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**Contents**

**Eagles on Ice**

The bald eagle takes up winter residence in Kansas. . . . . **4**

**January Fillets**

Panfishing through the ice, a meat fisherman's sport. . . . . **12**

**Staying Warm**

How to keep your mind off your toes during winter outings. . . . . **17**

**The Missouri, Caged River**

A major wildlife refuge declines. . . . . **20**

**The Hunter as Wildlife Researcher**

Hunter reports contribute to knowledge of Kansas wildlife. . . . . **28**

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# OBSERVATIONS

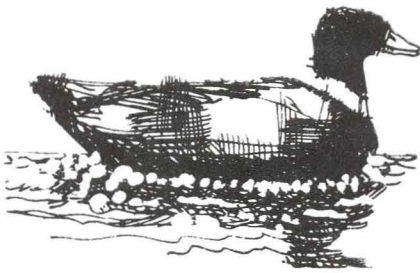
## on the shooting sports

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### HABITAT AND THE LANDOWNER

by  
Dale F. Whitesell  
Executive Vice President  
Ducks Unlimited, Inc.

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Today the sportsman's role in our society is being tested as never before. Both the quantity and quality of his outdoor environment are being steadily eroded by a torrent of economic growth and an insolvent modern world. And though sportsmen have spent impressive dollars in the past to ensure adequate wildlife populations, these expenditures will be of little consequence unless the myriads of private landowners can be made to realize the economic significance of a healthy upland and wetland habitat base.

Under the influence of the almighty dollar, concepts of land use change rapidly. As our hunger for energy drives us deeper into the vitals of the wilderness, wild-

life habitat will continue to starve until this nation either gets its belly-full of those natural resources required to nurture its thriving citizenry or provides a means of compensating landowners for their wildlife habitat. If this cannot be accomplished, then the sportsman, with his cries of conservation, is merely postponing the inevitable—vast destruction of wildlife habitat. And his singular attempts to keep wildlife habitat fertile will continue to be quietly sabotaged by those who dwell in the shadows of brick and mortar.

As sportsmen, we can be slaves to the economics of our nation and watch remorsefully as wildlife habitat diminishes, or we can harness this economic system to help free enterprise work for us. Private enterprise still controls the vast majority of huntable land in North America. If hunting can be packaged into an economically attractive alternative and sold to these private landowners, then their incentive to maintain habitat for the wildlife is insured. Financial deficits created by state and federal government "free" public hunting programs will eventually bankrupt those agencies (fish & wildlife) designed to manage and perpetuate habitat areas. Habitat, its wildlife and the hunter will always fare better if under private tenure.

Presently, private dollars are being used to maintain wetland habitat throughout the U.S. The majority of wetland acres in this country are privately owned, and most of this acreage is maintained primarily for hunting reasons. This land has provided a stable habitat base for many species of wildlife, both hunted and non-hunted. If these wetland owners

were not sold on the economic incentives generated by hunting, then these wetland environments would probably have already become marinas or other brick and mortar manifestations.

If wildlife funds were to be made available to subsidize land in agricultural areas, much like the Soil Bank Program of the 50's and 60's, more wetlands and upland habitat might be spared the plow's dispassionate bite. But as long as U.S. land-use philosophy considers its wildlife as "spare land" species, non-subsidized wildlife habitat will continue to fall prey to the developer's transit and the futures market.

The hunter's role in all of this is simple and has been emphasized for years. Keep peace and pace with the private landowner! Improved relations here will not only help save habitat but very possibly the future of hunting. Also, by understanding and supporting legislative proposals which provide private landowners with incentives to restore and preserve wildlife habitat, regulated hunting, as a management tool, can survive. Without private landowner cooperation in the conservation arena, wildlife, its habitat and "public hunting" will most likely succumb to the insouciant gavel of progress.

Collectively, the sportsmen of America have already had a positive impact on wildlife and its habitat. Individually, they must make an effort to shake the hand that rocks the cradle of future hunting in America—the private landowner.

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# *Eagles On Ice*

Marvin Schwilling

**W**ith its gleaming white head and tail, yellow feet and legs, dark brown body and large hooked yellow bill, the bald eagle is truly a majestic bird. It was chosen as our national bird on June 20, 1782.

The bald eagle is the only eagle with a distribution restricted to North America. Found in all of the forty-eight contiguous states plus Alaska, bald eagles gravitate toward the coasts of North America and inland lakes and rivers from the Gulf of Mexico, north to the Arctic. Their former and present distribution remains the same; however, the number of eagles remaining

Photo by Leonard Lee Rue III

through most of their range has been much reduced.

So much reduced, in fact, that the bald eagle has been officially listed as a national endangered species by the U.S. Fish & Wildlife Service over most of the country and as a state endangered species by the Kansas legislature. It is so listed to provide the bird some protection against any federal or state action or funding that would adversely modify its remaining habitat. The federal listing covers forty-three of the forty-eight adjoining United States, but not Alaska, where there is a thriving population, or Hawaii, which has no bald eagles. The remaining five states—Minnesota, Wisconsin, Michigan, Oregon and Washington—have bald eagle populations which are in somewhat better condition than in the other states. In these five states, the bird is listed as threatened.

“Endangered” signifies that a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future throughout all or a portion of its range.

There are two recognized subspecies of the bald eagle: the northern bald eagle, *Haliaeetus leucocephalus alascanus* and the southern bald eagle, *Haliaeetus leucocephalus leucocephalus*. The only dif-

ference is that the northern bald eagle is larger and heavier than the southern subspecies. As with most birds of prey, the female is larger than the male.

The American Ornithologists' Union has indicated that the geographic limits given to indicate the breeding range of the northern and southern bald eagles are arbitrary. The two races are separated on the basis of size, and there is a gradual increase from the south to the north. The largest eagles known have come from the Bering Island. The eagles in the central section of the United States are intermediate in size.

The bird's scientific name *Haliaeetus leucocephalus* means white-headed sea eagle. At the time this eagle was described and named, “bald” meant “white” or “white-faced” and the designation has remained, even though “bald” now popularly means “hairless.”

Migration pathways from nesting to wintering grounds have not been satisfactorily determined. As recently as 1956, ornithologists believed that most of the eagles wintering in Kansas were of the small southern race. However, measurements of museum specimens proved birds taken in Kansas to be of the larger northern race. A single specimen, an adult of unknown sex, in the Southwestern College at Winfield is the only preserved specimen of the southern bald



eagle known from Kansas.

At the present time, it is generally believed that most of the birds wintering in the midwestern states, including Kansas, come from Canadian nesting grounds in Saskatchewan. However, recent wing tags placed on nestling bald eagles at the Chippewa National Forest in Minnesota have been observed in Kansas. An immature eagle observed at Glen Elder Reservoir on December 3, 1976 was one of nine eaglets banded and marked in late June or early July in the Chippewa National Forest. Another observation of an immature bald eagle with an orange wing marker was on January 5, 1977 at Cheyenne Bottoms Wildlife Management Area. Again, this was an eaglet about nine months old from the Chippewa National Forest. Family units do not remain together during winter and young eagles generally migrate earlier than adults, particularly in the interior states, and also winter further south.

Bald eagles are not known to nest in Kansas, although they may have nested here before the turn of the century. Dr. N.S. Goss, 1891, in his *History of the Birds of Kansas*, and Dr. Francis H. Snow, 1903, in his *Catalogue of the Birds of Kansas*, list the bald eagle as a rare resident, rather common in winter, but nowhere are there specific nesting records. Sometimes bald

eagles construct winter nests or nestlike feeding platforms in Kansas in January and February. Such a nest was constructed at John Redmond Reservoir in 1977 but was abandoned when the birds moved out in early April. As northern nesting habitat decreases, it would not be surprising to have bald eagles stay and nest in Kansas.

Eagle numbers fluctuate considerably at wintering sites, and studies show movement between wintering sites are common. Dispersal and movement are associated with changes in food supply and weather conditions. Eagles disperse and use upland areas primarily after reservoirs and other water areas freeze over, reducing the fish and waterfowl available for food.

Wintering bald eagles have increased in Kansas in recent years. This is confusing to some who see what appears to be an increasing eagle population while at

*Carrion is a large part of a bald eagle's winter diet. This adult feeds on a dead whitetail while an immature bird looks on. Waterfowl and fish are more common food items for eagles wintering on Kansas reservoirs. As the big lakes freeze, eagles will congregate just below major dams where constant outflow keeps the water open and floats dead and dying fish down from the gates. Where dead fish are not available, eagles fish for surfacing shad and other rough fish. Photo by Leonard Lee Rue.*



the same time it is declared an endangered species. The increase is due primarily to recent changes in winter distribution.

Kansas is presently in the geographic heart of the eagle's interior wintering range. Originally, Kansas had no large natural lakes; in contrast today, we have many large man-made lakes, and it is this habitat change that provides most of the food supply for wintering eagles. Some eagles have always wintered along our major rivers and in areas that supported wintering waterfowl. Prior to the construction of the many Kansas reservoirs, bald eagle wintering areas were few and scattered. A large night roost along the Arkansas River near Pierceville in Finney County, exceeded 125 birds in the early 1950's. Their primary food source was jackrabbits supplemented by wintering waterfowl from Lake McKinney and along the Arkansas River. A large roost has been known for many years near the

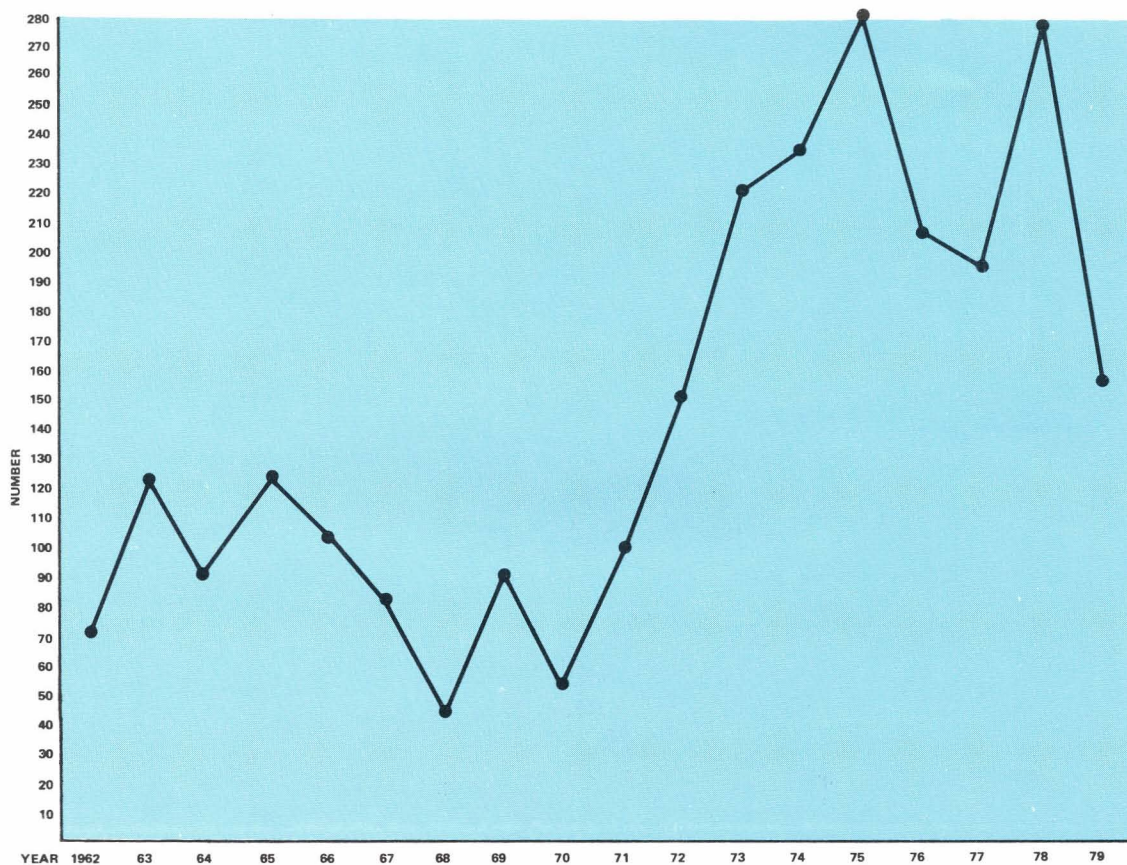
*Numbers of eagles around Kansas reservoirs have gone up steadily over the last seven or eight years. Explanation of the increase is complex. As reservoirs have filled and aged, they have concentrated eagle food supplies. Ducks winter on Kansas lakes in far greater numbers than they did a decade ago. Rough fish populations have also prospered, and as the reservoirs have become more attractive, the more traditional riverside haunts of Kansas eagles have been cleared and dried out, encouraging eagles to concentrate on the big lakes. In the last couple of years, some evidence also points to a slight increase in eagle numbers.*

"Big Salt Marsh," now part of the Quivira National Wildlife Refuge in Stafford County. High eagle counts occurred when sufficient water was in the marsh to hold wintering waterfowl. The natural basin that is now the Cheyenne Bottoms Wildlife Area also attracted wintering eagles when water was sufficient to hold large numbers of waterfowl. After development of this basin into a permanent marsh, these numbers increased, and at least eighty-eight bald eagles used the area during the winter of 1964-65. Smaller roosts were also scattered along the larger rivers in eastern Kansas.

Kanopolis was the first of the Kansas River basin reservoirs to be completed and was operable in 1948. We now have twenty-five of these mainstream river reservoirs in the state completed or under construction, ranging in size from 1,520 surface acres (Big Hill) to 16,187 surface acres (Milford). In addition, there are many large watershed lakes, township lakes, city and private lakes as well as wildlife management areas with large expanses of water that winter waterfowl such as the Cheyenne Bottoms, Marais des Cygnes, Neosho, and Jamestown wildlife areas. All these impoundments provide excellent new bald eagle wintering areas.

As these man-made water bodies age, large marsh areas develop, and the lakes become more useful for waterfowl. A vast increase in the fishery develops and

## January Eagle Numbers on Kansas Reservoirs





eagle wintering habitat increases. Other central states have also had major additions to their marsh and reservoir acreage. Today, about half of the bald eagles in the contiguous forty-eight states winter in a twelve-state region. The whole of Kansas falls in this region.

With these spectacular increases, winter habitat should no longer limit eagle populations. So if there are sufficient high quality nesting areas, the population should show a steady increase. But there are other limiting factors. Few of the wintering areas have sufficient protection from human harassment. Senseless shooting continues to be a leading cause of premature death among adult and immature bald eagles and accounts for forty to fifty percent of birds found dead. Most of these shootings are deliberate and reflect the ingrained prejudice many people have against all birds of prey. In some areas of the country, the eagle can't even hatch its own eggs. Pesticide residues have so contaminated its body that egg shells become thin and break during the long incubation period.

The computerized Raptor Information Center of the National Wildlife Federation estimates the number of nesting pairs in the lower forty-eight states to be somewhere between 1,000 and 1,200 pairs. Alaska is estimated to have around 30,000 additional birds with a possible maximum of 50,000 in Canada. These "best estimate" figures set the entire North American bald

eagle population at about 85,000 birds.

This may sound like a lot of eagles, but records indicate this to be far, far fewer than there were a century ago and even fewer than the population that flew over the continent prior to settlement.

A number of developments in the 1960's and 1970's improved conditions for bald eagles and reversed the trend of declining numbers. The conservation community, and the general public became truly aroused over our national bird's plight. Intense pressure was brought to bear on federal and state governments and their conservation agencies to take action. Programs to monitor pollution and eagle population were expanded. Attempts were made to transplant healthy eagle eggs from Minnesota to Maine, where pesticides had all but destroyed the eagle's ability to reproduce. Congress strengthened laws and increased criminal penalties against killing bald eagles. A "citizens bounty" for reporting information leading to an eagle-killing conviction was set up, and in 1971, the National Wildlife Federation offered a \$500 reward. By 1976, five such rewards had been paid.

Conservation groups, the U.S. Fish & Wildlife Service, state conservation agencies, the Audubon Society and particularly the National Wildlife Federation have contributed much to benefit the bald eagle. Little had been done to safeguard eagle wintering areas on pri-



Leonard Lee Rue

## Eagle Watching

Timothy Bergin

**E**ven before the alarm sounds, my mind stirs in anticipation of the first rude noise. I hit the alarm switch before the radio can break the morning peace and, lying back for a moment, wander into the darkness to the bleached cottonwood twenty miles away. "Will they be there this time?" Outside, the crisp breeze picks up in the predawn, and my anticipation increases. The eastern sky is just beginning to glow orange, and out on a high dead branch, the eagles are awake, too.

Eagle-watching often involves rising before the sun and bundling up to face the chill, but somehow, after returning home, you remember only the rare, dignified bird you have seen. The discomfort is blurred by the exhilaration of the experience.



## Eagle Watching

Although eagle watching isn't commonly associated with Kansas, a growing group of Kansans are searching the open sky hoping to catch sight of a soaring eagle. Since eagles are not full-time residents of the state, the Kansas eagle watcher can pursue his sport only in the winter when his birds are driven south from the boreal forests and tundras of Canada and Alaska.

Two species of eagles migrate into the state; the golden eagle and the bald eagle. Both have the general form of other buteo raptors—broad, rounded wings, a bulky body, and a fanned tail when in flight. Typical Kansas buteos like the redtailed hawk have wingspans that seldom exceed four feet. The eagle's span is nearly twice that. The golden has a six- to seven-foot wingspan and weighs from eight to thirteen pounds. The bald eagle, especially the northern subspecies, may be slightly larger. The golden's legs are feathered to the toes, a characteristic that distinguishes it from immature bald eagles which are also brown but

have bare feet.

Bald eagles move south with the large flocks of waterfowl. Crippled ducks and geese left by hunters or weakened by the trip are easy prey, and the eagles are quick to take advantage of the situation. The large reservoirs built in Kansas over the last twenty years have become major resting places for migratory waterfowl. Many ducks, especially mallards, even stay for the winter. The combination of open water just above and below dams and large concentrations of waterfowl provide unmatched food and habitat for eagles and excellent opportunities for eagle watching.

Dr. Donald Spencer, author of *Wintering Bald Eagles*, estimates that up to 500 bald eagles could winter in Kansas. Only Illinois, Missouri, Oklahoma, and a few western states provide better opportunities for watching bald eagles during the winter.

Eagles prefer to spend their days perched in large dead trees with a view of the surrounding area. Some preferred perches may attract many birds and be almost

constantly occupied. I have spent days watching one dependable pair of eagles on the Blue River downstream from Tuttle Creek dam in a large dead cottonwood where they could survey both arms of the river from the inside of a bend. Many winter afternoons they were joined by several immatures.

The choicest time for eagle watching is early in the morning. Eagles leave their night roosts about one-half hour before sunrise to search for breakfast, usually flying directly to a favorite feeding ground. If the hunting is good, they're generally finished by ten o'clock.

In November and December, food is readily available. Lakes are not yet frozen over, and the bald eagle can pursue his favorite meal—fish. He is a skilled fisherman, soaring thirty or forty feet over the water until he spots a fish at the surface, then sweeping down to pluck it out of the water. He won't usually wet more than his talons, although he may occasionally go into the water and be forced to swim out.

Eagles prefer an easy meal

vate land until about 1973 when the National Wildlife Federation sought to purchase 1,135 acres of prime wintering habitat in South Dakota. The Southland Corporation of Dallas set up a "Save a Living Thing" program through their 5,200 Seven-Eleven food stores and contributed one cent from the sale of each Endangered Species Slurpee cup. From this campaign, Seven-Eleven food stores advanced \$200,000 to the National Wildlife Federation which they used to purchase the eagle refuge. The refuge was in turn donated to the U.S. Fish & Wildlife Service and is now known as the Karl Mundt Refuge, operated as part of the National Wildlife System.

Since then, the National Wildlife Federation's Land Heritage program has raised over \$700,000, including grants from John Deere and Anheuser-Busch, to buy 1,180 acres of prime bald eagle habitat distributed through five midwestern states and California.

In late 1975, the National Wildlife Federation launched a three-year Bicentennial project designed to help save the bald eagle. Their Raptor Information Center was created with the aid of an \$85,000 grant

from the Exxon Company, of Houston, Texas. In addition \$37,785 was provided for this work by Seven-Eleven stores. This money was dropped in collection boxes during their "Save a Living Thing" campaign.

In 1977, the Raptor Information Center helped produce the film, "We Can Save The Eagle." It also sponsored and coordinated the first national midwinter bald eagle census on January 20, 1979. Kansas Fish & Game field personnel, several Audubon chapters, and interested individuals assisted in this census. The Fish and Game personnel made additional counts one month in advance and one month after the national census to better document the total eagle population wintering in Kansas.

Presently, most agree that efforts to save the bald eagle are encouraging. It appears that the worst of the pesticide war is over. At best though, the bald eagle has probably gained only a reprieve. Continuing habitat destruction by a growing human society, the constant threat of new and more damaging pesticides and poisons, together with illegal trapping and shooting constitute serious threats to its ultimate survival. □

whenever they can get one. They often eat carrion and thrive on dead gizzard shad and other fish that are swept into open water below dam outflows. Both eagle species have been known to steal food from other predators. Ospreys are a favorite target, and eagles have even driven coyotes away from larger kills.

Waterfowl activity can keep a part of a lake from freezing during the winter, and it isn't unusual to see eagles standing on the ice shelf near the open water, looking the ducks over for signs of weakness. The big birds often stand motionless and can be mistaken for tree stumps sticking up through the ice.

After morning feeding, an eagle usually retires to a favored perch for the rest of the day. Overcast skies and inclement weather keep eagles grounded, but if the winds pick up and the cloud cover is high or the sky is clear, the eagles get up in the air. Both species are the epitome of soaring grace and skill. Once they find an updraft, they may soar for hours without flapping their wings. Thermals of warm, ris-

ing air aren't as common in winter as in summer, but steep bluffs along reservoirs and rivers may deflect wind and create long lines of updrafts. Eagles often glide from one updraft to another along such ridges. A hang-gliding *aficionado* could learn a lot by watching these soaring artists.

In January and February when the lakes freeze, eagles move to open water below dams and along river courses. In the winter of 1978-79, thirteen eagles wintered below the dam at Tuttle Creek.

Just before the spring migration back to the nesting grounds, eagles exhibit more gregarious social behavior, gathering in large roosts on one or more large dead trees that are isolated or project from the surrounding canopy. A dead cottonwood sticking out of the water near the old river channel on Milford Reservoir was used for several years as a communal gathering place. In March, 1978, one observer estimated that almost fifty eagles roosted in the tree.

Occasionally, a pair of eagles will go through a prenuptial aerial dance before leaving their Kansas

wintering rounds. The male dips, banks, and turns above the perched female who may be moved by the display to do some flying of her own. Although this isn't typical behavior for eagles in Kansas, it is a spectacular possibility.

Eagle watching is gaining popularity. A few years ago, a Montana gathering of 377 eagles attracted more than 5,600 people. Many Kansans are becoming aware of the wintering eagle population a few minutes from their driveways, and that's encouraging. As more of us see eagles and realize the thrill of having them around, we better our chances of protecting these rare birds while they are our winter guests. Wintering eagles are becoming more tolerant of man, since much of their winter food supply is in some way associated with human activity. The benefit for the eagle in this relationship is obvious; the benefit to Kansans is nearly as great but more subtle and harder to explain. The best way to understand it is to make a January trip to an eagle reservoir. Once you've seen a bald eagle in the wild, you're not likely to forget it.



Ken Stiebben

# January Fillets



## Rod Baughman

**T**he big game hunter clammers up tortuous mountain trails to hang off a head-spinning precipice for a shot at a bighorn sheep; the duck hunter endures an icy squall, hip-deep in mud, to let off a few salvos at a flight of mallards; the bass angler pours his personal treasure into boatloads of equipment, oblivious to hot sun and ravenous mosquitoes, for a chance at a leviathan lurking under a log. All three have been accused of harboring a streak of masochism. In defense, they cite the rewards that accrue from their physically and economically demanding sports. The sprawling

rack on the wall, the big bass preserved in mid-jump, the memory of a V of honkers against an autumn sky—all these more or less tangible rewards at least partly justify the sacrifices involved.

Then consider the ice fisherman. His quest boasts neither loft or reach. While his fellow sportsmen gaze upon breathtaking natural scenes, he stares into an eight-inch hole in the ice. Even his equipment lacks glamor. The hunter has his precision-tooled rifle, the bass fisherman his streamlined craft; the ice angler has a bent bucket to keep air space between his flanks and the cold ice. And when trophies are mentioned, all the ice angler can do is point to his frostbitten nose.

Yet in spite of the rigors and the seemingly meager returns, ice fishing is catching on fast in Kansas. Some enthusiasts claim it is the rugged winter setting that attracts them to the sport. But for most, the appeal of ice fishing is the near-mystical sensation of encountering a wild critter from the hidden world down under.

In selecting ice-fishing tackle, small is the guide-word. Fish bite delicately when the water is cold, and only a lightweight rod with a fine tip will provide the feel that is necessary for hooking crappie and other demure nibblers. Conventional ultralight spinning or baitcasting rods adapt well to winter fishing. But the two- and three-foot rods designed expressly for fishing through the ice offer a couple of advantages: they are less clumsy, and they allow the angler to sit closer to the hole. With a layer of ice halting wind action, Kansas ponds and lakes are at their clearest in winter. After dark, fish swimming under a hole show up very clearly. Fishermen who use ice shacks or tents over their holes commonly see fish cruising by in the crystalline water, an experience that can be a trial when the fish is a record northern or striper.

Most anglers have broken or discarded rods lying about in their garages that can be readily modified for plumbing the icy depths. Simply cut the top two or three feet off an old rod, then push the thick end into the old cork rod handle. To ensure good feel, the piece of rod tip should be forced deep into the handle. Panfish anglers may build even simpler poles out of wood with cleats to hold a small amount of line.

The ice angler who wants to cover a lot of territory on a large lake with a minimum of effort should consider the tip-up. Winter equivalent of the bankline, the tip-up is basically a small wooden cross to which a length of baited line is attached. The angler drops the line in the water and places the tip-up over the hole. When a fish bites, the end on which the line is attached drops, tripping a small springloaded flag on the other end that can be seen for a considerable distance across the ice. In this way, an ice fisherman can work up to eight holes at the same time without leaving the warmth of his stove, and that's not including the two fishing rods he's allowed to work.

Tip-ups are easy to make, and as their popularity

among northern anglers attests, they are extremely effective fish-getters.

Experienced ice fishermen generally agree that light-test, transparent monofilament is the best choice for panfishing with rod and reel. Even the pugnacious largemouth bass becomes a feeble fighter in chilly water, and four-pound test will handle most anything that is likely to be lurking in a farm pond. Many anglers drop down to two- or even one-pound test. Heavier line is not only unnecessary but may spook fish. When the sun is bright and high and the ice clear, underwater visibility can be amazing.

Terminal tackle for ice fishing varies according to the species sought and the vagaries of the angler. All the familiar articles of deception used in warm-weather fishing—jigs, spoons, flies, flashers—appear in the ice fisherman's tackle box, but with an added dash of chrome and glitter to arouse sluggish winter appetites.

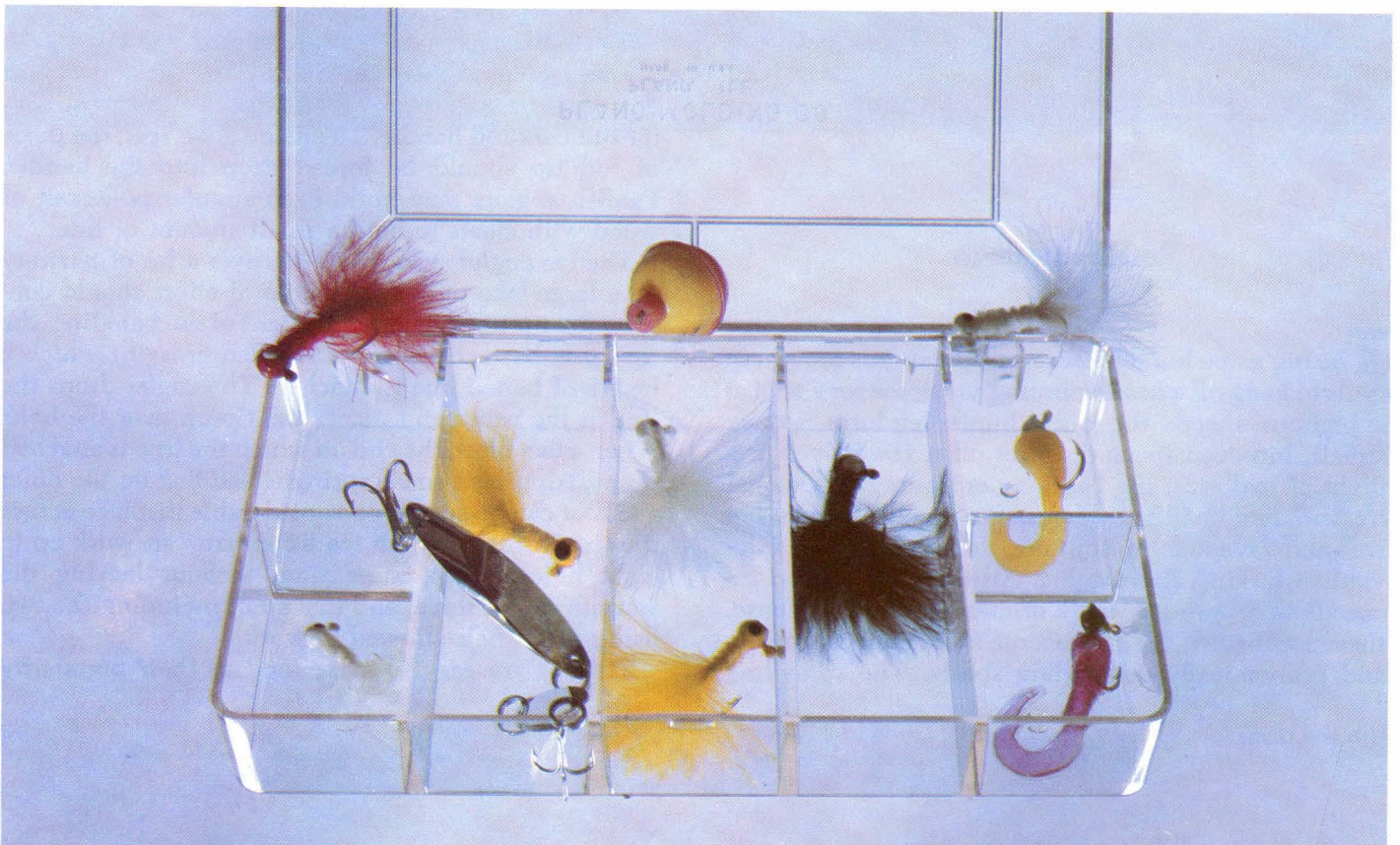
Crappie, bluegill, and white bass are among the most active species under the ice, and a variety of baits and lures will put these prime panfish on the ice angler's table when fair-weather sportsmen are subsisting on frozen fish sticks. Bluegill will bite crickets, other bugs, and a variety of small worms. Some fishermen prefer red worms; others favor corn borers, mealworms, or the grubs found in goldenrod stalks. But by far the most popular live bait for bluegill is the tiny waxworm. Actually the larval stage of the bee moth, a freeloading insect that lays its eggs in beehives, the waxworm has beguiled more bluegill through the ice than probably any other creeping, crawling thing. Working the smooth-skinned larva in combination

with a jig or one of the various teardrop lures is an effective tactic. Kansas bait shops don't regularly carry waxworms, but they can be ordered from shops in Nebraska and other states where ice fishing is traditionally popular.

In winter, crappie are generally more catholic in their tastes than bluegill. Papermouths are susceptible to just about any of the live baits already mentioned and will bite a number of artificial lures as well. Small teardrop spoons such as the popular Mitzi spoon, ice jigs, or regular jigs in the 1/32- to 1/64-ounce size work well. A somewhat gruesome, but effective combination many ice anglers swear by is a jig or spoon tipped with a fish eyeball. It is a matter for speculation whether the visual appearance of the eyeball or the scent produced by the leaking aqueous humor provides the compelling allure; in any case, winter crappie can't seem to resist a stare-down with the eyeball/jig combo.

Live minnows, traditional standby of the crappie angler, also work well through the ice. Ice fishermen rig them conventionally, but in miniature—small minnow, tiny hook or jig, and a bobber barely big enough to support the bait. A gentle nibbler under the best of conditions, the crappie adopts even daintier table manners during the cold of winter. Only a small bobber—either the porcupine-quill or pencil types or the sponge-rubber corks designed specifically for ice fish-

Panfish prefer lighter fare in winter such as the small jigs and twisters pictured below. The sleek Castmaster, year-round favorite for walleye, also works well on winter crappie. In fishing with grubs, worms, or other live bait, the angler should use the smallest bobber that will support his bait. The one shown here is about the diameter of a dime. Photo by Bruce Kintner.



ing—will telegraph such subdued bites. Periodically jiggling the minnow up and down will sometimes attract crappie that are nearby; at other times, simply letting the minnow do its own advertising seems to work best.

Though not as active in winter as other Kansas game fish, channel catfish can be taken through the ice with fair frequency. Cold water dulls the channel cat's keen sense of smell, so relatively wholesome baits like worms or liver aren't particularly effective. It is better to forgo subtlety and bait up with something that will really ring Old Whisker's dinner bell—shad sides, sponge bait, or one of the other prepared baits.

Anglers who have experienced a spring white bass run know that nothing compares for continuous, frenzied action. Once a feeding school is located, the catch may run into the double figures in only a few minutes. Whites maintain their gregarious habits during the winter, also, and with diligence and a touch of serendipity, the ice fisherman can take home a bucketful. Whites maintain their gregarious habits during the winter, also, and with diligence and a touch of serendipity, the ice fisherman can take home a bucketful. White bass generally favor the same menu as crappie—jigs, spoons, minnows, and lure/minnow combinations.

The chill of winter saps the fighting spirit of the irascible largemouth bass, but this prince of Kansas sportfish will still ambush a tasty-looking jig or minnow that chances to cross his path. Few ice anglers fish specifically for largemouth, but a fair number are caught incidentally during panfishing outings. Like many other warmwater species, bass become fastidious eaters in winter. They tend to shun heavy hardware and big minnows, preferring instead the bite-sized stuff intended for bluegill and crappie.

The recent introduction of trout to several Kansas lakes and reservoirs is good news for the ice fisherman. This coldwater fish remains active in winter and can be caught easily through the ice on corn or cheese. Rainbow and brown trout have been stocked in Cedar Bluff Reservoir and spillway, Webster Reservoir spillway, below Tuttle Creek Reservoir in Tuttle Puddle, the Rocky Ford Fishing Area, and Wyandotte County Lake. The same ultralight gear used for other panfish works well on this spirited fighter.

The primary requisite for success in any form of angling is finding the fish. In Kansas, most species prefer shallower water in spring and summer, chiefly because the upper layer of a pond or lake is warmer at that time of year and contains more oxygen. In winter this condition reverses. Cold air cools the surface until a layer of ice forms, and the warmer, oxygen-rich water sinks, forming a layer on the bottom. For this reason, crappie and bluegill seek out deep water when ice is on, and this is the place to start looking for them.

In an unfamiliar pond or lake, the best method is to begin fishing six inches off the bottom, then gradually radiate out to shallower water until the fish are found. Often in winter, fish stratify at various depths by species. If an angler catches crappie at eight feet and



Ray Brockus

### ***Ice fishing legally . . .***

Since ice fishing hasn't been a particularly popular sport in Kansas through the years, printed regulations don't detail the law as it applies to ice fishermen, causing some justifiable confusion. Here are some things to keep in mind during an ice fishing expedition:

- Ice fishing is only allowed on impoundments in Kansas. Rivers and streams are off-limits.
- Spearing fish through the ice, although legal during limited seasons in some states, is against the law in Kansas.
- On federal reservoirs and private impoundments, a fisherman can have as many as eight tip-ups in the water at once. The tip-up is classified as a bankline, so it may have to be tagged with the fisherman's name and address in some counties. Fishermen can find out about these local ordinances from county clerks or game protectors in the area.
- In addition to the eight tip-ups, a fisherman can use two fishing rods, boosting the total number of lines he can use to ten. The more lines at work, the more likely one of them will find fish.
- An ice fisherman can have only two lines in the water on state lakes, and he must tend them as long as they are in the water. That means no more than two tip-ups per fisherman on state water.
- Some states limit the size of holes cut in the ice. Kansas has no maximum size limit, but use some discretion. A six-inch hole is plenty big enough for panfishing, and even the mighty striper will usually fit through a hole no more than a foot in diameter. Large holes can skim over, become snow-covered, and pose a hazard to people walking across the lake, especially small children.

bluegill at six-foot deep in one spot on a particular lake, chances are good those species will be found at the same respective depths throughout the lake.

Fish are cold blooded, and as the water cools in winter they become torpid, moving less and feeding only occasionally. There is little individual travel after freeze-up. White bass, bluegill, and crappie school up by species and swim slowly over regular routes in search of food. At other times they lie quietly in deep water near ledges, rock dropoffs, or other structure. Old river channels in lakes are congregation areas for panfish. Another likely spot to find them is near a point that extends into the water. The point usually diminishes to a hogback under the surface—a preferred travel lane for the roaming schools. Preferring a bit more cover than other fish, crappie spend much of their time in winter around brushpiles and submerged timber located in fairly deep water.

Because fish follow a routine movement pattern in winter, it pays to cut a lot of holes before settling on one spot. Cutting through thick ice is hard work, but once the fish begin to bite at a particular hole it often means paydirt. Veteran ice fishermen can all recount days, when after ten or twelve dry holes and four hours of nursing frostbite, the final hole hits heavy traffic, yielding a stringerful in a fast few minutes.

Ponds that are clear of snow and have a minimum depth of eight feet offer the best potential for ice fishing. Shallower ponds often experience fish kills in winter; those fish that don't die become stressed and lose interest in feeding. Ponds with open shorelines usually stay fairly clear of snow as the result of wind action. When the ice is bare, aquatic plants continue to grow and produce oxygen, and fish that rely on sight to feed remain active.

Most fishermen enjoy their sport in part for the solitude. Since ice fishing is only beginning to take hold in Kansas, there is still plenty of opportunity to spend a day alone on a favorite lake or pond. But following the crowd has an advantage: a cluster of anglers on a frozen lake is as good an indicator of where fish are schooling as a flock of seagulls on the ocean.

Midday to sundown is usually the best period in which to catch fish. Anglers offer various reasons for this: one explanation is simply that sight-feeding fish need strong sunlight to carry on feeding activity. With a layer of ice diffusing light before it reaches the water, it is probably too dark much of the time for game fish to see their prey. However, a few diehard ice fishermen claim the action actually picks up in late evening and early morning. Crappie sometimes move into shallow water after dark. When the ice is clear, it is an eerie, wonderful experience to watch fish flitting about underfoot.

In this issue, Editor Chris Madson looks at ancient and modern methods of dressing to beat the cold, from

caribou hides and rabbit fur to polyester fiberfill and space blankets. In Kansas, where wind chill is the chief source of cold, a portable shelter goes a long way toward keeping a fisherman warm. A light tent or canvas lean-to will provide sufficient barrier against the wind; a toboggan doubles as an equipment carrier and, when turned on its side, a windbreak; stubborn souls who are reluctant to stow their summer fishing gear drag small skiffs out on the ice, then tip them up for a combination backrest and shelter. On really cold days a catalytic heater or a handwarmer will help keep spirits hopeful and fingers functional.


Tools for cutting a hole in the ice range from the rusty ax on the woodpile to high-speed, power augers. As with any range of implements designed to accomplish a particular task, the amount of human energy required decreases as the price increases. Hacking one's way through the ice with an ax is economical, but the recreational value of ice fishing begins to wane for most fishermen after the third or fourth hole. And too often the triumphant, final stroke brings up a faceful of ice water. The next step up in ice-cutting tools is the spudbar, a heavy rod with a flat, bladed tip for chopping. Though easier to use than an ax, the spud requires considerable elbow grease when the ice is thick. And the resulting jagged hole can fray line. Most winter fishermen prefer the hand ice auger, an economical tool that will cut a neat hole through any ice quickly and with a minimum of effort. An ambitious angler equipped with a gas-powered auger can turn a small pond into a sieve in a matter of minutes, but the gain in efficiency over the hand auger hardly warrants the additional cost.

Kansas' relatively mild winters don't always produce sufficient ice cover for safe fishing. Four inches of good ice is the minimum for individual travel; groups shouldn't venture out unless it is a couple of inches thicker. When temperatures fluctuate widely, causing the snow cover on a pond to melt and refreeze, the ice often becomes honeycombed. This honeycombed or "soft" ice may appear to be thick enough for walking, but it is weak and can be dangerous. Honeycombed ice is usually opaque and looks whiter than good ice. If the ice begins to pop and crack, the best safety maneuver is to lie flat on the surface with limbs outspread. This distributes body weight more evenly, reducing the chance of a breakthrough. Two basic items of safety equipment to carry along in the event of an accidental plunge are a coil of rope and a lifejacket. The throwable cushion-type of flotation device is handiest, as it will double as a seat pad.

Because of the special gear required, it costs more to get outfitted for ice fishing than for warm-weather fishing. But after the initial outlay, the only significant expense is one's time. And with an extra three months added on to the fishing season, hardly any angler will object to this draft on his account. □



# the YELLOW Pages



## INDEX

	Page
Wildlife Art Show . . . . .	3
Letters . . . . .	4
It's the Law . . . . .	8

### HOW MUCH IS \$500 MILLION?

Five hundred million dollars is more than the annual budget of some states, yet that amount is how much sportsmen pay for conservation each year.

Five hundred million dollars is such a large amount that it may be difficult to put into perspective. Broken down into smaller figures, the amounts may be easier to relate to. For example:

- \* A watch ticks off one second — sportsmen pay \$15.85 for conservation.
- \* An hour passes — sportsmen pay \$57,082.80 for conservation.
- \* In one day — sportsmen pay \$1,370,000 for conservation.
- \* O.J. Simpson runs 100 yards on the football field or airport parking lot — sportsmen pay \$160 for conservation.
- \* Roger Bannister becomes the first person to break the 4-minute mile — sportsmen pay \$3,788 for conservation.
- \* The Dallas Cowboys win the 1978 Super Bowl — sportsmen pay \$57,060 for conservation.
- \* Bill Rogers runs the Boston Marathon — sportsmen pay \$123,838 for conservation.
- \* Every year, each of the nation's 55 million sportsmen pay an average of more than \$9.00 for conservation.
- \* A Concorde flies between New York City and Paris — sportsmen pay \$199,249 for conservation.
- \* For each man, woman and child in the United States — sportsmen pay \$2.30 for conservation.

\* In the time it took Charles Lindbergh to cross the Atlantic — sportsmen pay \$1,911,804.50 for conservation.

\* A train travels between New York City and Washington, D.C. — sportsmen pay \$171,249 for conservation.

\* In the time it took to read this article — sportsmen pay \$2,854.14 for conservation.

*(National Shooting Sports Foundation)*

† † † †

### QUAIL NUMBERS UNAFFECTED BY HUNTING SEASON LENGTH

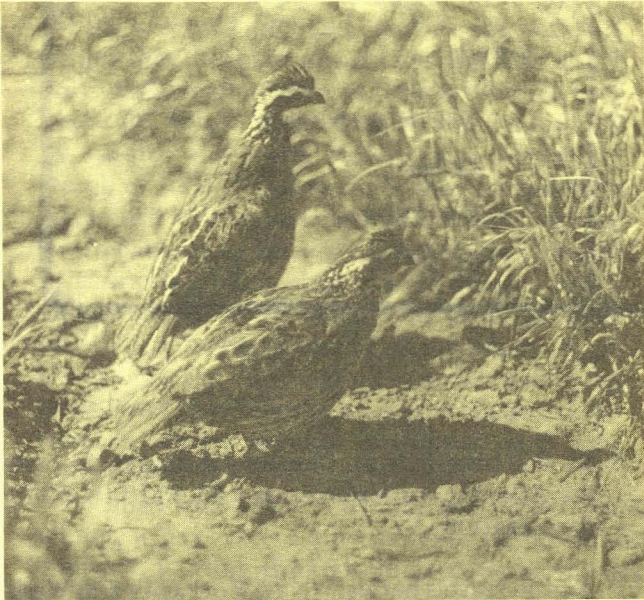
Throughout the 1979-80 upland bird seasons, Fish and Game employees were often asked why the quail season wasn't shortened or even closed completely to protect low bobwhite populations in the state. Statewide, quail populations were substantially lower than the previous year.

As a result, hunters were generally experiencing corresponding reductions in success. Many said they found only one or two coveys per trip and wondered whether hunting should even have been allowed with numbers that low.

"It would make our job a lot simpler if cutting the season did bring back quail," says Roger Wells, small game project leader for Fish and Game. "Some presume that we could just shut down hunting for a while, let the birds repopulate, and then open hunting again. Unfortunately, things don't work that easily for quail populations."

Natural conditions—primarily the weather—caused the problem. A lack of suitable habitat in many areas compounded the problem presented by the unusually rough winter of 1978-79.

*(continued)*



“Hunters have almost no effect on the population even if some like to think they do,” Wells continued. “We’ve seen, through the years, that when quail populations are down fewer hunters go afield, few birds are found, fewer yet killed, and most hunters hang up their guns early. As a result, the low population itself regulates hunter pressure.”

Quail have the reproductive ability to bounce back within only a year or two after a low period, Wells explained. When numbers are low there is more food to go around, and most of the birds can find room in the best of cover. Predation is lower due to wide dispersal of the birds. As a result, Wells said, a higher percentage of the hens nest successfully and the population grows rapidly, spreading into adjoining lands. Sometimes this expansion extends as far as three miles during the spring covey breakups or the “fall shuffle” periods, and depleted areas are soon filled.

“Because hunting does not affect quail numbers, it has been found that the only thing accomplished by closing the season would be to deprive sportsmen who live near or know of areas with good bird numbers the opportunity to hunt,” Wells concluded.

† † † †

## INDEX

Listed here are stories published in Kansas Fish & Game Magazine during 1979. Contents of the articles are reflected in the general category under which the titles are indexed.

### FISHING

Under the Ice . . . . .	Jan-Feb
The Fine Art of the Trotline . . . . .	Mar-Apr
The Compleat Limbliner . . . . .	Mar-Apr
Bluegill: Meat Fisherman’s Delight . . . . .	May-June
The Redear . . . . .	May-June
Whitewater Fishing in Kansas . . . . .	May-June
Night Fishing . . . . .	July-Aug
Billfishing in the Interior (gar fishing) . . . . .	Sep-Oct

### HUNTING - TRAPPING

Granddad’s Game (snipe hunting) . . . . .	Sep-Oct
Running the Line . . . . .	Nov-Dec

### WILDLIFE PROFILES

Gulls: A Natural History . . . . .	Jan-Feb
The Mississippi Kite . . . . .	May-June

### MANAGEMENT AND RESEARCH

ESSA and the Bobcat . . . . .	Jan-Feb
The Other Turkey . . . . .	Jan-Feb
Winter Food for Upland Birds . . . . .	Jan-Feb
Turning a Lake Over . . . . .	May-June
Building Better Fishing at Clinton Reservoir . . . . .	May-June
Stepping Back for a Closer Look . . . . .	Sep-Oct
Bottlenecks: Successes and Shortcomings in the Plan for Kansas Wildlife . . . . .	Sep-Oct
Guess Who’s Coming to Dinner . . . . .	Nov-Dec
Setting the Seasons . . . . .	Nov-Dec

### MISCELLANEOUS

National Wildlife Art Show . . . . .	Jan-Feb
The Kansas River — Candidate for Preservation . . . . .	Mar-Apr
Nonconsumptive Users: A Myth . . . . .	May-June
Prairie Reserves . . . . .	July-Aug
Conservation in the Seventies . . . . .	July-Aug
Park on the Prairie: Pro and Con . . . . .	Sep-Oct
Home Trees . . . . .	July-Aug
The Molt . . . . .	July-Aug

### SPECIAL SECTIONS

Fish of Kansas . . . . .	Jan-Feb
Rivers — Kansas’ Seven Best . . . . .	Mar-Apr
The Comeback (deer) . . . . .	Nov-Dec

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## NATIONAL WILDLIFE ART SHOW DRAWS TOP ARTISTS

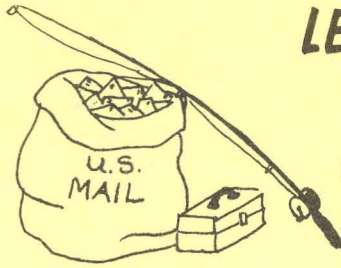
Preparations are nearly complete for the 1980 National Wildlife Art Show, an annual event that brings together some of the country's most respected wildlife artists.

The show, sponsored by Ducks Unlimited, will be at the Hilton Plaza Inn in Kansas City, Mo., March 21 and 22. Guest artist for this year's show will be Maynard Reece, a nationally-known painter whose work has appeared in Kansas Fish and Game Magazine.

"While the 1979 show hosted 143 artists, 1980 will be somewhat smaller," reports Bill Anderson, Jr., director of the annual event. "We feel this is necessary in order to better display art and to maintain the highest possible quality in exhibition."

Persons interested in attending the show also will have a chance to purchase various pieces of art in an auction scheduled for 3 p.m. March 22. Proceeds from the auction are used by Ducks Unlimited in the habitat restoration and preservation work. Last year, more than \$60,000 was raised at the show.





## LETTERS to the EDITOR

### GAME PROTECTOR COMMENDED

On Nov. 3, 1979, Game Protector Larry Dawson made contact with me and my brother-in-law, James Brenna. He, at that time, issued us a citation for unlawful pheasant hunting. I would like to commend him for doing his job in the most professional manner I have witnessed in the 20 years that I have been a sportsman. There is no excuse for our actions.

Again, let me state that Mr. Dawson's action in this matter was outstanding, and I hope it is reflective of all commission officers within your state. I do intend to hunt in your state during the regular season, and let me assure you that there will not be a repeat performance.

Our sincere thanks to Mr. Dawson, the District Magistrate Court of Oberlin, and the Kansas Fish and Game Commission.

Lincoln L. Wilson  
Denver, CO

\* \*

### SUPPORTS TALLGRASS PRESERVE

I grew up on the eastern edge of the Flint Hills and one of our favorite Sunday drives was into the heart of Wabaunsee County. Even now, if we are going west, we start early enough to wander through Alma or Alta Vista instead of taking the super highway

from Topeka. No one can enjoy the Flint Hills where the hills have been leveled to fill the valleys.

So I knew when an area in that county was recommended in the 1950's for a national park site it would be unique — one that would offer travelers through Kansas something they could find nowhere else. I thought Kansans would welcome the chance to be one of the many states that have national parks.

Preservation of the prairie grasses and flowers of broad-leaved plants and the native animals has always seemed important to me. So has their accessibility to everyone. Prairie flowers may grow as well in a pasture as in a park—but who can enjoy them? Even though we dare cross the highway ditch, crawl through a fence, and disturb the cattle, we are really trespassing. An "Enter Only With Owner's Permission" sign would be of little help because we would not know whether the owner lived nearby or in a city bank or amid the Saudi oil fields. Why should not a traveler have the opportunity to see a prairie as much as a mountain or a geyser or the badlands?

The bill introduced by Rep. Larry Winn calls for a Tallgrass National Reserve. The tallgrass proponents never wanted a national park such as Yellowstone or Yosemite. They wanted to preserve—to make available to the public—a portion of prairie much like it was before white men took over and before it was "improved" by herbicides and crisscrossed by

roads and power lines. Kansas is the only state in the only nation on earth that can still provide a bit of prairie for people to know and to enjoy—now and from now on.

Amelia J. Betts  
Baldwin City

\* \*

### BACKS CONSERVATION INCENTIVES

An article in the November/December "Yellow Pages" of your magazine discusses a program proposed by the International Association of Fish and Wildlife Agencies. I have very strong feelings about this group's proposed program. In short, I am very much in favor of it and urge you to work toward making this proposed program a reality.

I am not an "armchair conservationist", but a graduate of the University of Iowa and a conservation technician with the Soil Conservation Service in Doniphan County. This part of Kansas contains quite a few wooded areas, but, through my job, I am seeing more and more of these prime wildlife habitats being bulldozed into ditches and creeks in an effort to create more cropland. Most of this land has poor soil and is too steep to make suitable cropland.

I would like to see people preserve wildlife habitat areas on their land because they understand that wild animals are vital members of an ecological community of which humans are also members. I would like to see them preserve these areas because they respect the life sharing this planet with them and respect the rights of the creatures to have a suitable place to live. For many people, however, reasons such as these do not seem sufficient. They need a different kind of incentive and

(continued)

that is what this proposed program provides. This program makes it profitable for a person to have wildlife habitat on their land. The government already spends a lot of money to help farmers conserve soil and water. I believe the government should also use funds to conserve another important resource, wildlife, by helping make it economically feasible for farmers to preserve or create wildlife habitat. The article discusses several incentives to help accomplish this goal. Other ideas I have include allowing tax reductions for people who either create or preserve wildlife habitat areas on their land, and using government funds and technical assistance to help people create or improve wildlife habitat.

I understand the importance of farming and feeding the world's population. I also understand the difficulty of assessing a value to wildlife, compared with other resources such as soil and water, which are more easily and directly related to crops, products, services, and other things which

have more clearly defined dollar values. However, I believe all our resources are very valuable and I do not believe we should sacrifice one natural resource to help conserve another. Soil, water, air, wildlife, and all our other resources are important, and I believe that, if we are wise, we will be able to reach a balance in our conservation efforts, so that all our resources are benefitted and all are adequately preserved for future generations.

In conclusion, I want to reiterate my strong support of this proposed program. I urge you to consider carefully the ideas I have discussed and take the steps necessary to transform this proposal into an actual working government program.

Mary Winder  
Troy

\* \*

#### TRIBUTE IN RHYME

Out of sheer adoration for your

magazine, I composed the following:

*I've tromped the fields for pheasant;  
Walked miles with my Brittany for quail;  
Hid in duck blinds with my old Lab;  
Stalked deer when the moon was pale.*

*I've reeled in bluegill and crappie.  
I've struggled with channel cat.  
I've fought and won with "ol' bucketmouth."  
Don't know what will ever top that.*

*I've done all this from my armchair.  
What nurtured all of these dreams?  
Why, the excellent reading and photos  
In Kansas Fish and Game Magazine.*

Shirley Fisher  
Newton

## ARE CREATURE FEATURES HEADED FOR EXTINCTION?

Marty Stouffer doesn't like what he doesn't see on television. It's what is **not** showing in the living rooms of America... but should be... that bothers him.

There are many more who agree that a medium as powerful as television could offer valuable public enlightenment on wildlife and the problems the world's wildlife faces.

Stouffer, who lives in Colorado and is a producer of wildlife documentary films, obviously has a vested interest in seeing more programming devoted to wildlife. He admits that.

"But I really do care about all wild creatures and places," he says. "And, regardless of who produces these programs, I believe there should be many, many more of them — especially those dealing with crucial

issues, such as proposed changes to the Endangered Species Act."

An example of the type of program that can have a profound effect on the public's understanding of wildlife is "The Man Who Loved Bears," a documentary Stouffer produced. The hour-long show traced the life history and habitat of the grizzly bear and sought to clear up old misconceptions about the species. It illustrated the bear's rapid decline in population and their possible future extinction. In less than one hour, millions of American viewers—young and old—learned about the grizzly bear as a species, about the essential aspects of wildlife habitat and wilderness preservation, about misuse of public lands, and about human responsibility for saving our national wild heritage.

George Anderson, who supervises Kansas Fish and Game's relatively new television production efforts, agrees with Stouffer.

(continued)

"Kansans in general aren't as far removed from wildlife as, say, the people who live in New York City and rarely get out," he surmised. "But the few shows that we have produced on wildlife have drawn considerable public comment. And, obviously, those shows were seen by a much smaller audience than what's available to the networks."

One network which does make an effort to regularly broadcast meaningful documentary programming is the Public Broadcasting Service. Programming of factual wildlife documentaries by the three commercial networks, however, has been nearly nonexistent.

If more wildlife programs were to appear on television, viewers would become increasingly concerned and active, Stouffer contends. Eventually, he says, America's wildlife and wilderness would benefit from this increased awareness and activity.

"In my recent discussions with programming executives at the three major networks, they made clear the fact that if stronger support were expressed, there would be more and better wildlife documentary specials on television," Stouffer said. "These executives really do pay attention to the mail they receive."

Television viewers with an urge to see some changes in future TV listings can get the message across by

contacting:

ABC-TV  
Mr. Elton Rule, President  
1330 Avenue of the Americas  
New York, NY 10019  
(212-887-7777)

CBS-TV  
Mr. William S. Paley, Chairman  
51 West 52nd Street  
New York, NY 10019  
(212-975-4321)

NBC-TV  
Mr. Fred Silverman, President  
30 Rockefeller Plaza  
New York, NY 10020  
(212-664-4555)

PBS-TV  
Mr. Lawrence K. Grossman, President  
475 L'Enfant Plaza West S.W.  
Washington, D.C. 20024  
(202-488-5000)

† † † †

## OUR APOLOGIES FOR LAST YEAR'S GOOFS

One standing resolution all magazine editors share is to avoid stupid mistakes in their publications. Like most resolutions, this one lasts about as long as it takes to get out the year's first issue.

In 1979, we failed to credit three extraordinary photos which were kindly supplied to us by outside photographers.

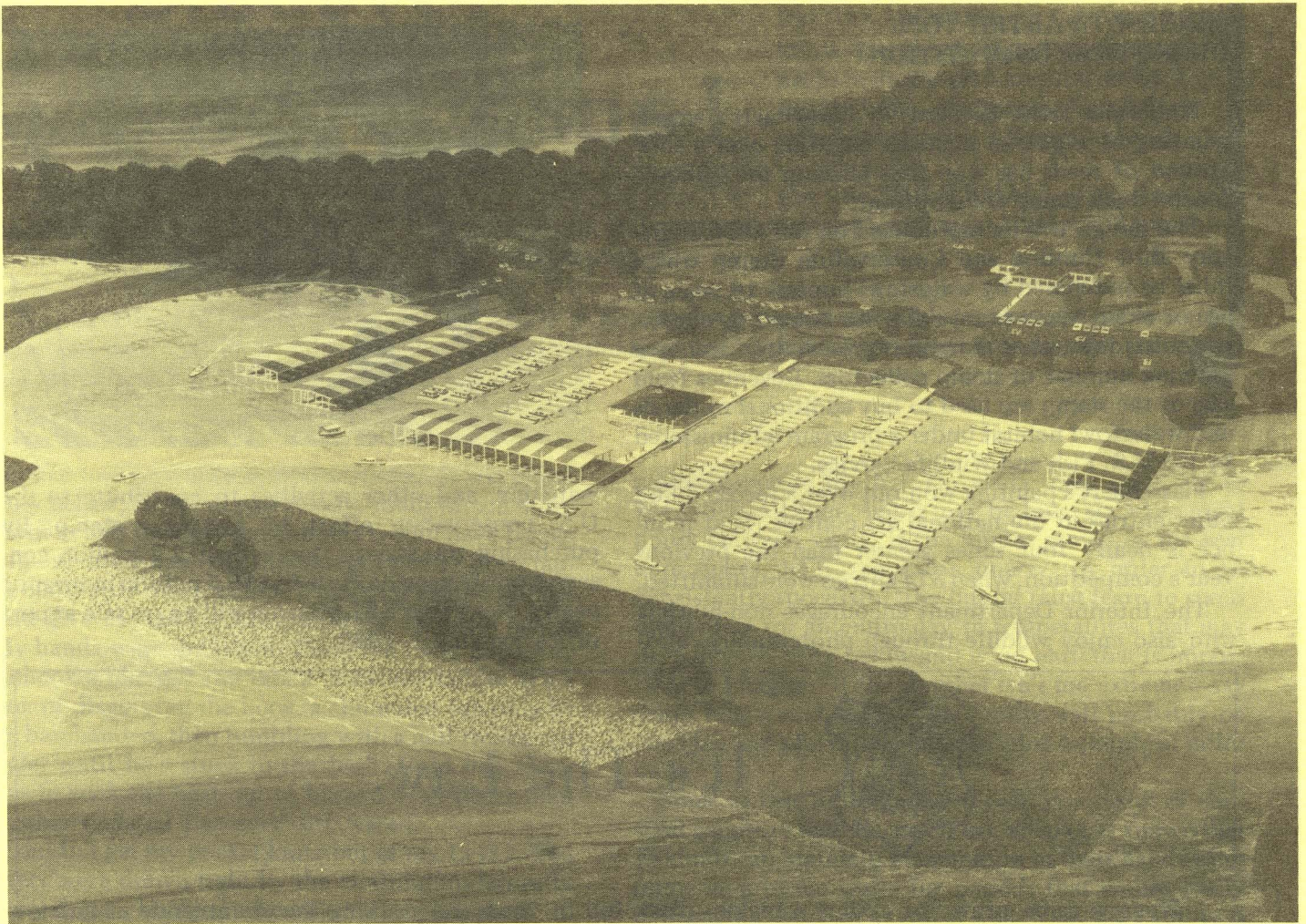
In the May-June issue, the Missouri Department of Conservation supplied both of the redeer photos used to illustrate Don Gablehouse's "The Redear."

In July-August, "Home Trees" led off with an unusually good photo of pileated woodpecker holes in an old snag (shown here). The photo was taken by Harry Darrow of Bronxville, New York. The picture first appeared on the cover of the Audubon Society's American Birds, an excellent specialized publication for serious birdwatchers.

To the photographers and editor who helped line up these photos for our readers, we send our thanks and our apologies for these oversights.

† † † †





**CLINTON RESERVOIR PLANS** — An architect's illustration demonstrates plans for marina development at Clinton Reservoir. Facilities planned for construction in 1980 by Marcanbet, Inc., lessees of the Corps of Engineers project near Lawrence, include

a floating snack bar, slips for 138 boats, and a land-based boat sales and service building with a dry storage yard for boats and campers. A lakeside year-round restaurant also will be completed within the next three years. *(U.S. Army photo)*

## FARMLAND BILLS GAIN INTEREST

The House Agriculture Committee has reported favorably a bill aimed at stemming the loss of prime farmland across the nation, according to the Wildlife Management Institute. H.R. 2551 now is in the Rules Committee waiting for directions to be considered on the House floor.

Loss of good agricultural land to various developments has obvious implications for future food and fiber production. But it also effects the future of much wildlife which depends on farmland habitat. Agricultural and wildlife interests have joined forces to help solve the problem.

H.R. 2551 would establish a 4-year \$60.5 million program for demonstration grants and technical

assistance to states. The program, beginning in 1982, would cover up to 50 percent of the costs of state and local projects for reducing the loss of prime farmland. The bill calls for an extensive federal study of the problem and directs federal agencies to notify state and local governments when a federal project would affect farmland.

Taking a somewhat different tack to the problem, Congressman Robert S. Walker (Pa.) has introduced a bill to provide tax breaks that encourage maintenance of prime agricultural land. H.R. 5897 would exclude from federal tax the gross gains on farmland sales, if the seller includes a covenant in the sales contract requiring that the land be used perpetually for agriculture. Hearings have not been scheduled on this measure as yet.

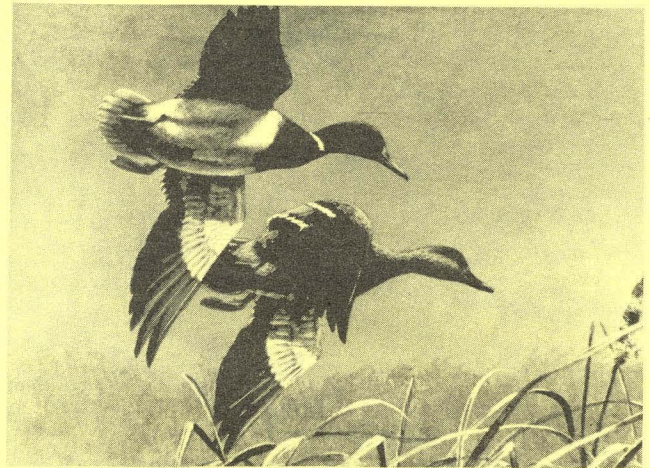
## MINNESOTA ARTIST TOPS DUCK STAMP COMPETITION

Minnesota artist Richard W. Plasschaert's acrylic painting of a pair of mallards alighting over a foreground of reeds has won first place in the 1980-81 federal duck stamp competition.

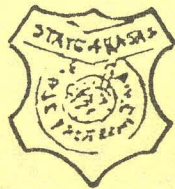
The design will be reproduced on the 1980 Migratory Bird Hunting and Conservation Stamp which must be purchased by waterfowl hunters 16 years of age or older. Many stamps also are bought by conservationists interested in habitat preservation and by a growing number of stamp collectors. Revenues from sale of the stamp are used to buy additional wetlands and waterfowl habitat under a program administered by the U.S. Fish and Wildlife Service.

Plasschaert's painting won out over a record 1,362 other entries in the national art contest. That number is nearly four times greater than the previous year's competition, when 374 entries were submitted.

The Interior Department encourages non-hunters who also enjoy wildlife through photography, bird-



watching, and other activities to contribute to the U.S. conservation effort by buying a stamp. By purchasing the stamps, more than 2.2 million conservationists provide close to \$16.5 million in revenue yearly. Next year's \$7.50 issue will go on sale at post offices on July 1, 1980.



## It's The Law.

When a game protector collars a pickup truck full of "hunters" cruising the countryside at night during closed season with spotlights, firearms, and a warm deer carcass in the back he has solid evidence that virtually guarantees a conviction. Sometimes, however, even the most seemingly insignificant bits of evidence make a case just as solid.

For example, an anonymous telephone tip and lab analysis from the Kansas Bureau of Investigation resulted in the conviction of Floyd Spade, Medicine Lodge, on a charge of illegally possessing a deer. Game Protectors Gene Hitt and Jack Dunbar, after receiving a tip regarding a possible deer poaching incident, apprehended a suspect. In the just-washed bed of his pickup truck they found a few tufts of hair and a blood-soaked piece of paper. KBI lab experts confirmed the blood and hair were from a deer. Spade was fined \$250 and \$40 court costs in Kingman County District Court.

Numerous other cases logged by state game protectors in recent months provide further evidence that illegal hunting simply does not pay. Following are three examples:

—Lyle R. Spellman, Kincaid, paid a total of \$440 in fines and court costs in Woodson County Magistrate Court. Spellman was arrested Dec. 1 by Game Protector Don Clarke and charged with shooting a deer without a valid deer permit, hunting without landowner's permission, possessing an illegally killed deer, and two other charges.

—Two Burlington men —George T. Eudy and Gary A. Smith—each paid more than \$200 in fines and costs for hunting deer during closed season. The two men were arrested Nov. 24 in Coffey County by Game Protector J. D. Lichlyter. A Coffey County Magistrate Court judge also revoked their hunting licenses for one year.

—Jack D. Geisler, Downs, paid \$295 in fines and court costs for trapping raccoons during closed season. Game Protector Arch Moberly made the arrest. The fine was ordered by Mitchell County District Court.



# Staying Warm

Chris Madson

I think it first occurred to me on an ice fishing expedition about twenty years ago. We were fishing a pond that had very little shoreline shelter. It was about twenty below; the wind was steady, about fifteen miles an hour across the ice—the bobbers would have frozen in almost immediately if the bluegill hadn't been tapping constantly down below. I was praying the bobber would give me ten minutes before it twitched again.

My hands were the worst. There isn't any good way to unhook a bluegill and rebait at twenty below. It's a matter of disgorging the hook, a chore that can only be done barehanded, then fumbling with a half frozen red wiggler until he's stuck to the barb. Cold fish slime seems to suck the heat out of human flesh faster than any other material I've ever discovered.

I couldn't get my pocket knife out of my Levi's. The pockets were drawn tight by the clothing underneath, and my fingers buckled when I tried to push them in. There was an increasing ache in the bones of my ankles, the only evidence I had that my feet were still in my boots. It occurred to me then that I don't like being cold.

On that ice fishing expedition and many other hunting and fishing outings as a teenager, I was dressed as well as I could afford. I had thermal knit underwear top and bottom, sometimes even quilted polyester long handles. I stuffed this underclothing into a pair of Levi's, put on three pairs of socks, insulated leather boots, my heaviest sweater, scarves, stocking caps, and wool gloves. For ice fishing, I even had a worn-out stadium coat, down-filled, that came nearly to my knees. It was a handicap when I walked but a pretty fair garment for standing on the ice. With the rest of the clan dressed about the same way, we'd all jump in the car and head for the pond. On a bright, calm day with the temperature well above zero, we'd last an entire afternoon. That one gray day at twenty below, we lasted about two hours, and an hour of that was no fun.

After a fishing trip like that one, it's easy to conclude that man was not meant to bend over a hole in the ice in the teeth of a mid-winter cold snap, but that's not so. Eskimos on the Arctic ice pack made their livelihood just that way in the centuries before their lives were

improved by the introduction of snowmobiles, rifles, and influenza.

The average Eskimo seal hunt makes ice fishing seem like a Malibu beach party. The hunter uses one of his dogs to locate a seal breathing hole. He moves the team away a hundred yards or so, then returns to the hole which is usually covered by a foot or two of snowpack. He shaves some of the snow away, inserts a long quill through the snow and into the hole, then puts a piece of polar bear or caribou hide on the windward side. He picks up his harpoon, steps onto the skin, and settles himself.

When the seal enters the hole from below, the quill will vibrate slightly until the animal pushes its nose up to take a breath. His nose hits the quill pushing it up, and the hunter strikes with the harpoon. The problem is that the seal has a series of these breathing holes scattered across the ice. He visits them regularly to keep them all open, but it may be four, six, even eight hours between visits. If the hunter moves as the seal approaches, he'll spook his quarry. In order to be consistently successful, the hunter must learn to stand motionless for an entire day in temperatures that may drop beyond forty below and wind chill that is impossible to imagine. If the weather isn't too extreme—say thirty below and sunny—his family will probably be working and playing around the igloo a couple of miles away.

Some of this indifference to cold is a result of constant exposure to it. Research in Canada has shown that Eskimos can maintain temperature in their hands after immersion in ice water for periods that would badly damage the hands of a typical American. This ability is probably not a genetic trait. I've seen commercial fishermen along the Mississippi working their nets in late fall when the water froze on the gunwales of the boat. Most of these men don't bother with mittens or waterproof gloves. A lifetime of exposure allows them to handle the job barehanded. Scientists in the Arctic report that men on oil rigs and DEW line stations seem to accommodate physically to the cold after a few months.

However, it takes more than tempering to survive a winter in the Arctic. Over the centuries, Eskimos have experimented with all the materials at their disposal and have invented unexcelled cold weather gear. The differences between their winter clothing and the outfit I wore on my first frost-bitten ice fishing trips pretty much define what to do and what not to do in order to keep warm outside.

Feet are probably the most vulnerable part of the human anatomy. Circulation in the feet is relatively poor, and it's hard to find any way to keep them off the snow. The first thing to avoid is cutting off what little blood flow the feet do get. Cold weather footgear should be loose fitting. Multiple pairs of socks are fine as long as they're not packed into the outer boot like wet newsprint in a trash compactor. Canadian Eskimos

use a double boot of caribou hide most of the winter. They have one advantage over us southlanders: they generally only deal with really wet, cold conditions twice a year, once in the fall and again in the spring. During these periods, they wear waterproof sealskin boots instead of caribou. In our part of the world, something a little more water repellent and a little less expensive than sealskin is called for. Oversized shoe pacs with rubber bottoms and leather tops work well, and the old six-buckle overshoe isn't a bad choice.

These boots should be stuffed with thick felt inner boots. These may make the boot tougher to walk in, but they're fantastic insulation. They should always be dry when they go into the outer boot. A man who is out often is wise to buy more than one pair so that they can be rotated.

**H**ard personal experience has taught me to steer clear of two boot styles. The first is one of my favorite all-around boots, the light shoe pac. Its rubber bottom is light, uninsulated, sheds a heavy dew or light snow very well, and isn't worth a damn in really cold weather. I wear them with sheepskin innersoles all through the fall, but I'm convinced I'd stay warmer on an ice fishing trip if I went out in a pair of bedroom slippers.

Leather upland boots are also wonderful in their ability to conduct heat away from the feet of the wearer. The insulated variety may draw the process of chilling out another twenty minutes or so, but they're still useless for long periods on snow or ice.

I've had very little first-hand experience with insulated rubber boots. They fit a little better than most felt-lined boots and are probably easier to walk in as a result. For warmth alone, though, they don't measure up to felts.

The Army once issued an oversized boot insulated with trapped air spaces all around. I've only seen one pair of these "bunny boots", and the fisherman who owned them swore they were the warmest things he'd ever had on his feet. The problem is finding a pair of them, especially in this era of war surplus made in Taiwan.

**T**he Canadian Eskimo in traditional clothing is about as wide as he is tall. That's because the standard Eskimo inner and outer parkas are cut generously to avoid any compression of insulation or impairment of circulation. Both inner and outer parkas are made of caribou hide whose hollow hairs make superb insulation. Neither parka has a front zipper or buttons. Openings are kept to a minimum to keep wind from penetrating. The parka is about knee length, long enough to retain warm air around the torso, and it fits loosely from the waist down to allow moisture laden air to spill slowly out instead of condensing inside.

Laying hands on traditional Eskimo clothing materials isn't easy in this part of the world; it'll take one heck of a winter to push the barren ground caribou herd as far south as Kansas. However, Eskimo thinking concerning upper garments is as useful as their footwear ideas. The most important concept is looseness. Nothing anywhere in a cold weather outfit should bind. The outer coat, whether it's down or some sort of windproof shell, should be two sizes or more larger than the inner garments so that every garment has a chance to establish its own dead air space.

For years, the preferred insulation for really heavy-duty winter coats has been down. It is light, comfortable to wear, has unparalleled loft (the fluffiness which provides insulation), and it can be compressed into a smaller package than any synthetic insulation fiber. Most of my winter coats are down. They have served me well without a hitch over the years, but I have growing reservations about them. In many really cold situations, the chances of getting wet are minimal, but a duck hunter or ice fisherman risks getting soaked in sub-freezing temperatures every time he goes out. Wet down can be mortally dangerous. The down fiber only gives warmth as long as the feather ends are dry and well fluffed; when they are soaked, they trap no heat at all. The nylon shells used to contain the down are just about as useless as insulation. If a sportsman's main protection from the cold is down, he faces the prospect of death from hypothermia if he gets wet in a remote duck marsh or bluegill pond—and most good duck hunting spots and fishing holes are remote, especially in winter.

In addition, the demand for down has resulted in an increase in its cost and a decline in its quality. It's harder and harder to get mature goose down, the best of the down insulators. The geese are killed younger and I have a suspicion that their growth may be encouraged with the same hormones and feed supplements used on other domestic fowl. These hormones may produce a lot of meat in a hurry, but I wonder whether they allow the goose to put on fully developed down with the myriad feathery ends that do the insulating.

The lightness and compressability of down combined with its efficiency as an insulator still make it the prime material for backpacking sleeping bags, but an outdoorsman may be better off buying coats insulated with Holo-fill or Polarguard. These materials are a little heavier than down, don't compress as well, and aren't quite as efficient as insulators, but they retain much of their warmth when wet and aren't too expensive.

The parka hood is an Eskimo innovation that is irreplaceable in extremely cold weather. The human body is designed to get rid of heat by circulating blood close to the surface of the skin where warmth is lost to the air by convection. In extreme cold, the circulation at the surface of the skin is reduced so that this heat

loss is minimized, but in many places on the head and neck, there is no other place for the blood to go. Heat loss by the exposed blood vessels on the head can amount to more than fifty percent of the body's total heat loss, a sizeable leak in a cold-weather outfit. An attached hood goes a long way toward eliminating that loss.

One of my most entrenched cold-weather prejudices is against cotton blue jeans. Jeans are probably the most adaptable outdoor britches around, but they're worse than useless as winter leg covering. For starters, they're cotton, a great summertime fiber but cold when dry and unbearable when wet. They're also cut tight with very little room for another layer of clothes underneath.

Classic Eskimo winter pants are the antithesis of a pair of Levi's. The underpant is made of caribou, fur side in, and the outer pants are somewhat larger with furside out. They're usually held up with suspenders and only about knee length with the high boots covering the rest of the leg. This short design leaves a joint at the knee which allows a man to move his legs freely even when heavily dressed.

The best stateside substitutes I've found for the Eskimo style are the blanket-weight wool Malone pants sold by a number of mail order houses. The wool is 32-ounce material, very warm when wet, and not all that heavy for walking. The pants are loose-fitting, and I often wear them with suspenders to avoid any interference with circulation that might be caused by a belt. I haven't weaned myself into wearing them knee length yet, but I do hem them up an inch or so higher than my Sunday slacks to avoid having them drag in snow or freezing mud. Long handles or quilted underwear under these pants make them almost too warm to bear in most winter weather.

As with any piece of outdoor equipment from shotgun to casting reel, the best cold weather outfit is a complete failure unless it's used properly. The most serious clothing mistake an outdoorsman can make short of falling into a river is to start sweating. The layer approach to this problem was probably invented by the Eskimos who wear multiple layers of clothing in severe weather, peeling off layers as exertion or rising temperature demands it. It's vital to take the clothes off before breaking into a sweat, and it's just as important to find a pace that will not bring on overheating. Sweat not only conducts heat away from the body but also dampens clothing and eventually mats insulating fibers with salt, reducing their efficiency.

Clothes will not retain heat well when they are wet. Eskimos hang a snow beater made of raven's wing or similar material next to their doors where people coming in can thoroughly beat off snow and ice before they melt. Parkas and leggings are hung on a sinew line

inside the igloo and left to dry for a day or so. Each person has at least one change of outer clothing. It's an excellent example to follow, although a kitchen broom will do for snow beating in the absence of raven's wing.

Drying is especially important for footwear and down clothing. Down picks up moisture from the body even during normal exertion and should be hung in a warm place with good air circulation after it's been used. Felt liners do not dry inside boots. They should be removed at the end of the day and propped up so that air gets inside the liner itself.

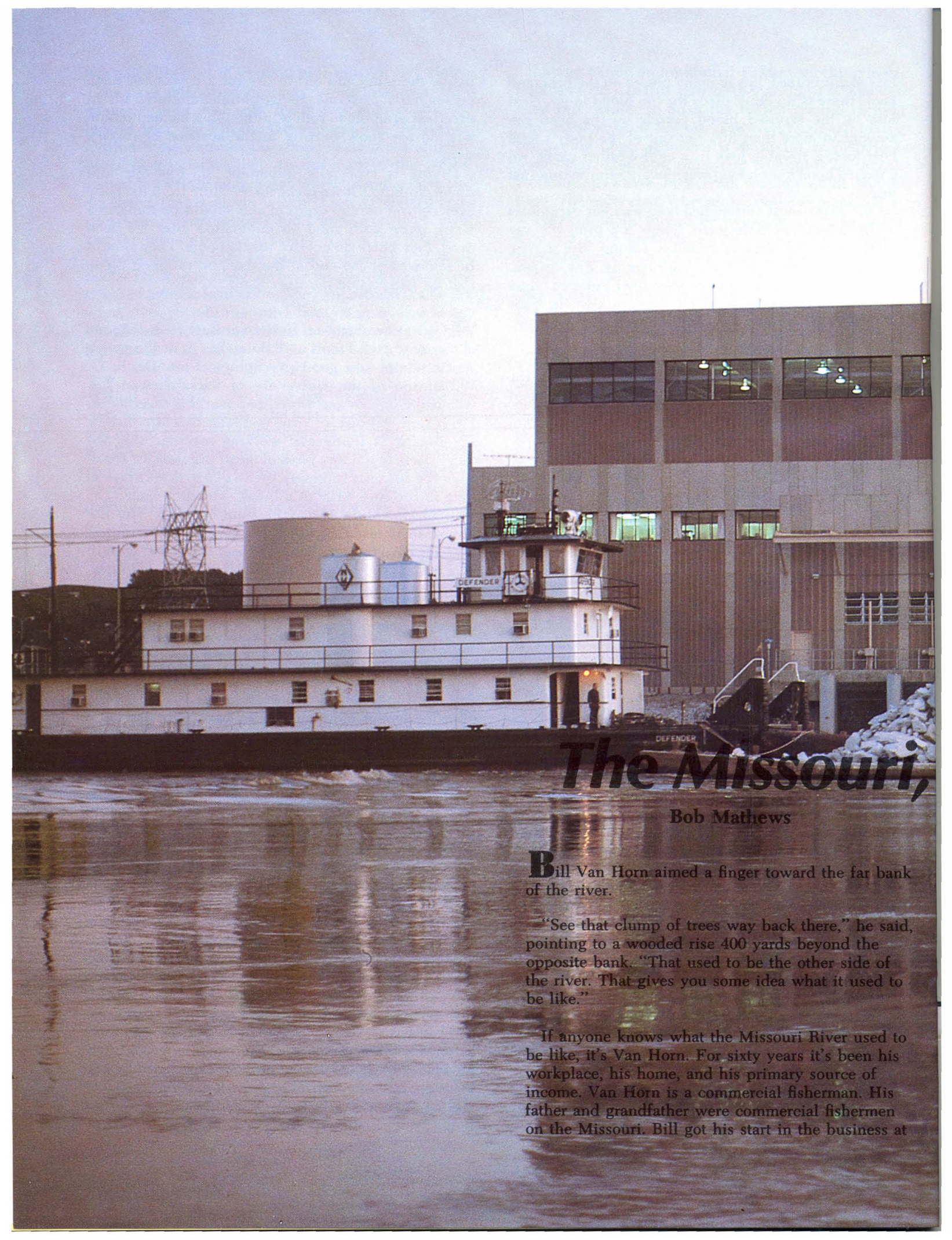
At least one expert on Eskimo culture feels that one of the most useful tools an Eskimo has in dealing with Arctic winter is a good psychological set. Dr. R. G. Williamson of the University of Saskatchewan has watched Eskimos and white men working together on DEW Line stations for years and feels that after five or six months of living and working together, the two races show few if any physiological differences. However, the Eskimos routinely spend two to three times as long in the cold without a break. The difference? Dr. Williamson thinks it may be state of mind. The Eskimos are relaxed in the cold; centuries of cultural heritage have trained them to expect it and live with it. The typical southlander, on the other hand, is intimidated by Arctic winter. He is either afraid of it or angered by it. In either circumstance, he seems to expend tremendous psychological energy dealing with it.

It's an interesting premise, and it feels right to me, especially when I find myself facing a wind so cold that my lungs refuse to breathe it. If it's true, then effective winter clothing should have two effects: it should conserve body heat and inspire the wearer's confidence so that he approaches the difficulties of cold weather more positively.

I've spent a good share of my life chilled to the bone on one mid-winter outing or another which is probably the sincerest proof I can present of the attractions winter can have for an outdoorsman. I have caught more fish, killed more pheasants and ducks, slipped up on more wildlife, and generally gotten closer to the workings of things during the winter than in any other season, and the value of those experiences is increased because I haven't had to share them with a crowd.

Most of the marks we have left to record our claim to the plains are covered in January. The enduring character of the country makes itself felt unmistakably, drifting over a century of surveys and land transactions and reasserting its own identity. In January, the land belongs to the people who care enough to walk out on it, whatever their excuse. It's an experience worth having—but better when you're warm.

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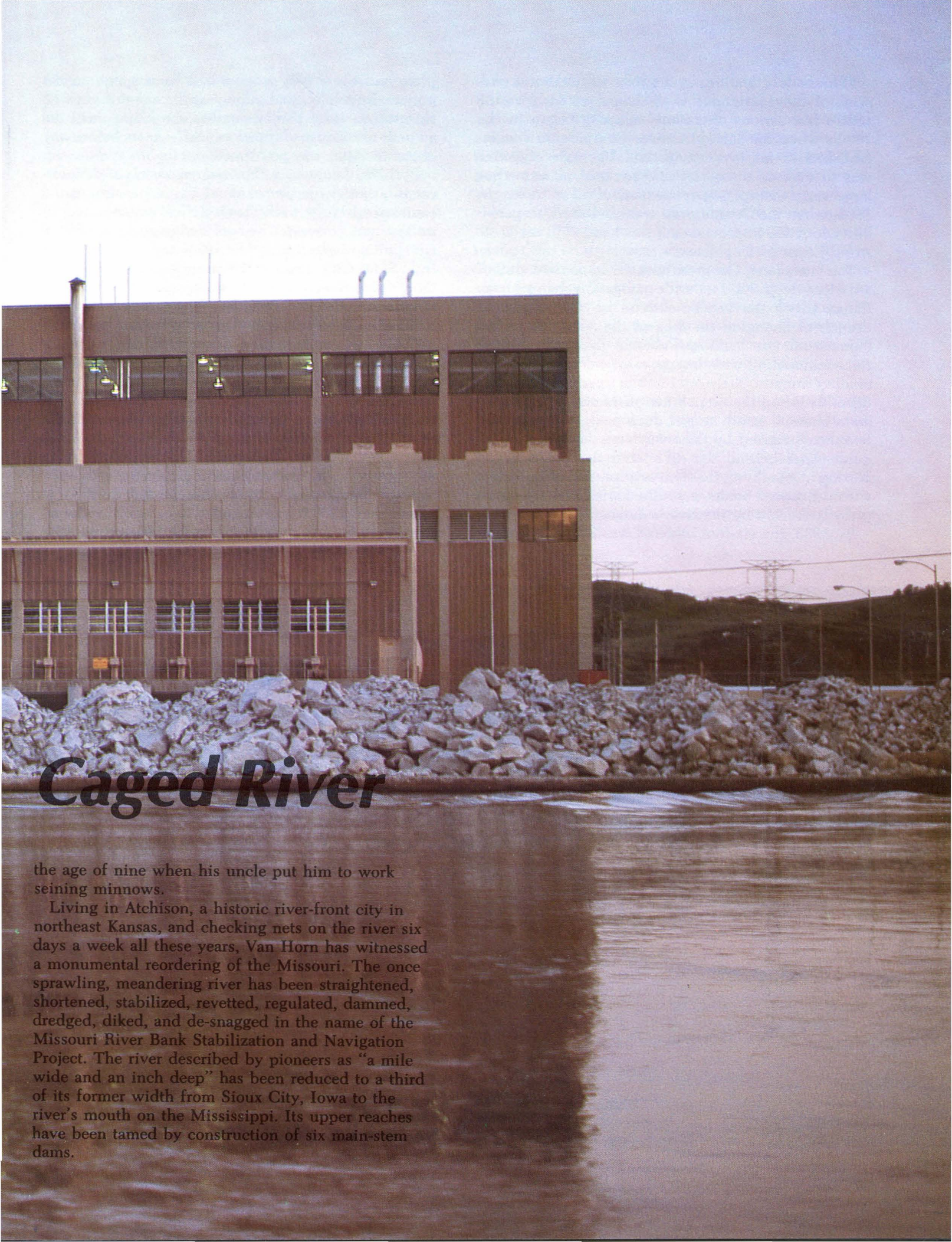
# *The Missouri,*

Bob Mathews

**B**ill Van Horn aimed a finger toward the far bank of the river.

“See that clump of trees way back there,” he said, pointing to a wooded rise 400 yards beyond the opposite bank. “That used to be the other side of the river. That gives you some idea what it used to be like.”

If anyone knows what the Missouri River used to be like, it's Van Horn. For sixty years it's been his workplace, his home, and his primary source of income. Van Horn is a commercial fisherman. His father and grandfather were commercial fishermen on the Missouri. Bill got his start in the business at



# *Caged River*

the age of nine when his uncle put him to work seining minnows.

Living in Atchison, a historic river-front city in northeast Kansas, and checking nets on the river six days a week all these years, Van Horn has witnessed a monumental reordering of the Missouri. The once sprawling, meandering river has been straightened, shortened, stabilized, revetted, regulated, dammed, dredged, diked, and de-snagged in the name of the Missouri River Bank Stabilization and Navigation Project. The river described by pioneers as "a mile wide and an inch deep" has been reduced to a third of its former width from Sioux City, Iowa to the river's mouth on the Mississippi. Its upper reaches have been tamed by construction of six main-stem dams.

Man-made alterations of the river which drains one-sixth of the contiguous U. S. began as early as the 1830's but serious alterations actually began in the 1880's when the Missouri River Commission was established to improve navigation. Its main objective was to oversee the systematic removal of numerous large snags hampering movement of river traffic. In 1902, when the Commission was abolished, responsibility for river improvements was handed to the U. S. Army Corps of Engineers.

Ten years later, Congress authorized construction of a six-foot-deep, 200-foot-wide navigation channel from Kansas City to the river's mouth on the Mississippi and the job of changing the face of the Missouri gained momentum. One technique used by the Corps in their river remodeling was the use of pile-driven dikes extending from the shore out into the river's current. The dikes deflected the serpentine offshoots of the river's main channel into a single, deep navigation channel. Sediments carried by the river were deposited in the quiet water behind the dikes and the banks began closing in, confining the river to a fraction of its former width. Exposed banks were lined with rock rip-rap to prevent erosion by the river's current.

By 1933, the six-foot channel was 95 percent com-

plete and some \$68 million had been spent on the project. Ironically, that same year the amount of cargo shipped on river barges totalled about one-third the amount of tonnage shipped in 1867—years before any channelization was performed.

By 1945, Congress authorized expansion of the project to a wider, deeper channel based on anticipated commercial barge traffic projected to reach some 12 million tons per year. The modified project called for a navigation channel nine feet deep and 300 feet wide from Sioux City, Iowa, to the mouth—a distance of 735 river miles. Today, more than 30 years after that authorization, the project is 97 percent completed but that estimate of anticipated river traffic has appeared lavishly exaggerated, since barge traffic has never totalled more than 3.3 million tons in any year.

With project completion now less than two years away, the Corps is just beginning to evaluate the effects of its work on fish and wildlife resources of the river. That evaluation began after the Corps recently determined that the Fish and Wildlife Coordination Act applied to the channelization project authorized in 1945. Although the Act was first passed in 1934, it wasn't until 1958 it was amended to expand the Corps' mission to include consultation with fish and wildlife



Bob Mathews

managing agencies to determine effects of the project. The amended act required that wildlife conservation be given equal consideration with other features of water resources development, including channel deepening and all modifications to any body of water. The National Environmental Policy Act of 1969 added more teeth to that directive, requiring all federal agencies to consider and evaluate, through preparation of detailed environmental impact statements, the impacts of all major actions “. . . significantly affecting the quality of the human environment.”

Studies have all yielded the same basic conclusion: fish and wildlife have suffered substantially higher losses in channelized stretches of the river than in unchannelized sections.

The river in its unaltered state consisted of braided channels that were continually wandering from side to side of a flood plain that ranged from 1,500 feet to one mile wide. The meanderings had established a broad plain that contained numerous islands, sandbars, oxbows, deep pools, marshland, and shallow water. This diverse occurrence of habitats provided for a similarly diverse complement of fish and wildlife species.

One researcher concluded that forests covered more

than three-fourths of the river's flood plain in 1826. Willows, cottonwoods, box elders, silver maples, black walnuts, red mulberries, and American elms provided valuable winter cover and food for wildlife along the river and adjacent lands. By contrast, an estimated 82 percent of the land area in the channelized portion of the river has been converted to agricultural cropland.

Mid-river islands have been virtually wiped out. In the lower 500 miles of the river the surface area of islands was reduced from about 24,000 acres in 1879 to slightly more than 400 total acres in 1954. Islands were eliminated by erecting dikes across the chutes or sloughs separating island from shore. In time, the dikes caused the chutes—the shallower, slower-moving river branches paralleling the main channel—to collect silt and eventually connect the island to the shore. Along most of the channelized river, that accreted real estate was put into cultivation by adjacent landowners. Removal of timber from those islands destroyed much valuable habitat for woodland species, like deer and squirrels. The eliminated islands alone probably harbored at least 750 deer. Timber removal along the rest of the river margins, combined with elimination of islands, has decimated an immeasurable amount of woodland habitat.

*Bill Van Horn (far left) is one of a handful of commercial fishermen still working the Missouri. A tough, independent breed, these men prefer the hardship of life on the river to a softer life on the bank. Unfortunately, the fish they depend on have all but disappeared in the “improved” stretches of the river. Many species depended on the slow, sand-bottomed backwater chutes for breeding sites, and even the toughest customers like the flathead (right) don't seem to prosper in the new Missouri as they did in the older braided river.*

Ken Stiebner



Cal Groen







*The fates of the Missouri River and the lesser snow goose have been bound together for millenia. More than 800,000 snow geese migrate down the Missouri on their way to Louisiana and east Texas, and in the spring, the northbound flock swells to more than a million as Mississippi fall migrants swing west on their way back to the Arctic. Refuges like Squaw Creek in Missouri have become major staging areas with the disappearance of massive Missouri sandbars that were preferred by traveling flocks of snows. Photo by Nebraska Game and Parks Commission.*

The moist river bottom soil in the undisturbed river system also offered superior habitat for bobwhite quail, cottontails, turkeys, red and gray foxes, opossums, gray squirrels, and red squirrels. Timber clearing and loss of woodland margin along the river have greatly reduced the carrying capacity of the river. Cavity-nesting birds, like wood ducks, were reduced considerably.

By constricting the flow of the river, much shallow water habitat was forfeited. An estimated 200,000 acres of shallow water were destroyed—two-thirds of the original area. Fish and water-oriented wildlife have been hardest hit by that dramatic change.

The expansive mid-channel sandbars and sheltered backwaters made the unaltered river a waterfowler's wonderland. John Andre, for one, misses those days.

Andre, a life-time resident of northeast Kansas and avid waterfowl hunter, grew up hunting ducks and geese on the river. But waterfowl hunting there has been devastated.

"I'll never forget all the mornings I spent sitting in that blind listening to the river and watching wave after wave of ducks and geese come in. There's just nothing like it," Andre said. For years, he and Tink Cooper and Shorty Nits spent a good share of the waterfowl season in a pit blind near Rushville Bend, a wide loop in the river just above Atchison that was, Andre said, ". . . a natural for geese. The birds liked it because they could settle down on this big sandbar where they could see a long way.

"But the water is so fast anymore it's hard to find enough slack water to hunt," he continues. "I took a boat up to Rulo (Nebraska) one year and saw only three places along the way that might have been any good for hunting.

"It's hard to give up river hunting, though, if you've done it all your life. It took us a long time before we finally gave up. We kept expecting it to improve the next year. But it never did. With the barges and the fast water, it was getting dangerous to travel. Toward the end, I was losing \$300 or \$400 worth of decoys every fall, either to thieves or to the river, which rises and falls a lot faster than it used to."

Now Andre and his four sons travel to a large pond near Perry Reservoir for most of their duck and goose shooting.

"My boys never hunted the river so they think this pond shooting is great. But I don't feel near as good hunting a pond. It'll never be the same as the river."

The sandbar-channel combination provided a bountiful feeding and resting area not only for migrating and resident waterfowl but for swans, pelicans, and countless shorebirds. The slow-moving chutes offered ample feeding opportunity for fish like shovelnose sturgeon and paddlefish and served as valuable nursery areas for many species of immature fishes. The heavy fish concentrations in those shallow waters also attracted bald eagles and ospreys.

Water-oriented furbearers such as mink, beaver, muskrat, raccoon, and river otters found much to their liking in their undisturbed river system. Elimination of shallow water diminished the numbers of crayfish, snails, frogs, freshwater clams, salamanders, insects, and small fish—an important food source for furbearers like the raccoon and mink. Beaver populations felt the loss of side channels, stream banks, and permanent deep water. Muskrats were similarly afflicted by loss of marshy areas and slow-moving waters containing root stocks.

Reduction in commercial fishing and sport fishing catches through the years has been well-documented.

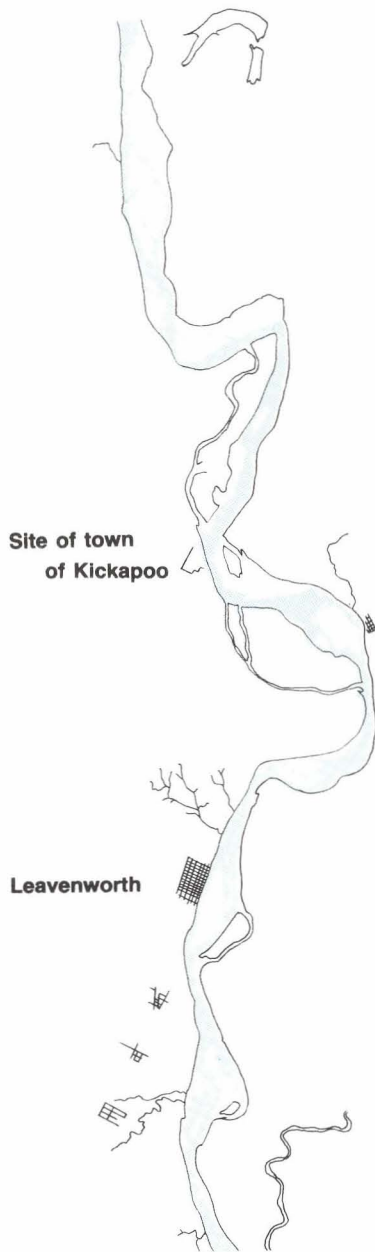
Cal Groen, chief of Kansas Fish and Game's fisheries division, was one of the researchers involved in studying the project's effects on aquatic resources. During graduate studies at South Dakota State University, Groen conducted an extensive creel census and fish population sampling which compared sport fishing success in channelized and unchannelized portions of the river, from Gavin's Point Dam—the last mainstem dam on the Missouri—to Rulo, Nebraska.

"We found that the total pounds of fish harvested per mile from the unchannelized river was more than double what it was in the channelized portion," Groen said. Another telling result of the study was the distribution of fishermen; angler use of the unchannelized portion was substantially higher than the channelized portion, despite the fact the latter lies in the area of highest population density.

The same trend applied to annual rates of catch in both portions of the river, Groen noted, and the unchannelized river produced more desirable game fish with a greater average total length.

A separate study revealed that drift (organisms carried by the current) and macrobenthos (bottom-dwelling organisms)—both important components of the aquatic food chain—were much scarcer in channelized river. The lower water velocities and shallow water pools associated with the unaltered river were conducive to existence of those organisms, but the grinding effect of sand particles carried in the swifter-flowing water created a hostile environment for them.

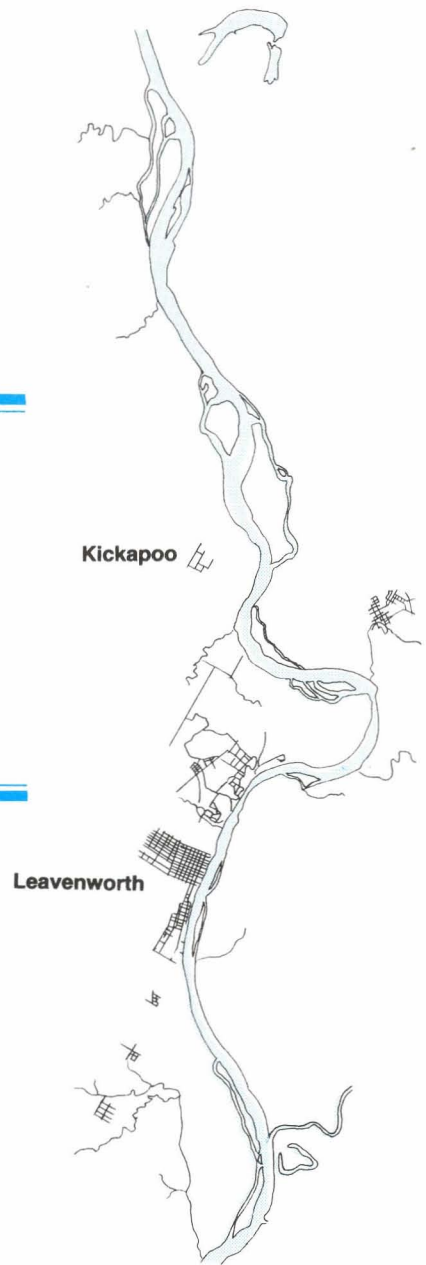
The altered habitat has taken a similar toll on commercially-marketable fish species. Missouri Department of Conservation biologists John Funk and John Robinson reported that 1.7 million pounds of fish were taken from the river by commercial fishermen in 1947.




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**the Missouri—  
Delaware to  
Atchison  
1879 . . .  
. . . 1954**

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By 1963, they noted, the annual take had declined to 324,000 pounds. Blue catfish, paddlefish, and lake sturgeon have declined considerably. Native buffalo and carpsucker populations have plummeted. Only the carp and channel catfish seem to be increasing in abundance.

“The fish population of the river has been dominated by a few species adapted to survival in the swift, turbid stream and diversity of the population has declined as habitat has become less varied and diverse,” Funk and Robinson concluded.

Van Horn offers his steadily shrinking take of flat-head catfish as one example of how the commercial catch has been systematically destroyed. “We used to take flatheads that *averaged* 70 to 75 pounds, but every year it seemed like they got smaller and smaller. The biggest one I took last year was 33 pounds.”

“If it wasn’t for carp, there wouldn’t be anything,”

Van Horn continues, estimating that carp comprise more than 95 percent of his catch now. And carp are marketable but Van Horn would welcome another year like 1946, when the fishing was so good “. . . I wore myself out trying to dress the 15 to 20 large flatheads I could take in a day.”

That isn’t likely to occur, since the “improvement” the river has been subjected to has been underway more than 60 years. Undoing even a small share of a project of this scope will take time, no matter how concerted the effort to get it done.

When the project was first authorized, navigation and bank stabilization were the sole objectives. But the changing needs of a changing country have added several other considerations. Water quality improvement, agricultural demands for water, projected industrial needs, and recreational potential, as well as

*This comparison of a stretch of the Missouri shows the effect of construction of levees and wingdams. Water surface area along this reach has been reduced by thirty-eight percent in seventy-five years, and almost 1,500 acres of islands have been eliminated. The real loss shows in the picture below. With the river under control, farmers have been able to claim large bends and sandbars in the floodplain, crowding riparian timber into thin fringes along the riverbanks and eliminating backwaters. The track of an old chute still shows in this field.*



fish and wildlife needs, are all competing for a slice of the pie.

Some complex ecological problems exist that could make river restoration efforts especially difficult. Riverbed degradation in the middle portion of the river is one example. That degradation is occurring from Gavin's Point Dam downstream to about the mouth of the Platte River in Nebraska. The problem is apparently the result of the increased erosion potential caused by removal of sediments from the river by upstream dams. The increased eroding power of the less turbid water is lowering the river bed and causing the dewatering of wetlands and oxbow lakes adjacent to the river. Again, fish and wildlife are among the hardest hit victims. The Corps is looking for solutions.

Other studies the Corps is conducting include updating a master plan for development of recreational resources along the river, and assessment of the current system's ability to meet future water transport needs.

Wildlife consideration has been painfully absent throughout most of the life of the project. Corps efforts to restore degraded habitat has so far consisted primarily of "dike notching." By notching dikes to allow water to flow across land that had accreted behind the dikes, some of the shallow water habitat lost during the project has been recreated.

The Corps' fish and wildlife mitigation study, which will contain information on fish and wildlife-associated economic impacts, will be finalized by September of this year. Information supplied by the U. S. Fish and Wildlife Service, as well as independent Corps study, will identify areas that can be restored and provide estimates of the costs of performing that work. Ultimately, Congress will decide on funding levels and sources for Missouri River fish and wildlife restoration efforts.

A renewed interest in the Missouri in recent years indicates the public is concerned about the potential the river offers for fish and wildlife enjoyment as well as recreational pursuits. One positive step for environmental concerns was the action taken by Congress to designate a 59-mile reach of the river above Sioux City as a part of the national Wild and Scenic Rivers system. In Missouri, environmental groups have christened 1980 the "Year of the River" and plan to continue sponsoring tours and events to rekindle public interest in the river. The Missouri Department of Conservation has purchased, with revenues from its conservation sales tax, three public use tracts totalling 11,000 acres along the river.

This much is certain: the Missouri is a huge resource that has suffered a tremendous amount of change. In view of the years and effort and money it has taken to transform the river to its present state, it will take more than a token attempt to recover what has been sacrificed. Widespread public commitment to that ideal will help get it done. □

# *The Hunter as Wildlife Researcher*

Bob Mathews

**T**he average hunter, his feet and face numbing in the chill of a November morning, probably is not too concerned with how many other hunters are out there in pursuit of the same bird, or how his shooting success compares with the overall state average, or how many hunting license buyers didn't hunt last year. But the wildlife manager has to know those things, along with myriad other statistics, indexes, trends, percentages, economic impacts, and costs to assist in the decision-making that eventually affects the average hunter.

For years, Kansas sportsmen have contributed vital information that enables Fish and Game biologists to do their jobs. The cooperation of hunters in supplying that information is being relied on more and more.

Every year, the state's sportsmen glean information on which wildlife species are being hunted most heavily, which regions of the state experience noticeable changes in total harvest, estimates of the number of days afield for the average sportsman, and similar bits of information that monitor the pulse of the state's wildlife resources. By relating their individual hunting

and trapping experiences through mail surveys conducted by the Fish and Game Commission, each hunter or trapper participating adds to the collective view of the status of Kansas wildlife.

The backbone and elder member of the agency's hunter-derived information collection efforts is the annual small game harvest survey, a sampling of five percent of the hunting license buyers in each county. It's been around since 1957 and annually lays the base of information on small game hunting activity. From that county-by-county sample, biologists can project statewide estimates of hunting activity.

Each of the numbers and statistics published in the annual summary of small game hunting tells a story. For example, according to the 1978 report, pheasant hunters numbered 168,000 last year, making the ring-neck the most popular target for hunters. Quail hunters weren't far behind with 161,000 hunters reporting at least some time afield devoted to quail. Obviously, many sportsmen hunted more than one species. Cottontail hunters were apparently the most dedicated of the small game hunters, with a statewide average of 6.5 days afield per hunter. Lesser prairie chicken hunters,



Ken Stiebben

at the other end of the scale, spent an average of 2.13 days afield in pursuit of that species. Average daily bag was highest for dove hunters (3.64) and lowest for greater prairie chicken hunters (.50).

In addition to statewide estimates, hunter activity is divided into ecological regions, based on the primary ranges of each of the small game species. That portion of the 1978 report showed that quail hunters in southeast Kansas and the Flint Hills enjoyed the hottest shooting, with season harvest per hunter averaging 21.67 and 19.34 birds, respectively.

Another mail survey is aimed at collecting similar information from trappers. In February, the questionnaires are sent to seventy five license holders in each of Kansas' 105 counties. Information returned by sportsmen is summarized and an accounting of hunting and trapping activity appears as the annual furbearer harvest summary. The furbearer harvest survey was initiated as an annual endeavor in 1977 but it had been conducted previously in 1965, 1969, 1972, and 1975. The bolstered effort is largely the result of dramatic increases in recent years in the number of furbearer

trappers and hunters afield. Trapping licenses sold in Kansas have rocketed from 2,892 in 1969 to 12,805 last year. A primary reason for the burgeoning ranks of furbearer hunters and trappers is illustrated in another portion of the report, which traces fluctuations in the average dollar value of pelts. Bobcat pelts, which sold for an average of \$5.50 per pelt in 1970, were bringing an average of \$86.99 in 1978. Coyote pelts followed suit, blasting from \$3.83 in 1970 to \$38.27 in 1978.

Raccoons were the most widely pursued Kansas furbearer, according to data on total statewide harvest. Trappers and hunters carried home some 131,000 'coons in 1978. Raccoon trappers spent an average of 22.4 days afield in 1978, second only to coyote trappers, who averaged 28.2 days afield.

Economic values also can be estimated from information provided by sportsmen. Their reports of hunting and trapping activity, for example, confirm that raccoons and coyotes were big business in 1978. Raccoon pelt sales totalled over \$3.9 million. Coyote pelt sales tallied an estimated \$4.3 million.

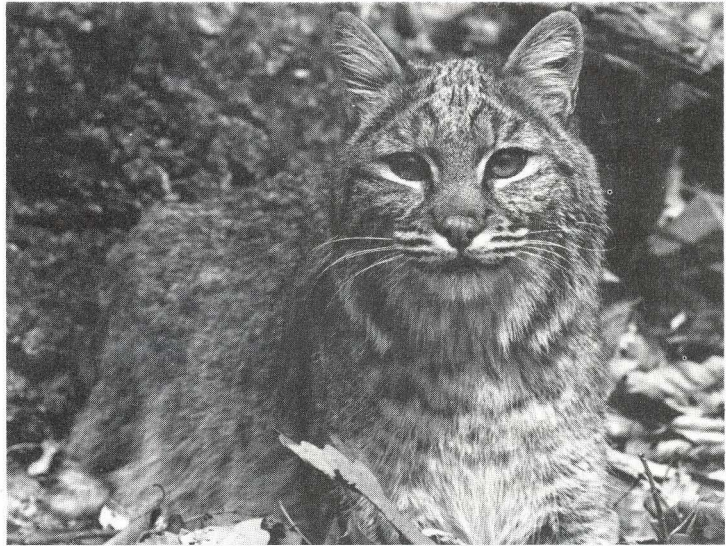
In the past two years, sportsmen have become even more involved in wildlife monitoring efforts and their

# What bowhunters see:

If an archery hunt for deer were set in a grove of trees that supported nothing but whitetails, the sport would be substantially duller. One of the most appealing parts of bowhunting is that it forces the hunter to wait in ambush while the undisturbed natural community pursues its business around him. Pressed for a report on the day, a bowhunter is likely to dwell longer on the coyote, bobcat, squirrels, and other critters that passed his stand than on the deer he saw. Fish and Game biologists have taken advantage of these long hours of observation by asking bowhunters to report what they saw over the season. Responses help establish an animal's distribution and relative abundance.

## Bobcat:

Last year, bowhunters responding to the archery wildlife survey spent more than 60,000 days afield and saw nearly 900 bobcats. Because of the bobcat's secretive habits, population censusing is a difficult task that is greatly aided by the efforts of the bowhunters. The archery survey, combined with other trapping and hunting surveys, indicates that cats are found in virtually every county in the state with highest densities in the Flint Hills and the southern tier of counties in south central Kansas. Photo by Leonard Lee Rue.



## Squirrel:

Squirrels are the most visible wildlife in most deer cover. More than 110,000 of them were reported by bowhunters responding to last year's survey. Squirrels are most abundant in the eastern third of the state, but like many other wildlife species, they can be quite common along drainages to the west as well. Photo by Leonard Lee Rue.



## Raccoon:

Last year, bow hunters reported sighting 4,796 raccoons, a slight increase over the previous year's tally for the number one furbearer in Kansas. Last year, raccoons were sighted in all but three southwest counties. Some of the highest counts came from western counties where coons tend to concentrate in sparse streamside cover and are easily seen. Photo by Leonard Lee Rue.



## Coyote:

With increasing interest in coyotes because of the value of their pelts, wildlife managers have been looking for every possible method of assessing coyote populations. The archery survey helps. Last year, bowhunters saw 12,214 coyotes. Photo by Len Rue, Jr.



cooperation with Fish and Game biologists has become more substantive.

Bowhunters participating in the "archery wildlife survey" are examples of that new involvement. That survey was actually initiated in 1977 in response to concerns over the status of the bobcat, but includes provisions for reporting sightings of coyote, red and gray fox, opossum, raccoon, and tree squirrels.

Since bowhunters often sit for hours in their tree stands during the long archery deer season, they have a chance to observe many species of wildlife besides deer. So, they were a natural choice to augment information taken from the usual mail surveys. Unlike the traditional mail surveys the archery wildlife survey is the only sportsman-derived effort which gathers population data instead of hunter activity and harvest figures.

Bowhunters again this year received a postcard-sized questionnaire with their deer hunting permits prior to the season. The archers were asked to record the number of animals seen and total number of days hunted, as well as which county they hunted most. Their observations are summarized and converted into an index which reflects the number of individual animals seen per day by bowhunters. That index, in time, will establish an important data base for future furbearer population assessments.

The archery survey still is too young to provide the time-tested store of information upon which biologists like to base their assumptions, says Neil Johnson, furbearer biologist who coordinates the survey. But the index compiled in 1977 and 1978 corresponds with other indicators of species abundance so it looks promising as an inventory tool, he said.

"Furbearer cooperators" are the principal characters in another survey effort involving the sportsman. Hunters and trappers who volunteer their aid as "cooperators" mail jawbones and teeth of animals they harvest to Fish and Game biologists for analysis. Before the season opening last November, each of these cooperators was mailed a packet containing 20 jaw envelopes and asked to return the lower jaws of any badger, beaver, coyote, red or gray fox, mink, and raccoon they took.

Analysis of the teeth enables biologists to determine the age structure of populations, an important barometer of the overall health of the species' population.

Sportsmen also were instrumental in an intensive investigation of bobcat reproductive success last year. Bobcat hunters and trappers were required to surrender the carcass of each cat they took to a Fish and Game employee and obtain an export tag for the pelt before they could sell it. By analyzing scars in the reproductive tract of female cats, Johnson obtained estimates on average reproductive history and reproductive success of the state's bobcat population.

Kansas waterfowl hunters contribute annually to

federal management of migratory waterfowl populations. Every year, the U. S. Fish and Wildlife Service queries a selected sample of about 30,000 waterfowl hunters nationwide, asking them to return one wing from each duck shot and the tail feathers from each goose. The motive behind the collection effort is to provide valuable information for the Service's annual waterfowl harvest survey.

Hunters within the ten states of the Central Flyway, including Kansas, send wings and tail feathers to Fort Collins, Colorado. After the close of waterfowl seasons, personnel from state conservation agencies in the Central Flyway gather at Fort Collins for an event called the Central Flyway Wing Bee, where they examine the 15,000 to 20,000 wings and tail feathers collected. Duck wings are sorted according to species, age, and sex by noting key characteristics such as feather color, wear, and replacement. Goose tail feathers are measured to determine the chronology and degree of harvest of goose populations.

In the past, Kansas Fish and Game biologists have conducted similar collections of animal parts to analyze upland bird populations in the state. Pheasant feet and wings, quail wings, and prairie chicken wings and tail feathers were collected from a sample of Kansas hunters as recently as 1968 to establish data on the status of those upland birds. Since that data base was established, however, that type of information collection has not been needed.

In much the same way, check stations set up during the early years of deer and antelope seasons in Kansas established a data base for reference in succeeding years. Check stations, where biologists physically examine deer or antelope immediately after they are taken, are not used as extensively now. Big game harvest rates, as well as sex and age structure, are currently monitored through the reporting system for special permit holders. With the permits mailed to them prior to the season, hunters also receive a questionnaire and tooth envelope for deer and antelope taken. The questionnaire responses establish a record of hunter activity and success. Teeth are analyzed for biological information.

The concern of sportsmen is well documented through their cooperation with wildlife professionals over the years. Their increasing involvement testifies to their willingness to continue as working partners with full-time wildlife managers.

Much has been said of hunters' contributions to wildlife conservation. In addition to the millions of dollars they spend to support wildlife, however, their direct involvement in adding to the sum of wildlife management expertise is there in black and white for wildlife professionals to use. Without their cooperation, much of the work performed by resource managers would be guesswork, and a vital component of the wildlife manager's resources would be sorely missed.

