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Bob Mathews

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Ken Stiebben

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The Great Box Turtle Migration

Something in the first real thaw of spring seems to call for special commemoration.

The continent is seized with restlessness. Most wild animals express this need to be up and doing in one way or another—some with more flair or energy than others. A few are downright heroic—the arctic tern winters in the antarctic and migrates 12,000 miles to the arctic to nest; the hummingbird is inspired to traverse the Gulf of Mexico from Yucatan to Louisiana. The fall waterfowl migration is a common sense flight ahead of winter, but the spring passage seems to be motivated by the pure joy of flying to the far horizon.

The spring migrations are impressive and a little depressing. For those of us who don't winter Central America and take our summer ease on the Tanana Flats or the Yukon Delta, there seems to be no way to suitably vent spring fever, and the jet set procession of migrants overhead doesn't help matters any. What the country needs is a spring traveler who expresses his urge to wander on something less than a continental scale, a critter an earthbound Midwesterner can identify with.

Which brings to mind the Great Turtle Migration. I first noticed it while driving back from an Ozark float trip two or three Aprils ago. A box turtle crossing a six-lane expressway has an air of implacable purpose that draws attention—chin out, bowlegged, a steady, long-haul pace. I noticed the first turtle because of that air of mission and pointed it out to my family. We were down the road about a mile when I saw the second; half a mile farther when I saw the third. We'd seen an even dozen before I realized that we

were witnessing the Grand Passage of tortoises.

Technically, it isn't a migration. Box turtles are not a regimented group driven by a single minded sense of destination like a V of Canada geese. Box turtles are more democratic. We saw three in a row headed north and were about to make a major conclusion concerning tortoise behavior when we saw one headed southwest, two headed east, and another standing on the shoulder who seemed inclined to head back the way he had come. The members of the population seemed to agree that there were greener pastures to be found, but there was no generally accepted idea about where to look for them.

An ecological study in Missouri has shed considerable light on the character of these spring turtle movements. Dr. Elizabeth Schwartz of the Missouri Conservation Department started her box turtle research as a part-time evening project, painting numbers on the shells of the tortoises she found and tracking them down with the family's turtle-retrieving Labrador. The system was effective but slow, so she eventually switched to attaching radio transmitters and monitoring movements with a receiver. Since the average box turtle confines its rambling to a home range of five acres or so, tracking most of the turtles was a pleasant duty on a spring or summer evening.

Dr. Schwartz found that most box turtles come out of hibernation in late April or early May and move around quite a bit before settling down for the summer. Many of the turtles on the highway at this time of year are probably out for a stroll on

their home ground. A few, however, reject the idea of home range altogether and light out for other country. One of these travelers moved more than six airline miles in fourteen months, including a four month hibernation break. He took road ditches and suburbs in stride, had his antenna mowed off in a hay field, and headed unalterably southeast through it all. He finally got to be such a headache to track that Dr. Schwartz removed the transmitter and sent him on his way to Ft. Lauderdale or wherever it was he had in mind. Other turtles in the study have made similar treks in different directions.

The cause of such movements? I suppose an ingenious researcher will explain them statistically some day, but the scientific proof won't come as any great revelation. Anyone who has spent the winter cooped up in a suburban ranch style with four kids will tell you that there just isn't any other way to react to April. Turtle and taxpayer share the same misfortune—they're both saddled with houses and a general commitment to a secure life style, but they still feel a subtle tug when the south wind blows. Sooner or later, both will yield to the urge and leave their winter shelters for a stroll on some wooded hillside. The suburbanite will probably call it a mushroom hunt; the turtle would, too, if he were given to conversation. They'll eventually meet, eye each other for awhile over a rotten log, then go their own directions with a certain mutual understanding. All in all, it's not a bad way to pass a spring day. Not a flight to Alaska, but something.

—Chris Madson



Chris Madson

The Kansas River: Candidate for Preservation



Sandpiper track

Rod Baughman

Last July a group of people assembled at Lawrence and made a canoe trip down the Kansas River some forty miles to Bonner Springs. Hundreds of canoeists float this scenic stretch of the Kaw every year, but this trip was for business rather than pleasure. The party included representatives from state and federal conservation agencies and private conservation groups, staffers from a congresswoman's office, members of Kansas recreation clubs, and media persons. A common interest brought them together—preservation of the Kansas River for the enjoyment of present and future generations of Kansans. Though the Kaw filters through heavily populated areas on its way to the Missouri, it retains a wild, remote quality that charms the river traveler. For Bill Losier, organizer of the excursion, the enchantment has grown and deepened over a lifetime. A native Kansan and currently a resident of Bonner Springs, Losier has spent many hours gliding down the leisurely, broad waters near the mouth, taking in the rich display of vegetation and wildlife along the banks.

He knows the subtle beauty of the stream but he also sees the flaws. Any watercourse that comes in contact with human activity inevitably shows scars, and the

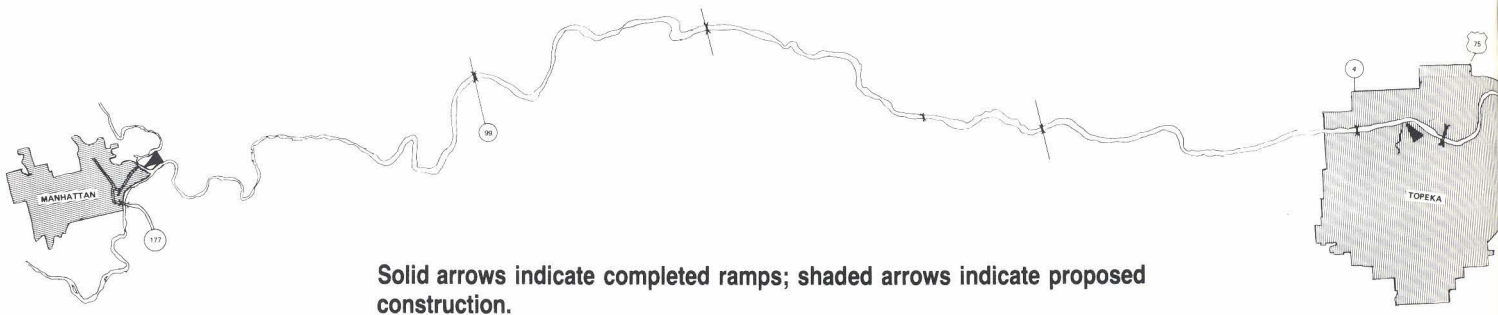
Kansas River is no exception. Industrial and agricultural pollution, bank caving, channel migration—these are the marks left by the heavy hand of man. And in the future, as population swells and farming becomes more intense, the river faces the threat of severe, possibly irreversible physical change. In an effort to garner public support for preservation of the Kaw, Bill Losier joined with another river enthusiast, Ray Coffey, to form a committee of two called the Kaw River Parkway Association. They kicked off their campaign a year-and-a-half ago with a slide show and talk on National Hunting and Fishing Day. Losier and Coffey soon found they were not alone in their concern for the stream. Fishermen, canoeists, hikers, campers—persons with varied interests who share a common recreation area—expressed their desire to help preserve the Kaw. When the idea came to mind of a canoe expedition to promote the river's recreational potential, there was no problem in finding participants. Losier chose the stretch from Lawrence to Bonner Springs for the excursion, because the water is generally excellent for canoeing. The current is moderate, and frequent sandbars provide good resting and camping places. Surprisingly, the heavy urbanization in this area doesn't

Kansas River Access—new directions

All efforts to develop recreation on the Kaw aren't focused in the future; last year the Kansas Fish and Game Commission completed three new public access ramps, enabling boaters and canoeists to get their craft on the river easily and safely. Director Jerry Conley dedicated the Eudora ramp in a public ceremony last October. The first of the three to be completed, it was in use throughout most of the year, with the finishing touches being added in September. The ramp is situ-

ated a short distance up the Wakarusa River, a feeder stream to the Kansas.

The new ramp at Lawrence is about eight river miles above the Eudora facility, and directly on the Kaw. Canoeists in particular take advantage of this access point, because it is an enjoyable day's float down to Eudora. The Commission finished the Manhattan ramp last September. Similar in design to the other two, it is located about one mile north of the Kaw on its



detract from the feeling of wildness; dense belts of cottonwood, elm, and silver maple shield much of the stream from the sights and sounds of human activity.

One person in particular who liked what he saw on the trip is Hank Burback of the Heritage Conservation and Recreation Service. Already involved in an agency study of the Kaw, Burback came along to get a better feeling for the river and to look for possible recreation sites. HCRS is collecting data for a proposal to be submitted to Congress recommending inclusion of the Kansas River in the National Wild and Scenic Rivers System, a federal program which seeks to preserve selected streams in their free-flowing condition. When Congress passed the Wild and Scenic Rivers Act in 1968, it was aimed chiefly at protecting those few streams still largely existing in a pristine state, unaltered by man. The Kaw hardly fits in that category, but the eligibility standards delineated in 1975 by HCRS's forerunner agency, the Bureau of Outdoor Recreation, made allowance for the inclusion of rivers which have undergone some development in the past. There are three classifications of rivers within the System—Wild, Scenic, and Recreational. The Kansas River most closely fits the definition of a Recreational River: "Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the

past."

For a stream included in the System, the benefits are twofold. It comes under the protection of the Department of Interior, parent agency of HCRS, which has the authority to monitor any activities that threaten the river's natural qualities. Dam construction, dredging, dumping of pollutants—the Department of Interior can curtail or prohibit any of these operations if it considers them to have a negative impact on the stream. In addition to receiving federal protection, a Recreational River is eligible for federal funding—money allocated by Congress for acquisition and development of recreation areas along the stream banks. The intent is not to create a backwoods amusement park, however. Public-use facilities such as campgrounds and picnic areas, hiking trails, information centers, and administrative headquarters must be screened from the river; small, unobtrusive marinas are also allowed, but must not detract from the natural setting.

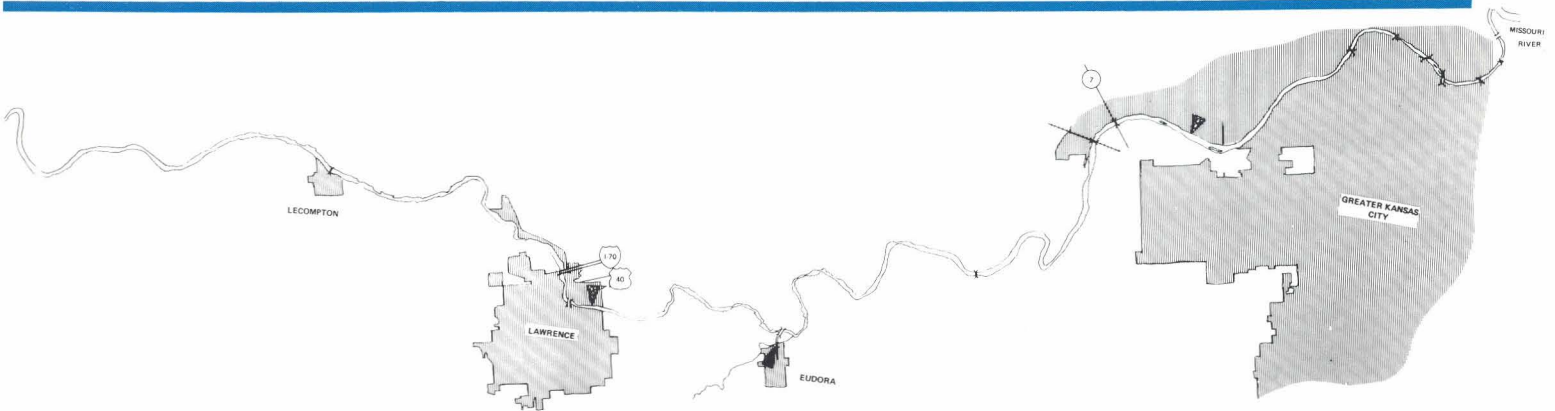
The touchiest issue in adding a stream to the Wild and Scenic Rivers System is acquisition of land. Landowners who have been steam-rolled in the past by officious public agencies demanding ground for highway right-of-ways, parks, and other projects understandably look with suspicion on any new proposals affecting their property. And the Wild and Scenic Rivers Act does call for public control of a strip of land

tributary, the Blue River.

Fish and Game has two additional boat ramps under construction at Topeka and Edwardsville. Engineers expect to complete both by the middle of this year, if not sooner. And Commission planners have their eyes on yet another site, this one three miles east of Wamego on the Vermillion River, another Kaw feeder stream. The site has been surveyed; other preliminary details remain to be worked out.



Rod Baughman



along either side of a protected stream. However, Congress has placed strict limitations on the amount of adjacent land that can be annexed—no more than three-hundred-twenty acres per mile of river, with an average of no more than one-hundred acres per mile of this to be purchased outright. Additional land within the three-hundred-twenty-acre limit can be regulated by use of the scenic easement, a legal agreement in which the federal government purchases the owner's right to cut timber or shrubbery, put up buildings, or perform any use that would impair the natural beauty of the river. The Recreational River designation generally allows the full range of agriculture on adjacent lands, so none of these uses would be restricted by scenic easement. The acreage figures are only outside limits; the main object in acquiring title or easements to land along a Wild and Scenic river is to preserve the natural surroundings immediately visible from the stream itself. This "visual corridor" could vary in width markedly, depending on the topography of the banks. Along stretches with high, steep bluffs, for example, an area much narrower than the three-hundred-twenty-acre limit would come under federal control.

The Heritage Conservation and Recreation Service does not intend to push its proposal for addition of the Kaw to the Wild and Scenic Rivers System without state and local support: "There must be a joint effort

between state, federal, and local entities to develop recreational aspects of the Kansas River," Hank Burback noted. The Kansas Park and Resources Authority voiced its concern for preserving the Kansas River when its policy-making board adopted a resolution last year endorsing HCRS's efforts. KPRA planner Wayne Herndon collaborated with Hank Burback in compiling a list of possible recreation sites on the Kaw between Lawrence and the mouth, the segment HCRS is considering for Recreational River designation. In the previous legislative session, concerned Kansas legislators sponsored a pair of bills to create state recreational corridors on the Little Arkansas, the Kansas, and its tributary, the Republican. The proposed legislation died in committee. Senate Bill 668 would have empowered the State Park and Resources Authority to enter into leases and conservation easements with property owners along the Kansas River. The accompanying bill, S.B. 671, defined the applications and restrictions of the conservation easement, a Kansas version of the federal scenic easement described earlier. Initial defeat hasn't squelched interest in protecting the Kaw, however; the state legislature will consider similar proposals again this year.

The wheels turn slowly at the federal level: any Congressional action on HCRS's proposal will come no earlier than 1981. The Corps of Engineers is scheduled to complete a three-year bank erosion in-



A city traveler along most of its lower reaches, the Kaw nevertheless retains an essence of wildness. Bottomland timber along the river is still untouched in many places and supports a wide variety of wildlife, including the beaver that made this cutting in suburban Eudora.

ventory of the Kaw in that year, and Burback's recommendations will be included as a recreational component of the Corps study. The brief history of the Wild and Scenic Rivers System doesn't foster hope of swift action once the study actually reaches Congress, either. When the Act became law in 1968, proponents predicted as many as one-hundred rivers might be added in the first ten years. But to date, only about two-dozen rivers are receiving protection under the Act.

Ultimately, though, local interest sets the timetable in obtaining legal protection for a stream. In Ohio, a state with few remaining quality streams, citizens concerned with preserving the picturesque Little Miami River formed a non-profit lobby to promote protective state and federal legislation. Spurred by the outspoken concern of this and other local groups, the Ohio legislature passed a bill creating a state system of scenic rivers. The Little Miami was the first stream to be included in the system. Public interest continued to grow, leaders responded, and eventually the Little Miami was added to the National Wild and Scenic Rivers System. The entire process took five years, a mere blink of the eye by political standards.

Michigan took a slightly different approach to preserving its free-flowing streams. In 1970, the state legislature passed the Natural Rivers Act, a body of laws modeled after the National Wild and Scenic

Rivers Act. To insure that the public is represented in the decision-making process, the Act requires that all proposals to add rivers to the state system be initiated at the local level. After a stream has been nominated, citizens groups and local governments join with the Michigan Department of Natural Resources to develop a long-range management plan. Through a series of hearings and public meetings, private citizens get a chance to evaluate the plan and offer suggestions. It is revised accordingly, then passed on to the Natural Resources Commission for final approval. Community participation has been phenomenal: today, over six-hundred miles of mainstream and tributaries are protected by Michigan's Natural Rivers Act.

The grassroots fervor that developed in Ohio and Michigan produced impressive results in a relatively short period of time. Local people became concerned for their rivers and streams and went to work to protect them. The efforts of Bill Losier and others to arouse interest in the Kaw represent the beginnings of a similar movement in our state. The growth of awareness comes none too soon, for the threats to the stream are formidable and immediate. Only vigorous public involvement can stimulate state and federal lawmakers to provide protection for this inestimable resource, the Kansas River.

“Let’s go down to the river.” It was a common suggestion heard among the young west Kansas can kickers I spent my time with as a kid. On any given fall Saturday, the lure of that shallow sandy bottom stream was just too much competition for a game of touch football or other normal activities of pre-teen youngsters. Many adult Kansans share the same childhood memory of the combination of Indian summer days, the burnt powder smell of a just-fired .22 long rifle cartridge, and water moving sand. The adventures seem pretty small now, but that early association with the South Fork Solomon was enough to mold the destiny of this writer.

I can thank my Dad for my early personal bias toward streams. In springtime at the first word of high water, we’d grab our heavy poles rigged with age-proven bait cast reels and the normal regalia of smelly tackle sported by catfishermen and head for the Solomon River at Cawker City for an all-night wait for the chance to wrestle a huge flathead.

Satisfaction in these adventures was not measured by the number of fish caught in the shortest amount of time, although we rarely got skunked. The main attraction was that we just liked river fishin’—the feeling of being alone beside churning water, raccoons, hoot owls, and indifferent croaking frogs on starlit nights. And all of this when only eight miles from home was perhaps the best walleye fishing in this part of the nation at Webster Reservoir.

Rivers used to be arteries of life in early settlement of the plains, and through 150 years of growth, water has continued to be the single most important resource on the prairie for the farmer, the small town resident, and wildlife.

A look at the state from the air reveals the nakedness of the plains except for the irregular rows of shelterbelts and winding tree lines that drape the sides of creeks and rivers. In certain areas of Kansas, particularly the western half, this riparian ecosystem is so important and scarce that to lose just a stream segment may mean the irretrievable loss of entire local populations of Rio Grande turkey and whitetail deer. As a matter of fact, the loss of

A look at seven of Kansas’ best streams—their beauty, value, and threats to their future.

Prairie Rivers

Ken Brunson,
Stream Biologist

this type of habitat anywhere in the state reduces overall wildlife populations, especially for certain species.

In spite of the overall disruption of natural free flowing streams and their associated native wildlife, some high quality riverine resources persist. It is the intent of this article to highlight ones that still offer a highly diversified wildlife experience and reflect Kansas’ best. Unfortunately, we are not able to include many well-known streams that persist, watercourses with remarkably different features like the Cimarron River in the southwest with its associated National Grasslands Area, and quality streams like Grouse Creek (Cowley County), Cedar Creek (Chase County), the lower portion of the Marais des Cygnes, Elm Creek (Barber County), Willow Creek (Wallace County), a small spring fed gravel bottom brook with a diverse native fish fauna, parts of the Verdigris, the lower Walnut River—and the list goes on. What you will find here is our portrayal of the overall best seven larger streams, selected in different geographic regions, reflecting the pinnacle of Kansas rivers. A Missouri Current you won’t find, nor a Colorado Taylor River. You will find an enormously different and appealing mix of spotted bass, wild turkey, ol’ whiskers catfish, tall grass prairie and enough canoe twister excitement to whet your “flatlander” appetite.





Shoal Creek

Ozark traveler

The prettiest little stream in Kansas by just about anyone's judgment, Shoal Creek crosses the Missouri-Kansas state line and travels about five miles before disappearing into Lake Empire and Spring River in extreme southeast Kansas. This stream traverses part of the Ozark Plateau physiographic province, an extension of the Missouri Ozarks that offer a contrasting environment to the rest of Kansas. We have only fifty square miles of the plateau in the extreme southeast corner of our state. Those first few miles of Shoal Creek are not unlike the highly regarded Missouri Ozark streams so well known for their excellent fishing and aesthetic appeal. From its emergence in Kansas, this stream meanders for almost two miles until it is crossed by state highway 26 just south of Galena in Cherokee County. Here, Schimmerhorn Park, maintained by the city of Galena, embraces the north bank and offers fishermen access and camping areas with toilets and drinking water. The stream then winds westward past high moss- and fern-covered cliffs until it feeds into the lake at Lowell. Operated by Empire District Electric Company, the lake offers a boat launching site for easy access to the reservoir and to Shoal Creek and Spring River. From Lowell Dam, Shoal Creek continues another mile to its confluence with Spring River about a mile southwest of Riverton.

The usually clear water of the creek teems with various forms of animal and plant life. The diverse mixture of gravel, rubble, and watermelon-sized boulders in the streambed harbors many forms of insect larvae, algae and fish. The succession of pools and riffles add even more variety along the route. Some stretches widen to about 200 feet, but generally the creek averages from sixty-five to 100 feet from shore to shore. A testimonial to the quality of the fast moving water is that it supports over eighty fish species which ranks it at the top of all Kansas streams in that category, according to Dr. Frank B. Cross, of the Museum of Natural History at K.U.



Bob Hartmann

The Ozark Hills are among America's oldest—the limestone bedrock is honeycombed with springs. The bluffs and ground-filtered water make an unbeatable scenic combination.

Aside from the excellent sport fishery, such oddities as the hogsucker, banded sculpin, and the green-sided darter occur there. Darters are minnowsize bottom dwellers that are very secretive and were named for their peculiar habit of “darting” out from cover to attack prey, usually insect larvae. Shoal Creek contains twelve species of darters—most rivers and streams in our state would be considered special if they supported even half that species number of these colorful small fish. Included in the list of darters inhabiting Shoal Creek is the Arkansas darter, a state-recognized threatened species.

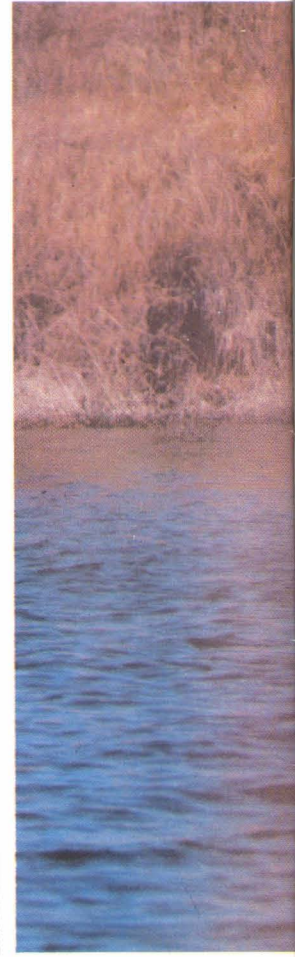
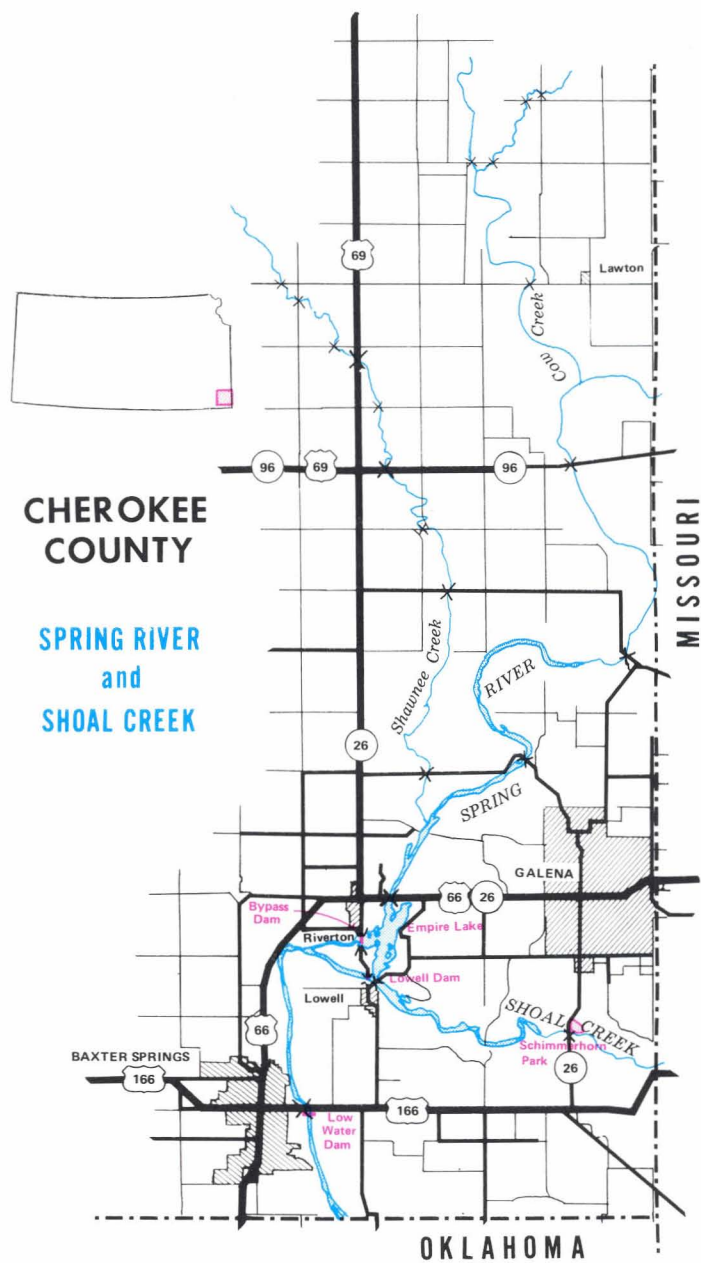
The broad range of fish species in this small area is at least matched by the diversity of reptiles, amphibians, and plants. Two caves in Schimmerhorn Park are inhabited by three species of salamanders that have been recognized as endangered species in Kansas—the grey-bellied, cave, and grotto salamanders.

Shoal Creek is noted for its excellent black bass fishery. The occurrence of smallmouth is in itself a tribute to the quality Shoal Creek-Spring River systems. In his *Handbook of Fishes of Kansas* Dr. Cross notes “that populations there may be the only native stocks that persist in Kansas.” Although quite a number of largemouth and a few smallmouth bass are taken, spotted bass are predominate in the angler's creel. Spotted bass up to two pounds may be caught in the first few miles of the creek. These bass are usually found in deep pools around rock banks or other cover in the stream. In early spring and summer, spinners like the Mepps number one and number two, Roostertails, Shysters, Thin Fins and Rapalas are all effective lures for catching spotted bass. Later on, light colored jigs no larger than 1/8-ounce with worms are effective as are purple artificial worms and salamanders. Local fishermen also do well in mornings and evenings using poppers and Jitterbugs in the quiet pools. Rock bass are caught with similar lures in deep, protected quiet areas. Since this species is unique to Shoal Creek and is not encountered anywhere else in Kansas, many local fishermen consider it a bonus fish. Most of the channel catfish are caught immediately below Lowell Dam by wading or shore fishing using sponge baits and worms.

Shoal Creek is not immediately threatened by any major developments with the exception of two dam sites in Missouri which are not considered economically feasible at this writing. The stream does pick up some pollution in the form of industrial and domestic effluents from the vicinity of Joplin, Missouri. In addition, runoff from abandoned lead and zinc tailings in the drainage reduce water quality. Aside from these nuisances, there are few threats to the stream's purity.

Barring any catastrophic events, Shoal Creek will maintain its absolute reign as “the prettiest little stream in Kansas” for many years and many people to come.

Note: Nearly all of the stream reaches described here are privately owned. While many landowners welcome use of their land, people interested in using it should ask permission before trespassing. As in most other outdoor recreation, a little consideration of the landowner's rights will go a long way toward opening wild corners of the state to the public. Contact the stream owner before you use the stream.



Ken Stiebben

Spring River

Edge of the Ozarks

Shoal Creek runs into Spring River about a mile below Lowell Dam. Originating in Missouri, Spring River cuts across the southeastern corner of Cherokee County before it joins Pensacola Lake in Oklahoma. Its east bank in Kansas rises into rolling hills covered with the oak-hickory woods of the Ozark Plateau physiographic province while the west bank opens onto the relatively flat land typical of the Cherokee Lowlands. Spring River enters Kansas about two miles southeast of Lawton and makes two large loops covering about ten miles before flowing just east of Gulf Chemical Plant. There is a pulloff area at the bridge on highway 69 east of Columbus where the river finishes its first loop. From the chemical plant, Spring River flows southwest for about four miles until it mingles with the backwaters of Empire Lake. Riverside cabins on private land line the west bank for almost two miles upstream from the dam, resembling the riverfront development characteristic of many of the southern United State's rivers. After its confluence with Shoal Creek below Bypass Dam, it makes a sharp turn almost straight south past the city of Baxter Springs and on into Oklahoma. A low water dam at the east edge of the city provides some excellent fishing.

Spring River isn't as clear as Shoal Creek, but outside of seasonally high amounts of silt and some mine tailing pollution, it maintains fair water



Larry Tiemann



J. T. Collins

quality. The gravel streambed and numerous logs and brush along the banks provide some excellent bass and channel cat fishing. Although not as diverse as Shoal Creek, this river supports many species of fish and amphibians.

Limb lining is a popular fishing method for catfish in Spring River, and many channel cats and some flatheads are taken each year using live and prepared baits. Spotted bass are caught around brushpiles and in pools below high rock banks. Largemouth and spotted bass are also taken in large numbers below the Baxter Springs dam using crankbaits and plastic worms. Bass fishing methods and lures that are effective in Shoal Creek work just as well in Spring River. Walleye and white bass are also caught along the entire reach of the river in Kansas. During the summer, bow fishing for carp and gar below Baxter Springs Dam is popular.

Although no major construction projects are planned that would jeopardize this fishery, Spring River suffers from some mine drainage pollution since it drains strip pit areas of intensively mined land. In the past, it has experienced some fish kills attributed to industrial effluents, but in more recent times has escaped any large fish die-offs caused by pollutions. At one time several thousand walleye were stocked to recoup damages from a fish kill below the old Jayhawk Chemical Plant.

Spring River is an excellent example of the lazier Ozark streams. It doesn't have the rock riffles and fast water of Shoal Creek, but it does have a wide variety of bottom habitats. The orange-throated darter shown here is just one of many spectacular small fish that take advantage of these habitats and Spring River's clean water. This diverse population of minnows makes a dependable base for predator populations of spotted bass and other sport fish.

Caney River

The Southeast Hills

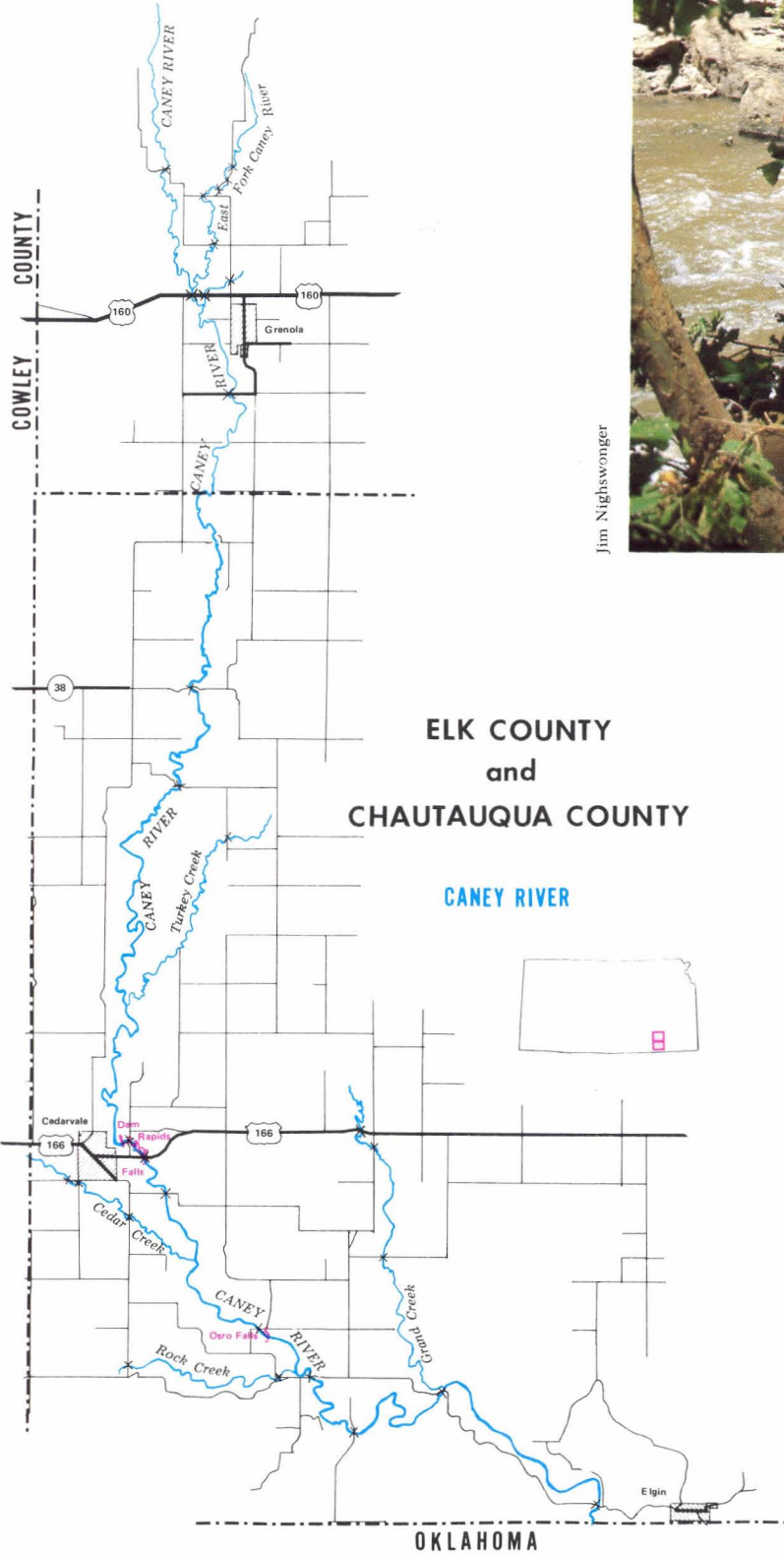
Nestled between the Flint Hills and the Chautauqua Hills regions of southern Kansas, the Caney River is in the midst of some of the most distinctively beautiful topography of the state. With the possible exception of portions of the Marais des Cygnes in east central Kansas, and upper reaches of the Verdigris and Elk rivers in southeast Kansas, the Caney has to be the pick to represent the overall best of larger rivers in the Osage Cuestas physiographic region. This region includes about all the area east of the Flint Hills and south of the Kansas River except for the narrow Chautauqua Hills portion and the Cherokee Lowlands and Ozark Plateau of the Spring River area. The Caney originates in the sparsely populated area of western Elk County and flows straight south through Chautauqua County before making a gradual turn to the southeast into Oklahoma and Hula Reservoir. Most of its drainage basin consists of rolling hills in native grass pasture and floodplain land under row crop agriculture. Healthy stands of oak are found along the floodplain and in isolated patches on the uplands overlooking the river. The stream broadens as it traverses Chautauqua County, averaging seventy feet in width. In some places it may reach depths of ten to fifteen feet but generally averages only two to four feet in depth during normal flow. Unlike some of the other rivers of the Osage Cuestas, the Caney maintains fairly clear water at normal flow. The stream channel is predominately crooked in its floodplain valley and is filled with snags and limestone rock outcroppings. The stream bed has the diversified mix of silt, gravel and boulders typical of many high quality rivers. The banks of the Caney range up to forty feet high along some of its reaches. Low water dams built to retain water supplies exist at the cities of Grenola and Cedar Vale. The numerous log jams and snags permit large populations of sportfish to develop in the nutrient rich water—many good-sized catfish are taken each year. As in other Kansas rivers, the best catfish fishing occurs in the spring and early summer when the flows increase enough to draw concentrations of flatheads and channel cats upstream.

Jim Zeiner, bait dealer and avid stream fisherman from Wichita, has high regard for Caney catfishing. Jim has fished the river a lot in past years and offers these remarks: "The Caney is very good for two- to three-pound channel cats. Shad sides, cheese bait, and minnows all work well. It's an excellent limb lining stream." Jim baits his limb lines with live green sunfish or goldfish about six inches long hooked through the eyes. He uses 150-pound braided nylon line with barrel swivels and number 9/0 and 10/0 hooks and fishes his bait just under the surface where the flatheads will come up to "woof 'em down." "I've caught several flatheads down there that went anywhere from ten to thirty pounds."

The Caney also offers some good spotted and largemouth bass fishing. Sunfish, crappie, carp, and white bass are also caught, particularly below the two low water dams mentioned earlier.

Access is scarce along the river, but many landowners will give permission to outdoorsmen who take the time to ask. Surveys conducted by the Kansas Fish and Game Commission indicates that the Caney River supports about 3,000 mandays of fishing a year, relatively light considering the fishery resource offered.

The Caney River has been polluted with brine originating from oil field operations in the past, but efforts have been made to reduce salt water contamination and protect this highly productive fishery.



**ELK COUNTY
and
CHAUTAUQUA COUNTY**

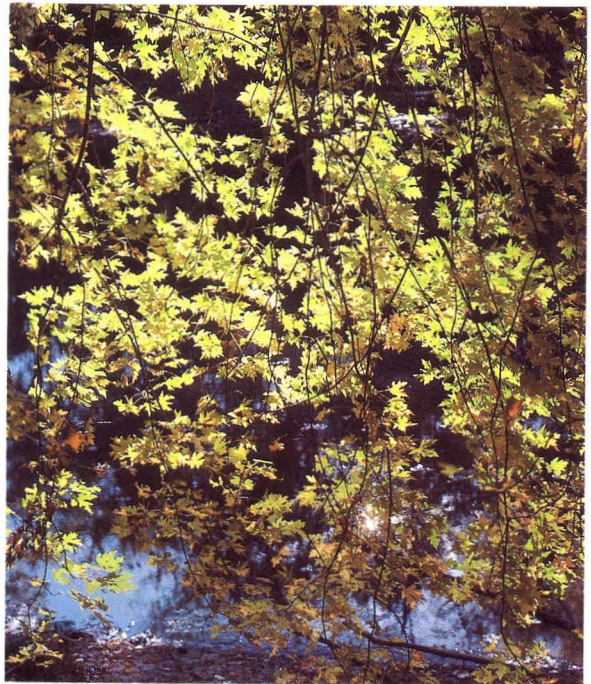
CANEY RIVER

Jim Nighswonger



Like most of Kansas' best rivers, the Caney flows out of hill country. The Chautauqua Hills are a narrow outcrop of limestone—an automobile traveler can drive into them and come out the other side before he notices the change in scenery. The hills and the Caney River bottoms are excellent wildlife habitat, harboring successful populations of deer and Rio Grande turkey. It's pretty country, too—not spectacular, but a pleasing quiet corner of the state that contradicts the flatland concept most people have of Kansas.

Chris Madson



Saline River

Out of the plains



Ken Brunson

Wilson Reservoir and the Saline River in Russell County are probably the most attractive scenic combination in the state. Right in the heart of the subtle grandeur of the Smoky Hills, this short section of the Saline out-competes other major streams in this physiographic area for overall quality. The rolling country around the Saline River supports thousands of acres of native mid-grass prairie. The brownish—orange color of these hills is attributable mainly to the presence of little bluestem, the predominate grass species.

In spring and early summer, the native flowers are in full display, giving the impression of a gigantic flower garden. Blues, oranges, reds, and yellows provided by these prairie plants stand out on a background of native grass, a pleasing experience for the eye.

Limestone outcrops in the Saline valley add to the display along with extensive stands of cottonwood, ash, elm and boxelder trees that line the stream banks. The Saline River is a fairly clear stream but has high concentrations of minerals and salts which accounts for its name. Even though the normally shallow, sandy bottom stream is not extremely fertile, it still harbors some respectable channel catfish, sunfish, and bullheads. Most important though, some of the best white bass fishing in the state occurs directly above Wilson Reservoir in early spring when the whites run upstream to spawn. According to the Fish and Game Commission's stream survey conducted there in 1972, this one reach supports almost as much fishing as the rest of the river from its headwaters in Thomas County to its confluence with the Smoky Hill River at New Cambria. Whether triggered by longer photoperiods or higher water temperatures, the whites get the urge to spawn in early to mid-April when the water temperatures approach sixty degrees. The smaller males move upstream before the larger females enter the river. Finally when conditions are right, the females swim up to meet their mates, and vigorous spawning activity ensues with the female spreading thousands of eggs near the surface.

the YELLOW Pages

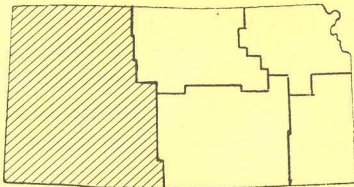


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'79 Fishing Forecast:

(Editor's Note: Kansas reservoirs provide plenty of fishing opportunity for the thousands of anglers who visit them every year. The following information, based on reports from Kansas Fish & Game fisheries biologists, provides basic information on fishing prospects and effective fishing methods.)



CEDAR BLUFF RESERVOIR — Fishing prospects at Cedar Bluff are good, despite low water levels. White bass fishing should be good to excellent, with best catches occurring in late April or early May when spawning run occurs along the dam. Fishing under floating lights at night works well on white bass during the summer and, from August through November, white bass can be taken in daytime while they're feeding on gizzard shad on or just below the water's surface. Walleye can be picked up during the spring by casting jigs from the dam, or trolling along the dam and off points. In late May and June,

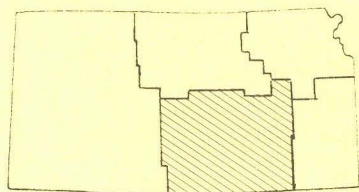
drifting on the flats also produces walleye. Rainbow trout have been stocked at Cedar Bluff the past two years. The best method for catching trout is using small minnows, worms, corn, or Velveeta cheese along the dam and in the Cove One area during spring and early summer. Crappie fishing will probably be slow since falling water levels have hampered reproductive success in recent years.

KIRWIN RESERVOIR — Walleye fishing should be very good off the face of the dam in early spring, fishing white and yellow jigs, minnows, or diving shad-type lures during evening and nighttime hours. Channel cat fishing is best in early spring, soon after ice leaves, using shad sides or gizzards in Gray's Park area or in the Bow Creek area off Crappie Point. Later in spring, best channel cat fishing usually occurs after a good rain. Early spring white bass fishing may be slow but should improve from mid-May through early June. Best locations for white bass are in Bow Creek, Gray's Park, and off the dam. White bass fishing should be excellent in June under lights at night.

NORTON RESERVOIR — Largemouth bass fishing is rated good to very good, especially in late May and early June on crank baits and plastic worms fished off the dam, around stumps, or near bridge pilings on the south side of the reservoir. Crappie fishing is good in Leoti Cove around boat docks and brushpiles. Bullhead fishing is very good lakewide on worms.

WEBSTER RESERVOIR — Walleye fishing should be very good, especially in spring and early summer, casting jigs or diving lures off the face of the dam after ice goes out. Trolling diving lures off face of dam works well also in morning and late evening. Striped bass fishing is potentially good trolling diving lures off north shore bluffs in early spring. Striper fishing should peak in mid-June about 100 to 200 yards off face of dam, where fish concentrate. Best time is shortly after sundown. Crappie fishing should be fair to good with best catches in late May and June, fishing minnows or jigs off the dam. Channel catfish pole and line fishing is best in June using minnows or worms off the dam or in the Marina Cove area.

(continued)



CHENEY RESERVOIR — Fall netting surveys indicate an excellent striped bass population, especially those in the one to five-pound class. The state record 33-pound, 12-ounce striper was taken from Cheney in 1975 and several lunkers were taken through the ice during the past winter, so the striped bass fisherman at Cheney stands a chance of hooking a real giant. Walleye and channel cat fishing should be generally good. Crappie fishing should be fair since the crappie population is steadily returning after a few bad years. White bass fishing prospects are excellent since surveys indicate an excellent population

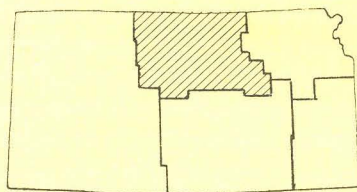
of $\frac{3}{4}$ -pound to two-pound fish.

COUNCIL GROVE — Council Grove has a good channel cat population that receives very little fishing pressure so it should be good in '79. Crappie fishing prospects also are good since many $\frac{3}{4}$ -pound to 1 $\frac{1}{2}$ -pound crappie are available. This reservoir also holds the best northern pike population in the state. Walleye fishing should be very good, with most catches averaging about three pounds.

FALL RIVER RESERVOIR — Crappie fishing should be excellent lakewide. Black bass fishing outlook is fair to good, with best fishing around brushpiles in shallow water from March through May. Some trophy-sized spotted bass are possible, especially in Casner Creek, Badger Creek, and Fall River near Ladd Bridge. Channel cat fishing should be good lakewide but the white bass population at Fall River is declining.

MARION RESERVOIR — Walleye fishing at Marion looks excellent and netting surveys reveal good populations of six to eight-pounders. Channel cat fishing popular at Marion, should continue this year. The larger channels are often caught off the face of the dam. Crappie fishing will be spotty, due to a relatively small population of the species. White bass prospects are good and anglers should be on the lookout for the white bass/striped bass hybrid stocked here in 1977. The fish looks and acts much like white bass but grow faster and larger, with some reaching fifteen pounds.

TORONTO RESERVOIR — Channel cat anglers should have good luck, especially fishing the stilling basin below the dam when water is being released. Spring crappie fishing is expected to be excellent lakewide. Toronto also should support good flathead fishing in the stilling basin or in the lake's wooded coves and rocky areas near deep water.



GLEN ELDER RESERVOIR — Walleye fishing should be a highlight at Glen Elder. In 1978, catches of nine-pound walleye were common and some over eleven-pounds were taken. Best walleye fishing usually begins in mid-April, casting jigs from the shore, as the fish move to rocky shoals to spawn. After spawning activities, walleye move to the flats where fishing is best from mid-May to the end of June. Drifting a jig and worm or trolling a diving plug works best. Crappie fishing should be very good, starting in late April or early May when the fish move up in the creeks and coves to spawn. During this time, try using

jigs or minnows in shallow brushy or weedy areas. Night fishing with lanterns works well during the summer. The white bass usually make a spawning run up the north and south forks of the Solomon River during late March and April, providing some very productive fishing. Later, the white bass move to the flats with the walleye and trolling or drifting can provide some tremendous fishing. Excellent populations of channel and flathead catfish also are present. Best areas for catfishing are the river forks, creeks, and coves.

KANOPOLIS RESERVOIR — Look for walleye at the lower end of the reservoir as soon as the ice leaves. Loder's Point, Kimbel's Point, and the rip rap on the face of the dam are best during this period. By mid-March, most of the walleye are near the dam. By mid-April, the walleye retreat to deeper water. Usually, by the end of April they can be taken on rocky points or along dropoffs. In late May or early June, they move to the flats

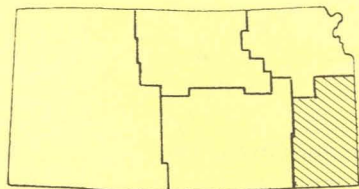
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near Bluff Creek or other shallow areas. Later in the summer, night fishing is the most productive method. In August, walleye fishing slows until the cool fall weather brings them to the points again. White bass usually congregate near the dam in early April, then move across the reservoir toward the river for their spawning run. In July and August, look for whites in deeper water near the river channel, in the Bluff Creek channel, and in the borrow pit near the spillway. Crappie will begin biting in March in the Marina Cove and Yankee Run Cove, then the crappie fishing slows until October, when they begin to frequent the coves again. The river from Yankee Run to the old iron bridge yields some good catfishing. Channel cat also can be caught in the stilling basin when water is being released.

LOVEWELL RESERVOIR — White bass fishing should be good. The white bass usually concentrate in large numbers in the inlet area during periods of inflow and can be taken on jigs and spinners. Later in the summer, check near the spillway and outflow canal. Walleye fishing at Lovewell should be good to excellent, trolling or drifting with a jig and worm. Test nettings indicate an excellent population of walleye in the four-pound-plus range. Crappie fishing is potentially good at Lovewell, especially fishing jigs or minnows in the brushy creeks and coves during the spring. Catfishing is extremely popular at Lovewell and '79 should be no different. Many sizeable flatheads are taken each year fishing nightcrawlers in the inlet area.

MILFORD RESERVOIR — The state record smallmouth bass (4-pounds, 1-ounce) was taken here last fall. The clear water and rip rap along the dam, along with the rocky shelves in the lower half of the reservoir, provide good smallmouth habitat and a good chance for fishing success for the species. Crappie and white bass fishing should be excellent in '79, since both species seem to be peaking. With stable inflow, white bass should start their spawning run upriver about the third week in April. About the same time, there is normally a large concentration of whites along the face of the dam. Milford's white bass fishermen also hook an occasional striped bass, and some of the larger stripers at Milford now approach twenty pounds. Walleye fishing should be very good. The best walleye fishing occurs in May and June when the fish move to the mud flats to feed. Channel and flathead catfish exist in good numbers at Milford and should provide good success for either pole and line fishermen or set lines. Flatheads concentrate along the causeways in the upper end from May through August, while channel cat can be found in the river or on shallow mud flats near deep water in spring.

WILSON RESERVOIR — Walleye populations and the average size of walleye are up at Wilson. Fish rocky points after ice out. In March, walleye gather near the dam and other rocky areas to spawn. They disappear in mid-April, then begin to feed on freshly hatched shad and minnows in May and June. Best areas to fish during those months are near rocky shoals or points with a jig and worm. Later, the walleye move to deeper water, usually associated with the river channel, steep dropoffs, or sunken brush and trees. White bass move up the river to spawn about mid-April. A light jig works well when fished by deeply cut banks, log jams, pools, or below riffles. After the spawn, the white bass return to the lake to feed and frequently congregate near the dam in large numbers in late April and May. More striped bass are being caught every year at Wilson. Last year, many over twenty pounds were taken. Stripers are most often taken in shallow water near deep dropoffs or stream channels, usually associated with brush. In April and May, they are caught from Lucas Point to the dam. Largemouth bass populations at Wilson are declining. Bluegill fishing should be good, fishing in almost any cove near brush or around large rocks.



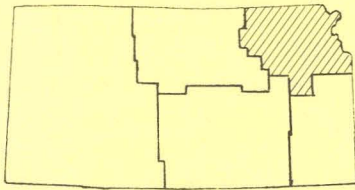
ELK CITY RESERVOIR — Expanding fish populations and improving water quality could make 1979 one of the best fishing years in Elk City's history. Crappie populations are abundant and the best areas to work are wooded coves and State Park coves in the upper end of the lake. White bass populations have improved dramatically. Spring and fall runs up the river are the best times to fish, followed closely by fishing surfacing schools of shad in late summer. Large numbers of big flatheads also are available. Look for them in wooded coves, old stream channels, or off the face of the dam. Black bass fishing also is improv-

ing and larger bass are being taken as water clarity improves.

(continued)

LA CYGNE RESERVOIR — Spring prospects are excellent for channel catfish up to twenty pounds. Best areas to find catfish are in the warm water discharge and along the discharge dikes in four to ten feet of water. Crappie fishing also should be excellent below the warm water discharge or near underwater structures such as old roads, bridges, and channel dropoffs.

JOHN REDMOND RESERVOIR — Fishing at John Redmond begins shortly after ice out in February or March with channel cat fishing off points and flats. By late March, crappie concentrate on the dam to spawn. As crappie taper off, white bass pick up in the river around Jacob's Creek Landing. White bass stage in this area before moving into riffles around Hartford to spawn. Channel cat fishing is usually best during their spawning season when the catfish move along the dam to nest in holes between rocks in two to four feet of water. Flatheads up to sixty pounds are taken during June by trotlines in the river and lake using carp and goldfish for bait. Many big flatheads also are taken in the stilling basin.



CLINTON RESERVOIR — Fishing at Clinton in 1979 will be limited by lack of access and the relatively small size of fish. Limited camping facilities will be available for fishermen at the west end of the state park and below the dam. Boat ramps probably will be unuseable until late fall, since the reservoir is still filling. The reservoir was first stocked last year, so most fish are less than keeper size.

MELVERN RESERVOIR — Largemouth bass fishing should be very good at Melvern. Plastic worms, spinner baits, and crank baits will produce largemouth lakewide through May or June. The face of the dam is an often overlooked hotspot. Walleye fishing begins about mid-March, when the fish congregate along the face of the dam to spawn. Fishing at night or on cloudy days should be especially productive. Starting in early June, drift fishing offers the best potential for walleye. Crappie fishing should peak at Melvern in '79. Best fishing is in early May when the fish move close to shore to spawn. Look for them near dropoffs or brush. In July, the fish move to deeper water. Best areas to try then are Lowman's Cove and Turkey Creek Cove. Channel cat fishing should be fair to good and best areas for catfishing are the upper end of the reservoir and in the river.

PERRY RESERVOIR — Crappie fishing prospects are excellent. Fishing in the spring around brush and rocky ledges works best. Rock Creek, Slough Bridge at Rock Creek, Slough Creek, and Ozawkie are good sites to check first. Largemouth bass fishing should be only fair, although bass caught will be large. Try spinner baits, plastic worms, and crank baits around underwater timber, brushpiles, and rock ledges. Channel cat fishing will be excellent. Popular catfishing spots are from Paradise Point north in the Delaware River, and in Rock and Slough Creeks.

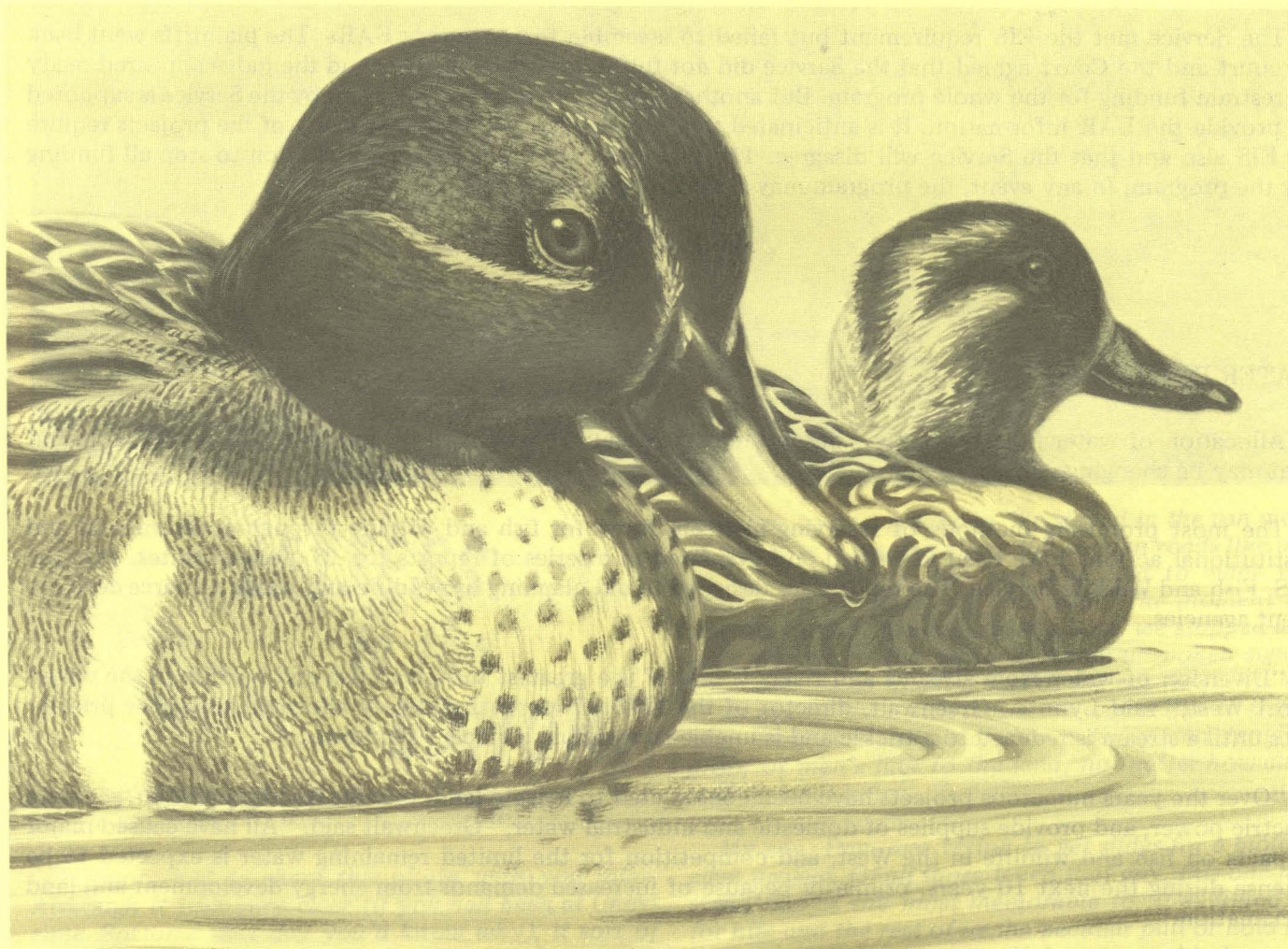
POMONA RESERVOIR — Crappie fishing prospects are especially bright at Pomona. Two of the best spots traditionally are the Cedar Park area of the 110-mile creek arm and the upper end of Wolf Creek arm. During the May and June spawning period, fish are close to shore in two to four feet of water. Later in the summer, fishing in ten to fifteen feet of water near brush or dropoffs works best. Pomona also is noted for good flathead and channel cat fishing. Channel cat are caught lakewide and trotliners do well on both species in the upper end of Dragoon Creek arm, especially if the lake is rising. Although Pomona's walleye population is average, the average size is outstanding. Many are in the eight to ten-pound range but will be difficult to catch because of their relatively low populations. Drum fishing should be excellent lakewide, particularly at the stilling basin on worms or crayfish.

TUTTLE CREEK RESERVOIR — White bass fishing at Tuttle should be excellent in the spring. Best methods are trolling, drifting, or casting jigs, spoons, small spinners, or shad-type lures along the dam, rocky points, and in flowing streams. Crappie fishing should be excellent, especially in April and June on jigs around standing timber and brushpiles. Channel cat fishing should be good on set lines or pole and line lakewide.

WILD ABOUT FLOWERS

The Kansas Wildflower Society was born in an organizational meeting last fall. Representatives from throughout the state plan to work to develop an awareness among Kansas residents of the beauty and value of Kansas wildflowers. If you're interested in learning more about the goals and purposes of the organization, or becoming a member, write: The Kansas Wildflower Society, Mulvane Art Center, 17th and Jewell, Washburn University, Topeka, Kansas 66621.

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WINNING DUCK STAMP DESIGN

Kenneth L. Michaelsen's painting of a pair of green-winged teal on the water is the winning entry in the 1979-80 Duck Stamp competition. The design by the California artist will be reproduced on the duck stamp purchased by waterfowl hunters, conservationists, and philatelists. The stamps will go on sale after July 1.

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HARASSMENT OF P-R PROGRAM CONTINUES

The Federal Aid in Wildlife Restoration Program, probably the most successful wildlife conservation effort in history, is getting more harassment from protectionist groups, the Wildlife Management Institute reports.

The Committee for Humane Legislation and Friends of Animals filed suit against the program in the spring of 1978. The case was dismissed when a consent agreement was worked out between the plaintiffs and the Fish and Wildlife Service, which administers the program. The Service agreed to complete a programmatic environmental impact statement (EIS) on the program by December 1, 1978. It also agreed to assemble environmental assessment reports (EAR) on all P-R projects.

The Service met the EIS requirement but failed to assemble the necessary EARs. The plaintiffs went back to court and the Court agreed that the Service did not fulfill its part of the deal and the judge appeared ready to restrain funding for the whole program. But another agreement was reached whereby the Service is supposed to provide the EAR information. It is anticipated that the plaintiff will urge that many of the projects require an EIS also and that the Service will disagree. The plaintiff would then seek an injunction to stop all funding for the program. In any event, the program may have a rough road ahead.

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WATER IN THE WEST

Allocation of water in western states has in the past given little weight to the needs of fish and wildlife. But that may be changing.

The most promising methods of reserving instream flows for fish and wildlife through governmental and institutional actions have been identified and evaluated in a series of reports for 13 western states, says the U.S. Fish and Wildlife Service. The reports are designed to aid planning by wildlife and water resource development agencies.

"Diversion of water from streams and rivers is one of the greatest threats to fish and wildlife in the water-short West," said Lynn A. Greenwalt, director of the FWS. Water is frequently allocated to higher priority uses until a stream is reduced to a trickle and is unable to maintain a viable fish habitat.

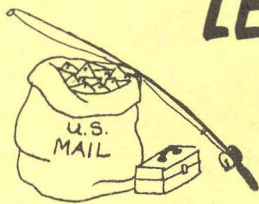
"Over the years numerous projects have been constructed to irrigate land, provide flood protection, generate electric power, and provide supplies of domestic and industrial water," Greenwalt said. "All have caused major impacts on fish and wildlife in the West, and competition for the limited remaining water is expected to be intense during the next 10 years, primarily because of increased demands from energy development and land reclamation."

Separate reports were produced for each of the 13 states because of the variety of laws regarding instream flows, as well as the differing state traditions concerning water rights and their past experiences in reserving instream flows for fish and wildlife. Each report provides a guide for selecting the most appropriate strategy for reserving instream flows and procedures for implementing the strategy. The 13 states include California, Oregon, Washington, Idaho, Nevada, Arizona, New Mexico, Utah, Colorado, Wyoming, Montana, North Dakota, and South Dakota.

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LETTERS to the EDITOR



DEAR EDITOR:

I simply had to share this photo with you folks. Although it isn't very clear (if you had been at Cheyenne Bottoms that day you'd know why), it sort of epitomizes the love and companionship between a man and his faithful dog. You ran an article a while back on the hunting dog which was delightful, and I couldn't help but think of it when we fortunately came upon this scene at the Bottoms during goose hunting season.

We (some friends, my son, and I) were there birding, looking specifically for Canadians, and the elusive whoopers (which were spotted by some other visitors that same day). It was a bleak, chill day, the kind that hunters and birders tolerate only when the reward

promises to be a great one. We stayed in the van most of the time, creeping along the sodden roads like disgruntled predators, too wet and cold to make too much of a pretense of a true hunt. The moment we saw the hunter, his dog and the boat, we stopped and were riveted to the scene by some unspoken signal. They seemed so much a part of the environment, not at all out of tune with it as some would like to think. The image was unmistakably a living and tangible proof of man's link to the land, no matter how alien it must be at times.

My son, Dan, was trying to get slides for a biology class project. Of all those taken that day, this one will stand out as the most memorable for it summed up for him and the rest of us the peculiar pull or hold the Bottoms, or just nature itself, has on mankind.

We wanted to share it with you. We would have tried to get closer to the man and his dog, but we would have felt like intruders on a very personal experience. The experience of sharing this with them, from a distance, was enough.

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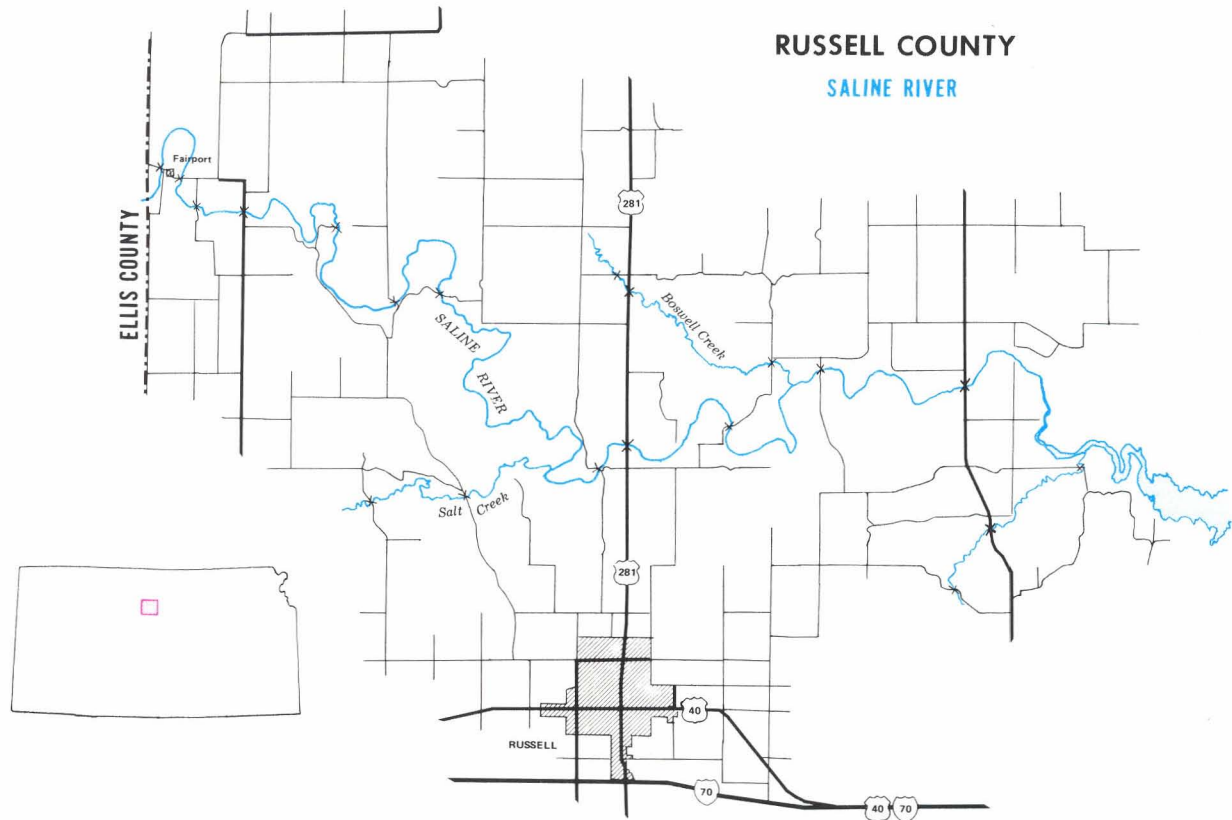
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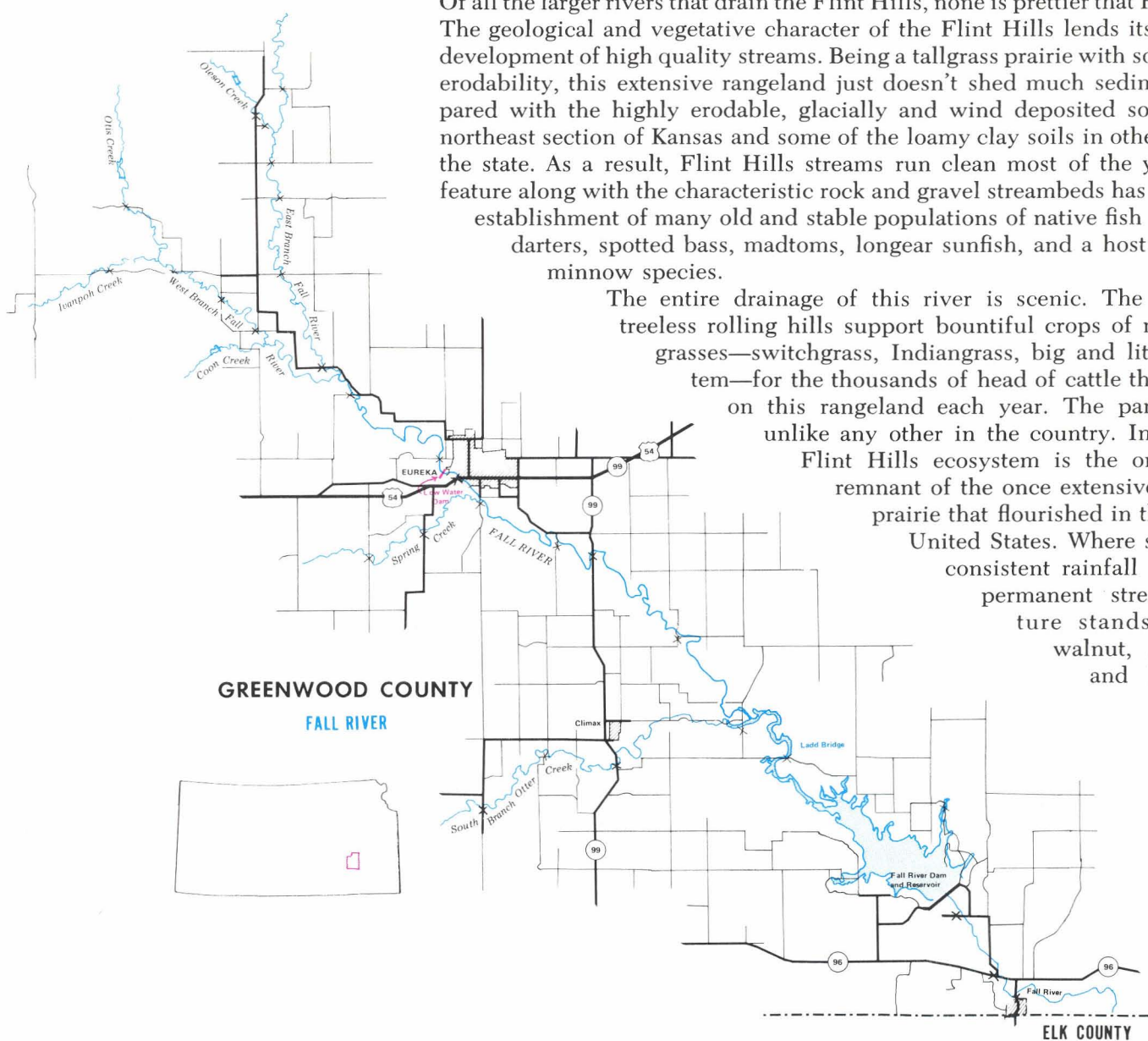


Several males emit sperm that fertilize the eggs as they sink and become attached to submerged logs, gravel, and vegetation. The whites are most susceptible to the angler's lure during this spawning run up until the time the fish return to deeper water in the reservoir. They feed voraciously before the run when they are staging in backwater areas and during the actual spawning activities in the faster river water. During the peak of the fishing action which sometimes lasts for a couple of weeks, they'll strike almost anything, but the most preferred lure is a small $\frac{1}{16}$ to $\frac{1}{8}$ ounce white or yellow jig on four- to six-pound nylon line. The best way to catch the whites is by walking the bank and casting into pools or the lower end of riffles. The fish are often in water from one to three feet deep. Finding a concentration of fish is the key. When one white hits in a pool or narrow chute, several more may be caught in the same spot. Some people wade the stream and do well working a jig vertically in pools around logs and against the bank. Bruce Zamrzla, the Fish and Game biologist for the area, estimates that white bass fishermen put in 2,000 to 4,000 mandays during the spring run. According to Bruce, fishermen carry out stringers of fifty to sixty when it's really hot. The fish range from $\frac{1}{2}$ to $1\frac{1}{2}$ pounds with the average size varying from year to year. The best area to fish is that portion of the stream from the bridge straight north of Bunker Hill east to the reservoir. Access is available from the north side of the river west of the bridge on the Fish and Game Commission's Wildlife Area.

Oil field pollution and pipeline breaks have caused some problems on the Saline in the past. However, the river is not threatened by any impending major changes. More extensive consumption of water upstream may jeopardize the fishing in the future, but since the water is highly saturated with dissolved salts, it is unlikely that significant diversion for irrigation or drinking water will occur. The excellent white bass fishing will undoubtedly be enjoyed by thousands of fishermen for many years to come.

Of all the larger rivers that drain the Flint Hills, none is prettier than Fall River. The geological and vegetative character of the Flint Hills lends itself to the development of high quality streams. Being a tallgrass prairie with soils of low erodability, this extensive rangeland just doesn't shed much sediment compared with the highly erodable, glacially and wind deposited soils of the northeast section of Kansas and some of the loamy clay soils in other parts of the state. As a result, Flint Hills streams run clean most of the year. This feature along with the characteristic rock and gravel streambeds has led to the establishment of many old and stable populations of native fish including darters, spotted bass, madtoms, longear sunfish, and a host of shiner minnow species.

The entire drainage of this river is scenic. The beautiful treeless rolling hills support bountiful crops of native tall grasses—switchgrass, Indiangrass, big and little bluestem—for the thousands of head of cattle that are fed on this rangeland each year. The panorama is unlike any other in the country. In fact, the Flint Hills ecosystem is the only major remnant of the once extensive tallgrass prairie that flourished in the central United States. Where springs or consistent rainfall guarantee permanent streams, mature stands of oak, walnut, sycamore, and hackberry



Fall River

Bass water

have established themselves in healthy contrast to the rolling prairie. In the larger valleys like the Fall River valley, row crops are grown next to the lush riparian ecotone. The combination of grain crops, river, and associated forested banks is ideal cover for large populations of whitetail deer, raccoon, songbirds, and other wildlife.

The fish populations are very diverse in this reach of the river. In 1976, Fish and Game biologists conducted a fish population assessment on Fall River at several locations. Twenty-one different species were recorded. For this one-shot sampling, it wasn't a bad showing, but what was impressive is that spotted bass made up from twelve to nineteen percent by body weight of the fish collected during this assessment. This high percentage of bass indicates a healthy abundance of these top predators in the river with many harvestable-sized fish waiting to be caught. A low water dam at Eureka just above highway 54 aerates the river during normal flow and attracts periodic concentrations of crappie, white bass, channel catfish and flatheads. The gar fishing is popular here during the spring spawning season. Fishermen get to this dam from the west side of the river. In spring and early summer a few float fishermen coax spotted bass out of cover and the deeper pools with spinners and artificial

worms. From Eureka, it is a short but splendid trip to the upper boundaries of the Commission's Wildlife Area at Fall River Reservoir. Starting about 150 yards east of highway 99 the river flows through several miles of the wildlife area and provides free and easy access to excellent fishing and some exciting canoeing during higher flows. Limb lining for channels and flatheads is very popular. Large cats up to twenty pounds are quite common in the angler's creel. A boat ramp at Ladd Bridge, an old iron bridge spanning the river in the Wildlife Area, provides access for boat fishermen or hunters who want to get on the water. Fishing is good in the winter months also, according to Tom Giffin, fisheries biologist at Eureka: "Many channel cats, crappie, and some white bass are caught during the colder parts of the year above Ladd Bridge when the river is lower. Most anglers wade the riffles fishing with shad sides, minnows, and jigs."

White bass run up the river to spawn in early April and are caught from the reservoir up to the mouth of Otter Creek before the fishing slows at the "narrows" where Otter Creek and Fall River almost converge.

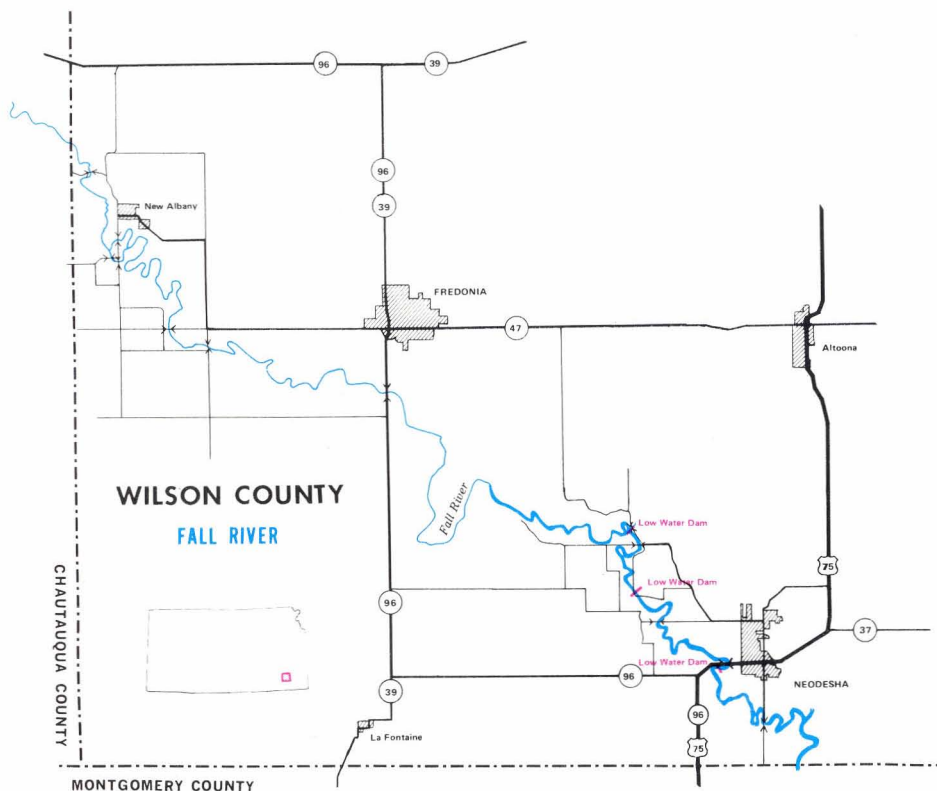
Below the reservoir, the river angles southeast through the Chautauqua Hills and parts of the Osage Cuestas before joining the Verdigris River at Neodesha in Wilson County. The spillway area directly below the dam supports considerable angling year after year. Fish are flushed through the outlet works and also concentrate in the pool area of the stilling basin after swimming upstream. Channel catfish and white crappie are the most common fish taken in the basin. Flathead catfish, white bass, and carp are also taken regularly. Almost forty miles of stream separate the stilling basin from the junction with the Verdigris River at Neodesha. About a fifth of the angling that occurs on the river takes place in this reach. Near Neodesha, three overflow dams provide good fishing just before the river enters the Verdigris. Large flatheads, channel cats, and even an occasional walleye are taken below these structures.

Fish kills have occurred at the mouth of Fall River in past years. In 1976, two kills occurred in this area that were attributable to some untreated effluents entering the stream. Oil field operations throughout the basin present potential pollution sources. As a whole, though, Fall River remains relatively pollution free, and diverse healthy populations of sportfish attest to its purity.



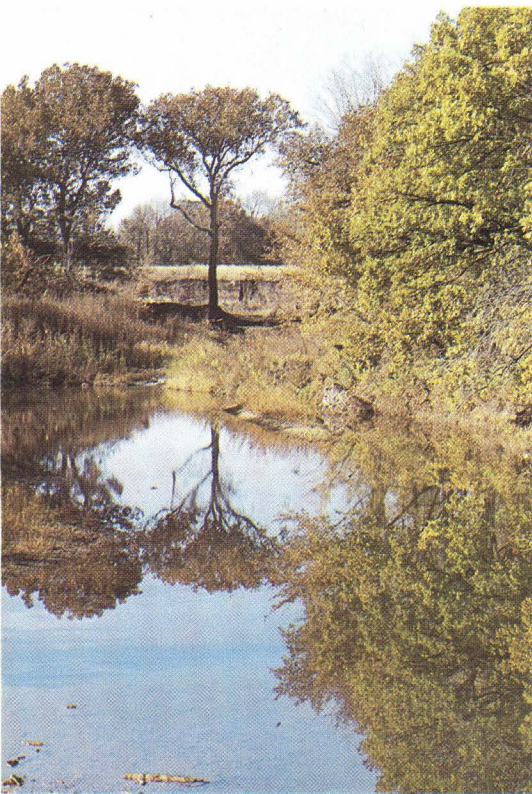
Ken Stiebben

Most of the 10,000 miles of stream left in the state support at least a fringe of bottom timber along each bank. This bottomland cover makes perfect wildlife habitat—water, timber, and upland crops are in close association and provide a variety of food and cover for everything from deer to chickadees. From the air, most of this riparian habitat looks like a skimpy fringe of trees along the river, but, to the river traveler, it screens out the marks of civilization and creates an illusion of wildness.

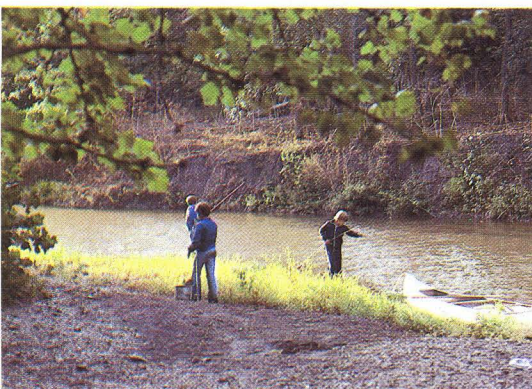


Mill Creek

Heart of the Flint Hills



Norm Swartz



Another Flint Hills stream, Mill Creek exhibits many of the same physical attributes as Fall River in its upper reaches—clear water bottom, associated tallgrass prairie, and high quality lowland cover with a diverse wildlife fauna. It unquestionably qualifies as one of the best streams in the state, not only because of its setting also because of its fish and wildlife resources. Regardless of the fact that the majority of its length is leased or restricted to access, this free flowing, unobstructed stream deserves recognition. The main branch of Mill Creek is formed by the union of its east and west branches at Alma in Wabaunsee County. The west branch heads near Alta Vista in the southwest part of the county and the east branch begins near Eskridge to the east. Below the confluence of these branches, the stream averages about eighty-five feet wide but widens to 125 feet near its mouth at the Kansas River near Maple Hill. The main stem traverses nearly forty miles before reaching the Kaw. The creek bed is deeply cut—banks may be twenty feet high near its origin at the junction of the two branches and nearly forty feet at the lower end. In some areas, the winding stream has cut down to bedrock and formed small natural waterfalls which add to its beauty. Numerous riffles, pools up to twenty feet deep, and boulders in the channel give it the appearance of a mountain stream. A few miles of Mill Creek parallel and cross under Interstate 70 near Paxico where a traveler can take a look at some of the virtues of the creek. In fall when the oaks and hickories turn color, a spectrum of reds, oranges, and yellows spreads along the stream's corridor as if to signal a defiance to the onslaught of winter. The winter scenes with sparkling ice patches and snow cushioned rocks and a thread of cold water are just as spectacular. This brilliant display is virtually unparalleled in the Flint Hills.

Since Mill Creek is a tributary of the Kansas River, the stream's fish fauna shows a distinctly different evolution than south flowing streams like Fall River. The spotted bass of the south are replaced by largemouth bass while certain new darter species replace counterparts that occur to the south. The southern red-bellied dace, a colorful minnow with red undersides, is quite common in Mill Creek but is found in only a few isolated localities elsewhere in the state. In addition, the state-recognized threatened species, the Topeka Shiner (*Notropis topeki*), is abundant. A stream survey indicates good populations of largemouth bass, although relatively few people fish for them. The same survey shows that large populations of catfish flourish in the creek. Doug Sonntag, state game protector from Wamego, sees many catfish taken on limb lines and rod and reel throughout the year, particularly in the lower reaches. "I've seen a lot of channels of the two- to eight-pound class caught and some large flatheads up to thirty pounds near the mouth." Doug goes on to explain illegal fishing activities that he suspects in the stream. "I'm sure that a lot of 'telephoning' for the bigger cats takes place on Mill Creek, but the violators are hard to catch in the act and people are reluctant to turn them in when they are aware of this activity." As do other residents of the area, Doug appreciates the quality of this stream, saying "there's not another resource like this in this area of Kansas. Besides the excellent channel catfishing, there is a great deal of other wildlife such as deer, bobcats, coyotes, and squirrels. It's a largely untapped natural wildlife resource."

Some access is available near the towns of Paxico, Maple Hill, and McFarland. For the rest of the creek, access is difficult, but some landowners may give permission to those taking the time and effort to ask.

With the exception of some city sewage treatment ponds, a few livestock feedlots, and minor agricultural runoff, there is little potential for pollution of Mill Creek.

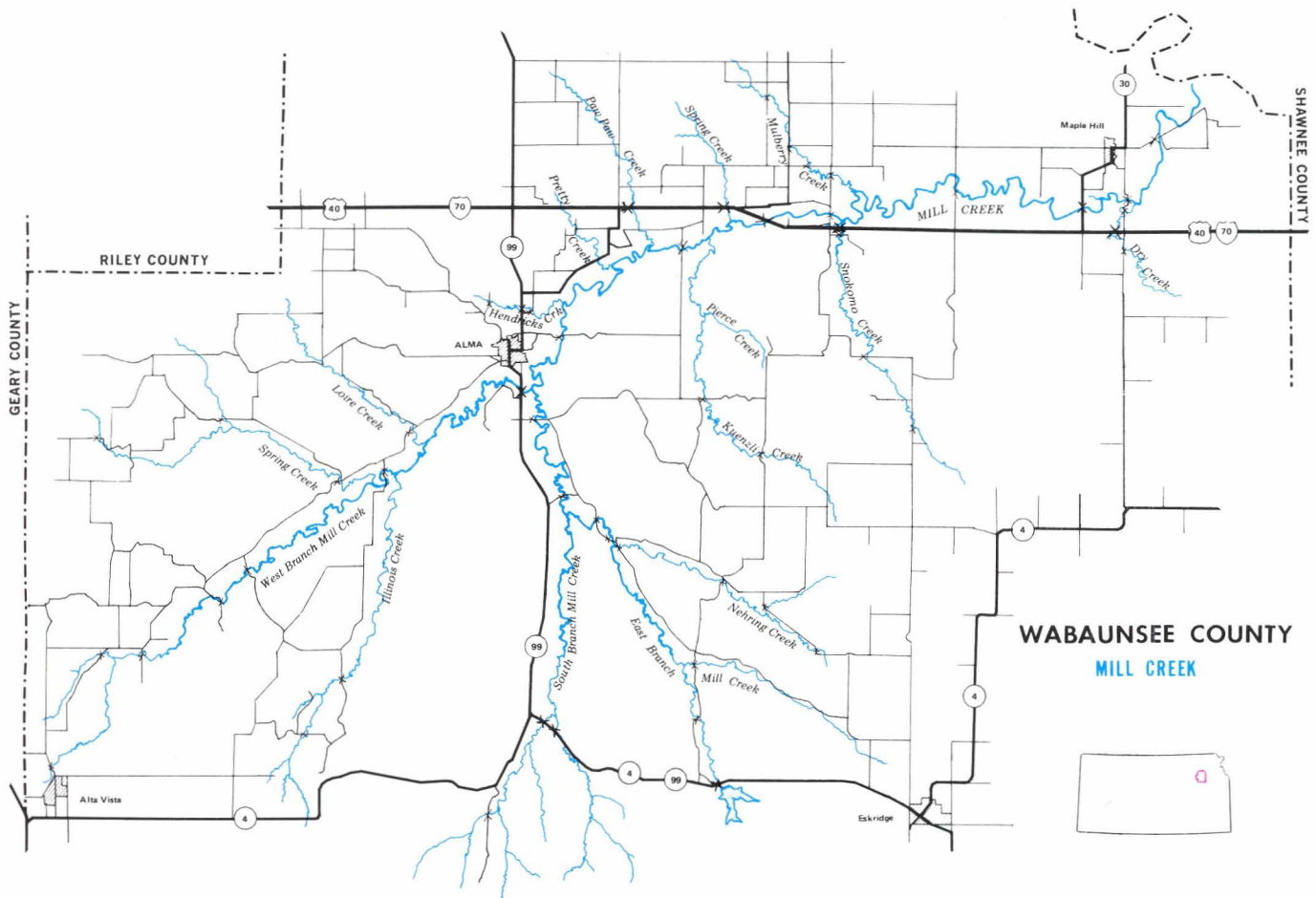
Currently, the Mill Creek Watershed District is pressing for flood control



Norm Swartz



The red bellied dace, one of the more colorful residents of Mill Creek's riffles.



structures and other land treatment measures in the watershed area that could affect the total resource. It is difficult to determine what benefits or liabilities these relatively large tributary impoundments may hold for the fish and wildlife resources at this time. Providing the proposed treatment alternatives do not adversely affect fish and wildlife along Mill Creek, there is little chance that any other major problems will develop to threaten this remarkable resource.

Chikaskia River

Sand country

“One of the best five streams in Kansas” was the assessment of the Chikaskia given in 1975 by Fish and Game staff members involved in intensive preliminary planning of the proposed Corbin Reservoir on that river. The wildlife agencies involved in analyzing the proposed Sumner County reservoir agreed that replacing the wildlife habitat along the Chikaskia would be extremely expensive and perhaps impossible. They had good cause for their reaction to the proposed dam. Of all the shifting sand bottom streams of the high plains of Kansas, this one represents the best in fish and wildlife resources, water quality, and aesthetic appeal. Although its headwaters in southeastern Pratt County aren’t much to brag about, it develops into a prime stream as it enters the Wellington Lowlands of Harper and Sumner Counties after traversing the lower portion of Kingman County.

No other major high plains river environment equals the quality of the Chikaskia. The Saline River in the Smoky Hills described earlier is similar and parts of the Smoky Hill River come close, but both rivers lose out to the Chikaskia when the total fish and wildlife resource is considered.

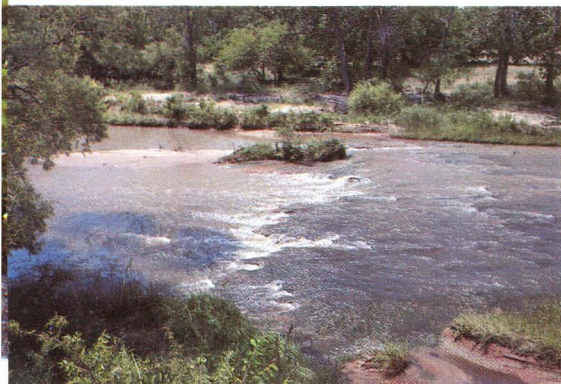
Covering 100 miles as it travels southeastward through parts of four counties in Kansas, this fairly shallow river epitomizes what many of our western Kansas rivers were like a hundred years ago. Many carried silt-free water over sand beds and were inhabited by a variety of fish life. Tillage of the prairie sod, consumption of water for irrigation and water supplies for municipalities, and various forms of pollution have changed all this for most of these rivers, but the Chikaskia has avoided the more critical threats to its integrity. It passes by Argonia in western Sumner County, with a channel width of about seventy-five feet, extensively forested banks, and numerous large sandbars. The excellent riverside habitat dominated by cottonwood stands out in contrast to the associated rangeland and fields of corn, wheat, and milo that surround it. Rio Grande turkey, bobwhite quail, and whitetail deer thrive in this woodland along with many songbirds, rabbits, and squirrels. Beaver are quite common.

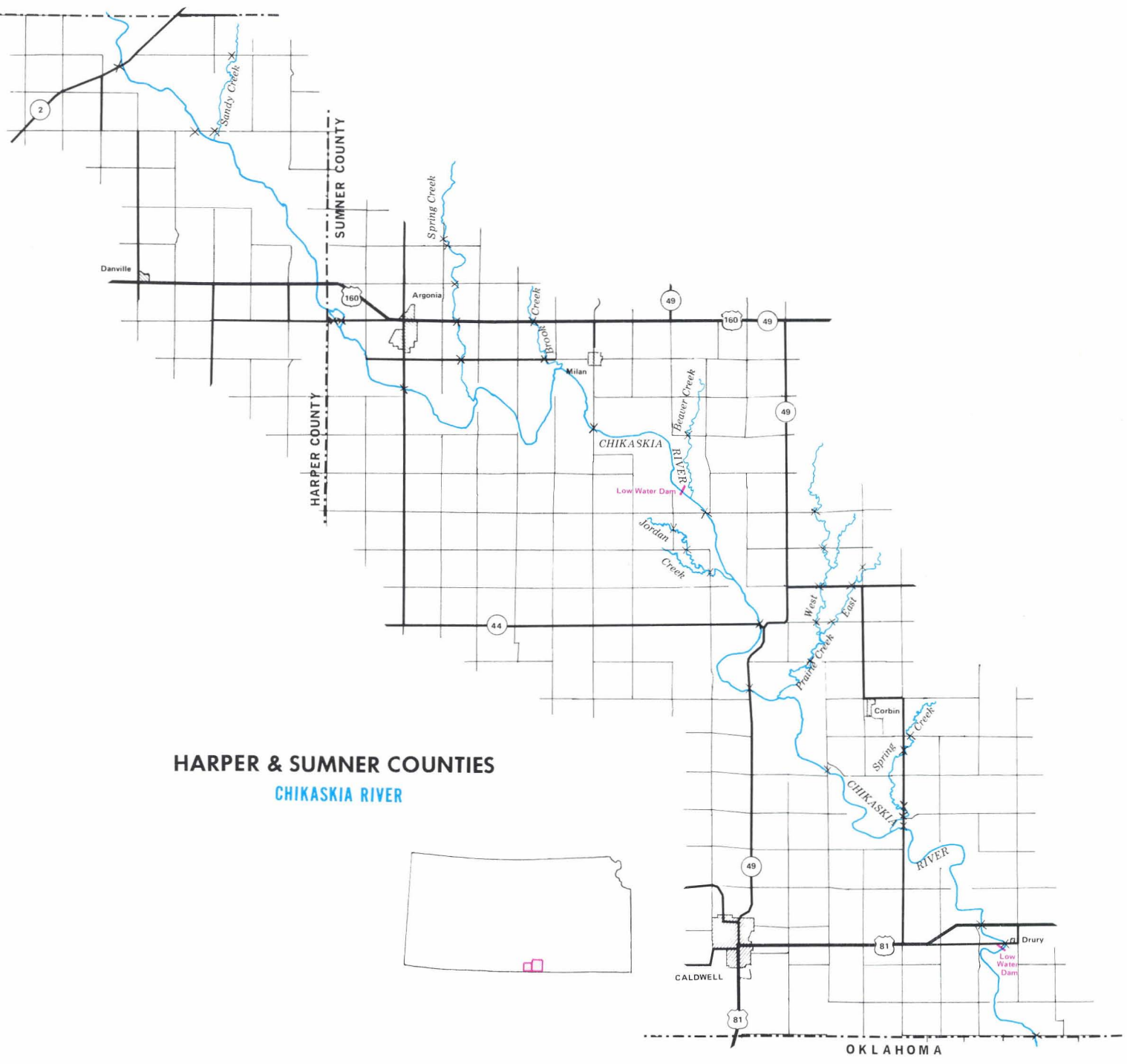
Like most other streams, the Chikaskia becomes more turbid during periods of high water but quickly reverts to its normal clarity when the water recedes. Crayfish, frogs, and aquatic insects such as dragonfly larvae, mayfly nymphs, and caddisflies provide ample forage for the excellent fish populations. The Chikaskia is a very productive fishing stream. A survey at several sites in 1976 showed that this river produces over 300 pounds of fish per surface acre of water in some areas—quite a fishery when compared to the forty to fifty pounds per acre found in many of our streams. A large portion of this poundage is in the form of “ole Whiskers.” Jim Zeiner fishes for these catfish in the Chikaskia and says that for just plain catching a lot of fish, the Chikaskia can’t be beat. As Jim says, “It’s good for smaller channels in the one-half to one pound category and it’s good any time of day.” Jim likes to use his own special cheese-bait or a special minnow imitation lure he calls the “Swimtail.”

“You can wade the riffles and fish just above them or right below and usually do pretty good, and also any hole or pool under some brush will give you some action. Jigs are also productive for these catfish below the riffles.”

Jim is not the only river nut who knows what the Chikaskia has to offer. It was estimated by the Commission’s stream survey project that almost 2,000 fishermen wet a line along this river every year. A lot of this fishing goes on at two low water dams. One of these is about halfway between Corbin and Argonia and the other is at Drury on the lower portion of the river. Many of the rivers in Kansas had low water dams built to supply water power for milling operations. The Drury mill has long since been abandoned but the dam persists and provides good fishing immediately downstream. It’s just a short hop from there to the Oklahoma border and

Larry Tiemann





HARPER & SUMNER COUNTIES
CHIKASKIA RIVER

Ken Stiebben

then on down several miles to Blackwell, Oklahoma. Soon after, the Chikaskia River joins the Salt Fork of the Arkansas.

Some oil fields in the basin present potential pollution trouble, and in 1976 there was widespread misuse of crop sprays that produced fish kills—some in tributaries to the Chikaskia. But the main threat to the river is not pollution. The Bureau of Reclamation and the City of Wichita would like to dam the river at Corbin to create a large water supply and flood protection reservoir. It is still in the planning stages at this writing with no determination yet as to the selection of alternatives for a future water supply for Wichita. Attempts are being made to require a corridor of wildlife habitat on each side of the river above and below the proposed reservoir as partial mitigation for the damages that the reservoir would inflict on the river and its natural resources. Also, plans call for guaranteed downstream flows to maintain fish and wildlife populations. The best alternative for the Chikaskia River itself would be to permit absolutely no tampering with its integrity.





Extremes of Kansas stream use. Elm Creek drains rangeland in Barber County's Red Hills and is a topnotch stream because its watershed is well managed. Not all streams are as well served by the land use that surrounds them. The Neosho River fish kill shown here killed 225,000 fish—more than 4,000 tons—along a two-mile stretch.



Ken Stebben

Many times, dams on free flowing rivers improve fishing by allowing the introduction of non-native sport fish. The white bass run up the Saline River above Wilson Reservoir is an excellent example of this sort of benefit. On the other hand, dams completely disrupt riverine environments by forming lakes ripe for the proliferation of "trash species" such as carp, by adversely altering streamflows for miles below the structures, and by destroying acres and acres of prime riparian wildlife habitat. Potential disaster awaits the highly regarded Chikaskia River because of these potential effects.

Near drought conditions in recent years in parts of the state have accentuated another threat to Kansas streams—dewatering. A case in point is the Arkansas River west of Dodge City where the combined effects of water use from the river and its valley alluvium, removal of timber, and token flows from a more or less indifferent Colorado have all but written the obituary for this major western river. Other streams have or probably will succumb to dewatering—the upper Smoky Hill River, Rattlesnake Creek (Stafford Co.), and the Solomon River in places, to name a few.

Today there is increasing interest in reserving stream flows. Environmentalists, ecologists, fishermen, hunters, and farmers are all showing more concern for what's happening in western Kansas. Recently the Governor's Task Force on Water made two recommendations that may offer future relief of streams suffering from overuse. First, the state can now enter into formal agreements with federal agencies for minimum streamflows on regulated streams below federal dams. If executed, planning and agreements would permit adequate flows below these structures in order to maintain downstream resources. Second, it was recommended that the state recognize the significance of instream flows and direct the Kansas Water Resources Board to implement provisions of the State Water Plan Act

to set minimum streamflows on unregulated streams. This last recommendation holds the key to survival of rivers suffering from the same symptoms that have killed the upper Arkansas. Strong interest and across-the-board support from sportsmen and environmental groups will be needed to insure action on this issue which is in full alignment with the national water policy to protect minimum streamflows. Only a concerted effort by concerned citizens will guarantee that something is done to prevent further loss or mismanagement of many of our state's most valuable natural resources.

Pollution has also taken its toll of fish from our streams. Although stream poisoning isn't nearly as widespread now as it was ten or twenty years ago, Kansas still experiences from twenty to thirty stream kills annually, and these are only the ones on record as being investigated by Fish and Game personnel. Some are small kills involving less than 500 fish that include lowly regarded carp and suckers, but others may extend for miles and account for hundreds of thousands of fish, including channel catfish, bass, walleye, shad, minnows and carp. Such was the case in July of 1976 on the lower Republican River from southern Nebraska past Concordia. Commission personnel along with support help from the Department of Health and Environment investigated the kill and took samples. No cause was positively determined. Although many smaller kills are quasi-natural due to low water conditions and prolonged ice cover, all too many others are caused by municipal and industrial effluents, feedlot runoff, or pesticide contamination. Efforts by the Department of Health and Environment in compliance with federal mandates have reduced the incidence and severity of fish kills, but much more needs to be done not only by the Department but by other water agencies and concerned citizens.



Two setline anglers look at the fine points of setlining—

The Setline:

The Fine Art of the Trotline

Leonard Jirak

Many times, set lines have made the difference between an unsuccessful fishing trip and an ice chest full of fillets. Set lines include trotlines, throw lines, limb lines and bank lines, and are designed to take fish while the angler isn't around. These lines can be used to catch all types of fish, but the primary targets in Kansas are channel catfish and flatheads.

All set lines have several things in common. They are tied to an anchoring device with baited hooks attached to the lines. Set lines differ in the way they are anchored and the number of hooks. The anchoring device may be a tree limb, a cut willow pole, logs, or any heavy weight such as a rock or chunk of scrap iron.

Kansas law restricts trotlines and throw lines to not more than twenty-five hooks. In lieu of this, a fisherman may set eight bank lines or limb lines with no more than two hooks each.

There are as many variations of set lines as there are fishermen. These lines may be elaborate sets of nylon cord, stainless steel hooks, brass swivels and expensive commercially raised bait, or a short piece of cotton cord tied to a tree limb and a hook baited with a grasshopper or chicken guts. Almost any modification of a set line will take fish, although the species and sizes of fish taken with each kind of tackle will vary.

To consistently catch fish on lines, the angler must know when, where and how to use them. For instance, he knows that flatheads are seldom caught on anything but live bait and that he must use heavy gear to take the braggin' size cats. Since the majority of set line fishermen in Kansas are after catfish, the following discussion will be centered around catfish, primarily channel cats and flatheads.

The Setline:

There are twelve kinds of catfish in Kansas. Of these, only five are considered important game or food fish—the two bullheads, channel catfish, blue catfish, and flathead. Because of their smaller size, bullheads are not usually pursued by set line fishermen.

Blue cats are the largest catfish in Kansas. Although the modern Kansas record is about forty-five pounds, early settlers caught blues in excess of 150 pounds on the lower Kansas River. The blue cat is native to the larger streams in northeast Kansas but is being stocked in public fishing waters in some of the larger impoundments across the state. Because of its limited range in Kansas, the blue cat is not a common fish in the creel. Many times male channel catfish in breeding condition are mistaken for blue catfish. The blue is an opportunist, taking dead or live food when it is available. Like most other catfish, blues become more predatory as they grow.

The channel catfish is the most popular of the Kansas catfish. Its popularity is due in part to its availability. The channel catfish is found statewide and in almost all types of water. Most channel catfish taken on lines range from one to ten pounds; twenty pounders are considered trophies. Small channels are distinguished by the black spots and forked tails, but as they grow, they may lose their spots or have only a few inconspicuous ones. Channel catfish probably have the most diverse diet of any fish. Foods vary from vegetable matter to live fish. This helps explain the success of this species. The channel cat can withstand low oxygen levels, extreme temperatures, long periods without food, and frustrated fishermen.

The flathead is one of the few trophy fish native to Kansas. This species also has a large range in Kansas although it prefers the larger waters in the state. The flathead has many different names; besides flathead, it is called yellow cat, shovel head, river cat and mud cat.

Flatheads over forty pounds are trophies, even though quite a few that size and larger are caught each year. For Kansans who want to catch a really big fish, the flathead is probably their best chance.

This catfish is unique in that it is a strict carnivore and seldom eats anything but live food. The business end of the flathead is impressive; its massive head and huge mouth allow it to inhale sizeable fish whole.

Because catfish are most active in warm water between sixty-five and eighty-five degrees, they are most vulnerable to set line fishermen between May and October. June and October are prime months for running set lines because optimum water temperatures and increased stream flows stimulate catfish feeding activity. Pre-spawning activity in June also stimulates catfish feeding. In October, they start working on a good fat layer to get them through winter, especially in the bigger reservoirs where large numbers of shad are

available for the fish to gorge themselves on.

Catfish all have “whiskers” which are used for touch, and more importantly, taste. Each whisker has several hundreds of taste buds attached to it. There are also taste buds scattered over the body and fins. As a result, catfish can locate food without being able to see it. When muddy water disturbs the feeding of other game fish, catfish are usually not affected. It is important to remember their highly developed ability to detect food in the water when selecting baits.

Since catfish are more active at night, set line fishermen usually bait their lines during the day and then check them at night, or as early as possible the next morning. When fish are moving well, many fishermen run their lines several times during the night so that they can rebait bare hooks and take fish off before they pull loose. Some fishermen only run their lines in the morning because they feel the big cats can be spooked and won't feed if they check their lines at night.

Baits will vary according to localities. Although channel catfish and blue catfish will take almost anything, preferred baits vary with the type of water fished and the kinds of bait most available. For the smaller channel cats, prepared and dead bait work well. Minnows that are left out to dry in the sun for several hours make good bait. Their oily smell attracts catfish, especially in the smaller, faster flowing streams.

Since the larger catfish become more predatory, live baits work quite well on them. Fishermen after the bigger cats prefer live bait that is too large for the smaller fish to bother. That way, the bait will be there when the bigger fish come by.

Good live baits vary with local conditions. Salamanders, goldfish, carp, sunfish, frogs, crayfish, and even grasshoppers, are some of the most popular live baits. The bait should be hooked so it will stay alive. With bait fish, that means that the hook should run through the fleshy area just behind the dorsal fin so that the fish keeps swimming. It is common for fish hooked this way to live for several days.

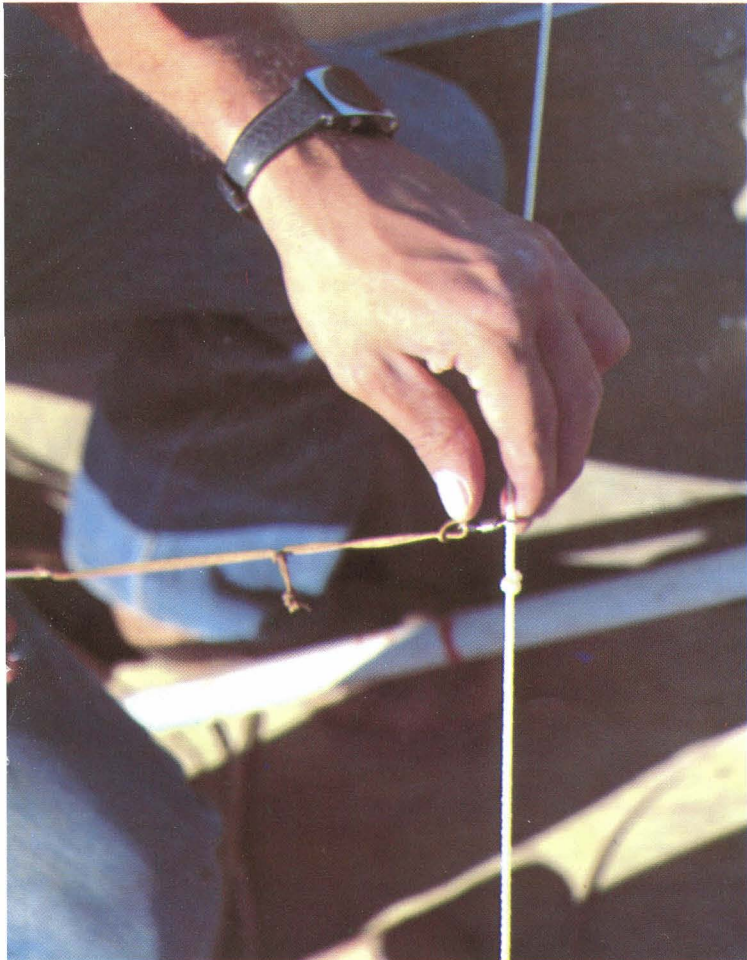
There are many ways to obtain bait. Sunfish can be caught in ponds and streams by using a small hook and a small piece of worm for bait. Usually this works better than seining since the sunfish are usually around brush and rocks where a seine doesn't work well. Goldfish and carp can be raised in small, shallow ponds. The pond should be clean of other fish before the carp are introduced. Since fish are difficult to sex, stock a dozen good-sized individuals to make sure they spawn. They will need some vegetation for spawning cover. If none is available, some loose hay will do. The catfish feed available at most elevators and feed stores works fine as food for baitfish. The carp can be seined

or trapped as needed until they get too big for bait, then the pond should be killed out and restocked.

Crawdads make great line bait and can be seined from most small streams. To get them in larger numbers, try seining a ditch or pothole that goes dry every year or two. To raise crayfish, find a small shallow pond and make sure that there are no fish in it. Stock a few crawdads, and they will take care of the rest. They can also be fed to increase growth and numbers. Crawdads will eat anything from alfalfa bales to table scraps. Hooking the crawdads through the tail is a good way to keep them alive and active on the line.

When fished on the surface, leopard frogs make excellent bait in rivers and streams. They can be caught by hand around most streams and ponds at night. Many fishermen like toads for bait, too. Frogs must be allowed to float on the surface to stay alive. Give them a few inches of slack so they can kick around and attract catfish. A good way to hook them is to run the hook under the belly skin between the legs and then out again. Then run the hook just under the throat skin

Jim Beal



and push it so the barb and curve show under the chin. Now tie the frog around the waist to the shank, using several wraps so the binding doesn't cut the skin on the frog. This is a deadly bait when fished close to the bank and hooked properly. The catfish has a hard time knocking the bait off without getting caught.

Basic equipment for all types of set line fishing includes good line, sharp hooks, and the right bait. The specific tackle will vary according to the type of fish sought, preference of the fisherman, and local conditions.

Several types of line can be used, ranging from lighter monofilament for smaller catfish in clear streams to heavy cord for big flatheads on rivers and reservoirs. Use line heavy enough to hold the fish you are after. Line that is too heavy tends to impair action of the bait and may even spook the fish. Nylon line works well and can be used season after season; it will not rot like cotton. Monofilament works well to hide limb lines from people who might run them for you and is invisible to fish as well. Braided line works better than twisted since it is stronger for its diameter. Hooks should always be razor sharp. Sharpen all hooks, even new ones, with a fine file or stone on the outside of the point and along both sides. This will give the point a cutting edge. You can tell you have the right point when you drag it over the palm of your hand and it digs in. Those big ones don't hit very often—when they do, you don't want to miss.

Hook sizes used by set line fishermen range from the smaller 2/0 for small channel catfish to as big as 9/0 for the "hog" flatheads. The smallest hook that will hold the fish you are after will usually hook a fish better than one that is too big. Plain steel hooks work well for the casual trotliner, but stainless steel hooks are usually preferred by fishermen who work their lines for several weeks at a time. Stainless steel hooks stay sharp longer and don't rust. A trotline in continuous use for long periods should probably have two sets of hooks. You can remove one set to take home and sharpen and replace them with the extra set.

When running any kind of line, use a good, long-handled dip net. A net has kept many a fisherman from losing a poorly hooked fish and is a necessary tool in lining. Don't be in too big a hurry to land those big cats; always take your time and play them into the net. I have heard more than a few discouraged words as a

A drop on the main line of a trotline. This drop has been doubled so that it can be looped through the eye of the barrel swivel on the main line. The hook can be attached to the other end of the drop in the same way. The swivel is held in place with knots on either side. Drop lines should be far enough apart on the main line so that a fish hooked on one can't tangle itself in the drops on either side.

The Setline:

seemingly worn out flathead gave one last surge and the hook pulled loose. Like big deer tracks, big fish stories make poor meals.

In general, trotlines and throw lines are used in larger waters such as the major rivers and federal reservoirs in Kansas. Trotlines should be used where fish congregate to feed—riffles in streams, or mud flats in reservoirs.

The main line of a trotline is made from heavy line—hundred-pound test for small channel cat up to eighth-inch rope for big flatheads in open reservoirs. Smaller lines called drops are attached to this main line. The drops are one to three feet long and are made of lighter line. A hook is tied to each drop. Since the whole trotline is easier to handle if the drops can be easily attached or removed, it's a good idea to tie the ends of each drop together, forming a loop which can be pushed through the eye of a swivel on the main line or looped over the main line itself, then brought back over the hook. The hook can be attached at the other end of the line in the same manner.

A simple method for attaching drops to a trotline is to string on the desired number of barrel swivels on the main line and slide them down the line and tie a knot on each side of the swivel to keep it in place. These should be spaced at least three feet apart to keep the drops from tangling together when the line is set; the larger the spacing, the larger an area that can be fished. The drops are tied to the swivels after the line is attached. It's easiest to get the main line well anchored before adding the drop lines.

The main line itself can be anchored in a number of ways. On a stream, most fishermen prefer to tie the line to green limbs on opposite sides of the bank. If trees are not available, the line can be tied to a post or log with a piece of inner tube on one or both ends that will stretch and play the fish. If there is any other boat traffic, the line should be weighted so that it is far enough below the surface to clear boat motors. These weights also help get the bait to the desired depth. When fishing the bottom, it's wise to use a weight line longer than the drops to keep the bait out of the mud. The bait should hang at least a foot off the bottom.

Most liners know that a stream rise means more food washing in the water and a better chance of taking some good "cats". Heavy rains wash insects, worms, and other food items into the stream which stimulate catfish to stock up while food is available. At other times, when the stream is low and there is very little natural food available, the fish may become inactive and tough to catch. Rises of more than a couple of feet cause the stream to become very swift, carrying lots of debris that will snag and tear lines.

Before the large federal reservoirs building program

in Kansas, the set line angler was limited to fishing larger streams and farm ponds. During the last thirty years, however, set liners have taken advantage of the expanding fishery in the reservoirs across the state. These reservoirs have developed populations of large catfish that in many places are being under-harvested. All of these reservoirs contain populations of large channel catfish or flatheads or both. Many of the western impoundments have large flatheads that are no more difficult to catch than those in more popular catfish impoundments such as Tuttle Creek and John Redmond reservoirs.

The upper ends and wooded coves of these big lakes, are favorite places to set lines, especially trotlines which are the most popular lining method in most of these areas. Trotlines in such situations are usually anchored to old tree stumps or other snags in the water. They can be set on the bottom or at mid-depth, but due to increased activity on these lakes, they are seldom set on the surface. If a fisherman does decide to set a line on the surface in wooded coves, it can be stretched between two trees close together and one or two drops hung from it. This rig is classified as a bankline and a limit of eight is allowed. Be sure to make such lines well so that they are not a boating hazard.

Although many anglers prefer to set their lines in the flooded timber, there are many other areas in these reservoirs where large catfish can be caught in open water using different rigs.

One way to catch channel catfish in open water is to drive two steel posts on a mud flat and string a trotline between the posts. Mark this set so boaters can avoid it, and don't put one down where there is a lot of human activity. Many people stretch a line like this in the upper end of the reservoir in the fall and bait it with

Jim Beal



grasshoppers. This is a good way to stock the freezer for winter and works particularly well in reservoirs that have water level management programs. These lakes are usually raised in October to improve waterfowl use. When this happens, large areas of smartweed and barnyard grass are flooded along with the insects in them which sets off a wild fish feeding spree.

A special type of trotline can be used to fish open areas of the reservoirs. A method that works quite well is to use two large rocks, as heavy as you can lift and carry on your boat, for end anchors. Wrap or tie a piece of heavy line or wire to each rock and leave several feet on one end. To this free end, tie a small pulley. Run the main line through the pulley and tie on a large float—several one-gallon milk jugs work fine. Make sure that you aren't tangled in the line, then push the rock and float overboard. Let enough line out so that it will feed through the pulley, and the jugs can float to the surface. Now, move away from the jugs and let the trotline out. When about half the line is out, tie on a float with enough line to reach from the bottom to the surface. This will be the line you will use to pick up and run your line. Work out the rest of the main line. Run the other end through the pulley tied on the second rock and again, attach a large float. Before you throw this end in, stretch the line tight until the first jugs start to go under, then throw the second rock and float overboard. If the floats are too loose, pull the main line up through the end floats and retie it shorter. When properly set, the end floats should be partially or completely submerged, guaranteeing a tight main line. After the main line is set, go back and pick up the middle float and main line, and attach the drop lines and hooks. If you have trouble with people running this line for you, you can stretch the line tight enough to pull the end

floats under and then remove the middle float. The line can be picked up by dragging a heavy piece of steel with large hooks welded to it. These hooks can be bent from a piece of 1/4 to 1/2 inch rod.

This open-water trotline should be fished near the bottom along submerged habitat such as old stumps, drop-offs or rocks. The baits should be hung from one to six feet off the bottom. The depth is set by changing the length of line from the pulley to the anchor rocks. With this type of rig, the line is always tight and the bait is suspended at the proper depth. When the line is run, the end floats go under and give the line enough slack to pull it to the surface to check and rebait it. When released, it sinks and tightens itself. High water and wind will not affect it. Even though this is a little harder to set, it is very simple to operate and keep in working order.

Make sure that the pulley is small enough so the line cannot run off it, and catch on the side. This will cause the pulley to freeze up or fray the line so that it will break in a short time. Use 1/8 inch or larger line for a main line. This will keep it from cutting your hands when you are holding on to it on windy days. Put the line down into the water before letting go so you don't flip the baits off. Remember, according to the law, these lines have to be run every twenty-four hours and have to be at least 150 yards from the dam, and 200 yards from the mouth of any stream.

You need patience to catch big cats. It seems that flatheads may not bite for several days or weeks and when they decide to hit, they all come at once—a boat load in one night. Try different times of the year. Many excellent catches are made in September and October when most people put their fishing gear away. Always be a sportsman. Don't run other people's lines. Always pick up your lines when not being used. Always be careful. Don't wade streams you do not know without a life jacket. When you get a big fish on, don't get a whole boatload of people to one side of the boat to see it.

There can be bonuses to set line fishing. Besides catching catfish, you can also catch large crappie, drum, and even walleye. By changing your bait, you can take carp and buffalo (try worms and doughballs).

With these tips in mind, give set lining a try. It's a good way to keep fish on the table and excellent recreation. Some people criticize trotline fishermen for being lazy and taking fish the easy way. Those people probably have not walked a couple of miles along a muddy river bank at night, tried to get up early every morning to run their lines, or tried to keep a steady supply of fresh bait. And they probably haven't caught many braggin' size catfish either.

The special pulley rig for anchoring a trotline in the open water of a reservoir. The main line runs through the pulley and is tied to plastic jugs. The pulley is wired to a rock, the biggest rock that the fisherman can handle. Adjusting the length of the pulley line will change the depth at which the line is fished.

The Setline:



The Compleat Limbliner:

It's simple to be sophisticated

Bill Ward

There's little doubt that technology has invaded the sport of freshwater fishing. Take a look at print-out computer depth finders, graphite rods and stainless-steel, ball-bearing reels, for instance. But even with the sophistication of today's angler, there is still an opening for the "barbarian" who likes his equipment a lot less complicated: limblining for catfish.

However, if the need is still felt for a little class in the art of limblining, there are a few "posh" guidelines to follow. The best limbs for limblines are between six and ten feet long, about two and a half inches thick at the base, tapering to a quarter of an inch at the tip. Try to cut new limbs each year, as green wood has the most

strength and flex in it.

Next, take about ten feet of braided nylon cord of around 500 pounds test, and tie it both at the tip of the limbliner and three feet back. This double system prevents a larger fish from breaking off the tip and swimming away.

About three feet from the end of the line, cut the line and tie each end onto a circular strip of rubber cut from a truck inner tube. Then, on the line between this giant rubber band and the hook, tie on a large stainless-steel, ball-bearing swivel. Using the rubber adds a little stretch to the line, and combined with the swivel, helps keep a catfish from spinning around until it kinks up the line and works the hook loose.

Finishing the limbliner with stainless-steel hooks has several advantages. They almost never need sharpening, there's no rusting to weaken the hook, and a 4/0 hook can easily hold a hundred pound fish. Depending on the size of the bait (which can range from a two-inch crawdad to a two-pound carp) the best hook sizes range between 3/0 and 6/0. Generally, use a hook size that just allows the point to come out and clear well away from the bait.

Now that you are armed with a technologically su-



The limblime is one of the catfisherman's traditional tools, especially along rivers. The technique works just as well in farm ponds, however, and may take other fish besides catfish—like the fine largemouth shown at the left.

perior limblime and have earned the admiration and envy of all your friends, you have to find the right bait. As a rule, the three most effective baits are medium-sized leopard frogs, three- to five-inch sunfish, and crawdads.

Other baits that seem to be good fish getters include chubs and minnows (cram four or five on a hook), salamanders, liver and shad sides. If you're fishing a pond that is infested with turtles, avoid shad sides unless you like turtle meat.

The frogs should be hooked through the front lips, with the point of the hook facing upwards. (See accompanying article for another frog hooking method.) The sunfish are best when hooked through the thick muscle across the back of the neck, with the hook point well exposed. Again, match the hook size to the thickness of the bait. Salamander can be hooked anywhere, but pushing the hook through the skin over the hind legs allows them to swim freely. Crawdads should be hooked from the underside, with the point inserted at the tip of the meat underneath the tail fan, then pushed through the tail and slid forward until the point emerges between the legs.

The frogs, sunfish, and salamanders should be set so they rest just on top of the water. The sunfish will race back and forth, sputtering around, making plenty of fish attracting noise. The frog will slowly stroke around the surface until he finally draws the attention of a prowling catfish. The other baits should be suspended about six inches off the bottom.

Once you have the limblime strung and ready with a good bait, looking for the right place to set the line is the next priority. Surprisingly, ponds are one of the most productive areas, rather than the more traditional river sets.

In a pond, look for submerged timber, drop-offs by the shoulders of coves, the edges of moss banks, and inlets or creeks flowing into the water. During a thunderstorm the catfish seem to go on a feeding frenzy that

is easy to capitalize on, especially if the lines are set by a spot where the runoff from the surrounding fields enters the pond. Since the surface of most small to medium-sized ponds stays relatively calm, the sunfish or frogs set on the surface usually works the best.

In a river, the best bet is a deep hole in front of a brush pile, an undercut bank, the head of a riffle, or where a tributary creek enters the river. When setting the lines around the brush or timber, make sure the fish can't pull the line down into the structure. If it can, a catfish is fond of wrapping up a line until it gets enough leverage to either break it or twist the hook out.

When setting limblines around ponds, I prefer to stick the limbs into the bank leaning toward the water at a forty-five degree angle. A sharp point on the limb's base makes it a lot easier to push into the bank. If the bank isn't too hard, the limb should be pushed at least two or more feet deep. If the limblime is set at a steep enough angle and stuck deep enough, the fish will have a hard time pulling it out.

In the river, the limblines should be set almost parallel to the water's surface at right angles to the current, allowing the strength and springiness of the limb to fight the fish more efficiently.

The best time of the year for setting the lines is anywhere from the last day of winter to the middle of October. Try to have the lines baited and in the water by sundown and run them every three or four hours.

Many states have regulations on the number of lines that can be set, along with the legal number of hooks. Check the local fishing laws before setting the lines.

The next time you see the "sophisticated" fisherman sitting stranded in his drifting bass boat, untangling yards of printout paper from his electronic gear while trying to replace that nasty little bail spring in the reel that keeps throwing birdnests at night, remember the simple limblime. It may not be complicated, but it catches fish without a lot of pampering and upkeep.

