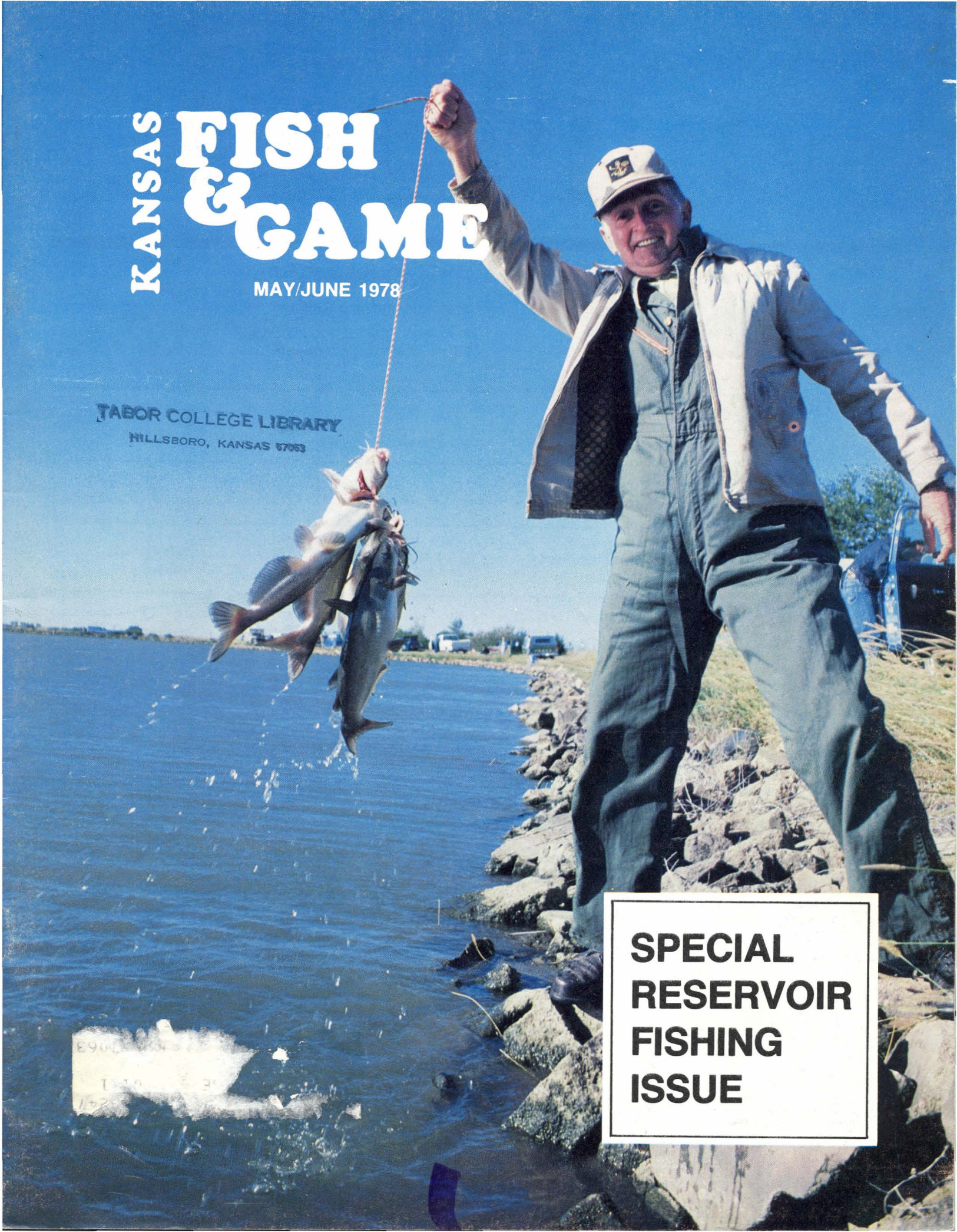

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Fisherman and common egret by Ken Stiebben

Another Round In The Game Called BIOPOLITICS

The game has been with us for a long time. At the turn of the century, Gifford Pinchot named it "conservation". He and Teddy Roosevelt played well, placing 56 million acres of national forest land under professional management and laying the foundation for the national wildlife refuge system. Much of the struggle was raw politics, won by the Roosevelt-Pinchot team because of their own influence and a carefully contrived public relations campaign. The second round under another Roosevelt brought a storm of controversy and eventually resulted in the Fish and Wildlife Coordination Act, the Duck Stamp, and the Pittman-Robertson Aid to Wildlife Act. The third round began on college campuses in the sixties. The name of the game changed— "conservation" became "the ecology movement"—and the players changed too; many of them were relatively inexperienced in politics and technical biology. Still, they worked hard and won some ground—the National Environmental Policy Act, the Wilderness Act, the Wild and Scenic Rivers Act, and half a dozen other major legislative victories came during the early seventies.

Then in the mid-seventies, interest in "ecology" faded some, and the inevitable backlash set in. The powerful legal tools established in the first flush of the decade were taken up by still another group. The new set didn't care much for demonstrations in the street, Earth Days, or pack trips in the Sierra. They preferred courtrooms and smoke-filled committee meetings. The name of the game changed again with the appearance of these new players—"the ecology movement" became "biopolitics".

One of the most enthusiastic and irresponsible players of biopolitics, the Friends of Animals, has recently filed another in a long line of suits against the U.S. Fish and Wildlife Service. This gambit is aimed at the Pittman-Robertson Act which has raised almost a billion dollars for wildlife management since its passage in 1938. The Friends of Animals don't approve of the Pittman-Robertson Act because it raises its funds by taxing hunting equipment, an arrangement which, according to the FOA, gives the hunter too much influence over management activities. According to the FOA suit, "much of the activity under Pittman-Robertson consists of burning and clear-cutting of forests and the flooding of marshes in order to propagate more 'game' animals . . . . (which) destroys the habitat of the vast majority of species of animals, birds, and reptiles which are of no interest to hunters and are, consequently, classified as non-game."

The Fish and Wildlife Service will have to answer this suit in the next sixty days. The reply will probably blow the Friends of Animals out of the courtroom. Federal biologists have abundant evidence that management of any game species benefits a wide variety of non-game animals as well. Pittman-Robertson projects across the country support all sorts of vegetation from mature timber and marshland to weed fields and desert. It's only reasonable to expect that variety of habitat to support healthy populations of most non-game critters.

Of course non-game management was not the primary purpose of the P-R program when it was passed in the thirties. At that time, many of the game animals we take for granted today were literally losing ground to wholesale habitat destruction. The success of P-R funded management programs for whitetailed deer, mallards, wild turkeys, and a number of other game species is obvious. Most Fish and Wildlife Service regional offices have long since recognized that even the most successful management program is bound to have some negative effects. Environmental impact statements on most recent projects have been prepared, and Fish and Wildlife Service administrators are finishing work on an environmental impact statement that covers the whole Pittman-Robertson program.

Leaders of the Friends of Animals knew when they brought suit that their chances of winning the legal confrontation were poor. They're willing to concede this battle, though; it's the long-term war of attrition they expect to win. This suit and others like it are designed to eat up time and money, to confuse and thwart, if possible, the normal business of the Fish and Wildlife Service and state conservation agencies.

Wildlife biologists in and out of the Fish and Wildlife Service feel that these tactics threaten the entire American wildlife resource. It's not the challenge of agency action itself that's dangerous; federal and state wildlife agencies have stood in need of some criticism from time to time. But in the history of biopolitics, these are the first challenges from so-called wildlife interests that seem bent on destroying wildlife just to prove a point. The Herringtons, Regensteigens, and Amorys seem to be willing to go to any lengths to win the game—even if it means trading the last Canada goose, bighorn ram, and Magnolia warbler on the face of the continent to do it.

In 1903, John Muir, a devout preservationist and anti-hunter, camped in Yosemite for two weeks with the new U.S. president, an enthusiastic big-game hunter, Teddy Roosevelt. During those weeks, the two men found themselves in basic agreement on the importance of protecting wild America and came away from the Yosemite with a mutual respect and the beginnings of a fast friendship. Those times were a watershed for American wild lands management. Both men saw that the crisis left no room for bitter wrangling over side issues. The situation today isn't much different.

—Chris Madson.

Rich Patterson

The Dillon Environmental Education Center in Hutchinson gives kids a chance to learn about wild Kansas first hand. They're . . .

Discovering Nature in Town

Rich Patterson

"**Look at that frog. He's ALIVE!**" A third grader shouted and pointed as his class tip-toed toward the pond. The huge bull frog plopped into the mud as fifteen youngsters, their teacher, and a staff member of the Dillon Outdoor Education Center neared.

Informal questions kept the children's attention focused on the frog. Where does he like to live? What does he eat? What eats him? How does he survive the winter? The class searched for answers and soon discovered skunk tracks in the mud. They followed them to a brush pile and ran on to a small field of tall Indian grass. Their leader asked them to close their eyes and imagine a huge prairie of grass sprinkled with dark buffalo. Later, the class smelled osage oranges while listening to starlings squawk high in a twisted cottonwood.

Kids love being outside, and it doesn't take an elaborate activity for them to learn while having fun. Often their interest is so high that they learn more in an hour than they would in an afternoon in a classroom.

Unfortunately, most modern Americans are urban people who have lost close contact with nature. Even most Kansans are city people, and fewer than ten percent of the state's families live on farms. Only a generation ago, most Kansans grew up in rural areas. Doing farm chores, watching wild and domestic animals, tromping the fields, hunting, and fishing provided subtle forms of education not available in a classroom. Urban children lack these forms of informal education.

Ask a typical group of Kansas sixth graders how to help wildlife and you are likely to hear such answers as "ban hunting" or "make more national parks." They believe that wildlife is limited to Yellowstone and a few refuges and often don't understand the importance of food, cover, and water to living things.

Leonard Lee Rue

Several years ago, the Hutchinson Recreation Commission wanted to establish a natural area in town where local people could walk, fish, and observe native plants and animals. The creation of outdoor education activities for school, scout, and other youth groups was another goal.

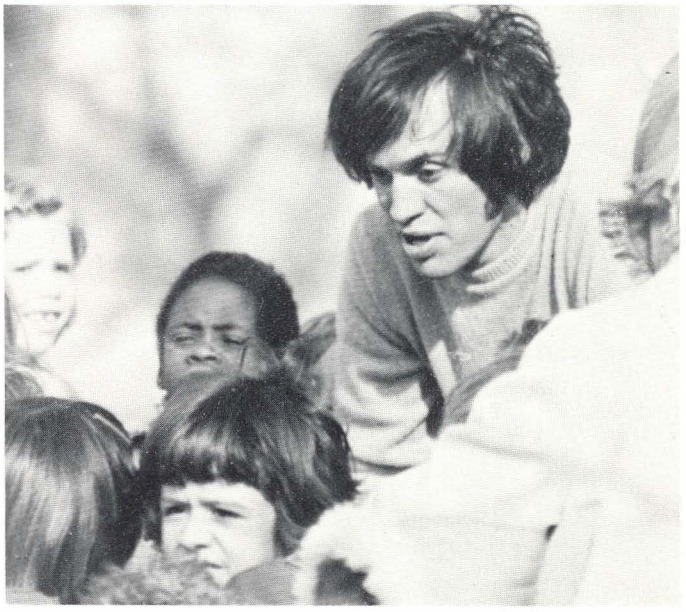
In 1970, the Dillon Corporation gave the city a 23-acre picnic park. Named the Dillon Outdoor Education Center, the area has become a focus for outdoor related programs, school field trips, canoeing, fishing, and other related activities.

The original land was a mowed and manicured park. It wasn't an exciting place to see wild animals or native plants. Kansas Fish and Game Commission biologists and state extension agents helped plan habitat improvements, and dozens of scout and 4-H groups planted hundreds of trees, built brush piles, sank fish structures in the pond, and built bird houses. They also helped plan and build a self-guiding nature trail.

Creating wildlife habitat was an exciting education for the young people, and within four years the improved habitat had lured hundreds of wild creatures to

Leonard Lee Rue

It's often a commonplace encounter with a wild critter that starts a kid thinking. The woodchuck and the blue heron are common Kansas residents, but how many Kansans have ever seen one? In a kid's world, they loom like grizzlies and condors on the horizon of the imagination—if the kid has the guidance and the opportunity to find them.



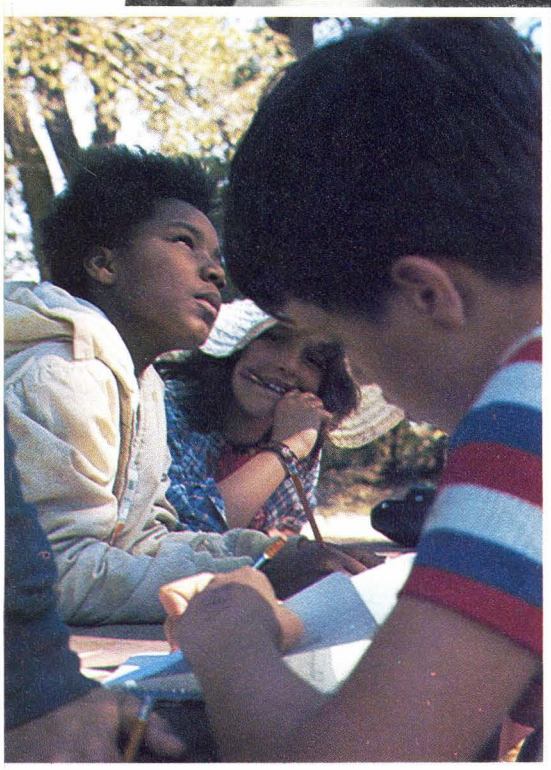
Rich Patterson

town. Only 20 bird species were common on the old mowed park, but 106 different species were spotted by birders in 1977 on the new habitat. Where only a few cottontails once lived, muskrats, foxes, skunks, opossums, and even occasional coyotes and deer visit.

Once the habitat was improved, programs were developed to encourage people to enjoy being outdoors. A naturalist plans and directs activities ranging from school tours to canoe trips.

Classes help participants master such skills as cross country skiing, firearms safety, and bass fishing. Family canoe trips on the Arkansas River put people near beavers, deer, herons, and many species of trees. Trips are led by naturalists. Canoes, paddles, life jackets, transportation, and training are provided. Other guided activities include rock climbing, hiking, bird walks, and raccoon watches.

Fishing remains the Center's most popular activity. Serious anglers try to fool the lunker bass and channel cat that lurk around the tire reefs and brush piles, but kids are content to dunk worms for crappies and bluegills. Fishing is free, and a catfish stocking program by



Rich Patterson

Leonard Lee Rue

the Fish and Game Commission helps produce quality angling. Having a public fishing area in the city makes it possible for factory workers and businessmen to fish on their lunch breaks. Senior citizens and children, who are often unable to drive to distant state lakes, enjoy having a fishing hole in town.

Although most programs are open to the public, school outdoor education activities form the heart of the Center's services. School groups from all over South Central Kansas visit by appointment to have guided tours.

Many kindergarten and first grade children have never had the chance to walk through tall native grass, listen to the wind swish through cedars, or watch bluegills nesting in the shallows. Because they are away from familiar surroundings, they are often afraid. The leader helps them overcome fears and encourages them to use their senses to explore. Within minutes most children are gleefully finding all sorts of interesting things.

Changing seasons form a natural lesson for second graders. They notice differences in trees, grasses, weather, and wildlife during the fall, winter, and spring.

Third graders study the needs of life. They learn the meaning of such words as predator, herbivore, camouflage, and hibernation. Some of them are surprised to discover that snakes, cottontails, frogs, and even insects need the same basic things as humans—food, water, shelter, and air.

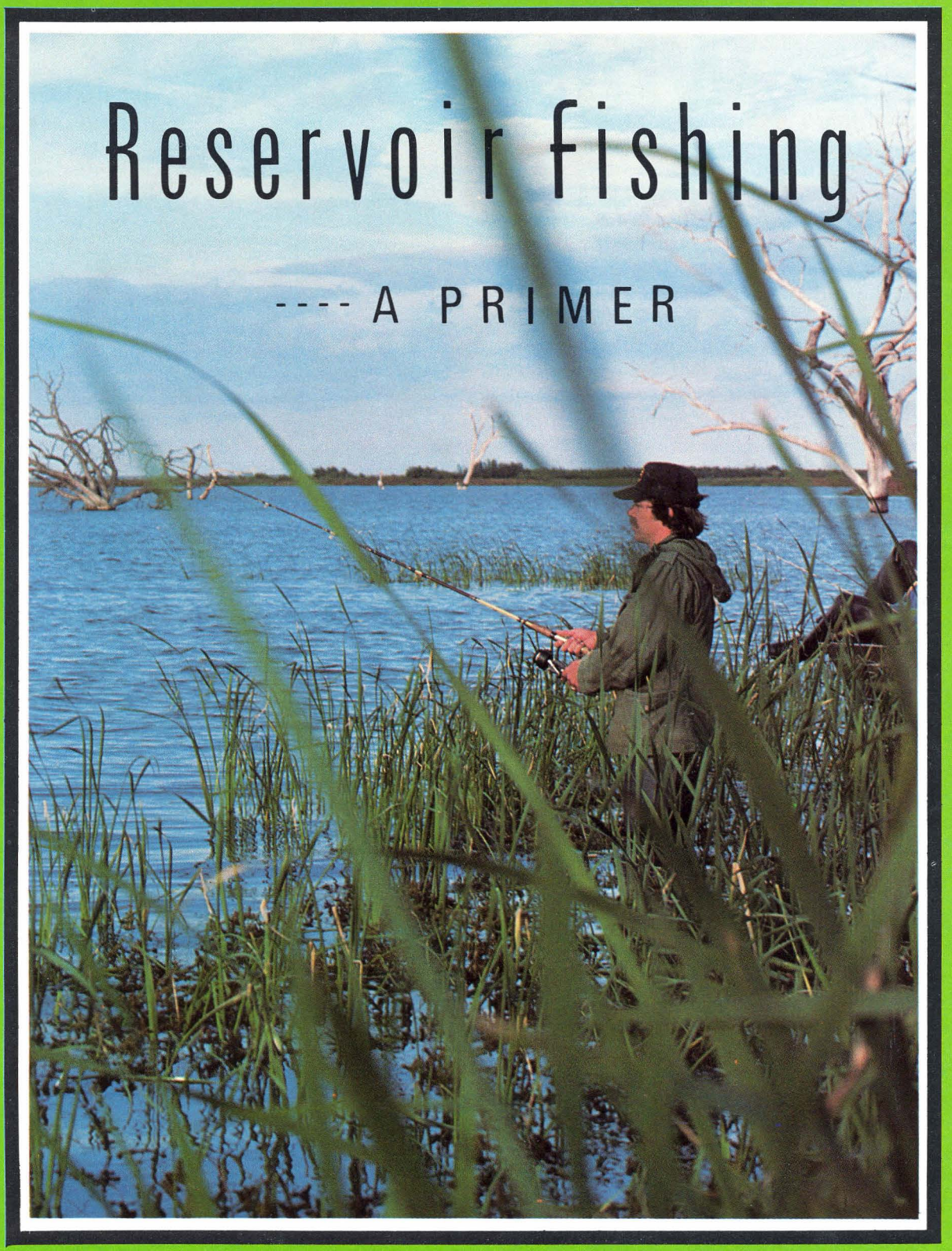
Fourth graders follow a water system from a clear, cold spring down through two ponds and a small stream. They feel the water in each place, measure its temperature, and look for the animals that live in each type of aquatic habitats.

Fifth graders receive a practical lesson in geography and math. They are given a map and compass and compete in small groups for the best time along an orienting course.

Children often have the impression that man has done much more harm than good to wildlife. They read of the destruction of whales and buffaloes but little of man's positive actions. Sixth graders visiting the Dillon Outdoor Education Center are led on an activity of discovery. They are asked to find examples of how man has helped and harmed wildlife. Most of them are surprised to find that many types of common animals, such as muskrats, fox squirrels, and even deer owe their abundance to habitat improvement by people.

Although the Dillon Outdoor Education Center is unable to give urban children all of the experiences of growing up in a rural area, it involves them in a natural area and helps them appreciate the environment.

The Center is open to the public and is located at 3002 East 30th in Hutchinson. Anglers, photographers, walkers, and birders are always welcome. Groups should call for an appointment.



Kansas has twenty-one reservoirs, a total of 138,226 surface acres. Reservoirs can provide tremendous fishing if you know when, where, and how. Have you ever fished for a school of white bass? Caught a good stringer of channel cats? Jig fished for crappie? Drifted after walleye? Have you ever seen a largemouth hit a top-water lure? In the following pages, five experienced Kansas anglers look at how to exploit the fishing potential of Sunflower reservoirs. Read on; one of these articles may make a difference on your stringer this summer.

White Bass

Tom Bowman

The white bass has probably saved more fishing trips than any other species of fish. When walleyes won't cooperate and largemouth bass just can't be found, the white bass often saves the day by providing a little meat for the table and a whole lot of sport. Pound for pound, the white bass is one of the sportiest fish in Kansas. He takes artificial lures more readily than most any other fish, is extremely abundant and usually easy to find, gets big enough to interest most anglers, and, when it comes to sheer torque on the end of a rod—well, few fish can match him.

Modern white bass fishing in Kansas got its start in 1950 when imports from Oklahoma were introduced to Fall River Reservoir. Although some nineteenth century records suggest that white bass may have been present in Kansas streams, they were never very numerous until the advent of reservoirs in the state. When populations of gizzard shad, primary food for white bass, mushroomed in the new reservoirs, the whites themselves soon followed suit.

In order to take advantage of these booming populations, the beginning fisherman has to know more than just a little about the life history of the fish, its habits and preferences and the way they change through the year. White bass are short-lived but fast-growing. In an average life span of three to four years, the white may reach a weight of one to three pounds, depending on the availability of food. Occasionally, a fish will outdo all expectations—one specimen from Toronto Reservoir near Yates Center weighed in at 5 pounds, 4 ounces, the record for Kansas. This same fish was the world record until recently when a 5 pound, 5 ounce white bass was taken in California. At this size, the white bass can be a challenge on light tackle, but most fishermen aren't after the white bass because he's a trophy. They're interested in fast action and boat loads of fish—two things white bass nearly always supply.

Whites are prodigious spawners. As days lengthen and water temperatures rise in early spring, the whites congregate in staging areas under bridges, along rock causeways, and in deep pools at the mouths of rivers and creeks running into the reservoir. Often, thousands of fish will be crowded into small areas where they are vulnerable to the knowing angler. When the water temperature hits sixty degrees, the whites begin to breed. They are pelagic spawners, releasing their eggs and fertilizing them in open water. They prefer to breed in rivers and creeks running into the reservoir or along sand and gravel bars or riprap along dams and breakwaters.

Following the spawning run, the fish move back into the body of the reservoir and are likely to be found all over the lake. They form large schools and spend more of their time around preferred structural features of lake bottom—steep banks, submerged islands and roads, or rocky points. As water temperature continues to rise, whites feed more heavily and can often be seen chasing schools of shad across the surface, especially in early morning or late evening.

Ken Stiebben

When the water begins to cool in late October, white bass will often stage again and make a fall run into rivers and creeks, but the fall run doesn't generally last as long as the spring version.

White bass activity falls off in winter. Most are found on the bottom in water eight to fifteen feet deep near some kind of structure or landmark on the lake floor.

During any of these major seasonal movements, white bass feeding activity can be affected by a number of day-to-day changes in water and weather conditions. White bass like stable weather. The passage of an extreme cold front with an associated change in barometric pressure will completely shut off bass activity. The rain that accompanies such weather fronts can also affect white bass behavior, especially when the fish are in a river during a spawning run. A rush of turbid run-off will push whites back down to the lake until the river water clears. The run-off may also cause a drastic drop in water temperature, another factor that can discourage white bass feeding activity. Like most other fish, white bass don't like strong light; they are most active at dawn and dusk and on overcast breezy days when clouds and waves cut down light penetration.

The white bass is probably most vulnerable to the fisherman just before and during its spawning run. Finding the school is the only real problem. If the bass have moved into the river, they can be taken with jigs, spinners, spoons, or on live minnows. Many fishermen wade after the whites during the run, but the angler on the bank can do well, too. Ultralight spinning tackle works well in these situations, allowing the angler to work small crappie jigs with light line. Try fishing the pools just below riffles by drifting a jig with the current or retrieving it across the head of the pool. Undercut banks and small brush piles and log jams can also produce fish when conditions are right, but fishing heavy cover can be expensive with ultralight—use medium spinning gear and heavier line in the brush.

At the height of the run, a fisherman may be able to fill his stringer without stirring from the spot where he made his first cast.

If the fish aren't in the river, they may be staging in the upper end of the reservoir. Fishing the staging areas is often big water angling; a boat is almost required, and a sonar "fish finder" can come in handy. A better name for this gadget would be "structure finder"—the sonar isn't usually sensitive enough to show fish, but it does show the water depth and most of the features and cover on the bottom. Submerged points, rocky banks, gravel bars, and break or steep slope on the bottom can attract fish. They're the places to start prospecting, and they can be hard to find without a sonar locator.

This big water style of fishing works well after the spawning runs too, until the dog days of mid-summer. When the mid-day July heat drives the white bass into deeper, cooler water and the fishermen to the shade on the bank, dedicated white bass anglers get out their lanterns and fish at night. Gas lanterns or electric lights hung out over the water attract bait fish and white bass in large numbers. The boys who do a lot of this night fishing build floating lamps by fastening twelve-volt sealed beam head lamps in styrofoam frames and running insulated wires from the lamps to twelve-volt batteries in their boats. Two or three of these rigs are more than adequate. The next step is to pick a spot that is likely to have whites around it. A fish locator works well, but on some of the more popular reservoirs, all a fisherman has to do is look for a concentration of lights out on the water. A knot of lanterns in one spot is usually a sign that somebody has located the white bass. Work a crappie jig straight up and down right under the lights and watch your line! Often, you won't even feel the fish take the bait, but you will be able to see the line stop or move slightly to one side. When the fish really get going, switch to a spoon and heavy line—you can work the heavier rig much faster.

Surface feeding whites can give even the most experienced fishermen a few butterflies. I have seen large schools of white bass push an acre of shad skittering over the surface. Usually, the bass don't stay up for more than a few seconds, but there are times when they may stay up for several minutes. At these times, an electric trolling motor on your boat can be a great asset because it allows you to follow the feeding school without spooking the fish. Heavy spoons and stout line are the rule here. Throw right into the feeding fish and brace yourself. It's not at all uncommon to catch a fish on every cast or even two in a single cast. While the white bass are working the shad from below gulls often take them from above. A hovering flock of gulls often marks a school of feeding whites that are invisible from the surface.

Although most white bass fishermen quit at freeze-up, there is some excellent fishing to be had through the ice. Ice fishing is about as simple as angling can get—a little bait, some line on a rod or short pole, and a way to cut a hole in the ice is all you need. The best way to catch white bass through the ice is to drill several holes until you find the fish. Use the lightest bait and line possible. A 1/32 ounce jig is none too small; a 1/64 ounce jig is even better. Very small minnows will work as bait, too, but whatever the bait, the line should be between two and six pound. Work the bait up and down very slowly near the bottom in eight to fifteen feet of water. Be alert; the strike, if you can call it that, is often delicate and hard to feel since the fish are chilled and sluggish.

To the largemouth bass purist or the angler in search of a trophy striped bass, the white bass may not seem like much of a fish, but to thousands of just plain fishermen, he's the perfect opponent. He's fast action, a bow in your rod, and plenty of fillets in the freezer—give him a try!

Crappie

Royal Elder

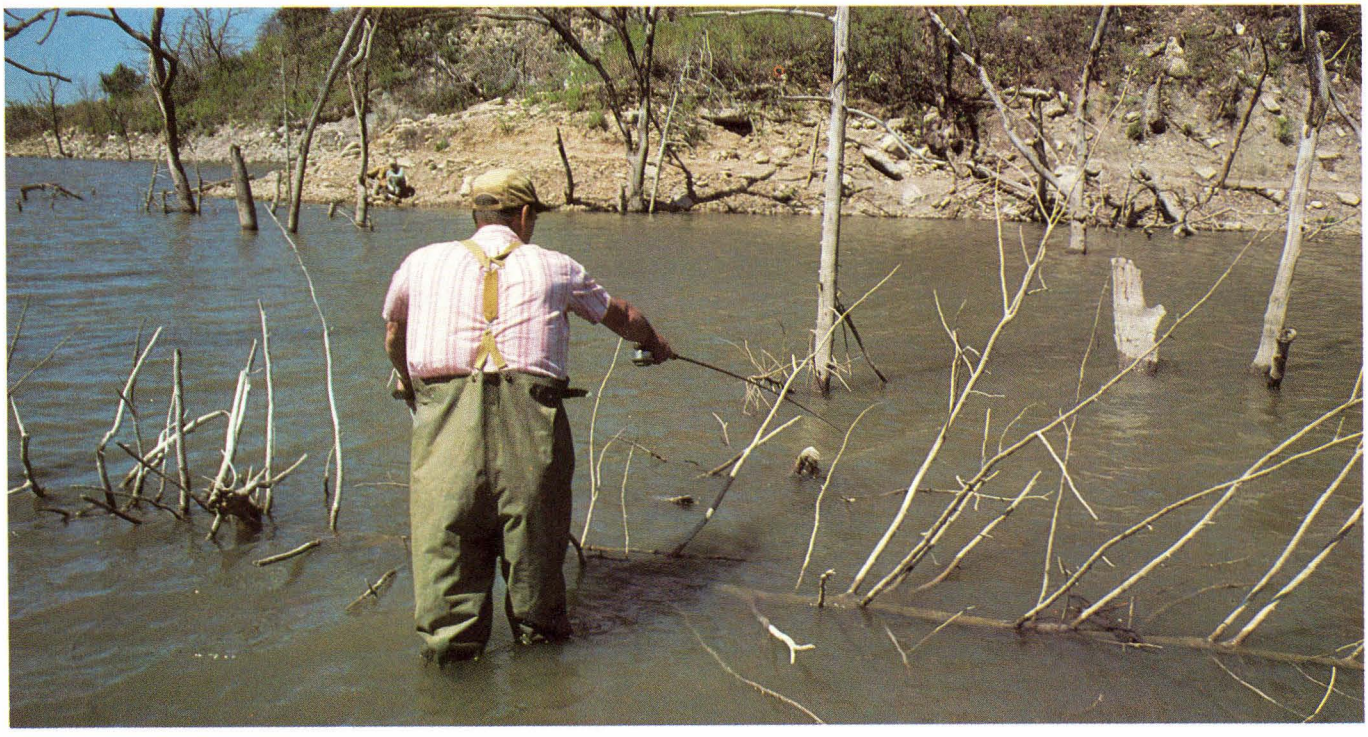
A fisherman's first encounter with the crappie is likely to be in March or April with the first blush of spring, and the meeting is nearly always spectacular. At the height of the season, the success of a crappie expedition is more often measured by the boatload than by the stringer, and the brushy coves along the upper ends of Kansas reservoirs are filled with fishermen dunking minnows and jigs into the tops of flooded trees, waiting for an almost imperceptible resistance on the other end of the line. Their fixed stares and intent concentration mark them as crappie addicts searching for that "honey hole" that will fill up their fish baskets. Thousands of them find their "honey hole", but the number would be even larger if more fishermen understood their quarry.

There are actually two crappie, the black crappie or calico bass, and the white. The black crappie is a little more choosy than the white, preferring fairly clear water while the white crappie tolerates turbid water and is more prolific. Black crappies tend to school, especially early in the year before spawning, so it isn't unusual to have hot black crappie action turn on instantly and switch off the same way as the school moves through an area. Populations of white crappie are usually much larger than black crappie populations and may be more uniformly distributed through cover early in the year. Both species have a taste for brush. A crappie is seldom found far from brush piles, flooded timber, logs, even weeds standing in the shallows.

Late winter and early spring find most crappie schooled up in water ten to twenty feet deep. As the water warms up, the schools disperse into shallower water near the bank where they spawn. Crappies fan out poorly defined nests on the bottom in shallow water usually less than eight feet deep. The male builds the nest, prods the female into laying her eggs, fertilizes them, and stands guard until they hatch. A successful breeding season can produce a dominant year class that will interfere with breeding success for two to three years by competing with younger fish for food and eating crappie fry. Such dominant year classes may be part of the reason that crappie fishing tends to be cyclic with two or three good years followed by two or three slow years. This same situation may partially explain the similarity in size often seen in big stringers of crappie, although in overpopulated lakes fish of different ages may all be stunted to about the same size.

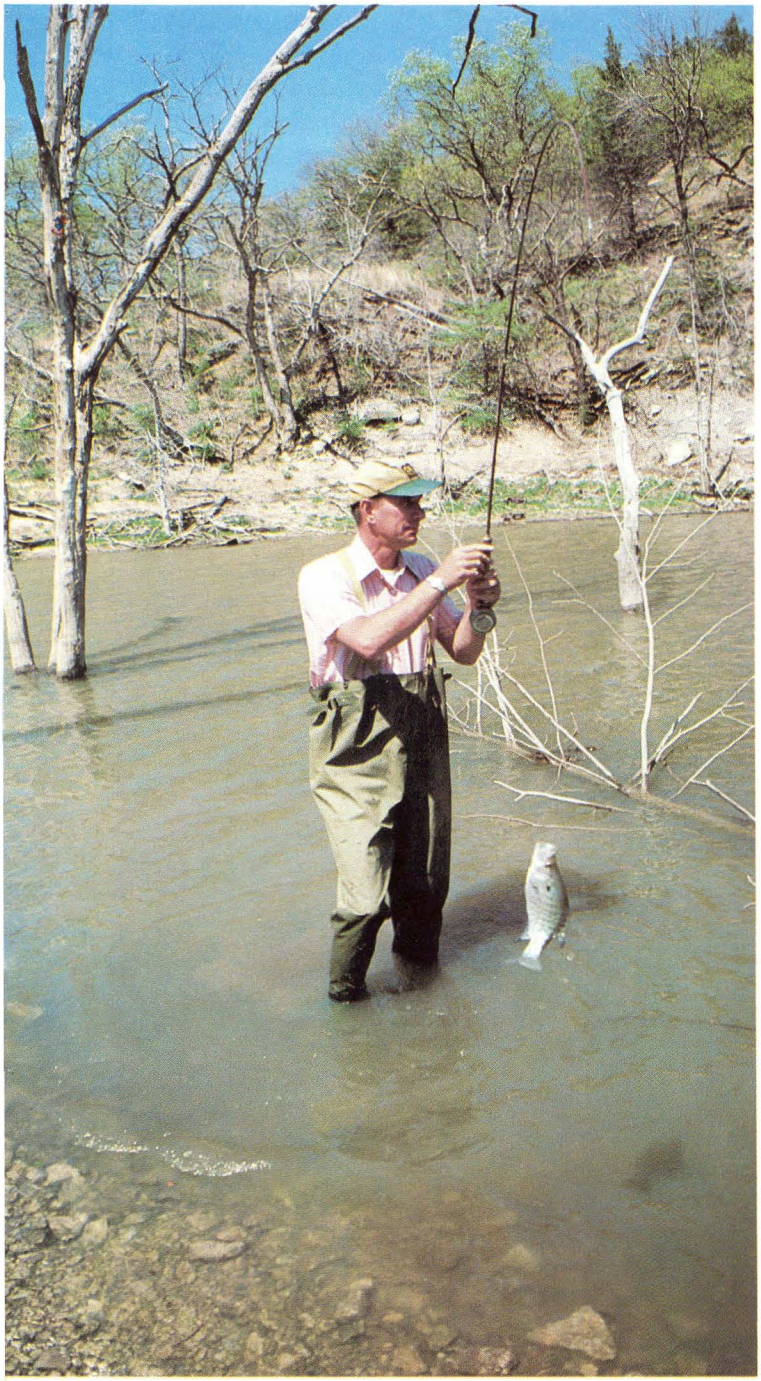
After breeding, crappie move into deeper water farther from shore, concentrating around sunken trees and underwater brushpiles.

Both crappies are predators. Minnows and small gizzard shad seem to make up the bulk of most adults' diets—up to ninety percent in the early spring and late



Ken Stiebben

fall, according to one study. Crustaceans, insects, mollusks, and plankton can be important at times of the year when they are abundant, especially to small crappie that aren't able to take larger, more mobile prey. A Florida study showed that male and female black crappie may differ in their food preferences, the male taking 33 percent more crustaceans and fewer minnows than the female during the spring breeding season. These seasonal and sexual differences in taste lead crappies to different parts of a reservoir. When minnows make up the overwhelming bulk of the diet, crappie are much more likely to be found in the shallows with their prey. If midges are the main course, the fish will move to deeper water and stay closer to the bottom. Trying to figure the feeding patterns of the crappie in a reservoir can be a brain strain; a few years of prospecting can pinpoint the most dependable hotspots with a lot less mental effort. Besides, it's a good excuse to go fishing.



Ken Stiebben

All sunfish are finicky critters, easily spooked by coarse line, oversized hooks, or impatient technique. Although the thought of hooking a tarpon-sized bluegill may give an experienced fisherman the shivers, (he's a heck of a fighter for his weight class), most sunfish are just not big enough to warrant the use of heavy line, rods, and reels. Many crappie fishermen use ultralight spinning gear, partly to add to the thrill of hanging a two or three pound crappie and partly to handle the two to six pound line and light lures the sport requires. During the spring spawning season and on into the summer, I use an eight and a half foot fly rod and an automatic fly reel filled with six pound line. Generally, I only use three or four feet of line except when playing a big crappie. The six pound line is stout enough to let me straighten the hook on my jig when it gets snagged; the long fly rod gives me a better reach. Crappie fishing, especially in the spring is more a reaching than a casting game. When crappie are spawning, they're likely to be right next to the bank in water from six inches to eight feet deep. A quiet approach and a jig or minnow lowered slowly into the water produce more strikes than the most artful cast.

Since the crappie's preferred food is a minnow, a live or dead minnow is obviously a deadly bait. Many people hook their minnows through the back and set them one to two feet under very small bobbers. Some prefer to cast this rig with an ultralight spinning rod; others would rather dip it into a brush pile at close range. If the minnow is dead, it can be hooked through the eyes and worked slowly up and down like a jig. If the wind is blowing, the waves will give the bobber enough action to work the bait, or the bobber can be removed and the minnow worked by using the pole. A split shot in the minnow's mouth will get him down to the crappie if he won't sink on his own. Working the bait with a slow, gentle touch in the middle of the worst tangle of brush available usually gets the best results.

For the man who doesn't care to bait a hook, jigs are also highly effective crappie bait. They're best used right in amongst the brush and flooded timber, although they can be hung under a bobber and worked in open water, too. I like to give the jig action by working it with my fingers. I let the jig sink to the bottom. When the line goes slack, I pick it up a few inches by raising the line with my fingers, then flip the line with my little finger. The flip gives the jig a subtle bounce crappie can't seem to resist. There's another advantage to having the line in my fingers, too—it helps me feel the strike. Crappie are not known for their freight-train attack on a bait; in fact, even an experienced fisherman will miss a few taps during a

day's fishing. The old pros though, seem to develop a sixth sense about what's happening down there, as if that piece of monofilament line were a nerve ending down to the bait. It's a feeling that comes with years of practice.

Fishing a minnow or jig straight-up-and-down in heavy brush works as well in the winter as it does the rest of the year. Finding the crappie can be tougher when every move means cutting through another twenty inches of ice, but if you know where the fish are before the reservoir freezes, chances are you'll be able to find them through the ice. And the same methods that work on crappie during the winter also work on bluegill, largemouth bass, white bass, and stripers in the right locations.

Many fishermen maintain that yellow and white are by far the best colors for jigs, but then, those are often the only colors they've ever used. I've seen crappie caught on a variety of jig styles and colors, and I suspect that the jig's action and the place it's fished are more important than its color.

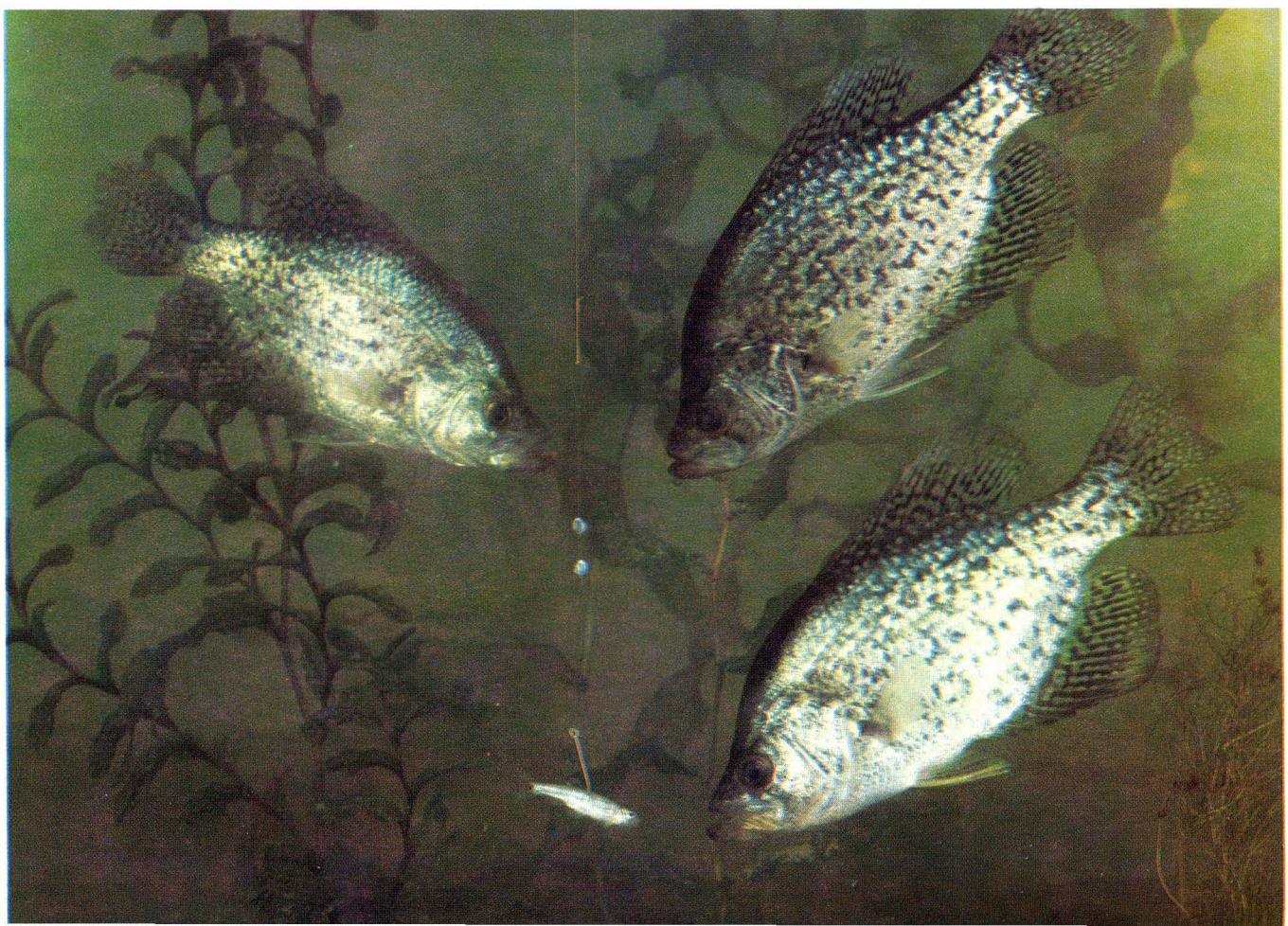
One of the beauties of crappie fishing is that it doesn't demand a boat. A bank fisherman who knows what he's doing can do very well, especially during the spring spawning period. However, a boat does give an angler more mobility and increases his chances of finding fish and approaching them from the best angle. And there are crappie techniques that require a boat. Some Southern crappie experts like to troll a live minnow along brushy banks in creeks and coves. It can be a deadly method. Trolling has the major advantage of covering a lot of territory in a hurry, but it can be exasperating in thick crappie brush—unless you're catching fish, of course.

A sonar fish locator is a useful piece of hardware to have in a boat. Crappie aren't always considerate enough to concentrate in cover that shows at the surface. The sonar won't usually show the fish, but it will show the submerged brush they're in.

Manufacturers have obligingly supplied fishermen with an array of efficient and expensive boats with electronic instruments that record everything from dissolved oxygen to bottom contour. They're beautiful rigs, but they're more than you need. A stable johnboat with a dependable outboard will get you where you need to go, though they are a little slower, and if you can't afford a boat at all, a pair of waders will move you out into the water far enough to keep in touch with crappie. Combine the waders with one of the floater tubes on the market, and you have a rig that'll let you work flooded timber in sheltered coves without having to rob a bank to finance the operation.

The best fish locator I've ever discovered is a fishing rod. When it catches fish, you're in the right place using the right bait in the right way. Even if you're not catching fish, the rod will tell you whether you're in good cover or not. If you spend about as much time hung up in the brush as you do fishing, chances are you're in a good spot.

Tom Appel



Walleye

Jim Stephen

Twenty-five years ago, walleye fishing in Kansas was probably non-existent, for if the walleye was ever native to Kansas streams, its habitat must have been marginal and its population low. But the reservoirs, man-made bodies of water resulting from the damming of rivers, changed all that. As these newly created reservoirs fill with water and increase with age, they develop a different environment from that which existed in the untouched stream. This new environment is ordinarily stocked with those sport fishes which are most likely to survive and reproduce successfully. The walleye was one of these species which is fortunate, for it is one of the finest eating of all fresh water fishes and is eagerly sought after by anglers.

Before fishing for this critter, let's learn a few things about him that later might aid in locating him and choosing the best method to catch him. Walleye reproduce when water temperatures are around forty-five to fifty degrees. In Kansas, this usually occurs in late March or early April. Groups of males congregate on shallow, silt-free, rocky bottoms where they await the arrival of individual females ready to spawn. Eggs and sperm are scattered at random and abandoned. Fertilized eggs develop and hatch within two weeks.

Tom Appel

After spawning, adults retreat to deeper water; they do not look after their young. Lake populations of walleye in Kansas are most often found along the rock riprap along the dam and rocky areas in streams tributary to the reservoir. These are the same areas where Kansas fishery biologists net walleye during the spawning seasons to obtain eggs for artificial propagation and restocking where natural reproduction does not occur.

The young walleye feed on tiny animals called zooplankton, insects and fishes. Adult walleye feed mainly on gizzard shad and grow rapidly, eventually reaching trophy proportions—one reason the fish is so popular among anglers. While the average size is much smaller, lunker walleye over eight pounds are relatively abundant in some of our impoundments. The current state record is 13 pounds, 11 ounces, taken at Rocky Ford below Tuttle Creek Reservoir.

With this brief background, let's consider the best times and methods to catch this toothy adversary. Remember the spawning run that occurs along the dam in

March and April. Spawning walleyes are generally concentrated in one particular area and tend to remain there for a considerable period of time—two situations that are obviously in the angler's favor. The best way to reach these fish is by casting artificial baits, preferably while wading because this allows you to cover more water area from different angles and to retrieve some baits that would otherwise hang up in the riprap. The nature of riprap on some impoundments makes wading hazardous, but take heart—nearly as many fish are taken by anglers casting strictly from shore. Because of the vastness of certain dams, the lack of access to the dam, and large construction materials, some anglers prefer fishing from boats by either anchoring close to the shore or moving slowly along the face of the dam casting along the way.

Spinning equipment is the most popular gear with ultralight and medium action rods providing equal service. Light to medium weight lines are adequate to handle the fishing conditions and the fish. Light gear is worth consideration here because many casts are normally made during a trip, and heavy equipment can eventually wear on you. Lighter gear also allows the use of smaller lures which are easier to extract from the clutches of unseen rocks.

The number one lure is the lead head jig. The jig can be dressed with maribou, hair, or plastic grubs, but it remains, simply, a jig, and it does work on walleye. The jig should be fished along the bottom. One way to work a jig is to slowly crank the reel handle, with no rod movement, and allow the jig to bounce haphazardly over the bottom structure. Or, you can hop the jig along the bottom by first lifting the rod tip slightly, then lowering, and quickly regaining the resulting slackened line. Both of these methods impart the needed action to the jig necessary to attract the walleye. Experiment with the speed that the jig is retrieved until you discover a successful rate. Normally walleye respond to a slow-moving presentation, but don't stubbornly remain with it unless you have been occasionally successful. It is important to watch the rod tip or the line when fishing with jigs. Any change in rhythm of the retrieve may be an indication of a passive strike. Walleye do not always take the jig aggressively and can reject the artificial lure without the angler feeling any activity in the rod.

Another method that is effective at times and truly exciting is casting floating minnow-type lures at night. In the dark, female walleye and associated males move into the shallows and thrash around in the water to complete their annual task, sometimes right at your feet, with such fervor that the sound is audible up and down the dam. Casting floaters to this sound and retrieving slowly, but steadily, provide a thrill of anticipation at the very least.

It would seem that, with this concentration and activity, still fishing with live bait such as minnows or night crawlers might be a productive way to fish for these spawning walleye. This is not the case, however. Creel evidence shows that artificial lures out-produce live bait during the spawning period.

The riprap on some dams is comprised of such large rocks that fishing the jig on the bottom results in frustrating break-offs as the lure wedges between the rocks, especially when the fisherman casts from shore. You can save yourself some jigs by attaching a bobber approximately two feet above the jig. The bobber enables wave action to impart a rhythmic motion to the jig and allows regulating the depth that you choose by simply adjusting the position of the bobber on the line. This contraption is difficult to cast—just lobbing it toward the water seems to work best.

Peak spawning activity generally lasts about two weeks, gradually diminishing for maybe another two weeks until straggling spawning walleye leave the rocks. This early spring fishing usually calls for a hardy breed of angler, since weather can make conditions very uncomfortable.

After the spawning run, anglers sometimes believe the walleye have disappeared, but the fish have only dispersed to deeper water to recuperate from their strenuous activities. The walleye are, indeed, difficult to catch at this time of year—but this changes a short time later, generally in May, when water temperatures increase. Fish activity increases with the warm-up, and the walleye move from those deeper retreats into the shallows to feed. As long as water temperatures remain comfortable and food is available, walleye will spend a great deal of time feeding in water as shallow as two feet, especially on flats near deeper water. As the water temperature increases, the walleye seek deeper water to feed.

Shoreline anglers can still catch these fish by employing methods similar to those used during the spawning run but fishing rocky points jutting out toward the main body of the reservoir and shallow, sandy areas near deep water. Still fishing from the shore at above locations while using minnows or earthworms is now very productive.

Once the walleye is feeding in a specific pattern, the boat angler has the best opportunity to locate and catch fish at this time. The boat allows the angler to move easily from one area to another in searching for walleye, to quickly explore new areas as popular shoreline locations become crowded, and to use different methods to fish for walleye.

One of the best boat fishing methods for walleye is drifting; that is, placing the boat in an area expected to hold fish, turning off the power, casting out your offering, and allowing the wave action to drift the boat and provide the movement of lures or bait. Drifting allows the angler to really concentrate on handling his equipment instead of worrying with the boat. When the drift is complete, for whatever reason, reel in, fire up the outboard, and either return to repeat the drift or move elsewhere.

Jigs work well while drifting. They bounce along the bottom in a natural fashion that must appeal to

WILDLIFE FEDERATION SEEKS CONSERVATION AWARD NOMINEES

The Kansas Wildlife Federation is looking for a few deserving souls.

The Federation is now accepting nominations for its 1978 Conservation Awards Program. Any organization in the state may nominate individuals who have made significant contributions in the field of conservation.

The rules are simple. Nominees must be Kansas residents and have accomplished their work in Kansas. Nominees may be either professional or layman individuals, clubs, or industries. Nominees need not be a member of any club or of the Federation. Current Federation officers and 1977 award winners are not eligible for nomination. Nominations will be closed July 31.

Among categories to be judged are:

GOVERNOR'S AWARD-CONSERVATIONIST OF THE YEAR — For the achievement considered to have made the most significant contribution to the cause of conservation of natural resources of the state. This effort may be in any of the categories listed below or any combination of them.

WILDLIFE CONSERVATIONIST— For outstanding achievement contributing to effective management, control, restoration, or replenishment of wildlife resources in Kansas.

LAND & SOIL CONSERVATIONIST — For outstanding achievement in land use, watershed and wetlands development, habitat improvement, and other management practices tending to maintain or improve the environmental aspects of land and related resources.

FOREST CONSERVATIONIST — For outstanding achievement in forest and woodlands development, manag-

NOMINATION FORM

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

Lewis H. Baker, State C.A.P. Chairman
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, 1978

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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 _____

ment or use including reforestation, preservation of wilderness areas, wildlife habitat development, fire protection, wise cutting practices, and multiple-use of forest lands.

WATER CONSERVATIONIST — For outstanding achievement in pollution control, conservation and protection of wetlands and wild or natural rivers, prevention of water quality degradation through effective planning, and management or other activity aimed at maintaining or improving water standards.

AIR CONSERVATIONIST — For outstanding achievement in obtaining quality air standards, reducing pollution, affecting control of pollution sources, or other action contributing to significant improvement in air standards.

YOUTH CONSERVATIONIST — For the outstanding conservation effort by a person who has not attained the age of 21 during the contest year. Winner should have demonstrated ability, leadership, and accomplishment in some phase of conservation. Youth groups acting together in a conservation program are also eligible.

CONSERVATION EDUCATOR — For outstanding achievement in educating others in conservation. Education process may be formal or informal of persons of any age level or may be leadership which, by example or demonstration, aids in the educating of others.

CONSERVATION COMMUNICATOR — For outstanding achievement in effectively conveying the conservation message and creating public awareness of conservation issues in the news media.

CONSERVATION LEGISLATOR — For outstanding achievement by a legislator in conservation legislation or other legislative work which took place in or culminated in the contest year. Competition is open to state or federal legislators and members of their research or publicity staff.

CONSERVATION ORGANIZATION — For outstanding achievement by an organization for work in some phase of conservation during the contest period. May include civic clubs, conservation groups, garden clubs, women's clubs, businesses, trade or professional organization, corporations, and others. May be any organization of the state either local, county, or statewide in scope. Nominees should have demonstrated keen interests in the basic resources problems of the area in which they are organized.

††††

ART SHOW ENRICHES DUCKS UNLIMITED

The annual Midwest Wildlife Art Show sponsored by Ducks Unlimited generated more than $50,000 for D.U. and its conservation cause. The show, conducted March 17 and 18 in Kansas City, attracted almost 100 wildlife artists from throughout the country.

The artists provided funding for the show as each donated one piece of artwork to be sold at auction.

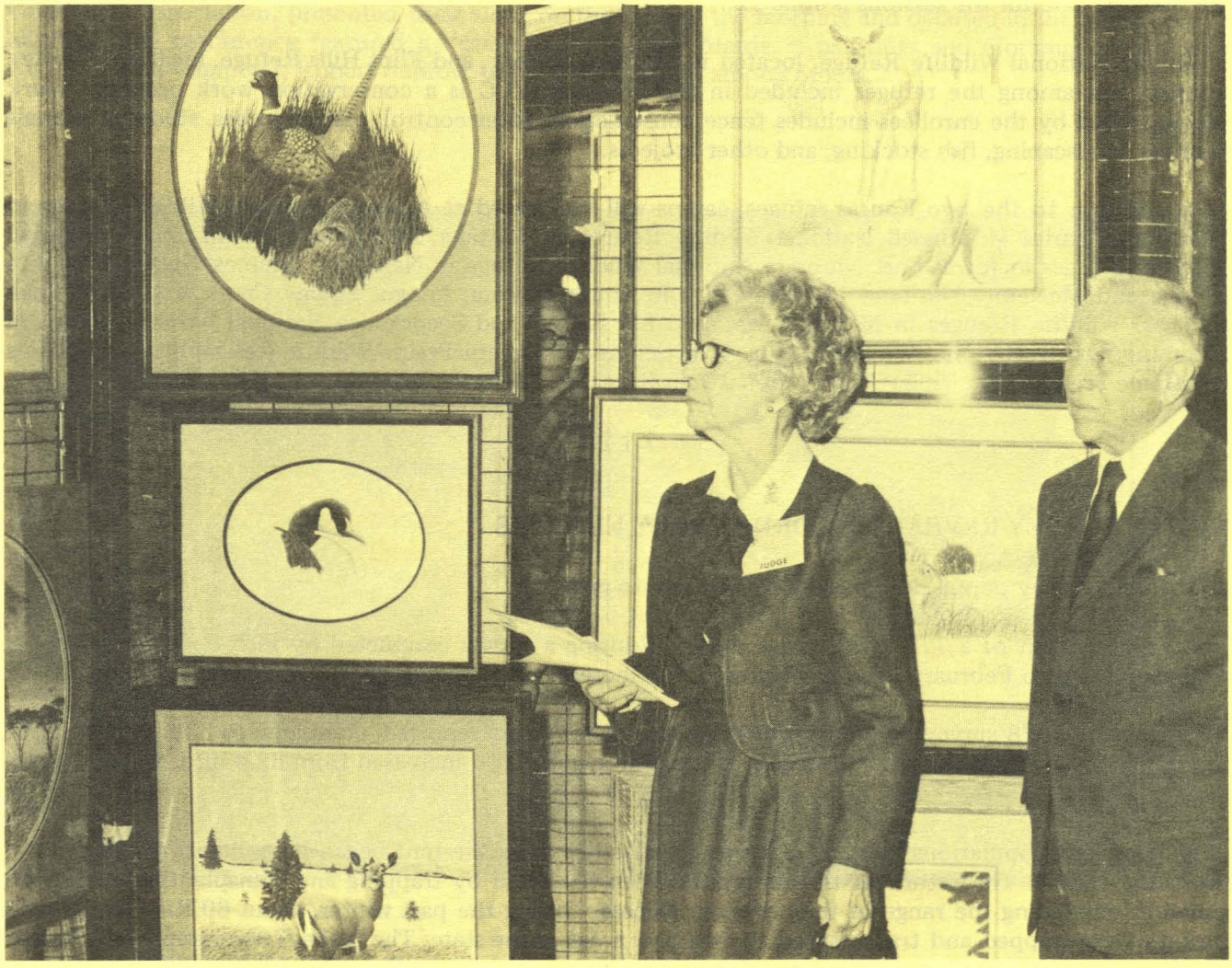
If you missed the show, you missed one of the finest displays of artwork ever to appear in the midwest. Imagine a small flock of geese with wings cupped dropping down from a cold winter sky into an awaiting corn field; a covey of quail bursting from cover with your favorite dog locked on point; wooden decoys carved with such realism one had to touch them to be sure they were, in fact, carved from wood; or sculptured bronze pieces of wildlife that were simply beautiful.

Paintings included oils, water colors, pastels, and pen and ink drawings. Sculptors worked in wood, glass, and bronze. Thirty judges donated their time to appraise the artwork, including some of our folks. Mrs. Joe (Cap) Gregg, wife of Commissioner Gregg from Shawnee Mission; Commissioner Dick Langenwalter,

Hutchinson; and Director Jerry Conley, Pratt, were among judges reviewing the work.

Plans for next year's show already are being discussed. Because of the national participation of exhibiting artists, show sponsors are considering renaming the show the "National Wildlife Art Show"

It's a great show for a worthy cause and an opportunity for Kansans to view some of the best wildlife art in the nation. We plan to keep our readers informed of the time and place for next year's showing. Hope to see you there.



EYE ON ARTWORK — Mrs. "Cap" Gregg, wife of Fish & Game Commissioner Joe Gregg (right), Shawnee Mission, scrutinizes wildlife art on display at the annual Midwest Wildlife Art Show. Mrs. Gregg, along with Commissioner Dick Langenwalter, Hutchinson, and Commission Director Jerry Conley, Pratt, were among judges at the event sponsored by Ducks Unlimited. (Ken Stiebben Photo)

QUIVIRA, FLINT HILLS REFUGES EMPLOY YOUNG CONSERVATIONISTS

Two national wildlife refuges located in Kansas are among 18 refuges in the country which this summer will employ youths from 15 through 18.

The U.S. Fish and Wildlife Service's Youth Conservation Corps (YCC) will provide jobs in the Rocky Mountains and Great Plains for about 350 enrollees and 80 staff personnel for eight-week sessions. Tentative starting date for the sessions is June 12.

Quivira National Wildlife Refuge, located in Stafford County, and Flint Hills Refuge, located in Coffey County, are among the refuges included in the program. YCC is a conservation work program. Work accomplished by the enrollees includes fence construction, litter control, planting trees, studying animals habitats, landscaping, fish stocking, and other projects.

In addition to the two Kansas refuges, camps will be located at Arapaho National Wildlife Refuge in Colorado; Charles M. Russell National Wildlife Refuge in Montana; DeSoto and Union Slough National Wildlife Refuges in Iowa; Fort Niobrara National Wildlife Refuge in Nebraska; Lacreek National Wildlife Refuge and McNenny National Fish Hatchery in South Dakota; Mingo, Squaw Creek, and Swan Lake National Wildlife Refuges in Missouri; National Elk Refuge and Seedskadee National Wildlife Refuge in Wyoming; Ouray National Wildlife Refuge in Utah; and Northern Prairie Wildlife Research Center, Sullys Hill Game Preserve and Valley City National Fish Hatchery in North Dakota.

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WINTER SURVEY REVEALS RECORD TURKEY NUMBERS

The wild turkey population in Kansas continues to grow.

A record count of 2,773 turkeys was reported during a survey conducted by Fish & Game personnel from January 1 to February 28. That represents an increase of 62 percent over 1977 survey results.

During the 1978 survey, 77 flocks (three or more birds) were reported, compared to 53 flocks in 1977, according to Terry Funk, game biologist. Average flock size also increased from 32.4 birds in 1977 to 36 birds in 1978.

Wild turkey populations have been increasing steadily since the bird began its comeback in Kansas in the early 1960's. The return of the turkey has been bolstered by trapping and transplanting operations aimed at expanding the range of the critter in Kansas. During the past winter, about 60 Rio Grande wild turkeys were trapped and transplanted to two new areas of the state. The turkeys were trapped in Harper and Barber counties and moved to areas along Rattlesnake Creek in Stafford County and the Walnut River in Cowley County.

The Commission plans to boost small, existing populations of the Eastern subspecies of turkey in some eastern counties next winter.

† † † †

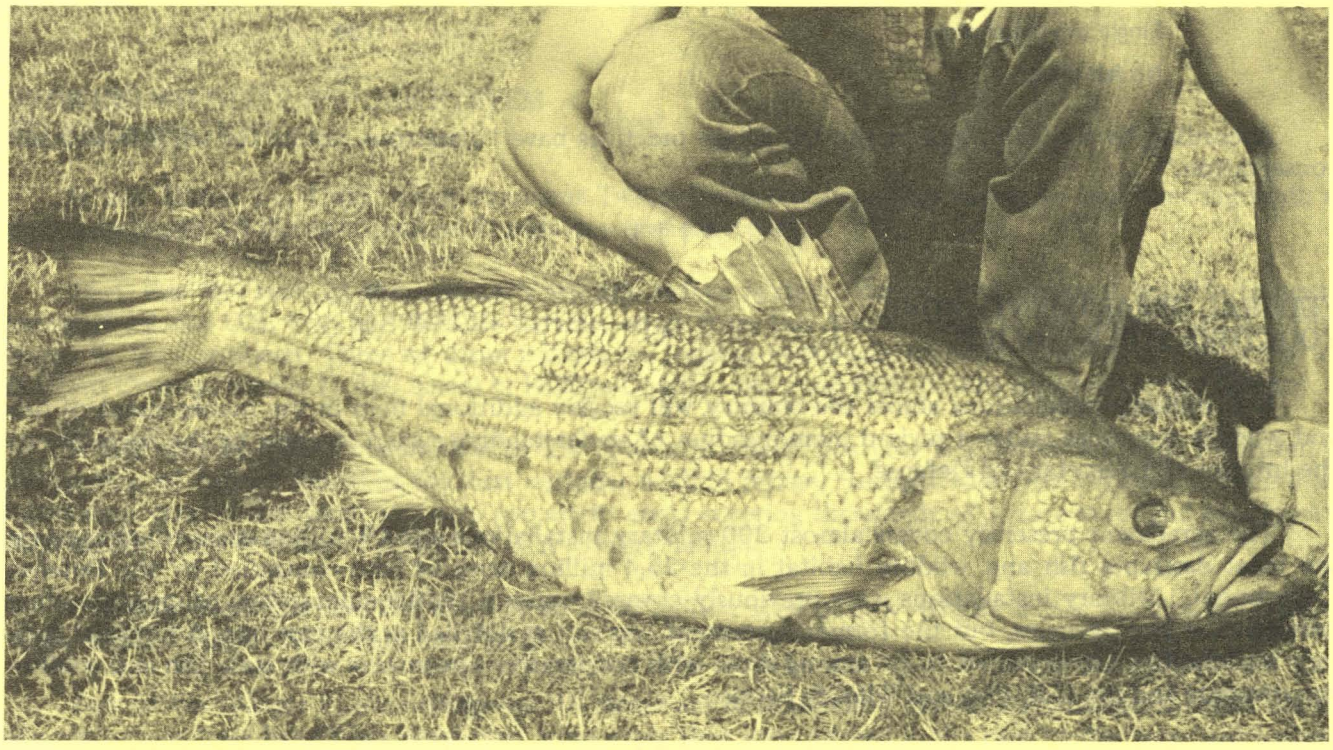
PRAIRIE CONFERENCE — A NEW STYLE

OTTAWA — The Prairie Conference held on the Ottawa University campus April 8 was a new twist on an old controversey — a prairie national park.

One of the conference organizers, Bill Gilbert, summed up the intent of the meeting: "We feel that both pro- and anti-park groups have the same final goal in mind — protecting the Flint Hills grassland. The argument concerns the means that will be used to achieve those ends."

Supporters of the pro-park, Save The Tallgrass Prairie organization, and the anti-park group, The Grassroots Association, presented their views on the issue in the morning and debated in the afternoon. In addition, the conference featured a "celebration" of the prairie — paintings and dioramas by Fredrick James, Myrna Campbell, Robert Sudlow, and Dycie Madson, among others.

† † † †



KING-SIZED STRIPER — You say this must be the one that got away from you last year? Well, you can say that but the only thing for certain is that this is one fish that got away from everybody. The 36-pound striped bass was already dead, an apparent victim of old age, when a fisherman at Cheney Reservoir found it this spring. The fish which measured 42 inches long, is believed to be one of the original striped bass stocked at Cheney more than 10 years ago. So, the existing record striped bass catch still belongs to Carl Hooker, a Wichita resident, who reeled in a 33-pound, 12-ounce striper at Cheney in June, 1975.

† † † †

FALL TILLAGE RESULTS OUTLINED

The effect of certain fall tillage practices in crop fields was described in the following article from a recent issue of South Dakota Conservation Digest:

According to the Soil Conservation Service, more farmers need to be alerted to the fact that any fall tillage in crop fields causes a double loss, soil and wildlife. Many species of wildlife utilize crop residues during the winter for food and cover. The same crop residues provide soil surface cover that softens the force of falling raindrops and helps absorb moisture, which prevents soil erosion. The following fall tillage practices show various levels of residue loss:

Practice	Percent of Residue Loss
Mouldboard plowing	100
Single disking	60
Single trip-field cultivator	40
Single trip-chisel plow	30
No fall tillage	0

According to the SCS, and of the fall tillage practices have "disastrous results for wildlife and soil conservation."

† † † †

FEDERAL DEPARTMENTS WORK TOGETHER FOR WILDLIFE

U.S. military installations across the country will receive additional help in the management of fish and wildlife resources under a revised memorandum of understanding signed recently by the Secretary of the Interior and Secretary of Defense.

The agreement presently covers almost 200 military installations and 19 million acres which contain the most desirable fish and wildlife habitat in the 25.4 million acres of land controlled by the Defense Department. Military installations were previously covered under a 1960 memorandum of understanding between the two agencies, but the former agreement was not as detailed as the new one. Additional military installations are expected to be among those with cooperative agreements with state fish and wildlife departments and the U.S. Fish and Wildlife Service.

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ANDRUS EMPHASIZES WORTH OF ALASKAN LAND MEASURE

The Alaskan land bill now before Congress ". . . is the most sweeping and important conservation legislation that any of us will see in our lifetime."

Last fall, Department of the Interior Secretary Cecil Andrus proposed that 92.5 million acres in Alaska be designated as national parks, wildlife refuges, wild and scenic rivers, and national forests. He said the proposal represents the minimum necessary to protect Alaska's scenic and wildlife values. This would leave some 247 million acres — an area about two and one-half times the size of California — open for development, Andrus emphasized.

(continued)

"In the past we have always been able to say that we didn't understand how our natural systems worked; that we had no idea we would use land so quickly, or we had some similar excuse," Andrus stated. "Today we have the examples of the Lower 48 to show us what may lie in store for Alaska if we fail to act. We have run out of excuses."

Although this month marks the 75th anniversary of the first wildlife refuges established in the Lower 48 states, Andrus explained, the refuge idea was first employed in Alaska more than a century ago.

"It was in Alaska where we as a nation made our first significant federal effort to provide refuge for wildlife in the 19th century, and now it is in Alaska where we have our greatest opportunities of the 20th Century," Andrus said. "Since we know where the important wildlife values are in Alaska," he continued, "it would be a tragic mistake to risk destruction of these values in the quest for petroleum which may not be present and which remains available elsewhere."

"Alaska is a second chance for America to act in her own best interest," Andrus said. "It is a second chance most nations never get, and if we lost it now, history may forgive us, but our grandchildren won't."

† † † †

GROWING WILDLIFE REFUGE SYSTEM CELEBRATES 75TH

It was March 14, 1903, when President Teddy Roosevelt signed an executive order setting aside a three-acre island off the east coast of Florida as a bird sanctuary.

That was the start of the country's wildlife refuge system. Today, 386 national wildlife refuges, managed by the U.S. Fish and Wildlife Service, range from the Arctic Ocean to the South Pacific, from Maine to the Caribbean. Three of those refuges are located in Kansas, including Quivira (6,350 acres) in Stafford County; Kirwin (1,890 acres) in Phillips County; and Flint Hills (5,000 acres) in Coffey County.

A key symbol during observation of the 75th anniversary this year is a poster depicting Roosevelt's designation of Pelican Island as the first national wildlife refuge. Refuges added to the system since that initial step vary in size from half-acre parcels to areas covering thousands of square miles and encompass 32.5 million acres of some of America's best wildlife habitat.

Congress could this year add another 40 to 50 million acres of new wildlife refuge lands to the system when Alaskan native claims have been settled.

Few of the refuges in the contiguous 48 states are self-operating havens for wildlife. In most cases, the nation's refuges have been developed from areas that were altered in the past by drainage, lumbering, burning, or overgrazing. Management programs and techniques vary from refuge to refuge to accommodate the wildlife present at a particular time.

Among the techniques used are farming to supplement natural foods, regulated livestock grazing to improve habitat for wildlife, planting of cover vegetation, soil conservation techniques, controlled burning, forestry programs, or rough-fish control. Hunting, fishing, and trapping also are useful management tools on many refuges.

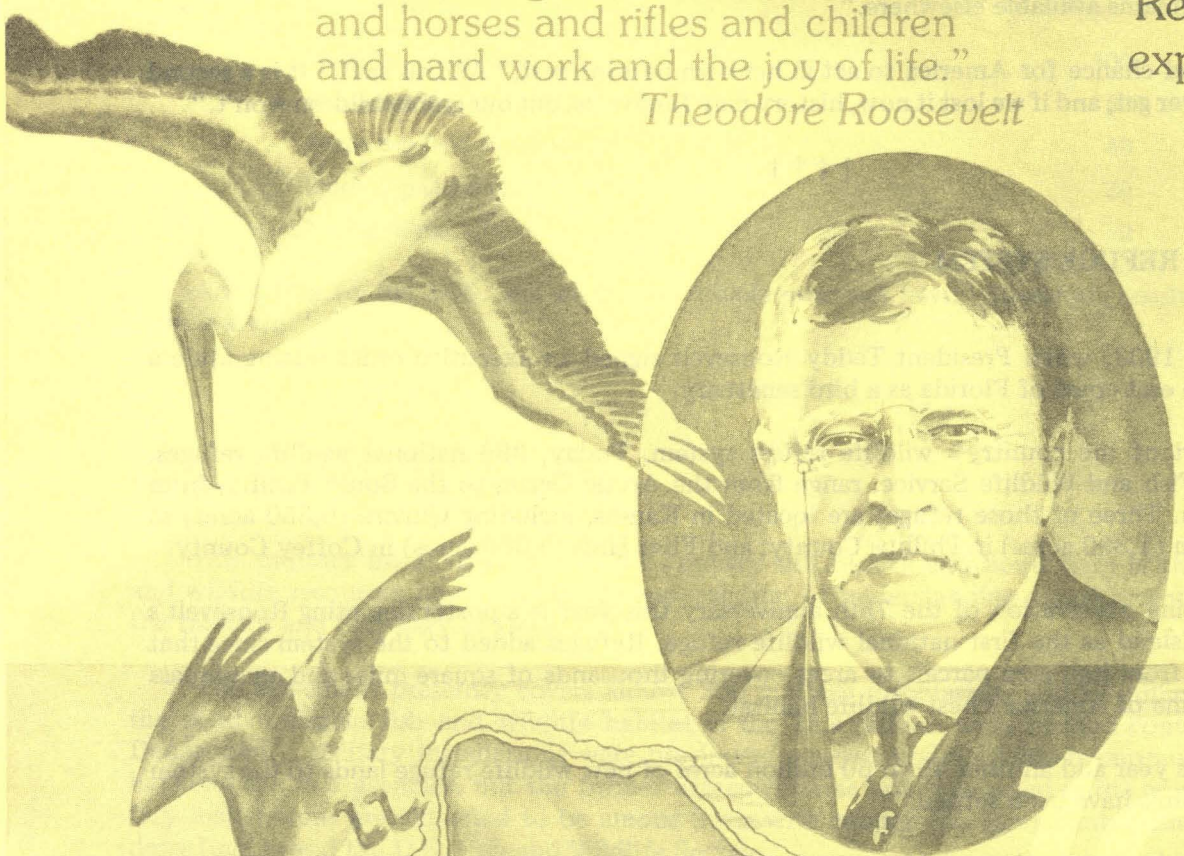
"Many Americans remember Teddy Roosevelt for the boisterous style reminiscent of the charge up San Juan Hill during the Spanish-American War with his Roughrider Regiment," one Fish and Wildlife official said. "But, it is likely he will be remembered longest for his foresight and sensitivity to the needs of wild creatures in helping to create 75 years ago the embryo of the world's greatest network of lands managed for the benefit of wildlife."

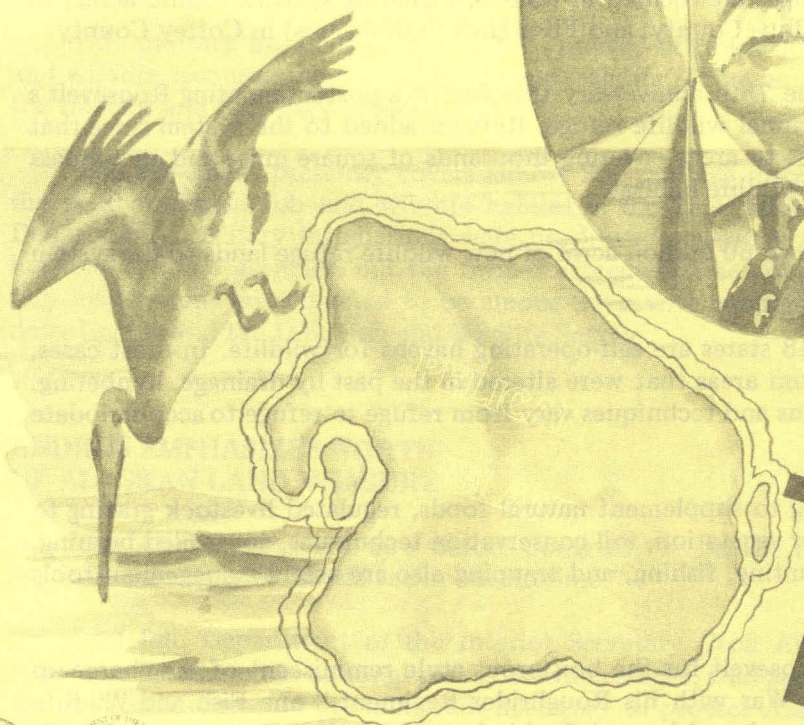
Celebrating 75 years —

THE NATIONAL WILDLIFE REFUGE SYSTEM

From tiny Pelican Island Refuge, Florida, to a thirty million acre system of lands for all American wildlife — National Wildlife Refuges are places to experience and enjoy your rich natural heritage of wildlife and wildlands.

"We loved a great many things —
birds and trees and books
and all things beautiful
and horses and rifles and children
and hard work and the joy of life."
Theodore Roosevelt





1978

Department of the Interior
U.S. Fish and Wildlife Service

Ken Stiebben

feeding walleye. To make your presentation doubly enticing, try tipping the jig hook with nightcrawlers or minnows, a small addition that can really make a difference.

You can use live bait alone just as effectively as the jig and bait combination, but you must use some weight to get the business end of your gear down near the bottom. The amount of weight you use is dictated by the depth of water and the rate at which the boat is drifting. Place the weight about eighteen inches above the bait, and experiment with the amount of lead you use, starting light and building up until you feel the weight just occasionally ticking the bottom. This allows the bait to float slightly above the bottom, where it is easier for the fish to take in his mouth, and it discourages fouling of bait in bottom vegetation.

Trolling is a popular way to prospect for walleyes and can be almost indispensable at certain times of the year. Trolling allows the angler to fish the most water in the least possible time. Trolling also enables the angler, when fishing a lake new to him, to cover a lot of territory and find the hot spots. Essentially, trolling is a fishing method in which you let out a lure behind a slow-moving boat. Start out at about the speed of a leisurely walk at first. Moderately heavier gear is required in trolling because of the constant resistance of the water but don't use gear so cumbersome that it interferes with your enjoyment.

Flash, action, and noise are desirable qualities in trolling lures—flash to attract the fish and action and noise to provoke it to strike. Deep-diving plugs, those with long lips on the front, come in a variety of colors and shapes and are good producers. Shallow-running plugs are equally good when the fish are within the lure's depth range (naturally), but can be made to run deeper with the addition of weight approximately eighteen inches ahead of the lure. Be careful, however, as weight can damp the action of the lure. You may have to experiment to find workable combinations. All of these lures are supposed to resemble food items for the walleye, so gizzard shad coloration would not be a bad choice.

The *June Bug* spinner and similar rigs are also proven trolling lures. These types of lures incorporate the use of a flashing spinner above a hook baited with minnows or nightcrawlers to encourage strikes. This lure requires the use of weights to adjust the depth, also.

Mid-summer dog days can also bring frustrating fishing days. Walleye are difficult to locate, let alone catch. You must assume they spend a good deal of their day in deep water, feeding only when conditions are suitable. Trollers working the drops next to deep water occasionally nail a few, but it's hard work, and the angler must concentrate on getting his bait or lure in specific locations and depths. A bright note, however, is that some lunker-sized walleye are taken during this time.

Later, in the fall months of October and November, good catches of walleye can again be taken, although the fishing may not be as spectacular as it is in the spring. The water has cooled, and the fish are moving around feeding heavily to prepare for the slowed-down activity that winter brings. The weather is usually beautiful, and uncrowded conditions that prevail during the fall provide peaceful fishing. Trolling mid-depths with diving plugs is normal procedure in locating prowling fish.

I should mention some additional information that may influence fishing for walleye. Walleye normally shy from bright light, so it follows that fishing at dusk or dawn is normally better than at mid-day. Night is

good, of course. The same theory applies to water clarity—the clearer the water, the deeper the walleye will be found in daylight, and in turbid conditions, walleye are usually in shallower waters because of the poor light penetration. Overcast skies and a chop on the water also decrease the light penetration, and walleye sometimes move into shallower water.

Walleye are often found in schools. Catching one probably indicates there are others around, so after hooking a walleye while trolling or drifting, mark the general area with a throwable floating buoy and make additional passes through this area. You might find a bonanza.

When you feel that you have the walleye figured to the point that you know exactly where he is and the best method to catch him, he will refuse to cooperate or show up in the most unexplainable situation. But that's fishing, folks. If it were too easy, it wouldn't be fun. This information should help you get started, the rest is a learning process that remains with the individual. The walleye is a great sport fish and a worthy opponent, so have your hooks sharp and keep a tight line. Good fishing!

Black Bass

Tommie Berger

Courtesy Bass Angler's Sportsman's Society

In recent years, the black bass has attracted considerable angler attention in Kansas. To the majority of the fishing public (the casual angler), the bass is just another fish providing recreational enjoyment and meat in the frying pan. To the minority group of dedicated bass fishermen, black bass are highly respected creatures—the foundation of an organized, competitive sport. In biological terms, the black bass is the supreme predator, the king of the aquatic community. Reservoir bass fishing, whether it is recreational or competitive, is an interesting and very challenging sport.

Kansas reservoirs contain three different species of black bass which are somewhat familiar to most fish-

ermen. They are the largemouth bass—*Micropterus salmoides*, the smallmouth bass—*Micropterus dolomieui*, and the spotted (Kentucky) bass—*Micropterus punctulatus*. All three species are native to Kansas waters, but they differ in basic habitat preference. The largemouth bass, the most abundant of the black basses in Kansas, is generally found in ponds, lakes, and reservoirs—static water conditions with little current or turbulence. Although they will live in impounded water, the smallmouth and spotted bass prefer fast-moving streams with rocky bottoms. In reservoirs, these two species are almost exclusively found in rocky areas. These differences in habitat preference explain why the largemouth bass is present in all reservoirs statewide while the smallmouth and spotted bass are confined to the eastern and southeastern part of Kansas. (Smallmouth bass are also present in Milford Reservoir and Cedar Bluff Reservoir.)

For some general information on bass, let's take a look at the largemouth since he is the most abundant and popular bass in Kansas reservoirs. Largemouth generally do not spawn until they reach three years of age, depending on the size of the fish. Spawning begins two to five days after the daily mean temperature reaches 62 degrees, with the majority of the spawning activity occuring at 65 degree water temperature. In normal years, spawning taken place in mid-to late May through mid-June.

Males scoop their dish-shaped nests out of sand or gravel in one to ten feet of water. The eggs hatch in three to seven days depending on water temperature. Just out of the egg, bass fry are approximately a fourth of an inch in length. They live on the contents of the egg yolk sac for five days, after which they begin to feed on very small animal and plant life. They remain near the nest in a school until they have grown to about two inches; then they disperse and begin feeding actively on anything they can catch and swallow.

Growth of bass from the time they disperse depends directly upon food availability. This does not necessarily mean sheer numbers of food organisms, but whether the food present is available to the bass. Conditions such as turbid water or thick growth of weeds may hide an abundant food supply from hungry bass. Therefore, growth is likely to vary in different reservoirs according to prevailing conditions and will vary from year to year in one given lake. Generally, largemouth bass reach four to five inches their first year, somewhere near eight inches their second year, and up to thirteen inches their third year.

Successful black bass fishing in reservoirs is not quite as simple as crappie, white bass, or channel catfish fishing, mainly because there are not as many bass as there are other species. But, black bass are fairly easy to catch if one basic fundamental is kept in mind. REMEMBER . . . black bass are almost always found close to the shoreline in water less than twenty feet in depth and in conjunction with structure or *HABITAT!* Habitat is almost anything that provides cover and concealment. So, don't waste your fishing time for black bass in open water or water that does not contain some type of habitat. Concentrate in areas containing standing timber, brushpiles, rocky shorelines, bridge abutments, boat docks, or other habitat types.

Sophisticated equipment isn't all that critical for successful reservoir black bass fishing. Bass can be caught on anything from a cane pole to the most expensive bait casting rod and reel. Bass can be caught on about any type of live bait and on a large assortment of artificial lures. A boat is not totally necessary but it can improve a fisherman's mobility and success. Many reservoir bass are caught from the bank, but unless the foot fisherman moves from place to place often, he is not likely to catch a significant number of bass on any one trip.

Now that we have gotten the basics out of the way, let's get down to seriously finding Mr. Bass. Black bass fishing techniques vary quite a bit from season to season as do different baits and types of equipment, so let's look at fish locations and fishing methods during each of the seasons . . . spring, summer, fall, and winter.

SPRING

To most black bass fishermen, spring begins as soon as the ice goes off the reservoirs and the water temperature begins to rise. Until the water temperature gets up to about fifty degrees, a good stringer of bass is hard to come by. It takes a dedicated, methodical fisherman to catch a good string of bass in March and early April, but it can be done. Generally, bass can be found in two basic locations during this time. Most bass are concentrated in deep water near drop-offs, points, and steep bluff banks. But, through years of trapping for northern pike, I have found a surprising number of bass up the creeks during early spring. Due to the increased day length and warm sunshine, the surface water tends to warm up first as does the shallower, sometimes murkier water of the creeks that feed the reservoir. This water warmup causes crayfish and small baitfish to become more active, and the bass begin to move to the shallower water to feed.

Most movements of bass in the early spring are vertical rather than horizontal. They tend to move up a bank to feed and then drop back to deeper water to rest. Therefore, fish the points and steep bluffs next to deep water for the deep bass, remembering to locate areas with the most habitat. Generally, the bass tend to concentrate in these areas so if you catch one fish, more should be close by. In the creeks, seek out the deeper holes and pockets on normal days, but go shallower if the sun is high and is warming the surface water. The best fishing this time of year is around noon to early afternoon when the water reaches its maximum surface temperature for the day.

Early spring bass go on short feeding sprees, and unsettled weather makes them finicky. Cold water

makes fish slow and sluggish, so fish slow and easy. Use light line, six to eight pound test on a spinning, spin cast, or bait casting reel as you may need to fish twenty feet deep or so. A fairly limber and sensitive rod is important to feel the light tap of a cold fish. Small lures like 1/16 ounce jigs (white or yellow), 1/4 ounce jig and eel (black or purple), small crawdad-colored, deep-running crank baits, and small spinners (*Mepps*) are the best artificial baits in early spring. Some bass can be caught on minnows or crayfish, but be sure to get them close to the bottom. A minnow on a bobber a foot deep will not catch bass now. A boat is not necessary but is a big asset because, if fishing is slow, you may want to move periodically to other areas.

Let's move on to late spring. As the water temperature rises through the fifties, the bass begin to move and feed more. As the temperature reaches the upper fifties (this is usually late April and May), bass begin to move more horizontally.

Females are looking for suitable spawning spots, and the males are preparing the nest. Many of the deep bass begin to migrate up the creeks and into the backs of the coves. This is generally the time of year when black bass are easiest to catch. Warm spring rains warm the water temperature to about sixty degrees bringing on the spawning urge. Bass seem to feed very well right up until they go onto the nest. It is this time when many crappie fishermen catch bass accidentally.

During the spawn when the water temperature ranges from 62 to 68 degrees (late May and early June), bass move to heavy brush on flats near bends of creeks or in the backs of coves and seek out sandy or gravelly banks. The female likes as much protection for her eggs as possible, so she heads for the thickest cover available. Fishermen need to go to heavier line, twelve to twenty pound test, on any type of rod and reel outfit. Even a cane pole can be used when bass are close to the bank in the shallow, spawning waters. Black bass will bite on nearly anything that moves in late spring. Any size or color of jigs, spinner baits (chartreuse and darker colors seem best), plastic worms (purple, black or blue), and some darker colored crank baits are the most productive artificial baits for late spring's blacks.

Minnows are the most successful natural bait. This is the easiest time of the year to catch bass from the bank because they are concentrated in the shallower areas and narrower creeks. Still, a boat provides maneuverability and a quiet stalk on bass habitat. Many successful bass fishermen do very little casting at this time of year. Their favorite technique is "doodle socking", a straight-up-and-down yo-yo effect of working a jig, spinner bait, or worm through the thickest bass habitat. A good stiff rod and heavy line are a real necessity with this method so that a good fish can be lifted straight up and out of the brush.

SUMMER

Soon after the spawning season ends in early June comes the heat of the summer. Water temperatures continue to rise and the bass seem to scatter out from the creeks all over the lake. Because of this scattering there are fewer concentrations of bass, and fishing gets tougher. When the dispersal begins, the bass move to any location that provides them with habitat, shade, cool water, and plenty of oxygen. Look in brush areas at the lower ends of creeks or in the mouth of the river feeding the reservoir. Concentrate on riprap areas, very rocky areas, weedy areas, or brushpiles in fifteen feet of water or less. Just about any place there is some form of habitat you will find a few bass during the summer. Occasionally, bass are found schooled up chasing shad in open water or in the backs of coves. At times during the summer, bass fishermen have found bass in twenty to thirty feet of water, concentrated on or over a drop-off or brushpile.

Summer black bass fishing differs from spring fishing in that the best fishing times are early morning and evening rather than midday. Cloudy and rainy days are much better than clear days. Sometimes even night fishing during the summer proves fruitful. There is very little that is more exciting than topwater fishing on a warm night under a full moon.

Bass are more active during the summer and will chase a bait very readily. Any type of rod and reel will work using moderate line sizes, ten to seventeen pound test. Fly rod fishing works during this season when bass naturally feed on insects. The best artificial baits during summer are plastic worms (any color), larger spinner baits (chartreuse, white, yellow), crank baits (*Balsa B's* and others in assorted chartreuse, silver, blue, or shiny colors), and topwater lures such as the *Hula Popper, Jitterbug,* or a variety of popping bugs for fly rods. Many summer bass have been taken on natural bait like worms, minnows, crickets, and grasshoppers. A boat is not necessary, but mobility is important if one is interested in catching a good number of fish.

FALL

As the days begin to shorten in September, bass begin another movement pattern which makes them vulnerable to the fisherman. They begin to gorge themselves with food, getting ready for the long winter ahead. The fish will stay in shallow water a lot longer, sometimes feeding there all day long. In most of our

Kansas reservoirs, by fall we have had a number of gizzard shad spawns and schools of one- to four-inch shad are abundant. What a banquet for a bass's fall feeding spree!

As the water cools down through the sixty-degree range, bass begin to show up in the creeks again but are generally abundant anywhere there are schools of shad. Many of their movement patterns now resemble their spring patterns, and one must fish accordingly, slowing the lure retrieve as the water cools and going to lighter line and smaller lures. Begin to fish more during the middle of the day when the warm sun is high. Remember, as the water temperature cools through the fifties, blacks will begin to fall into their early spring movements—into deep water holding spots, moving vertically to feed and then back down to rest in the deeper areas. By this time, our fall hunting seasons are in full swing, and many fishermen have already retired their fishing equipment for another year. But those dedicated fishermen who pull on three or four layers of clothes and brave those cold fall temperatures sometimes are handsomely rewarded by their largest bass of the season.

In early fall, stay with your summertime equipment but begin to throw more shad-colored and shaped lures. Many bass are taken on heavy chrome spoons this time of year. Shad-colored crank baits are a good bet. White spinner baits are best but don't overlook the plastic worm when fishing is slower. This last fall, the new *Lunker Lure,* a large type of spinner bait fished on the surface, was a bass killer. As the water cools, go back to jigs, jig and eel, and smaller spinner baits and crank baits. Don't forget to go with the lighter eight or ten pound test lines and your more sensitive rod. A boat is not totally necessary, as the fall bass are shallower again and accessible to the shore angler. But, a school of bass chasing shad can move 200 to 300 feet very quickly so the mobility of a boat can increase numbers of bass caught.

WINTER

Winter black bass fishing can be described by only one word . . . SLOW! But, don't misunderstand, it can be quite exciting. If you have located early spring bass or late fall fish, winter bass should be in the same general location. The most successful and enjoyable winter fishing is through the ice. Black bass are fairly easy to catch this way once you find the fish. If you catch a warm sunny day, grab your ice auger and head out on the ice to that spot where you feel the deep bass are concentrated. You might want to take along a depth finder so that you can quickly locate the deep area or dropoff. (A few drops of water on the ice will allow a depth finder to read directly through and give accurate bottom readings.) Some ice fishermen feel that the bass will be in the deepest water at the fishing location. My experience has been that winter bass also seem to move to feed. So I would suggest fishing the dropoff or the ridge right next to the deepest water. Remember, try to find areas mentioned above that also have some type of habitat.

Winter bass fishing requires some totally different equipment. A light or ultralight spinning outfit works best, filled with two or four pound test line. Very small jigs are the best artificial bait; try yellow, white, or chartreuse colors in 1/64, 1/32 or 1/16 ounce sizes. Minnows will work well if they are fished close to the bottom. Drop your bait to the bottom, then work it up and down very slowly. Keep up a slow jigging motion with the jigs, making them look like swimming minnows. If you have no success on the bottom, raise the bait a foot or two and continue. You may have to try a number of holes and a number of depths to find the fish. But when you do catch a bass, you should be close to a good concentration of fish.

In 1977, two Kansas reservoirs—Milford and Melvern—had fifteen inch minimum length limits enforced on black bass. There may be more reservoirs in the future that have this same length limit. The fifteen inch minimum length limit is placed on reservoir bass in order to protect small bass from overharvest, thereby increasing bass numbers.

Finally, whether you own a cane pole or a fancy fishing rig, pitch your lures from a bass boat or fish from the bank, use minnows or fancy artificial lures . . . you can enjoy the sport of black bass fishing in reservoirs. Try to think like a bass, recall the different movements and patterns described for the different seasons, and you will be on your way to being a successful black bass fisherman. AND . . . remember the word *HABITAT!* Good Luck!!!!

Ken Stiebben

Channel Catfish

Gordon Schneider

With all of the interest lately in new species of fish in Kansas reservoirs—the pole-busting northern pike, giant striped bass, wily walleye, and even rainbow trout—one might think that the lowly channel catfish has become a bit boring. However, many Kansas anglers would disagree. In fact, a telephone survey of licensed Kansas anglers conducted by the Kansas Fish and Game Commission in 1975 found that twenty percent of the catch of fish was comprised of channel catfish. Twenty-seven percent of the anglers surveyed indicated that channel catfish are their favorite fish to catch.

Luckily for this multitude of channel cat chasers, their quarry is one of the most widespread and available species of fish in our Kansas reservoirs. No matter where you live in Kansas, the reservoir closest to you contains channel catfish in sufficient numbers to interest fishermen.

The old faithful channel cat is very agreeable to any kind of sporting chase. If you want to, you can spend thousands of dollars on a super fishing boat and gear and put it to good use on this worthy opponent. But at the same time, the retired grandpa with his old clunker rod and reel can take his grandson with a cane pole and can of worms, confident that they'll probably both catch their share of channel cats.

So there are plenty of channel cats, lot of people who like to try to catch them, and as many ways to catch them as there are people trying. But let's get down to some of the basics of the sport to give the inexperienced channel catfish enthusiast a few hints; then he can develop his own style from there.

First of all, to catch a fish you have to know something about him. Food habits and preferred habitats are good places to start.

The channel catfish is primarily a bottom-feeding fish. He spends most of his time hugging the bottom of the lake, scavenging for aquatic insects, crayfish, dead fish, or almost anything else edible. Channels over two or three pounds in size become more predacious and eat a considerable number of live fish. This varied diet accounts for the wide variety of baits used to lure the channel cat to the fisherman's hook.

Channel catfish may occasionally be caught in cool water, but water temperatures over sixty degrees are necessary to get this species going strong. Excessively high water temperatures of eighty degrees or more may also cause them to slow down. Based on water temperature, fishing for channel catfish is pretty much limited to May through October and channel catfish are much more active at night than in daytime. That's why set lines run overnight are so effective.

Now we know that channel catfish are bottom feeders, active in the warmer months, and especially active at night. But to catch one, we still have to get close enough, so location of the fish is another important factor.

Channel cats may be found anywhere in the reservoir, but certain areas seem to appeal to this species more than others. One favorite hang-out of channels is the extreme upper ends of reservoirs and coves. Water coming in from rivers or streams in such areas carry tidbits of food to the catfish. Temperature and oxygen concentrations of the incoming water may also suit the channel cat.

Channel catfish often concentrate below the reservoir spillway probably for two reasons. The natural wandering movements of the channel cat are blocked by the dam so that numbers build up there. Also, a lot of food in the form of dead fish and other organisms is present in the spillway area.

Mud flats are another area channel catfish favor. These areas of relatively shallow water over mud bottoms produce an abundance of aquatic insects and other invertebrates which are a main source of food of

Ken Stiebben

channel catfish.

Armed with all this information, fisherman can still have trouble taking channel catfish. This fish can be very tricky most of the time. However, there is one very predictable quirk about channel catfish that very often leads this finicky fish practically charging into the dip net. RISING WATER LEVEL MEANS GOOD CHANNEL CAT FISHING!!! Many fat channels have been caught by the fisherman who knows that when the water level is rising, the channel cat is out searching for an easy meal. Rising water usually means that insects, earthworms, and various other juicy morsels will be washed into the reservoir, and both the channel cat and the smart fisherman take advantage of this. At this time, the upper ends of the reservoir and coves are the hotspots, as channels come out of the lake to feast where the current drops its goodies. This is also true below the spillway where increases in release rates will stimulate channel catfish feeding.

Now that we know when and where channel catfish are likely to bite, we need to get to the specifics of what sort of bait to offer them and how to offer it. Anything edible (and some things that aren't) can serve as channel cat bait.

The channel catfish likes live bait—earthworms, minnows, crayfish or crawdads, and frogs. There are also dozens of recipes for prepared bait to make yourself or buy, as aromatic as you like, including shad sides, shad gizzards, various cheese recipes, and blood bait, to smell a few. In fresh cut baits, various types of liver, meat scraps, chicken entrails, and cut fish are popular.

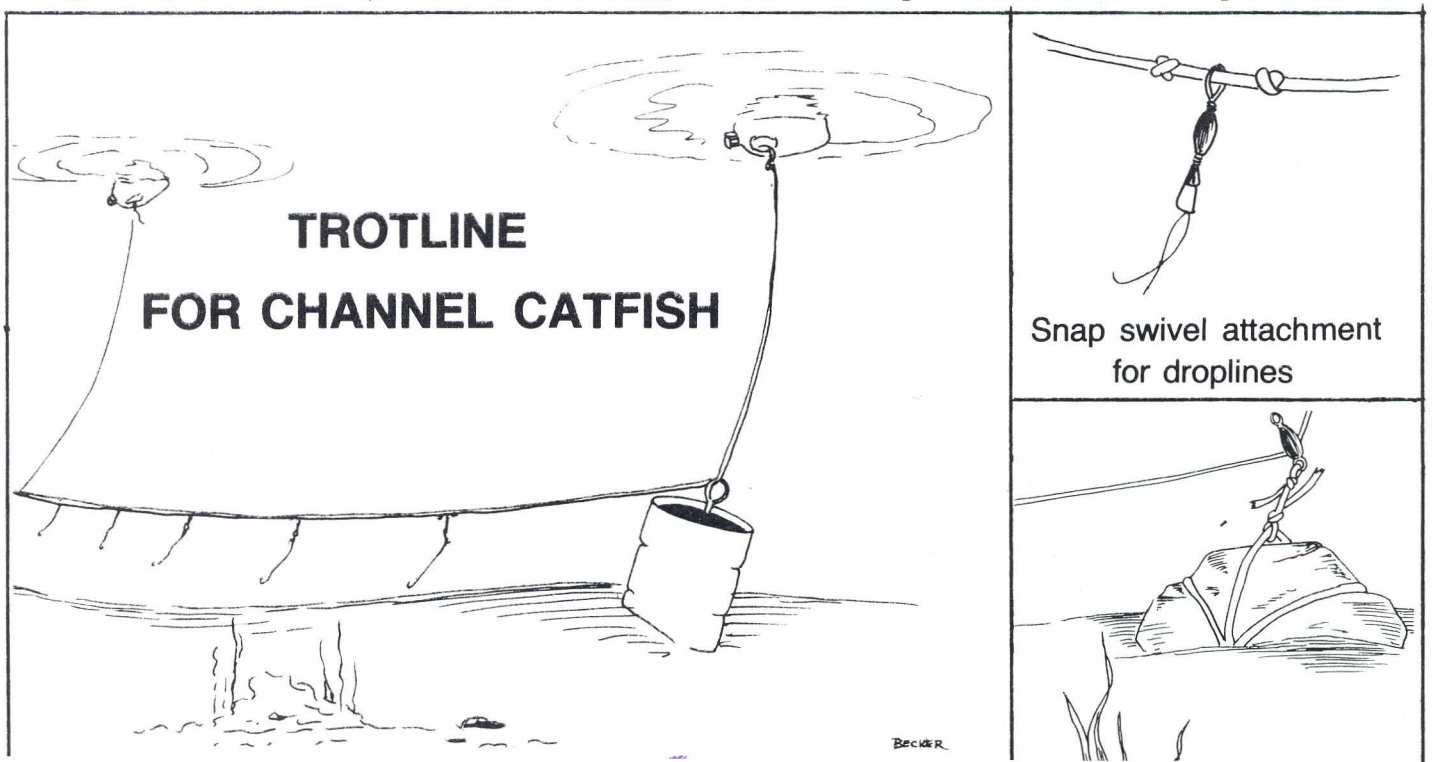
The main thing is to use a bait that fits the area you are fishing. If the water is rising rapidly and fish are feeding on what the current washes in, earthworms would be a good choice of bait. In cool water when channel cats are less active and need to be coaxed into biting, smelly shad sides may add the needed touch. Blood from liver or blood bait may drift out to attract fish feeding over a wide area of mud flat.

The right bait on the wrong tackle can result in lost fish and frustrated fishermen. Many kinds of tackle may be used to catch channel cats, but there are a few minimum standards. A rod for channel cat fishing should have a fairly stiff butt that allows the angler to set the hook hard and handle a good sized fish. The tip should be sensitive enough to detect a finicky channel pecking at the bait. A short rod offers better maneuverability along tree-lined banks, but a long rod delivers better casting distance if needed. Try to fit the rod to the situation where it will be used most.

A closed-face spinning reel is probably the best bet for the beginning fisherman. These reels are inexpensive, dependable, and require little expertise to use. The reel should turn backwards when line is taken by a hungry channel (some of the cheapest models don't). Bait-casting reels are often preferred by old pros. Open-face spinning reels are not well adapted to bait fishing.

The line you use should be matched to your reel's capabilities, first of all. Fishing for channels requires line heavy enough to play a good fish, yet light enough for reasonable distance and accuracy in casting. On a closed-face spinning reel, eight to twelve pound test monofilament line should be satisfactory.

On the business end of the line, be careful not to use hooks that are too large, since a larger hook is more difficult to conceal. Size 2 to 2/0 hooks should be sufficient in most cases. Barbs on the shank of the hook may be helpful in holding some baits on the hook. Use egg or swivel sinkers that are free to slide on the line so that the fish can take the bait and move off without feeling the weight of the sinker. Use only enough weight to hold the bait in place and allow an adequate cast. Large weights are clumsy to use and may spook the fish. A split-shot should be clamped to the line



below the sinker and about six inches above the hook to keep the sinker from interfering with the hook.

Another kind of tackle, the set line, is popular among channel cat anglers. Trotlines, limblines, throwlines and banklines are all set lines; the fisherman baits his hook or hooks; throws out the line with one or both ends anchored to floats, stakes or limbs; and fish hook themselves as they take the bait.

A trotline consists of a main line from which several droplines with hooks are hung. Limb lines are simply lines tied to tree limbs hanging over the water. A throwline is an adaptation of the trotline in which one end of the mainline is weighted to be tossed out into the water from the bank. A bank line is like a limb line, except the limb (pole, rod, or whatever) is stuck into the bank near the water's edge at the desired location.

A trotline may be constructed from scratch or bought already assembled. Either way there are some features that will make the line much handier and a lot more effective.

1. All lines should be nylon to withstand long periods in the water without deteriorating.
2. The mainline should be strong enough to withstand tugging from the boat and from snags that may drift into the line.
3. Droplines should be of smaller nylon line and about twelve inches long, depending on the situation.
4. Twisting of the line is a common reason for losing channel catfish. A swivel should be used in the dropline to prevent this. A snap swivel used for this purpose also allows easy removal of the dropline for storage or repair.
5. The droplines should be far enough apart so that hooked fish can't tangle themselves in adjacent lines. This means the distance between droplines on a mainline should be at least twice the length of a single dropline.
6. Sinkers clasped onto the droplines may be necessary, especially in running water or when using live bait, to keep the bait in place.

A throwline is put together like a trotline; limb and bank lines are similar to the drops on trotlines, with swivels somewhere along the lines to prevent twisting.

Most people will figure out their own uses for the gear described above, but a few pointers to the beginning set line fisherman may be worthwhile.

A trotline is often used directly below riffles in running water. The situation described earlier where a stream coming into the reservoir drops juicy morsels of channel catfish delicacies is a good place to set a trotline.

Trotlines can also be effective on mudflats. In this case, keeping the bait near the bottom will improve the catch. A weight attached to the line just in front of the first dropline and just behind the last will get the baits down to where the catfish are. A bleach bottle on each end of the mainline makes it easier to find and run.

For fishing rivers or brushy coves, limblines are very effective. The line is simply tied to a limber branch or twig of sufficient size to hold a good-sized catfish. A rag or other material tied to the limb will help in finding the line in the darkness.

It is important to know the laws and regulations that apply to set lines. In addition to the two rods and reels allowed per fisherman in Kansas, each fisherman may use one trotline (or throwline) containing not more than twenty-five hooks *or* eight limb (or bank) lines having not more than two hooks each. One person *cannot* use *both* a trotline and bank lines. All set lines must be run at least once every twenty-four hours.

It is unlawful to use any set lines within 150 yards of any dam or within 200 yards of the mouth of any creek or river. Use of set lines in any state fishing lake is prohibited.

Many counties in Kansas have adopted a resolution requiring all set lines to have a tag attached stating the name, address, and fishing license number of the user. This law aids enforcement of regulations and lessens conflicts concerning ownership of set lines in heavily used areas. Good sportsmanship requires that all lines, markers, and other materials be removed when the fishing is concluded. Any hooks left in the water are potential hazards to swimmers and aquatic wildlife. Markers and remnants of old lines detract from the aesthetic value of a lake. In fact, disregard of this clean-up responsibility could result in a citation for littering or defacing of public property.

Do not set lines where they will cause a hazard to other people. If stakes are used to hold trotlines in shallow water, mark the stakes with a bright colored float of some sort to reduce the chances of serious injury to boaters, skiers, and fishermen.

With all this knowledge about the habits of channel catfish and the baits and tackle commonly used to catch them, all you need to do is get where the fish are. Most people maneuver on the bank until they get as close to a likely looking spot as they can, then throw out a line. It's easy to reach most catfish in a stream or farm pond with this technique, but in a reservoir, there's a lot of good water you just can't reach from shore. You can wade to some of these spots and improve your chances of catching fish. In carefully chosen water, you can even wade out to your set lines, although you should be careful to avoid getting snagged in your own hooks.

Obviously, a boat is the best way to fish all parts of a reservoir. In fact, a boat is a necessity for fishing deep water and for running set lines in most cases. The size of boat needed depends on the number of people and gear carried. Of course, always know the limitations of your boat and observe safety precautions to avoid tragic accidents.

Hopefully this information will give the beginning reservoir channel cat angler the basic tools he needs to start his catfish education. The rest can only be learned out on the lake. After all, that's where the fun is. Good luck!

Leonard Lee Rue

PRAIRIE SPECIALISTS

A catalog of species that have met the challenge of surviving on the plains—and how they do it.

Marvin Schwilling

"The Great American Desert", one of its first explorers called it, "almost wholly unfit for any sort of cultivation, and of course uninhabitable by a people depending on agriculture for their subsistence . . . the scarcity of wood and water will prove an insuperable obstacle in the way of settling the country . . .". Of all the major land forms in the continental United States, the western prairie must have come as the greatest shock to the first farmers who tried to settle it. Here the winds blew more strongly than anywhere else in the country without the shelter of a single tree to break their force. During the summer, they were often dry and searing hot, licking moisture from the soil, crumbling dirt and vegetation to dust. In winter, they drove fierce blizzards, slashing a knife-edge blast across the flatlands, heaping snow into monumental drifts behind every hill.

In spite of the harshness of the prairie environment

and the advice of some early explorers, eastern farmers were lured into the grassland by its incredible fertility. The ensuing confrontation changed the prairie, but it changed the farmers, too; the Kansas "sodbuster" was forged by the rigor of the plains climate into a fundamentally different sort of man than his eastern counterpart. And as this new resident of the plains looked around, he realized that the stamp of the plains was on every plant and animal that used the grasslands. The extreme conditions had produced a unique menagerie peculiarly adapted to prosper in the "American desert".

One of the first features that came to the attention of early travelers could hardly be missed—the grass. A variety of species of grasses and forbs routinely survived where no tree could gain a foothold. Why? Partly because they lived underground. The root systems of most prairie plants reach down from five to twenty feet in their search for moisture. In addition, many grasses have underground stems that spread several yards in every direction. The part of the plant above ground is a relatively small, though important, part of the whole.

This underground style of growth protected the native plants, especially the grasses, from the devastating effects of fire and drought. Reserves of food stored underground allowed many of them to get an early start in the growing season so that they could take advantage of periods of heaviest rainfall in early summer. Many of the species had developed side by side, and as a result, had staggered their peak water demands. As one species got through the major effort and water demand of setting seed, another species started up. The annual renewal of leaves and stems above ground resulted in a quick turn-over of nutrients compared to the nutrient cycle in the eastern woods where organic matter could be tied up in trees for centuries. This quick recycling was in part responsible for the deep-rich humus that beckoned to farmers. It also meant that a large part of each year's plant production was available to grazing animals.

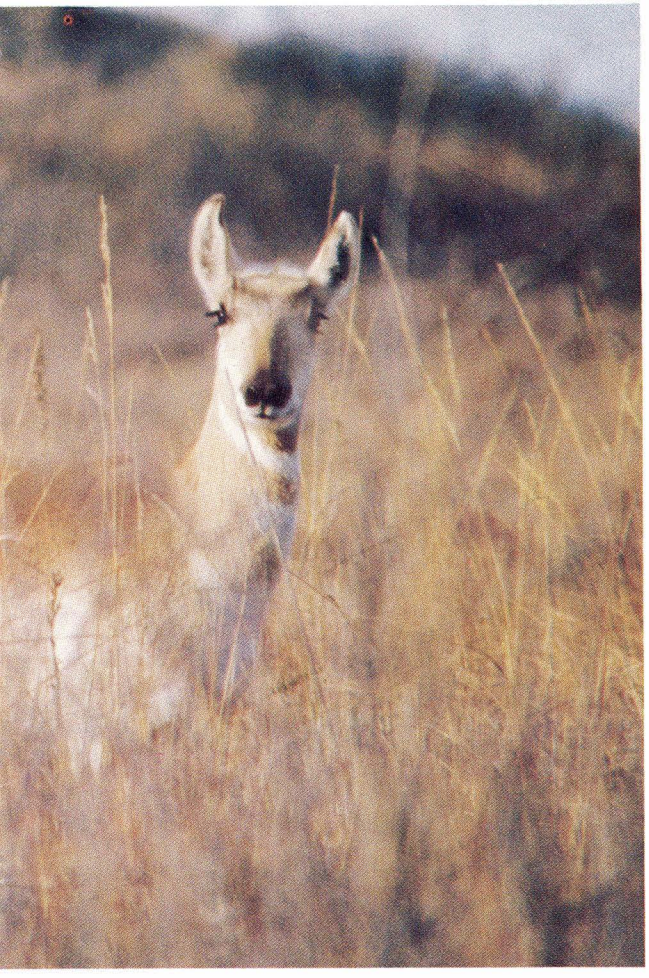
And the grazers took full advantage of the opportunity. The best estimates of buffalo numbers on the western plains run between 15 and 75 million. According to the reports of most frontiersmen, this plains population ran in a fairly small number of herds, with hundreds of thousands or millions in each herd. Such herds are found only on the grasslands and tundras of the earth. The Serengeti in Africa supports overwhelming tides of wildebeest; the tundra in northern Europe and North America carries huge herds of caribou, and at one time, the American plains had similar numbers of bison, elk, and pronghorn. A group this size isn't an unmixed blessing to its members. Forage is destroyed underfoot and water holes are trampled to mud, but with the lack of cover on the plains, the herd provided protection against two imposing predators, the "buffalo" wolf and the plains grizzly. A herd of 100,000 buffalo is never without eyes and questioning noses. When the herd was threatened, the bison often

"The antelope's approach
poignant example of his failu

formed tight groups with young calves and cows near the center. In certain situations, dominant bulls actually charged the intruder in a group, cavalry style.

Of course, there were threats on the prairie even an adult buffalo couldn't outmuscle—fire for example, and later on, mounted hunters. Although not often recognized for their running ability, buffalo could cover tremendous tracts of ground. When pursued, they could gallop as fast as 35 miles an hour, and their endurance was phenomenal. In his *Buffalo Book*, David Dary cites a number of reports in which horsemen narrowly escaped being trampled to death by gigantic herds. The horse could outsprint the bison,

barbed wire fences is a
o change with the times . . ."



Ken Stiebben

but when it came to a long distance test, most horses collapsed long before the buffalo stopped. And if you were a mounted hunter trapped in the middle of a few hundred thousand closely packed buffalo, having your horse fall out from under you could be a definite inconvenience.

Many smaller critters of the prairie have also become gifted runners in order to escape predators. The black-tailed jackrabbit is an accomplished sprinter and long distance runner. Unlike the cottontail, the jack will flush at the first sign of danger and pass up available cover in favor of open ground that gives him room to run.

The champion prairie runner is unquestionably the pronghorn. His flat-out speed can exceed sixty miles an hour, and he has the endurance to disappear at a brisk pace over the horizon. He keeps up with the fantastic oxygen demand of this exercise with an equally fantastic breathing capacity. His windpipe is two or three times as large as it should be for an animal his size. When he's breathing hard, that tube lets him get all the air he needs.

The pronghorn complements his speed with phenomenal eyesight. His keen vision can catch the movement of an approaching predator hundreds of yards away, and it is also part of a long-distance communication system among antelope. When the pronghorn is startled, the hairs of his white rump patch stand up, forming an eye-catching rosette. Other antelope can see this semaphore for miles.

The pronghorn's extreme adaptation for grassland living has gotten him into trouble since the beginning of farming on the plains. Pronghorn populations have declined along with numbers of buffalo and prairie elk even though there is no historical record of excessive slaughter of antelope. Apparently, they were unable to cope with the changes in the prairie brought about by agriculture. The antelope's approach to barbed wire fences is a poignant example of his failure to change with the times. Most pronghorns aren't sure about how to handle a fence. They'll crawl under if there's room, but they flatly refuse to jump over. And it isn't unusual for a spooked herd to run into a tight fence, killing or injuring many of its members. They are exquisitely prepared to survive in a pasture fenced by the Front Range on one side and the Flint Hills on the other; there is nothing in the experience of the past to prepare them for anything smaller.

Many prairie critters that aren't big enough to fight it out with a predator or long-legged enough to run have gone underground to protect themselves. One of the most successful of the plains burrowers is the prairie dog. The prairie dog town is a maze of deep, interconnected tunnels with side passages for food storage and sleeping. The dirt taken from the tunnels is piled around the entrances, forming natural dikes that prevent flooding during heavy thunderstorms. Prairie dogs seem to prefer areas with hard clay or loam soils where tunnels won't collapse unexpectedly. They're seldom found in the tall grass prairie of eastern Kansas except in places that have been closely grazed. Apparently, they like a good view of their surroundings.

Studies have shown that a large dog town is divided into a complex of wards and precincts with strict borders and select groups of residents. The dogs derive the same communal protection from their dense towns that the grazing herds gained from their numbers. The first dog to spot approaching danger sounds off with a sharp bark that immediately sends all nearby members of the community to the edges of their burrows. Sentinels wheeze an "all-clear" signal after the danger passes, and the normal routine is resumed.

"One of the most successful plains burrowers . . ."

Leonard Lee Rue

Most other rodents on the grasslands, including the thirteen-lined ground squirrel, spotted ground squirrel, kangaroo rat, Franklin's ground squirrel, and a variety of mouse species, have also substituted holes for the hollow trees and fallen logs that many of their woodland relatives rely on. As the rodents have adapted to burrow living, many of their predators have followed them underground. The endangered black-footed ferret is a plains specialist that has come to depend solely on the prairie dog for food and shelter. The long-tailed weasel also hunts in the dog towns and is the scourge of small rodents on the grassland since it can go nearly anywhere a mouse can hide. The badger, master earthmover, is also a prairie species. With shovels for feet and a steam engine for a heart, he is adapted to outdig the quickest of the prairie burrowers.

There is even a bird, the burrowing owl, that has been forced by the lack of cover on the prairie to live in holes. In spite of the name, the burrowing owl doesn't dig its own tunnel; it prefers to use deserted burrows of prairie dogs, ground squirrels, or badgers. Nineteenth century ornithologists found loose colonies of burrowing owls scattered through the huge dog towns on the western plains before settlers decided to eliminate the prairie dog. Apparently, the owls also found safety in numbers.

While no other bird on the plains has taken to living in the ground, a number of them have developed

Leonard Lee Rue

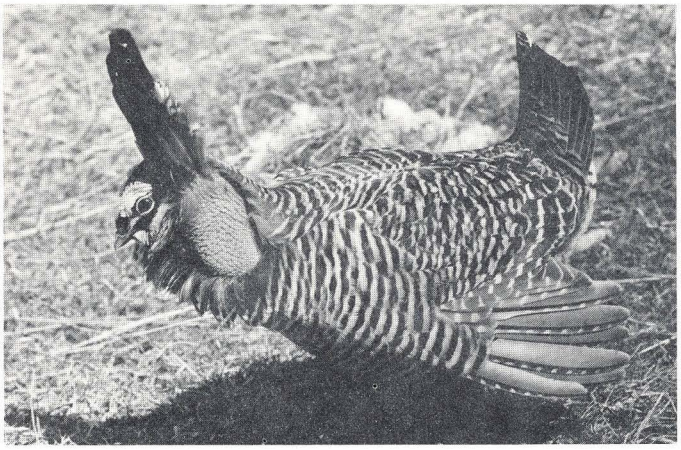
Burrowing Owl

"There is even a bird that has been forced by lack of cover to live in holes . . ."

unique solutions to the problems of prairie living. Many of these problems are most critical during courtship and breeding. Most male birds establish territories, either to claim dominance and impress females or to defend a place to gather food for their broods. They sing and display bright plumage to notify other birds of their presence on the breeding ground. Most woodland or woods edge species sing from the top of a tree or other exposed perch so that they can be easily seen and heard. This system doesn't work quite so well on the plains where the highest scrap of vegetation may be a single twenty-inch grass stem. While some plains species content themselves with the highest vantage point they can find for their displays, others, like the prairie horned lark, lark bunting, long-billed curlew, and Cassin's sparrow, have taken their mating displays into the air. Males of these species fly a hundred feet or more over their territories, then sing and display, often performing complex aerobatics as they descend. Flight displays like these are unheard of in the eastern woods except in a few species like the bobolink and woodcock whose displays are adapted for the open meadows, glades, and marshes that have always been scattered through the timber country.

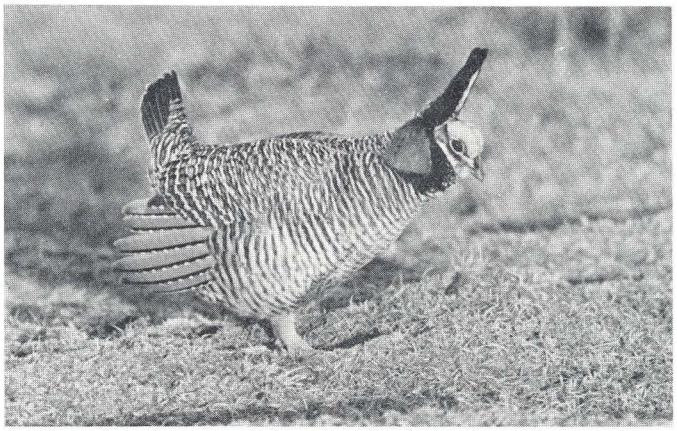
The prairie grouse have developed another style of establishing territory that is unique to the plains. Four species of prairie grouse, the greater prairie chicken, the lesser prairie chicken, the sharptailed grouse, and

Greater prairie chicken.



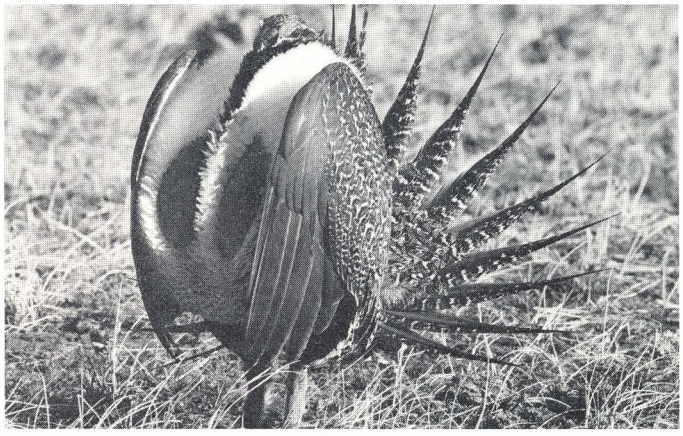
the sage grouse, all participate in similar communal mating displays. Males of each of the species meet each other on a traditional piece of ground, usually on a ridge or height of land, and face off in a dance-and-sing contest to find out which of the cocks have enough macho to claim a hen. The prairie chickens and sharptails usually limit the engagement to between ten and forty cocks; but as many as 400 sage grouse may congregate on a single area. These group demonstrations are in stark contrast to the custom of the eastern member of this family, the ruffed grouse. The male ruffed grouse settles his mating affairs at a distance from his drumming log. He has his own display and sound to notify rivals of his presence, but he seldom faces more than one male at a time. He is basically a loner.

What is it about the environment of the prairie

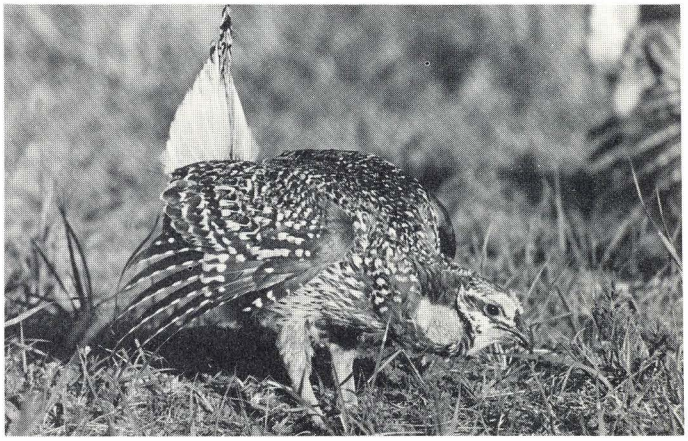


Lesser prairie chicken.

Sage grouse.



Sharptailed grouse.



"Four species of prairie grouse participate in similar communal mating displays . . ."

Leonard Lee Rue

grouse that has encouraged a communal courtship display? It's hard to say. Research indicates that male ruffed grouse are particularly vulnerable to predation when they are on their drumming logs displaying, even though they are usually surrounded by thick underbrush and a dense canopy of young trees. Maybe this loss to predators is even more serious among prairie grouse where there is little or no surrounding cover. If this is the case, there could be safety in the numbers on the display grounds where there are more unoccupied eyes watching for danger. Or maybe the display is rooted in much more subtle aspects of the prairie grouse's character. The problem is an interesting one to consider while watching the spring rites on a Kansas booming ground.

After all the complex spring courtship displays are over, the females of prairie bird species are left with another challenging problem—hatching and raising young without trees to put them in. Since there is no other choice, most of these birds nest on the ground and conceal their nests in a variety of ways. Some species, like the upland plover and killdeer, lay their eggs in crudely dug depressions completely without cover, but there is a reason for the lack of effort. The nest blends perfectly with the ground around it, and the eggs are perfectly camouflaged. If a predator happens to stumble into the vicinity of the nest, the female diverts attention from the eggs with the well-known broken-wing act.

Other birds take greater pains to hide their nests. The meadowlark nest is often roofed over, and the mallard hen (yes, the mallard and all other North American puddle ducks are prairie birds, born and bred) carefully pulls a comforter of grass and down over her clutch before she leaves the nest. The cover keeps the eggs warm and completely hides the nest. Prairie grouse also pull vegetation over their nests before they leave for a bite to eat. When the ground-nesting female of any of these species returns, she is usually careful to fly in low and often alights far from the nest to walk the last yards so that she doesn't give away the location.

Once the clutch has hatched, life on the ground gets even more dangerous for the female and her young. The precocious chicks of grouse, shorebirds, and ducks dry out in a matter of minutes after hatching and leave the nest the same day. Other ground nesters like the bobolink and meadowlark feed their young in the nest for ten to twelve days. During that time, the nestlings instinctively lie quiet in the nest unlike the young of robins and other tree nesters. Centuries of experience on the ground has taught the young of these ground nesters that movement means instant predation. Their parents lead them away from the nest before they're two weeks old, even though they're not able to fly. The whole business of ground nesting is risky, but the prairie birds have adapted to the challenge and thrive in the grass.

One ornithologist, speaking of the habitat of the prairie horned lark, described it as "our at the bleak end of the ecological series of habitats . . . barrens . . . tres-denuded, windswept . . . here is a bird nesting where no bird has a right to nest, a bird in a niche that demands not vegetation but the lack of it . . ." Admittedly, the horned lark has a taste for the least hospitable parts of the prairie, but even the garden spots of this country are often unfriendly. At the same time, they are often tremendously rich, and it is this richness that has encouraged many species to try their luck on the western grass. Some have succeeded and thrived, enriching the prairie by their presence.

Few other land forms show their wildlife so freely or abundantly as the American prairie. The Rockies have their high ridges; the desert Southwest has its Grand Canyons, but the great landmarks, the scenery, of the prairie, are clouds of waterfowl and shorebirds, grouse, whooping cranes and sandhills, antelope, coyotes, prairie dogs, and scores of other wild critters. They're different, often spectacular, and definitely worth a look—even if they can't be found on a road map.

Ken Stiebben

Long-billed curlew