction to protect bald eagles and create a quality life for man, but this country was built on wild ideas, and

not so long ago a wild idea took us to the moon. Ecology is a wild idea that will work," Redford maintains.

Pesticides, pollution and destruction of habitat are pushing the eagle and other animals closer and closer to disaster. The alternative is to clean up the environmental mess we're in before it's too late—too late for wildlife and man.

It was a wild idea that the whooping crane could be saved from extinction when there were only 15 of these great white birds left in the world. But there is a better chance for the whooper today and the population has risen to more than 60. It was a wild idea that the trumpeter swan, down to 50 birds, would again wing across America's skies in flocks. So maybe, it's not such a wild idea that we can

clean up the environment for us, for eagles, and for all life.

A healthy environment won't come easy, it won't happen overnight, and it won't happen at all unless each of us is willing to make personal sacrifices and changes in our way of living. All of us must develop a new life style if we are going to lick the pollution problems we are faced with today. Not until everyone is willing to reduce his share of the environmental damage will young eagles and young people have a bright future.

Wildlife Week is a time when each sportsman, each person in Kansas who enjoys seeing wildlife, can rededicate himself to helping solve the vast problems created by the heedless technology which has gripped our nation. By becoming better informed about the problems, we can plan and imple-

ment actions which will lead to a better tomorrow—a tomorrow where man and other living creatures can live together in a quality environment. That is what ecology is all about.

It has been said that wildlife is a barometer of our environment. If the environment becomes too hostile for the survival of wild creatures, how long can man himself survive? This is a question which must be answered by every thinking individual in America today and National Wildlife Week gives us the opportunity to examine this question in depth. The National Wildlife Federation and the Kansas Wildlife Federation are urging all Kansans to consider their relationship to the natural world and to make a personal commitment to help achieve environmental quality.

The black-footed ferret shown here, along with many other species, is threatened by extinction due to man's interference with the natural world. Pesticides, pollution and habitat destruction are pushing many wildlife species closer and closer to oblivion.

Photo by F. Robert Henderson



Glimpses of Kansas Wildlife

Prairie Chicken

Photo by Ken Stiebben

By LEROY E. LYON

Of all birds native to Kansas, perhaps the most interesting is the prairie chicken, a game bird of open grasslands. The prairie chicken is a member of the grouse family and is often referred to as a pinnated grouse or prairie grouse.

There are now two species of prairie chickens in Kansas—the greater and the lesser. The major differences are size, coloration and voice.

In size, both resemble a short-tailed hen pheasant. The greater, as the name implies, is slightly larger. Males, on an average, weigh about two pounds, hens several ounces less.

In overall coloration, both species are mottled brown with black crossbarring over most of the body. However, the pattern of barring on the back feathers is different. The lesser is also paler in color. The breast and belly of both species are barred about evenly with brown and white.

Both also have characteristic "ear tufts" of pinnae located high on the sides of the neck which give them the commonly used name of pinnated grouse. The pinnae are tufts of stiff, wing-like feathers which can be raised and rotated upward or forward. Beneath each pinnae is a loose sac of bare, yellow-orange skin which is capable of great distention. These are called air sacs or tympani. The air sacs on the greater prairie chicken are bright orange in color while the lesser's air sacs are rosy red.

The greater prairie chicken is the species of most interest in Kansas since it is more numerous. Its range is restricted primarily to the Flint Hills region of Kansas.

The lesser occurs in small numbers and is found primarily in sandy areas of southwest Kansas.

Perhaps the most noticeable difference in the characteristics of the two species is the voice which is an essential part of the courtship performance. Unlike the low, booming notes produced by the greater prairie chicken, the lesser chicken produces a gobbling sound.

The courtship of the prairie chicken cock is a colorful and dramatic performance. Each spring, beginning in March and continuing until late May, males gather at dusk and dawn on "booming grounds" to perform their unique dancing ritual. This display, essentially a courtship activity designed to attract females for mating, usually begins shortly before sunrise and lasts about one and one-half hours. In the afternoon they arrive an hour or more before sunset and leave soon after sunset. Booming ground activity is most intense in the morning.

Each cock goes to a specific part of the booming ground which is his special territory: a 30- to 40-yard are for his solo performance. During the colorful ritual each cock attempts to defend his territory from adjacent neighbors.

When one bird trespasses on another's domain, a fight immediately follows. At most, only a few feathers are knocked out; they are seldom hurt in these skirmishes.

Interspersed with this fighting activity, a cock starts to stamp his feet up and down very rapidly for several seconds making a noise like the rapid "put-put" of a distant engine, sometimes pivoting as he stamps. While

stamping he erects his pinnae over his lowered head, droops his wings and spreads his tail in an upright fan. The neck begins to distend and the air sacs on the neck begin inflating like small oranges. Then the greater chicken makes a booming sound for which it is famed—aboom-boom-booommm—a weird sound which begins in the voice box but which is amplified by the air resonating in the air sacs. It is a three-note call, each note being a bit higher in pitch than the one before.

In the early part of the booming season, the largest number of birds visiting the booming grounds are males. Later in the season, as the tempo of the booming increases females may be observed courting with males or sitting around the perimeter of the booming area. Hens never take part in the dance and outwardly give little notice of their boyfriends' antics. Mating occurs on the booming ground.

The female begins nesting in April or early May. Areas selected for nesting are usually grass cover—pastures, hayfields, native grass areas—all are satisfactory.

The olive or tan-colored eggs are laid at a rate of almost one a day until the clutch of 11 or 12 is completed. Some nests have fewer eggs while others may have as many as 15 or 20. Incubation takes 23 to 24 days. Re-nesting occurs if the first nest is destroyed before or early in incubation. However, chickens seldom make a second nest after loss of the first nest late in incubation.

Adult roosters have no part in incubation or in rearing the youngsters.

Eight-to-ten week old broods begin joining together in flocks as early as the first of August. The hens leave the young to go through their annual molt.

During the spring and summer, prairie chickens feed heavily upon native range plants and insects. Waste grain from fields of sorghum, soybeans and corn is used heavily in winter.

The average life span of a prairie chicken is about one year although a few birds have been known to live longer. Age composition studies of prairie chicken flocks have shown there is an annual population turnover—replacement of old birds by young ones—of 60 percent or more. This occurs even if no hunting is allowed. Therefore, a limited hunting season for greater prairie chickens is set each fall to allow sportsmen to harvest some of the birds that would otherwise be lost to natural mortality.

Kansas is one of only five states having a greater prairie chicken hunting season and boasts the largest prairie chicken population of any state in the nation.

Prairie chicken management goes hand in hand with wise range and soil conservation management practices. When rangeland is managed wisely and moderately grazed, the best conditions prevail for prairie chickens.

Since good grass cover is a requirement for good prairie chicken reproduction, overgrazing and annual burning of large areas is as detrimental to the chicken populations as it is to grassland.

With cooperative efforts of all concerned there can be prairie chickens for future generations and the rangeland can continue to resound to the colorful, majestic booming ritual of one of our most interesting birds.



Thoughts...

by **BOB WOOD**



The Kansas Fish and Game Department is entering a new era of operation. A new administrative head is in office and new programs will result. During the past decade, we have witnessed a remarkable advancement of sound wildlife management in our state. We are now looking forward to another period of progress.

Departmental activities, however, will only be as effective as the public's willingness to become involved. Due to sheer numbers alone, today's sportsman is being forced to face an obligation. With purchase of a hunting, fishing or trapping license, you are no longer only buying a privileged use of an outdoor resource, you must also except an obligation to help encourage proper management of that resource.

You ask now, how do you become involved with Fish and Game Department activities? What can you do to help further proper wildlife management?

Your first step would be to learn more about how and why your Fish and Game Department operates. After all, it is your money. You have made a beginning by reading this magazine. But, it is increasingly necessary for you to learn more about wildlife management than mere fundamentals of harvest. With rising demands on our environment, we must be prepared to insist on proper utilization of all existing resources with an end result of maintaining those resources in perpetuity. More important, wildlife interests must be strongly supported to hold their place against economic demands on our environment.

Whenever two or more hunters, fishermen or trappers get together, their conversation invariably turns to their field activities. If their luck has been particularly bad, it is easy to criticize the Fish and Game Department and come up with ideas on how the agency should have acted differently. But, not one in ten will make an honest effort to learn why a particular Departmental action was taken. More significantly, rarely do their ideas for improvement take the entire resource or all sportsmen into consideration.

This is not to say all Departmental actions should go unchallenged. An involved public is a necessity to insure continuing evaluation of programs and policies. We must, however, have a public knowledgeable enough about Fish and Game Department operations to be able to intelligently question those operations. But, by the same token, that public must be open minded, able and willing to accept sound techniques or new findings which will improve wildlife resource management in Kansas.

Above all else, the public must learn to accept the fact the resource comes first. All activities initiated within the Fish and Game Department are based on that premise. Political boundaries and provincialism have no place in directing wildlife management programs.

The Fish and Game Department is governed by a five man commission. These men, appointed by the Governor, are representatives for all Kansas sportsmen. It is the Commission's re-

sponsibility to provide directional policy for the Department. In keeping with that policy, it is the Department's responsibility to propose and carry out sound wildlife management programs to insure your license monies are spent in the best interest of our wildlife resources. It is your responsibility to see that the Commission and the Department live up to their's. When was the last time you attended a regular Commission meeting or expressed your views to the Department?

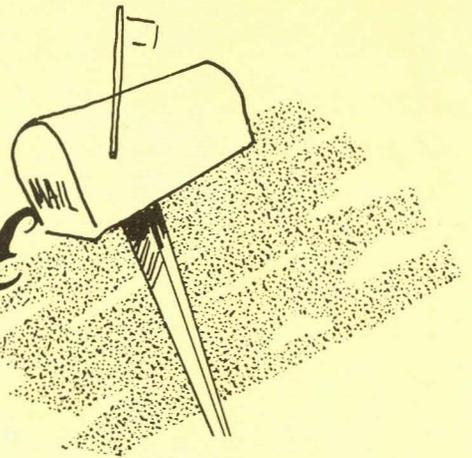
Environmentally, Kansas is a transitional state. We have a wide variety of habitats which support a wide variety of wildlife species. The Forestry, Fish and Game Commission has assembled a highly competent staff of professionals to carry out Departmental management programs. But, it is imperative you, the public footing the bill, become knowledgeable in what we are doing and why. Only by obtaining your support and encouragement can we all hope to see our efforts through to fruition.

* * *

FOOD FOR THOUGHT

During the period July 1, 1970, through June 30, 1971, Kansas-based commercial rabbit shoppers reported sending 22,871 live wild cottontails out of the state. Most of these cottontails went to eastern states for use in hunting dog field trials. The 1970-71 figure is somewhat below the average annual out-of-state sale of 38,000 cottontails reported for the previous five-year period. (BW)

Readers' Response



To Shoot or Not to Shoot—"This letter has two purposes. First, to compliment Bob Wood for his column in the Nov.-Dec. issue. This is as clearly put a discussion of the question of sport hunting as I have ever seen. A copy of it should be sent to the editor of the *New York Times* though I doubt that he would read it, much less publish it. It is unfortunate indeed that this perfectly accurate essay can only find publication in a journal that is read by those who largely already agree with it. The journals read by those who disagree with Mr. Wood neither seek nor publish such articles. My second point is a question. My impression is that domestic cats, owned by farmers or other people on the fringes of farm land, become dangerous to game, even when they appear to be domestic. Both I and my friends have seen 'domestic' cats kill game to no purpose at all. A hunter at least eats what he kills; domestic cats do not. They may wipe out a whole covey of quail eating nothing but the head off each bird. They then go home to their saucer of cream and the fireplace at evening. Worse, they appear to have no natural enemies. They are extremely well designed for hunting and being only 'tourists' into the open fields, do not stimulate the occurrence of natural enemies. I wonder if it would not be appropriate for the KANSAS FISH & GAME magazine to encourage people to keep their cats either enclosed or extremely well fed, and to remind hunters in the field that domestic cats more than a hundred yards or so from any farm building are probably hunting game rather than simply strolling. The question in my mind is whether such cats should be shot. I would welcome your educated opinion."—James W. Wiggs, M.D., Great Bend.

Although bred to captivity, the housecat is basically a predatory animal. As such, it will hunt when the opportunity presents itself, but as with all predators, cats are opportunistic in what they hunt. Documented studies on food habits of free-ranging and feral housecats have proven the bulk of their kill to be small rodents and sparrow-sized birds. On occasion they will take quail or young of other game birds, but cats are not important predators on game species. Cats are strictly opportunists and will take the most vulnerable prey. It has always been the policy of this agency to discourage free-ranging domestic pets. The addition of such animals to the ecosystem places an unnatural stress on animals living therein merely by competing with native species for space and food. It is a much healthier situation to have coyotes, bobcats and hawks playing the predator roles they were destined to do without interference by man's domestic pets; even though the combined effect on their prey may be no different with or without a cat in the picture. I don't see how we can encourage sportsmen to shoot any free-ranging cats they see. By their predatory nature, cats tend to roam considerable distance from their 'home.' Who can say a cat 100 yards from a house is a child's pet, but one 150 yards from a house is worthy of being shot?

Personally, I decline to state a position on the matter.—Robert D. Wood, game biologist.

KANSAS FISH & GAME invites all readers to submit their comments, suggestions, likes and dislikes to Readers' Response. In each issue the magazine will feature as many letters as space permits. We reserve the right to edit and condense letters.

—Editor.

Wants Subscription Cancelled—"Please discontinue my subscription to KANSAS FISH & GAME. I have been a subscriber for years, but the magazine has outgrown both my interests and sense of economy. The color covers alone must cost the state (hence me) a bundle."—Robert Guilford, Dodge City.

We're not familiar with your "interests," but your "sense of economy" doesn't make "cents." In the past seven years, KANSAS FISH & GAME has increased its circulation from 9,000 to 43,000 and its number of issues per year from four to six. During this period, total annual printing costs for the magazine only, have increased from \$2,000 to about \$5,000—almost five times as many magazines for little more than twice the cost. More important however, is the cost per individual magazine which has decreased from 21.49 cents per copy to less than 13 cents per copy. In effect, we're now providing 43,000 Kansas sportsmen with six issues of a quality magazine for less than 78 cents per year in contrast to the 9,000 issues which were published quarterly in 1965 at a cost of 85 cents per year.

The magazine doesn't cost the state (or you) a "bundle." In fact, it costs the state nothing since no general tax monies are appropriated to any Fish and Game activities. We exist on revenue obtained from the sale of hunting, fishing and trapping licenses. Let's say you purchased a license last year. Since the Information - Education division receives about four percent of the annual fish and game budget, we got about 12 cents of your three dollars. Of this amount, only 20 percent is allocated to printing—not only the magazine, but brochures, bulletins, pamphlets and maps. So this "bundle" you're talking about cost you a grand total of 2.5 cents for six issues—if you bought a license. If you didn't, it cost you nothing.—The Editors.

Another Suggestion—"We enjoy each article in KANSAS FISH & GAME. However, we have a suggestion. Since we also appreciate the excellent cover photography, why not put the address stickers on the front cover thereby leaving the back cover unmarred and more suitable for framing display and other uses. An over-wrap would eliminate the sticker from both covers, but at an added cost."—Harriet Richardson, Hoxie.

