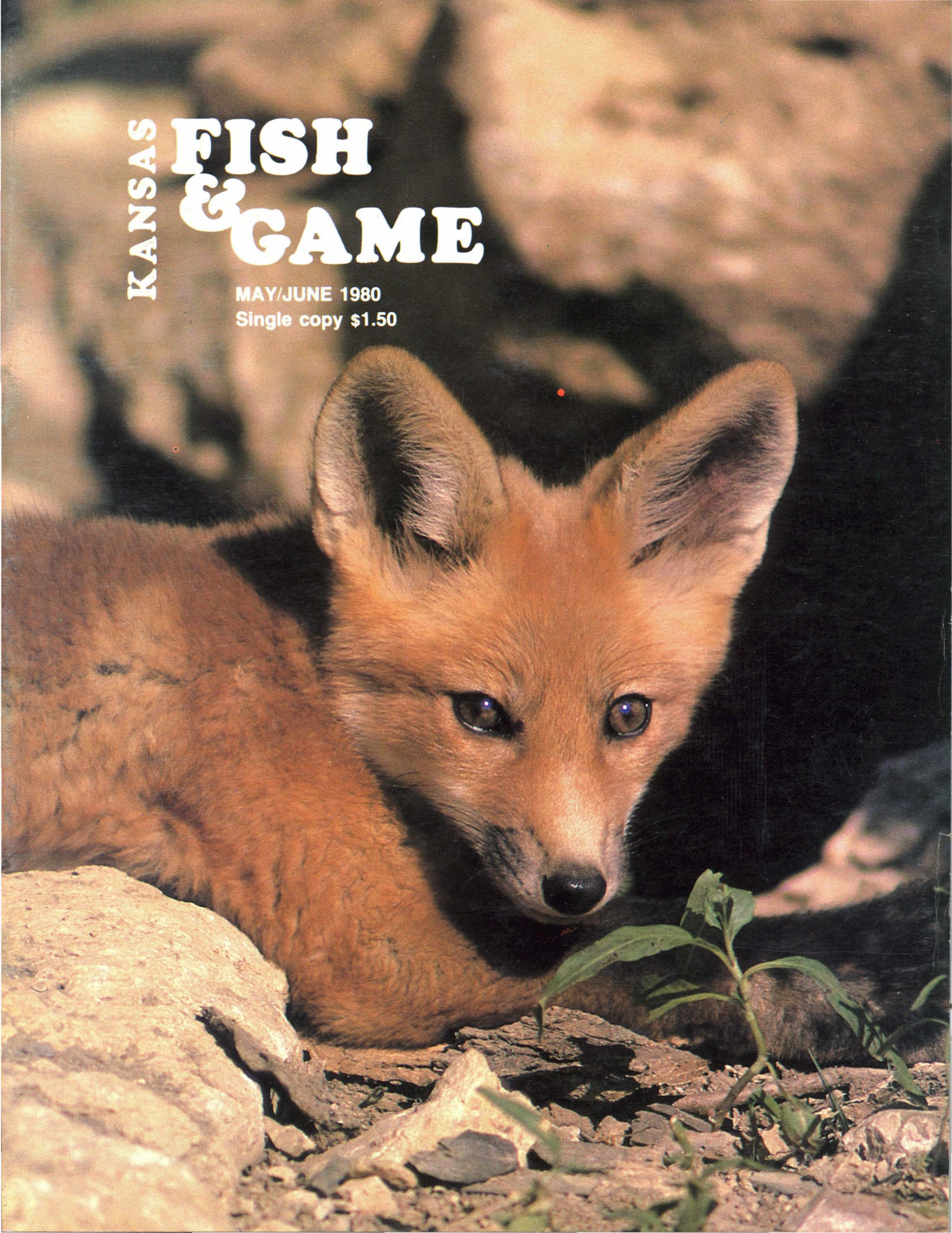

KANSAS

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Editorial

I like rivers. There are good reasons for lakes, I guess; I've even hung around a lake or two when there wasn't any other choice. Lakes are good non-traumatic places for cabin cruisers—no shoals, no barge traffic, no big cottonwood snags from last spring's flood. Lakes support lots of water skiers and make nice postcards. Some of the big lakes like Superior even have a certain river-like fascination because of the constant motion of breakers on their beaches. But they're not rivers.

I don't expect to explain the prejudice. A river attracts me for the same reason a fire does; there's something in the appeal of both that is a much deeper part of the human character than logic. Over the years of my association with flowing water, though, some key differences between lakes and rivers have occurred to me.

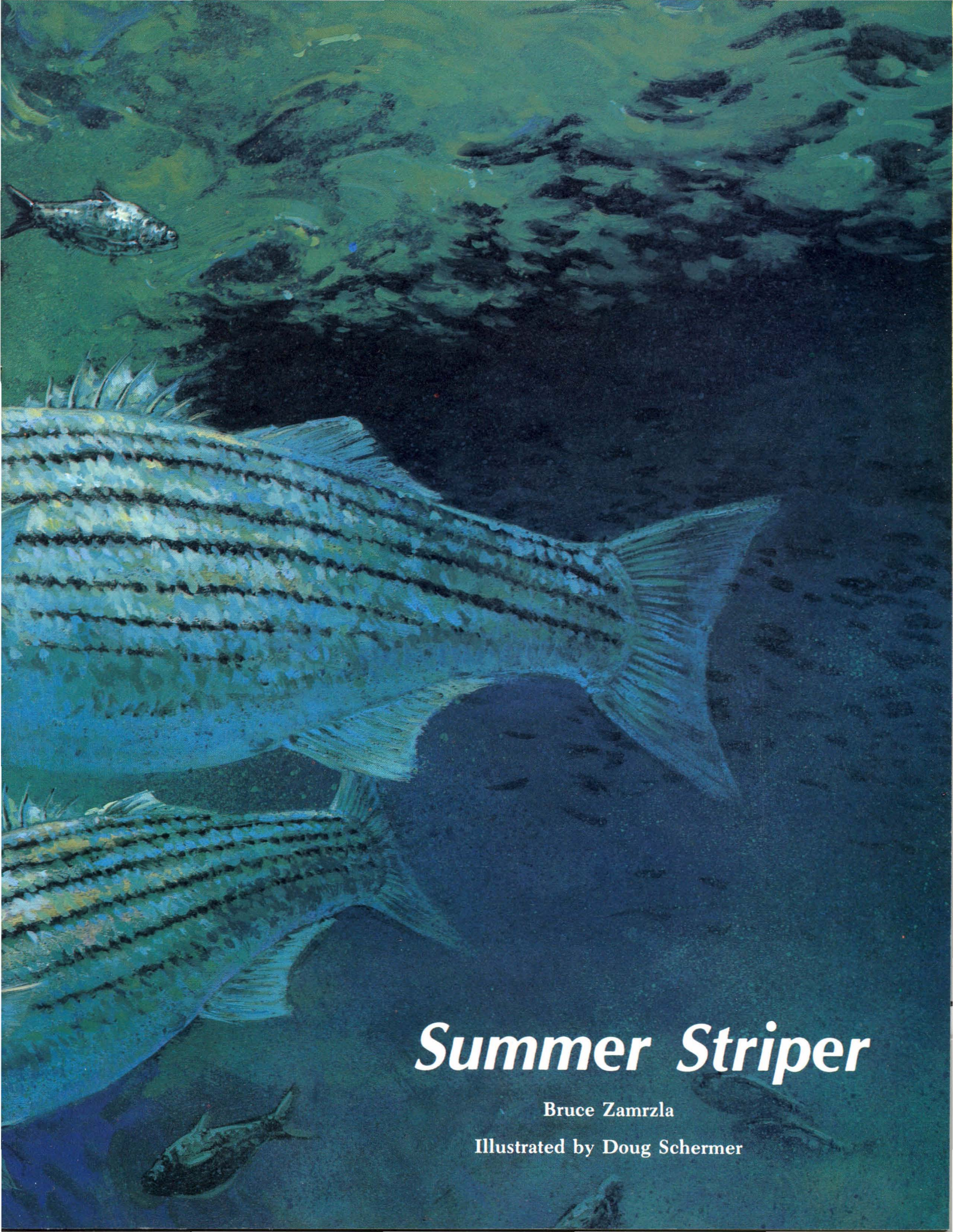
To begin with, a river talks. For a fisherman or loafer along a sandbar, the sound puts a little brighter note in the day. For a canoeist who wants to find out something about the river, the voice of the current tells volumes. A riverman with a good ear can walk up to the bank of a stream he's never seen and tell a lot about how it lies on the land, how fast it runs, how deep it is, whether the water is clear or runs muddy, all by the sound of the current on bank and bottom. What he can't tell from listening he can almost certainly pick out with a careful look. In fact, anybody who has ever watched water run down a culvert has a good leg up on reading a stretch of river when he sees it. Compared to the featureless water of a lake, a riffle or bend on a river is easy to get acquainted with.

On the other hand, very few people ever get to know a whole river. A river's origins and destinations are almost always mysterious. The blue line on a map doesn't show whether the stream heads in a snowfield, a spring, or a cornfield drainage ditch, and, although we all know every river eventually runs into an ocean, we're seldom very clear on the route it takes to get there or the changes it undergoes along the way. These unknowns give a river an air of romance. Like most other far travelers, a river leaves sedentary folk along its course with a vague urge to follow the current around the next bend.

Best of all, a river always carries a little wildness with it. There is a fringe of timber and brush along the bank that refuses to be cultivated. Along big rivers like the Mississippi or Missouri, this fringe can be extensive, but even along smaller prairie streams where it has been pared down to a scrap or two, it is always vital wildlife habitat and in some cases the only habitat left. Rivers support such wild bottomlands because they're wild themselves. There is a lack of respect for private property among rivers. Sooner or later, even the most anemic part-time creek will rise up and flood a couple of acres of wheat or corn to re-establish its claim to the floodplain.

That's where the trouble starts. When we crowd a river too much, we know we're going to pay for it, but the alternative of leaving fallow bottomland seems too wasteful to accept. Later on in the year when the only water on the landscape is trickling downstream to another state, it seems a waste not to pump it out and turn it to profit. Dams, straightened channels, and irrigation pumps make rivers safer and more efficient for everybody.

It may be that we've come to a time when we can't afford to leave a river to its own devices. Maybe it's time we traded the informal, private pastimes of the river for the structured togetherness of lake recreation. The swap won't be made without a cost, however. The land between the lakes will be pale, bloodless country, drained of the last blush of its wild tradition. And the farm boys who used to wade the creeks with cane poles looking for a channel cat will all meet on the main boat ramp at Perry and wonder why they bothered to come.—***Chris Madson.***



Summer Striper

Bruce Zamrzla

Illustrated by Doug Schermer

Striped bass are as American as motherhood and apple pie. The striper has a significant place in American history. They were used for food long before white men set foot on the continent. Stripers were a food staple of the pilgrims and were more important than turkey as they were more abundant and easier to get. You can bet that striped bass was served on the first Thanksgiving. America's first fish and game law enacted in 1639 by the Massachusetts Bay Colony prohibited the use of striped bass and codfish as garden fertilizer. The colonists had noticed a decline in the fish populations and thought that this use was wasteful.

America's earliest sportfishing clubs were dedicated to striped bass. Many famous men out of history were members of such organizations. George Washington was known to visit fishing clubs in the Potomac and to catch striped bass on occasion. The story about George tossing a silver dollar across the Potomac was probably only half true. It was more likely he was casting a spoon in an attempt to catch striped bass. He probably invented the silver dollar yarn so Martha wouldn't know that he had gone fishing again.

Any huntsman knows that to successfully stalk an animal you must know all there is to know about that animal. So it is with fishing and striped bass. You must learn his habits, food preferences, his reactions to changes in his environment like temperature, wind or light: Why he is where he is! Know him and he is yours—maybe.

The striped bass, whose scientific name is *Morone saxatilis,* frequently is called "rockfish" in his native coastal range. "Saxatilis" literally means rock. "Morone" may have been derived from the Greek word "moros" meaning "death or stupid." In colonial times, the "rockfish" may have earned a reputation for stupidity since he was abundant and easily caught. That was in colonial times. The striper has changed some in the interim.

A fish's anatomy and physiology can tell you a great deal about its habits. A white bass or crappie for example, has a laterally compressed body which gives it great manuverability for quick turns. The striper, on the other hand, has a long torpedo-shaped body which is ideally adapted for strong swimming in a straight line. A striper's eyes are located near the top of his head and pointed up. This means that when he feeds by sight he will attack from below. Stripers have keen senses of smell, hearing, and taste which enable them to feed easily in turbid water or at night.

If you are going to catch a striper, fish for a striper, and if you want to catch a big striper, fish for a big striper.

Knowledge of striped bass patterns or movements in reservoirs is important if you are to locate them. In most reservoirs, stripers exhibit annual and daily migration patterns. Often prior to spawning time, stripers will tend to congregate or stage near the dam. In Kansas, this occurs from March until late April. In most reservoirs they then begin to migrate upstream following the river channel until they reach the river where they will spawn or attempt to spawn.

According to Stu Tinney, one of America's top striper fishermen who has personally caught over 50,000 striped bass on hook and line, male stripers disperse to points throughout the reservoir during spawning season. The females form large schools in or over deep water near the river channel. When a female decides to spawn, she breaks away from the school and follows the streambed from point to point upstream. A few males break away from the points and follow her to help her perform her maternal duty.

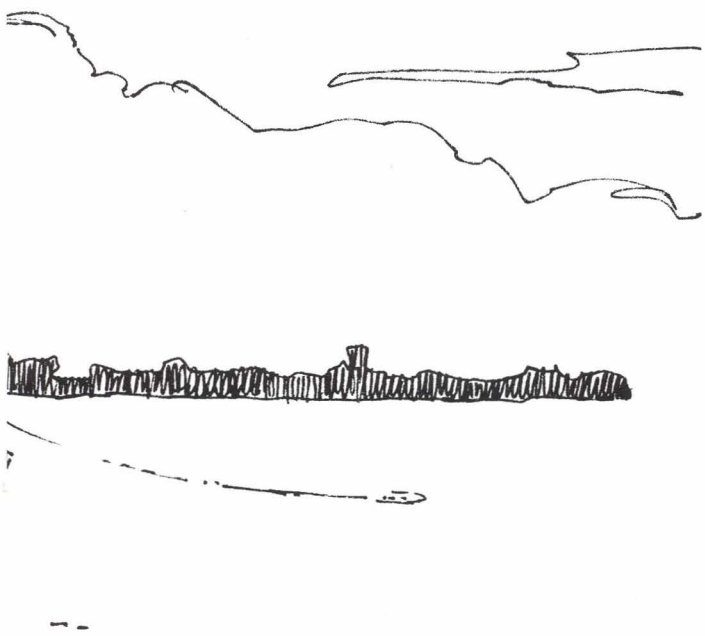
Although this pattern has been reported in many inland stripers, we're not sure how closely Kansas stripers follow it. We do find many males on points throughout the reservoir in April and May but females seem to disappear. When the females appear again in June and July, they almost always seem to be reabsorbing their eggs, a sign that they are not spawning or even dropping their eggs. On very rare occasions, small female stripers have been caught at the extreme upper end of Wilson Reservoir in May but not in the moving waters of the river.

After the spawning period, stripers move downstream, again following the river channel and feeding on points and mud flats as they go. Through the summer, stripers typically inhabit the lower one-third of

the reservoir. Large points or shoals near deep water, bends in the river channel, and deeper water near the dam commonly produce stripers in most reservoirs.

Radio-telemetry studies in J. Percy Priest Reservoir in Tennessee reveal that stripers have a series of favorite hangouts and tend to move in schools from one to another. These hangouts are usually near a wide bend in the old river or creek channel and are found throughout the reservoir. Stripers will usually use the old river channel for a travel lane. When moving to points or coves, they select a cut or creek channel for a travel lane. Also according to the Tennessee study, stripers move onto flats or points in the evening to feed, then move back to submerged islands or to the edges of flats or points. Stripers frequently spend inactive periods near areas that drop off into the river channel.

Most of the information from the Tennessee study agrees with what experienced striper fishermen have found in most reservoirs including Kansas reservoirs. The major point of variation is that stripers tend to congregate near the dams in some reservoirs more than in others. In Wilson and Glen Elder reservoirs, stripers are frequently found on points and shoals near the dam but are also found in other parts of the reservoir. In Kansas, stripers tend to be found on points, shoals, bars, flats or submerged islands that lie near deep water, usually near a wide bend in the stream channel. Submerged brush increases the chances of finding stripers. These characteristics from now on will be called "striper water." Stripers often suspend at fifteen to thirty feet in "striper water."



Striper fishing does not require much special equipment. A standard five-and-one-half foot bass rod with a level-wind reel full of fifteen-pound test monofilament will do. A good stiff spinning rod and reel capable of handling twelve-to-fifteen pound test line will also work well.

The next thing you will need is a topographic map to help you find "striper water." If you plan to fish from a boat, a depth finder is a tremendous aid; schools of stripers will show up on these sonar rigs.

There are numerous ways to fish for stripers. The most frequently used is trolling. Using your map, depth finder, and experience, locate some "striper water." Now you need a trolling lure. Large deep-diving Thin-fins, Bombers, or even Hellbenders will do. Select a lure that will run fifteen to twenty feet deep at a good trolling speed with seventy-five to a hundred feet of special non-stretch trolling line out. The best colors are usually those that resemble shad since the shad is the number one entree on the striper menu. In spring, however, you may want to choose crayfish colors. Troll the striper water that you have located, working the side of the structure nearest to deep water or the streambed if possible. Most stripers taken from Glen Elder and many from Wilson Reservoir have been caught by trolling. This method has been most effective in Kansas reservoirs from June through November.

Some anglers have experimented with lead core line or steel line to enable them to troll deeper. Others attach weight ahead of their lure. If you do this, you can change the action of your lure. For best results, put the weight several feet ahead of it. These methods all help get your lure down to the fish, but before you try any of them, try one of these techniques to get your lure deeper: let more line out; troll faster, or use a lure designed to dive deeper. Another method to consider for controlled trolling is the use of a diving plane like a Pink Lady. These attach ahead of your lure and can be preset for a particular depth. When a fish hits the lure, the diving plane goes into a neutral position so that you don't have to fight it while you land your fish. The ultimate in depth control and trolling is the downrigger which consists of a winch, line, and a metal ball weighing about ten pounds. These hold your line at a precise depth and allow you to use less line and lighter tackle which greatly increases your maneuverability. When a fish strikes, a mechanism releases your line, and it's just you and the fish. Downriggers are becoming popular with striper fishermen in many states, and I would expect to see their use increasing in Kansas.

Live baits have been very effective at Wilson Reservoir. Some stomach analysis indicates that Wilson stripers will eat crayfish and shad from April to early

June and then switch almost entirely to shad. Wilson stripers have been caught on crayfish, bluegill, green sunfish, live shad, large chubs and minnows, and even earthworms. Crayfish are most productive in April and May but will take stripers almost anytime of the year. Usually the angling technique and rigging are about the same for any live bait.

Most anglers interviewed for this article preferred a slip sinker from one-half to one ounce above a 3/0 or 4/0 hook. The slip sinker is held about three to five feet above the hook by either a small rubber lined sinker or a small split shot. If you use a split shot, be sure not to damage your line when you crimp it. Use the least total sinker weight that you can. Usually, bait fishermen prefer twelve- to twenty-pound test monofilament line. Crayfish are usually hooked through the abdomen with the hook coming out near the base of the tail. Small fish used for bait should be in the four- to eight-inch range and can be hooked through the upper lip.

Live bait fishing has been most successful when the wind is blowing. If you are fishing from a boat, drifting toward the windward side of points, bars or submerged islands provides the best action. The striper will probably be on the windward side of the structure and grab the bait as it drifts by. Now comes the big question—to set the hook or let the fish run and set the hook when it stops to swallow. There are as many arguments one way as the other. Stripers have been caught and lost either way. I lean a little towards letting the fish run particularly when using larger baits. If you are in brush, you probably should set the hook right away.

You don't have to have a boat to catch stripers with live bait. Many have been landed by shore fishermen using earthworms. This happens most often in March, April, and May. Again, fish the deep side of a point toward the river channel and into the wind. The more wind, the more successful you will be. Any live bait should be fished this way.

If the wind isn't blowing and you are in a boat, concentrate on "striper water" with some brush if possible. Still-fish, moving your bait to various depths until you locate a striper. Some "pros" won't fish an area unless they can see fish on their depth finder.

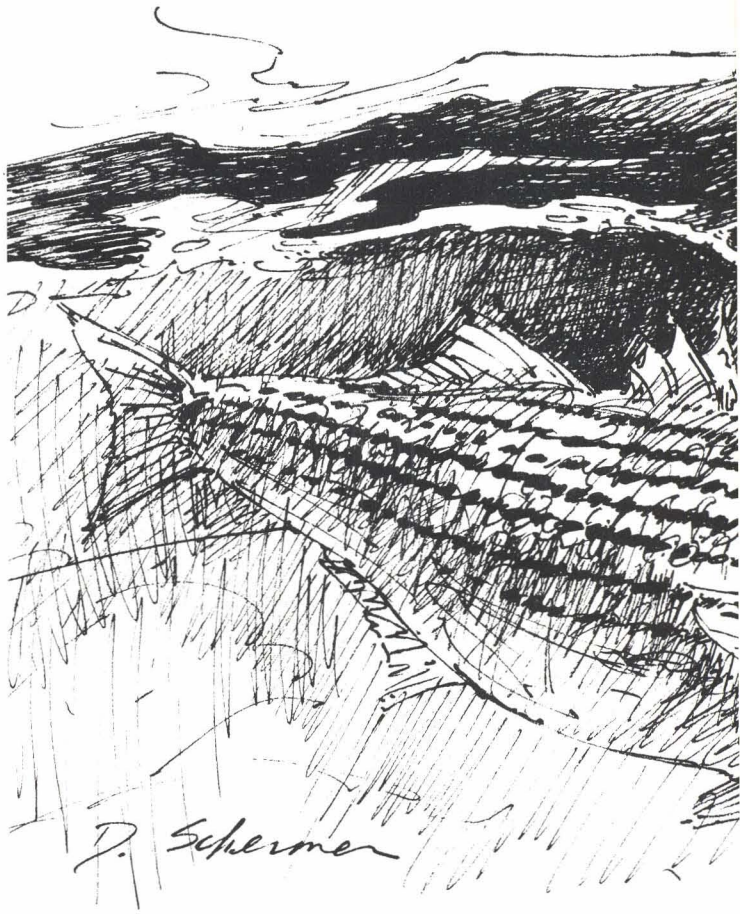
If live bait doesn't catch your fancy, you can always try jigging. Jigging is most successful in the fall but also produces many fish in the summer. The kind of jigging technique you use depends primarily on the Kansas wind. If it is calm, use a vertical jigging technique. This works great once you locate stripers. It is the best way to handle stripers in brush. Jigging is usually done in fifteen to thirty feet of "striper water." Stripers may suspend at these depths over deeper water.

Jigging can be done with a spoon or a lead head jig. If you use a spoon, simply drop it to the bottom or to the suspended stripers. Raise the spoon and lower it using different lift heights and rates until you catch your striper. Don't leave any slack in your line and be aware of the depth that you are fishing by measuring the line as you lower the spoon. Many anglers mark their rods one foot above the handle and use the rod length to measure line as they lower their lure.

If you use jigs, select something in the three-eighths to one-ounce range. The proven colors nationwide are white and yellow, although on occasion, other colors may work better. Again, keep slack out of the line.

Jigs can be worked faster than spoons. Stu Tinney recommends pork rind or plastic on a jig for added attraction. Some Wilson Reservoir anglers use nightcrawlers to dress their jigs. Keep finger contact with the line so you can feel hits on the way down. This is really important especially if you don't have a sensitive graphite rod. Jigging is a great way to catch several stripers in a hurry, as catching one frequently stimulates others to strike, but remember, the limit in Kansas is still one!

If the wind is blowing too hard to anchor and vertical jig, you may have to use a drifting technique.



Position your boat above the point or structure that you want to fish and then let the wind drift you across it. Face the wind and pump your jig or spoon up and down five to ten feet as you drift. Keep a tight line on your lure as it falls to avoid missing fish that strike as it falls.

Jigging can be done from shore. If the wind is blowing, fish into it. Fish across points towards deeper water. Don't pump or bounce the lure, just reel it in fast. This technique works well just prior to spawning runs.

Experienced striper fishermen throughout the country will proclaim that there is no fresh water fishing experience more exhilarating than taking a large striper on a top water plug. This technique isn't well known in Kansas; however, numerous reports of schooling stripers chasing shad to the surface have come from Wilson and Glen Elder reservoirs. One or two reports have drifted in of stripers being caught during this frenzy. Usually, the angler was not prepared and the fish disappeared. This sort of thing doesn't happen every day or even frequently, but if you should see stripers surfacing, be prepared. Have a good surface lure with lots of splashing action or even a jig or surface spoon handy just in case. Some anglers will keep a rod with such a lure in their boats at all times. You should approach surfacing stripers with care as a boat and motor will spook them. Stay as far away as you can cast. In some southern reservoirs, stripers will surface, disappear, and then reappear again anywhere up to a quarter mile away. They are generally moving in one direction when they do this. Experienced anglers will move ahead of the school trying to guess where they will reappear again in hopes of getting another chance at them. Keep your eyes open; this pattern may very well hold true in Kansas reservoirs. Another hint from our southern neighbors is that stripers surface more on cloudy days. When they surface on clear days, it is usually early in the morning or in the evening. Striped bass are sometimes seen surfacing in Wilson Reservoir in August and September. Most often, this is within one hour of sunset.

You may think that top water fishing for stripers ends here but there is still more. Last May, prior to the STRIPER Tournament at Wilson Reservoir, Stu Tinney, the founder of STRIPER and sponsor of the tournament, gave a seminar. He described a technique which he has used to catch many of his annual average of 2,500 stripers. He recommends Red Fin, Rebel, and Rapala seven-inch swimming lures. He says you should locate stripers and then cast as far as you can, using a slow retrieve and trying to make the lure look like a swimming shad. He says that a shad leaves a "V" behind it as it swims. You must make the lure do this too. He states that a striper may hit the lure several times before he finally takes it. Patience is important! Several anglers who attended the seminar, including myself, have tried this technique without success thus far. Stu plans to return in the spring of '80 and demonstrate his technique. You can bet I'll be there.

So far, the Kansas striper fishing fraternity is a fairly small bunch, and, by and large, they don't say much. Maybe the quiet is a reflection of the kind of patience it takes to hunt stripers, but I wonder. Odds are that they know where the thirty pounders hang out and just aren't telling. □

Bruce Zamrzla is the Commission's district fisheries biologist in charge of Wilson and Kanopolis reservoirs. He has followed Wilson stripers and striper fishermen since 1973.

The illustrator, Doug Schermer, is an Illinois native who is well on his way to making a name for himself with his underwater gamefish paintings. Doug's work has appeared on the covers of Bassmaster *magazines and annuals and on the 1979* Daredevle *annual. He is also beginning a series of waterfowl paintings based on his hunting experiences along the Illinois River. The looser, more impressionistic approach he brings to his work is typical of a new wave of wildlife art which is applying more of the philosophy of fine art to wildlife painting.*

ornate box turtle
(Ed and Jean Schulenberg)

"The Cenozoic came, and with it progressive drought, and the turtles joined the great hegira of swamp and forest animals to steppe and prairie, and watched again as the mammals rose to heights of evolutionary frenzy reminiscent of the dinosaurs in their day, and swept across the grasslands in an endless cavalcade of restless, warm-blooded types. Turtles went with them, as tortoises now, with high shells and columnar, elephantine feet, but always making as few compromises as possible with the new environment, for by now their architecture and their philosophy had been proved by the eons; and there is no wonder that they just kept on watching as Eohippus begat Man o' War and a mob of irresponsible and shifty-eyed little shrews swarmed down out of the trees to chip at stones, and fidget around fires, and build atom bombs."

Archie F. Carr
Handbook of Turtles, 1952

Kansas Turtles

Article and photographs
by
Joseph T. Collins

Turtles are a conservative group. They are considered one of the oldest lineages of living reptiles, and this, coupled with their distinctive shells and habits, makes them a fascinating aspect of the Kansas environment. Approximately 220 kinds of turtles are found throughout the world, of which forty-eight occur in the continental United States. In Kansas, there are fourteen kinds of turtles of all sizes and shapes, from the massive alligator snapping turtle which may weigh over 100 pounds to the small stinkpot that averages three to four inches in length.

Most Kansans are familiar with some of the turtles found in our state. As children, many have kept box turtles as pets. Some Kansans hunt turtles as a food delicacy. Kansas fishermen are accustomed to seeing water turtles basking in the sun on stumps and logs at one of the many lakes in the state. However, few people in our state are aware of the different kinds of turtles found in Kansas, and even fewer know much about how turtles go about their daily lives.

Kansas turtles fall into two major groups, aquatic and terrestrial. The aquatic turtles are by far the largest

Alligator snapping turtle

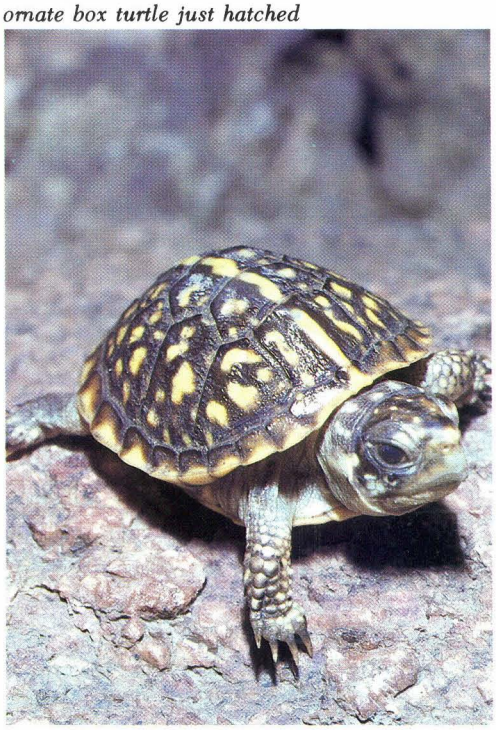
group with twelve kinds. Only two terrestrial turtles occur in Kansas, the ornate box turtle and three-toed box turtle. These two turtles are slow and deliberate in their movements, active from April to October, and are omnivorous, feeding on such items as earthworms, fruit and carrion. Although both box turtles have similar habits and the high-domed shells typical of land turtles, the three-toed box turtle is found only in southeastern Kansas east of the Flint Hills and south of the Kansas River, whereas its ornately patterned cousin is found everywhere in the state. In fact, the ornate box turtle is probably one of the most abundant reptiles in our state, and would be an excellent candidate for the "state reptile" of Kansas.

The twelve kinds of aquatic Kansas turtles can be roughly divided into four groups. Most unusual of these groups are the fast-swimming softshells, flattened, pancake-like turtles with leathery, flexible upper shells and pointed snouts. The two kinds of Kansas softshells, the midland smooth softshell and the western spiny softshell, differ in habitat preference and temperament. Midland smooth softshells prefer the sandy areas of rivers and streams, and have a gentle disposition. Western spiny softshells are found in large rivers, oxbows and lakes, and will bite viciously if provoked. Both turtles feed on fish, frogs, tadpoles, crayfish and other small aquatic animals, and both are considered edible in soup.

Kansas has two species of snapping turtles, the common snapping turtle and its larger relative, the alligator snapping turtle. Most Kansans are familiar with the former, which is found in virtually every body of water in the state, from farm pond to large impoundments. The larger alligator snapping turtle,

Missouri slider

ornate box turtle just hatched



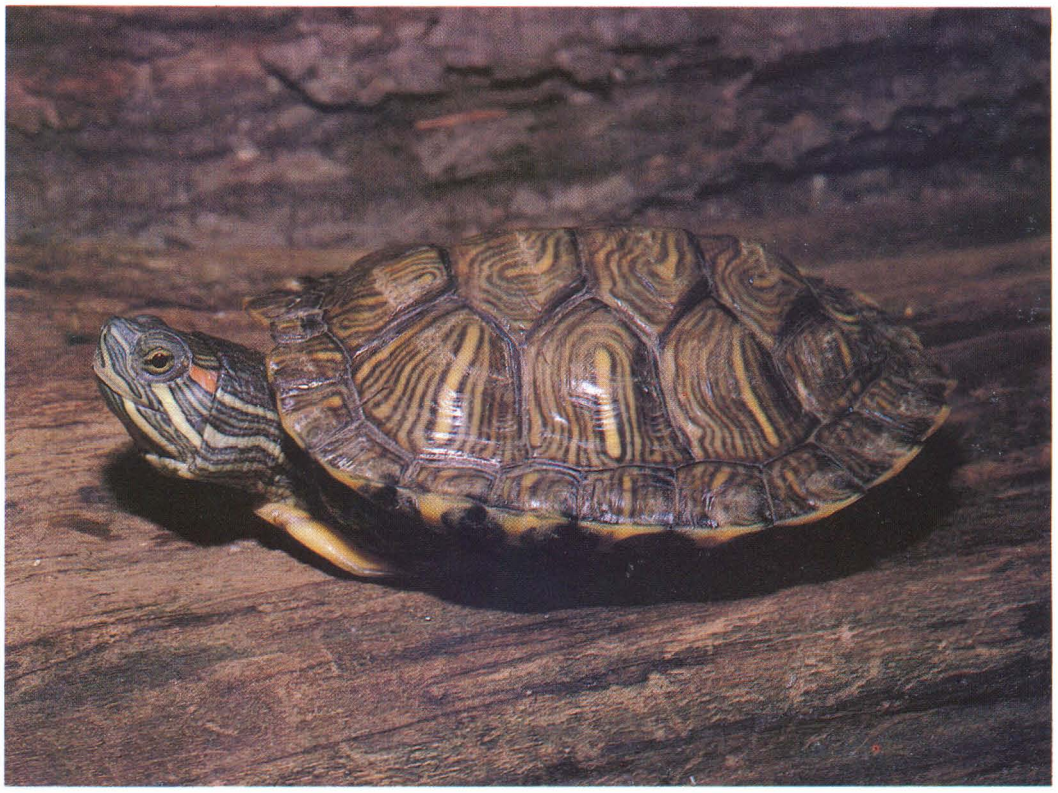
map turtle

however, is extremely rare and is protected by Kansas law as a threatened species. Only two confirmed examples of this secretive turtle are known from the state, the largest of which had an upper shell length of just over twenty inches. Alligator snappers live on the bottoms of large rivers and reservoirs, rarely venturing on land except to dig nest cavities and lay their eggs, a mode of reproduction used by all Kansas turtles. Both kinds of snapping turtles eat anything they can overpower and swallow, and both in turn are considered tasty eating themselves. Try the following recipe:

> *Snapper Turtle Soup.* Ingredients: turtle meat, 1 cup mashed boiled potatoes, 2 qt. water, ½ cup milk, 2 tbsp chopped parsley, 4 tbsp canned pimento, ½ tsp nutmeg, 4 tbsp butter, celery salt, sherry, pepper, turtle eggs (if any available). Place the meat (and eggs) of a medium sized snapping turtle in a large pot over medium heat. Add water, parsley, nutmeg, celery salt and pepper to taste. Boil for 30 minutes or until meat is tender. Add potatoes, milk, pimentos and butter. Warm and serve at once. Serve with sherry. (from "A herpetological cookbook" by Ernest A. Liner, Houma, Louisiana.)

The recipe is for common snapping turtles only. It would not be in good taste to eat an alligator snapping turtle since it is a threatened species in our state and is protected.

A third group of Kansas aquatic turtles consists of six kinds which are considered here as a unit because of their habit of basking in the sun on stumps or logs in lakes, ponds and rivers. These six water turtles are variously known as painted and map turtles, and



This adult red-eared turtle is one of several species commonly seen basking on sunny logs along eastern Kansas streams and pond banks. Red-ears eat aquatic vegetation, insects, tadpoles, fish, snails, and crayfish with equal relish, and are active mostly during the day, spending their nights either floating on the surface or resting on the bottom.

sliders. Three kinds of map turtles occur in Kansas and are all shy, retiring animals that feed primarily on crayfish, aquatic snails and fish. These turtles, the map turtle, false map turtle and Mississippi map turtle, are found in the eastern third of Kansas, and derive their name from the circular markings on their shells which may resemble the contour lines on topographic maps. Two kinds of sliders, the red-eared and Missouri, are found in Kansas. The Missouri slider is restricted to southeastern Kansas whereas the more common red-eared slider is absent only in the western third of our state. The western painted turtle is the sixth and widest-ranging member of this group of Kansas basking turtles. It is found throughout Kansas and, like the sliders, feeds on aquatic animals and some vegetation.

These six water turtles range in size from four to ten inches in upper shell length. Young water turtles are one to two inches in length and were formerly sold as "pets" in department stores and pet shops in Kansas, a practice that is now controlled by Federal law. All water turtles are potential carriers of salmonella, a disease infectious to humans. This potential danger to people coupled with the highly complex requirements for successfully raising young turtles make these animals poor risks as pets.

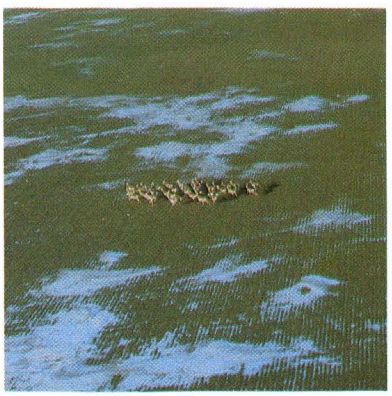
The fourth and final group of Kansas aquatic turtles includes the yellow mud turtle and the stinkpot, two small, secretive turtles which, like snapping turtles, have an offensive habit of emitting a foul-smelling musk when provoked or handled, a habit from which the name "stinkpot" is derived. The stinkpot is found only in southeastern Kansas where it inhabits slow-moving and still-water habitats. The yellow mud turtle is found throughout the waters of the western two-thirds of the state west of the Flint Hills, except for an isolated colony in Cherokee County in the southeast. Both feed on aquatic animals and carrion, and grow to three to five inches in upper shell length.

Turtles are an important segment of the Kansas environment. They are living representatives of an ancient lineage of reptiles, are harmless to humans, and are a pleasing attraction and diversion to fishermen and others who enjoy the outdoors. In addition, they perform a valuable service to the Kansas ecosystem by feeding on dead fish in lakes, ponds and rivers. Finally, some are an economic resource since they make tasty eating. Unfortunately, thousands of turtles are killed annually in Kansas, as they try to cross the roads and highways of our state or when basking on logs where they are shot with rifles and pistols for target practice. Education about and changing attitudes toward these inoffensive creatures will go a long way to ensuring the turtle a safe and permanent niche in the wetlands and woods of Kansas. □

Joseph T. Collins is a vertebrate zoologist and editor for the K.U. Museum of Natural History. In addition to being herpetological consultant for FISH AND GAME *(see his previous articles on snakes and on frogs and toads), he has written* Amphibians and Reptiles in Kansas *and co-authored* Fishes in Kansas. *His photographs have appeared in a number of magazines and books, including the recently published* Audubon Field Guide to North American Amphibians and Reptiles.

The news on Kansas pronghorn introduction

Antelope Update



Rod Baughman

In the heart of winter last January, three stock trucks crossed the state line into Kansas headed south. They rolled by feedlots and sale barns, past roadside corrals to five lonely range sites scattered across the state. In a sense the animals aboard were making history. They represented the largest big-game stocking operation ever undertaken by the Fish & Game Commission—351 pronghorn antelope captured near Rock Springs, Wyoming.

When the white man first arrived in the territory that is now Kansas, the pronghorn was as abundant as the buffalo. Historians estimate 60 million antelope once roamed the plains and deserts of North America. But destruction of native prairie and unregulated hunting had nearly wiped out the pronghorn by the turn of the century. Only a few small bands still roamed Kansas in three border counties in the West, and those hardy few often moved out of the state for years at a time during unfavorable weather cycles.

Reintroduction of the pronghorn to its historic range began in 1965 when the Commission released 75 Montana antelope in Wallace and Sherman counties to boost the remnant herds there. In the following year 61 antelope provided by the Colorado Game, Fish and Parks Department found a new home in the Red Hills of Barber county. The next major stocking occurred in 1978, when Fish & Game personnel brought back 100 pronghorn from a site near Cheyenne, Wyoming. Clark county received 63 head, and the remaining 37 were released in the Flint Hills in Chase county.

Much of the pronghorn's ancestral range in Kansas has been drastically altered. The rolling, unbroken western prairie now stretches out flat before the eye, leveled by developers who preferred the efficiency of a flat surface. The sea of grama and buffalo grass, once flowing smooth and uninterrupted to the horizon and beyond, now channels and diverts around dense circles of irrigated corn.

Since the advent of intensive farming in western Kansas in the 1960s, wildlife habitat has been steadily eaten away. But in 1974 the pace quickened, as high wheat prices caused farmers to put huge tracts of range under the plow. In that year alone 16 percent of the rangeland in Wallace, Sherman, and Logan counties—172 sections in all—was converted to cropfields. Prior to 1974 Fish & Game had estimated the carrying capacity of the three-county area to be between 1,500 and 2,000 antelope. That figure has since been revised downward due to the loss of habitat. While major antelope population growth is unlikely in the extreme Northwest, numbers have begun building up south of Highway 40 in southern Logan and Gove counties as small herds work their way down the Smoky Hill River Basin. According to Game Research Chief Kent Montei, last year's stocking of antelope in eastern Gove county may enhance this natural range expansion:

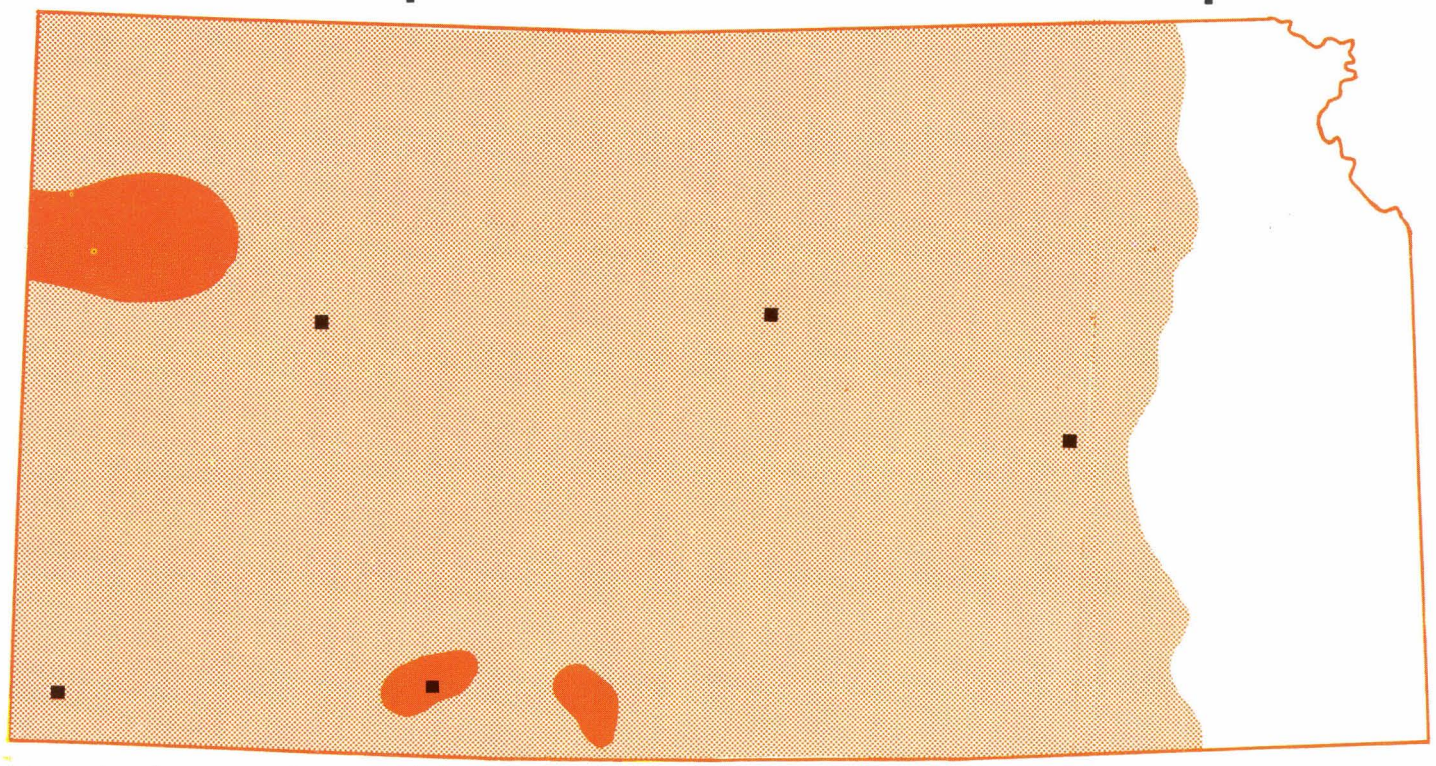
"We now have two populations fairly close together: those animals that have drifted down the river from the north, and the Wyoming transplants. The antelope may begin moving up and down the basin to intermingle, and this social activity could result in increased production."

Of the animals trapped last year, 75 were stocked in Ellsworth county, 68 in Gove county, 36 in the Cimarron National Grasslands in Morton county, 71 in Clark county, and 98 in the Flint Hills in Chase county. Clark county offers the best potential for supporting a healthy, expanding herd. It lies in the heart of the pronghorn's historic range, and only nominal conversion of range to cropland has occurred. Pronghorn Biologist Terry Funk counted 74 antelope in Clark county during an aerial census earlier this year. The animals are currently concentrated in two populations of 30 to 40, and Funk hopes the two may eventually join.

"The Clark county antelope are approaching the threshold point in numbers," said Funk. "From here I expect them to take off and expand rapidly."

Pronghorn usually reach this threshold at around 50 head. Predation becomes less critical to the population, and certain social needs leading to greater reproduction are met by the increase in numbers.

Kansas antelope distribution and 1979 release points



Original antelope range in Kansas extended as far east as the Flint Hills where spring moisture and increasing height of native grasses probably discouraged further population expansion. Spring rains in the Flint Hills may pose a problem for transplanted antelope even today. Young pronghorns born into cool damp weather have a tendency to develop pneumonia and die. Only time will tell how the recently introduced animals react to these climatic difficulties. Meanwhile, the western core of Kansas' pronghorn population is expanding rapidly and may soon contribute aninals for transplant in other parts of the state.

the YELLOW Pages

INDEX

WILDLIFE ATTITUDES STUDIED

The first report on a comprehensive study of American attitudes toward wildlife has revealed some interesting answers. The report analyzes findings of a 3-year study by Dr. Stephen Kellert of the Yale School of Forestry and Environmental Studies. The study was financed by the U.S. Fish and Wildlife Service.

The study revealed that of eight selected wildlife issues, the public knew most about "killing of baby seals for fur" and "effects of pesticides such as DDT on birds." The least recognized was "use of steel shot versus lead shot by waterfowl hunters."

On a variety of questions, a majority favored protecting wildlife even at the expense of jobs, housing and development projects. Fifty-five percent opposed the principle of building an industrial plant on a marsh needed by a rare bird species even if the plant would help solve an unemployment problem. Fifty-seven percent disapproved of building houses on marshes used by ducks and other nonendangered wildlife. Seventy-six percent thought cutting trees for lumber and paper should be done in ways that help wildlife even if it resulted in higher prices for lumber and other wood products.

The public's support for endangered species protection when it would increase costs for an energy project depended on the animal involved and the nature of the project. Americans overwhelmingly supported protecting the bald eagle, eastern mountain lion, American crocodile, and an endangered butterfly. They opposed protecting an endangered plant, snake, or spider if it increased costs for an energy project.

Seventy-seven percent said they thought it would be all right to kill whales for a useful product if the species hunted was not endangered.

The public is not altogether opposed to controlling coyotes that prey on livestock, but strongly preferred nonlethal control methods or hunting only individual coyotes known to have killed livestock.

Attitudes toward hunting depended on the purpose of the hunt. The public overwhelmingly supported traditional native American subsistence hunting and also supported hunting exclusively for meat, regardless of who hunted. Sixty-four percent approved of hunting for recreation if the meat was used, but about 60 percent opposed hunting just for sport or recreation. More than 80 percent opposed hunting exclusively for a trophy.

When asked about possible sources of funding for wildlife management programs, the public indicated stronger support for taxes on "consumptive" activities, such as buying fur, than on "nonconsumptive" uses, such as birdwatching. Eighty-two percent favored a sales tax on fur clothing from wild animals; 75 percent favored entrance fees to wildlife refuges and other public wildlife areas; and 71 percent favored a sales tax on off-road vehicles. Fifty-seven percent favored increasing the amount of general tax revenues for wildlife management; the same number favored sales taxes on backpacking and camping equipment; and 54 percent favored taxes on birdwatching supplies and equipment.

The report is the first of four being prepared for the Fish and Wildlife Service by Dr. Kellert. Single copes are available from the Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

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WORLD CONSERVATION STRATEGY PROPOSED

The United Nations Environment Program has commissioned, and the International Union for the Conservation of Nature and Natural Resources has produced, what is called "The World Conservation Strategy," according to the Wildlife Management

Institute. The Strategy reportedly is a consensus of policies on how to conserve the earth's renewable resources.

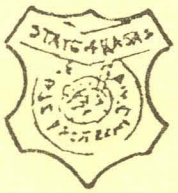
The Strategy is needed, the drafters say, because "arable land is being destroyed, forests are being wiped out, fishery resources are being diminished, and animal and plant species are being annihilated.

"In brief, a worldwide program to maintain, preserve and sustain the earth's renewable resources is needed to ensure the earth's capacity to support is growing population. The world already contains some 4 billion people, including 500 million who are malnourished and 800 million who live at or below subsistence levels. World population is expected to rise to about 6 billion by the end of this century. Without a worldwide conservation program, millions more will face starvation and poverty."

The Strategy is a guide and a plea for coordinated worldwide, regional and national action by governments, international organizations and the private sector for well-managed economic development and conservation, both of which are essential for human survival and are mutually reinforcing. Objectives of the effort are to maintain essential natural processes and life-support systems on which human survival and progress depend, preserve the genetic diversity essential for improving cultivated plants and livestock and sustain species and ecosystems that support millions of rural communities as well as major industries.

The Strategy's recommendations include policy goals that stress resource maintenance rather than production, detailed environmental planning, legislation and enforcement to sustain and protect resources, education and establishment of global commons (oceans, atmosphere and Antarctica).

Two questions remain, where is the scientific information necessary to do all that, and, who is going to pay for it?



It's The Law.

Kansas Game protectors have a lot of ground to cover. Fortunately, many Kansas residents are more than happy to help. Tips from witnesses to fish and game violations offer a tremendous boost to the efforts of the 70 or so game protectors in the state. Without the help of concerned citizens, many violations might go unnoticed and their perpetrators unpunished. The following accounts are examples.

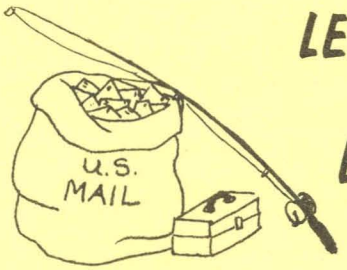
— Michael G. Hessman, rural Jetmore resident, paid a total of $380 in fines and court costs on four deer-related charges. Game Protector Jim Kellenberger was aided in the case by a witness who provided enough information about the poaching to lead Kellenberger to a padlocked garage with the deer carcass inside. The case was heard in Ford County District Court.

— Edward A. Schield, Plains, was ordered to pay $210 in fines and court costs after pleading guilty to hunting deer during closed season and possessing a deer during closed season. Schield was charged by game protectors after they were notified by a citizen who knew the circumstances of the incident. The fine was assessed in the Meade County District Court.

WE'D LIKE TO KNOW: HOW DID YOU COOK YOUR GOOSE?

Got a flavorful fish or game recipe you'd like to pass around? If so, we'd like to hear from you. We're sure there are some tried and true epicurean delights that deserve wider acclaim. We're also sure there are thousands of others like us more than willing to sample innovative table fare.

If you'd like to contribute, write: Editor, KANSAS FISH & GAME, Route 2, Box 54A, Pratt, Ks. 67124. We'll give contributions credit so we'll all know who to thank.



LETTERS to the EDITOR

READY TO FIGHT

I have been reading the articles in your magazine opposing and defending the Prairie Park and I can remain silent no longer.

How Mr. Gates (March-April issue) can state that this matter is not of a personal nature is beyond me. It is quite apparent that he has not studied the bill (HR 5592) very carefully. It states: "The secretary may not acquire any property without the consent of the owner UNLESS he finds, after consultation with the commission, that acquisition of such property WITHOUT THE OWNER'S CONSENT is necessary to prevent the use of the property in a manner detrimental to the purposes of the area."

We don't really know what the purposes are. The bill does not provide for maintenance of the acquired lands.

I am a private landowner in one of the slated park sites in the Flint Hills, and I feel that this issue is very personal and of the utmost importance.

The most beautiful aspect of the area is the vast expanse of open freedom, without a trace of super highways, concrete, campsites, and clutter monsters of our society. Making this all into a "National Parkway," as Mr. Gates and others like him propose, is an actual defeat of that which we desire to preserve. It is so unrealistic to believe that in our day and age a national park could actually preserve anything. If this area was left unattended for years, with tourists streaming through, the chances for range fires would be overwhelming, severe damage would be done, lifestyles would be disrupted, to name only a few.

I don't believe there are too many ranchers in the area that are in favor of preserving our national prairie heritage. They have been doing it for years.

What is happening to Americans today? Whoever decided that government ownership is the best way? It is absolutely frightening to look at a map of our "free" America and notice all the government-owned lands. What happened to private ownership and free enterprise?

The Flint Hills is a place where the cowboy still rides the range and small town folks still respect and revere the land. And so it shall remain if they are left to be the stewards of this grand grassland. Their love and respect for the hills will not be found in government workers.

If this bill passes, what is to become of the Flint Hills rancher? Or the beef industry of Kansas? Perhaps we should consider preserving the tallgrass by preserving a lifestyle.

Contrary to popular belief, the private landowners of this area are ready to put up quite a fight. We won't be "bought" because this issue means a great deal more than money to us. It is family, culture, and our heritage. We believe that private ownership is the only way.

Sandie Phipps
Matfield Green, Ks.

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RESERVE AG BENEFITS CITED

The present proposal for the establishment of a Tallgrass Prairie National Reserve states that its purpose is to ensure that remnants of the tallgrass prairie ecosystem are available "for the benefit, education, and inspiration of present and future generations and for scientific research." Although many Americans have learned from and have been inspired by the tallgrass prairie, very few of us are aware of the scientific research that could be conducted on this Reserve to help us learn how to manage our rangelands and farms so that they would be as permanent as our natural ecosystems.

Such research would be done on the ecosystem or on the individual plants and animals. Studies that would involve the ecosystem could be conducted on grazing practices, watershed management, soil erosion and formation, etc. Studies that would use the individual plants and animals as genetic and chemical resources are pest control, plant breeding, and bio-medical research. Plant breeders may be able to use the genes of prairie plants to breed new crop varieties or to improve existing ones. Since the tallgrass prairie, of which about 95 percent consists of perennial plants, manages to

(continued)

accumulate topsoil over the centuries, plant breeders should utilize the perennial plants to develop perennial grain crops that would reduce soil erosion and require no agrichemicals. Such a farm field might have two or three kinds of grains in it and some legumes and other plants scattered in the field to provide the nitrogen, phosphorus, and potassium that the grain crops need and to provide enough diversity to protect the grain crops against insects and disease.

But in order for such research to be successful, a wide range of genetic variability in each of the prairie plant species is needed so that the biologists can find particular varieties with desirable characteristics. Obviously, genetic variability is best maintained when the plant species are in large areas which contain many ecological niches to which they can migrate with no "barriers" in the way, such as grazing pressure, highways, exotic grass pastures, etc. This is one of the reasons why the proposal asks for several large areas rather than many small areas the size of the Konza Prairie. The 8,600 acres of the Konza Prairie may seem large, but it is less than 1/20,000th the size of the original tallgrass prairie. Clearly, biologists would not allow Yosemite-type development to occur within the Reserve and reduce genetic variability.

The loss of genetic variability in plant species could have profound economic and ecological effects, which we may or may never be aware of. Surely, the benefits for agriculture from such research are worthy of the formation of a Tallgrass Prairie National Reserve.

Martin Bender
Salina

PARK OPPONENT

I disagree with the letter from Mr. George Gates in the March-April issue titled "Park Issue Is Preservation." I agree with Mr. Jim Hess and others who are against the Tallgrass Prairie National Park.

I don't care how Mr. Winn wants to acquire the land for the park. I feel that the federal government has acquired too much land in Kansas through the federal lakes such as Perry, Pomona, John Redmond, and Tuttle Creek lakes. I like to fish and hunt, but the federal government has told the wrong things in acquiring land for these lakes and others. They told landowners that these lakes were for water conservation and flood control but as soon as they were opened every city slicker with a boat was out there showing off.

I feel that the farmers and ranchers will take better care of the rangeland in Kansas than the federal government would. I have seen some of the land the government has at Ft. Riley and a lot of it is growing up to brush. Mr. Gates keeps stating he is a private landowner. If he is, why doesn't he say where his land is located. If it is in the proposed park area, why doesn't he sell his land to Mr. Winn and the government for the park.

I was born in Wabaunsee County in 1940, and moved back here from Osage County in 1978. I don't believe there has been any land broke out since then.

Another thing. Where are the counties that are affected by Rep. Winn's proposed park going to get the tax money to maintain the roads in their counties. They are having enough trouble to get money to maintain their roads. If Mr. Gates wants to donate each county affected the money to replace the tax money lost, then I am for the park but otherwise I am against it.

Clifford Reese
Eskridge

(EDITOR'S NOTE: *To keep the record straight, Sec. 6 (h) of HR 5592 provides: "In the case of any land or interest therein acquired by the United States for inclusion in the Reserve pursuant to this Act, which was subject to local real property taxes, the Secretary is authorized and directed to make payments to counties within the jurisdiction of which such lands or interest therein are located. Such payments shall be equivalent to the average tax paid in each county on like land. Each fiscal year, the Secretary shall meet with appropriate county officials for purposes of negotiating the level of payments based on such above-mentioned guidelines.")*

*

MORE PARK OPPOSITION

The letter in your March-April issue from Mr. George Gates really irritated us.

Jim Hess's "personal vendetta," as Gates called it, was backed by the Kansas Grassroots Association, which is some 1,200 members strong. There are also many other state and national organizations on record opposing a Prairie National Park. The National Society for Range Management, Kansas Livestock Association, Farm Bureau, and United Farm Wives are just a few such organizations. The total members these groups enlist are quite a number. I hope, by this,

(continued)

Mr. Gates can see Jim Hess is not alone on the stand against a park.

Winn's bill may not call the government "land grab" condemnation, but a close study of the bill shows it's nearly the same thing.

As for the "pot shots," who's taking them at who? Seems to us the environmentalists are taking them at the ranchers and landowners who are already preserving their own land.

Mr. and Mrs. Gary Schultz
Alma

HAZARD TO BIRDS

Last fall, while teal hunting, I found a pelican snagged on a trotline. The line was evidently left there long ago by a thoughtless non-caring, lazy person. After I cut this beautiful bird loose (photo enclosed) it swam away, apparently too weak to fly. I hope that all KANSAS FISH & GAME readers will join my campaign to cut up all the unused lines they come across. There were thirty or more bird watchers less than 500 yards away that day. If they had seen the trapped pelican, I'm sure they would have been just as upset as I was. We need allies, so let's not make any enemies by being thoughtless.

Tom Galliher
Manhattan

*

PUBLICIZE LAWBREAKERS

I am sending in my renewal for KANSAS FISH & GAME for two years. We enjoy it very much and I usually read it from cover to cover.

I wouldn't want to try to tell you how to publish a paper but I do enjoy reading the notations on poacher arrests and fines. I have long felt that there has not been enough publicity in the local papers on this subject. We are bothered with road hunters, in season and out, and I have thought that if it were brought to these guys' minds more often that they are breaking the hunting laws it might slow the practice.

I have a son-in-law who thinks I have possibly lost some of my marbles but I have wondered whether it would be possible to get a couple pairs of prairie dogs to stock my small pasture. When I was a small boy we went to Denver by car and, from Kingman to Denver, we were seldom out of sight of a dogtown. Today few people know what a prairie dog looks like.

I have a shelterbelt a half-mile long planted in 1941. I have several red squirrels but have wondered about gray squirrels.

Enjoyed visiting with you.

Albert H. Ottaway
Viola

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REMEMBERING WHEN

On Feb. 1, 1947, I was transferred to Kansas City, Mo. by my company. I bought a home in Johnson County, Ks. where I enjoyed all the advantages of metropolitan living as well as the small town atmosphere.

That fall I first went pheasant hunting in Kansas, headquartering in Colby, and also enjoyed some waterfowl hunting thereabouts. I never missed a fall after that until 1979, when my wife and I moved to California and I passed my eightieth birthday. I had also lived in Lincoln, Neb. from 1928 to 1945, so Midwest

(continued)

hunting fever is in my blood. I belong to the National Rifle Association but no hunting this year, although I hope to next fall if I still have my health.

I will always recall the joy of my days afield and in a "flight" blind in Nebraska, Kansas, Iowa and Missouri. I commend you on your fine magazine. Keep up the good work.

George S. Long
Laguna Hills, Calif.

*

ARTSY ICING

I have been a subscriber to your magazine for several years. I save every issue.

I bake and decorate cakes for people in my small town. A lady called once and needed a cake for a sportsman. I can't do pictures out of my head, so I happened to think of your magazine. I picked the scene from the cover of the January-February 1979 issue.

Just thought you might be interested in how I use your magazine for different purposes. You have so many beautiful pictures. I appreciate it.

Mrs. Cecil Fitzgerald
Herington

*

CONCERNED FOR QUAIL

I strongly disagree with the January-February Yellow Pages article, "Quail Numbers Unaffected by Season Length."

Hunters certainly do have a big effect on quail populations and the longer the season the worse it is. All hunters are not as Mr. Roger Wells contends and do not hang up their guns nor fewer hunt as the article stated. Perhaps in his vicinity it's that way but not here in northeast Kansas.

I know because I have been trying to protect quail on my farms, leaving stand milo for winter feed, building brush piles, etc. Have only succeeded in saving one small covey of six or eight birds from hunters who have swarmed around my farms the entire season. Even though my places were posted I have had several encroachments, including one group with dogs from Missouri.

I watched one group of hunters with dogs on a neighbor's land. He has dozed off all brush and timber. Their dogs pointed a small covey of quail and finally succeeded in killing all of them. Quail do not get up and fly a mile or so as pheasants do but go a short ways and come down. Dogs point them again and again until all are shot. If they had some protection to go to (brush piles, etc.) a few may have survived but most of this land is being dozed off completely for big farmers with big machinery with no thought of wildlife preservation.

How does this help to build up quail populations? "Hunters have almost no effect on quail population" is a ridiculous statement and has no basis in fact.

There is just one true statement in that article: "Closing the season early would deprive sportsmen the opportunity to hunt." This is what is wrong with the entire article. With low quail populations there were more hunters out in this area than normal. Even though quail populations are very low most hunters will kill every one of them they can get. The only way to stop this is to close the season before there are too few to repopulate. I have talked to lots of people about that article and I haven't found one person who agrees with it. There are too few quail to come back with the best of environment and weather if the season is not closed or drastically shortened.

Donald C. Merchant
Hiawatha

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COMPLIMENTARY AND CURIOUS

I have for some time considered writing to let you know how much my wife and I enjoy KANSAS FISH & GAME maga-

(continued)

zine. With the arrival and reading of the January-February issue the waiting was over.

We feel that you and your staff can be very proud of the work you are doing with this publication. We have been reading the magazine for the past year or so and enjoying every issue. However, the January-February issue is outstanding. The front and back covers are excellent and the double page of the eagle is terrific. We have found the articles equally interesting and informative.

Now, I must confess my true interest in the magazine stems from an interest in nature, Kansas, and photography. Would it be possible for you to give people like me a few clues as to where and how some of your photographs were made? Was a blind used? Was the wildlife tempted to the spot with food, etc.? A few paragraphs now and then on the difficult shots would be appreciated.

Eugene H. Pfeil
Parsons

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SEASON RECOMMENDATION

I do enjoy KANSAS FISH & GAME magazine. Especially enjoyed the November-December issue with Bill Peabody's article on deer.

I have one complaint I wish to register and I am sure most farmers in this area will back me up. I think the pheasant and quail seasons are entirely too long. The hunting has been good around here for two or three years but the birds are getting pretty scarce now. Why not have a two- or three-week season, then shut it off? Most farmers are hunters, and enjoy both hunting and visiting hunters, but for three months?

I don't believe the bird population, or the farm population will stand for it much longer.

Norm Sankey
Republic

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FAST COMPANY

KANSAS FISH & GAME happened to come out the same day PLAYBOY magazine did. Just to let you know where you stand, I read your magazine first.

The back cover of the January-February edition had the whitetail deer by Gene Brehm. It would be interesting to know how many readers noticed the "duck" in the corn field right behind the deer.

Jim Gravenstein
Topeka

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BOWHUNTER'S NO-NO

I have just received the latest edition of KANSAS FISH & GAME and as a Kansas sportsman and a printer by trade I would like to commend you on a fine, well-printed publication.

But as secretary of the Kansas Bowhunters Association and a dedicated bowhunter I feel I must comment on the latest issue. I take exception to the photo appearing on page 29 of the January-February issue. Consider also some past issues of your publication: Nov-Dec. 1973, pp 2 and 3; Nov-Dec. 1976, pg. 23; and Sep-Oct. 1977, pp. 25, 26 and 28.

The KBA and myself personally have nothing against publishing and promoting the sport of bowhunting. That is what we were organized for. But, personally, I take exception to the way it is being handled in your publication. One of the main objectives of our organization is to promote the cause of bowhunting and, of course, one of the main objectives in any program of this type is safety. One of the basic rules of the KBA and individual safety includes not having razor-sharp, uncovered hunting broadheads exposed to possible contact with human anatomy.

When this same fellow was illustrated in your magazine in a tree stand a couple of years ago we commented on the photo. We were told it would certainly not happen again but here it is again. If the magazine needs new and fresh material, the KBA will be happy to supply them. If there is anything the KBA can help with please let us know and we will cooperate any way we can.

Dave Easton
Manhattan

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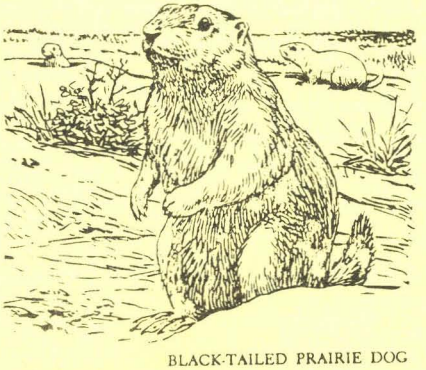


BLACK-TAILED PRAIRIE DOG

THE GREAT CONSERVATIONIST ROUNDUP

The Kansas Wildlife Federation is now accepting nominations for its Conservation Achievement Program. Any organization in the state of Kansas is eligible to submit the name of someone who has done a job worthy of state recognition. Winners proceed to national competition. A nominee must be a Kansas resident, have accomplished his work in Kansas, and may be either a professional or layman club, individual, or business. Nominees need not be a member of any club or of the Federation. Current Federation officers and 1979 award winners are not eligible for nomination.

Among the categories to be judged are these:

Conservationist of the Year (Governor's Award) — For the achievement considered to have made the most significant contribution to the cause of conservation of Kansas' natural resources.

Wildlife Conservationist — Achievement contributing to effective management, control, restoration, or replenishment of wildlife resources.

Land & Soil Conservationist — Outstanding achievement in land use, watershed and wetlands development or protection, erosion control, recreational development, habitat improvement, or other management practices which maintain or improve environmental aspects of land and related resources.

Forest Conservationist — Outstanding achievement in forest and woodlands development, management, or use.

Water Conservationist — Commendable work in pollution control, conservation and protection of wetlands and rivers, or other efforts aimed at maintaining or improving water standards.

Air Conservationist — Deserving commendation for obtaining quality air standards, reducing pollution, effecting control of pollution sources, or other action contributing to improving air standards.

Youth Conservationist — For outstanding conservation effort by a person who has not attained the age of 21 during the contest year. Youth groups acting together in a conservation program are also eligible.

Conservation Educator — For achievement in educating others, either formally or informally, in the field of conservation.

Hunter Safety Instructor — for outstanding interest and activity in the Kansas safe hunter program and communication of the hunting ethic. Nominees must have at least three years experience in the safe hunter effort.

Conservation Communicator — For effectively conveying the conservation message and creating public awareness of conservation issue in the news media.

Conservation Legislator.

Conservation Organization.

NOMINATION FORM

To make a nomination, send four (4) copies of this form and ALL ATTACHMENTS to:

Lewis Baker
1204 West 11th St.
Junction City, Kansas 66441

Name of Nominee _____

_____
street . . number

_____
city & state zip A.C. Telephone

Award Category _____

Please specify ONE of the categories for which nomination is made. Use a separate form for each nomination and category.

Recommended by _____

_____
Name and title

_____
club name

_____
street & number

_____
city & state zip A.C. Telephone

Date _____

PREPARATION INSTRUCTIONS

Attach a typewritten description, NOT TO EXCEED THREE PAGES, detailing specific acts for which award is recommended. Include such other information as to past recognition, organziation memberships, affiliation, past achievements, etc., as nominator feels is pertinent. If additional space is needed use supplementary sheets (8½x11) and attach to this form. When a company, organzation, publication, etc., is involved, include the name of the president, chief exectuive officer, sponsor, editor or so forth.

Nominations will be closed July 31,

. . . . . .

NOTE TO NOMINATOR: The following information is needed to assist the chairman with invitations, award engraving, etc.

INFORMATION ABOUT NOMINEE:

AGE: Over 21 ( ) Under 21 ( ) Specify Age If under 21 include name and address of parent or guardian.

_____
name

_____
street

_____
city and state

_____
zip A.C. Telephone

Sex: male ( ) female ( ) married ( ) single ( )

LOCAL NEWSPAPER OF NOMINEE

Name _____

Address City _____

State _____

Zip _____

Gove county in northwestern Kansas holds nearly as much promise as Clark county for supporting a healthy, growing antelope population. Funk has counted one concentration of 34 antelope in Gove county, a group he feels is nearly large enough to begin flourishing. With the quality rangeland available there, Gove county residents should be seeing more antelope in the years ahead.

Of the five sites stocked last year, Chase county in the heart of the Flint Hills has the best potential for producing large numbers of antelope. The thin, rocky soil resists the plow; as a result this has traditionally been ranching country. Large tracts of rangeland stretch north and south for miles along the low hills, providing nearly unlimited room for herd expansion.

Modern range management in the Flint Hills may have actually improved habitat conditions there for the pronghorn. Early records indicate antelope drifted in and out of the area, never establishing large, permanent populations. Because of the damp climate and tall, thick grass the Flint Hills served historically as the eastern boundary of pronghorn range. Antelope shun high grass because it obstructs their view and hampers their running ability. Today stock grazing and periodic burning keep the grass shorter, and the transplanted antelope may do better as a result.

One condition that may limit herd expansion has not changed, however: the problem of excessive moisture. Pronghorn young in the first weeks of life are susceptible to pneumonia, and the damp springs characteristic of the Flint Hills region may cause higher-than-normal fawn mortality rates. So far, though, Fish & Game biologists are optimistic:

"I wouldn't have expected any reproduction last year from these animals because of their stressed condition from the hard Wyoming winter," said Funk. "But reports show some reproduction, and at this point we have no evidence of the climate causing problems."

The abundance of rangeland around the Chase county site allowed the antelope to spread out after release. For this reason, winter counts this year are only considered rough estimates. Funk said it is too early to evaluate the success of the stocking. Only when densities increase over the next few years and closer monitoring becomes possible will biologists be able to judge accurately how the herd is doing. If the 1978-79 stockings take hold in the Flint Hills, any future trapping efforts will be aimed at boosting numbers in that area.

"We may trap more antelope in Wyoming if the Game & Fish Department makes them available," said Montei. "And if the Flint Hills population begins to expand, we may transplant animals there from other herds in Kansas."

The Ellsworth county antelope were beset with problems from the day of their release. Several have been killed in collisions with automobiles, and poachers continue to chip away at the herd. But the greatest threat to their survival may prove to be an attack by a pack of free-running dogs the winter before last that left several antelope dead and badly dispersed the rest.

"There must be interaction between small herds for antelope to do well," said Funk. "When they're scattered like this not much expansion can occur."

Because of the dog attack he predicts it may be years before accurate counts can be made of the Ellsworth antelope.

The stocking of 36 head in the Cimarron National Grasslands in Morton county last year was viewed by the Commission chiefly as an experiment. The sandy soil and predominance of sagebrush provide less than ideal habitat for pronghorn, and since Morton county is on the state line some of the animals may eventually drift west into Colorado. Montei said success or failure of the stocking won't be known until the population density increases considerably.

"We decided to try a release of antelope on the Grasslands because it is such a large tract of public land. We're not particularly optimistic about the stocking, but if they take hold there the area could eventually provide some public hunting opportunities."

Because the pronghorn's preferred diet is forbs supplemented with grass and low browse, it does not compete directly with cattle for food. Antelope often actually improve cattle range. Their heavy reliance on forbs can open up vegetation cover, favoring the growth of grass. When antelope do feed on grass they graze over a large area, rarely exerting heavy pressure on the range. In winter antelope often move off rangeland onto wheatfields. The growing plants usually suffer no noticeable damage, except during dry years when the trampling can break up the soil and cause it to blow. Fish & Game has been successful at hazing the animals off cropfields by airplane in response to complaints.

Except during deep snow cover, the pronghorn fears few predators. In spring coyotes take a small percentage of the fawns by ambushing them when the does are away feeding. But a fullgrown pronghorn is more than a match for a single coyote, and even a pack will usually end up eating only dust in an attack on a healthy animal. Kansas weather presents no major problem for the pronghorn, either. Most of the nation's antelope live in the Dakotas, Wyoming, and Montana, where winters are far more severe.

Gifted with eyesight eight times more powerful than a human's and speed unexcelled by any land animal on the continent, the fleet pronghorn was made for the open spaces. As long as enough rangeland is preserved in the state to provide living room, reintroduction of this former Kansas native should be a success. □

Ecology and esthetics on K State's research prairie—

Konza

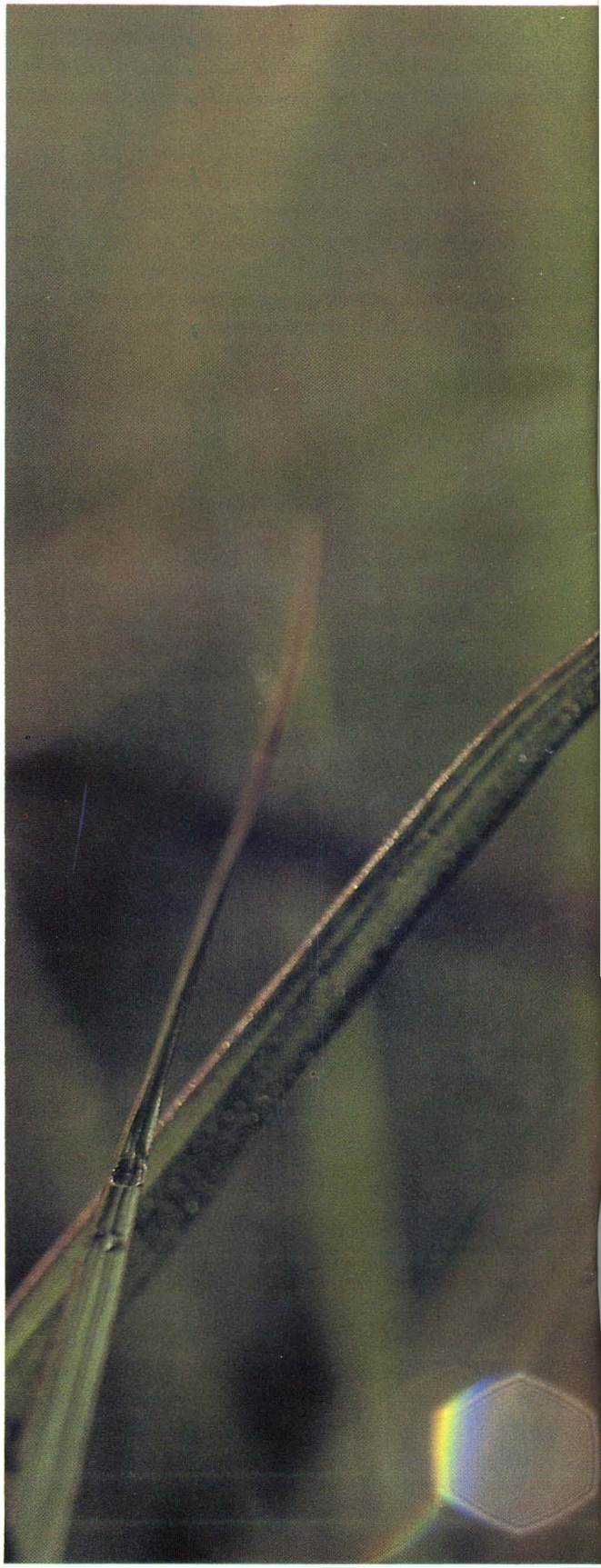
Chris Madson

Sig Olsen, a boondocker who spent his life on the canoe water of northern Minnesota, once described his favorite haunts in the north woods as "poor land, rich country." It was a far-seeing description of the timber-wetland-lake region he knew and just as appropriate for most of the other great scenery in North America. The wild places that survived long enough to be included in national reserves did so because they weren't good for anything but wilderness. A few of them may have been logged or even farmed for a few years, but, in the long run, they were too remote, too steep, too cold, too wet, or too dry to support a nineteenth-century investment.

Unfortunately, while much of the Rocky Mountain West and parts of the north woods were repelling development, some of our richest country, the tallgrass prairie, was inviting it in. The bluestem pastures of the Midwest actually sowed the seeds of their own destruction, laying down tremendous annual crops of organic matter that built the blackest, most fertile topsoil in the world—several feet of it in places. As wild prairie, it supported one of the most abundant assemblies of wildlife the world has ever known, and that productivity wasn't lost on the farmers who first turned the sod.

The loss of the tallgrass to the plow never generated much controversy. More than any other part of the frontier, it fit the promises expansion-minded politicians made for it, and by the time the country began to find its land conscience in the 1880's, the eastern prairie was already in private hands, nourishing corn.

Dew reflecting prairie Patricia Duncan



For midwesterners since that time, conservation of natural areas has been vital but always an issue that focused in other parts of the country. Asked to list the rarest vegetation in North America, most contemporary Kansas conservationists would immediately bring up California redwoods. Until just a few years ago, the mention of tallgrass would probably have been met with a roomful of shrugs. The difference in reaction isn't so much a measure of the relative scarcity of the two systems as an indication of the effectiveness of the Sierra Club public relations machine.

Of about 1.8 million acres of redwood and sequoia that grew along the west coast in 1765, 198,000 acres are now in national or state parks. If private holdings are taken into account, ninety percent of the west coast's original redwood forest still exists. The original tallgrass prairie covered parts of fourteen states—between 250,000 and 400,000 *square miles* of the Midwest. A generous guess at the current size of tallgrass preserves is about 45,000 acres, somewhere between one- and two-hundredths of a percent of the original. Privately held tallgrass pasture may boost that total to as much as two or three percent of pre-Columbian tallgrass. No other major North American ecosystem has fared so poorly since settlement.

The crown jewel in the system of tallgrass preserves is the 8600-acre Konza Prairie just south of Manhattan. While the bulk of the prairie was being converted to cornfields, Konza and most of the rest of the Flint Hills were protected from the plow by their limestone ribs which are seldom more than a foot underground on the ridges. The shallow soil forced the Flint Hills to remain an enclave of ranching in an otherwise intensively farmed region, and much of the rangeland was consolidated into huge empires. Konza was part of almost 80,000 acres of Kansas range bought up by a Chicago real estate millionaire, Charles P. Dewey, around 1885. Dewey and his son, Chauncey, cut a wide swath in Kansas through the turn of the century. Chauncey in particular was known for his generous dealings with corn farmers in Riley County, his posh Eureka Lake resort near Manhattan, and his involvement in Kansas' last genuine gunfight, a shootout over squatter's rights on some of his Cheyenne County holdings in 1903.

The 10,000 acres that contained the future Konza preserve passed out of Dewey's hands in 1930 and were owned by a series of gentleman ranchers until the early seventies when the Nature Conservancy bought the first 900-acre tract as a research area to be administered by Kansas State University. The 7200-acre core of the Dewey Ranch was added a few years later.

The $3.6 million for the purchase came from an unexpected quarter. The Nature Conservancy had been fighting an uphill battle for prairie preservation for years when a long-term resident of the eastern upper class turned her interest back to her home country. She was Katharine Ordway, a Minnesota native who never saw the Flint Hills prairie but apparently never forgot the more modest grasslands of her home state even after a lifetime spent in Connecticut and New York. Her donations to the Nature Conservancy resulted in the preservation of 31,000 acres of prairie in five states, and she made them all anonymously, taking the pleasure of her contributions by visiting many of the areas and savoring the growing photographic and written celebration of the tallgrass as it became more popular. She was the patron saint of the prairie, appearing at a time when farm economics and prejudices were threatening to wipe out the last of the traditional bluestem hayfields and pastures in many places before they could be preserved.

Of course, talking about "preserving" a prairie represents a certain contradiction in terms. Tallgrass prairie has survived over a shifting area of the Midwest for thousands of years without human help, but, over that period, it has depended for its existence on a natural pressure that no longer exists—fire. Without fire, tallgrass prairie is an intermediate stage in the development of Midwestern vegetation. When red cedar, sand plum, and other woody plants are protected from fire, they eventually turn rangeland into scrub forest.

Because of this quirk in plant succession, the first order of business after setting Konza aside was to make sure it didn't die of preservation. The managers of the area divided it according to watersheds, then subdivided it into plots bounded by mowed firelanes. Nearly all these plots are burned, but the schedule for the burns is complicated. The need for burning a prairie is widely known, but ecologists are just beginning to figure out the specific effects fire has on grassland and the ways these effects change in different parts of the country. Konza burning has been arranged to test some of the more popular theories concerning the impact of fire. Some plots are burned every spring; some are burned every other year or every third or fourth year; some are left three years unburned, then burned three years straight, and some are burned only after unusually wet years. It takes a score card to keep up with the pyrotechnics.

Or a keen eye. The different burning strategies actually show up about as well in the face of the prairie as they do on the data sheets. The first year after a burn, the dominant grasses flourish. On deep soil, big bluestem sends stems eight feet in the air, and indiangrass is close behind. All the grasses flower abundantly and bear heavy seed crops. This enthusiasm abates a little

in the second and third year, and the stand takes on the look of a flower garden. The spectacular broad-leaved plants flower most profusely during this period; the grass is dappled with blossoms almost from snow to snow.

Kansas State ecologists follow these changes with a quantitative interest. They keep track of the waxing and waning of different plant species after a burn, the productivity of the prairie, and they plan to monitor changes in available nutrients, loss of soil and nutrients in run-off, and the responses of wildlife to the progression of events that follows fire. The effort is to define prairie as it was before settlement and understand how it maintains itself. There are purely scientific, ivory-tower reasons for seeking that definition, but the research program has much more practical aims as well.

A few years ago, a Chamber of Commerce booster in Iowa announced that his state alone grew more corn than the entire nation of Mexico. Productivity on that scale has been largely responsible for the wealth we've enjoyed since the turn of the century, but there have been some costs, too. Soil scientists have documented major changes in the prairie topsoil that supports American agriculture, changes that are the direct result of high-intensity farming. The most obvious loss has been to erosion, but there have also been marked declines in organic matter including nitrogen and alterations of the physical structure of the soil itself. A spadeful of unplowed prairie dirt is fluffy and surprisingly light, almost like a handful of down. A few years of the plow and 200-bushel-to-the-acre corn production crush this fluffiness. Water and air that penetrated native prairie sod have trouble getting down to plant roots through the compacted topsoil; organic content is depleted, and productivity declines. We've more than counteracted the loss in fertility by improving the chemical balance of the soil, but many of the fertilizers we depend on are either imported or synthesized at a sizeable cost in energy. In addition, there's no guarantee that this artificial approach isn't affecting the soil's ability to replenish itself. Combinations of pesticide and fertilizer may not do much for the health of soil invertebrates like nitrogen-fixing bacteria which are critical to the maintenance of natural fertility.

The long-term health of Midwestern topsoil doesn't seem all that important right now, but, as Konza director Lloyd Hulbert points out, "several civilizations have disappeared apparently because of the misuse of land. We need to find out why natural systems are self-perpetuating for long periods so we can apply those principles in agriculture and range manage-

Konza aerial Patricia Duncan

the flora

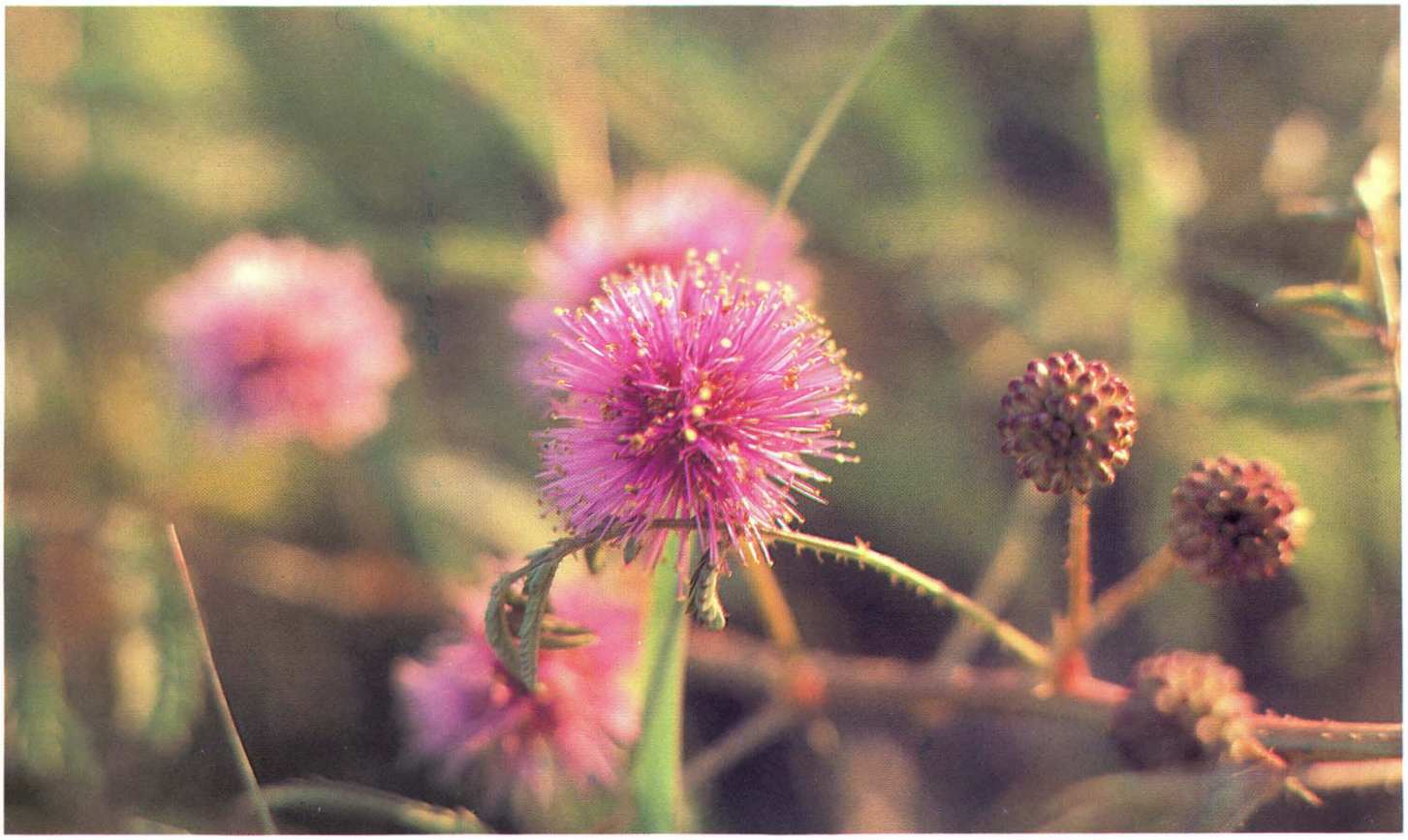
One of the first plants to show a flower on the grasslands is Draba, *a plant so inconspicuous that no one has ever bothered to give it a common name.* Draba *usually shows up sometime in early April. The first big push comes three weeks or more later when wild indigo, larkspur, penstemon, blue-eyed grass, and a host of other prairie broad-leaves begin flowering. The next wave—including leadplant, black sampson, and compass plant—begins in late June. The sunflowers and daisies, blazing star, and the surprisingly beautiful flowers of big bluestem fill late summer, and even October has its complement of asters. Photos by Chris Madson.*

penstemon

grooved flax

prairie groundsel

catclaw sensitive brier



plains larkspur

butterfly weed

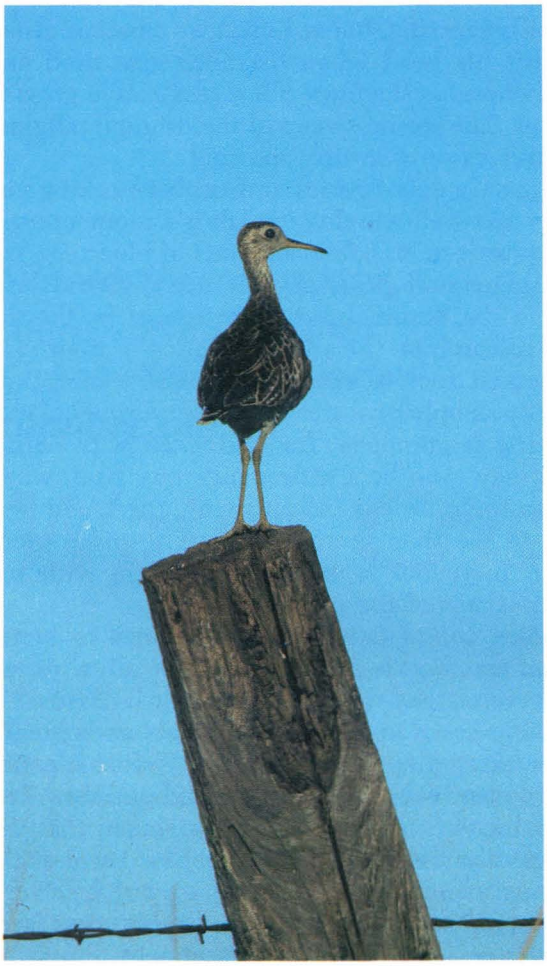
horned lizard

the fauna

Most of Konza is high-ground prairie, excellent pasture for the bison, elk, and pronghorn that once used it but incomplete. The tallgrass biome was surprisingly well-watered; many of its most common visitors were shorebirds, waterfowl, cranes, and other marsh animals. Much of that high-quality marsh is gone today along with the Eskimo curlew. Konza does have some superb running water, as clear as any Ozark stream and magnet to whitetails, songbirds, raccoons, and much of the other eastern wildlife that stays close by bottomland timber and brush. The uplands belong to the greater prairie chicken, upland sandpiper, and, in winter, an occasional prairie falcon. As in most other habitat types, the ecotone between the upland grass and brushy ravine supports the richest animal association.

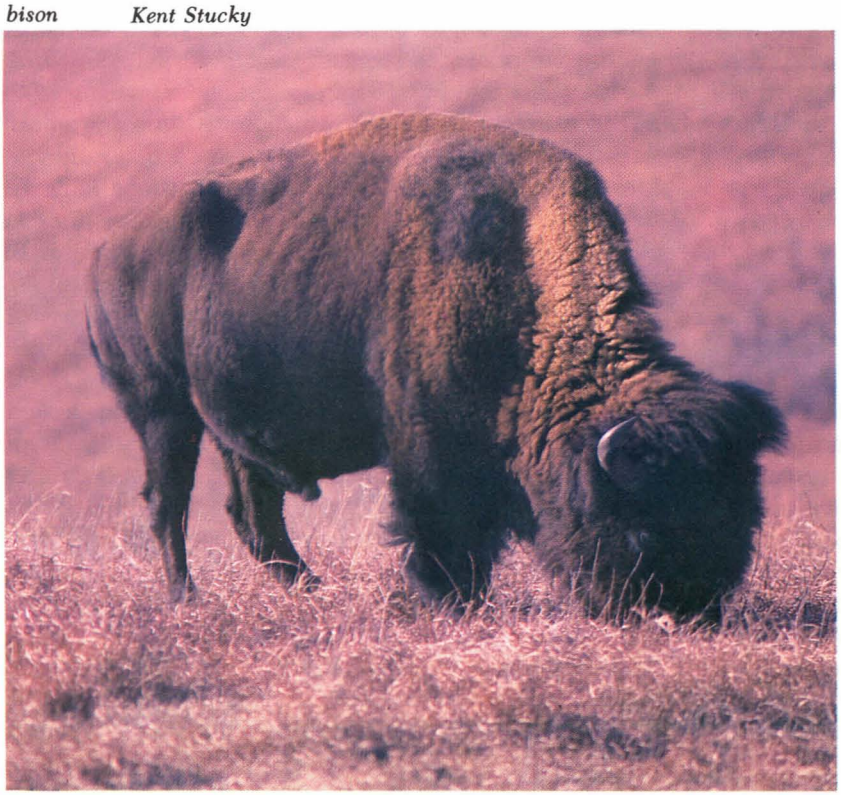
greater prairie chickens *Ben Brown*

upland sandpiper *Park Carter*



whitetail deer *Ben Brown*

bison *Kent Stucky*



prairie falcon *Ken Stiebben*

ment." Soil researchers are gathering information on Konza on the "before" side of prairie soil changes and monitoring the recovery of a few fields on the area that have been plowed and later allowed to grow back to tallgrass.

The next big research step will be to break Konza into six major pastures and introduce grazing animals. Three of the pastures will be stocked with cattle at different densities; one enclosure will support horses, and a 2700-acre tract in the heart of the area will be stocked with buffalo, elk, and pronghorns. The results of studies associated with these herds may well show grazing to be an even more complicated influence on prairie vegetation than fire. Range managers found out years ago that certain "ice cream" plants on native prairie attract domestic stock and tend to disappear quickly under grazing pressure. This sort of selective grazing can drastically change abundance of many prairie plants, encourage the invasion of exotic species, and, when the stock density is great enough, cause severe erosion (although many ranchers avoid such excesses on their pastures). On the other hand, the effects native grazers like bison can have on tallgrass are unknown. The Konza grazing trials are designed to unravel some of the interactions between native plants, native ungulates, and domestic stock and should eventually lead to more enlightened use of Flint Hills range.

It's hard for most Kansans to realize how unique a place like Konza is. For most natives, the 8,600 acres inside the fence is not substantially different than the 4,000 square miles of Flint Hills around it. Actually, Konza is the only native tallgrass prairie on the continent large enough to support grazing experiments, the only tallgrass that contains entire watersheds so that run-off can be studied. This May, the area will be formally included in the United Nation's list of World Biosphere Reserves along with only 130 other natural areas on earth, less than thirty of which are in the United States.

In spite of the size of the area and the care its managers have taken in planning its future, Konza's uniqueness means that there are more demands placed on it than it can possibly fulfill. One of the most obvious of these comes from the public. In 1977, 236 people visited Konza; in 1978, that number jumped to 1,477. Some of these people came to see the research the area supports. Many more came just to see tallgrass. On most tallgrass reserves, a prairie enthusiast has to learn to keep his horizons small. Iowa's largest prairie reserve is 300 acres, and many people farther east have learned to content themselves with much smaller tracts. A visitor to one of these eastern areas focuses on the plants at his feet which, in many cases, may exist nowhere else in his state. Konza offers that same chance for botanizing, but at Konza, an amateur ecologist can lift his head when his neck gets tired and watch the cumulus shadows run across native grass to the horizon. The scenic sweep of the original tallgrass prairie survives only in this one spot.

Unfortunately, laboratories and rubber-necking visitors never mix well whether the lab is a room jammed full of glassware or an 8,000-acre tract of bluestem. Dr. Hulbert and his staff go out of their way to give visitors a chance to see Konza, but they're forced by the demands of research on the area to drastically limit visitors. A booted foot in the wrong place can ruin a productivity sample or water-quality experiment, and, once fencing is complete, tracts stocked with native ungulates may even be a little dangerous. And, when research on the prairie is in full swing, there will be a little less to see than there is now. The bison-proof fencing in particular is likely to interfere with the scenic wholeness of the place.

The choice comes down to using Konza to better understand the workings of tallgrass or allowing an interested minority of the public to savor it as it is. I'd have to come down on the side of better understanding. The research planned for Konza will make it easier to protect the native tallgrass system and possibly even recreate it in other places. But it's a shame that the choice has to be made at all. The problem is scarcity; there just isn't enough tallgrass to go around.

For some, rarity is in itself the most interesting facet of the bluestem prairie. They stalk it with the same intensity they would stalk the last passenger pigeon or Labrador duck and, having added it to their lists, go on to other challenges.

I met a more interesting reaction a few years ago on a prairie relict that would barely have accommodated the outbuildings at Konza. A middle-aged farming couple had taken a July Sunday afternoon to drive out and look at this preserve they had been hearing about. The prairie was at its peak; the wild indigo, larkspur, and penstemon of June were lingering, and the first of the leadplant and July composites were already out. The missus stepped out of her car, swept the area with a surprised glance, and turned to her husband.

"I had no idea!"

The old man was perhaps a little less enthusiastic in his praise, but it was obvious they were both deeply impressed. In a later visit to the place, I met the two of them again with half a dozen friends and relations in tow, all more or less taken with the view which by that time of year was tending toward blazing star, asters, and the red-purple of curing bluestem. It was as if that scrap of native grass and flowers confirmed something they had always felt about their homeland but had never been able to express to an outlander.

Rich land, rich country. □

Where there's water, there's life. On the Great Plains, water's running out . . .

Water Crisis on the Plains

Bob Mathews

There was a time not many years ago when water, like air and soil, was considered ever-renewable and inexhaustible. We know better now but there still is a widespread tendency to view water supply and water quality problems in their narrowest sense; to accept the belief that western Kansas farmers, for example, face a problem but it's not our problem. We're learning that is not true, either.

It has been said that everything in this world is connected to everything else. Worldwide shortages within the past ten years alone have clarified the relationship between consumption of natural resources and the environmental disruptions that can result.

The country's demand for beef is partially met by irrigating corn to feed the growing Great Plains livestock industry. Indirectly, but in a very real sense, the meat lockers of the world are tapping surface water and ground water in the Midwest. Plans to extract the billions of tons of coal that lie under parts of Montana, Wyoming, and North Dakota promise new demands for water. Electric power generating plants, which require great volumes of water for cooling purposes, boost the demand even further.

As is often the case, fish and wildlife are among the hardest-hit victims of resource exploitation. As more land is put into production of food, fiber, and energy, the quantity and quality of fish and wildlife habitat diminish. While it may be difficult to quantify the loss of these wild resources, the fact that they are being pushed to their limits is apparent somewhere in every plains state. Developments in the past decade offer ample proof.

In Kansas, some of the most urgent water problems facing wildlife and humans alike have appeared in the form of dry riverbeds and retreating underground water supplies. Water resource depletion has happened so quickly that fish and wildlife resource managers can do little more than document the loss. In some cases, even that task must be done hurriedly to keep pace with the conversion.

Many factors have been blamed for accelerating the dewatering of western Kansas streams and lakes. Among the most frequently mentioned are changes in land use, natural sedimentation, and intensified consumption of surface and stream valley alluvium water supplies. Reduced flows from Colorado and changes in the always unpredictable rainfall patterns are two more explanations but the tremendous development of irrigation has, without doubt, corresponded with environmental losses of similar magnitude. Personal incomes have shot up and cities in irrigated regions have boomed. But the environmental degradation that has occurred simultaneously prompts questions: Do we feel any richer? When and where will it happen next? What can be done to continue reaping the economic benefits while reducing environmental impacts?

The Arkansas River was one of the major natural resources of southwest Kansas before it dribbled out of sight permanently in the early 1970's. Although it was always subject to the whims of the weather and those infamous "dry spells," it was the major natural resource in a part of the state that was never richly blessed with surface water. The river now is permanently dry, for all intents and purposes, from Dodge City west to the Colorado border. The river was replenished by seepage from underground water in the streambed alluvium. Now, however, the subsurface water is lower so that pattern has been reversed. Even a

five-inch downpour is quickly sponged away by the dry riverbed.

In addition to the obvious loss of fishable water, the lowering of underground water has caused the rapid disappearance of riparian timber and vegetation along the river. Old and mature stands of cottonwood, elm, ash, hackberry, and sandbar willows have been completely destroyed. It has been estimated that half of the riparian habitat that formerly existed on the river is gone from Dodge City west.

"The trees are simply dying of thirst," says Ken Brunson, Fish and Game stream biologist. "Accelerating this decline is some tree spraying and removal by landowners wishing to create more cropland in the river bottom. With about half of this woodland dead and gone now, the trend is toward complete disappearance of this ecosystem from Dodge City west. And this situation is expected to spread eastward as use of additional groundwater and surface waters continues."

Creatures that depend on closely associated timber and water supplies have been faced with sudden obliteration of their habitat. Whitetail deer and Rio Grande turkey are two species that had been reintroduced to the region in the past twenty years. But disappearance of this woodland ecosystem has consumed much of the only suitable habitat southwest Kansas had to offer them.

Migratory birds have been forced to look elsewhere. Earlier estimates indicated that more than 100,000 mallards annually used Lake McKinney, an irrigation impoundment twenty miles west of Garden City, and adjacent reaches of the river for over-wintering prior to 1975. Scores of bald eagles once roosted in trees along the Ark but are no longer as common.

Another notable victim of rapid irrigation development is the lesser prairie chicken. Development of center-pivot systems on its historic range in the sand-sage prairie of southwest Kansas has converted nearly two-thirds of its original range to cropland, mainly corn that supports huge cattle feeding operations and similarly huge beef packing plants.

State fishing lakes, along with city and county lakes have been victims, too. One assessment reports that total surface acres of water in twenty-four western Kansas lakes have been reduced by seventy percent, most of that occurring in the 1970's. Thirteen of the twenty-four lakes surveyed are now completely dry.

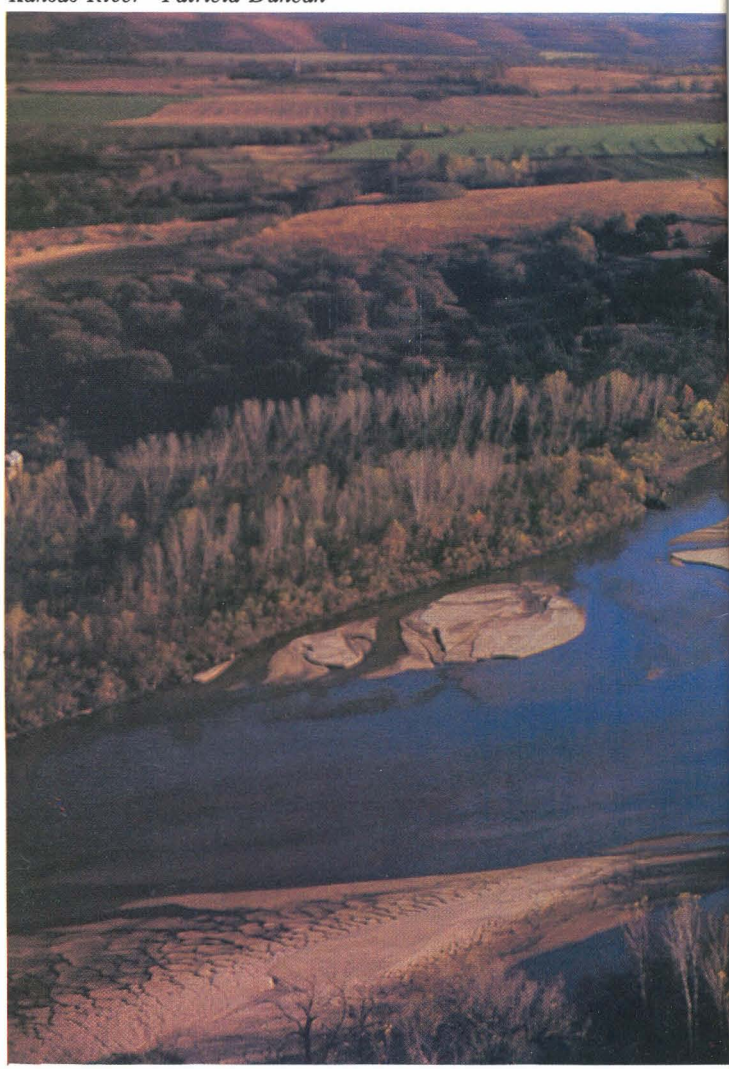
"We have lost about two-thirds of what we term fishable stream mileage on the Arkansas River and in the Arkansas River basin as a whole," Brunson said.

"Some people say it is not necessarily our own state's consumers which are exploiting this natural resource. There is some truth to that, since Colorado also has extensive irrigation use and is tapping the same resource in their state for growing corn and other grain crops. However, we do notice that there is less flow occurring at Dodge City than at Coolidge (on the Kansas-Colorado border), indicating to us that there are significant effects from our irrigation between Dodge City and the state line."

Northwest Kansas streams have, so far, not experienced the drastic reductions that have occurred on the Arkansas River but base flows there have dropped significantly, too. Flow in the South Fork of the Solomon, which feeds Webster Reservoir, historically was at about 55,000 acre-feet per year. Now it has dropped to half of that and is expected to decline even further to 16,000 acre-feet per year by 1985. The factors influencing flows on the Solomon are apparently different than those influencing the Arkansas.

"It is felt by some observers that the aggressive movement to apply conservation measures on land which drains into the Solomon has been the major influence in keeping water from entering the Solomon River and eventually Webster Reservoir," Brunson explains.

Kansas River *Patricia Duncan*

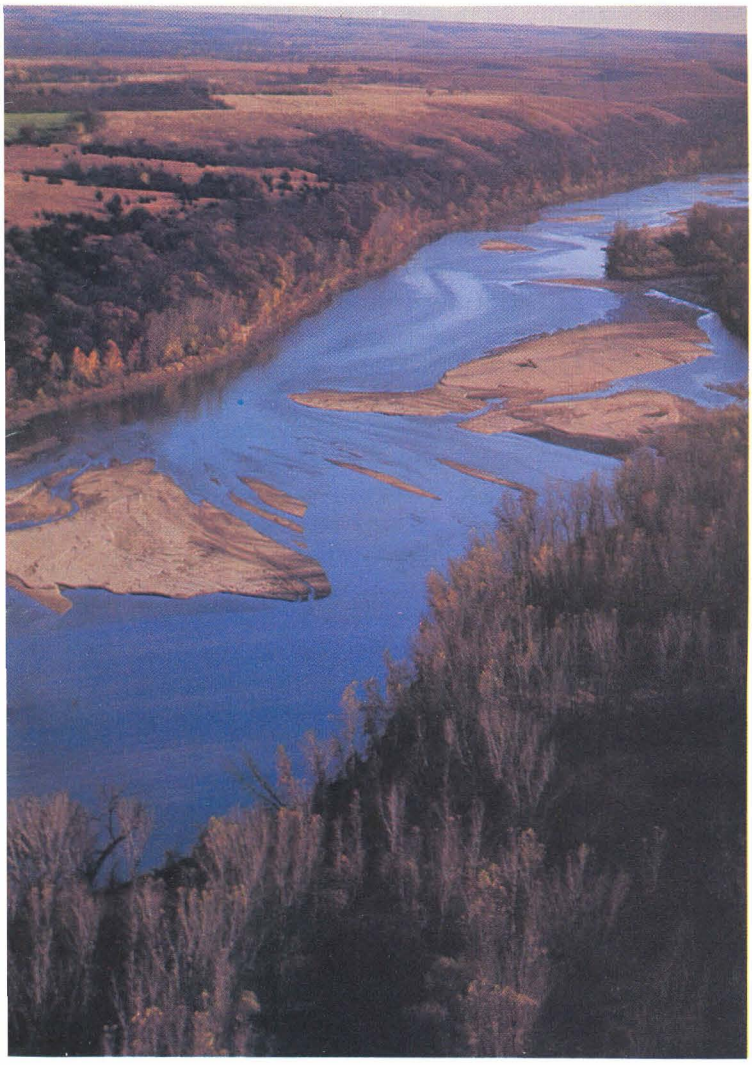


Cedar Bluff, Norton, and Kirwin reservoirs are experiencing water supply problems, too, and some northwest Kansas streams are now dry for longer periods of time.

As critical as Kansas' water problems seem, they are not unique.

One of the most graphic examples of human demands on a natural waterway is the Platte River, which rises in the Colorado Rockies and flows through Wyoming and Nebraska. More than forty dams in the three states interrupt the river's flow to irrigate farms and provide water and power for rural and municipal uses. Underground water mining by irrigators is contributing to the declining flow by sucking up subsurface water that once replenished the Platte and its adjacent wetlands. Since there is more demand for Platte River water than there is water available, competitors for water are frequently taking each other to court to settle their differences.

Construction of a coal-fired power plant at Wheatland, Wyoming on the Laramie River—a major Platte tributary—was the issue when its developers were taken to court. The project threatened to consume a significant amount of the flow in the Laramie River.



Prospects of losing water to the upstream developers brought together the State of Nebraska, conservation groups, and Nebraska development interests. The unlikely collection of allies brought suit in court, claiming the plant's use of river water would reduce flow and alter downstream habitat in Nebraska, where whooping cranes stop during their migrations. The suit was settled out of court when developers of the power plant scaled down the water consumption of their project and established a $7.5 million trust fund to preserve and enhance habitat along the area of the Platte the cranes use. Interest money generated by the trust fund will be used to purchase land, to obtain leases and easements for habitat, and to fund management programs.

Use of groundwater to replenish wetlands south of the Platte in southcentral Nebraska prompted another court suit by two Kearney County farmers. The farmers brought suit in federal district court seeking to prohibit the U. S. Fish and Wildlife Service from pumping groundwater onto 2,500 acres of wetlands owned by the Service. The farmers contended that use of water for wetland replenishment would deprive agricultural users of their preferential water rights. The court upheld the Service's right to pump water for ducks, geese, and other migratory birds.

Water developments in other parts of Nebraska have devastated fish and wildlife resources.

Lee Rupp, a fisheries biologist with the Nebraska Game and Parks Commission, has documented the dewatering of numerous streams in the northeast part of the state. More than twenty streams went dry in the region in 1976, a dry year that was the culmination of several years of dry weather. Above-average rainfall since then has slowed the dewatering trend, Rupp says, but two or three additional streams have succumbed each year since 1976.

"It happened so quickly it was like an epidemic," Rupp said. "We took pictures but that's about all we could do." Dry weather had contributed to the decline of streams, Rupp explained, but it was not the sole cause. It only accelerated what had been happening gradually. Dewatering of streams was inevitable, he said, even under normal rainfall conditions because of the rate of increase in water usage.

More permits are being issued for surface and groundwater withdrawal than there is water available in many cases. While state agencies charged with management of water resources are in the process of compiling up-to-date inventories of water available, many officials fear that water development is proceeding so fast that findings will only document what has already happened.

"The trouble is, there are so many intangible losses," Rupp said. "When a ten-pound catfish or northern pike is belly up on a sandbar, and somebody sees it, we hear about it. But nobody notices what happens to the snails, mussels, crayfish, and other creatures lower in the food chain."

Rupp's belief that more was involved in the dewatering than lack of precipitation was substantiated by his conversations with landowners who had been on the land for decades.

"When I was traveling around the state trying to document streamflow problems I talked with a lot of landowners. I frequently heard the statement from older people that none of these streams went dry in the 1930's, during the Dust Bowl days. Some landowners were just dumbfounded. They thought it would never happen."

In southwest Nebraska, other streams and portions of streams are going dry. Extensive center-pivot irrigation and surface water withdrawal have been major factors in the drying up of surface waters there, as well as underground water declines.

When the 1976 irrigation season ended, six southwest Nebraska irrigation reservoirs contained an average of only fifteen percent of their storage capacity. In normal years, the average was close to seventy percent. A Bureau of Reclamation official in 1977 predicted that Enders Reservoir, a southwest Nebraska impoundment fed by Frenchman Creek, would cease to be a source of irrigation water supply by 1990.

In the expansive Sand Hills, the ranching country of north-central and northwest Nebraska, center-pivot irrigation development on a large scale has raised a furor. Massive irrigation development projects, some comprising as many as fifty individual units, have been undertaken there in recent years. Investors backing the development, many of them non-Nebraskans with little or no experience in agriculture, have been facing mounting public reaction to their attempts to convert Sand Hills acres into cropland.

The Nebraska Sand Hills Resources Council, a group of ranchers and businessmen concerned for the Sand Hills' welfare, has urged the Nebraska Legislature to seek more information about irrigation development before it gets out of hand. They also issued this warning to center-pivot developers: If any of your projects cause adverse effects, legal action will be taken.

Growing public resistance to massive water development projects in the Sand Hills is illustrated in an incident related by Gene Zuerlein, a Nebraska Game and Parks staffer. One developer established a block of twenty-five to thirty irrigation wells, established center-pivots, and grew corn on the converted rangeland for one season. When the developer sought to sell the "improved" land, he could find no buyers.

In another turnabout, extensive use of underground water in northcentral Nebraska has convinced the U. S. Bureau of Reclamation to scrap plans to dam the Sand Hills-fed Cedar River for a 26,800-acre irrigation project. The plan was dropped, officials explained, because their studies indicated there wouldn't be enough underground water feeding the river to support even a scaled-down version of the project.

In the Dakotas, some of the hottest debates involving water use in recent years have centered on interbasin transfers of water from Missouri River mainstem dams to other regions of the state.

The Garrison Diversion Project, a Bureau of a Reclamation-built system to deliver water from the Garrison Dam to eastern North Dakota croplands, has been the focal point of a continuing argument. The U. S. Congress originally authorized the project in 1965 with plans to deliver enough Missouri River water to irrigate 250,000 acres. Objections by environmental groups resulted in a recommendation by Interior Secretary Cecil Andrus that the project be scaled down to 96,300 acres. The environmental groups were concerned that construction of the massive canal and lateral systems to deliver the water, draining of wetlands to create croplands in the area proposed for irrigation, and accompanying stream channelization would have a massive detrimental impact on fish and wildlife.

The Garrison plans eventually resulted in a myriad of complications and political maneuverings. One of those complications revolves around federal plans to acquire privately-owned lands outside the project district to mitigate for wildlife habitat losses caused by Garrison's construction. Predictably, owners of land identified as potential mitigation acreage reacted vehemently to giving up portions of their property for wildlife enhancement purposes.

The state's governor and legislature reacted by enacting a law in mid-1977 restricting wetlands acquisitions by the federal government. Subsequently, the federal government halted wetlands acquisitions in the state, claiming that the duration of easements had been so restricted by the new state law that any purchase of easements would be a waste of money.

U. S. Fish and Wildlife Service biologists contend that curtailment of wetlands acquisition could have a significant effect on this country's future duck populations. Six to seven million ducks breed in the prairie wetlands of North Dakota and surrounding states each year—more than any other area of the U. S. except Alaska. Recent estimates indicate that 15,000 to 20,000 acres of prairie wetlands are being drained annually in North Dakota.

Still another ramification of the Garrison Project is the reaction it spurred in Canada, Minnesota, and

South Dakota. Officials there have expressed their concerns that the irrigation project's return flows, which would enter their stream systems, would carry with them increased salts, fertilizer residues, sediments, and agricultural pesticides and herbicides.

In South Dakota, a project to transfer irrigation water from the Oahe Dam on the Missouri River to croplands in the eastern part of the state was halted completely in 1977. The project initially was designed to irrigate 190,000 acres in the James River basin, more than 100 miles east of the Missouri River. When six members who questioned the project's economic and environmental cost were elected to the board overseeing its construction in late 1976, the future of the project dimmed considerably. Even after the plan was revised to irrigate only 120,000 acres, objections to the project mounted. Currently, a pumping station below Oahe dam and several miles of canal built at a cost of several million dollars sit idle while South Dakota and federal officials look for ways to use the portion of the project already built.

South Dakota also contends with the problem of overappropriation of rivers and streams for irrigation, says John Kirk, interagency coordinator with the South Dakota Department of Game, Fish and Parks.

"We see value in leaving water in streams for fish and wildlife," says Kirk, echoing the sentiments of fish and wildlife administrators everywhere. "Developers always seem to have economic figures to back their water development plans so we have to ask, 'Is it right for one developer or irrigator to withdraw a tremendous amount of water from a river for his private gain or is it in the best public interest to let 5,000 people fish that river for two weeks longer?' It's always development against us."

In most states, water appropriation laws favor development interests over instream uses by fish and wildlife simply because the laws were implemented when development was just beginning. As a result, many groups concerned with fish and wildlife needs are pushing for revisions of water law to provide recognition of fish and wildlife as beneficial uses of existing surface water. The object is to provide legal means to appropriate a portion of a stream's flow for instream uses. So far, few states have implemented such a plan.

Colorado is one exception. The state passed a minimum stream flow law in 1973. Its aim is to provide legal authority for the state's Water Conservation Board to acquire water rights on behalf of the public to keep water in streams. Although some developers have claimed that the law is unconstitutional, it remains in effect and protects waterways that might have otherwise been overappropriated. Montana legislators have taken similar action to protect their streams.

Among the recommendations made by the Governor's Task Force on Water Resources in Kansas is one which would establish a mechanism for obtaining minimum stream flow decrees. It's already too late for many western Kansas streams but acquisition of instream flow rights by the state for public benefit could be the single most effective method for preventing dewatering of streams further east.

Within the past decade, federal and state agencies charged with providing information on water resources have initiated comprehensive studies of some river basins. Representatives from Colorado, Nebraska, and Wyoming, as well as federal officials, are currently involved in a two-year study to identify water issues and conflicts in the entire Platte River basin. They plan to make recommendations to the Secretary of the Interior by the end of 1981.

The Missouri River Basin Commission, an agency established by presidential order in 1972, is involved in a similar study. Representatives from ten states, including Kansas, are seeking to establish a comprehensive plan for future water development in the basin.

Technological advances, like the use of satellite imagery, have provided effective means of monitoring water and land use patterns to aid in the planning and decision-making that will affect future water use in much of the U. S.

Environmental policy directives and clean water policies at the national level have focused more attention on the hidden costs of resource exploitation and demanded that more consideration be given them. Endangered species legislation has heightened public awareness of the critical pressures man has placed on fish and wildlife resources everywhere. More and better information is available to use in making resource decisions.

Still, the insatiable appetite of the world's population for water, food, energy, and living space looms as our most formidable challenge ever. For those who enjoy fish and wildlife, the efforts to meet that challenge often seem more discouraging than encouraging.

"It's just kind of a race now to see if anything can be done," says Nebraska's Rupp. "People don't seem to react to a problem until it overshadows all other problems . . . and there are plenty of those. Probably the most encouraging thing I've noticed is the increase in public concern and public awareness. There are ten times more people concerned now about water problems than there were just three or four years ago. And that's a big positive step." □