

# KANSAS WILDLIFE

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## A Quiet Place

A December duck hunt always provides time for contemplation. There are mallards somewhere in the country, usually by the thousands, but they spend their time in huge flocks for the most part, spiraling into corn stubble to feed, then rising like smoke out of a distant field to look for water. Hunting them is a lot like the old G.I. description of life in the infantry—weeks of waiting broken here and there by moments of total panic.

It had been one of those waiting spells that morning. The wind was steady out of the north; the sky was a flawless blue, and the little prairie puddle I was hunting was frozen solid except for the hole I had axed out for the decoys. I was lying at the water's edge covered with burlap and switch grass, alone. I'd spent the first two hours of the day worrying over the week's business and town doings, but the tangle didn't seem to be unravelling itself, and my mind slowly drifted to other matters. Finally, I quit thinking altogether and lay there just watching. The wind crested the sand ridge behind me and hissed out onto the ice. There was no other sound.

The quiet felt familiar. It took a while, but I finally located the

memory—a high alpine ridge in the Rockies with the same cold, thin, constant wind flowing past my ears. It was something I had heard—or felt—a hundred times, but nearly always in the high country, seldom out on the flats. Not a lack of noise, really. The wind soughing through the grass was perceptible enough, but it wasn't town noise. It wasn't trying to tell me anything. There was no slogan or hard sell, no voices or slamming car doors. Only the wind. Quiet used to be fairly common in the Midwest even when there were far more of us on the land. No one thought too much about it at the time. All you had to do to rest your ears was turn off the tractor or lean the ax up against the woodpile, and the quiet came clowing back. Like so many of our more tangible natural resources, it was so dependable we took it for granted. Now, it's hard to find. City dwellers gave it up long ago, and in the last few decades, it has become surprisingly rare even in the country. Step away from a farm house on a winter morning these days, and you're likely to hear a four-wheel pickup in the next pasture, the whine of a chain saw, or the triphammer thud of an oil pump.

I don't suppose this is a

change that will bring the republic down around our ears. Most of us live in a constant din and seem to have adjusted to it. We're a little more irritable than we might be; our stomachs are a little more knotted, but in the long run, we'll probably get by. To a large degree, noise is an unavoidable consequence of the way we do business, part of the price we pay for our imperial standard of living. And there's the dilemma. Quiet is a part of that standard, too.

The trade-off is typical of the kind we're faced with anymore. Where the development of the continent is concerned, we've made all the easy decisions. The ones we're left with are matters of balance and subtle shades that would paralyze Solomon. They have been sources of frustration for an entire society for decades, and the debates they have generated still rage unchecked. The solutions probably won't come as a result of computer analysis or technological breakthroughs. They are choices we will make for ourselves after plenty of soul searching. Hopefully, when we come to those final deliberations, we'll have the luxury of making them in a quiet place.

*Chris Madson*



# The Tree

## Where the West Begins

John Madson

**B**illy the Kid was born in a New York slum, his sixgun and rifle were made in Connecticut, and the best covered wagons were built in Concord, New Hampshire. Which doesn't mean such products were eastern. Some things only start in the East, and really come into their own farther west.

Take cottonwoods.

There were always cottonwoods of one breed or another through much of the East and South, though they were never really appreciated there. Other trees were as big, and most had better wood. Being a cottonwood in an eastern forest was being a ninety-foot weed.

But all that changed out toward the 100th Meridian, out in the great grasslands where most eastern trees faded and failed, dying of wind, thirst, and general loneliness out along the buffalo rivers. There the cottonwood didn't suffer by comparison with the lordly oaks, beeches, chestnuts, and tulip trees of the Wooden States. It was enough that it was a tree, thick-boled and broad-limbed, breaking the infinite sweep of sky and grass and signifying shade, firewood, and water in a land that was notably lacking in all three.



Ron Spomer

In his 1859 *HAND BOOK FOR OVERLAND EXPEDITIONS* Captain Randolph March advised: "There are many indications of water known to old campaigners, although none of them are absolutely infallible. The most certain of them are deep green cottonwood or willow trees growing in depressed localities. . . ." And although these cottonwood groves were near water, they rarely exhaled evil vapors. Captain Marcy happily revealed that "the streams which in-

tersect our great prairies have but a very sparse growth of wood or vegetation upon their banks, so that one of the fundamental causes for the generation of noxious malaria does not, to any great extent, exist here, and I believe that persons may encamp with impunity directly upon their banks."

With alacrity, too. For the deeper the wagon trains rolled into the West and summer, the more intense and prolonged the relentless sun that shrank wheel rims and spokes, bleaching the wagon-covers like snow even while it darkened the faces and hands of women who had prided themselves on pale gentility, falling in a heavy, monotonous flood of light on a land that lay stunned and silent under its weight. Consider, then facing into the deep blaze of late afternoon, already spent from ten hours of travel, and cresting a prairie ridge to see that dark-green line of trees in the middle distance. Wood for cooking just ahead, with supper tonight under a green leaf canopy and fireside fiddles after. Trees shutting out those endless horizons, with water for the livestock, for the barrels, for bathing. A green and restful place set about with fine cottonwood trees, the little prairie

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creek running sweet and clear in the dappled shade. Heaven enough, for now.

Years after, the sons of some of those travelers made new routes as they took the first trail herds north and east. And even though these cowboys had been bred to sun and sky in this land with its jarring excesses of light, they still cherished a shady nooning under cottonwoods—and they wove it into an old night-herding song, “The Railroad Corral”:

*Now the sun circles upward;  
The steers as they plod  
Are poundin’ to powder  
The hot prairie sod.  
It seems as the dust  
Makes you dizzy and sick,  
That we’ll never reach noon  
And a cool shady crick.*

That crick was likely shaded by some boxelder, and maybe green ash and black willow. And cottonwood—always cottonwood. The cowboy boiled his Arbuckle coffee with it, fried his beefsteak over it, built corrals and line shacks and ranch buildings of it, and used it to heat branding irons. If one of those happened to be a running iron used too freely on someone else’s stock, the cottonwood might also be a hanging tree. And for rustler and honest drover alike, a cottonwood might be the only lasting grave marker he’d ever have. When cowboy Andy Adams helped push a Texas herd over Doan’s Crossing of the Red River in 1882 there were already five graves under the cottonwoods there—all of drovers who had drowned at the crossing in little more than a year. At Forty Islands Ford on the North Platte that summer, Andy would help bury a trail boss in still another cottonwood grove.

**B**ut long before any wagons and trail herds, the cottonwood rivers of the prairies and plains belonged to the Osages, Kiowas, Comanches, Arapaho, Pawnee, Crows, Arikaras, Mandans, Sioux, and Cheyenne. No one cherished good campsites more,

and in all the grass country there were no finer than the riverside benches shaded with their evenly spaced groves of cottonwood trees. Rich places, full and flowing. In 1840 the great Indian Peace Council was held in the groves of the Arkansas River just downstream from Bent's Fort in eastern Colorado—and there was grass, shade, water, and fuel enough for 5,000 Indians and over 8,000 horses.

Useful and comfortable in summer, the cottonwood camps were almost essential in winter. They provided about as much shelter as one could expect in that country, with plenty of firewood and that vital component of the buffalo hunter's economy: horse feed. The sweet inner bark of plains cottonwood was relished by horses, and during George Custer's winter campaign of 1868-69 against Indians south of the Arkansas River, the mounts and pack animals in his command were often fed cottonwood bark. That winter he invariably found Indians camped along streams with heavy stands of cottonwood, the villages strewn with whitening branches that had been stripped of bark. In what must have otherwise been a pretty grim campaign, Custer was amused by Indian ponies feeding on cottonwood limbs that were cut into pieces about four feet long and thrown on the ground like any other fodder. A pony would put one hoof on a branch to hold it—something like a dog holding a bone—while gnawing the bark. "Although not affording anything like the amount of nutriment which either hay or grain does, yet our horses invariably preferred the bark to either, probably on account of its freshness," Custer reported.

The plains tribes might use cottonwood root in making a fire with a friction drill—and then burn the bark to roast clays used in making cosmetic paints. In early spring yellow dye was made from the buds, and the bark might be stripped and the trunk scraped to obtain the sweet milky juice. The tree was closely bound to many parts of tribal life;

the Sundance Lodge was often made of cottonwood saplings, and in the Snake and Antelope dances the chief priest might wear a chaplet of cottonwood leaves. Many of the drums and kachina dolls of the Pueblos are still carved of cottonwood.

Indian children made toy tepees of the leaves. A triangular cottonwood leaf was split a short distance from the tip down along the midrib. At equal distances from the leaf's tip a short tear was made across from each edge. The margin above each of these tears was bent back to simulate the smoke flaps of a tepee. The leaf margins below the tears were drawn together and fastened with a small thorn or splinter—and a tiny lodge was created. Children might make a number of these, arranging them in circles like the camp of their own band.

Settlers' children played with toys whittled from the corky bark that was up to three inches thick on old trees, and I know ranch women in the Nebraska Sandhills who create striking wall decorations with slabs of the deeply fissured bark. A little farther west, in the campgrounds of Devils Tower National Monument, cottonwood bark may be the only firewood available at the campsite. The first time we cooked over it I used words I hadn't thought of since high school—but the stuff wasn't so bad, at that. It takes a deal of starting, but it's smokeless and burns hot enough, leaves a talcum-fine ash, and has a little higher social status than buffalo chips.

Handy stuff, cottonwood bark. All kinds of uses. In parts of the Great Plains the water may be heavily charged with alkali and other harsh salts and can inflict the disorder that granddad called "the gypwater quickstep." It's an occupational hazard of cowboying, but on the trail its gastric pyrotechnics could be eased with snakeroot or other herbs—and sometimes cottonwood bark. Charles Goodnight, cattle king of the Texas Panhandle, recalled that cowboys "would get the inside bark, boil it to a strong tea, and drink liberally. It is a hell of a drink, a

wonderful astringent, and a bitter dose. But it is a sure shot."

There weren't many real cowboys and Indians in my Iowa boyhood, but some of the dream kind rode through the upper stories of a vast cottonwood that grew only a few yards from the back porch where I slept. In the midwatches of summer nights when the air was almost as heavy with humid heat as it had been at noon, a little night breeze might rise and set the cottonwood leaves ticking, and in my sweaty half-sleep the rattling leaves became a host of distant hooves, not in file order as a troop of cavalry might be, but unshod and coming on fast in the open order of painted war ponies. It was, after all, the same sort of tree that had heard the charges of Roman Nose's Cheyennes against Major Forsyth on Beecher's Island, and the sounds of Gall and Crazy Horse closing with Major Reno on the banks of the Greasy Grass. Perhaps cottonwoods never forget such sounds. Maybe they dream aloud on sultry summer nights when restive kids are just enough awake to hear them and enough asleep to understand. If this is so, pity the boys in their air-conditioned summer slumber, never hearing the night riders in the cottonwoods.

**T**hen and now, the drainage systems of my Midwest are cottonwood country supreme. Here in the rich alluvial silts of river islands and floodplains, the eastern cottonwood is at its proudest. It does best on moist, well-drained soils and rarely becomes a well-shaped tree on sites more than fifty feet above the average stream level of the area; on higher ground the cottonwood may assume a somewhat bushy appearance, its lowest limbs within easy reach. But under floodplain conditions the bole of an eastern cottonwood may rise sixty feet to the first limbs, attaining a height of 150 feet and a trunk diameter of seven feet or more on favorable sites west of the Mississippi. One of the largest cottonwoods on record was eleven feet in diameter and 175 feet high.





Cottonwoods are among the giants of the floodplain forests of the Mississippi Valley, where only the pecan, sycamore, and some silver maples can challenge their girth and stature. The huge trees tower up out of fetid understories, raising lofty sunlit crowns that may support great blue heron rookeries that are seldom less than forty feet above the ground and sometimes occupy twenty acres of forest canopy. When such a rookery is "ripe" the upper levels of the cottonwoods and sycamores are a bedlam of harsh clucks, whoops, and rusty creakings. Far below, the

unstirring air is so gray with whining mosquitoes that local folks say "you can reach out, close your hand, and leave a sort of white place hanging in the air."

Up into the huge trees climb the lianas—wild grape, moonseed, hog peanut, woodbine—the vines whose leaves may compose a fourth of the forest canopy. Here in this temperate jungle there is even an analog of the strangler fig, the heavy poison ivy vines that may be thicker than a man's arm, snaking up into the crowns of the tallest cottonwoods. Several of these massive vines may

use one tree with branchings and rootings that can kill the tree by strangulation. The upper parts of such poison ivy lianas may develop a canopy almost as dense as that of the host tree, complete with strong horizontal branches, and long after the host has been strangled the heavy vines may be supported by the dead and whitening trunk as a sort of "poison-ivy tree." It's a hellish thing for anyone sensitive to it, and some of my river-rat friends refuse to hunt squirrels in bottomland pecan groves because the bushytails sometimes hide in high clumps of poison ivy leaves. Woe to the man who handles such a squirrel with his bare hands.

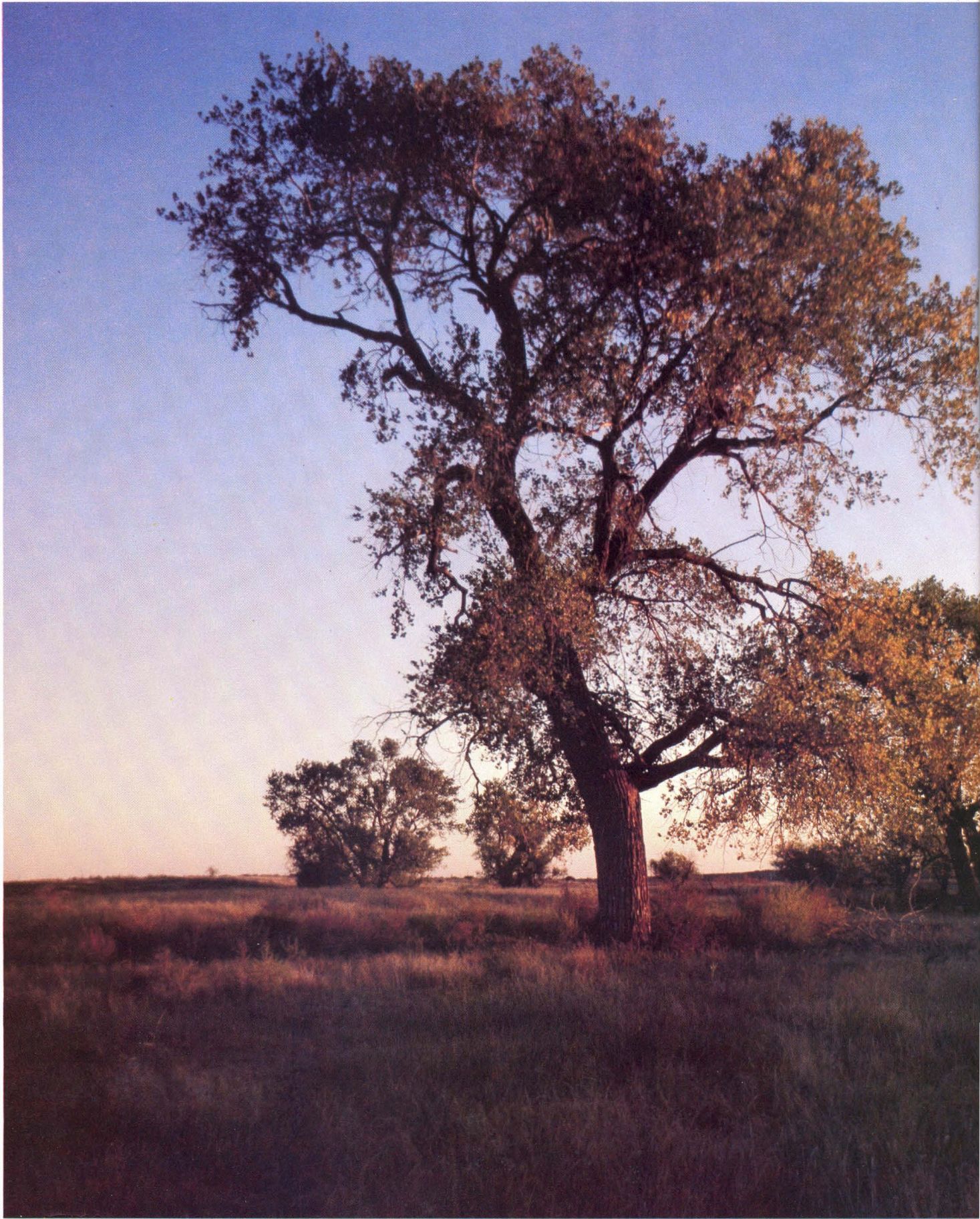
For all their lowland preference, cottonwoods are surprisingly drought resistant. Although not found naturally on droughty soils, cottonwoods were planted extensively around homesteads by early settlers on the Plains, and once established they did well. Those settlers are sometimes given credit for introducing cottonwoods to areas where none existed, even along certain treeless streams. No one will ever know the straight of that. The early travelers on the Plains were forest-bred and usually thought of trees in terms of extensive woodlands of commercial saw timber. In their reports, land might be designated "prairie" even though it supported trees several feet in diameter. This way of looking at things may have been inspired by Zebulon Pike, who tended to regard the Plains as treeless desert even though there were trees large enough to be hewn into dugout canoes. (During the 1860s, the huge boles of Missouri River cottonwoods were sometimes used to make freight pirogues. Trunks as much as four feet thick were hollowed with fire and adze, and two of these lashed together could provide stable transport for up to fifteen tons.)

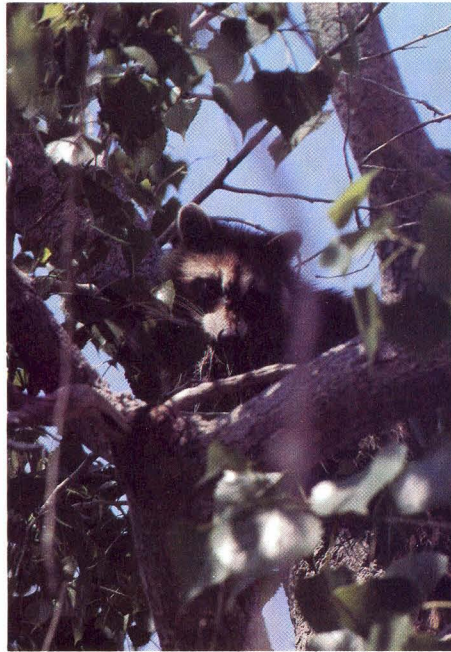
**W**e'll never really know about the original prairie trees and how they were ranged by subspecies and



Swainson's hawk chick

Ron Spomer





Bruce Kintner

ecology through the grasslands before the coming of white men. But we can be sure the cottonwood was chief among them, so prominent that to some homesick travelers it was symbolic of the lonely, forbidding Plains. In 1806 Lieutenant James Wilkinson was returning eastward along the Arkansas River after having left the Pike Expedition. Stopping near the site of modern Wichita, he gratefully noted in his journal: "I encamped on the bank of a large creek and discovered, for the first time, a species of wood differing from the cotton tree. I assure you the sight was more agreeable than a person would imagine; it was like meeting with an old acquaintance, from whom you had been separated a length of time; I even began to think myself approximating civilized settlements, although I was just entering on the hunting ground of the Osages."

The classic cottonwood of the tallgrass prairie and Mississippi Valley is *Populus deltoides*, the eastern cottonwood that extends from parts of the Atlantic seaboard as far west as the central Dakotas, Nebraska, Kansas, much of Oklahoma, and the eastern half of Texas. It takes its name from the strongly triangular, delta-shaped leaf that is broader than long. Six other cotton-

woods have similar leaves. There is the swamp cottonwood scattered through the East and South. Out in the shortgrass country, *deltoides* is replaced by the Plains cottonwood, *P. sargentii*, also called "sweet cottonwood" because of its milky juice. There is the Palmer cottonwood of west Texas, the Texas cottonwood in the northwestern part of the state, and the Rio Grande cottonwood—beloved tree of the New Mexican *bosques*, home of Bullock orioles and rookeries of Treganza blue herons. Finally, the Fremont cottonwood, my old friend of the desert camps and one of the fine trees of the Southwest. This is the cottonwood of the Grand Canyon's depths, the shade tree of Havasu Creek and the mouth of Canyon de Chelly, growing even out into deserty basins where trees of this size seem out of place.

Biggest of all is the black cottonwood that ranges along our Pacific Coast up through British Columbia and into the Yukon. Seldom more than 100 feet tall up in the foothills, it may tower 225 feet on a bole eight feet thick in parts of the Puget Sound Basin. But like the lance-leaf and narrowleaf cottonwoods, is it the real thing or just an outsized poplar putting on airs? To qualify as an honest-to-god cottonwood, some of us figure a tree ought to have that delta-shaped leaf. Otherwise, it must belong off with the willows, aspens, and other lesser members of the tribe.

Our common cottonwoods have all kinds of faults. They're messy, grow unkempt in their old age, tend to draw lightning, and in other ways don't fit in with the modern scheme of suburban living. The same things might be said of the old cottonwood breed of people—and wherever those trees and people have vanished, so has the West that stirred in both. □

John Madson is a frequent contributor to *AUDUBON* magazine and *NATIONAL GEOGRAPHIC*. His new book, *WHERE THE SKY BEGAN*, will be available in March.

# An End for Endrin?

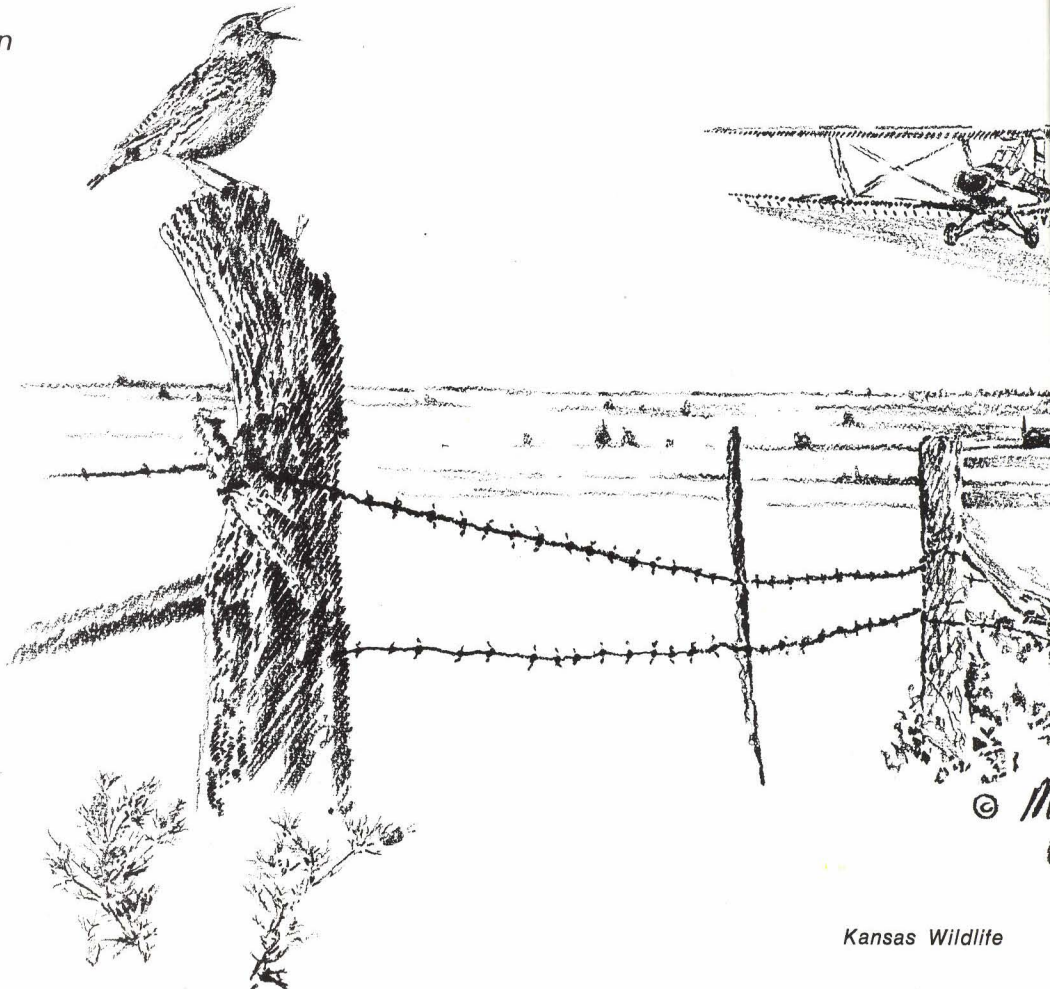
Chris Madson

Illustration by Mark Johnson

Last winter was mild and dry across the northern plains, a blessing to most of the residents in eastern Montana and the Dakotas who are used to bracing themselves against four months of Arctic punishment. For the wheat growers in the region, however, the gentle weather did not augur well for the spring. By late February, things were beginning to green up, and the farmers in southeastern Montana saw what they had been expecting to see almost since the crop had gone into the ground. Cutworms. The call went out to the aerial sprayers who loaded their tanks for big game. There weren't Med flies or even greenbugs. A dose of malathion wouldn't do the trick. Cutworms spend nearly all their time underground where they are all but immune to most pesticides. As far as the sprayers were concerned, there was only one chemical to use—endrin.

The spraying began in early March and covered 120,000 acres before it was finished. Another 80,000 acres were treated with toxaphene or Sevin. Actually, the outbreak wasn't all that large as cutworm infestations go, and the endrin, as always, did what it was called upon to do. And, as always, a little bit more.

The Montana Fish, Wildlife, and Parks Department became officially aware of the cutworm problem and the aerial spraying on March 28 when they were notified of an extensive fish kill on Sunday Creek in the



southeastern corner of the state. The department had biologists at the scene the next day. The worst of the poisoning was confined to a mile or two of the creek where the kill was virtually complete. The fishery on Sunday Creek hadn't been too spectacular, mostly rough fish with an occasional sunfish, but it was a disquieting incident nonetheless. There were no reports of other wildlife losses, at least not from trained observers, but there was nothing very reassuring about that. The spraying had been going on for a month or more before the biologists had found out about it, plenty of time for the coyotes and crows to clean up the evidence. And the investigators knew that, even if there had been a major kill and they had been on hand the day it happened, they wouldn't have found windrows of dead animals. Large-scale wildlife die-offs are seldom obvious. In most cases, poisoned wild things crawl into the heaviest cover they can find and die unseen.

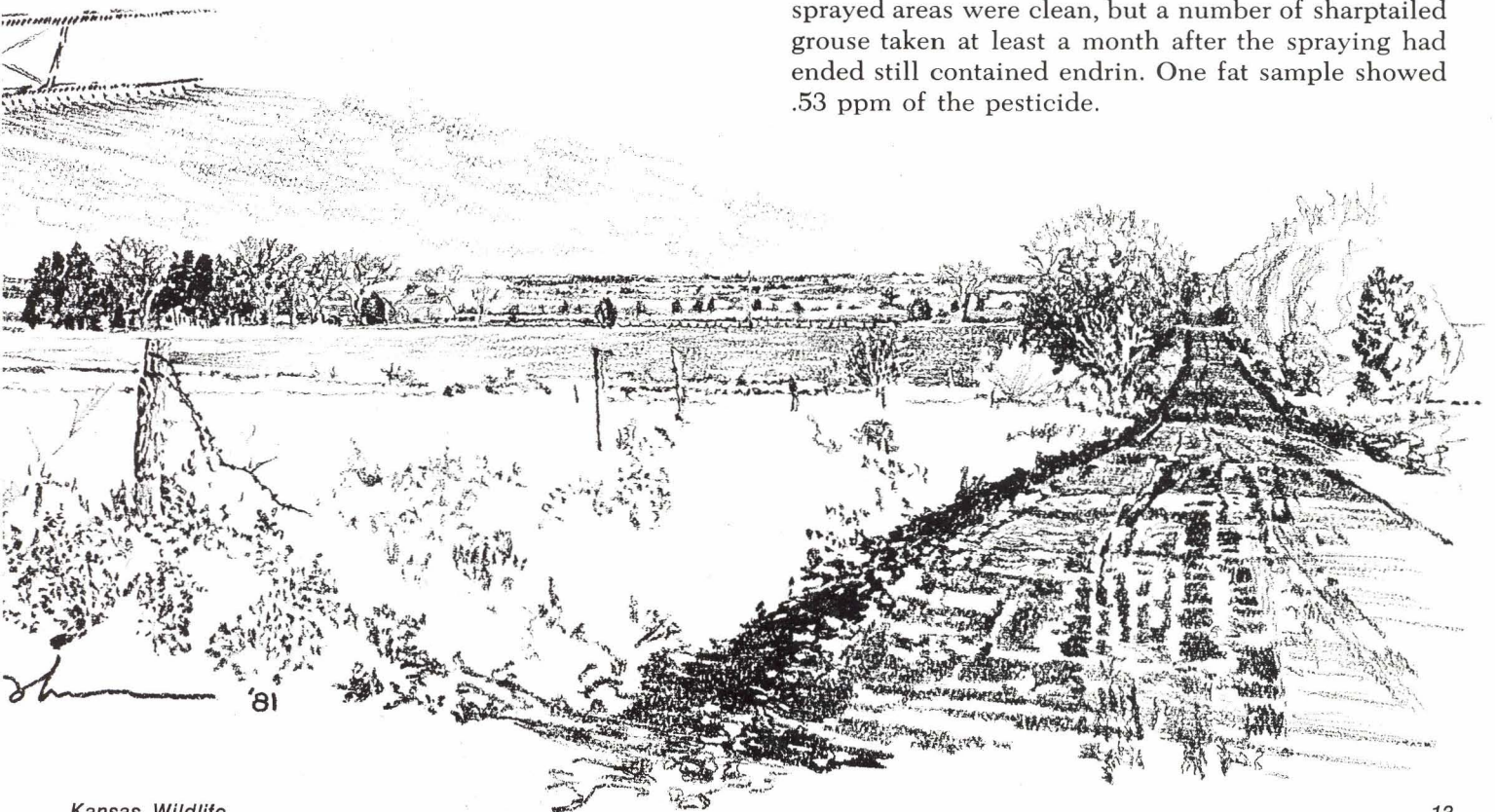
There were rumors, though. Landowners had found dead deer and antelope, it was said. An agricultural entomologist who had been working in the area through early spring commented that the treated fields were hushed. The songbirds along roadsides and fencerows were missing. One farmer who had gone out to check his fields a week after they had been sprayed complained of dizziness and nausea before he had

finished checking the first row. He said his neighbor had experienced the same symptoms. Another landowner lost two dogs who had hunted through a freshly sprayed field edge.

On March 30, the Montana Department of Agriculture showed up at the Fish, Wildlife, and Parks offices to express deep concern over the intense spray campaign. They urged wildlife officials to do some sampling not only to find out how much damage had been done to wildlife but to assess the human health risks involved.

The Montana department was all in favor of a sampling program, at least within the limits of their budget. They contacted U.S. Fish and Wildlife Service experts to find out more about sampling and testing procedures. The Fish and Wildlife Service told them that the threat to wildlife was probably already past. Their research had shown that endrin passed out of most animals rapidly until a relatively low, stable concentration was reached. In spite of these comments, Montana decided to run a few tests on big game animals since they seemed to be the most likely candidates for endrin poisoning. If nothing turned up in the big game, they would assume that the threat to human health had also passed.

Unfortunately, one antelope turned up with .53 parts per million (ppm) in its fat. Since this was over the U.S. Food and Drug Administration's .3 ppm limit on endrin in poultry fat, the Montana department decided to keep on sampling. They chose their animals in order of the approaching hunting seasons—upland birds first, then waterfowl, and big game. Pheasants taken in the sprayed areas were clean, but a number of sharptailed grouse taken at least a month after the spraying had ended still contained endrin. One fat sample showed .53 ppm of the pesticide.



Not too long after Montana officials were notified of the grouse contamination, the first report on waterfowl came back from the lab. The results of these tests were even more ominous than they had been for grouse. One wigeon showed 1.2 ppm endrin in its fat, and most of the geese sampled carried endrin in their lean muscle tissue as well as in their fat. These findings were far more troublesome than the sharptail results had been since the ducks and geese were poised for a migration that might take them through any one of twenty states.

The Montana Department of Health and Environmental Sciences recommended that the grouse and waterfowl seasons be closed to protect hunters and their families, but wildlife officials weren't nearly so sure of the direction they should take. Toxicologists had pointed out that the risk of endrin exposure could be minimized by skinning the birds and discarding the drippings. Although opinions among pesticide researchers were by no means unanimous, a majority seemed to feel that there was little danger to the public with the exception of small children and pregnant or nursing women. While the Montana department sweated out the decision, newspapers throughout the Midwest picked up the endrin story and speculated on a possible closure of the waterfowl season down the entire Central Flyway.

As it turned out, Montana and all other affected states turned the decision over to the hunters themselves. The seasons stayed open, although waterfowlers were warned to take precautions with their ducks and geese, and the question that had paralyzed state and federal agencies was left to the hunter himself. What *are* the risks of endrin to people and wildlife? As it turns out, nobody really knows.

**E**ndrin is a shadowy compound. We know far more about its chemical relatives, and much of what we have learned has been to our sorrow. Endrin belongs to a family of highly toxic pesticides, the chlorinated hydrocarbons. The best known of the group is DDT. Banned in the U.S. in 1972 because of its long-term toxicity, DDT was among the most commonly used pesticides of the 1950's and early 1960's. It was only after twenty years of use that we began to discover some of the curses that accompanied DDT's blessings. Like most other chlorinated hydrocarbons, it concentrates in fatty tissue and persists for years. As a result of this persistence, it concentrates as it moves up a food chain. A fish taking in small amounts of DDT may not be affected at all, but a bald eagle feeding on that fish and hundreds of others containing the pesticide is bound to suffer the consequences. The health effects on eagles were probably numerous, but the one that seemed to do the most mischief was egg shell thinning.

In all likelihood, this effect of DDT alone was responsible for making our national symbol an endangered species.

DDT had similar effects on a wide variety of other birds, and, in addition to its long-term effects, had more immediate impacts. Millions of songbirds were killed in the late 1950's during abortive efforts to control the beetle that spreads Dutch elm disease. DDT concentrates in milk (including human milk) and can be absorbed through the lungs or even through the skin. Perhaps the most frightening thing about it is that it is one of the earlier, less toxic chlorinated hydrocarbons around.

Chlordane, another endrin relative, is about as toxic as DDT, but one of its components, heptachlor, is substantially more toxic. Heptachlor is broken down in animals or the soil to another compound called heptachlor epoxide which is four times as toxic as chlordane or DDT.

Then there is dieldrin. Roughly five times as poisonous as DDT when eaten, it may be forty times as toxic when absorbed through the skin. Heptachlor and dieldrin were both used extensively across the southeastern U.S. in the late 1950's when federal and state governments decided to eradicate the imported fire ant. A survey of the treated and untreated areas in Georgia revealed the devastating effect of these pesticides. Researchers counted thirty-seven whistling bobwhite cocks on 9,900 acres of sprayed land and 297 cocks on about the same amount of untreated land. In other surveys through the Southeast, the list of dead animals found in sprayed areas ranged from red foxes to leopard frogs, and there were reports of dead livestock as well.

Endrin itself is more poisonous still. In her book, *Silent Spring*, Rachel Carson states that endrin is fifteen times more toxic than DDT to mammals, thirty times more toxic to fish, and as much as 300 times more toxic to some birds. Says Carson, "It makes the progenitor of all this group of insecticides, DDT, seem by comparison almost harmless."

Velsicol Chemical Company, one of the manufacturers of endrin, allowed a little of the compound to leak into the Memphis, Tennessee sewage system in 1960. A few days later, more than three million fish were reported dead along the lower Mississippi. In 1963, a second, larger spill occurred in which five to ten million fish died. In 1976, Kansas and northern Oklahoma made headlines with another endrin fish kill. An outbreak of army cutworms prompted 1.2 million acres of spraying in southcentral Kansas. It has been estimated that endrin saved Kansas farmers about \$4.7 million that year, reducing their loss from about \$14.4 million to about \$9.7 million. At the same time, ninety-two farm ponds and two community lakes lost their fish. The kill was estimated at about 93,000 fish, not counting the 1.5 million fish lost by one private

fish grower. The overall cost of the endrin contamination was set by one source at nearly \$5 million.

The directions on the endrin label carry the force of law and specify that the compound should not be sprayed within a quarter mile of a body of water or on a day when the wind is more than ten miles an hour. Although both of these directions were repeatedly ignored in 1976, none of the fines levied against sprayers ever stood up in court. The last case was dismissed on a technicality earlier this year.

Unlike dieldrin and toxaphene, endrin has never been connected with a large wildlife die-off on land. The U.S. Fish and Wildlife Service has found two bald eagles and a couple of brown pelicans that probably died from endrin poisoning, and the Audubon Society suspects that 350 of 450 brown pelicans in a Louisiana nesting area were killed by endrin when residues in bottom sediments were stirred up by floods in 1975. Given endrin's extreme toxicity, it's hard to believe that many wild animals in the direct path of a spray plane survive. The endrin label concedes that some wildlife losses will occur even when the compound is used according to directions.

Beyond endrin's efficiency as a poison, surprisingly little is known about its impact on the environment. Some researchers have reported that it causes cancer in mice and rats; others insist it is not a cancer risk. There is general agreement that tiny amounts of endrin will cause birth defects in animals whose parents have been exposed. Tests on endrin in the soil indicate that it persists almost as long as DDT, but experiments with captive mallards have shown that up to ninety percent of very high doses of endrin pass out of ducks in thirty-three days. That fact has been used to ease many fears about endrin concentrations in wild ducks, but the research leaves doubts. After the first ninety percent of a heavy dose is gone, the remaining ten percent persists in the fat almost indefinitely. This ten percent may be as high as the .3 ppm limit for endrin in poultry fat.

Some health experts have pointed out that the .3 ppm acceptable daily intake figure is actually a hundred times less than the amounts known to cause even the smallest damage in experimental animals. Other experts aren't nearly as confident and, like the Montana Department of Health and Environmental Sciences, recommend that the public avoid endrin concentrations over the .3 ppm limit.

There is no argument about endrin's threat to unborn animals of any species. All agencies involved in the Montana endrin episode have recommended that pregnant and nursing mothers should take greater than normal precautions to avoid contact with the pesticide. It has been shown to impair reproduction in screech owls when the birds were given just .75 ppm in their food. That's about .000012 ounces of endrin per pound of mice. While other research has shown that mallards

and quail are better able to breed normally when contaminated, there is no doubt that concentrations of endrin far too small to injure adults will injure their offspring. Our overall view of the effects of small amounts of endrin is confused at best, a tangle of contradictory opinions from a variety of sources, many of which have personal stakes in the future of the chemical.

While the general fog surrounding endrin persists, disturbing bits of information continue to surface in wheat country. Waterfowl collected for analysis in Kansas showed no endrin contamination at all—except for three teal taken in the northwest part of the state. The birds were taken on a single tailwater pit just after teal season. One of them showed extremely small amounts of endrin; the other two set records for endrin levels in this year's samples along the flyway with fat concentrations of 1.95 ppm and 2.77 ppm. There is still no dependable explanation of these high concentrations.

At about the same time, the Montana department stumbled on a sobering test result. When the decision was first made to sample big game in Montana last April, one collecting crew parked their pick-up and happened to see a sharptail standing nearby. They shot the bird, then proceeded to collect the antelope and mule deer they had been sent after. The tests on the bird were botched the first time through, and the final results didn't arrive until September. The assay showed 22.9 ppm in the bird's fat. It's little wonder the bird had been standing around instead of flushing at the approach of the vehicle. This endrin concentration was nearly forty times the concentrations reported from sharptails taken during the summer and was high enough to cause death.

This one accidental sample left Montana wildlifers wondering whether the contaminated sharptails they had collected during the summer were survivors of similar doses of endrin earlier in the year. If so, how many of the birds had not survived the spraying, and how had endrin affected breeding in those that remained?

Other lab reports from continued sampling were just as alarming. Samples of wheat taken from goose crops through the summer contained endrin even though the cutworm spraying should have ended in May. Montana Department of Agriculture samples taken in July turned up endrin concentrations as high as 18.9 ppm on range grass and 24.0 ppm on wheat. A sharptail collected in September had 2.02 ppm endrin in its fat. Montana public health officials tested for endrin in the area, but they drew their samples from elevators and slaughterhouses, not from fields known to have been sprayed. It was obvious from the wildlife testing that, no matter what the health department samples had shown, geese and grouse were finding tainted wheat and other forage. In a series of thirty-four beef fat

samples taken in September, the USDA found six within endrin concentrations between .02 and .06 ppm. The EPA label on endrin warns farmers not to put their animals out on treated fields for at least a year after spraying, but many of the farmers who had hired aerial sprayers never had a chance to read the label. There were unconfirmed reports after the March and April spraying that recently treated fields had been grazed in violation of the restrictions on endrin.

As it turns out, the key issue raised in Montana last summer doesn't have much to do with whether or not we should have held the 1981 waterfowl season. Our game animals have probably carried endrin off and on ever since it was first marketed, and there is a good chance that endrin contamination during severe cutworm years like 1968 or 1976 was more widespread than it was this year. As unsettling as that realization may be, it probably shouldn't be our main concern. In all likelihood, we are picking up endrin from any number of sources that have nothing to do with wild game. There have been no obvious effects because the endrin concentrations are extremely low and vary with the year, but the endrin is still there. And it isn't alone. While all the endrin testing was going on in Montana, other compounds were also being reported in waterfowl fat—toxaphene, dieldrin, PCB's and forms of DDT. These ducks and geese are reflections of the environment they live in, an environment they share with millions of people. If they are carrying pesticide burdens, we're probably carrying our share too. We know that many of these chemicals are far more dangerous in combination than they are individually, but we still don't know for sure what effects we can expect from long exposure to microscopic amounts of this pesticide soup.

Actually, we haven't had all that much time to find out. DDT hit the market in the early 1940's, and, at the time, it was like nothing we had ever seen before, an apparent godsend in our struggle with insect pests. Compared to the arsenic and heavy metal pesticides we had been using, it seemed almost harmless to people. Thousands of soldiers and refugees were dusted with DDT to kill lice during World War II. Later on, in the early 1950's, pesticide salesmen calmed fears about DDT by pouring a little of the compound into a teaspoon and eating it. It took us a decade or more to find out what DDT was doing to wildlife—and to salesmen, aerial sprayers, chemical company employees, and most of the rest of us. The early consequences of DDT couldn't really have been avoided, although we could have responded to the growing evidence against the chemical a little more rapidly. At the time, we just didn't know any better.

We know better now. Considering our experience with DDT and the mounting file on damage caused by dieldrin, aldrin, and toxaphene, we have plenty of reason to be cautious with organic pesticides. We know now that many of the side effects of these compounds

won't jump out at us overnight and that the damage they cause could stay with us for decades even if they were banned.

So why are we using endrin? Although toxicologists and biologists are still divided over the threats it poses for man and wildlife, we know for sure that it is one of the most poisonous pesticides ever discovered and that it persists in the environment for months, even years. In the absence of any other hard information, these two facts alone should be enough to keep endrin off the market.

The agricultural community and pesticide industry defend endrin as the best weapon we have against cutworm, possibly the only chemical that is effective against pale western cutworm but their argument isn't quite accurate. Lorsban 4-E, a more expensive pesticide, and endosulfan, a compound not commonly available in Kansas, have been used against cutworms with some success, and pest control experts say there is hope that a new class of pesticides called pyrethroids will control cutworm, although it may be some time before they are legalized for use on wheat. There might be more cutworm pesticides, say the experts, if wheat weren't generally a pest resistant crop. Chemical companies have found that there is more profit in developing pesticides for insect-ridden crops like cotton than in wheat chemicals. In addition, the cutworm isn't a very dependable pest. Kansas has had only two major outbreaks in the last thirteen years. Considering the unforeseen damage that occurred in the wake of our last major endrin attack on cutworms in 1976, we might all be better off if the cutworms were left to run their course, and farmers were reimbursed for their losses.


EPA, the federal agency in charge of pesticide registration has down-played the risk of using endrin since the Montana incident, but a few of their staff members who have worked directly on the environmental effects of the compound have privately expressed deep concern over its use. The National Wildlife Federation, National Audubon Society, Izzak Walton League, and the Environmental Defense Fund have petitioned EPA to reconsider its registration of endrin. If we're lucky, pressure from environmental groups will reopen the debate on endrin so that the general public will have a chance to consider the same question that has worried millions of duck hunters this fall.

We all have a choice to make. We can keep endrin in the lab until we know more about its effects, or we can leave it on the market and do the research ourselves. After all, we have half a continent for a laboratory and our own children for white rats. □

*Artist Mark Johnson does freelance illustration for FIELD AND STREAM and other outdoor magazines. His work is exhibited at Crossroads of Sport Gallery in New York.*



# the YELLOW Pages



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## LETTERS to the editor

### ON DEER PERMITS

After reading the article, "Private Land, Public Trust" in your last issue, I want you to know that I agree completely with the Wilson County farmers.

We own 700 acres and rent close to 1,000 acres. Over the years, we have had yearlings scared through the fence many times by deer. Why can't we have a free permit, or would you rather we kill them and let them lay?

You say "the productivity of the ground is a national treasure," and "the urban 98 percent of us depend on the farmer's stewardship." Do you reimburse the farmer for the share of the farmer's crops that the deer and other wildlife eat?

Richard and Lois Roebuck  
Howard

### THANK THE FARMERS

I agree with the general theme of your last issue's editorial, "Private Land, Public Trust." It is true that few farmers or ranchers set aside a piece of cover for wildlife management but, by the same token, you fail to recognize that the birds and game that live on that farm or ranch live off the produce being produced there. How strong would the pheasant population be if no corn, milo, or wheat were raised in Kansas. Unless I'm mistaken, this is primarily produced in its entirety

by private landowners.

Two other statements that demand challenge are:

"...productivity of that ground is a national treasure he (the farmer-rancher) shouldn't control by himself." When that farmer or rancher purchased that ground for over \$1,000 an acre and his yearly planting to harvesting cost runs \$200 plus an acre, is the national treasure there to help him or are you? The urban 98 percent you mention so forcefully aren't there to help that farmer-rancher with those initial or annual costs either.

The second statement I challenge is this: "I'd like to think that most farmers are on the land for reasons other than making a profit." I wish the author of the article could have the pleasure of telling this individually to every farmer and rancher as he rises at five in the morning, as he comes in at ten at night covered with sweat and dirt, or as he goes in to tell his banker he can't meet his loan commitments again this year.

I stated that I do agree with the content and I do. No individual or group who owns or works the land should be able to work their private will over the laws of the land. The Wilson group is wrong in their approach to the deer permit issue. If we look deeper into this issue we may find that they are really crying out against the lack of recognition, concern, and respect that the vast 98 percent has shown them over the years.

The farmers and ranchers are only two percent of our population but through ingenuity, long hours, and great financial risk they produce a bountiful and inexpen-

sive commodity for us, the other 98 percent, the food and fiber we eat and live with. My suggestion is that we, the vast majority, should attempt to understand the plight of the farmer and rancher better and encourage our congressmen to enact legislation that would be favorable to their needs. It's hard for that farmer or rancher to be lenient with his land when he watches housewives boycott food on television and farm bill after farm bill turned down by our legislators. Contrary to popular belief, farmers do farm for profit and ranchers run cattle for profit. The pendulum of our public opinion must change and when it does we will all be rewarded with the hospitality of farmers and ranchers.

By the way, I am not a farmer.

David D. LeDuc  
Inman

### DESERVES RECOGNITION

Enclosed is my check for a gift subscription for my friend, Wayne Adrian.

Your editorial, "Private Land, Public Trust" made me think of this elderly gentleman who has hunted and fished all his life in Kansas. He is owner of some of the prime hunting and fishing land in this part of Kansas along the Big Sandy. Kansas Fish and Game released wild turkeys on his ground a couple of years ago. He is a landowner who manages for wildlife. I think a note in your magazine thanking a sportsman/landowner like this is in order.

Paul L. Stinnett  
Toronto

## REBUTTAL

As for the editorial you had the guts to print in the September-October issue:

I am all for the farmers as I am one that feeds your deer and wild game and I do have ground set aside for wild game. What is this? The farmer raises it and you and your city slickers harvest it. I don't think that farmers stole five baby calves in March or shot a 600-pound Charolais in October for me. Maybe in your way of thinking they belong to you.

W. C. Bishop  
Rantoul

## NOT PLEASED

I think the editorial, "Private Land, Public Trust" in your September-October issue is a gross example of ignorance.

I am not even a landowner but I sure think you are trying to put the farmer down all you can. If the deer don't eat, sleep, be born and die on a farm where do they do it? The farmers don't think they own all the wildlife; they would just like to take a deer a year. After all, have they eaten your hay, beans, milo, and wheat since they were born?

I can't write all my displeasures about the article because they are many. I just think you blew it.

Mick Thurman  
Erie

## CONCERNED HUNTER

I have lived in Kansas practically all of my 33 years and have enjoyed hunting quail and pheasant each fall for the last 14 years. Each change in the color of the leaves brings on that special feeling that only avid and dedicated hunters know.

I have been concerned about something for the last few years and I've decided to write you. I'm only a single person but perhaps there are many in our state who feel as I do. I'm very much afraid

that if we as hunters and residents of Kansas don't do something now to protect wildlife habitat we will surely lose what we love most. Farm land is rapidly losing its natural look. Farming has been intensified because of the economic picture. I can't blame farmers for wanting to earn more money. They deserve it, if anybody does. But hedgerows are disappearing, brush is being bulldozed away, and standing grain is being plowed under.

Would it not be possible for the hunters who want natural habitat to be preserved to pay for it. I don't like finding new reasons and ways to spend my money anymore than the next guy, but we have a problem. Let's do something before we find it's too late.

I would support the sale of an upland game stamp or an increase in the license fee, if the money collected was explicitly earmarked for the purchase or lease of land, or the payment to those farmers who left their land "natural" and also allowed hunting.

Mike Kelso  
Overland Park

## SUGGESTIONS

I wanted to write you concerning my views on the system used to issue deer hunting permits.

I feel that the present system does not give the landowners who provide deer habitat sufficient incentive to continue to provide this habitat and it is too easy on those landowners and/or tenants who contribute nothing to the deer population of the state.

I feel that 80 acres is not sufficient land to entitle anyone to hold a landowner's permit. This should be raised to at least 160 acres as a minimum requirement. I also feel that a landowner who wishes to hunt on ground other than his own should not be given a landowner or tenant permit. Those who receive landowner/tenant licenses should have the

legal description of their land on their licenses and only be allowed to hunt on that ground. If they wish to hunt on other ground, they should be filing for general licenses along with other hunters and have no better opportunity of obtaining a license than anyone else.

I do not feel that merely owning or operating 160 acres of ground should entitle a permit. This ground should have deer habitat and an aerial photo showing the ground should be submitted with their license applications showing that they truly contribute to the deer population of the state. For this contribution, they should be guaranteed a license each year due to their effort. The stipulation of hunting on their own land would present no problems for them because they have the habitat that is supporting the deer. This would mean fewer owner/tenant licenses, but they would be given to those truly deserving of the privilege, those who make deer hunting possible for all of us. A 160 with no cover is hardly supportive of the deer populations.

Arlene M. Anderson  
Elk City

## THE ROAD AHEAD

I'm writing in behalf of myself and my out-of-state hunting friends. Some of us have hunted pheasant in western Kansas for over 25 years. We are working class people — firefighters, air condition service, electrician, small businessmen, salesman, etc. I have personally seen a lot of changes in the past 25 years in the hunting conditions and have made a lot of farmer friends. We make from one to three hunting trips a season. It costs each person on a trip approximately \$250 for expenses. What I have seen over the last 25 years is over 50 percent of the good hunting places are posted no hunting. New people that we ask permission to hunt

tell us that as far as they're concerned we can go back to where we came from.

One of the things that prompted me to write was the ad in a Tulsa paper for paid hunting in western Kansas. It looks to me like the end result will be that the rich will be the only ones able to hunt. This can only mean a loss to the working man because he can no longer afford to hunt. It also could mean a big loss of revenue to the state.

I have talked to several landowners about the possibility of the state sharing the out-of-state license fees as a tax deduction on their land as a way to open some land up to the average hunter. To my surprise, several of them said they would be much more satisfied if the state would build some lakes to provide them with some water sports.

Most working class people will not write this kind of letter but will quit hunting as the land areas disappear because they cannot find a place to hunt.

Ronald Dunlap  
Broken Arrow, Okla.

### "DEAR FARMERS:"

I would like to address this letter to the farmers of this great state of Kansas. I have been a hunter safety instructor for many years, not only in Kansas, but in other places I have resided as well. One of the most important points I have tried to express in my classes is RESPECT. Not only self-respect, but respect for your firearm, your companions, the game you are hunting, the environment, and most of all the farmer and his property.

I realize that many of you have had bad experiences in the past with slob who were masquerading as sportsmen, and I find it difficult not to sympathize with you for not wanting hunters on your property. However, on the other hand, I also believe that RESPECT is a two-way street. I find it very difficult and disheart-

ening to try to teach young hunters to have respect for you and your property, only to have you abruptly turn them away when they seek permission to hunt on your land. Let's face it, most of the best hunting areas in the state is on the private property that you control. There are some of us who are trying very hard to correct the mistakes of the past and to prevent their recurrence, but we also need a chance to prove that our efforts have been effective.

Therefore, to those of you who are not aware of what we are trying to do, or to those who would like a better understanding of how we are trying to eliminate the slob from our ranks in an effort to improve our image, I extend to you an open invitation to attend a hunter safety course in your area. Take the time to talk with the instructors, talk with the students, get to know them and give them a chance to get to know you. Then, maybe through mutual understanding and RESPECT, we can establish a lasting relationship that will certainly benefit both the farmer and the sportsman. Let's work together.

Raymond J. Tomory  
Manhattan

### AGE PROBLEM

I enjoy your magazine very much and thought that it would be a good place to express my feelings about a certain issue that has not been brought up very much. It concerns the federal laws about selling ammunition and the legal age at which a person must buy a hunting license in Kansas.

Correct me if I'm wrong but any resident 16 years or older must purchase a hunting license and carry it with him while hunting, but we can't because we don't have any shells. This problem prohibits people my age (16-17) from hunting responsibly after school or any extra time that we get. I believe that hunting

is one of the most enjoyable things an outdoorsman can do at an early age and this problem doesn't help any.

I feel that a suggestion to fix this problem would be to move the age of licensing up to 18 to comply with the legal age of buying ammunition. I realize that this would cut revenue but this lost revenue could be made up by raising the price of hunting licenses and/or lowering the age at which a person must have a license for fishing. If need be, after all of that, fishing licenses could be raised in price.

Mark Queen  
Dodge City

### MEASURED GROWTH

I read with great interest the article, "Passing of the Prairie." I am an avid supporter of our natural heritage, the prairies. I recently received a notice to mow my small acreage of tallgrass prairie because it was a "health hazard" (?). Evidently, someone reported my grass as being in violation of Shawnee County HR-81-13, which states that grasses may not be more than 18 inches high. My grass was at least two feet and absolutely beautiful.

This summer it was lush, green, and dotted with a variety of wildflowers. It has also provided habitat for a variety of creatures, from doves to coyotes. It was with reluctance that I mowed it to 15 inches to comply. I still cannot believe that native grassland is now illegal to possess, unless, of course, it is mowed.

Janet Neff  
Berryton

### WILDLIFE LOVER

I have enjoyed *KANSAS WILDLIFE* for several years. The articles and letters in it are very interesting and informative and the color photos are really beautiful.

I would like to add that I have

been a WHIP (Wildlife Habitat Improvement Program) cooperator for the past three years. Rick Tush, wildlife biologist at Eureka, has been a joy to work with. He has helped me tremendously with our habitat projects and I feel we have accomplished a lot in providing a better quail habitat on my farm. Although the quail have not come back to their level prior to the 1978-79 disaster, they do show an increase this year.

O. E. "Jack" Roberts  
Emporia

### LIKES SEASON

I love the quail season you set this year. I have always been for a later opening and then running the season to at least Jan. 31. The average hunter won't hunt over five or six times anyway. The dyed-in-the-wool hunter will love not having to worry about being wiped out in late January by bad weather, when he can still hunt in February and hunt the cream of the crop — the smart ones.

David E. Cook  
Sugar Creek, Mo.

### WHY'S AND HENS

I read the article, "Kansas Pheasants: Going Up, Going Down, Going Nowhere," in your last issue. There were many reasons given for possible reductions in the number of pheasants in western Kansas since the 1960's.

Not mentioned was the fact that Fish and Game allowed shooting of hen pheasants, and immediately after the hen season, there were large reductions in pheasant numbers in Trego County the next year. I have hunted pheasants in Trego County every year since 1959, and for many years before that. I feel that the biggest reduction in pheasants was due to allowing a hen season. It doesn't take a hunter to kill a hen pheasant, as anyone who has hunted them knows the hens will sit until you

step on them, while the roosters run away. I feel that each time a hen is killed, you are really killing ten chicks for next year's crop of birds.

Please don't allow any more hen seasons. Our hen pheasants have enough problems in survival through winters, farm implements, and autos without allowing hens to be shot. Prior to the hen season there were flocks of from 100 to 300 birds seen in Trego County. Last year was the first year since the last hen season that I saw a flock of pheasants of over 100 birds in one group.

You have an excellent magazine. I read it cover to cover each issue. I just didn't agree with your writer's reasons for reductions in pheasant populations.

Bob Michellich  
WaKeeney

### ON SHOOTING PRESERVES

I read your article (September-October issue) on "The Shooting Preserve Alternative." I have belonged to a shooting preserve and don't mind the price. But when you ask for eight pheasants to shoot and only six get up, and you get every one, and then they charge you for all eight then I quit the preserve. I would only hunt on a preserve on a per-bird-bagged basis.

Cecil C. Moege  
Topeka

### DISILLUSIONED

Having camped and fished many years in Kansas, I'm becoming a little disillusioned. It appears the more the license fee goes up, the less services are provided. I don't understand what happened to the SASNAK program but it, too, seems to have disappeared.

My family has camped and fished exclusively in Kansas reservoirs and lakes. The smaller state fishing lakes get our attention the most. The anticipation of a wonderful weekend is quickly

turned to dismay upon arrival, to find high weeds, tall grass, no trash containers, roads not maintained, and less and less picnic tables. I realize inflation is driving costs up but it appears that less emphasis is being placed upon these lakes. One outstanding example of deterioration is the beautiful Chase County State Lake. Having fished and camped this lake since 1968 and watching old home movies made there every year since, I can't help getting upset. Not only has all of the above been done but the drinking water is no longer usable, the few shelters are being torn apart, and the picnic tables are disappearing.

There must be a change in attitude or less and less people are going to buy licenses to support your employees and programs.

Willis Swart  
Wichita

### 'BOTTOMS' BACKER

I'd like to say that I feel Stan Wood and Charles Swank, both involved in management of Cheyenne Bottoms, are doing a very good job of management at the marsh. I feel they both get a lot of undue criticism. I have hunted Cheyenne Bottoms for about twelve years and have seen good years and bad years. The year 1980 was a bad one as far as water conditions, however it was one of the best hunting years I have ever had. I do not feel the water conditions of last year were caused by management; it was just a dry year. Again, I think the two men are doing a very good job.

Steven L. Mason  
Wichita

### APPRECIATIVE READER

I seldom write to show appreciation but I feel obligated after a couple of recent experiences. I recently enrolled the last two of my five children in the Hunter Safety Education

Course, and I feel that George Mull (executive director of Greater Down Town Salina), Robert Constable (attorney), and others like them who give their time to young people in this effort must be applauded.

Secondly, one year ago I found a note on my tree stand stating my location was six feet over an unmarked boundary in a 15-acre grove of trees. The note was on the back of Game Protector Mike Little's business card. When I contacted Mr. Little, he very politely explained a boundary change since I had received permission to hunt from the original owner. I am convinced that most, if not all state game protectors are conscientious people and are as willing to help people as they are to apprehend violators. Please extend my appreciation to state game protectors.

Last, but certainly not least, the knowledge and research and the willingness to impart it to others that are quite obvious in the pheasant population article by Randy Rodgers is one reason my subscription to a fantastic magazine will never expire.

Richard O. Stineman  
Salina

### GIFT OF THANKS

Please enter three gift subscriptions to your magazine. Two are for relatives. The third is for a man who has granted me access to the Arkansas River across his land to hunt ducks. Although it may not be an original idea, I think it's a fitting way to offer a small thank you. Maybe some other subscribers would appreciate the idea.

I thoroughly enjoy the magazine, both photography and writing. I commend you on the overall quality of your publication.

Michael L. Schmidt  
Wichita

### HIS REWARD

One of my hunter safety students (Kelly White, Newton) did such a super job that I want to order *KANSAS WILDLIFE* magazine for him. He was very attentive, memorized the ten commandments on the back cover of the manual, and did an excellent job on his test. He will make a safe, courteous hunter.

Jim Unruh  
Hesston

### CONGRATULATIONS

I'm renewing for three more years of *KANSAS WILDLIFE*. Let me also compliment your staff in producing such a fantastic, first-class magazine. The pictures are superb, just as if the wildlife were right before you in true life. And the artists' depictions such as illustrated the pheasant article in the last issue, were truly the finest I've ever seen.

Being a lifetime hunter and fisherman myself, I'm raising three boys who are also outdoorsmen and are following their dad into these great sports. In fact, it's a scramble when your magazine arrives in the mail as they are always eager to see its contents.

Once again, congratulations on a job well done because you are impressing well the younger generation, our future hunters and fishermen, for they are proud of what their state offers. I highly recommend the support of Kansas Fish and Game and its magazine to all my friends and patients.

Ron Kleiner, D. C.  
Topeka

### INTERESTED

You have lots of interesting articles. I especially enjoy the articles on furbearers and game birds. I would enjoy the magazine even better if you would write some articles on trapping furbearers. I have had friends com-

pliment your magazine because of the tremendous pictures.

Bruce Kayser  
Americus

### WHO'S BEST?

We feel compelled to respond to the continuing series of letters to the editor about "Who's Best?" in the magazine game.

There are some points we feel are important:

—Both magazines (Kansas' and Missouri's) are professionally written, informative, and very interesting.

—The wildlife photography contained in *KANSAS WILD-LIFE* is second to none.

—The *MISSOURI CONSERVATIONIST* is published on recycled paper which does not allow the slick copy of *KANSAS WILDLIFE*.

—The *MISSOURI CONSERVATIONIST'S* staff writer Joel Vance is one of the most entertaining and informative outdoor writers available to readers anywhere.

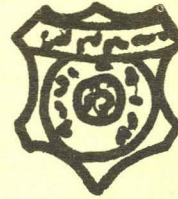
—Missouri has a one-eighth percent sales tax allocation to their department which may account for the "free" magazine.

—Pertaining to free waterfowling in Kansas vs. fee system in Missouri: one must realize the population and hunting pressure constraints to adequately judge the Missouri department's performance.

I really can't understand how anyone fortunate enough to hunt and fish either Missouri or Kansas, like ourselves, could degrade either of the departments or publications. Today, when conservationists and sportsmen are being attacked from all sides let's direct unified efforts toward working together to preserve what we are all so fortunate to have. Look around and you will see who your friends are.

David E. Wiseman  
Rosa Christisen  
Wichita

# It's The Law



The cost of everything is going up. But that's not always bad news. Consider the trend in fines assessed violators of fishing and hunting laws in Kansas. Fines took a jump when the fine framework — legally mandated minimum and maximum punishments prescribed for each type of violation — were raised on July 1, 1981. The judges across the state who assess those fines apparently agreed with the idea that hefty fines can be a major deterrent to game law violations. Some recent fines illustrate.

- A Wichita man, Kenny R. Bellew, was fined a total of \$1,000 plus court costs on deer poaching charges. Butler County District Judge John Jaworsky fined Bellew \$500 on each of two counts — attempting to take a deer during closed season and attempting to take a deer without a permit. The charges resulted from a landowner's complaint.
- Edmond R. Demmit, Strong City, was ordered to pay a fine of \$600 for hunting deer during closed season. Chase County District Judge Frances Towle also revoked Demmit's hunting license.
- Brad Vignery, Burlingame, paid a total of \$410 for illegally possessing six raccoons and one opossum and trapping during closed season. His trapping license was revoked and the court prohibited Vignery from trapping or hunting for one year.
- Steven Tollefson, Topeka, paid \$500 plus court costs for possessing quail and wood duck during closed season, hunting migratory birds without a federal duck stamp, and hunting migratory birds with an unplugged gun. Tollefson's hunting license was revoked and his hunting privileges suspended for one year.
- Three Illinois men who tried to open the Kansas pheasant season a day early paid dearly. Richard E. Hartman and Gary D. Golden, both of Byron, Ill., and Henry E. Holze, Egan, Ill., each paid fines and court costs of more than \$250. The men were cited Nov. 13 for hunting without valid licenses and hunting during closed season.
- George F. Durham, LeRoy, was fined \$250 for possessing a wild turkey during closed season.
- Two Gridley men were fined \$150 each for hunting rabbits after sunset and hunting with the aid of an artificial light. Daniel J. Kraft and Gary W. Beyer also had their hunting licenses revoked.

## MEET "NATURE'S NOTEBOOK" AUTHOR

"Nature's Notebook," the four-page regular feature which appeared for the first time in our September-October issue, is written by Joyce Harmon. The "Notebook" is just one small part of Joyce's work for Kansas Fish and Game. The Minnesota native joined the Commission in June as the agency's first-ever Wildlife Education Coordinator.

Joyce already has proved she is a tireless worker, having spent much of her first six months in Kansas traveling around the state for sessions with teachers and school administrators. The purpose of those contacts is to develop fish and wildlife training materials for use by teachers in Kansas schools. By introducing school-age Kansans to the special needs and problems of our environment, our most precious resource — our children — will understand and appreciate the real value of our wild resources.

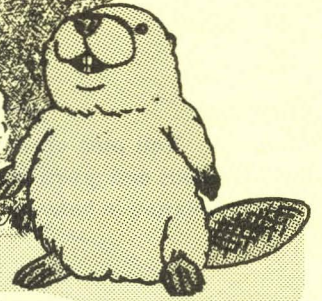
Joyce earned degrees in wildlife and elementary education at the University of Minnesota. Before coming to Fish and Game, she served as a teacher and elementary education environmental consultant for the Mason City, Iowa school district.



JOYCE HARMON

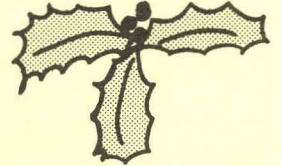
# NATURE'S NOTEBOOK

by  
Joyce  
Harmon



Wildlife-Education Coordinator  
KANSAS FISH & GAME COMMISSION

As you ready yourselves for the holidays, don't forget the wildlife in Kansas. Here are a few ideas that will help you celebrate with your feathered and furred friends:



## "A CHRISTMAS TREE FIT FOR BIRDS"

You have a tree indoors — why not an outdoor tree, too? Try decorating an existing tree or shrub with some of the "ornaments" listed below. They're good for the birds any time of the year. Quantity of ingredients in seed mixture depends on what you have on hand, what kinds of birds you want to attract, and the number of ornaments you want to make.

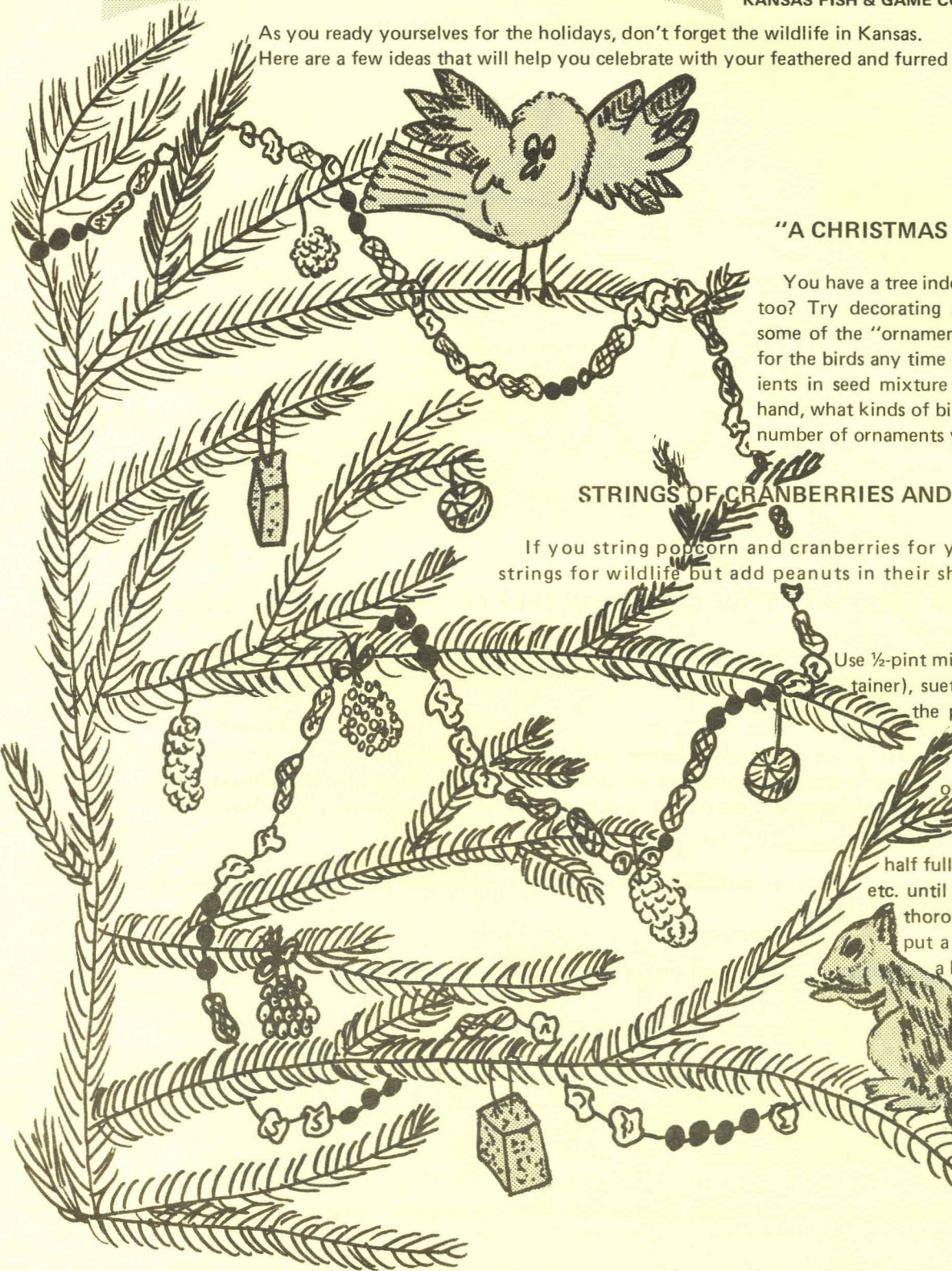
### STRINGS OF CRANBERRIES AND POPCORN

If you string popcorn and cranberries for your tree, make a few extra strings for wildlife but add peanuts in their shells.

### SUET CAKES

Use ½-pint milk cartons (or similar sized container), suet, and the same mixture (minus the peanut butter) as used for the Pine Cone Feeders.

Melt the suet in a double boiler or an old can. Pour the melted suet into the milk cartons until the cartons are about half full. Add seeds, rice, bread crumbs, etc. until the cartons are nearly full. Mix thoroughly. While the suet is cooling put a twisted pipe cleaner in to form a handle. The suet should be hard in four to eight hours. Peel away the milk carton and hang your suet cake on a branch. A variation of this same idea is to pour the mixture in empty halves of oranges and grapefruits. These may be suspended with yarn or a pipecleaner.



## PINE CONE FEEDERS

Roll pine cones in a mixture of bird seed, bread crumbs, cornmeal, oatmeal, rice and peanut butter. The seeds and grains make the peanut butter less sticky and easier for the birds to eat. Use your fingers to tuck the mixture in between the pine cone scales. Hang the cone by attaching a piece of yarn or string.

## COOKIE CUTTER ORNAMENTS

Use cookie cutters on stale bread to form ornaments. You might add peanut butter on one side and make a sandwich. Hang these with string or yarn. You can also hang assorted, shaped crackers by stringing thread through their holes.

### STRAWBERRY POPCORN

The chickadees enjoy strawberry popcorn tied in a bundle on a tree. Bunches of cranberries, firethorn (or pyracantha) berries, mountain-ash berries, and other fruits add color to your tree and wildlife certainly finds them a nice treat.



### KEEP FEEDING

Once you start feeding the birds, please continue. Many of them come to depend on you. They also bring a lot of cheer through the cold, drab winter months.



## WHAT TO DO WITH YOUR CHRISTMAS TREE AFTER CHRISTMAS

Instead of discarding your tree, why not donate it to wildlife? An old tree can be piled with others or even alone, and be useful as a windbreak and cover for animals. Join your neighbors in a brush pile effort and enjoy watching the animals you attract.

For that hard-to-buy-for person on your list, consider purchasing a tree or shrub (to be planted in the spring or fall). Some that are equally attractive to humans and animals are: pyracantha (firethorn), dogwood, elderberry, russian-olive, holly, wild cherry, mountain-ash, crabapple, hawthorn and snowberry. (Check with your local nursery for availability).

Other gift ideas are: a bird feeder or birdhouse, books on wildlife and outdoor activities, or a gift subscription to KANSAS WILDLIFE magazine.

## ART PROJECTS USING FEATHERS FROM GAME BIRDS

Glue small feathers on the base of scotch, red or jack pine cones to make a turkey. Add pipe cleaners for wattles and eyes.

Use feathers for an attractive addition to a weaving or macrame project.

Glue feathers onto a picture for a 3-D effect.



(REMEMBER: These feathers must be from birds that are taken legally.)



Write message here -

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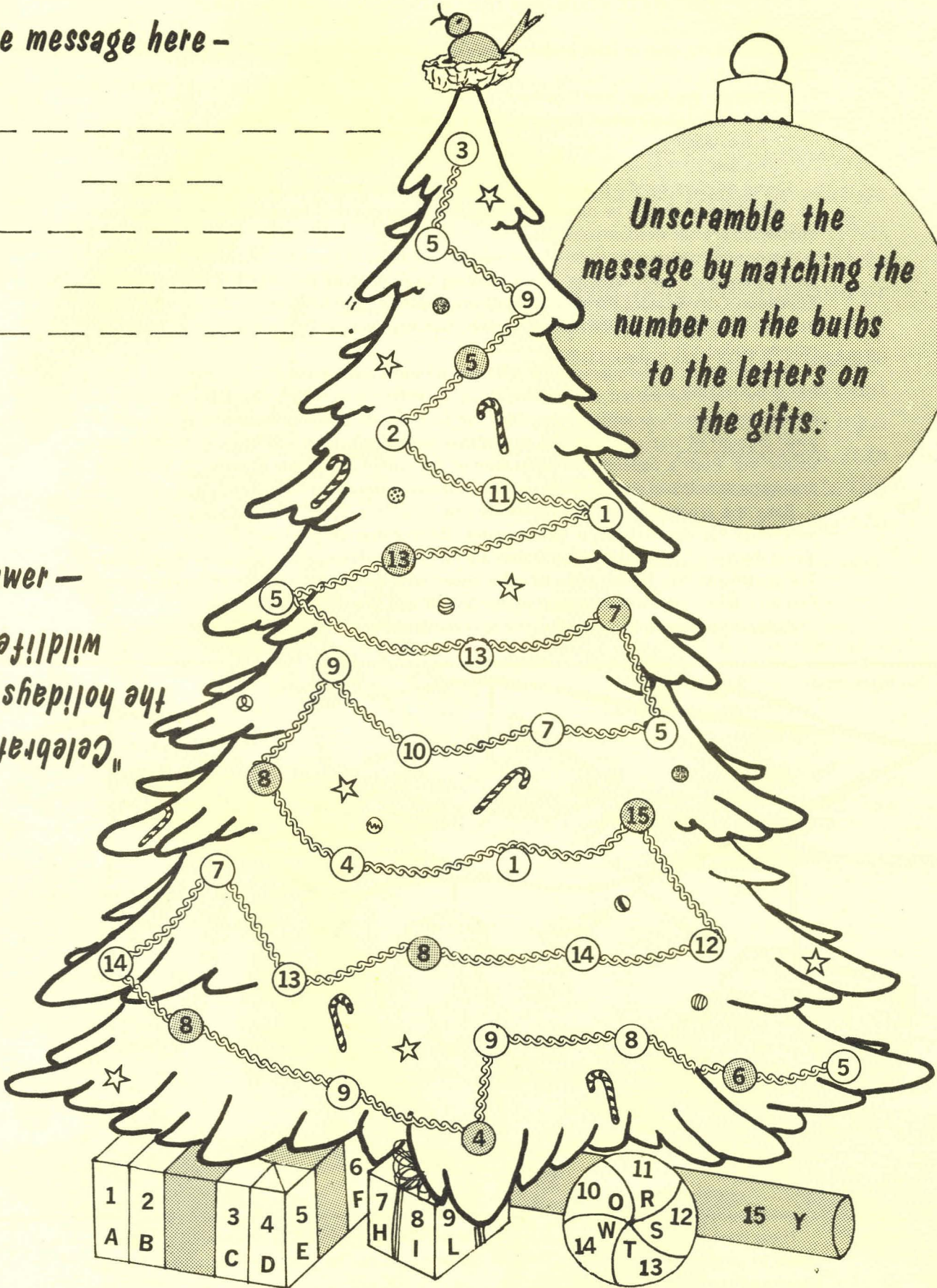
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Unscramble the message by matching the number on the bulbs to the letters on the gifts.

Answer -

"Celebrate the holidays with wild life!"



|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
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# WILDLIFE DOUGH ORNAMENTS

DECORATE YOUR OWN TREE WITH ANIMAL CHARACTERS!

For a fun family, club or class project, here's one holiday recipe that's NOT fattening and sure to be a hit!

To prepare the dough, mix together:

4 c. flour (whole wheat produces brown cookies)

1 ½ c. water

1 c. salt

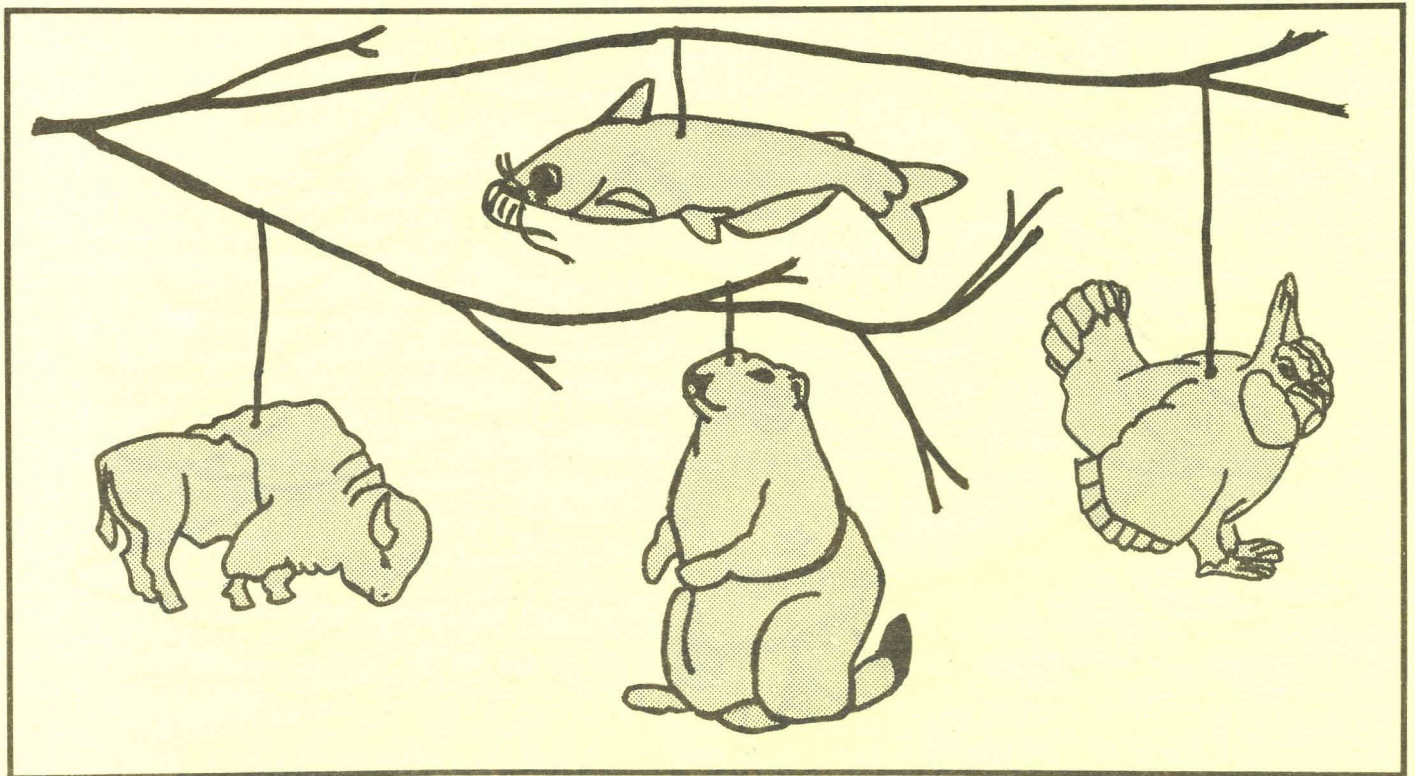
Knead mixture for 4 - 5 minutes. A small amount of water can be added if the dough is too stiff. The dough can be molded or rolled flat for cutout cookies and will produce approximately 35 average-sized ornaments.

Form your dough into some of the wildlife in Kansas or use a cardboard pattern for cut-outs. Draw your own patterns, use a coloring book or write to: Joyce Harmon, Wildlife Education Coordinator, Kansas Fish & Game, Route 2, Box 54A, Pratt, Kansas 67124 for patterns of buffalo, prairie chicken, catfish, and prairie dog. Designs with little detail are recommended.

Roll dough to a one-quarter inch thickness on wax paper. Trace the pattern with a knife. Carefully place the cutout on a cookie sheet. Draw details of the animal on the cookie with a toothpick, pencil, or knife. Corrections can be made by gently pressing the dough with a small amount of water. Details can be omitted until after baking and added with paint, felt scraps, etc. Push a paperclip or other wire in the top of the cookie in order to hang your ornament. A hole can also be made and the ornaments hung with yarn or ribbon.

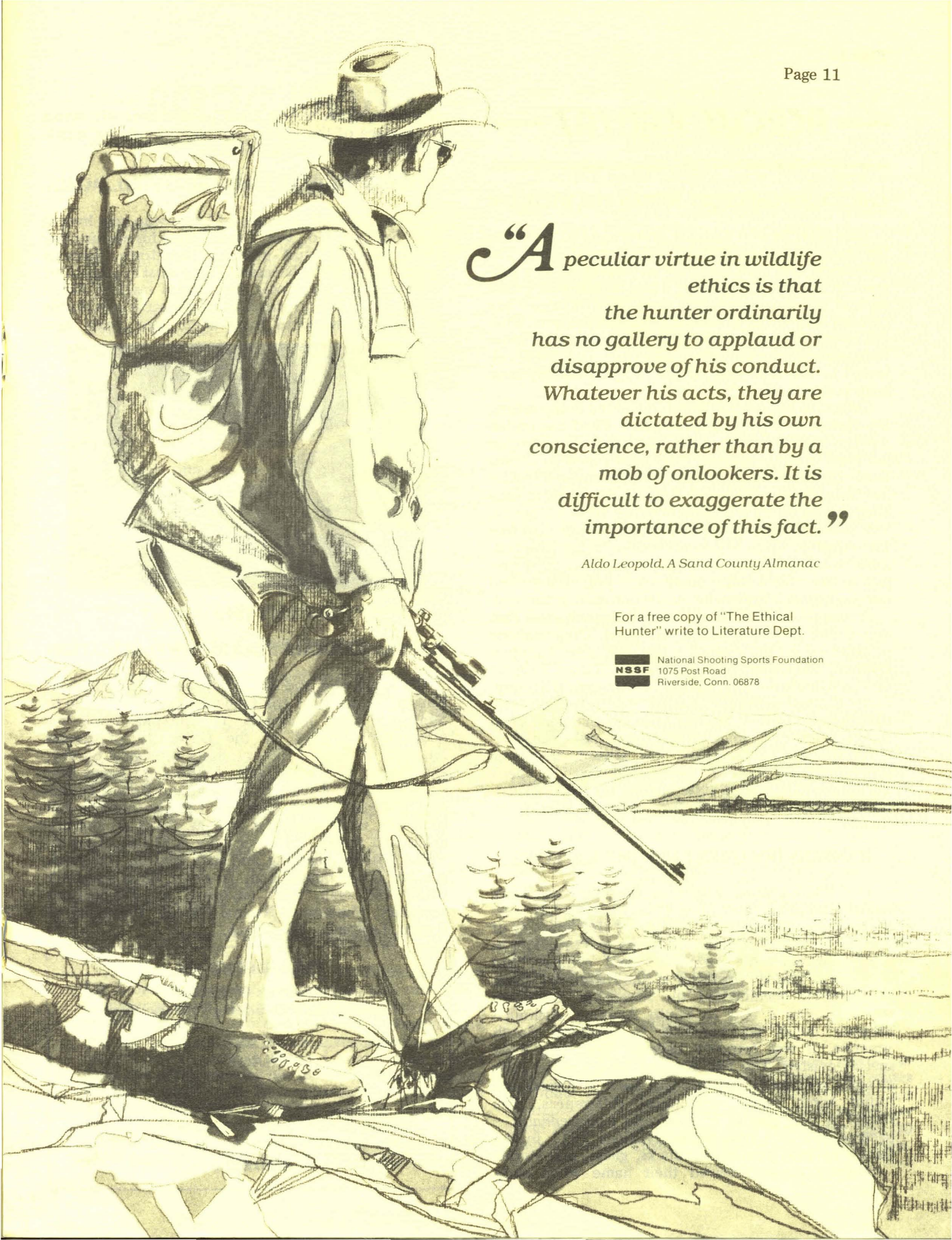
Bake the ornaments for approximately one hour in a 350°F (preheated) oven, or in a microwave for approximately two minutes. (Microwaves tend to puff up the ornaments giving them a 3-D effect.) Bake until they are no longer soft when touched. Cool the cookies. The ornaments may be left plain or color added with watercolors, poster or acrylic paints. Felt tip markers can be used instead of paints or to add fine details.

Spray ornaments with a clear fixative to preserve them.



These cookies are not edible but, you could use your patterns and a favorite cutout cookie recipe to produce edible cookies. Icing or edible paints can be used for decoration and the cookies can be hung with ribbon or yarn.

When the holidays are over, your ornaments are still appropriate in the form of a mobile, or they can be packed away for next year.



*“A peculiar virtue in wildlife ethics is that the hunter ordinarily has no gallery to applaud or disapprove of his conduct. Whatever his acts, they are dictated by his own conscience, rather than by a mob of onlookers. It is difficult to exaggerate the importance of this fact.”*

*Aldo Leopold, A Sand County Almanac*

For a free copy of "The Ethical Hunter" write to Literature Dept.

**NSSF** National Shooting Sports Foundation  
1075 Post Road  
Riverside, Conn. 06878

# — ACROSS KANSAS —

## CHICKADEE CHECKOFF WORKS FOR WILDLIFE

Last year, 24,000 Kansans gave around \$127,000 to the state's Nongame Wildlife Improvement Fund. The thousands who gave launched an important new program in Kansas. By checking a box on last year's state income tax form, taxpayers were allowed to give any amount they chose to nongame wildlife projects. Wildlife lovers throughout the state are hoping even more Kansans will join the effort this year. The funds collected in the first year of the program already have been put to work.

To insure responsible decision-making in the future, the Nongame Wildlife Improvement Fund has underwritten studies of the status and needs of numerous nongame wildlife species, from bald eagles to chorus frogs. Research on threatened and endangered species has been greatly enhanced. Preliminary work to establish nature parks and trails in urban areas has begun. The funds helped pay for distribution of low-cost tree and shrub seedlings to persons wishing to improve nongame wildlife habitat on their property. A pilot project to improve wildlife observation potential around nursing homes is underway. And much more is planned.

A nine-member advisory council assists Kansas Fish and Game in administering the fund. Organizations represented on the council include: Kansas Audubon Council, Kansas Wildlife Federation, Kansas Chapter of The Wildlife Society, Kansas Ornithological Society, State Biological Survey, Kansas Wildflower Society, Kansas Farm Bureau, Kansas Academy of Science, and Kansas Advisory Council on Environmental Education.

As the 1981 tax season has arrived, taxpayers throughout the state are being encouraged to check the appropriate box on state income tax forms to continue much-needed work for nongame wildlife in Kansas.

## KANSANS DOCUMENT NEW DUCK SPECIES

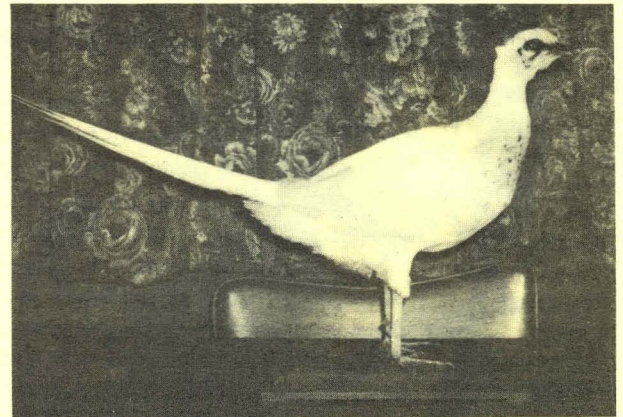
The White-headed Flightless Steamer can thank Philip Humphrey and Max Thompson for its newfound fame. Humphrey, director of the Museum of Natural History at Kansas University and professor in the department of systematics and ecology, and Thompson, biology professor at Southwestern College in Winfield, documented the heretofore unknown species during a visit to South America. Although Steamer ducks are common in southern South America, it was formerly believed that only three species existed. The two Kansans took a closer look at some specimens they brought back to Kansas and found some major anatomical differences. The result? A new species — *Tachyeres leucocephalus* — became the first new discovery since 1917 in the family of fowl comprising ducks, geese, and swans.

Steamer ducks received their name when early

observers, upon seeing them paddle furiously across the surface of the water, compared the ducks' movements to sidewheel steamer ships.

## LUCAS REGION YIELDS ALBINO BIRD...AGAIN

Loren Schmidt, a native of Lucas who now lives in Lee's Summit, Mo., won't soon forget his opening day 1981 pheasant hunt near his hometown. Schmidt bagged a rare white pheasant. There must be something special about the Lucas area. Lucas resident Eldon Reh took an albino pheasant in the same area during an opening weekend hunt there two years ago.



*Eldon Reh's 1979 "trophy"*

## KANSAS MAMMALS STAR IN NEW PUBLICATION

It's brand new and hot off the press. "Mammals of Kansas" is the most comprehensive guide available to Sunflower State mammals. The 300-page book is a cooperative project of the University of Kansas Museum of Natural History, State Biological Survey, and Kansas Fish and Game. Authors are James Bee, Gregory Glass, Robert Hoffmann, and Robert Patterson. Included in the book are 124 photographs and scores of range maps, as well as charts to identify skulls and tracks. Price per copy is \$13.65. That includes postage, handling, and state sales tax. The book is a non-profit publication. To order, fill in the blank below and mail, with payment, to: Publications Secretary, Museum of Natural History, University of Kansas, Lawrence, KS 66045.

PLEASE SEND ME  
*Mammals Of Kansas*  
 Payment (\$13.65 per copy) is enclosed.

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NAME

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ADDRESS

# — ACROSS KANSAS —

## LEGISLATIVE CHANGES SOUGHT BY FISH & GAME

Kansas Fish and Game officials would like to see a few changes made in the laws governing operation of the state agency. Some of the legislative proposals the agency will pursue in the 1982 legislative session are primarily "housekeeping" bills that would simplify or streamline agency operations. Others are important and much needed legislation to broaden the agency's financial base or to remove impediments to efficient service to Kansas sportsmen. Following are eight proposals the agency plans to support in the coming session of the Kansas Legislature:

### *Credit Interest Revenue*

The bill proposes to credit to the Fish and Game Commission any income or interest earned from investments of Fish and Game Fee Funds. Currently, all interest from the fee fund is credited to the State General Fund, of which the Commission gets no part. This amounts to between \$250,000 and \$500,000 per year. Since Fish and Game relies on license revenues, and receives no revenues from the state, it is felt this change would improve our use of sportsmen's dollars.

### *Public Area User Fees*

This bill would provide authority to Fish and Game to issue user fee permits on state lakes and wildlife areas. Currently, about one-third of the users of state lakes and wildlife areas, are non-paying users; they use the areas but do not purchase hunting or fishing licenses, the source of maintenance and operation revenues for the Commission's public areas. Persons under 16 years of age and persons possessing current hunting, fishing, or trapping licenses would not be required to purchase a user fee permit. Cost of the permit would be not less than \$2 nor more than \$5. The Commission believes the system would provide a more equitable way of providing revenues needed for upkeep of these areas.

### *Furharvester License Education*

This measure would simplify the licensing system for furbearer trappers and hunters, and establish a training program for young trappers. Currently, a hunting license is required to hunt furbearers and coyotes and a trapping license is required to trap furbearers and coyotes. A licensed hunter who takes a furbearer under existing law must purchase a trapping license to sell the pelt. The proposed bill would require a single furharvester license for trapping, hunting, or sale of furbearers or coyotes. The bill also would create a mandatory furharvester education course for all individuals born after July 1, 1965. The education

course would be similar in scope to the hunter education program implemented in 1973.

### *Temporary Boat Permits*

This bill would provide for a 30-day temporary boat permit, allowing a new owner to use his boat while the permanent registration is being processed. Currently, a boat buyer can obtain a ten-day temporary permit but it sometimes takes two weeks or longer to process a permanent registration. The bill also would make temporary permits more widely available. Currently, the permits are available only from boat dealers, but the proposed change would also allow Fish and Game's director to authorize Fish and Game offices, sporting goods stores, and selected other businesses to distribute the permits.

### *Game Protectors' Authority*

The proposed bill would give full law enforcement authority to State game protectors on Fish and Game owned or controlled areas. Existing law limits game protectors' authority to violations of fish, game, and boating laws only. The game protector's primary duty, enforcement of Fish and Game laws and regulations, would remain unchanged but the proposed change would extend their authority to other violations they may encounter on Fish and Game lands.

### *Deputy Game Protectors*

This proposal would authorize the director of Kansas Fish and Game to appoint certain full-time, non-law enforcement Fish and Game personnel to perform as deputy game protectors. Currently, there are only 67 game protectors in the entire state. During high use periods, such as opening weekend of pheasant season, the number of game protectors available is far short of the need. The proposed bill would allow Fish and Game to supplement the ranks of state game protectors with deputy game protectors who would receive a shortened version of the Law Enforcement Academy training required of full-time game protectors.

### *False Representation To Obtain License*

This proposal would prohibit purchase of a trapping license or any fish and game permit by false representation. Currently, existing statutes address only fishing and hunting licenses. The proposal would expand the law to include trapping licenses and big game permits, which are not addressed in existing law.

### *Possession of Game*

This proposed bill would allow any person to possess or store game legally taken from other states without time limitation. Under existing law, for example, a person who takes wild turkey in another state cannot legally possess such game more than 30 days following closure of the season in that state.

# GUEST SPEAKER

## ARMED WITH HISTORY

By Dr. Joyce. L. Malcolm

IT HAS BECOME fashionable for many editorial writers to devote themselves to amassing evidence that the Constitution does not guarantee any individual right to own guns. Their advice to all those who have no "enthusiasm for cities brimming with handguns" is to arm themselves with history. As a historian I applaud this recourse and as a legal and constitutional scholar I agree that history is the surest guide to the intent of the framers of our Constitution and Bill of Rights. Unfortunately, historical facts, like any other, can be selected to justify a particular viewpoint and even with the best of intentions it is difficult to present an accurate account of the Second Amendment. Despite the heated controversy over gun control, the origins of that amendment are only just beginning to be studied and many misconceptions are still widespread. Two of the most common are the notion that carrying weapons in this country stemmed from the needs of the frontier, and the belief that the militia constituted only a select group.

THE AMERICAN tradition of an armed citizenry did not originate with the need for pioneers to protect themselves from Indians or wild animals, let alone from the "Wild West, every-man-for-himself myth." It was an integral part of the common law tradition early settlers brought with them, a tradition not only of self-reliance but of community defense. The common law was very specific about the peace-keeping duties of the average citizen. Every man was expected to protect himself and his family and to defend his community and his country as well. If he chanced to witness a crime he was obliged to raise a "hue and cry" to alert his neighbors. He then had to join with them in hot pursuit of the culprit. Failure to do so could mean a fine or imprisonment. Moreover, as an additional incentive to residents to police their parish, they had to reimburse the victim of any theft there for half of his loss. Every householder also had to take his turn guarding his village by standing watch at night or ward during the day. When larger-scale problems such as riot or rebellion erupted he could be called upon to join the sheriff's posse, the forerunner of our Western tradition. For all these duties he had to have weapons at the ready and be practiced in their use. In addition to his local responsibilities, every able-bodied man between the ages of 16 and 60 was liable for militia duty and all Englishmen, even the clergy, were assessed for weapons for the use of the militia. To keep their subjects in fighting trim, British kings ordered villages to maintain targets on their greens where men could

practice shooting on Sundays and other holidays. Obviously all these duties were a nuisance, but to most Englishmen of the period they were unquestionably preferable to the danger of oppression from an army of professional soldiers. Standing armies were considered the tool of tyrants, militias the hallmark of free men. It was this tradition of community defense and the citizen militia that the Second Amendment aimed to protect.

THIS BRINGS ME to the second, and perhaps more serious area of confusion, the meaning and use of "militia" in the wording of the Second Amendment. The text of the amendment reads: "A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms shall not be infringed." According to many editorial writers, "armchair cowboys" ignore the reference to a militia which these writers contend is "the focal point" of the amendment. They then suggest that we ignore the main clause, "the right of the people to keep and bear Arms shall not be infringed" because they have concluded it was an "afterthought." With all due respect, it seems highly unlikely that the astute framers of our Constitution inserted any portion of its first ten amendments as an afterthought. It is far more likely that they included both portions of the Second Amendment intending that neither should be ignored. Indeed, when the meaning of "militia" is properly understood it is clear that both sections are inextricably connected. But even if, for purposes of argument we concentrate on the militia, we are brought back immediately to the necessity for an armed population. After all, who were the militia? In England its members were all able-bodied men; in America, according to George Mason, "They consist of the whole people," an understanding held by Patrick Henry, Richard Henry Lee and others. In 1792 when the young American republic passed a militia act it specifically defined the militia as "every free, white, able-bodied male." The states did not want the national government to disarm the militia. Further, each man brought his own rifle to the militia musters. Therefore, the way to ensure the continuation of the citizen-militia was to do precisely what the framers did, to assert the need for a militia to protect freedom and then insist that the people, who as a body were the militia, not be deprived of their right to keep and bear arms. The insertion of the phrase "well-regulated" merely indicated that the militia force ought to be properly trained and thus an effective source of defense. In short, the Second Amendment was very much the product of the common law tradition of community self-help and reflected the passionate preference for a citizen-militia over a professional army.

One may or may not agree with the wisdom of the Second Amendment as it was drafted, although its authors clearly believed it necessary, but it is imperative that in discussing its relevance to our modern world we do not first distort its historical meaning and intent. As the justices of the Supreme Court of Oregon wrote of their state's right to bear arms in a decision of July 1980:

We are not unmindful that there is current controversy over the wisdom of the right to bear arms, and that the original motivations for such

a provision might not seem compelling if debated as a new issue. Our task, however, in construing a constitutional provision is to respect the principles given the status of constitutional guarantees and limitations by the drafters; it is not to abandon these principles when this fits the needs of the moment.

*Dr. Joyce L. Malcolm is a Professor at Radcliffe College and a current Fellow at Harvard Law School. She spent four years working at Oxford and Cambridge Universities in Great Britain.*

## = SHORT = STUFF

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**FERRET FIND** — The only positively known living black-footed ferret has been captured alive in Wyoming and outfitted with a tiny radio transmitter so that federal wildlife biologists can learn more about the habits of these secretive, nocturnal animals. The ferret is the first taken in the wild since 1973, in spite of intensive searches by federal and state biologists in a number of western states. The animal is a male judged to be no more than two years old. During the four-to-six-month life of the transmitter, biologists hope to gather information on daily and seasonal activity patterns, the amount of time it spends in burrows, its feeding activity, and whether it is nomadic. The exact location of the ferret's capture is being withheld to avoid disturbance to the landowners and to the scientific work.

**APPOINTMENT APPLAUDED** — The National Wildlife Federation has hailed the nomination of Robert Jantzen to head the U. S. Fish and Wildlife Service as a "victory for professionalism over politics." Dr. Jay D. Hair, executive vice president of the Federation, described Jantzen, former director of Arizona's Fish and Game Department, as "well qualified for the job — a far better choice than the candidate put forward by the White House last summer." Hair was referring to the fact that last June — after Jantzen had been slated for the Fish and Wildlife Service job — the White House changed signals and announced its intention to nominate Dr. Norman C. Roberts, a Reagan supporter and licensed veterinarian who has worked as an investment counselor the past 23 years.

**INDUSTRY, CONSERVATIONISTS COOPERATE** The abundance of fossil fuels located in the West's Overthrust Belt — which stretches along the Rocky Mountains from Canada to Mexico — is certain to make that area the site of an increasing amount of oil and gas exploration. Recognizing that the area is

also home to an abundance of wildlife, representatives from industry, the state of Wyoming, and conservation organizations have joined in an unusual agreement to study what impacts development in the Overthrust Belt may have on wildlife. Negotiations among the Overthrust Industrial Association (OIA), which represents 37 energy firms; the National Wildlife Federation; the Wyoming Wildlife Federation; the federal Bureau of Land Management; and the state of Wyoming resulted in an agreement to conduct a three-year, \$800,000 wildlife study, to be funded by the OIA.

**CRANE STATUS** — Four whooping crane chicks were raised in wild and captive flocks in 1981, a year which may see a slight population decline despite intensive research to propagate the endangered species. The highlight of this year's research is a first-time effort by the U. S. Fish and Wildlife Service and the Canadian Wildlife Service to radio track the main flock on their 2,600-mile fall migration from Canada's Wood Buffalo National Park to the Texas Gulf Coast. The Wood Buffalo flock produced three chicks this year during an exceptionally dry nesting season that saw increased egg losses to predatory animals.

**SPONSOR SWITCH** — Gulf Oil Corporation has assumed sponsorship of a 27-year-old national conservation awards program that honors individuals and non-profit organizations dedicated to conserving natural resources. The program, founded by American Motors in 1953, will be called the Gulf Oil Conservation Awards Program. Nationally-known outdoor writer Ed Zern will continue as program director.

**FINANCIAL PROBLEMS** — Twenty-one of the nation's 50 state fish and wildlife agencies are lacking the funds necessary to keep their conservation programs running effectively, and some have been forced to cut back on programs and personnel, according to a National Wildlife Federation survey. The bulk of

revenue which funds state fish and wildlife agencies comes from sale of hunting and fishing licenses. However, the NWF pool revealed that in 21 states, despite strong support from hunters and anglers who would be paying the higher fees, the agencies have had trouble getting legislative approval for license fee increases. Many state agency officials blamed their problems on lawmakers who are more concerned with their own political advantage than with wildlife conservation programs.

**GOING, GOING, GONE** — The Tecopa pupfish has become the first species to be removed from the endangered list because it is extinct. The U. S. Fish and Wildlife Service made the announcement after no Tecopa pupfish were found in spite of extensive searches by federal, state, and university biologists in more than 40 localities near Tecopa, Calif., where the fish could possibly have existed. The unique desert fish, native to California's Death Valley system, was known to have lived in only two outflow springs of the Amaragosa River system. It is thought to have disappeared because of alteration of its habitat and possibly also as a result of the introduction of competing, non-native fish.

**CLAYBIRD POSTAL LEAGUE** — Youth trap and skeet teams from around the country now have the opportunity to compete on a nationwide basis by participating in the Central Missouri State University Clay Target Postal League sponsored by the National Shooting Sports Foundation. Designed to provide low-cost organized league competition in both trap and skeet, the Clay Target Postal League is open to collegiate teams, secondary school teams, and non-scholastic youth groups. Teams are placed in categories with other teams of comparable ability. All scoring is handled through a computer at Central

Missouri State University. More information on the League is available by writing to: John Whitehead, Director of University Union, Central Missouri State University, Warrensburg, MO 64093.

**MAASS WINS AGAIN** — David A. Maass, a prominent Minnesota waterfowl artist, has won the 1982-83 federal "Duck Stamp" competition with his oil painting of three canvasback ducks flying over water. This becomes the second win for Maass in the U. S. Fish and Wildlife Service's annual contest. In 1973, he took first place for his oil painting of wood ducks in flight, and his design was reproduced on the following year's Migratory Bird Hunting and Conservation Stamp, popularly known as the "Duck Stamp." This year, Maass' design topped a record 2,099 entries in judging ceremonies at the Department of the Interior. The winning entry will appear on the next stamp, which must be purchased by all waterfowl hunters 16 years of age and older.

**WILDLIFE LAW TOUGHENED** — President Reagan has signed into law legislation that doubles fines and increases other penalties for violating the Lacey Act, the nation's oldest and most basic wildlife protection law. The Lacey Act makes it illegal to transport in interstate or foreign commerce any wildlife that is taken, possessed, bought, or sold in violation of the laws of state or other countries. The Lacey Act was originally passed in 1900 to curb market hunting and to help states protect their wildlife against interstate and foreign trade. Under the new amendments, violators charged with serious offenses now face possible felony charges with maximum fines of \$20,000 and jail sentences of up to five years. Conviction on misdemeanor charges now can bring a \$10,000 fine and a one-year jail term.

YES I'D LIKE MORE INFORMATION ON WILDTRUST

\_\_\_\_\_  
NAME

\_\_\_\_\_  
ADDRESS

*There are many causes to support these days. We can't think of a better one than the land itself. Kansas lies smack in the middle of some of the richest land in the world. That richness shows in the bountiful fish and wildlife resources we enjoy. Wild creatures are more than just a reflection of the land's bounty; they are a valuable part of the land. WILDTRUST provides a way you can contribute to a healthy and diverse natural environment. What better contribution can one make than to the future? What better cause can we support than a quality environment for ourselves... our children... and our grandchildren?*

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## Wildlife through an artist's eyes

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**Jerri Speer, featured artist  
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Some things never change, including change itself. The earth is unique among the countless celestial bodies coursing the universe in that it harbors abundant life, and the hallmark of life is constant change. Ups and downs, ascents and descents, booms and crashes, expansions and contractions, actions and reactions. The dynamic nature of living things guarantees a little of each in the allotted span of every living organism.

The basic physical factor in our environment—climate—is changing from minute to minute, season to season, year to year, century to century. On a broader scale, the paleontological record informs us that there have been enormous changes in climate over the ages. With each change there has been an ebb and flow in the fortunes of wildlife populations, with many species relegated to extinction while others have adapted and moved elsewhere to find more hospitable living conditions. Some have adapted well, establishing themselves across a wide range. Others have shrunk to isolated populations whose specific needs are so restrictive that their range is limited.

While the flora and fauna of the earth have been subject to phenomena such as glaciation and mountain building episodes the compelling factor determining their range and distribution today is, of course, man. Over the past two centuries in North America, the creatures able to adapt to man's use of the land have thrived.

The range of the bobwhite quail in Kansas today illustrates the adaptability of this species. When European man first crossed Kansas, bobwhite habitat was found mainly along brushy creek bottoms and in the

mixed brush and grass east of the Flint Hills. When the sod was broken, all of that changed. Vast expanses of grasslands were exchanged for a patchwork of fields, fencerows, road ditches, and grass that suited bobwhites well. They responded by expanding their range west and north and becoming much more common in their original strongholds in the state. Although bobwhites still reach their greatest density in eastern and central Kansas, they have been found in every county in the state. Those that exist in the western third are more vulnerable to physical factors such as weather, nearly disappearing in years of severe storms or harsh

## New Frontiers, Last Stands

*Bob Mathews*

*Photo by Ron Spomer*



winters. Such fluctuations are common in quail populations that live on the fringe of the species' main range.

The subduing of the prairies by nineteenth century settlers changed the vegetation on millions of acres, drastically reducing the plants that supported native wildlife. By the time that happened, however, it was a predictable pattern. The clearing of eastern forests to create farmland in the eighteenth century greatly reduced the range of species that relied on forest habitats. Wild turkey, moose, otter, black bear, lynx, and cougar were reduced to remnant populations.

The grazers that dominated the Kansas landscape—bison, elk, and pronghorns—were among the first to go when Kansas was transformed to fit the human design. The wildlife associated with the grazers were reduced proportionately. When bison no longer trampled the ground and clipped the grass in their prairie-blackening numbers, the formerly widespread prairie dog towns disappeared over wide areas. Wolves declined rapidly as the bison herds—a primary food source—



disappeared and human efforts to eradicate wolves succeeded.

Those creatures which could adapt did well. Some species of wildlife in this country have pushed the limits of their range outward dramatically from the more stable historical limits. Cottontails, crows, meadowlarks, fox squirrels, flickers, skunks, coyotes, red fox, opossums, and raccoons are among those able to take advantage of the changes wrought by man.

Coyotes provide one of the best examples of opportunism on four legs. Originally occurring in modest numbers throughout western North America, the coyote population in this country has spread far to the north and east as their living conditions have been vastly improved. Before settlement of this country by European man, coyotes were partially held in check by the more dominant wolf. As wolves were being wiped out over much of their range, however, the prospects for coyotes were improving. The scourge of rodents that accompanied conversion of native fauna to agricultural crops and overgrazing of ranges, as well as the carcasses of domestic stock, provided an unprecedented food supply for coyotes. They now occur as far east as Maine and New York and still appear to be expanding their range.

Raccoon populations in the past few decades have expanded into areas they formerly did not occupy. They now range far into Canada and may owe that extension to their own omnivorous feeding habits and

their ability to rear their young in either a ground den or hollow tree.

At the other end of the "adaptability scale" are many creatures whose needs are so restrictive that they are dangerously vulnerable to land use changes. The ivory-billed woodpecker, which is now believed extinct in the U.S., was a victim of the combined influences of its own specific needs and the changes in land use on this continent. Since this species relied mainly on beetle larvae in *recently* dead trees, its fortunes waned as large tracts of mature timber disappeared over its original range. Most other woodpeckers accept a broader variety of larvae that may inhabit dead trees for years after the death of a tree. Presumably, their future is relatively safer for that reason.

Lack of nesting habitat plays a big part as a limiting factor among many creatures. Cavity-nesting birds—those which rely on dead and decaying trees in which to hatch their young—are vulnerable to timber destruction. One example is the wood duck, a cavity-nesting bird that was quite rare a few decades ago and believed headed for extinction. Their numbers and range were greatly reduced before more enlightened timber use and manmade substitute nests—wooden nesting boxes placed in and around marshes—aided their comeback.

Occasionally, a species will undergo a dramatic change in its range which cannot be easily explained. The cattle egret, historically an Old World bird that

Coyote

Ed & Jean Schulenberg



ranged through parts of Europe and Africa, has established itself in the western hemisphere and appears to be expanding its range. It is believed that numerous individuals of the species were moved with the help of storm winds from Africa to South America sometime during the late 1940s. They presumably then worked their way to Florida and now regularly breed along the southern coast from North Carolina to Texas.

The steady northward advance in the past century of armadillos is another phenomenon not fully understood. Before the 1850s armadillos did not occur in the U.S. They were first recorded in this country in 1854 when several individuals were found in extreme southern Texas. They have spread steadily northward and eastward from that point and now are seen occasionally as far north as central Kansas. Because of the armadillo's unique appearance, it has been suggested, they probably have been aided by people who encounter them in the southern U.S. and transplant them outside their normal range.

Manmade changes in the Kansas landscape have been responsible for the range extensions of several species of birds. Kansas is the focal point of numerous shifting ranges simply because of its geographic location on the North American continent. The change in habitat from the eastern deciduous forests to the prairie runs roughly along the eastern edge of Kansas' Flint Hills. The tree-scarce plains region was once a natural barrier to most woodland species but urbanization, planting of trees, and encroachment of trees and woody plants by suppression of fire has offered more eastern woodland birds suitable habitat in areas where it never existed before.

A classic example of a species that has expanded as a result of those changes is the flicker. As trees have been established on what was formerly uninterrupted prairie, the yellow-shafted flicker has expanded its range westward. Its western cousin—the red-shafted flicker—has simultaneously expanded eastward. Tanagers, wood thrushes, and catbirds are other examples of woodland species which have taken advantage of the increased habitat available.

Establishment of lakes and reservoirs has also been responsible for some shuffling of fish and wildlife ranges. With construction of numerous ponds, lakes, and reservoirs, the living conditions for species of fish which occupy quiet water have become commonplace. Sunfish, catfish, and suckers have spread westward into areas which had little or no surface water historically. Sliders and snapping turtles are now commonly found around impoundments in the High Plains region of Kansas, an area particularly unsuited for those creatures in its pristine state. During wet years, there are always wanderers among those water-associated creatures which move beyond the limits of their former ranges. Once they locate a lake or other impoundment with a reliable supply of water to support them, they

become permanently established.

Before man gained the mobility which characterizes our lives today the wildlife of the world was separated by physical barriers. Mountains, deserts, and oceans served to isolate one life complex from another. But our mobility, combined with a restive inclination to reshuffle the world's fauna and flora, has in the past two hundred years introduced a more direct man-induced impact on wildlife ranges.

Intentionally, and sometimes unintentionally, animals have been transported with man as he colonized new areas of the world. European immigrants to North America commonly transported Old World wildlife to the New World. Usually, the introduced species were birds valued for sport, food, or aesthetic reasons.

Few introductions were documented until the era of the "acclimatisation societies" in the late 1800s and early 1900s. These groups existed primarily to promote and actively undertake establishment of species which were not native to this part of the world. Well over 100 species of birds have been introduced into North America in the past 100 years. More often than not the introductions failed; the introduced creatures were simply unable to establish themselves in their new environment. The few that have survived, however, have shown how certain highly adaptable creatures can quickly populate and expand their range.

Starlings and house sparrows were introduced birds which have now successfully established themselves throughout most of the country. House sparrows also have been introduced into South America, where the species has enjoyed similar success and is moving northward.

The dangers of introduction of exotics into new environments has been recognized, however, and international trade in wild plants and animals is strictly regulated today. Transplanting of wildlife still occurs, however, in projects aimed at re-establishing native species to areas from which they were extirpated. Trapping and transplanting of pronghorns and wild turkeys in Kansas in the past twenty years is a well-known technique that has restored those two native species to much of their original range in the state.

We've been fortunate to see the return to their former range of several species of wildlife once thought headed for extinction. We also have seen the finality of extinction for some species unable to cope with the changes forced upon them. The fragile chain of interdependence among the various forms of life on earth shows in the changing composition and distribution of wildlife. We owe it to ourselves to apply the lessons we have learned about those relationships to an enlightened stewardship of the earth. Our greatest challenge is to adapt our way of life to better fit the natural scheme. The dynamic ebb and flow of wildlife populations have shown us, after all, that to adapt is to live.

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**H**unting prejudices, like any other kind, I guess, start early. Most rabid dog men I know were whelped with a litter of promising setters and have never gone afield without a well-mannered dog. To their minds, there's no other way to hunt. They can't conceive of stumbling into a covey without warning; quail—for that matter, all upland birds—are to be shot over a steady pointing dog who stands well to the flush and marks the downed birds without a slip.

I was brought up a little differently. In our house, there was always a setter of august lineage who fetched the paper when it pleased him and had an unerring nose for a bitch in heat. He spent his mornings on the front lawn pointing robins; Dad would look out over the breakfast table and comment in a proud tone to my mother, "Look at THAT." Mom was never much impressed.

When the old man laced up his boots and cased his

double gun on an autumn Saturday, the dog was usually down the street digging gophers out of a neighbor's yard or investigating the day's garbage. While Dad called for him, I sat by the gun and whined quietly, tangled myself underfoot, skittered to and from the back door, and generally made a nuisance of myself. I was ignored until it became obvious that the setter had better things to do than hunt birds, then Dad would pat me on the head and ask, "Wanna go huntin', boy?" I took my cue and tore around the house upsetting chairs and yelling until he called me to heel and loaded everything into the car.

My nose was undeniably poor, but I retrieved well, was staunch to wing and shot, and wasn't a bit gun shy. I worked close with enthusiasm in the coverts, responded well to hand signals, and I was housebroken and good with small children.

I never really recovered from that apprenticeship.

## *Hunting Without a Dog*



After four or five years of filling in for errant bird dogs, I began to develop a feel for locating quail that nearly balanced my poor scenting. I suspect that my instincts were no different than the knack a good pointing dog has for finding birds. After investigating a thousand likely looking corners, a hunter—dog—or man—will have his own opinions about which coverts hold birds. There are days when a good nose is no substitute for this kind of experience—hot, dry days in early November when a bird leaves no trail. When a dog works singles on such a day, when he works downwind or crosswind to a point, he's relying on other tools than his nose. Most of them are tools a dogless hunter can discover for himself.

Good quail cover isn't hard to recognize. Bobwhite like owl-proof brush over their heads at night and a mixture of weedy corn, milo, or native forbs for food during the day. They like to walk through this mixture,

Ron Spomer



and since they're not heavyweights, they prefer a little sparseness next to the ground so they have room to stretch their legs. Where these kinds of cover are intermingled in a two- to five-acre plot, there will be quail.

Recognizing this kind of cover will put a quail hunter in the general vicinity of a few birds, but it won't put him right on a covey. Learning a piece of ground over dozens of hunts makes locating the birds easier, but whether the ground is familiar or not, the hunt usually comes down to a lot of hard work and patience.

A good quail dog makes bobwhite hunting easy. It turns the day into a social event. Two or three hunters behind a good pointer can talk football, needle each other about their shotgunning ability, and soak up a sunny afternoon while waiting for the dog to go on point. Hunting upland birds without a dog, on the other hand, is a serious matter. Without a dog a quail hunter has too many things on his mind to waste much time on social amenities. He must not leave any likely cover unworked. A single clump of Indian grass can hide four or five birds that won't flush until they're roused out. The hunter should meander through the cover, checking the best looking corners and stopping occasionally to scrutinize the brush ahead. These unexpected stops encourage a gnawing insecurity in the best hidden covey and often causes the birds to jump. Wrapped up in this kind of prospecting, two hunters may not say a dozen words to each other all day.

That's probably just as well, because the covey will demand undivided attention when it finally does flush. An experienced quail hunter once told me that there was more shooting time on a normal covey rise than most shotgunners realize, and I believe he was right, especially when the hunter has been warned of the impending explosion by a staunch pointing dog. A hunter without that advantage spends precious milliseconds uncrossing his eyes, finding his safety, and getting at least one of his feet on the ground. By the time he's recovered, the quail are well on their way to the nearest screen of trees. The successful hunter on the unexpected flush is the guy who walks into the covert with his lips set and knuckles white on the stock, talking to himself under his breath. He *knows* those birds are going to jump; he primes himself for a covey rise on every clump of grass he checks. Sooner or later, he has to be right.

It's a game of self-deception, blind optimism in the face of consistent disappointment. Some of the best practitioners of the technique are to be found in northern grouse country. The grouse hunter is after a bird that can flush almost anywhere in the impenetrable tangles of second growth it inhabits, even from a branch overhead. Once the grouse launches himself, he'll disappear into a wall of aspen leaves before a normal hunter can mount his gun. The most successful partridge shooters are as hair-triggered as their quarry,

ready to swing on the first sound of wings beating up through the prickly ash, always anticipating the flush. By the end of a day, their heads are likely to be more worn out than their feet. This training in expectancy is probably why top-flight grouse shooters seem to make the transition to quail or pheasants more easily than open country hunters to adjust to shooting in the aspen thickets.

This same undivided concentration benefits the dogless pheasant hunter just as much as it does a quail or grouse specialist, but the ringneck man has to apply his attention a little differently. His main problem isn't staying ready for a split-second chance on a rising bird but getting the bird off the ground in the first place. Many lone hunters or small groups will confine themselves to fencerows, strips of foptail in cornfields, or grassy waterways—pieces of cover so small that a pheasant has no choice but to flush. A couple of hunters without a dog feel that, without a dog, they stand no chance against a rooster in big cover. In the blaze of the opening, there are birds to be taken in small corners, but a ringneck who's won his spurs begins to feel uncomfortable in such places after they've been tramped flat by a dozen hunters. He generally finds himself a quarter section of stubble or weeds where he can flush wild, hold tight, or run around an approaching shotgunner.

Faced with a really big piece of cover, most dogless pheasant hunters recruit a couple of dozen passersby and make the Big Drive. It's a DeMille production—grim blockers, a line of natives sweeping through the brush, the quarry out ahead skulking down the rows. The hens obligingly get up and give the crowd a thrill. The roosters, except for one or two simple youngsters, hunker up under cornstalks or squirt out the edge of the field. As an exercise in the precision movement of masses of humanity, the Big Drive is impressive. Rated on a birds-per-man basis, it often leaves something to be desired.

A lone hunter may have better luck in that quarter section of corn than the thundering mob. He doesn't need a dog; in fact, anything but a really unusual bird dog will ruin his chances. There are a few pheasant trailing dogs that will ignore running pheasants and keep their noses to the trail, but most will yield to temptation and take off after the fleeing birds. Assuming the dog doesn't break, he'll still have trouble flushing pheasants out of 200 acres of stubble.

Last fall, a friend and I stopped by a quarter of cut milo on the way home from a quail hunt. Bob had a young German shorthair along, a likely looking pup but only a little more than a year old and hardly even on intimate terms with quail, let alone ringnecks. The dog worked close to his master about fifty yards to my right as we walked down the rows. Bob concentrated his attention on the shorthair, whispering encouragement to him while I worked down my side on my own,

angling back and forth across three or four rows, watching a hundred yards ahead.

We were about half way through the field when I saw them sneaking away. They were already aware of the man and dog to the right, so they swung left across the rows in an effort to slip around us. I motioned to Bob and pointed left; he understood but preferred to depend on the dog who was trying to unravel the scent of half a dozen birds. The birds and I kept drifting left away from the shorthair until they made it to a corner of brush. Three of them broke out into the plowed field on the other side, got nervous, and flushed when I yelled. The shotgun blast brought the dog at a run. He made a fine retrieve, and Bob cursed me half-heartedly for not letting the pup work things out. It was a typical pheasant maneuver—my chances had been slim, the dog's, even slimmer.

When a stubblefield pheasant decides to run, the dogless hunter has to catch him in the act and follow him as quietly as possible. The hunter is most likely to see running birds if he quarters back and forth across the rows as he moves down the field, watching ahead for a flicker of movement. Once he sees birds moving, he should try to stay a row or two to one side or the other as he tries to get closer. It's wise to check on them frequently since they're inclined to cut across rows and disappear. The idea is to slip in among them without stirring them up. A slammed car door on the road, a shout, too much thrashing in the brush will tip off every rooster within earshot, and they'll evaporate before there's a chance for any shooting. It's not a matter of surprising them really; after a few weeks of gunning pressure, there's not much chance of that. The trick is to avoid sounding too much like the gangs of hunters who have been harassing them. Whether because of their curiosity or carelessness, pheasants will often hold longer for a quiet hunter, waiting a little too long before they move and showing themselves as a result. Once they go, the hunter hangs on behind like a slow beagle after a cottontail until he gets close enough for a shot.

Occasionally, a pheasant will decide to hold tight under a clump of cornstalks. He's seldom completely hidden, but it's easy for a fast-moving hunter to pass him in pursuit of other birds down the row. Play the percentages—spend most of your time watching for runners, but take a look at the cover under your feet every once in a while. There may be a set of tail feathers sticking out of it.

Many dog men concede that it doesn't take a dog to find birds, but they insist that, after the shot, there's no substitute for a good retriever. They have a point, especially where pheasants are concerned. On the ground, a wing-tipped pheasant seems immune to a shotgun, and he's cool under fire. Even a badly hit rooster will have the presence of mind to duck through the rows against the grain until he shakes his pursuer.



These open ground footraces are one reason I resist the temptation to slip on an extra pair of longjohns or insulated boots as long as I can in the fall. I may not be a threat to the world sixty yard dash record in my usual light upland boots and loose wool, but I cover the sixty yards to a crippled pheasant in an awful hurry. If there's any doubt about a pheasant's condition when he goes down, meet him when he hits the ground, and if you can't get there fast enough to put a foot on his head, don't hesitate to center him with a second shot as close as possible, as soon as possible. After the second bounce, a ringneck gets himself pulled together in a hurry.

With pheasants or any other upland birds, there are a number of things a hunter without a dog can do to save himself trouble with cripples. The first is to hit the bird well and hard. Good field shotgunning is an art unto itself, but the basics can be polished on a trap or skeet field before the season. A few outings after clay birds whet a hunter's appetite for the fall and sharpen his eye in the bargain.

Just as important as knowing how to shoot is knowing when to shoot. A dogless hunter isn't in a position to try the heroic shot in the field. A wing-tipped 75-yard bird may be a tribute to his shotgunning, but it doesn't say much for his judgement or put many birds in the bag. A dogless hunter has one advantage over the dog man—the birds he flushes usually get up underfoot and present a shot that's nearly straight-away. The dog handler is more likely to have to try a crossing shot or a long range bird that flushes wild. He can afford to gamble on a few of these tough chances; he has a retriever to look for his mistakes.

There are a few veterans who don't use retrieving dogs and still consistently kill and fetch their own doubles, but they are men with photographic memories and ice water for blood. For most dogless hunters, the real test of a clean double is whether two birds end up in the bag, and precious few live up to that standard. It's almost a rule that the gunner who kills a second bird will lose his mark on the first, and the man who makes sure to mark his first won't hit his second.

A man without a dog may even find himself holding up on a cinch shot. There are places where a dead bird will be almost automatically lost in spite of the hunter's best efforts to kill him clean and find a mark. With doves, it may be a dense line of cedars in a shelterbelt; with quail, an uncut milo field, and with grouse, a ten-year-old aspen and raspberry jungle. There isn't a bird hunter alive who hasn't felt the sinking feeling that comes as a dead bird arcs out of sight into an impossible tangle of cover. The old hands on upland birds develop an awareness of their surroundings that prompts them to hold up when the bird is sure to be lost. It saves them shells, birds, and a lot of lost hunting time.

With practice, a couple of hunters who keep their

heads during the flush can fetch their own birds with surprising consistency. It's a matter of watching the bird fall until he hits the ground, marking your original position before you move, then walking to where he fell without taking your eyes off the spot. If your partner marked the bird, he should stand still while you walk; the triangulation will give you the bird's range as well as his direction. Unless you actually saw the bird hit, he may be farther away than you think. His trajectory will carry him some distance after he disappears into the cover. In goldenrod or grass, this extra distance may be negligible, but in tall brush, a quail or grouse may carry ten yards beyond your mark.

One of the best dogless retrieves I've ever seen was on a chukkar hunt in the Snake River valley. The bird was the last of a flock that flushed from the rim over my head—a classic high house 8 skeet shot. I snap-pointed him, and to his surprise and mine, he folded and fell like a stone . . . and fell and fell. The canyon slope descended at about a 30 degree angle 6000 feet to the river, and he must have dropped two thirds of the way before his first bounce. I lost sight of him after he fell past my partner who yelled up that he had a mark. It was a 40-minute retrieve, five minutes down and 35 back up, and by the time we got back to the rim, we had both sweated through two pairs of wool socks and the moccasin welts on our boots. A dust gray bird in a near vertical slope of gray rock and stunted sage; it took a fine eye to mark that fall, and my partner made sure I recognized the fact.

A good dog can save a hunter a lot of sweat. He can add efficiency to an upland bird hunt and may reduce waste. There's also a special savor to the day when the coveys, flawless shooting, and the rare scent and clarity of a November afternoon combine to hide a young dog's flaws and show his head and heart running true along an ancient natural course. No serious hunter should be deprived of at least one such day afield.

On the other hand, no serious hunter should be deprived of a few days on his own. There are days when the perfect bird hunting combination is two close friends, the right covert, and a coordinated attack on the covey. There are other times when a hunt is best made alone. The same can be said for the partnership between hunter and dog. The dog adds a special camaraderie to the day, but he also appropriates some of the final intense focus that is at the core of real hunting. He stands between his master and the quarry.

As old as the relationship between dog and man is, it is antedated by the bond between the human hunter and his prey. The dogless hunter is free to concentrate on the bird he is after without distractions. He learns to react to his own gut level hunches and develops his own bird sense. The game is distilled to its essence, man against bird, and no matter what the dedicated dog man may say, it makes a good hunt. □

# *The Arctic Comes to Kansas*

*Ron Spomer*

*Photo by Steve Maslowski*



**T**he arctic. Cold, white and mysterious. It's a long way from Kansas, but occasionally a living bit of it drifts down here. Especially during lean years when hunger supposedly pushes it south in search of prey. Suddenly one dull winter day the Kansas countryside is brightened with a shining gift from the north pole. A snowy owl. Cold, white and mysterious. Staring from atop a fence post.

These unexpected appearances of large, white owls have fostered many myths and misconceptions over the years. Just last winter a farmer in southeast South Dakota reported seeing "one of those big white owls sittin' on a fence post next to some cattle. By god, it was as big as a Hereford steer. I seen it sittin' right there." Of course, snowy owls aren't that big, but to the uninitiated, a ghost-white, two-foot-tall owl with a five-foot wingspan and glaring yellow eyes makes quite an impression. What exactly is it? An albino horned owl? An escape from a zoo? A cigar box mascot incarnated? What does it eat? Dogs, cats, and little children? Hereford steers?

The fact that these owls are seen so infrequently contributes to their identity crisis. Kansans, like other United States residents living outside of north Alaska, see snowy owls only in winter because the birds reside in the Arctic tundra, breeding, nesting and rearing their young at the bald top of this globe. When given a choice, most of them prefer to winter there, too. That's why they're so uncommon down here.

The barren, wind-torn flats of the tundra might not be man's idea of a cozy winter shelter, but they suit the white owls just fine. Here they hunt hares, lemmings, voles and other rodents in the icy solitude where their plumage camouflages them against snow unmarked by human track or tire print. Their legs and thickly pad-

ded feet are heavily feathered right down to their long, black talons, and their beaks are all but hidden by feathers. With all this going for them, why do any ever visit Kansas? And why in some winters do they arrive in numbers?

One widely accepted maxim of snowy owl emigration is "as go the lemmings, so go the snowy owls." Lemmings are the common rodents of the arctic. The several species all look like overweight mice with tiny, hidden ears, short legs and stumpy, furry tails. They vary in color from rich cinnamon to dull gray. Most have a propensity for breeding themselves to such excesses that overpopulation drives them to starvation, disease and suicidal marches into the sea. According to some researchers, snowies are so dependent on lemming meat, that without it the big owls are forced to leave the tundra or starve. In this hypothesis, the snowy owl/lemming interaction goes something like this:

Spring on the tundra. Lemmings are scarce, but they set out with joyous abandon to rectify that. Females raise two or more broods a year with as many as eight young in each litter. When these offspring are five weeks old, they start families of their own. Breeding may continue well into winter beneath a blanket of snow.

In one of these lemming rebuilding years, snowy owls are uncommon too, but the growing numbers of lemmings provide them with enough raw energy to raise an average of six young from clutches of five to eight eggs. When winter hits, adult and juvenile birds are already fat, and lemmings are so abundant that a large percent of the young owls survive the cold season, in spite of their bumbling hunting techniques.

The following spring, both species again prosper.



The owls respond to the increase in prey by laying more eggs, as many as fifteen per clutch. Another easy winter passes. In the third breeding season, rodents and owls almost reach the saturation point. This will be the last winter of plenty for crowds of gregarious lemmings and portly snowy owls.

During the fourth spring, the lemmings outbreed the tundra's capacity to feed them. Hoards of the rodents develop a locust-like passion for emigrating. They don't sprout wings, but millions scamper from their subterranean homes and wander over the tundra, splashing through puddles and ponds and, in some cases, entering the sea where they unwittingly paddle to their end. (During an 1868 Norway lemming emigration, it took an ocean-going steamer fifteen minutes to pass through a vast raft of swimming lemmings.)

Of course, when winter winds blow, the heretofore well-fed owls are in a pinch. According to traditional wisdom, troops of the raptors sit around, staring blankly at one another with their big, yellow eyes. When their appetites grow larger than their love for the far north, they lift off and wing south on a "suicide run" of their own. It was long believed that few, if any, ever found their way back home.

Much of the support for this lemming response theory of snowy owl movement is based on the apparent cycles of winter irruptions in the northern U.S. Records kept between 1882 and 1946 show major in-

fluxes of owls into the U.S. on a fairly regular basis. Four times, the birds came on a three-year cycle, nine times on a four-year cycle, and three times on a five-year cycle. These are all common patterns of lemming booms and busts. In some years, thousands of snowy owls showed up in dozens of states as far south as Georgia and Louisiana. Other years, only northern states hosted the owls. Often only a few regions, such as the midwest or northeast, had the birds while other sections of the nation didn't. Why the inconsistency? Possibly because the degree and location of northern rodent declines varied significantly from year to year. Obviously, not all of the arctic will be devoid of lemmings in the same year, and many areas have ample supplies of mice, voles and other prey species. All of this lends credence to the theory that snowy owls don't truly migrate, but only emigrate in response to prey species abundance. They apparently move just far enough to find a hunting territory flush with meat. Thus, Kansas would host snowy owls infrequently and only in particularly lean years.

Snowy owl counts at Cheyenne Bottoms, Barton County, reveal an interesting pattern to the bird's occurrence this far south. During the winters of 1962, '64, '67, and '68, only one snowy owl was seen at the Bottoms, but in December of 1973, three showed up. Two stayed through January 18, 1974, and one was still around February 25, 1974. The following November

*Snowy owl on pasture*

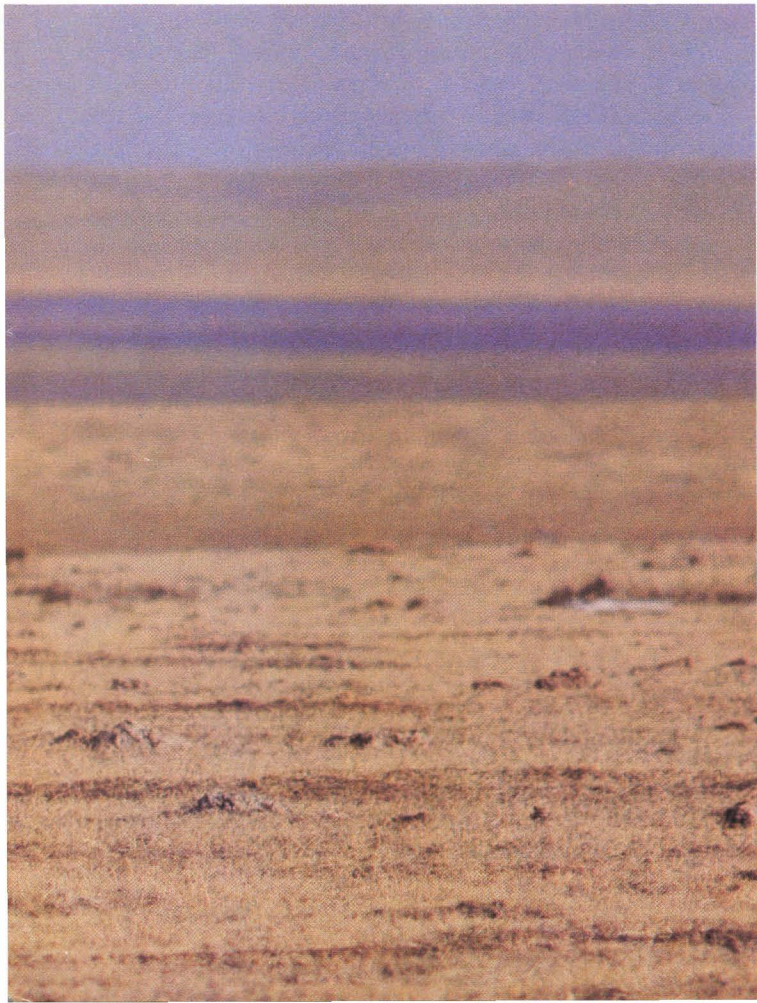


30, the first white owl of the new winter season was sighted near Pool 2. By December 4, there were eight more. The nine stayed through January 11, 1975. The last one was seen March 31. Statewide, eighty-one snowy owls were reported that winter. A classic "invasion."

From this information, the lemming response theory would lead one to assume that lemmings began declining in the winter of 1973-74, and a real crash of major prey species throughout the north hit the owls hard in '74-'75. Reports of high snowy owl numbers during the winter of '74-'75 in Minnesota and other northern states supports this hypothesis. By carrying the formula of the average four-year lemming cycle to its next stage, another eruption of owls should have occurred in 1978-79. But it didn't happen in Kansas. Why not? Possibly because the state is so far south. Or maybe because the lemming theory is flawed.

Lloyd B. Keith, a research scientist who studied snowy owls near Delta, Manitoba, in 1957-58, uncovered statistics he interpreted as evidence against "the frequently expressed view that migrant owls have been driven south by scarcity of food on the northern breeding grounds." He thought it unusual that "starving" owls would be anything but emaciated, yet the twenty-six snowies he examined between November 25 and January 18 were extremely fat and in excellent condition. This could mean the birds were wise

Ron Spomer



enough to head south before they were too hungry to complete the journey, but Keith recorded new immigrants throughout the period. Surely late arrivals should have been thin after scraping together a living on the lemmingless tundra. Maybe they were stopping just north of the study area to fatten up before continuing south. Or maybe they were motivated to emigrate by something other than empty stomachs.

English ornithologist M. A. Ogilvie noted that snowy owls in the far north move south "at least for the period of total darkness from about mid-November to February" while the owls nesting farther south generally stay put.

Why move out during darkness? Because snowy owls are diurnal—meaning they hunt by day. They have to, because the arctic summer is practically 'round-the-clock daylight. Land of the midnight sun and all. Well, in winter the northernmost reaches of snowy owl breeding grounds are virtually land-of-midnight, period, which severely limits a diurnal predator's hunting time. Naturally, this would inspire those far-north owls to head toward the sun every winter. They are probably forced to leapfrog over the territories of the permanent resident owls in the southern breeding range, since these birds both defend and respect one another's hunting grounds. That means traveling snowies would land in southern Canada or the northern U.S., explaining why at least a few are sighted every year in northern states. What about eruption years like 1974-75? When the lemming population is at its peak and the snowies are able to raise more young, there are just that many more recruits to move south when the lights start to dim in their homeland. And, coincidentally, it is also the time for the overpopulated lemmings to "step off the edge," so to speak, leading us southerners to assume all the snowy owls of the arctic fled south because they were hungry. In reality, they may have come only for a light. This, of course, is also nothing more than a theory, but a plausible one. Until more research is completed, we must content ourselves with these educated guesses.

One thing we needn't guess at is the fact that snowy owls reproduce in response to prey abundance. That has been documented often. In fact, it is common among most predators from owls to wolves. Predators seem to possess some biological trigger that fires fecundity when food is plentiful. They need plenty of protein to fuel young to adulthood and self-sufficiency. Just how much food is required was dramatized by one nesting pair of snowy owls under observation for thirteen weeks. They ate 2,300 lemmings—800 for themselves and 1,500 for their nine chicks. Owls that nest near concentrations of waterfowl or other birds feed readily on them. Like most predators, they are opportunists, taking the protein that is most easily snatched.

A naturalist in 1922 complained of the snowy owl's

tendency to feed its young ptarmigan meat. He noted that when the ptarmigan chicks began hatching, the owls abandoned the rodents they'd been eating and switched to a fowl diet. He watched one owl kill seven adult ptarmigan in one hour, and estimated that "a single owl will destroy three hundred game birds in a year." His solution for this unseemly behavior was to kill all occupants of six of the seven owl nests under his observation, which should have led an observant owl to postulate that "a single human will destroy three hundred innocent snowy owls and their young in a year." Of course, that didn't happen, since owls are just dumb animals.

The "scientist" watched the remaining owl nest "to the bitter end," hoping to see a reversion to the rodent diet. But it was useless. The evil owls continued to gobble up the game birds. Never mind that there were no people on the tundra to hunt the ptarmigan. In 1922, a game bird was a good bird, and an owl was only a varmint. The ptarmigan were just lucky they'd managed to survive as a species until the man arrived to save them.

The Eskimos probably wouldn't have sympathized with the ptarmigan loving researcher. According to literature, these native northmen readily ate *okpik*, as they called the snowy owl. The birds were unusually fat, and weighed considerably more than a ptarmigan.

Snowy owl and chick

Steve Maslowski



Besides, one doesn't argue with available meat when the nearest supermarket is a half century away.

Anyone who has seen more than one snowy owl has probably noticed the birds aren't always pure white. Plumage can vary from immaculate to almost gray. Just what these color phases represent is still a matter of conjecture. In a 1932 publication, *The Birds of Southampton Island*, G. M. Sutton stated " . . . the first winter plumage (of juveniles) is usually very white. As the birds become older, the females often, if not always, become more heavily barred and consequently darker in appearance." But Arthur Cleveland Bent in his 1938 *Life Histories of North American Birds of Prey* wrote "in their first winter plumage . . . the young birds are much more heavily barred everywhere than adults of the same sex. . . ." It's all rather confusing, for in the first year of its life, the snowy owl passes through a peculiar combination of dress.

When snowy owl chicks hatch, they are covered with soft, white down, which is anything but good camouflage against the spring-green tundra. The white plumage of the adults doesn't help hide the nesting site either, but the birds protect themselves and their young from arctic foxes by performing the famous broken-wing routine, flopping and thrashing and leading the fox away from the nest, which is usually a simple hollow scraped in a grassy hummock or gravel ledge. Predatory gulls have few opportunities to raid the nest because the female remains on it most of the time while the male hunts and brings food.

When the chicks are about ten days old, their baby-down is replaced with fluffy gray down, a more discreet tone that affords some protection from hungry eyes now that the female must be away catching food to meet the growing demand. As the nestlings continue to mature, their white contour and flight feathers begin sprouting, giving them a mottled appearance. Before they are capable of flight, they scramble from the nest and perch on small hummocks or boulders where the adults feed them. Since snowy owl eggs hatch about forty hours apart, a clutch of seven can include half-grown gray chicks and tiny white newborns at the same time. Fortunately, by the time they are capable of flight—and capable of moving down to Kansas—they are white or mottled white, making identification a lot easier for the average nature nut.

During his winter research at Delta, Keith discovered that the darkest colored male snowy owl was still lighter than the lightest colored female. Rather surprisingly, he also learned that every one of the twenty-six owls he caught was a juvenile. He strongly suspected that every owl he observed that winter was a juvenile.

Other ornithologists agree with Keith's observation that female snowies are always more gray or brown mottled than males, but there seems to be no accepted

method for aging the wintering birds by plumage differences. Birds of the year have been found to sport a remnant patch of gray down at the nape, but this is often difficult to spot. The only safe identification would be of an immaculate bird—definitely an old male.

The snowy owl's diet in Kansas has never been studied in depth, but these versatile hunters probably concentrate on what is most abundant. This would include crippled waterfowl at large reservoirs and natural lakes such as Cheyenne Bottoms; various field mice, voles and shrews in open country; an occasional cottontail, quail or pheasant that strays into the open; Norway rats at dumps and farmsteads; carrion where available. The bird's hunting methods haven't been studied in the sunflower state either, but they undoubtedly parallel those of a snowy owl carefully observed in Michigan in 1978. Still-hunting from a utility pole or fence post was that owl's most productive food gathering technique. It would sit alertly, scanning the snow while burning little energy. When it spotted prey, it launched silently and flapped over for the strike, which was successful about half the time. Almost ninety-three percent of the owl's hunting was devoted to still-hunting.

Its second most common method for bringing home the bacon was ground hunting. The snowy spent nearly seven percent of its hunting time walking or hopping over the snow, then breaking through with its feet or beak to tear at rodent tunnels and nests below. Apparently it located the moving critters by sound.

Last and least, the owl coursed (flew low, searching flights) less than one percent of its hunting time. Although coursing is a prevalent summer hunting technique on the open tundra where high perches are rare and prey is more abundant, it wastes too many calories during winter.

The importance of conserving energy was apparent in the total amount of flying the owl did—less than five miles per day. Hunting, observing and loafing (sleeping and preening) each consumed one third of an average day. The most hunting occurred one hour after sunrise and two hours before dusk. The latest observed hunting happened an hour and a half after sunset on a moonlit night. All told, the snowy was successful in forty-two percent of its strikes. (It missed fourteen out of fourteen attacks on birds—bluejays, starlings, snow buntings and horned larks). It was seen feeding on one cottontail, and otherwise it took only voles, mice and shrews from its oval hunting territory of less than one square mile of agricultural land.

Another winter owl study, this one in Duluth, Minnesota, where the birds concentrate around the grain elevators to feed on Norway rats, revealed that the predators defended well-defined hunting territories by screaming and displaying. This behavior runs counter to the information in most bird identification field

guides, which describe snowy owls as silent outside of the breeding grounds. Researcher David L. Evans heard them scream and watched them posture regularly when their territories were violated by other snowies hunting near the grain bins. When these warning displays went unnoticed, the resident owl would attack the trespassing bird in mid-air, driving it from the territory. Evans also heard the owls give a soft, melodious whistle and a guttural two-syllable call when he approached and flushed them.

The fact that snowy owls are talented survivalists is verified by their numerous hunting styles and unusual diet. They've been seen walking into brush after ptarmigan, snapping up scraps at garbage dumps, and feeding on a whale carcass on a beach. John James Audubon, the famous 19th century ornithologist and artist, saw snowies fishing at small water holes where ". . . they invariably lay flat on the rock, with the body placed lengthwise along the border of the hole, the head also laid down, but turned toward the water. One might have supposed the bird sound asleep, as it would remain in the same position until a good opportunity of securing a fish occurred, which I believe was never missed; for, as the latter unwittingly rose to the surface, near the edge, that instant the owl thrust out the foot next to the water, and, with the quickness of lightning, seized it, and drew it out."

A Hudson Bay Company employee in 1887 reportedly saw a snowy owl carry off a fledgling peregrine falcon and land on shore to eat it. The meal was rudely interrupted by the adult falcon, which stooped the owl and killed it with one stroke. Or so the story goes.

A more fortunate owl with a freshly killed crow was able to intimidate the remaining flock of thirty birds, which approached no closer than ten feet, screaming obscenities before hightailing for the woods two miles away. Smart crows.

Many witnesses have seen snowy owls hovering kestrel-like before striking at prey on the ground. About the only thing they haven't reportedly done is pulled and eaten carrots from a garden row.

When winter draws to a close, the snowies that vacationed in the south fly back to the breeding grounds. In the past, it wasn't much of flight, which led to that idea about the birds being on a suicide migration. In reality, they were running a gauntlet of sorts. Hundreds fell to the traps and guns of collectors and the idly curious. Every year there was an invasion, taxidermists worked overtime. Today, with increased public awareness of the snowy owl's life history and rodent catching skills (as well as state and federal laws protecting all birds of prey and outlawing possession of them), more of the mysterious white owls are finding their way back to the cold, barren arctic to reproduce their kind.

And that's a more fitting end than staring glassy-eyed over smoke-filled bar rooms. □

