

# KANSAS WILDLIFE

MAY/JUNE 1981 Single copy \$1.50





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KANSAS WILDLIFE (ISSN 0279-9030) is the official bimonthly publication of the Kansas Fish & Game Commission, Rural Route 2, Box 54A, Pratt, Kansas 67124 (316) 672-5911. Subscription rates: one year (6 issues) \$5.00; two years (12 issues) \$9.00; and three years (18 issues) \$12.50. Single copies are available at \$1.50 per copy.

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Postal I.D. Number: ISSN 0279-9030

## *Of Dust and Pheasants*

**S**oil conservation is a thread-bare topic. It was already old news when my second grade teacher lectured us on erosion twenty-five years ago. It sounded then as if she had all the solutions for soil loss, and even in the full enlightenment of adulthood, my recollection of her talk makes a lot of sense.

I was down around Elkhart the other day, thinking about erosion. It was hard not to. The breeze was out of the south, one of southwest Kansas' typical light spring zephyrs. The trucks on Highway 56 kept rocking up on their windward tires, and we were all driving with our headlights on because of the dust. It had already filled the ditches in a couple of places, and there were fingers of topsoil drifting out onto the pavement. It's an odd thing to watch clouds of dust blowing over the puddles from the last rain.

While I plugged down the highway grinding a sudden accumulation of dirt between my teeth, it occurred to me that I've never heard the verb "to blow" used anywhere else the way it is used on the southern plains. When a Kansas farmer complains that "it's blowing pretty bad," an outlander may think he's referring to the wind. He's not. Wind doesn't blow on

the plains. Fields blow.

The folks around Elkhart have had long experience with airborne cropland. The Cimarron National Grasslands just north of town grew out of attempts to nail down the real estate in the area during the Thirties. It worked too. The only place I could face the wind with my eyes open that afternoon was on the north side of the Grasslands where the dust had been stopped by four miles of sand, sage and soapweed. Right now, that prairie doesn't begin to be as profitable as the cropland around it, but in forty or fifty years after another tough drought or two, the prairie will still be producing. I'm not so sure about the surrounding milo fields.

The Soil Conservation Service has reported a steady increase in the number of acres damaged by wind on the southern plains in the last decade. The last three years have set records for wind damage. At the same time, there are other signs that things aren't going well with our land. The last twenty years haven't been very kind to pheasants and quail in Kansas. We've had a few good years, but they've been the result of freak weather patterns that allowed birds to

survive and breed where they really had no right to be. The overall trend has been down, not as steeply down as pheasants in Iowa or quail in Missouri, but declining nonetheless.

Few farmers have noticed the drop in game bird numbers, and most of the ones who have blame it on hunting pressure and go on with their work. Too bad. Those birds are trying to tell him something about the fundamental productivity of his farm. Take away the irrigation, the petrochemicals, and nitrogen, and the land will produce milo and wheat just about as well as it produces pheasants and quail. If I owned one of those flying fields down by Elkhart, that thought would shake me just a little.

Quote for the month—  
"America must have a sound economy if it is to be a good steward of its fish and wildlife, its parks, and all of its natural resources." James Watt, Secretary of Interior, March 23, 1981. And all this time, we thought the economy depended on the natural resource base, not the other way around.

The mid-day sun glares white-hot. Ahead on the Cimarron River, a white bird floats above the heat waves, airy and unreal. It hovers in a halo of light, back-peddling in the air, then, with a sudden nose-dive straight at the water, it snatches a small minnow from the surface. The bird rises on silvery pointed wings and, flipping the minnow into the air, swoops under it for an outfield catch. Minnow, then bird disappear. Squinting hard against the blazing sun we follow along the river.

The elusive acrobat is a least tern, a threatened species and the object of a Kansas Fish and Game Commission nongame wildlife study. Around the next bend of the river, or maybe the next, we locate a colony of these slim gray and white aerialists with black caps and swallow-like tails. Nests are spread out on the ground on a bare sand bar. Snowy plovers, small snow-white shorebirds that race across the flat like wind-up toys, are also nesting in the colony. Pandemonium breaks loose at our approach. Agitated terns and plovers take to the air in defense of their nests. Calling excitedly the terns dive and strike at, but always miss, the intruder. Using extreme measures to save eggs and young, they dive and drop well-aimed guano, not always missing.

Smallest of the North American terns, the least tern seems to belong more to the seashore than to the alkali salt flats and wide, shallow, sandy river bottoms of

Kansas. It has, in fact, traditionally nested on coastal beaches from Maine to central California, with its inland subspecies occurring north and east up the Mississippi valley and west into the Great Plains.

Man's activities have taken their toll, beginning with the feather trade in the 1880's which almost wiped out the least tern along the eastern seaboard. Uncounted millions of the graceful birds, as well as other species of terns, gulls, herons, egrets, and ibis were slaughtered for their feathers which were used to adorn the hats of fashionable women. Stirred by conservation groups, public outcry and legislation halted the killing. With protection, the birds gradually increased and

returned to former nesting sites on the beaches where they prospered through the 1930's and 1940's. Since then it has been nearly all downhill for the least tern in most parts of the country.

The onslaught of housing developments, shopping centers, resorts, campgrounds, on- and off-road vehicles, people, dogs, and cats have made the once lonely outer beaches intolerable as nesting sites. Terns have been pushed out onto spoil banks and other marginal habitat. In the "space race" with people for available real estate, the least tern has suffered the fate of the proverbial "little guy." In Florida, South Carolina, Louisiana, and Mississippi the birds have attempted to adapt to these changes by nesting on the gravel or shell roof-tops of public buildings. Trying to raise a family on the roof of Sears Roebuck in downtown Miami might seem like a good idea, but roof-nesting is not without dangers. Rain storms sweep eggs and chicks from the roofs or drown them in standing water. Young birds trying their wings for the first time over heavy city traffic have little margin for error. In California, the least tern has declined so rapidly as a result of habitat loss to development and human disturbance that it has been declared an endangered species by the California Department of Fish and Game. Since 1971 the least tern has been on the National Audubon Society's Blue List of species experiencing population declines.

The interior least terns have had similar problems. Ranging inland along the great tributaries of the Mis-

issippi, these birds have also been in the way of progress. Changes in the waterways, pollution from cities, industry, and agriculture, and constant human population expansion have destroyed habitat and displaced the terns. They are no longer found over much of their former range and are thought by biologists to be declining even in their remaining strongholds. On

the rivers and salt flats of Kansas, past records have shown the bird to be an uncommon resident as early as 1891. Little else was known about them. Because of this and the steady decline elsewhere, the least tern was included on the official threatened wildlife list for the state by the Kansas Fish and Game Commission. Our study was initiated to determine the population

status, distribution, habitat requirements, and ecology of the least tern in Kansas. We traveled central and southern portions of the state in June and July during the tern's nesting season, surveying known colonies and prospective sites. To learn about tern life, we hiked the rivers and salt flats, studied and photographed the birds from blinds placed beside nests,



*The natural history  
of a threatened species*

# ***The Least Tern***

Jean Schulenberg  
Photos by Ed and Jean Schulenberg

helped Dr. Roger L. Boyd of Baker University and his wife, Jan, with their least tern and snowy plover banding project at Quivira National Wildlife Refuge, seined and collected fish specimens and collected salt tolerant plants from the tern colonies. We interviewed landowners and refuge managers whose interest and help was invaluable. We came away with new friends for the terns and for ourselves as well as memories of wide open spaces and white birds rising against the blue sky.

Least terns arrive in Kansas sometime in May, although there are a few April records. The birds arrive in small flocks, congregating to feed and rest near the nesting ground. High excitement runs through the colony as courtship begins. Pairs are formed as the male offers a small minnow to the female of his choice. She deliberates, sometimes for quite a while, before accepting the fish, as her acceptance signals her choice of a mate. Fish-bearing flights and tandem fixed-wing aerial glides are a part of the courtship ritual, as are the dignified parading and posturing on the ground by the pair. The ground display is known as the fish dance in which a male offers a fish to a female and the two circle in a slow measured step nodding their heads solemnly and ending with the male pointing his beak to the sky in a "triumph display." The fish dance often precedes mating. All of these elaborate ceremonies strengthen the pair bond between the two and help to sustain it through the long period of nesting and feeding young.

The nest, a shallow saucer-like depression on bare sand or salt flat, is made by the female. Occasionally it is decorated with tiny bits of debris from the immediate vicinity. The female usually lays two or three eggs,

although clutches of one or four occur. The eggs are sand colored, lightly speckled with tan, and almost invisible on the ground. Both parents incubate the eggs for twenty to twenty-two days, protecting them against rain, hail, and the searing sun. The female probably spends more time on the nest but the male brings fish for her and baby-sits while she occasionally checks out to feed and bathe.

Hatching chicks struggle to break through the egg shell with an egg tooth, an extra tough tip on the bill which they will later lose. Newly emerged chicks lie flat in the nest, soaking wet, helpless. The adults carry away the broken pieces of egg shell in their bills and drop them on the ground several yards from the nest. Chicks dry usually within an hour to a soft downy buff that makes them blend into the background of salt and sand. They are bright-eyed, irresistible, and seem self-confident for their three-inch size. They are fed within three hours of hatching. The male brings a minnow, which appears large in comparison to the size of the chick, but a heroic effort by all concerned gets it down the hatch. Chicks recognize their own parents' voices for they will come out from under a brooding parent upon hearing the fish-flight call from the other. Chicks also respond to a parent's alarm call by instantly flattening out, freezing, and remaining immobile. If ferreted out of hiding, they can easily outrun a man. Both adults attend the chicks constantly during the first few days, especially through periods of intense heat. The chicks leave the nest after two days and begin to wander short distances seeking the thin shade offered by sparse clumps of salt grass on the relentless flat. Any eggs left in the nest at this time may be lost as the



*Typical least tern nesting habitat is about as inviting as an asphalt parking lot (left). The birds gravitate to barren sand bars and salt flats with dependable sources of small fish nearby. The nests themselves may often be established in tracks of cows or people. Tern chicks start immediately on minnow diets (below) even though their first fish may be half as large as they are. Minnows are not only the preferred food item among least terns but are important in their social lives. Many courtship and premating displays include the presentation of a dead minnow. Least terns often share their nesting colonies with snowy plovers (right), small, handsome birds with a tern's taste for sunbeaten nurseries.*



parents are unable to divide their attention between the nest and the wandering chicks. Eventually the family makes its way to the nearest feeding and loafing area. The chick's natal down is gradually replaced by the first juvenal plumage and the young birds are airborne in about three weeks. Although still fed by their parents, they begin to learn fishing skills and practice the art of being terns. The tern families wait for migration at waterholes or sloughs where small surface-swimming minnows are abundant.

Minnows one to three inches long are the staple item in the least tern's diet and the focal point of tern social life. They are caught and eaten by the adults, fed to chicks and fledglings, offered in courtship; even mating involves the exchange of a fish. The preferred species in our study was the plains killifish. Also collected from feeding sites or sand bars where the terns had dropped them were sand shiners, fathead minnows, plains topminnows, mosquito fish, stone-rollers, orangespotted sunfish, and green sunfish. Terns were once observed hawking insects over the grassland and one incubating bird ate a grasshopper that strayed too near a nest. Reports of insect eating by least terns, however, are unusual.

Adversity goes along with being a least tern. Nests are lost to flooding, wind and hail damage, predation, and disturbance. The birds sit tight in the face of spring and summer storms until eggs and young are washed away or covered with blowing sand. Nesting in a hostile salt-encrusted environment, they must cope with temperatures often in excess of 100° at the nest. In many cases, eggs are not incubated—the intense heat takes care of that—but are protected and shaded. An

egg left unshaded soon becomes addled. Least terns soak their breast and belly feathers in water and bring precious moisture and a sort of air conditioning system to the eggs and young.

Few predators were observed on or near the tern colonies but some losses did occur. Coyote and raccoon tracks were encountered in nearly all of the colonies and both are undoubtedly fond of an occasional egg or chick. Time lapse movies made by P. B. Grover at the Great Salt Plains National Wildlife Refuge in Oklahoma show a coyote eating two eggs in a least tern nest and leaving a third. Opossums, skunks, minks, and rats, and a number of avian predators, including crows, jays, owls, falcons, shrikes, and herons may take eggs or chicks. Snakes may account for eggs that disappear from a nest without a trace. Least terns combat predation by widely scattering their nests over a large area and by vigorously mobbing invaders in defense of the colony. When all else fails, the birds may begin a second nest. A German researcher, C. Schonert, found that removing eggs from the nests of the European Little Tern (a close relative), stimulated the birds to lay additional eggs. Due to the length of time involved and the commitment required by the pair to rearing their young, least terns probably do not raise more than one brood per season.

Least terns in Kansas seemed to be relatively free of the kind of human disturbance associated with coastal populations. Man was not found to have a great immediate impact on the colonies we visited. All were located either on a national wildlife refuge or on private land where the birds were not in conflict with other land uses.



We found least terns nesting on the salt flats at Quivira National Wildlife Refuge in Stafford County and distributed in smaller colonies along the Cimarron River in Meade and Clark counties. The post-breeding count made in late July tallied 232 adults and 78 fledged young. Non-breeding birds were sighted in Comanche, Kingman, Trego, Barton, and Cowley counties. The results of this study indicate a viable population of least terns in southern and central Kansas. The birds had a measure of reproductive success in 1980, judging from the number of young birds in the post-breeding flocks. However, further research is needed before a pattern of population stability, increase, or decline can emerge. Evidence from bird banding studies shows least terns to be relatively long-lived. Recovery data from the Bird Banding Laboratory, Office of Migratory Bird Management records twelve recoveries of birds over ten years of age, with three at fifteen, one at seventeen, and one at the ripe old age of twenty-one years.

It is difficult to predict the future of the least tern in Kansas. It may be that mortality in the young is balanced by longevity in the adults which provides the species a longer time span for individual replacement and increases in the population. It is, on the other hand, entirely possible in long-lived birds for a steady decline in numbers due to poor reproduction to go unnoticed for years.

The key to the future for the least tern is maintaining nesting habitat—unvegetated, salt-covered flats and sand bars with shallow water and concentrations of minnows nearby. A cloud in the forecast is man's control of water on the salt flats and rivers. Flats are easily inundated by spring rains. Dams and dikes that retard run-off or slow water removal, prevent their use by nesting birds. Irrigation wells and projects have lowered the water table in most western Kansas rivers and seasonal draw-down completely deprives some areas of water. Of serious consequence also is the U.S. Army Corps of Engineer's Arkansas-Red River Basin Chloride Control Program. This series of desalinization projects for Kansas and Oklahoma calls for diverting fresh water around and away from the salt flats at Quivira NWR in Stafford County, Kansas, the Edith Salt Flats in Oklahoma (twenty-five air miles downstream on the Cimarron River from the Comanche County, Kansas line), and the Great Salt Plains NWR on the Salt Fork of the Arkansas River in Oklahoma. All of these projects would leave the salt flat nesting habitat without sufficient water to support vital fish populations and could possibly slow or eliminate the scouring action of seasonal rises on Kansas rivers, permitting dense growth of river bottom vegetation on the nesting sites.

Nationwide efforts are underway to help the least tern. Several states have study and management projects and more are due to begin nongame programs in the near future. The U.S. Fish and Wildlife Service has

conducted ground and aerial censuses and management research. A national scientific group focusing on colonial waterbirds has been formed. On the east coast terneries have been fenced and posted with educational as well as restrictive signs. California state park personnel have placed clay tiles or concrete blocks within the colonies as shade and shelters for chicks. Vegetation has been removed from nesting sites by mowing or discing. Replacement of habitat lost to development and disturbance has met with some success. Man-made sand beaches in Mississippi have proved readily acceptable to nesting least terns and with protection now support several colonies. One with more than 2000 pairs is the largest in the nation. A high degree of reproductive success has been reported for these birds nesting in the shadow of the seawall along busy U.S. Highway 90 in downtown Gulfport. An experimental nest site project at the Camp Pendleton Marine Corps Base in California was also highly successful.

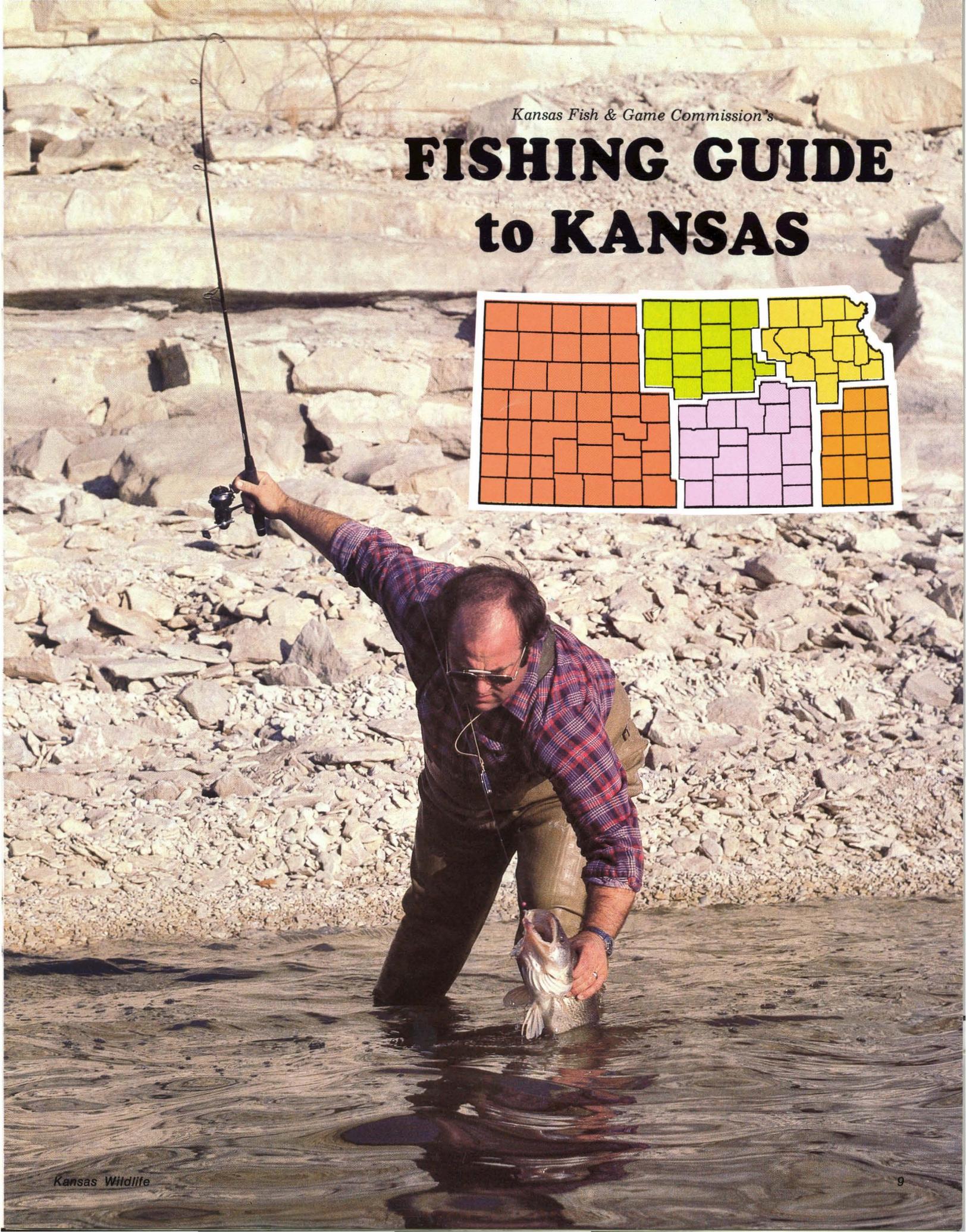
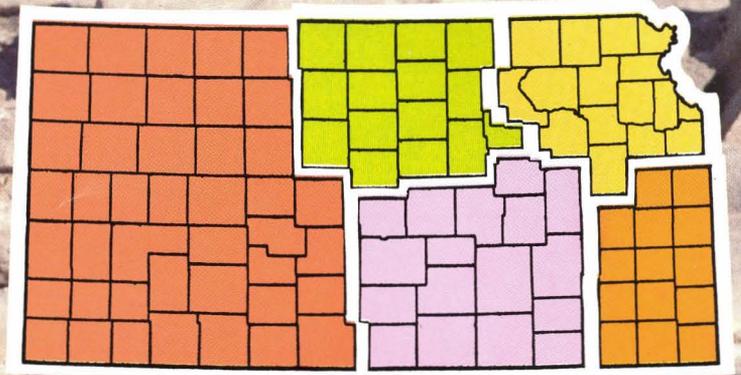
A similar artificial nesting site has been established by the Kansas Fish and Game Commission at the Cheyenne Bottoms Wildlife Area in Barton County. A raised platform of sand was constructed on a salt flat subject to periodic flooding, where a small colony of least terns had nested as recently as 1978. The project was perhaps begun too late for use by terns in the 1980 season but proved acceptable to nesting killdeers and a snowy plover family that raised three chicks there. Future plans by Stan Wood, refuge manager, call for enlarging the site. This, coupled with management and protection, could re-establish the least tern at Cheyenne Bottoms.

On the 12th of August, Marvin D. Schwilling, nongame biologist, and Rod Baughman stood on the salt flat at Quivira NWR, expecting to video tape the terns with their chicks for television. The flats were deserted. They gazed over the square mile of salt and wondered aloud where the hubbub of the colony, the excited cries, and the flashing wings had gone. They could only conclude the adults and young had begun the long journey south that may eventually lead to winter sunshine on the coasts of South America. For the least tern, it is hoped that the Quivira salt flats and the broad sandy stretches of the Cimarron River as it flows through the heart of the sandsage grassland remain unaltered, that each spring these prairie seabirds will continue to lift their wings in aerial acrobatics and perform their strange fish dances to the music of the wind, a part of the wildlife heritage of Kansas.

*Ed and Jean Schulenberg are frequent contributors to KANSAS WILDLIFE and spent most of last summer investigating the Kansas least tern under the terms of a contract with the Fish and Game Commission. Their work has given Commission biologists a better understanding of the distribution and abundance of the least tern in the state and is typical of the kind of important work that will be funded in the future by the Kansas Nongame Wildlife Fund.*

*Kansas Fish & Game Commission's*

# **FISHING GUIDE to KANSAS**



Public impoundments covered in this guide are of three main types: (1) large reservoirs, built and operated by either the U.S. Corps of Engineers or Bureau of Reclamation (except for LaCygne which is a cooling lake for an electric generation plant); (2) state fishing lakes, fully owned and operated by the Fish and Game Commission; and (3) community lakes, owned and operated by local units of government. Fish and Game manages sport fish in all these waters and all state fishing laws apply to them.

Fish and Game offices throughout Kansas can provide more specific information on angling techniques, local conditions, fishing and boating regulations, and other matters. Many of the public lakes have their own detailed maps such as the Corps of Engineers or Bureau of Reclamation provide on their large reservoirs. The Kansas Park and Resources Authority (503 Kansas Ave., Box 977, Topeka, KS 66601) and the Kansas Department of Economic Development (503 Kansas Ave., Topeka, KS 66601) both have helpful park and camping guides which you may wish to order. Don't forget your annual copy of the most recent fishing regulations brochure available everywhere fishing licenses are sold!

Different public waters may have different fishing regulations. These special regulations are posted at these waters. Always check for such signs wherever you fish. These regulations have been developed to maintain or improve good fishing opportunities tailored to fit specific conditions of these waters.

Legal length limits for black bass (largemouth, smallmouth, spotted or Kentucky) may vary substantially among these impoundments, but again, ample sign posting will make you aware of the differences.

Another caution — state fishing lakes are operated for fishermen. Use of motorboats is limited to fishing purposes only. Pleasure boating, such as water skiing or sightseeing, is unlawful on these waters.

**Farm Ponds:** The estimated 50,000 fishable ponds of Kansas are under private ownership. Permission to fish these waters must be granted by the landowner or tenant in control of the land.

**Streams:** Most of the state's 10,000 miles of fishable streams are also in private ownership. Permission from landowners or tenants is required to avoid potential trespass violations. Three exceptions to this rule are the Arkansas River, the Kansas River, and the Missouri River which are in the public domain.

Landowner permission is still required for access through private lands to reach these three rivers. However, points of public stream access are shown on the last page of this guide. All state fishing laws apply to the streams of Kansas.

## MAJOR FIELD OFFICES OF FISH & GAME

**PRATT HEADQUARTERS**  
Route 2, Box 54A  
Pratt, Kansas 67124  
(316) 672-5911

**NORTHEAST REGION**  
3300 SW 29th  
Topeka, Kansas 66614  
(913) 273-6740

**NORTHCENTRAL REGION**  
Box 489, 511 Cedar  
Concordia, Kansas 66901  
(913) 243-3857

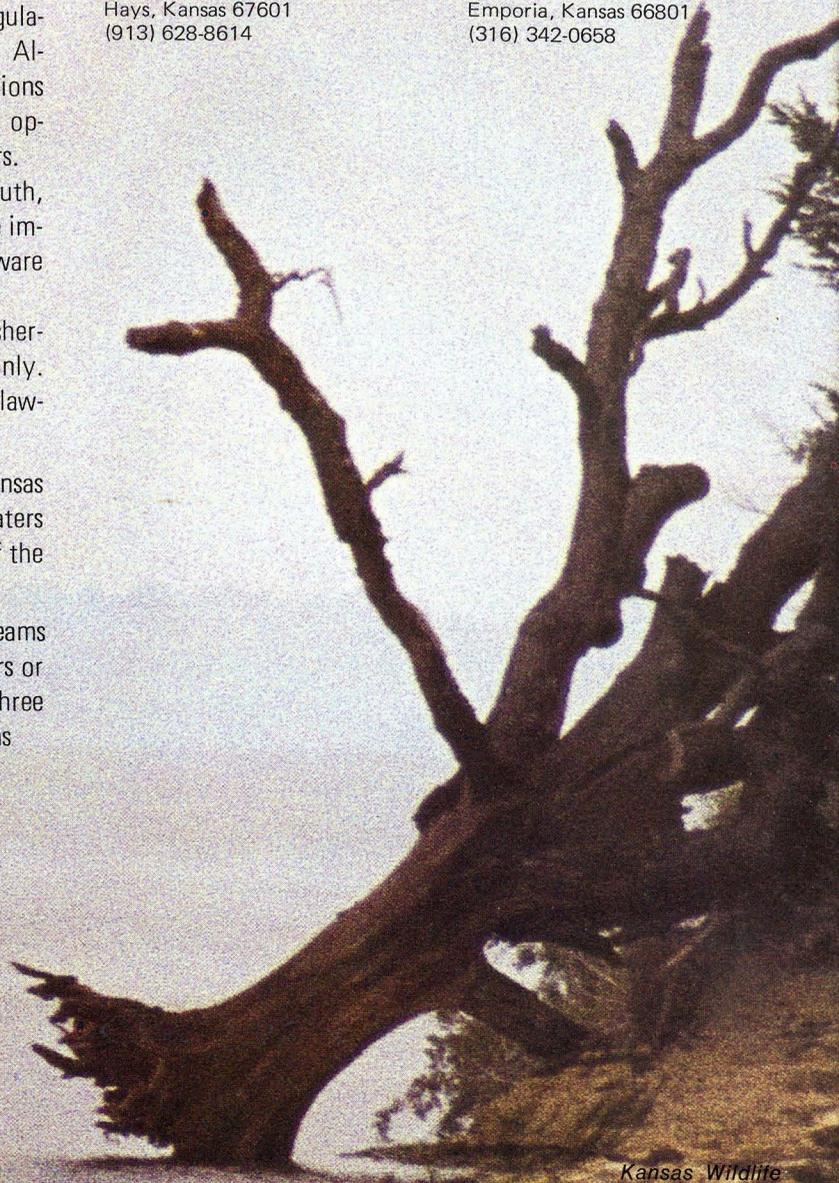
**NORTHWEST REGION**  
Route 2  
Hays, Kansas 67601  
(913) 628-8614

**SOUTHWEST REGION**  
808 Highway 56  
Dodge City, Kansas 67801  
(316) 227-8609

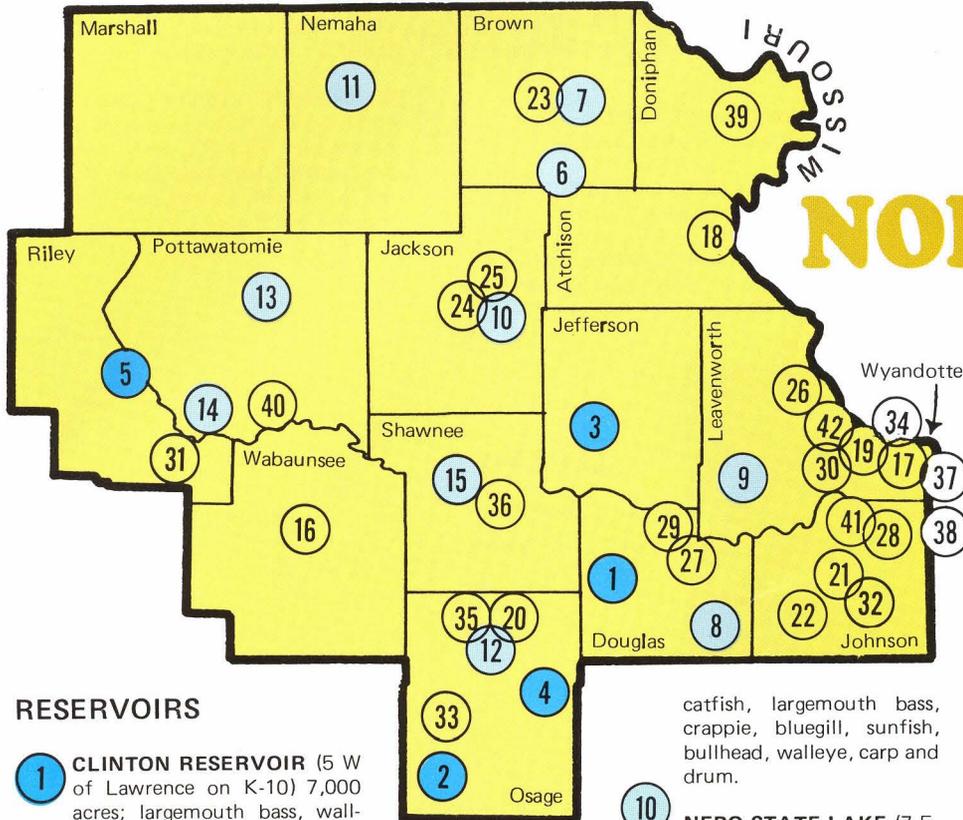
**SOUTHCENTRAL REGION**  
Box 764, 204 West 6th  
Newton, Kansas 67114  
(316) 283-2482

**SOUTHEAST REGION**  
222 W. Main Buld., Suite C & D  
Chanute, Kansas 66720  
(316) 431-0380

**EMPORIA RESEARCH OFFICE**  
832 East 6th  
Emporia, Kansas 66801  
(316) 342-0658



# NEBRASKA



# NORTHEAST

## RESERVOIRS

- 1 CLINTON RESERVOIR** (5 W of Lawrence on K-10) 7,000 acres; largemouth bass, walleye, northern pike, channel catfish, white bass and crappie.
- 2 MELVERN RESERVOIR** (35 S of Topeka on US 75) 7,000 acres; largemouth bass, crappie, channel catfish, flathead catfish and northern pike.
- 3 PERRY RESERVOIR** (18 NE of Topeka on US 24) 12,600 acres; channel catfish, walleye, largemouth bass, crappie and white bass.
- 4 POMONA RESERVOIR** (25 S of Topeka on US 75) 4,000 acres; crappie, white bass, largemouth bass, walleye, flathead and channel catfish.
- 5 TUTTLE CREEK RESERVOIR** (Dam is 6 N of Manhattan on K-13) 15,800 acres; crappie, channel catfish, flathead catfish, white bass, walleye and trout seasonally in the dam drainage system.

## STATE FISHING LAKES

- 6 ATCHISON STATE LAKE** (2 N, 2 W of Atchison) 66 acres; crappie, bass, channel catfish, bullhead and bluegill.
- 7 BROWN STATE LAKE** (8 E, 1 S of Hiawatha) 62 acres; largemouth bass, channel catfish, crappie, bluegill, carp, flathead catfish, sunfish and bullheads.
- 8 DOUGLAS STATE LAKE** (1½ N, 1 E of Baldwin) 180 acres; largemouth bass, channel catfish, bluegill, sunfish, walleye, bullhead and carp.
- 9 LEAVENWORTH STATE LAKE** (3 W, 1 N of Tonganoxie) 175 acres; channel

catfish, largemouth bass, crappie, bluegill, sunfish, bullhead, walleye, carp and drum.

- 10 NEBO STATE LAKE** (7 E, 1 S of Holton) 38 acres; largemouth bass, channel catfish, bluegill, crappie, bullhead, sunfish and carp.
- 11 NEMAHA STATE LAKE** (1 E, 4 S of Seneca) 248 acres; largemouth bass, channel catfish, bullhead, blue catfish, crappie, walleye and sunfish.
- 12 OSAGE STATE LAKE** (3 S, ½ E of Carbondale) 140 acres; Warmouth bass, largemouth bass, channel catfish, crappie, bluegill, sunfish, walleye, flathead catfish and carp.
- 13 POTTAWATOMIE STATE LAKE No. 1** (5 N of Westmoreland) 24 acres; channel catfish, largemouth bass, bluegill, bullhead, walleye, green sunfish and flathead catfish.
- 14 POTTAWATOMIE STATE LAKE No. 2** (1½ E, 2½ N of Manhattan) 75 acres; crappie, bluegill, warmouth bass, bullhead, walleye, green sunfish, flathead catfish, largemouth bass and channel catfish.
- 15 SHAWNEE STATE LAKE** (7 N, 2½ E of Silver Lake) 135 acres; largemouth bass, crappie, channel catfish, bluegill, bullhead, sunfish, green sunfish, walleye, northern pike, carp and flathead catfish.

## COMMUNITY LAKES

- 16 ALMA CITY LAKE** (2½ SE of Alma) 80 acres; largemouth bass, channel catfish, bluegill, walleye, green sunfish and bullhead.

- 17 ANTIOCH PARK** (6501 Antioch Road, Shawnee Mission) 3 acres.
- 18 ATCHISON CITY WATERSHED LAKES** (Within Atchison City limits) 90 acres; largemouth bass, crappie, bluegill, channel catfish, bullhead, flathead catfish and green sunfish.
- 19 BIG 11** (11th & State Ave., Kansas City, Ks.) 3 acres.
- 20 CARBONDALE CITY LAKE** (2 E of Carbondale) 265 acres; largemouth bass, white bass, channel catfish, bluegill, bullhead, carp, drum, flathead catfish, green sunfish, sunfish and crappie.
- 21 FRISCO LAKE** (Olathe, Ks.) 12 acres.
- 22 GARDNER CITY LAKE** (1 N of Gardner) 100 acres; channel catfish, flathead catfish, crappie, bluegill, sunfish, largemouth bass, bullhead and yellow perch.
- 23 HIAWATHA MUNICIPAL LAKE** (1½ S of Hiawatha on US 159/73) 7 acres.
- 24 HOLTON CITY (Elkhorn)** (W edge of Holton) 4 acres.
- 25 HOLTON CITY (Prairie)** (1½ N, 3½ W of Holton) 78 acres; channel catfish, largemouth bass, crappie, bluegill, bullhead and carp.
- 26 LEAVENWORTH (Jerry's) LAKE** (Jerry's Park, Leavenworth, Ks.) ¼ acre.
- 27 LONE STAR LAKE** (4 SW of Lawrence, Ks.) 195 acres.
- 28 LENEXA (Rose's) LAKE** (87th & Lackman, Lenexa, Ks.) 2 acres.
- 29 MARY'S LAKE** (½ E of Haskel & 31st St., Lawrence, Ks.) 3 acres.
- 30 NORTH PARK LAKE** (Northwest Bonner Springs City limits) 3 acres.
- 31 OGDEN CITY LAKE** (Ogden, Ks.) 24 acres.
- 32 OLATHE CITY LAKE** (2 W of Olathe) 180 acres; largemouth bass, bluegill, channel catfish, crappie, walleye, white bass, warmouth bass, sunfish and carp.

**33 OSAGE CITY LAKE** (1½ S of Osage City, Ks.) 50 acres; largemouth bass, channel catfish, bullhead, bluegill and crappie.

**34 PIERSON PARK LAKE** (55th & Douglas, Kansas City, Ks.) 13 acres.

**35 SCRANTON CITY LAKE** (1½ S, 1½ E of Scranton) 11 acres.

**36 SHAWNEE LAKE** (3139 SE 29th St., Topeka, Ks.) 416 acres.

**37 SHAWNEE MISSION PARK LAKE** (79th & Renner Rd., Shawnee Mission, Ks.) 135 acres.

**38 SOUTH LAKE PARK** (87th & Valley View, Overland Park, Ks.) 5½ acres.

**39 TROY 4-H LAKE** (½ W of K-7, ¼ S of US 36 at Troy) 5 acres.

**40 WAMEGO CITY LAKE** (Wamego City Park) 5 acres; for kids under 16 and adults over 65 only.

**41 WATERWORKS LAKE** (Sheridan & Curtis Sts., Olathe, Ks.) 6 acres.

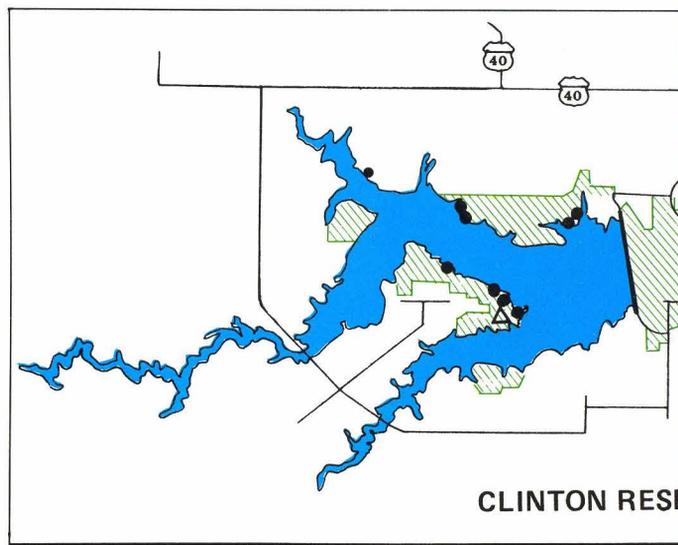
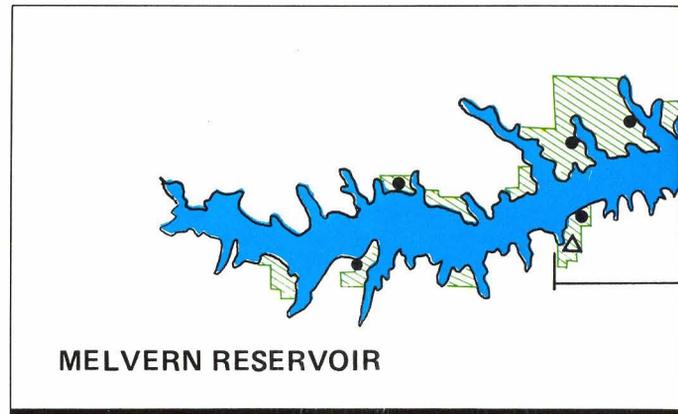
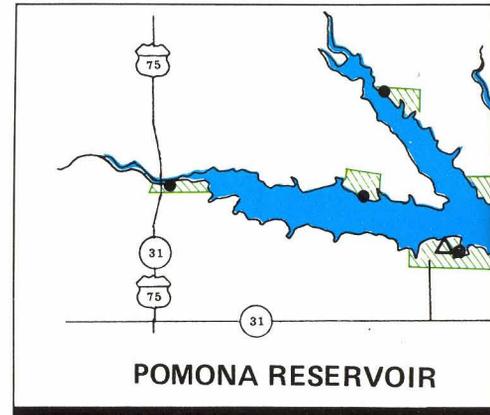
**42 WYANDOTTE COUNTY LAKE** (Wyandotte County Park, 3488 West Drive, Kansas City, Ks.) 330 acres; northern pike, walleye, largemouth bass, channel catfish, bluegill, crappie, carp, sunfish, bullhead and drum.

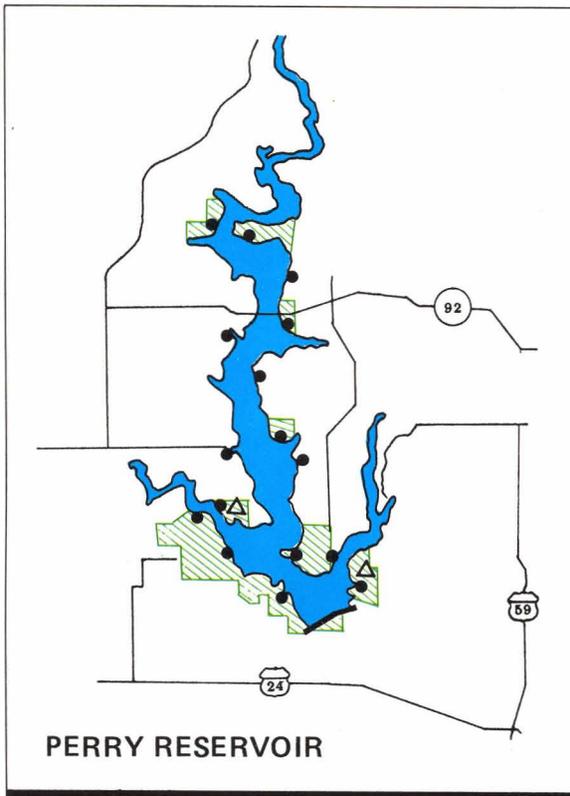
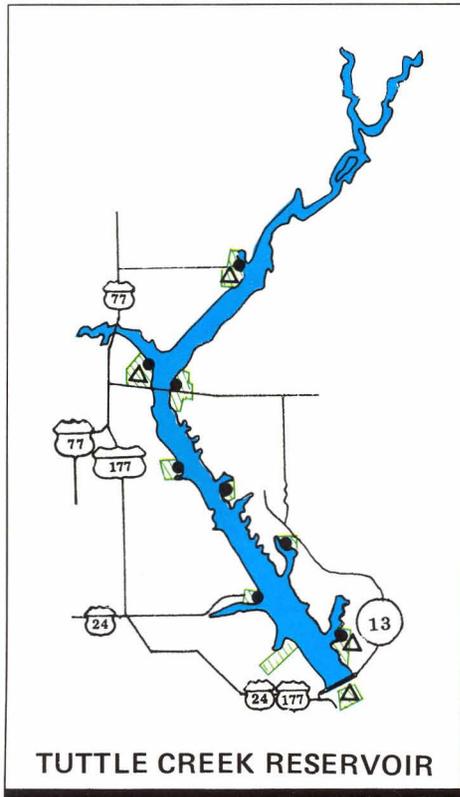


Ken Stiebber

**LEGEND**

- . . Boat Ramp
- △ . . . Marina
- ▨ . . Park Area





	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
CLINTON RESERVOIR	X	X	X	X	X	X	X	X	X
MELVERN RESERVOIR	X	X	X	X	X	X	X	X	X
PERRY RESERVOIR	X	X	X	X	X	X	X	X	X
POMONA RESERVOIR	X	X	X	X	X	X	X	X	X
TUTTLE CREEK RESERVOIR	X	X	X	X	X	X	X	X	X
ATCHISON STATE LAKE		X		X	X	X			
BROWN STATE LAKE		X		X	X				
DOUGLAS STATE LAKE	X	X		X	X	X			
LEAVENWORTH STATE LAKE	X	X		X	X	X			X
NEBO STATE LAKE		X		X	X				
NEMAHA STATE LAKE		X		X	X	X			
OSAGE STATE LAKE	X	X		X	X	X			
POTTAWATOMIE STATE LAKE No. 1		X		X	X	X			
POTTAWATOMIE STATE LAKE No. 2	X	X		X	X	X			
SHAWNEE STATE LAKE		X		X	X	X			
ALMA CITY LAKE		X		X	X	X			
ANTIOCH PARK					X	X			
ATCHISON CITY WATERSHED LAKES		X	X	X	X	X		X	X
BIG 11					X	X			
CARBONDALE CITY LAKE		X		X					
FRISCO LAKE					X	X			
GARDNER CITY LAKE		X	X		X	X			
HIAWATHA MUNICIPAL LAKE				X	X	X			
HOLTON CITY (Elkhorn)									
HOLTON CITY (Prairie)		X		X	X	X		X	
LEAVENWORTH (Jerry's) LAKE					X				
LONE STAR LAKE	X	X	X	X	X	X			X
LENEXA (Rose's) LAKE					X				
MARY'S LAKE					X				
NORTH PARK LAKE					X	X			
OGDEN CITY LAKE									
OLATHE CITY LAKE	X	X	X	X	X	X			
OSAGE CITY LAKE									
PIERSON PARK LAKE					X				
SCRANTON CITY LAKE				X					
SHAWNEE LAKE	X	X	X	X	X	X	X	X	X
SHAWNEE MISSION PARK LAKE	X	X	X		X	X			
SOUTH LAKE PARK									
TROY 4-H LAKE									
WAMEGO CITY LAKE					X	X			
WATERWORKS LAKE					X				
WYANDOTTE COUNTY LAKE	X	X	X	X	X	X			

# NORTHCENTRAL

## RESERVOIRS

- 1 **GLEN ELDER (Waconda) RESERVOIR** (12 W of Beloit on US 24) 12,586 acres; striped bass, largemouth bass, white bass, crappie, channel catfish, bluegill and walleye.
- 2 **KANOPOLIS RESERVOIR** (33 SW of Salina on K-149 and K-141) 3,550 acres; white bass, crappie, flathead catfish, channel catfish and walleye.
- 3 **LOVEWELL RESERVOIR** (4 E, 10 N of Mankato on US 14) 2,986 acres; walleye, white bass, channel catfish and flathead.
- 4 **MILFORD RESERVOIR** (5 NW of Junction City on US-77) 16,020 acres; white bass, crappie, striped bass, small-mouth bass, largemouth bass, channel catfish, flathead catfish and walleye.
- 5 **WILSON RESERVOIR** (8 N on K-232 from Wilson Exit on I-70) 9,000 acres; crappie, white bass, walleye, largemouth bass, bluegill channel catfish and striped bass.

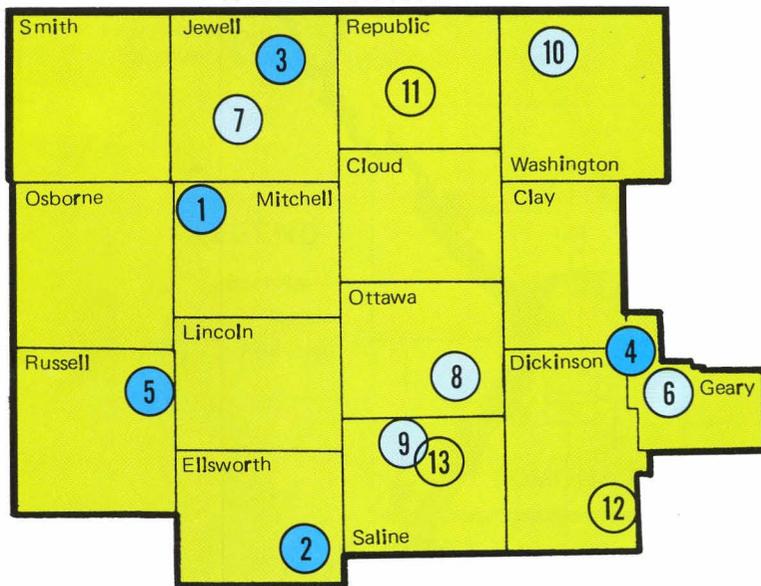
## STATE FISHING LAKES

- 6 **GEARY STATE LAKE** (8½ S, 2 W of Junction City) 97 acres; largemouth bass, channel catfish, bluegill, walleye, crappie, green sunfish, bullhead and carp.
- 7 **JEWELL STATE LAKE** (6 S, 2 W of Mankato) 57 acres; largemouth bass, bluegill, channel catfish, bullhead, walleye and green sunfish.
- 8 **OTTAWA STATE LAKE** (5 N, 1 E of Bennington) 138 acres; largemouth bass, channel catfish, bluegill, drum, bullhead, carp, walleye and green sunfish.
- 9 **SALINE STATE LAKE** (2½ N, 2 W of Salina) 39 acres; channel catfish, largemouth bass, bluegill, green sunfish and redear sunfish.
- 10 **WASHINGTON STATE LAKE** (7 N, 3 W of Washington) 60 acres; crappie, bluegill, bullhead, channel catfish, largemouth bass, drum, carp and green sunfish.

## COMMUNITY LAKES

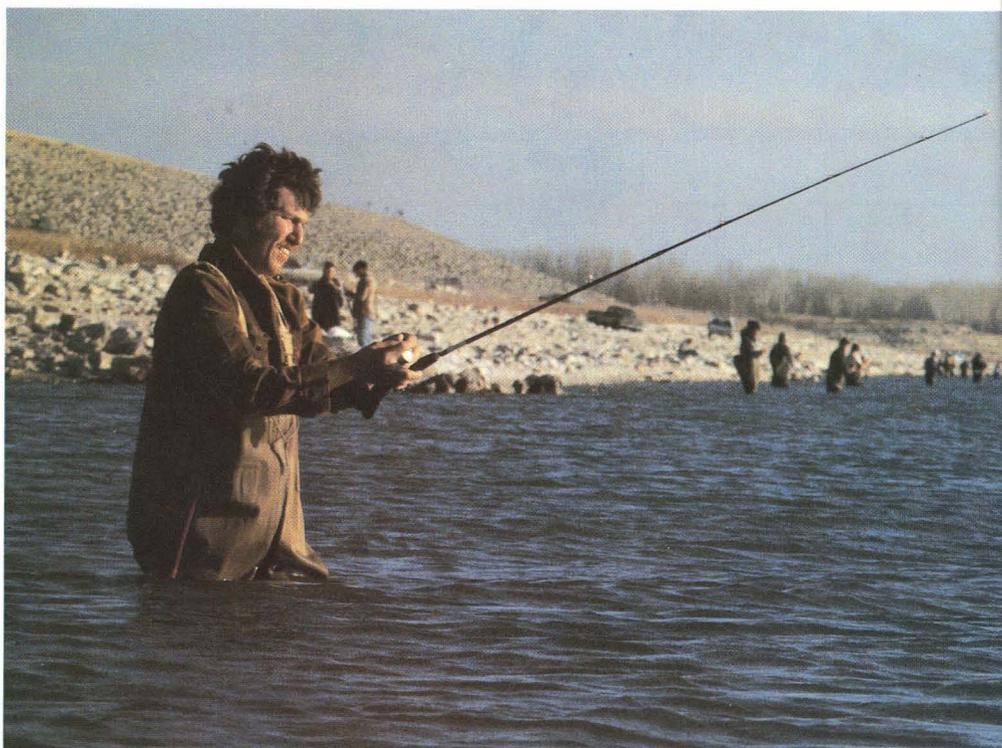
- 11 **BELLEVILLE (Rocky Pond) LAKE** (E on 12th St. to City Park) 27 acres; crappie, bullhead, channel catfish, carp, bluegill, drum and green sunfish.

## NEBRASKA



- 12 **HERINGTON CITY LAKE** (1½ SW of Herington) 367 acres; largemouth bass, bluegill, crappie, channel catfish, bullhead, warmouth bass, flathead catfish and green sunfish.

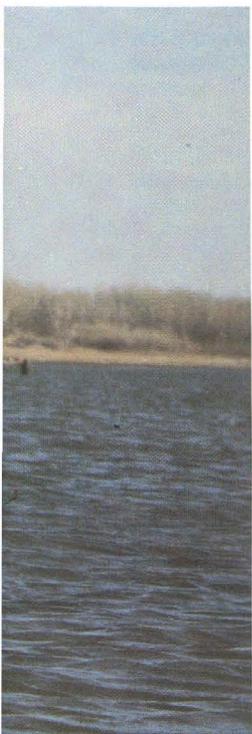
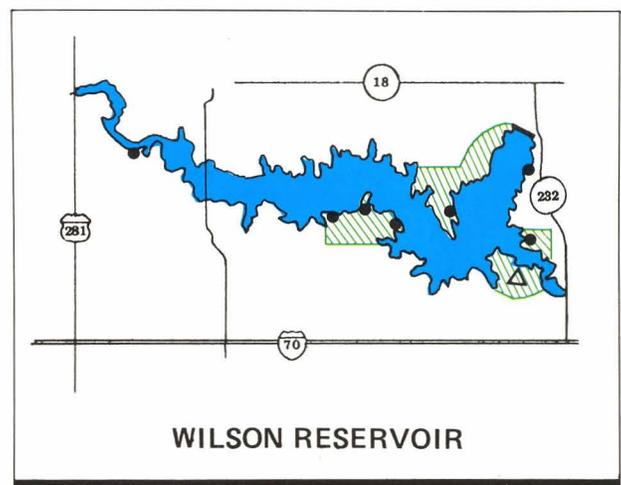
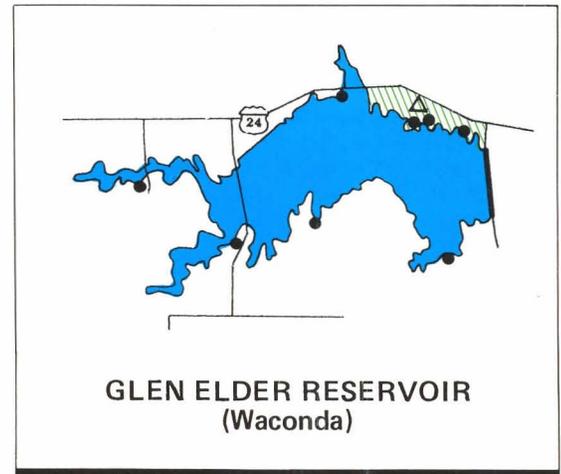
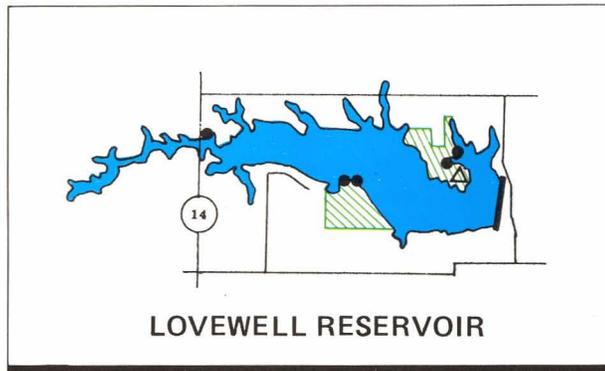
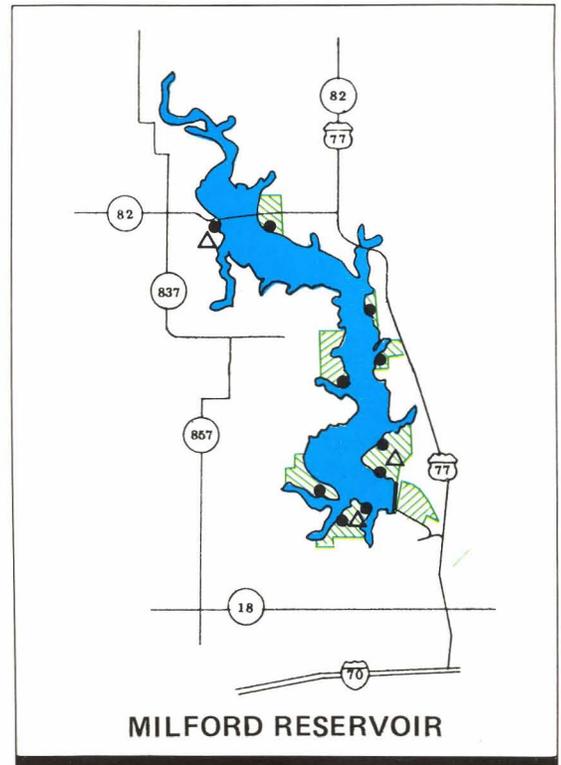
- 13 **SALINA (Lakewood) LAKE** (N end of Salina off Ohio St.) 20 acres; largemouth bass, channel catfish, and bluegill.



	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
GLEN ELDER RESERVOIR	X	X	X	X	X	X	X	X	X
KANOPOLIS RESERVOIR	X	X	X	X	X	X	X	X	X
LOVEWELL RESERVOIR	X	X	X	X	X	X	X	X	X
MILFORD RESERVOIR	X	X	X	X	X	X	X	X	X
WILSON RESERVOIR	X	X	X	X	X	X	X	X	X
GEARY STATE LAKE		X		X	X	X	X		
JEWELL STATE LAKE		X		X	X	X			
OTTAWA STATE LAKE	X	X	X	X	X	X	X	X	
SALINE STATE LAKE		X		X	X	X			
WASHINGTON STATE LAKE		X		X	X	X	X		
ALLEN & ADMIRE CITY LAKE									
BELLEVILLE (Rocky Point) LAKE				X	X	X			
HERINGTON CITY LAKE		X	X	X	X	X	X		
LAKE KAHOLA									
SALINA (Lakewood) LAKE					X	X			

### LEGEND

- . . Boat Ramp
- △ . . . Marina
- ▨ . . Park Area



Chris Madson

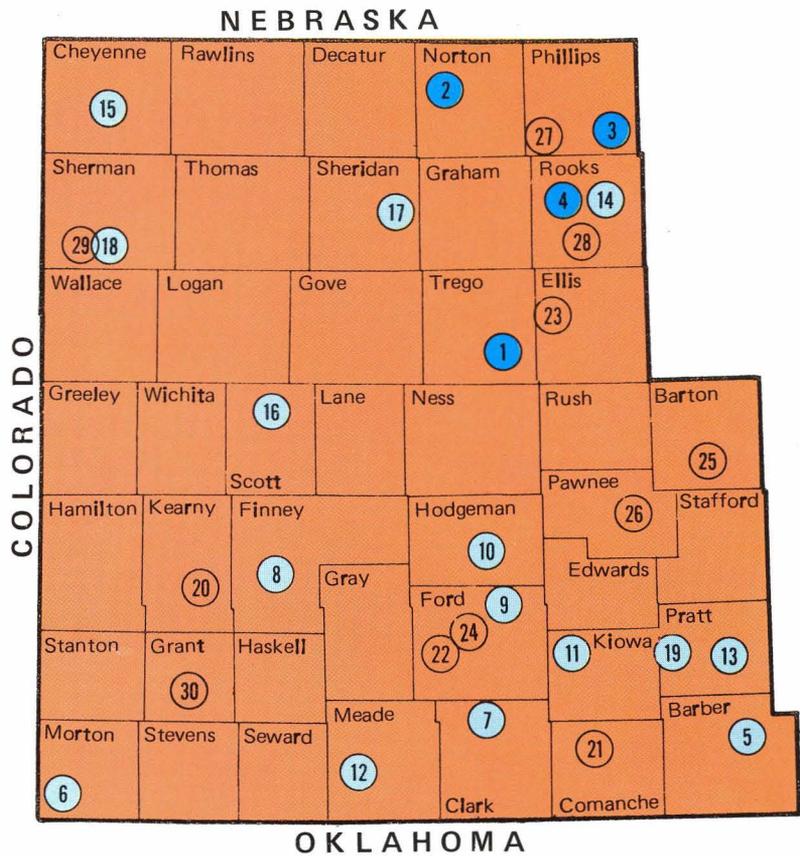
# WEST

## RESERVOIRS

- 1 **CEDAR BLUFF RESERVOIR** (13 S of I-70 on K-147) designed for a surface acreage of 6,869 acres, the present water level is at 1,975 acres; smallmouth bass, largemouth bass, white bass, bluegill, walleye, channel catfish and flathead catfish.
- 2 **KEITH SEBELIUS (Norton) RESERVOIR** (3 SW of Norton off US 36) designed for a surface acreage of 2,187 acres, the present water level is 750 acres; crappie, bluegill, walleye, channel catfish, largemouth bass and wipers.
- 3 **KIRWIN RESERVOIR** (15 SE of Phillipsburg off K-9) designed for a surface acreage of 5,080 acres, the present water level is 1,600 acres; walleye, white bass, channel catfish and crappie.
- 4 **WEBSTER RESERVOIR** (8 W of Stockton off US 24) designed for a surface acreage of 3,445 acres, the present water level is 1,500 acres; walleye, channel catfish, flathead catfish, largemouth bass, striped bass and crappie.

## STATE FISHING LAKES

- 5 **BARBER STATE LAKE** (¼ N of Medicine Lodge) 77 acres; largemouth bass, channel catfish, bluegill, crappie, bullhead and sunfish.
- 6 **CIMARRON NATIONAL GRASSLANDS FISHING PITS** (8 N of Elkhart) 11 acres.
- 7 **CLARK STATE LAKE** (8½ S, 1 W of Kingsdown) 337 acres; channel catfish, largemouth bass, crappie, bullhead, walleye, northern pike, warmouth bass, sunfish and flathead catfish.
- 8 **FINNEY SANDPITS** (S edge of Garden City) 5 acres.
- 9 **HAIN STATE LAKE** (5 W of Spearville) 53 acres; channel catfish, bullhead, crappie, largemouth bass, carp and sunfish.
- 10 **HODGEMAN STATE LAKE** (4 E, 2 S of Jetmore) 87 acres.



- 11 **KIOWA STATE LAKE** (NW corner of Greensburg) 21 acres; largemouth bass, channel catfish, bluegill, blue catfish, northern pike, crappie, bullhead and sunfish.
- 12 **MEADE STATE LAKE** (8 S, 5 W of Meade) 80 acres; largemouth bass, channel catfish, bluegill, bullhead, sunfish, northern pike and crappie.
- 13 **PRATT BACKWATER CHANNELS** (1 S, 2½ E of Pratt) 4 acres.
- 14 **ROOKS STATE LAKE** (2½ S, 2 W of Stockton) 67 acres; channel catfish, walleye, bluegill and largemouth bass.
- 15 **ST. FRANCIS GMA SANDPIT** (6 E of St. Francis) 15 acres.
- 16 **SCOTT STATE LAKE** (11 N of Scott City) 115 acres; channel catfish, bullhead, largemouth bass, crappie, drum, carp, green sunfish, bluegill, blue catfish and walleye.
- 17 **SHERIDAN STATE LAKE** (11 E of Hoxie) 87 acres; northern pike, largemouth bass, crappie, channel catfish, walleye, carp, bullhead and bluegill.
- 18 **SHERMAN STATE LAKE** (10 S, 2 W of Goodland) 210 acres.
- 19 **TEXAS LAKE** (4 W, 1½ N of Cullison) 20 acres.

## COMMUNITY LAKES

- 20 **BEYMER SANDPIT** (Lakin)
- 21 **COLDWATER CITY LAKE** (1 S, 1 W of Coldwater) 250 acres.
- 22 **DODGE CITY COLLEGE LAKE** (city limits of Dodge City) 1 acre.
- 23 **ELLIS (Big Creek) LAKE** (in the city limits of Ellis) 100 acres.
- 24 **FORD COUNTY LAKE** (5 E, 3 N of Dodge City) 76 acres; largemouth bass, crappie, channel catfish, bullhead, bluegill, sunfish and carp.
- 25 **GREAT BEND (Veterans Park)** (city limits of Great Bend) 13 acres.
- 26 **LARNED STATE HOSPITAL LAKE** (1 W of Larned) 17 acres.
- 27 **LOGAN CITY LAKE** (2 S of Logan) 28 acres; largemouth bass, channel catfish, bluegill, walleye and crappie.
- 28 **PLAINVILLE TOWNSHIP LAKE** (2 W of Plainville) 158 acres; channel catfish, largemouth bass, crappie, bluegill and bullhead.
- 29 **SHERMAN COUNTY LAKE** (10 S, 2 W of Goodland) 11 acres; largemouth bass, channel catfish, bluegill and crappie.
- 30 **ULYSSES (Frazier) LAKE** (1 S, 1 E of Ulysses) 50 acres.

# the YELLOW Pages



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## LETTERS to the editor

### LOOKING FOR MORE

We thoroughly enjoyed the eagle tour we attended at Cheney Reservoir in February. The clinics on walleye and striper fishing also were very informative. Hope the future has more of these things planned. Thanks.

The Harold Ingram's  
Wichita

### NEED 'SHINING EXAMPLES'

I'd like to tell you about Sweet Pea Junior, a four-week-old dairy goat wether. He had a soft red roan coat with black stripes from his eyes to a very black nose. One of his favorite pastimes was laying astraddle the stomach of a two-month-old heifer. Since he was raised on his mother, he would have made good eating in about two weeks.

Sometime between 7 p.m. and 6 a.m. April 12, he died. On one side, he had a small hole, not more than one-quarter inch in diameter. There was a much bigger and bloodier hole in his chest between his front legs. Who, I wondered, would have wanted to shoot a bouncy baby wether that didn't even belong to them?

The answer is probably nobody. We couldn't find the slug but, since we've found bullet holes in sheds before, we believe it was a stray bullet of a high-

powered gun from one-fourth to one-half mile off where we often hear shooting.

How many people realize a stray bullet can travel this far? What if this had happened during the day? What if my two nephews had been playing with the goat then?

Mike Dye made a good point in the March-April issue that responsible hunters need to set a "shining example." I would like to see safety training a part of this example for ALL ages of hunters. I would like hunters to know enough to shoot high enough to hit the clouds or low enough to hit the ground but not that height where it comes over to my hill and kills my goats.

Although responsibility is a hated word these days, I believe it is the duty of the Fish and Game Commission to weed out hunters that don't take the time to know where the safety lock on their gun is (perhaps with a driver's license-like questionnaire) and an eye test. I also believe it would be a good idea for this magazine to have an article on the range of bullets near hunting season.

It's going to take a lot of "shining examples" to quiet the gun control advocates. And I sure would hate to see a person with a quarter-inch hole on their side and a big, bloody hole in their chest.

Bonnie Clarkson  
Buffalo

### MORE FUNDING SOUGHT

In 1950, Congress passed the

Dingell-Johnson Sport Fish Restoration Act which established an excise tax on certain recreational fishing equipment. The funds collected are distributed to the states on a formula matching basis.

Dingell-Johnson funds are used to enhance sport fishing opportunities in the states. Through 1978 the D-J program had made \$252 million available to the states to carry out activities including the construction of 328 lakes, providing public access to 800,000 acres of lakes and estuaries and 2,200 miles of streams, the improvement of aquatic habitats, the protection of fish and habitat from pollution, and research on new management techniques.

I believe that the conservation and management needs of the states and the demands of recreational fishermen now require an expansion of the D-J program. Therefore, on March 3, 1981, I introduced H. R. 2250 which places a 10 percent tax on certain additional fishing equipment and establishes a 3 percent manufacturers' tax on boating equipment and recreational boats under 25 feet. The tax would not apply to commercial boats, hydroplanes, kayaks, or sailboats.

Proceeds of the tax would be distributed according to the established formulas. For coastal states, I have included a provision to require that, to the extent practicable, new funds be divided between saltwater and freshwater projects in the same proportion as the number of saltwater anglers bears to the

(Continued)

number of freshwater anglers.

While this legislation has the support of the vast majority of the states, along with a broad coalition of conservation and sporting groups, I am concerned that those directly affected -- the fishermen and the recreational boaters -- have a chance to express their views.

I am, therefore, asking for those concerned about this legislation to write to me and express their views. Letters should be addressed to: Rep. John Breaux, Chairman, Subcommittee on Fisheries and Wildlife Conservation and Environment, H2-544 House Annex II, Washington, D. C. 20515.

This legislation would both impose a burden on recreational fishermen and provide benefits to them. In this sense it is a "user fee" approach similar to the Dingell-Johnson Act in place presently. Because of this, it is imperative that their views be heard.

John Breaux  
Chairman  
Subcommittee on Fisheries  
and Wildlife Conservation  
and the Environment

#### "JAWS"

I'd like to share a rather unusual story. My wife, Debbie, and I were camped at the River Pond Area of Tuttle Creek Reservoir with my aunt and uncle, Nellie and Lawrence Korbelt of Salina. My wife, aunt, and I decided to try our luck trolling. Since electric trolling motors and gas motors are not allowed on the River Pond, I rowed the boat out about 30 yards and we cast our lines.

We had gone about 100 yards or so when my wife hooked something. Nellie and I began reeling our lines in to avoid getting them tangled with Debbie's when, all of a sudden, something caused my line to go tight. I thought I had snagged her line.

After what seemed like hours (actually only 20 minutes)

we saw a lot of bubbles, a large swirl, then a huge catfish with two lures in its mouth...one in each side. Debbie began to get even more excited than she already was and I began to shake. All I could think of was "Jaws."

Debbie was unsure if she could hold out. This was only the third or fourth time she had been fishing. We fought the flat-head for about 45 minutes more, bringing it to the surface about four more times before we played it out.

We were all pretty excited and could hardly wait to find out how much the fish weighed. We took it to the bait house and one of the men working there could hardly believe us when we told him we had caught it on yellow crappie jigs while trolling. He put it on the scales. I couldn't believe my eyes when the scales kept dropping...all the way to 49 pounds!

Debbie and I know that if we live a thousand years, we will never make another catch like this one. It was the most exciting fishing trip we have ever been on, and we were both thrilled that we had a chance to catch our largest fish together.

Randall G. Borders  
Hutchinson

#### PARTING COMPANY

I don't wish to continue my subscription. Missouri gives their *Conservationist* magazine free to their residents, and I pay only \$3 as a nonresident. What's wrong with Kansas?

J. S. Bosley  
Overland Park

*There are some good reasons for the differences between our magazine rates and Missouri's. Missouri long ago decided to use their general agency funds to subsidize the readers of their magazine. Although I'm not aware of exactly how much their 300,000-circulation monthly magazine costs, I've got an*

*idea it would approach our entire agency's budget. We do not have the population Missouri has, and we do not have the support they have from their public. They have a one-eighth percent sales tax that brings in three times our agency budget in a year, and that isn't counting their hunting and fishing license receipts. They can afford to supply magazines to their residents.*

*About four years ago, we decided that we would ask our readers to bear a substantial part of the cost of our magazine. The higher subscription cost means that people who do not want the magazine are not forced to subsidize those who do. I'm sure you will find that good news, in light of your cancellation. We do not make a profit from our magazine; in fact, we lose a little every year, but Kansas Wildlife readers do bear the bulk of the cost of the periodical. We feel this approach is in keeping with our agency's general approach to wildlife management programs -- the user should pay.*

*Missouri has a fine book. They have the money and the personnel to keep it that way. We have far less money, far fewer people. We think we put out a pretty good little magazine given these restrictions. We are sorry you don't agree.*

*It may be that folks in your part of Overland Park are used to getting something for nothing. Where I come from, nothing is free -- except criticism.*

#### ONE MORE YEAR

Last year I wrote you that I was nearing 87 and was renewing for only one year at a time and might be around to do it another time. Well, I'm subscribing for one more year.

Owing to the long, dry summer, I didn't get in my quota of fishing last year. But reading your March-April issue and seeing all the beautiful pictures of our Kansas fish really got my fishing fever up. I hope before the hot weather sets in that I

can take the old chair to the lake and get in some trips. If not, will keep on reading the interesting articles in your magazine and hope to be around next year.

Philip R. Long  
Topeka

### PUBLIC HUNTING? WHERE?

In talking with other hunters, we feel there is not enough information as to where the location of public hunting areas are. We would like to see an article printed in the August issue of your magazine listing those areas and their locations.

John L. Foresman  
St. Mary's

*Thanks for your interest in public hunting areas. You may not be aware that we recently updated a separate brochure outlining locations and acreages of all public hunting areas in the state. So, we're sending one to you, John, and to anyone else who requests it.*

### LOOKING TO NOVEMBER

Really like the magazine but wish you would use more hunting pictures and stories about quail and pheasants. You have a pretty state, good roads, and nice people. Hope to see you next November.

M. T. Brooks  
Atlanta, GA

### MYSTERY FISH

First of all I must tell you that we really enjoy your magazine, as it covers all of the aspects of the sports my husband and I love. The pictures are outstanding.

In your March-April issue you pictured many Kansas sport fish. We do most of our fishing on Mill Creek in Wabaunsee County. We have caught many of the fish pictured but recently

caught one that was not included. It weighed two pounds and looked like a carp, except its mouth pointed downward and had no barbels. My husband has caught this fish before but not very often. We call this fish a sucker carp. Is this a very commonly caught fish and is the name right?

Ramona M. Roth  
Paxico

*What you caught was probably a golden redhorse, a fish which fits the description you give and which has been found in Mill Creek, although it hasn't been documented in any other streams in the Kansas River basin. There are a couple of other possibilities -- the shorthead redhorse and river carpsucker. However, both of those species occur mainly in larger rivers. Also, the river carpsucker is more silvery in color than the golden redhorse, whose coloration resembles that of the carp. In any case, all three of these species are seldom caught by hook and line fishermen.*

### WORMY FISH

Why is it that every bass we have caught since last year has had worms, not only on the outside of the skin but inside and burrowed into the meat. Are these little worms harmful? Some people say to go ahead and cook the fish and the worms will be harmless. We never saw these wormy fish back east. What causes them and are they like that all over Kansas?

Wesley F. Decker  
Admire

*You're probably talking about the yellow grub -- the immature form of a parasitic flatworm sometimes found on catfishes, sunfish, largemouth bass, and, occasionally, crappie. They are more frequently encountered in the flesh of fish in dry years, when lake and pond levels are*

*low. The reason for their more frequent occurrence in dry years is simply that they become more concentrated in a pond or lake as it shrinks in size.*

*The yellow grub has a very complex life cycle and parasitizes, at various stages in its life, herons and other wading birds, snails, and fish. So far, no effective means of controlling the creature has been found.*

*The grub is not harmful to humans, but most fishermen who notice infestations will locate the cyst-encrusted grubs by holding the fillet up to a bright light, then cutting out any of the whitish-colored cysts they can find. Cooking the fish kills the worm, but an unusually heavy infestation of the little buggers will lead most fishermen to discard the fish.*

### KUDOS

Your magazine is exquisite. Pictures are beautiful and the articles so very interesting.

The H. O. Stone's  
Manhattan

### SHORT NOTE

I live in Cheney, right near the Sedgwick County fairground. I think your magazine is very good. I was gone on Feb. 7, the day of the Cheney Reservoir eagle tour. I'm sure it was a wonderful day.

J. Newberry  
Cheney

### NEW NAME FITS

Here is my three-year subscription. I keep all issues and reread many of the articles. You are doing a great job.

The name change from *Kansas Fish & Game* to *Kansas Wildlife* seems appropriate. But, I recall when the *Ohio Conser-*

(Continued)

vation Bulletin also changed its name...and followed with articles covering local fairs, points of interest, large pumpkins, and sports events. Please don't let this happen to *Kansas Wildlife*. Keep it wild.

Bob Hoopes  
Wichita

### MULTI-PURPOSE MAGAZINE

My husband never has had enough leisure time to go hunting, fishing, or just enjoy the great outdoors. We solved that problem when we remodeled his bathroom and papered the walls with back issues of your magazine. Now he can spend a little

of each day "in the wild."

Mrs. David Hendricks  
WaKeeney

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WE WELCOME LETTERS TO THE EDITOR and ask only that they be kept as short as possible. Address correspondence to: Editor, KANSAS WILDLIFE, Rt. 2, Box 54A, Pratt, Ks. 67124.

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## It's The Law

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Two young men were ordered to pay fines of \$500 each after being convicted of killing one of the state's first free-ranging elk in more than 100 years.

The herd bull elk was mortally wounded with three shots from a .22 caliber rifle only eight hours after its release with six other elk in January on the Cimarron National Grasslands of Morton County.

Richard L. Goodin, 19, Junction City, and Donald L. Greene, 19, Richfield, pleaded guilty in Morton County District Court to hunting at night with an artificial light. Morton County Attorney Darrell Johnson, working with the state Attorney General's office, said the spotlighting charge was assessed since, at the time the incident occurred, elk were not yet legally classified as game animals by Kansas law. The Legislature has since passed a provision which provides direct protection for the few elk remaining in the state.

State game protectors Bob Nease, Richard Harrold, and Jim Kellenberger conducted the two-month investigation which led to Goodin and Greene. They pieced together leads received from two anonymous tips which corroborated evidence from witnesses in the vicinity of the shooting. The game protectors and county attorney said the case could not have been solved without the help of many individuals who were outraged over the incident and willing to provide any assistance leading to the capture of the poachers.

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**FINES GOING UP** -- The Legislature's action changing the legal status of elk in Kansas wasn't the only change in fish and wildlife laws resulting from the past session. Another major change, effective July 1 of this year, raises most fines assessed violators of hunting and fishing laws and regulations.

The provision will raise minimum fines for persons hunting or fishing without a license to \$50 for the first offense, \$100 for the second offense, and \$200 for subsequent offenses. Most boating violations will carry a minimum fine of \$50. Penalties for big game hunting offenses will vary from a minimum of \$250 to a maximum of \$1,000 and six months in jail. Altering a license, or making false representation to secure a Kansas hunting or fishing license, will result in fines of from \$100 to \$250. Shooting a game bird, other than a turkey, while it is on the ground and not in flight, or shooting at a game bird with a gun other than a shotgun will carry a minimum fine of \$100, with a maximum fine of \$250. Minimum fines on many other offenses have also been raised, effective July 1.

# = SHORT = STUFF

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**WHOOOPER'S FUTURE BRIGHTENS** — America's wild whooping cranes are continuing their slow but steady recovery from near extinction with a record number of birds sighted on their wintering grounds during the past season. Prospects for future growth in the main flock, which now numbers 78 birds, is encouraging since about half of the birds are active breeders. U.S. and Canadian wildlife officials predict a jump in the flock's population in the next few years "... unless something unforeseen happens or unless most are the same sex."

**SOUTHBOUND ELK** — The recent shipment of 17 cow elk from Wichita Mountains Wildlife Refuge (Okla.) to a ranch in Coahuila, Mexico, has concluded a successful cooperative effort between wildlife agencies in the two countries. The program began in 1977 with shipment of six bulls and 20 cows from the Oklahoma refuge to a thousand-acre pasture on a vast ranch in the Sierra Burro mountains. By last year, the herd increased to 73 animals. The new cows bring the number to 90, hastening the day when the Mexicans can start releasing limited numbers of elk onto the open range.

**FEATHER DEALERS RAIDED** — Undercover agents from the U.S. Fish and Wildlife Service and state wildlife agencies in Arizona, New Mexico, and Oklahoma coordinated a massive raid earlier this year against dealers of feathers and artifacts from protected birds. Armed with search warrants, 45 state officers and 40 federal agents seized feathers and finished craft items valued at more than a half-million dollars from 35 individuals in New Mexico and Oklahoma, and 30 businesses in Arizona. Feathers from songbirds to eagles are involved in the cases. Investigators revealed that feathers from over 4,000 scissor-tailed flycatchers, 155 eagles, and hundreds of woodpeckers, hawks, owls, and other protected birds were offered for sale.

**DISAPPEARING MARSHES** — The extremely productive marshes of Louisiana are eroding away, according to a recent report by Coastal Environments, Inc. of Baton Rouge, La. The loss was documented by use of aerial photographer. Approximately 25,000 acres disappeared last year. About 500,000 acres have been lost in the past 25 years. The problem, the report states, is human impact (dredging, spoil disposal, and flood control). The marshes are the nurseries of a \$200-million-a-year seafood industry and are wintering grounds for 5.5 million waterfowl and abundant other wildlife.

**MONEY ON THE WAY** — An additional \$24.3 million in federal aid funds has been apportioned by Secretary of the Interior James Watt to the 50 states, Puerto Rico, Guam, the Virgin Islands, and American Samoa for fish and wildlife programs. This brings to \$114.3 million the amount made available to the states this fiscal year by the federal government. Of the total, \$83.4 million is for wildlife restoration and \$30.9 million is for fish restoration. Kansas' fiscal year 1981 share of the funds totals about \$2.06 million.

**THE CONDOR CAUSE** — U.S. Fish and Wildlife Service scientists are watching the return to the wild of captive-bred Andean condors with an especially watchful eye. What they learn from the experiment they hope to apply to the Andean condor's more critically endangered relative, the California condor, which now numbers fewer than 30. The return to the wild of the South American condors is the ultimate test of a 10-year project to breed the endangered Andean species in captivity and transplant the young to the wild. The released condors are being monitored visually and via radio telemetry by a three-person research team from the University of Wisconsin.

**IN THE TOP SPOT** — Dr. Jay D. Hair, an associate professor of zoology and forestry at North Carolina State University, has been named chief executive officer of the National Wildlife Federation, the nation's largest citizens conservation organization. Hair, 35, succeeds Thomas L. Kimball, who is retiring after 21 years as head of the 4.6-million-member NWF.

**WILDLIFE AND AGRICULTURE** — A Wildlife Resources Committee of the Great Plains Agricultural Council has been formed, the Wildlife Management Institute reports. The committee is composed of representatives from land grant universities and U.S. Department of Agriculture agencies within the Great Plains states. The committee is charged with: synthesizing information on wildlife and habitat topics; identifying wildlife habitat management problems; recommending research and educational program needs to the Research and Extension Committees; stimulating research, educational and management efforts; sponsoring seminars and workshops; and, stimulating resolution of policy issues.

**GUNS AND THE PRESIDENT** — President Ronald Reagan has pledged his full support to American gun owners, and promised to support efforts which would reform the Gun Control Act of 1968. The President's commitment was voiced by his deputy counselor, Rear Admiral Robert M. Garrick USNR (Ret.), keynote speaker at the National Rifle Association's 110th annual meeting May 1-5 in Denver. Garrick said the President supported the McClure-Volkmer bill, designed to correct certain areas of the Gun Control Act which have allegedly been used to violate gun owners' civil liberties.

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# ACROSS KANSAS

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## **WILDFLOWER SOCIETY OUTINGS SCHEDULED**

The Kansas Wildflower Society is dedicated to developing citizens' awareness of the beauty and value of native plants. One of their primary means of developing more awareness is a series of outings, led by KWS leaders and members who like to share their knowledge. Listed below are several outings planned in the coming weeks:

**SATURDAY, MAY 30, HAYS** -- Tour of Mixed Prairie. Participants will meet at 9 a.m. in Room 301B of Albertson Hall on Fort Hays State University campus. Contact Dr. Howard Reynolds, (913) 628-5665 or 625-3018, for more information.

**SATURDAY, JUNE 6, OTTAWA** -- Tour of native prairie. Group will meet at the home of group leader Mary Bancroft, 404 East 11th, Ottawa, at 9:30 a.m. Contact Mrs. Bancroft, (913) 242-5256, for more information.

**SUNDAY, JUNE 7, ASHLAND** -- Tour of Clark County native pastures. Participants will meet at 11:30 a.m. at the Hardesty House Hotel, Main Street, Ashland. Registration of \$5 includes lunch and bus transportation. Contact Philip Arnold, (316) 635-4487, for more information.

**SUNDAY, JUNE 7, ERIE** -- Wildflowers, timber, and pastures of southeast Kansas. Tour will begin at 1 p.m. from Neosho County Courthouse in Erie. Contact W. W. Holland, (316) 244-3700, for more information.

**SATURDAY, JUNE 20, NEWTON** -- Eastern Harvey County wildflowers. Group will meet at 9:30 a.m. at Harvey County West Park (four miles east of Burrton). Contact Dr. Dwight Platt, (316) 283-6708, for more information.

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## **TOPEKA STUDENTS RAISE CASH FOR NONGAME FUND**

Hats off to the students of Hudson Elementary School in Topeka. They have demonstrated their concern for Kansas wildlife by donating money for use in the Nongame Wildlife Improvement Program. The Hudson students raised the money by collecting aluminum cans for one week, and redeeming the recyclable cans for cash. Jim Bennett, Fish and Game's northeast region wildlife supervisor, accepted a check for \$43.50 during an all school assembly.

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## **POSTER CONTEST ENTRIES INVITED**

Thousands of youngsters will learn about conserving America's natural resources and the necessary role hunters and fishermen play in conservation by taking part in the fourth annual National Hunting and Fishing Day poster contest. To enable more youngsters to win awards, the number of prizes in the national contest has been increased. This year's contest features 52 national awards totaling \$5,000 in U. S. Savings Bonds plus many local awards. A grand prize of a \$1,000 savings bond will be awarded to the youngster who best illustrates the theme of this year's contest -- "How America's Sportsmen Help Conservation."

The contest is open to all students in grades 5-12. There are two classes of competition: a junior class for grades 5-8 and a senior class for grades 9-12. Contests can be organized and sponsored on the local level by schools, sportsmen's clubs, conservation or civic groups. NHF Day Headquarters has suggested that local judging be done at nearby National Hunting and Fishing Day programs on Sept. 26. Prizes for local winners may be awarded by the sponsoring organization, and winning entries will be sent to NHF Day Headquarters for national judging. Deadline for submission of posters for national judging is Nov. 1, 1981.

For information on sponsoring or participating in a local National Hunting and Fishing Day Poster Contest, contact: NHF Day Poster Contest, 1075 Post Road, Riverside, CT 06878.

# ACROSS KANSAS

## CONSERVATION AWARDS NOMINATIONS SOUGHT

The Kansas Wildlife Federation is now accepting nominations for its Conservation Achievement Program. Any organization in the state of Kansas is eligible to submit the name of someone who has done a job worthy of state recognition. Winners proceed to national competition. A nominee must be a Kansas resident, have accomplished his or her work in Kansas, and may be either a professional or layman club, individual, or business. Current Federation officers and 1980 award winners are not eligible.

Among the categories to be judged are:

**Conservationist of the Year** -- For the most significant contribution to the cause of conservation of Kansas' natural resources.

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

**Land & Soil Conservationist** -- Achievement in land use, watershed and wetlands development or protection, erosion control, recreational development, habitat improvement, or other management practices which maintain or improve land and related resources.

**Forest Conservationist** -- Achievement in forest and woodlands development, management, or use.

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

**Air Conservationist** -- Work in obtaining quality air standards, reducing pollution, effecting control of pollution sources, or other action contributing to improved air standards.

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

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

**Hunter Safety Instructor** -- For outstanding work in the Kansas Safe Hunter program and communication of the hunting ethic.

**Conservation Communicator** -- For effectively conveying the conservation message and creating public awareness of conservation issues.

**Conservation Legislator** -- Work by state or federal legislators and members of their staff.

**Conservation Organization** -- May include civic clubs, conservation groups, garden clubs, women's clubs, businesses, trade or professional organizations, corporations, and others.

### NOMINATION FORM

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

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

Name of Nominee \_\_\_\_\_

\_\_\_\_\_ street . . . number

\_\_\_\_\_ city & state \_\_\_\_\_ zip \_\_\_\_\_ A.C. \_\_\_\_\_ Telephone \_\_\_\_\_

Award Category \_\_\_\_\_

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

Recommended by \_\_\_\_\_

\_\_\_\_\_ Name and title

\_\_\_\_\_ club name

\_\_\_\_\_ street & number

\_\_\_\_\_ city & state \_\_\_\_\_ zip \_\_\_\_\_ A.C. \_\_\_\_\_ Telephone \_\_\_\_\_

Date \_\_\_\_\_

#### PREPARATION INSTRUCTIONS

Attach a typewritten description, NOT TO EXCEED THREE PAGES, detailing specific acts for which award is recommended. Include such other information as to past recognition, organization memberships, affiliation, past achievements, etc., as nominator feels is pertinent. When a company, organization, publication, etc., is involved, include the name of the president, chief executive officer, sponsor, editor or so forth.

Nominations will be closed July 31, 1981

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

#### INFORMATION ABOUT NOMINEE:

AGE: Over 18 ( ) Under 18 ( ) Specify Age. If under 18 include name and address of parent or guardian.

\_\_\_\_\_ name

\_\_\_\_\_ street

\_\_\_\_\_ city and state

\_\_\_\_\_ zip \_\_\_\_\_ A.C. \_\_\_\_\_ Telephone \_\_\_\_\_

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

#### LOCAL NEWSPAPER OF NOMINEE

Name \_\_\_\_\_

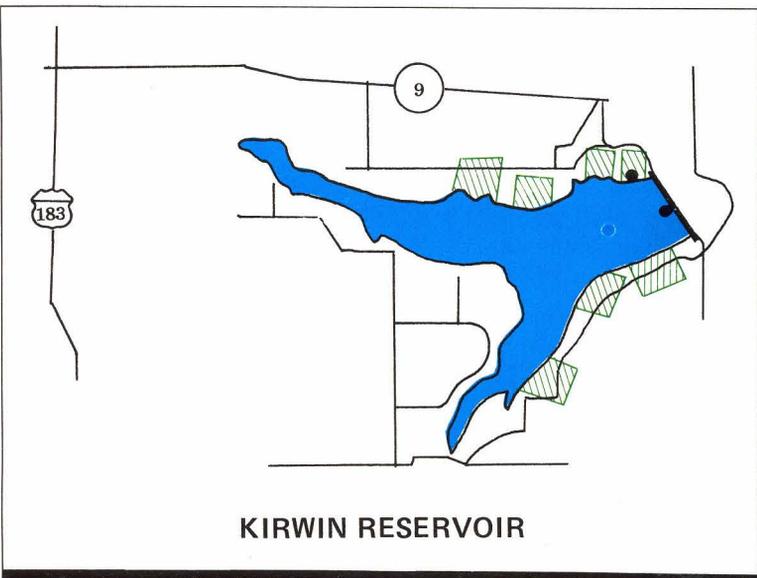
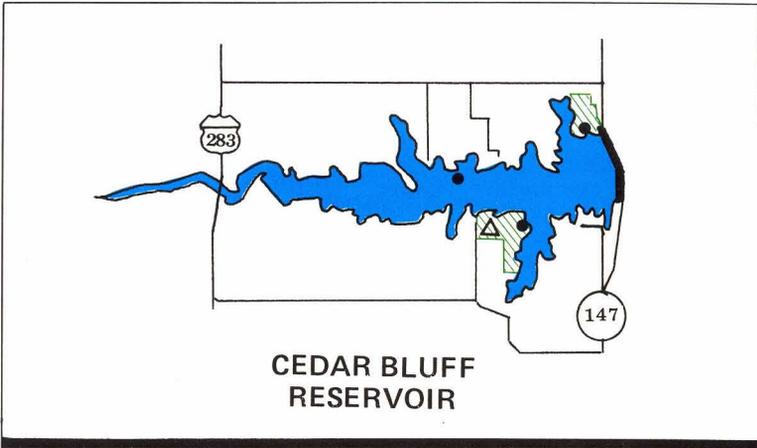
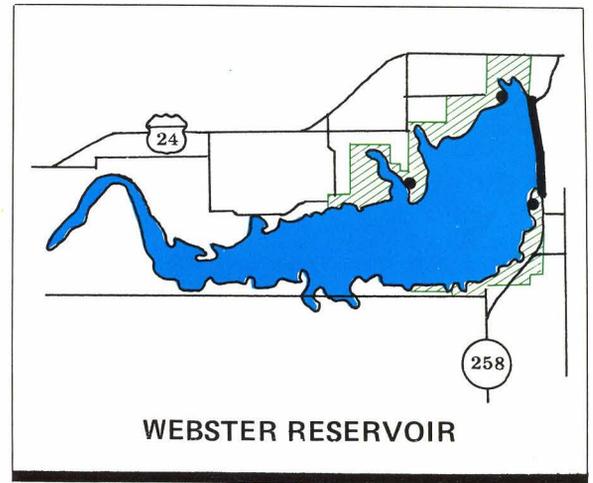
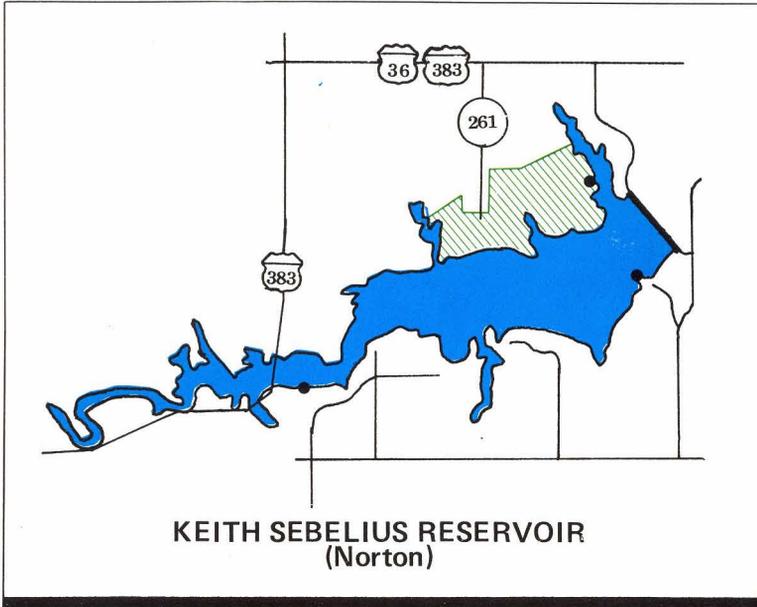
Address \_\_\_\_\_ City \_\_\_\_\_

\_\_\_\_\_ State \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

CATEGORIES ON OTHER SIDE





**LEGEND**

- . . Boat Ramp
- △ . . . Marina
- ▨ . . Park Area

	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
<b>CEDAR BLUFF RESERVOIR</b>	X	X	X	X	X	X	X	X	X
<b>KIRWIN RESERVOIR</b>		X	X	X	X	X			
<b>KEITH SEBELIUS RESERVOIR</b>		X	X	X	X	X	X	X	X
<b>WEBSTER RESERVOIR</b>		X	X	X	X	X	X	X	X
<b>BARBER STATE LAKE</b>		X		X	X				
<b>CIMARRON NATIONAL GRASSLANDS FISHING PITS</b>				X	X				
<b>CLARK STATE LAKE</b>		X		X	X	X			
<b>FINNEY SANDPITS</b>				X	X				
<b>HAIN STATE LAKE</b>				X					
<b>HODGEMAN STATE LAKE</b>				X	X				
<b>KIOWA STATE LAKE</b>		X		X	X	X			
<b>MEADE STATE LAKE</b>		X	X	X	X	X	X	X	
<b>PRATT BACKWATER CHANNELS</b>				X	X				
<b>ROOKS STATE LAKE</b>		X		X	X				
<b>ST. FRANCIS GMA SANDPIT</b>		X		X	X	X			
<b>SCOTT STATE LAKE</b>		X	X	X	X	X	X	X	
<b>SHERIDAN STATE LAKE</b>		X		X	X	X			
<b>SHERMAN STATE LAKE</b>		X		X	X	X			
<b>TEXAS LAKE</b>				X					
<b>BEYMER SAND PIT</b>									
<b>COLDWATER CITY LAKE</b>		X	X	X	X	X	X		
<b>DODGE CITY COLLEGE LAKE</b>									
<b>ELLIS (Big Creek) LAKE</b>		X			X	X			
<b>FORD COUNTY LAKE</b>		X	X	X					
<b>GREAT BEND (Veterans Park)</b>		X			X	X			
<b>LARNED STATE HOSPITAL LAKE</b>					X				
<b>LOGAN CITY LAKE</b>		X	X	X	X				
<b>PLAINVILLE TOWNSHIP LAKE</b>					X	X			
<b>SHERMAN COUNTY LAKE</b>					X	X	X		X
<b>ULYSSES (Frazier) LAKE</b>					X	X	X	X	X

# SOUTHCENTRAL

## RESERVOIRS

- 1 **CHENEY RESERVOIR** (20 W of Wichita) 9,550 acres; white bass, walleye, crappie, channel catfish and striped bass.
- 2 **COUNCIL GROVE RESERVOIR** (1 N of Council Grove) 3,280 acres; crappie, channel catfish, walleye, largemouth bass, white bass and flathead catfish.
- 3 **EL DORADO RESERVOIR** (3 E, 2 N of El Dorado) 8,000 acres; new reservoir—started filling Fall 1981. Fish attractors, standing timber, and other structure to produce expected good fishing in years to come; black bass, walleye, crappie, channel catfish, white bass and flathead catfish.
- 4 **FALL RIVER RESERVOIR** (25 SE of Eureka off K-96) 2,500 acres; white bass, channel catfish, flathead catfish, crappie and largemouth bass.
- 5 **MARION RESERVOIR** (4 NW of Marion off US 56) 6,160 acres; walleye, white bass, channel catfish, crappie and wipers.
- 6 **TORONTO RESERVOIR** (15 SW of Yates Center off US 54 and K-105) 2,800 acres; white bass, channel catfish, flathead catfish and crappie.

## STATE FISHING LAKES

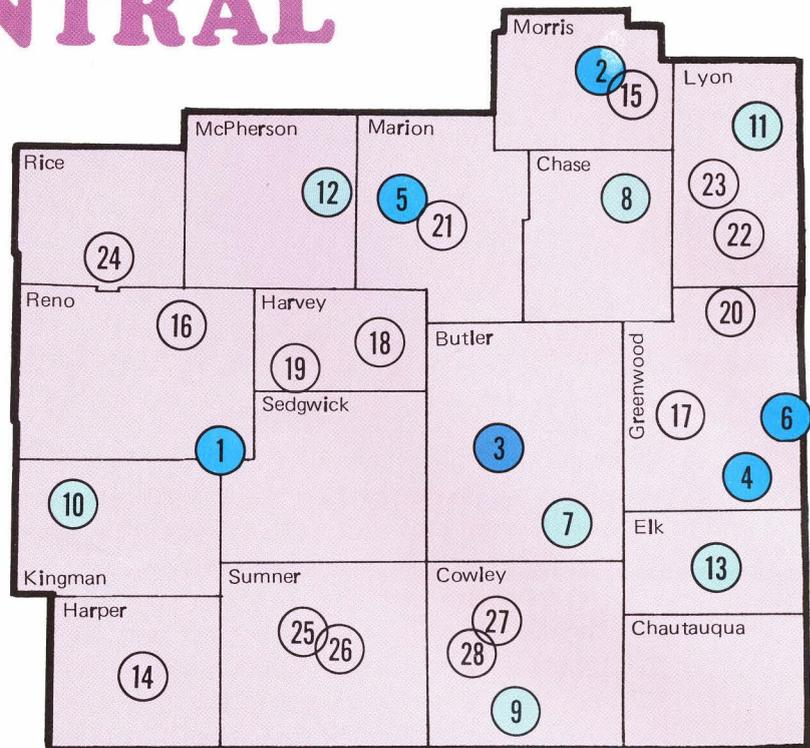
- 7 **BUTLER STATE LAKE** (3 W, 1 N of Latham) 124 acres; largemouth bass, channel catfish, bullhead, redear sunfish, bluegill, walleye, crappie, bullhead and sunfish.
- 8 **CHASE STATE LAKE** (2½ W of Cottonwood Falls) 109 acres; largemouth bass, channel catfish, walleye, crappie, spotted bass, bluegill, sunfish, white bass, bullhead, carp and flathead catfish.
- 9 **COWLEY STATE LAKE** (13 E of Arkansas City on US 156) 84 acres; channel catfish, crappie, bluegill, walleye, largemouth bass, spotted bass, sunfish, bullhead, carp and blue catfish.
- 10 **KINGMAN STATE LAKE** (7 W of Kingman) 144 acres; largemouth bass, channel catfish, bluegill, walleye, northern pike, carp, crappie, blue catfish, bullhead and sunfish.
- 11 **LYON STATE LAKE** (5 W, 1 N of Reading) 135 acres; channel catfish, largemouth bass, bluegill, walleye, spotted bass, blue catfish, crappie, bullhead and sunfish.

- 12 **MCPHERSON STATE LAKE** (6 N, 2½ W of Canton) 46 acres; largemouth bass, crappie, channel catfish, bullhead, northern pike, bluegill, sunfish, carp, walleye, blue catfish and spotted bass.
- 13 **POLK DANIELS STATE LAKE** (2 E of Howard) 69 acres.

## COMMUNITY LAKES

- 14 **ANTHONY CITY LAKE** (1 N, ½ W of Anthony) 156 acres; largemouth bass, channel catfish, crappie, bluegill, sunfish and bullhead.
- 15 **COUNCIL GROVE CITY LAKE** (3 W, 1 N of Council Grove) 430 acres; largemouth bass, channel catfish, flathead catfish, bullhead, walleye, sunfish, and spotted bass.
- 16 **DILLON OUTDOOR EDUCATION CENTER** (NE corner of Hutchinson) 3 acres.
- 17 **EUREKA CITY LAKE** (6 N of Eureka) 250 acres; largemouth bass, channel catfish, crappie, flathead catfish, sunfish, bluegill and spotted bass.
- 18 **HARVEY COUNTY EAST LAKE** (7 E of Newton) 254 acres.
- 19 **HARVEY COUNTY WEST LAKE** (4 N, 3 W of Halstead) 15 acres; largemouth bass, channel catfish, bluegill, bullhead, sunfish, drum, carp and crappie.

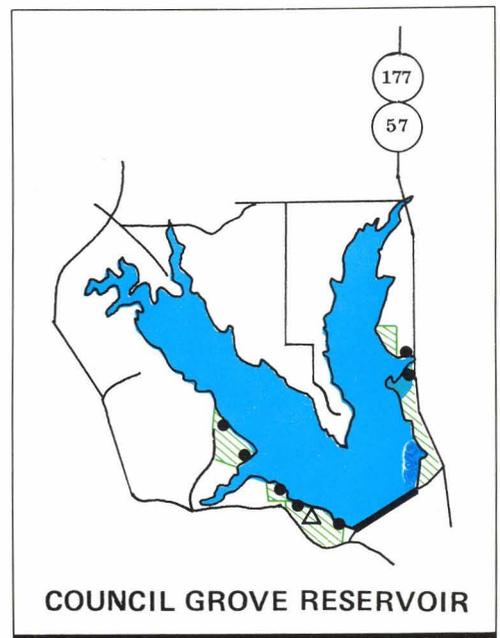
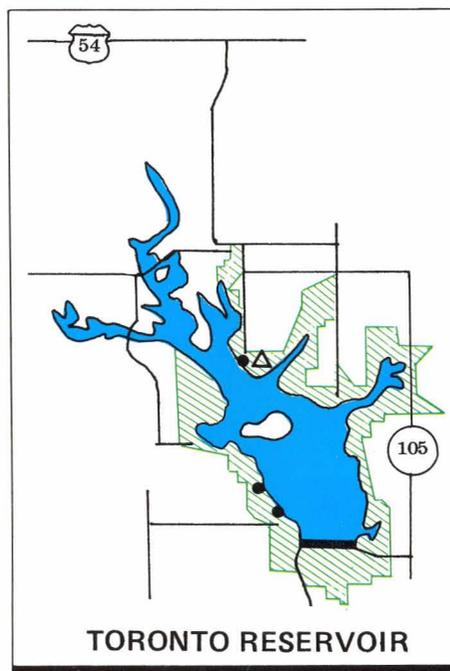
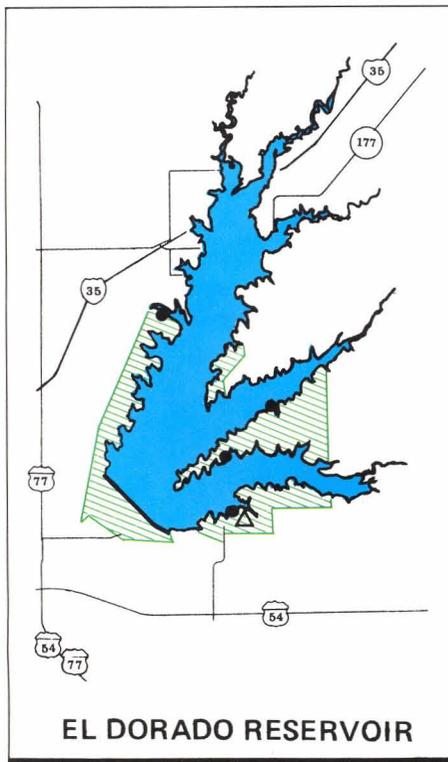
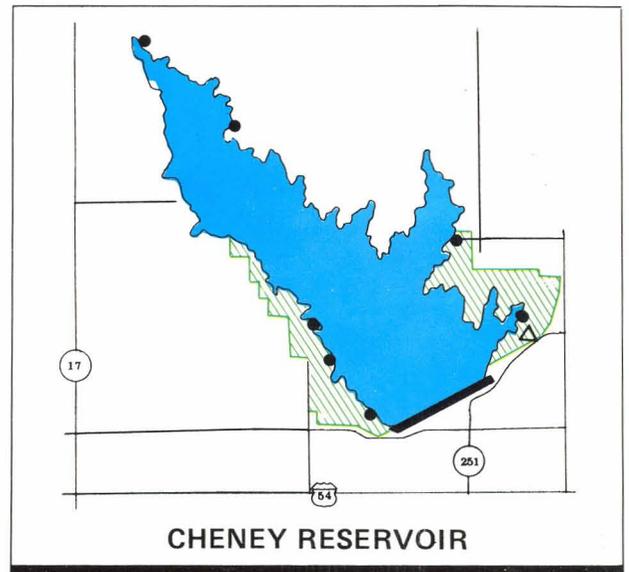
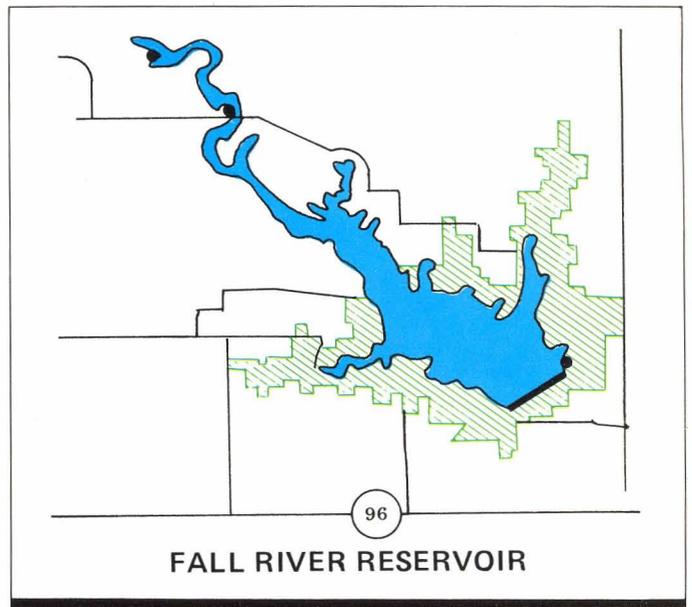
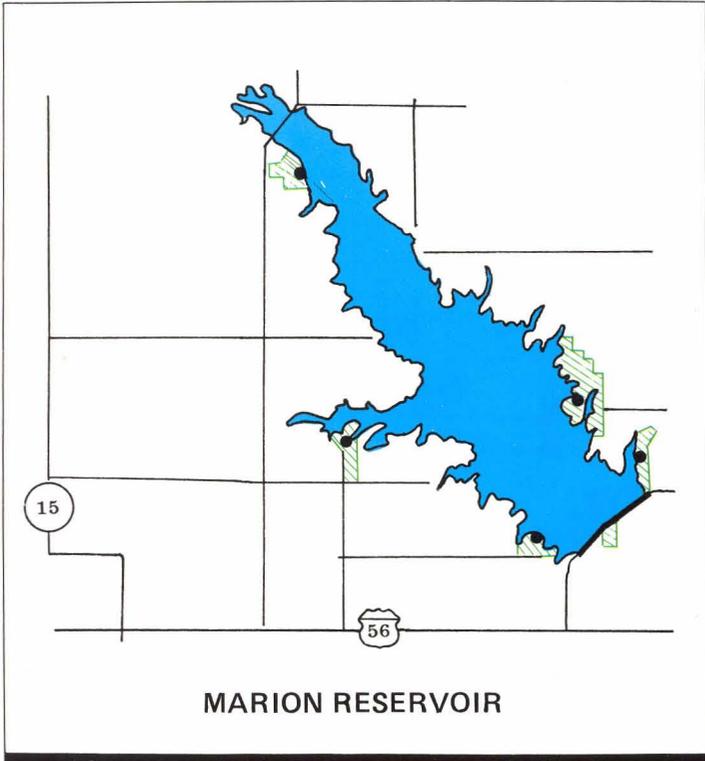
- 20 **MADISON CITY LAKE** (2 S, ½ E of Madison) 114 acres; largemouth bass, channel catfish and bluegill.
- 21 **MARION COUNTY LAKE** (2 E, 2 S of Marion) 153 acres; largemouth bass, spotted bass, walleye, crappie, drum, channel catfish, bluegill, bullhead, and sunfish.
- 22 **OLPE LAKE** (½ W, 1 S of Olpe) 90 acres; largemouth bass, channel catfish, bluegill and bullhead.
- 23 **PETER PAN PARK & JONES YOUTH RECREATIONAL PARK** (In the City of Emporia) 3 acres each.
- 24 **STERLING LAKE** (S edge of Sterling) 16 acres; channel catfish, bluegill, bullhead and largemouth bass.
- 25 **WELLINGTON CITY LAKE No. 1** (5 W, 1½ S of Wellington) 350 acres; largemouth bass, crappie, channel catfish, bluegill, flathead catfish, sunfish and carp.
- 26 **WELLINGTON CITY LAKE No. 2** (NE edge of Wellington) 67 acres.
- 27 **WINFIELD CITY LAKE** (10 NE of Winfield) 1,200 acres; largemouth bass, crappie, bluegill, walleye, channel catfish, northern pike, spotted bass, bullhead, carp and sunfish.
- 28 **WINFIELD ISLAND PARK LAKE** (N edge of Winfield) 7 acres.



OKLAHOMA

**LEGEND**

- . . Boat Ramp
- △ . . . Marina
- ▨ . . Park Area



	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
CHENEY RESERVOIR	X	X	X	X	X	X	X	X	X
COUNCIL GROVE RESERVOIR	X	X	X	X	X	X	X	X	X
EL DORADO RESERVOIR	X	X	X	X	X	X	X	X	X
FALL RIVER RESERVOIR		X	X	X	X	X	X	X	X
MARION RESERVOIR		X	X	X	X	X	X	X	X
TORONTO RESERVOIR	X	X	X	X	X	X	X		X
BUTLER STATE LAKE		X		X	X	X			
CHASE STATE LAKE		X	X	X	X	X			
COWLEY STATE LAKE	X	X		X	X	X			X
KINGMAN STATE LAKE		X		X	X	X			
LYON STATE LAKE		X	X	X	X	X			
McPHERSON STATE LAKE		X		X	X	X			
POLK DANIELS STATE LAKE		X		X	X				
ANTHONY CITY LAKE		X		X	X	X			X

	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
COUNCIL GROVE CITY LAKE		X	X		X	X			
DILLON OUTDOOR EDUCATION CENTER					X	X			
EUREKA CITY LAKE		X		X	X				
HARVEY COUNTY EAST LAKE	X	X	X	X	X	X	X		X
HARVEY COUNTY WEST LAKE		X	X	X	X	X	X		X
MADISON CITY LAKE		X	X	X	X				
MARION COUNTY LAKE	X	X	X	X	X	X	X	X	X
OLPE LAKE		X	X	X					
PETER PAN PARK & JONES YOUTH RECREATIONAL PARK					X	X			
STERLING LAKE			X		X	X			
WELLINGTON CITY LAKES		X		X	X	X	X		X
WINFIELD CITY LAKES		X	X	X	X	X	X		X
WINFIELD ISLAND PARK LAKE				X	X	X			



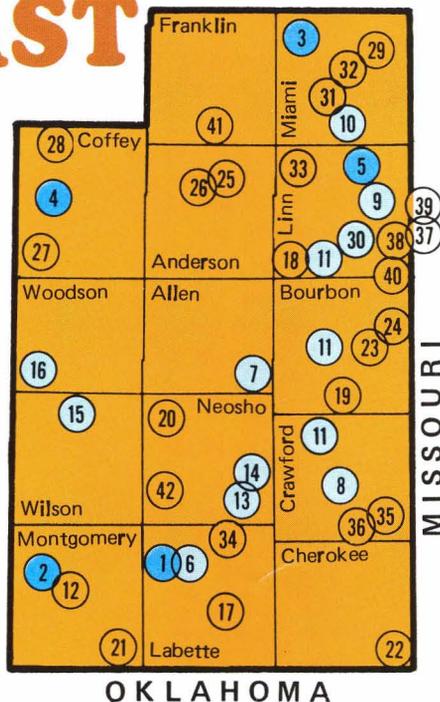
# SOUTHEAST

## RESERVOIRS

- 1 **BIG HILL RESERVOIR** (4½ E of Cherryvale) 1,240 acres; new reservoir—started filling in 1981—public use facilities to be completed in 1982. Expected to be one of Midwest's hottest fishing reservoirs in a few years due to ample timber habitat and outstanding structure; largemouth bass, smallmouth bass, walleye, channel catfish, bluegill, black crappie and flathead catfish.
- 2 **ELK CITY RESERVOIR** (5 NW of Independence) 4,450 acres; crappie, white bass, largemouth bass, channel catfish, flathead catfish and carp.
- 3 **HILLSDALE RESERVOIR** (3 NW of Paola) 4,580 acres; new reservoir—started filling Fall 1981—staged filling to be complete by Fall 1984. Expected to become very good fishing area due to ample habitat; largemouth bass, crappie, bluegill, channel catfish, flathead catfish, walleye, northern pike and white bass.
- 4 **JOHN REDMOND RESERVOIR** (2 N, ½ W of Burlington on US 75) 9,400 acres; channel catfish, flathead catfish, white bass and crappie. Portions of the lake are closed to fishing during fall and winter months to minimize disturbance of waterfowl on the Flint Hills National Wildlife Refuge at the upper end of the lake.
- 5 **LA CYGNE RESERVOIR** (5 E of La Cygne) 2,600 acres; channel catfish, crappie, walleye, flathead catfish, largemouth bass and striped bass.

## STATE FISHING LAKES

- 6 **BIG HILL WILDLIFE AREA** (6 E of Cherryvale) 13.8 acres; largemouth bass, channel catfish, bluegill, redear sunfish and green sunfish.
- 7 **BOURBON STATE LAKE** (4 E of Elsmore) 103 acres; largemouth bass, crappie, bluegill, channel catfish, walleye, bullhead, green sunfish and wipers.
- 8 **CRAWFORD STATE LAKE** (9 N, 1 E of Girard) 150 acres; largemouth bass, crappie, channel catfish, bluegill, redear sunfish, spotted bass and striped bass.
- 9 **MARAIS DES CYGNES WILDLIFE AREA** (7 N of Pleasanton on US 69) 1,967 acres; channel catfish, largemouth bass, crappie, bullhead, bluegill, green sunfish, carp and drum.
- 10 **MIAMI STATE LAKE** (8 E, 5 S of Osawatomie) 118 acres; largemouth bass, bluegill, redear sunfish and channel catfish.



- 11 **MINED LAND (Strip Pits) LAKES** Scattered throughout Linn, Crawford, Bourbon and Cherokee counties) 890 acres; largemouth bass, bluegill, channel catfish, crappie, bullhead and redear sunfish.
- 12 **MONTGOMERY STATE LAKE** (3 S, 1 E of Independence on 10th St. Rd.) 105 acres; channel catfish, largemouth bass, crappie, bluegill, walleye, bullhead, flathead catfish and green sunfish.
- 13 **NEOSHO STATE LAKE** (6 S, 1 W of St. Paul) 92 acres; channel catfish, walleye, crappie, bluegill, largemouth bass, bullhead and green sunfish.
- 14 **NEOSHO WILDLIFE AREA** (1 E of St. Paul on K-57) 800 acres; largemouth bass, channel catfish, bluegill, crappie, flathead catfish, green sunfish, carp, drum and buffalo.
- 15 **WILSON STATE LAKE** (1 S, 1 E of Buffalo) 119 acres; largemouth bass, channel catfish, bluegill, crappie, flathead catfish and green sunfish.
- 16 **WOODSON STATE LAKE** (5½ E of Toronto) 248 acres; largemouth bass, crappie, channel catfish, bluegill, bullhead, spotted bass, walleye, striped bass and wipers.

## COMMUNITY LAKES

- 17 **ALTAMONT CITY LAKE** (4 S of Altamont) 13 acres; largemouth bass, crappie, channel catfish, bluegill, bullhead, and green sunfish.
- 18 **BLUE MOUND CITY LAKE** (1 N, 2 W of Blue Mound) 19 acres; largemouth bass, channel catfish, bluegill and crappie.

- 19 **BOURBON COUNTY (Elm Creek) LAKE** (1 E, 2 N of Hiattville) 106 acres; largemouth bass, crappie, bluegill, channel catfish and bluegill.
- 20 **CHANUTE CITY LAKE** (S edge of Chanute) 80 acres; largemouth bass, channel catfish, bluegill, crappie and walleye.
- 21 **COFFEYVILLE STATE PARK & PFISTER PARK LAKES** (Coffeyville) 10 acres; channel catfish, largemouth bass and bluegill.
- 22 **EMPIRE LAKE** (SE of Riverton) 800 acres; crappie, largemouth bass, white bass, channel catfish, bullhead, green sunfish, flathead catfish, spotted bass, drum, bluegill and carp.
- 23 **FORT SCOTT LAKE** (2 S, 3 W of Fort Scott) 360 acres; largemouth bass, channel catfish, bluegill, white bass, green sunfish, bullhead and walleye.
- 24 **FORT SCOTT (Rock Creek) LAKE** (1 S, 2½ W of Fort Scott) 75 acres; largemouth bass, channel catfish, bluegill, green sunfish, crappie, bullhead and carp.
- 25 **GARNETT CITY LAKE (North)** (N edge of Garnett) 55 acres; largemouth bass, crappie, channel catfish, redear sunfish, bluegill, green sunfish, bullhead and walleye.
- 26 **GARNETT CITY LAKE (South)** (S edge of Garnett) 10 acres; largemouth bass, channel catfish and bluegill.
- 27 **GRIDLEY (Bishop) LAKE** (1 N of Gridley) 33 acres; channel catfish, largemouth bass, bluegill, bullhead and green sunfish.
- 28 **LEBO LAKE** (2 E, ½ N of Lebo) 70 acres; channel catfish, largemouth bass, bluegill, crappie and carp.
- 29 **LOUISBURG LAKE** (SE edge of Louisburg) 23 acres; channel catfish, largemouth bass, bluegill and crappie.
- 30 **MOUND CITY LAKE** (4 W of Mound City) 148 acres; largemouth bass, walleye, northern pike, channel catfish, bluegill and redear sunfish.
- 31 **OSAWATOMIE CITY LAKE** (1½ N, 2 W of Osawatomie) 21 acres; channel catfish, largemouth bass, crappie, bluegill, bullhead, redear sunfish and green sunfish.
- 32 **PAOLA CITY LAKE (Lake Miola)** (1 N, 1 E. of Paola) 220 acres; channel catfish, largemouth bass, crappie, green sunfish, bluegill, carp, bullhead and buffalo.
- 33 **PARKER CITY LAKE** (¾ S, ½ W of Parker) 7½ acres; largemouth bass, bluegill, channel catfish, green sunfish and buffalo.

**34 PARSONS CITY LAKE** (4 N, 3½ W of Parsons) 800 acres; largemouth bass, bluegill, channel catfish, crappie, bullhead, flathead catfish, carp and buffalo.

**35 PITTSBURG COLLEGE LAKE** (SE edge of P.S.U. Campus) 2 acres; bluegill, channel catfish, bullhead, largemouth bass and sunfish.

**36 PLAYERS LAKE** (Pittsburg) 3½ acres; channel catfish, largemouth bass and bluegill.

**37 PLEASANTON CITY LAKE No. 1** (1 N, ½ E of Pleasanton) 127 acres;

Bluegill, largemouth bass, channel catfish and crappie.

**38 PLEASANTON CITY LAKE No. 2** (¼ W of Pleasanton) 11 acres; bluegill, largemouth bass, channel catfish and crappie.

**39 PLEASANTON CITY LAKE No. 3** (½ W of Pleasanton) 32 acres; bluegill, largemouth bass, channel catfish and crappie.

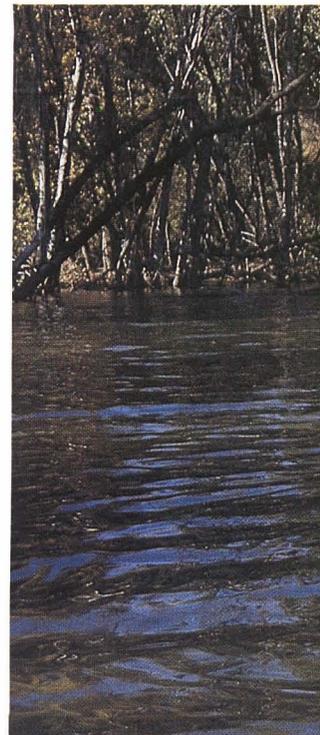
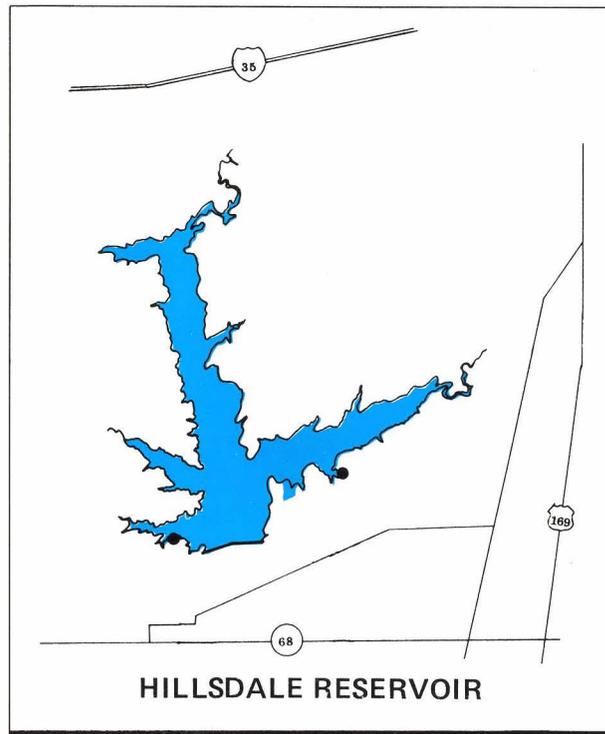
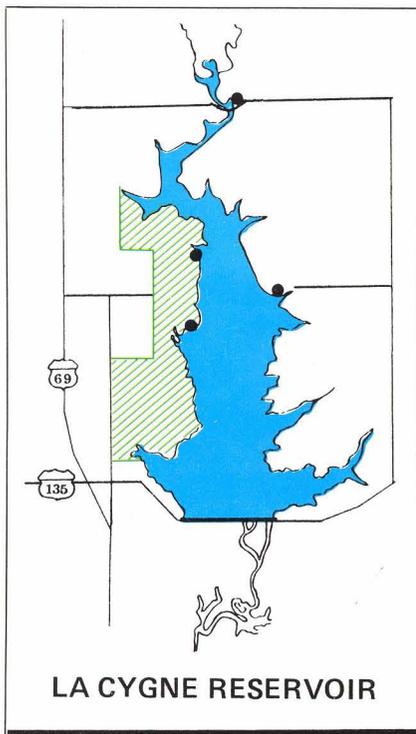
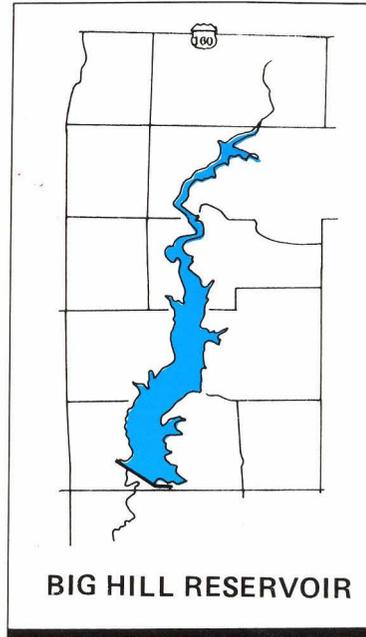
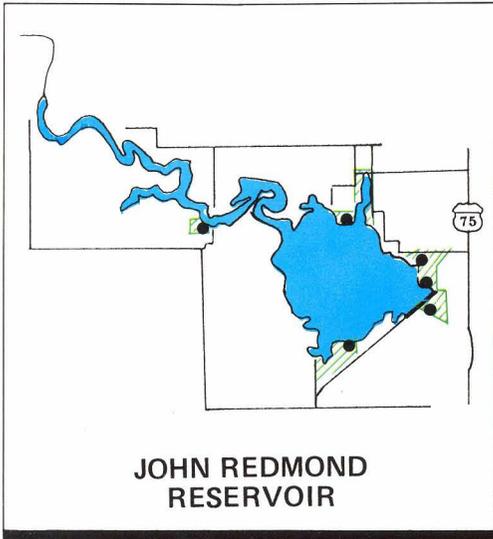
**40 PRESCOTT CITY LAKE** (1 E, ½ S of Prescott) 25 acres; bluegill, largemouth bass, channel catfish, green sunfish and bullhead.

**41 RICHMOND CITY LAKE** (1 S, 1½ E of Richmond) 21 acres; largemouth bass, crappie, bluegill, channel catfish, bullhead, flathead catfish and green sunfish. (No gasoline motors allowed.)

**42 THAYER CITY LAKE** (2 W, ¼ S of Thayer) 30 acres; largemouth bass, channel catfish, crappie, bluegill, bullhead and green sunfish.

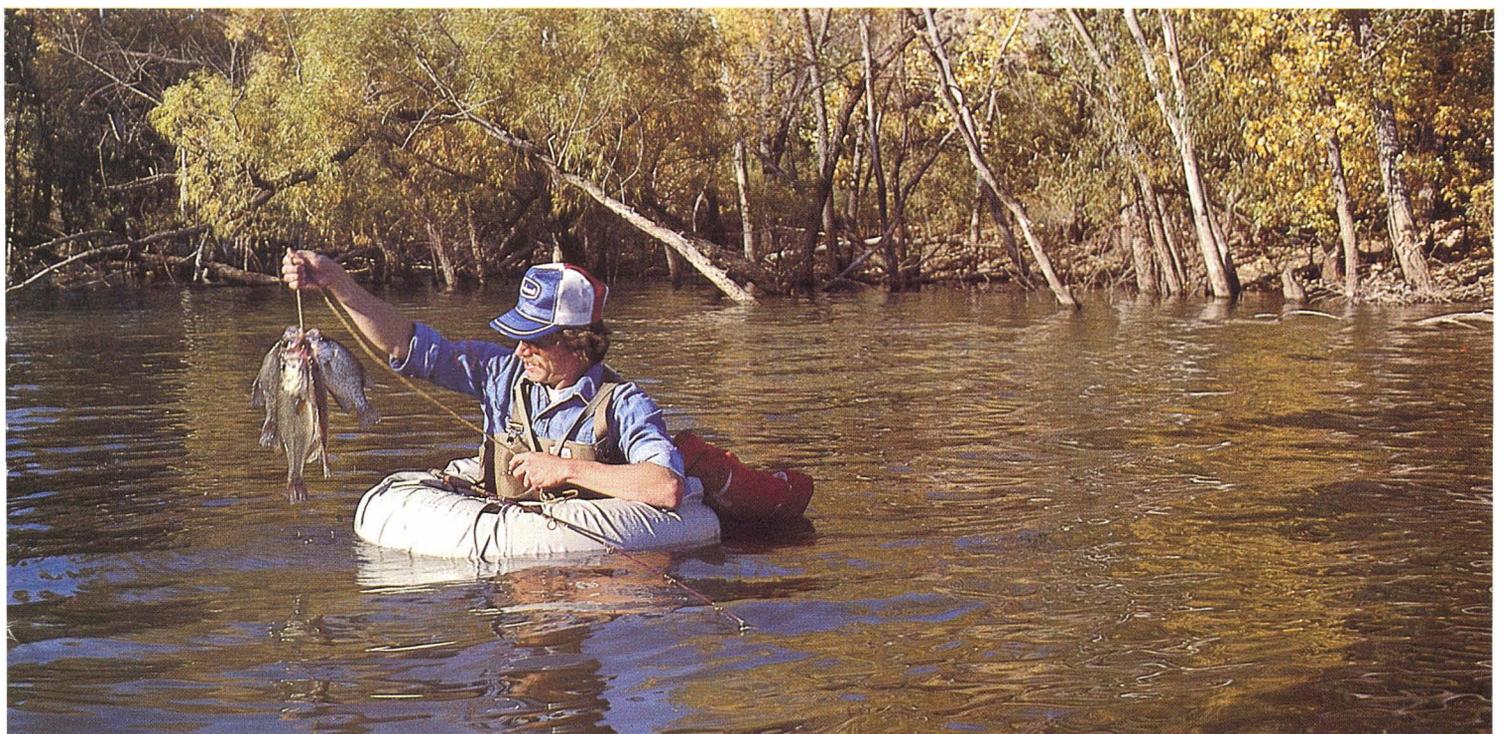
### LEGEND

- . . Boat Ramp
- △ . . . Marina
- ▨ . . Park Area

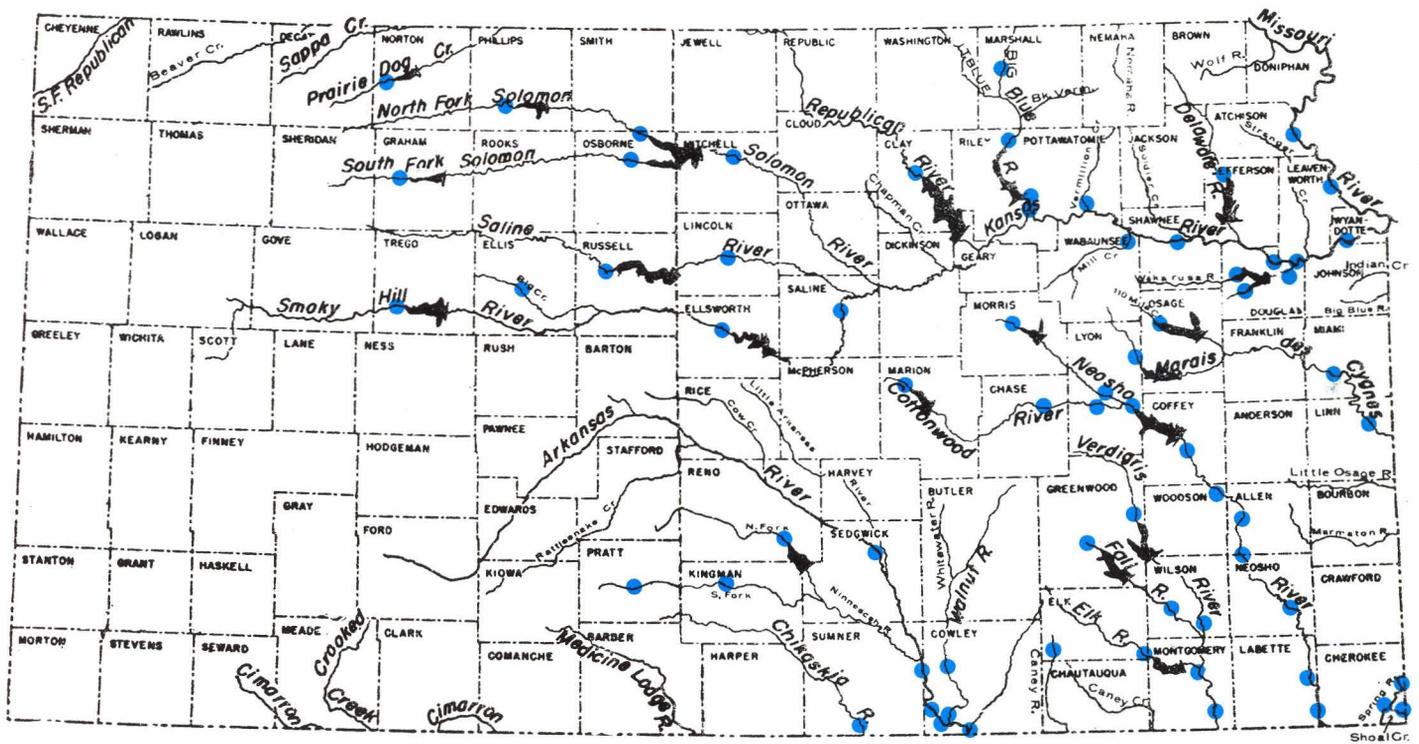


	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
BIG HILL RESERVOIR		X	X	X	X	X	X	X	X
ELK CITY RESERVOIR		X	X	X	X	X	X	X	X
HILLSDALE RESERVOIR		X	X	X					
JOHN REDMOND RESERVOIR		X	X	X	X	X	X	X	X
LA CYGNE RESERVOIR	X	X		X	X	X	X	X	X
BIG HILL WILDLIFE AREA									
BOURBON STATE LAKE		X		X	X	X			
CRAWFORD STATE LAKE	X	X	X	X	X	X	X	X	X
MARAIS DES CYGNES WILDLIFE AREA		X		X	X				
MIAMI STATE LAKE		X		X	X				
MINED LAND (Strip Pits) LAKES		X		X	X				
MONTGOMERY STATE LAKE	X	X	X	X	X				
NEOSHO STATE LAKE		X		X	X	X	X		X
NEOSHO WILDLIFE AREA		X							
WILSON STATE LAKE		X		X	X				
WOODSON STATE LAKE		X		X	X		X		X
ALTAMONT CITY LAKE									
BLUE MOUND CITY LAKE									
BOURBON COUNTY (Elm Creek) LAKE		X	X	X	X	X			
CHANUTE CITY LAKE		X	X	X	X	X	X	X	
COFFEYVILLE STATE PARK & PFISTER PARK LAKES					X				
EMPIRE LAKE	X	X	X		X				

	Boat Rental	Boat Ramps	Swimming	Camping	Picnic Areas	Drinking Water	Trailer Park & Pads	Electric Hookups	Dump Station
FORT SCOTT LAKE		X	X		X				
FORT SCOTT (Rock Creek) LAKE		X							
GARNETT CITY LAKE (North)		X			X	X			
GARNETT CITY LAKE (South)				X	X	X			
GRIDLEY (Bishop) LAKE		X		X	X				
LEBO LAKE		X		X					
LOUISBURG LAKE									
MOUND CITY LAKE									
OSAWATOMIE CITY LAKE		X		X	X		X		
PAOLA CITY LAKE (Lake Miola)		X	X	X	X			X	
PARKER CITY LAKE									
PARSONS CITY LAKE		X	X	X	X	X	X		
PITTSBURG COLLEGE LAKE					X	X			
PLAYTERS LAKE					X				
PLEASANTON CITY LAKE		X	X		X				
PLEASANTON CITY LAKE									
PLEASANTON CITY LAKE									
PRESCOTT CITY LAKE									
RICHMOND CITY LAKE		X		X	X				
THAYER CITY LAKE		X	X	X	X		X		



Ken Stiebben



# River Access

Most access points shown on this map are at low water dams in or near towns and cities, or on public game management areas and refuges. Private access to rivers and streams should always be obtained by asking permission of the land-owners.

## ARKANSAS RIVER

- Kaw GMA at state line (Cowley Co.)
- Arkansas City (Cowley Co.)
- Geuda Springs (Cowley Co.)
- Oxford (Sumner Co.)
- Wichita north on 21st St. at bridge (Sedgwick Co.)

## BIG CREEK

- Hays (Ellis Co.)

## BIG BLUE RIVER

- Rocky Ford below Tuttle Creek Reservoir (Riley Co.)
- GMA above Tuttle Creek Reservoir (Riley Co.)
- Marysville (Marshall Co.)

## CANEY RIVER

- Grenola (Elk Co.)

## CHIKASKIA RIVER

- Drury Dam - west of South Haven (Sumner Co.)

## COTTONWOOD RIVER

- Emporia low water dam (Lyon Co.)
- Cottonwood Falls (Chase Co.)
- GMA above Marion Reservoir (Marion Co.)

## DELAWARE RIVER

- GMA above Perry Reservoir (Jefferson Co.)

## ELK RIVER

- GMA above Elk City Reservoir (Montgomery Co.)

## FALL RIVER

- Fredonia (Wilson Co.)
- Eureka (Greenwood Co.)
- GMA above Fall River Reservoir (Greenwood Co.)

## KANSAS RIVER

- Edwardsville (Johnson Co.)
- Eudora (Douglas Co.)
- Lawrence (Douglas Co.)
- Topeka (Shawnee Co.)
- Vermillion Creek mouth on US 24 (Pottawatomie Co.)
- Blue River mouth at Manhattan (Pottawatomie Co.)

## MARAIS DES CYGNES RIVER

- Marais des Cygnes Waterfowl Refuge (Linn Co.)
- Oswatimie (Miami Co.)
- Ottawa (Franklin Co.)
- GMA above Melvern Reservoir (Osage & Lyon Co.)

## MILL CREEK

- Private land near Maple Hill (Wabaunsee Co.)

## MISSOURI RIVER

- Atchison (Atchison Co.)
- Leavenworth (Leavenworth Co.)
- Most public areas (Doniphan Co., Atchison Co., Leavenworth Co. and Wyandotte Co.)

## NEOSHO RIVER

- Chetopa (Labette Co.)
- Oswego (Labette Co.)
- Neosho Waterfowl Refuge (Neosho Co.)
- Chanute (Neosho Co.)
- Iola (Allen Co.)
- Neosho Falls (Woodson Co.)
- Burlington (Coffey Co.)
- GMA above John Redmond Reservoir (Lyon Co.)
- Neosho Rapids (Lyon Co.)
- Emporia low water dam (Lyon Co.)
- GMA above Council Grove Reservoir (Morris Co.)

## NINNESCAH RIVER (North Fork)

- GMA above Cheney Reservoir (Reno Co.)

## NINNESCAH RIVER (South Fork)

- Kingman GMA (Kingman Co.)
- Pratt Fish & Game Headquarters - 2 miles east and 1 mile south of Pratt (Pratt Co.)

## 110 MILE CREEK

- GMA above Pomona Reservoir (Osage Co.)

## PRAIRIE DOG CREEK

- GMA above Keith Sebelius (Norton) Reservoir (Norton Co.)

## ROCK CREEK

- GMA above Clinton Reservoir (Douglas Co.)

## SALINE RIVER

- Lincoln low water dam (Lincoln Co.)

## SHOAL CREEK

- Galena (Cherokee Co.)

## SMOKY HILL RIVER

- Salina (Saline Co.)
- GMA above Kanopolis Reservoir (Ellsworth Co.)
- GMA above Cedar Bluff Reservoir (Trego Co.)

## SOLOMON RIVER

- Beloit (Mitchell Co.)
- GMA above Glen Elder Reservoir on the South Fork (Osborne Co.)
- GMA above Glen Elder Reservoir on the North Fork (Osborne Co.)

## SPRING RIVER

- Below Empire Lake southeast of Riverton (Cherokee Co.)
- K-96 near the Kansas/Missouri state line (Cherokee Co.)

## VERDIGRIS RIVER

- Coffeyville (Montgomery Co.)
- Independence (Montgomery Co.)
- Neodesha (Wilson Co.)
- GMA above Toronto Reservoir (Greenwood Co.)

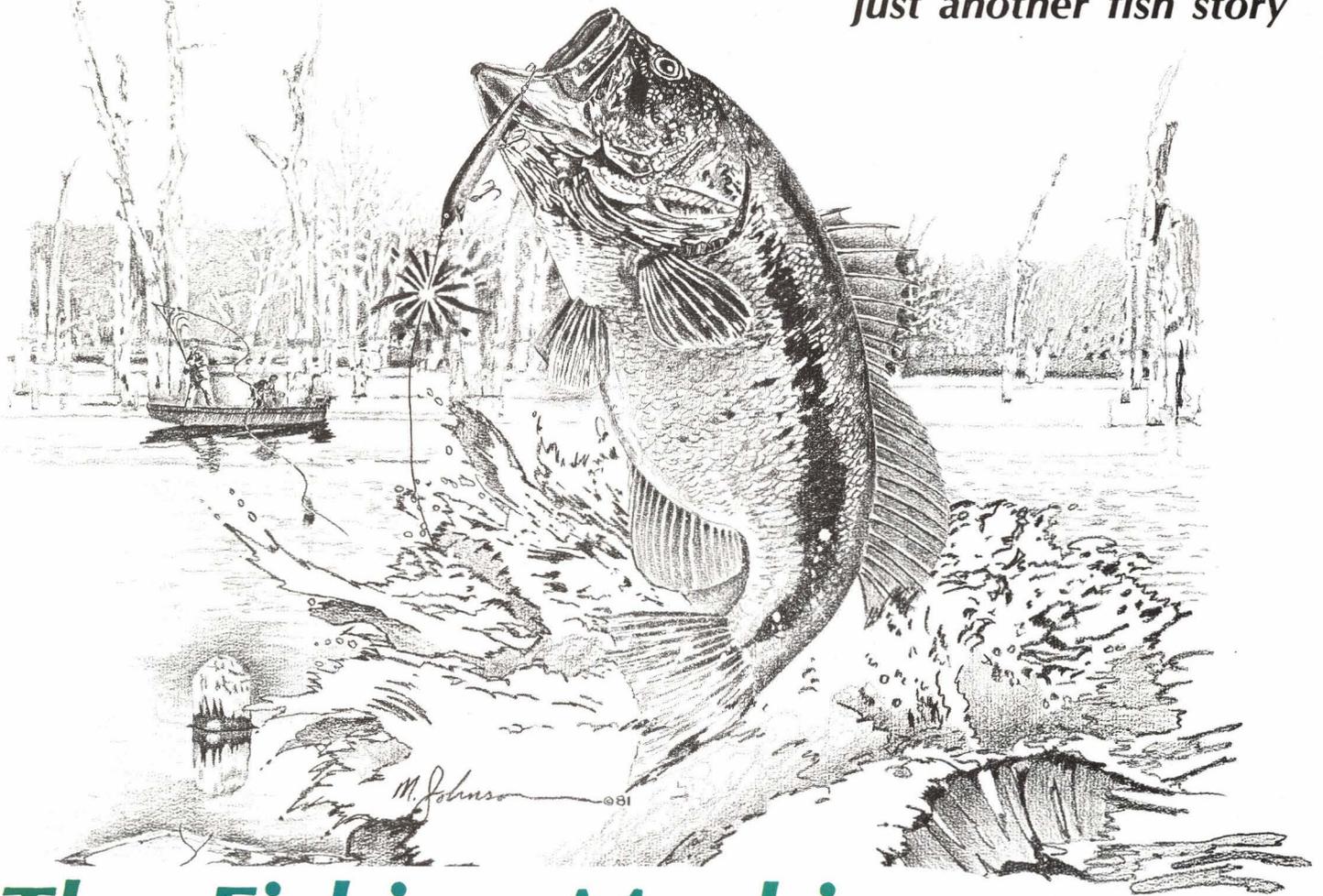
## WAKARUSA RIVER

- Eudora (Douglas Co.)
- GMA above Clinton Reservoir (Douglas Co.)

## WALNUT RIVER

- Arkansas City (Cowley Co.)
- Winfield (Cowley Co.)

*Choosing the right fishing tackle and taking care of it can make the difference between a trophy and just another fish story*



# *The Fishing Machine*

*Tommy Berger*

*Illustrated by Mark Johnson*

**H**ave you ever been fishing and gotten your lure about half way to the boat when something grabbed it and put a deep bend in your rod? Then, just about the time you get all excited, your line breaks, your pole snaps, or your reel malfunctions as you set the hook. Sound familiar? About 100 years ago, a poet named Eugene Field wrote: "I never lost a little fish, I'm free to say; it always was the biggest fish I caught that got away." Every fisherman, young or old, knows how he felt. The disappointment, frustration, even rage that comes with a suddenly slack

line is an inevitable part of fishing.

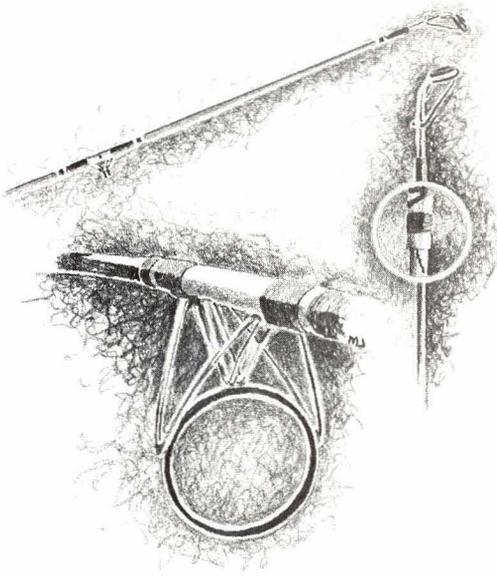
Is there something to learn from losing a battle with a big fish? Some misses are results of overconfidence, inexperience, simply failure to instantly take the situation in hand with confidence and authority, or of a moment's hesitation when the circumstances demand action. On the other hand, some misses are attributable to equipment that failed—broken swivels, hooks, rods or lines. This article will address problems with such equipment and discuss ways to avoid them.

The basic contact made between

fish and fisherman is accomplished with a tool called a fishing pole. This can be an old willow stick with a piece of cotton line and a safety pin or a sophisticated, high-intensity boron rod with a high dollar bait-casting reel, monofilament line and a \$5 lure on the end. There has been an explosion in the development of fishing tackle in recent years that can only be described as mind-boggling, but no matter how complicated it may seem, there are only four basic parts to the modern fishing machine: the rod, the reel, the line, and the terminal tackle. The fisherman is the



*Vital parts of the fishing machine, the drag and rod guides are often neglected. A drag is designed to put steady pressure on a running fish. If the washers that control the drag are dirty or badly worn, the system is likely to fail when it is under greatest load. Guides on older rods can become grooved or damaged, forming a burr or sharp edge that can damage or even cut line. Rod manufacturers have developed new materials for their guides. Like the quality features on any piece of equipment, they cost more and are probably worth it.*



operator of this machine and the more knowledgeable the operator is about his equipment, the more success he will have with it. This means more fish on the stringer and a better chance of landing that lunker of a lifetime when it strikes.

Let's discuss the basics of the fishing pole, one piece at a time.

**F**or many years, bamboo reigned as the premier rod-making material. I am not only talking about the old bamboo cane pole used by many of us when we were younger, but also the split bamboo rods used by elite anglers in the late 1800's and early 1900's. Then, during our country's industrial revolution, we bought and used solid steel rods, tubular steel, solid fiberglass and then tubular fiberglass. Eventually, the tubular fiberglass won out as the best buy for the money and the most versatile rod for all-around fishing.

In the last several years, some of the country's professional fishermen and tackle companies have been experimenting with the new "space age" rod building materials. Rods built of high-density, light-weight fiberglass, graphite, Boron, or combinations of these materials are appearing on the market. These rods are being designed to be light in weight, stiff in backbone, and very sensitive in touch. They are "the rods of the future."

Fishing rods are not all designed for the express purpose of functioning as efficient fishing machines. Many are "store action" rods, fashioned to wiggle well when selected from the rod rack. If they pass the wiggle test for enough anglers, they will be good sellers. It is tough to fault the manufacturer for this as it matters little whether he builds a perfect rod if no one buys it.

The more ardent and knowledgeable fishermen have long advocated a somewhat stiffer rod than the public seems willing to buy. The spaghetti or limp noodle rods with a good "wiggle" are really at a disadvantage when casting long distances, setting the hook and playing

a fairly good-sized fish. A rod with more backbone will increase your catch by decreasing the amount of fish you miss or lose.

Let's talk briefly about the different kinds of rods and their uses. Solid fiberglass rods are the least expensive of all rods, but are heavy and stiff. The main uses for these super durable rods are for trolling and for snagging. They are nearly impossible to break.

Tubular fiberglass rods are the most versatile of all rods and offer the widest selection on the market. Rods of this type are reasonable in price, will take quite a bit of abuse and come in every type and length imaginable. All youngsters should start out with a fiberglass rod. Many anglers prefer fiberglass for light tackle or ultralight fishing. Most flyrods are made of tubular fiberglass.

Graphite rods have advantages over fiberglass, but they also have disadvantages. Advantages include lighter weight, increased sensitivity, a better response to casting and hook setting. Disadvantages of graphite include cost, which can be two to three times that of fiberglass, and the fact that graphite rods break more easily and therefore won't take the tough treatment that fiberglass will.

Boron rods are really glorified graphite rods. Boron is tougher and stronger than fiberglass or graphite, so rods can be made lighter. Boron has a unique property of sensitivity or feel. The rod comes alive in your hand, signalling back lure actions, bottom conditions and strikes as well as any rod made. They are more expensive than graphite, but under the correct conditions, are well worth their price tag.

Let's look at some other features you might look for in a rod. One-piece rods give better feel than two piece rods. On two or three piece rods, the type of ferrule between pieces will affect the sensitivity. Metal to metal ferrules will eliminate sensitivity. Try to buy glass to glass ferrules on fiberglass rods or graphite to graphite ferrules on graphite rods. Don't buy on material

alone; pay careful attention to the quality of components used. Action is sometimes more important than material used. A top quality fiberglass rod can have better action than a cheap graphite/fiberglass or other composite rod. Be sure to look for a label indicating the range of lure weights the rod is designed to handle and match it to the type of fishing you do. Check the line guides and try to buy rods with aluminum oxide, ceramic, or hard-chromed guides. Check the warranty carefully—the better rods are backed with a specific warranty, not filled with “escape clauses.”

Before I quit on rods, let's talk a bit about the rod you have at home and what you need to do to keep it in top fishing order. Every once in a while, check your rod from one end to the other for cracks or nicks in the pole itself. Try to catch these problems before you get to the lake and break the pole on the first big jerk. Check your guides periodically, especially the tip, for grooves or nicks. The tip is the most critical guide as it takes the most abuse. Replace any guide that is bent, worn, or grooved. Check the screw, bolt, or rings that hold the reel in place. Make sure everything is tight and your reel fits snugly on the rod.

**T**he second major part of a fishing machine is the reel. The reel is simply designed to hold and retrieve the line, which is the main link between fish and fisherman. The way the reel functions can be of vital importance in catching or losing a fish.

There are three basic types of reels used by most Kansas anglers: the spincast reel, the open-faced spinning reel, and the baitcasting reel. The popularity of these reels follows closely with the order listed above.

The spincast reel is designed to be simple to use. Its greatest selling feature is that it is the easiest type of reel for the beginner to use successfully. With fifteen minutes of instruction, anyone can sling a lure fifty feet with reasonable accuracy

by simply using the thumb to press and release a button. There is no bail to worry about, no thumb pressure to apply and virtually no way to get a backlash.

But, this closed-faced reel is not just a tool for youngsters or beginners. There are certain kinds of fishing that can be best done with a push-button line holder. Sure, some sophisticated anglers refer to this reel as “the reel in the can,” but it has its advantages. On windy days, no other reel casts with as much trouble free precision as the spincast outfit. No reel works under all types of live bait situations better. And, night fishing ventures are much more carefree when one doesn't have to worry about backlashes and fouled lines.

These reels have two very distinct disadvantages as far as I am concerned. First, pinpoint casting accuracy with a spin cast reel requires much more practice than it does with other reels. You just can't stop the line or lure in a soft, smooth motion. Also, most spincast reels have small gear ratios. They reel in line slowly with each turn of the handle, too slowly for some fishing methods.

Open-faced spinning reels are fairly popular, especially for ultralight or light tackle uses. These are the complicated looking reels with a bail that must be flipped with every cast. Advantages of these open-faced reels include the ability to use lighter lines (down to two pound test), the ability to make longer casts with lighter lures, and their adaptability to special fishing methods like vertical jigging or the new “flipping” technique. Disadvantages include the time it takes to learn to use them, the possibility of a line tangle as too much line pours off the spool at once, and the limited line they handle. Most standard open-faced reels can handle line up to fourteen pound test, but they work better with lines under ten.

Baitcasting reels are generally seen in the hands of bass fishermen or those going after big stripers or catfish. Baitcasters have come a long

way since I was a kid. My first reel was a baitcasting outfit. Remember the kind that required a pound of weight to cast twenty feet? The new baitcasting reels are precision instruments that require hours of practice, coordination and a thumb that knows what it's doing. But, once a fisherman masters this reel, it is the most versatile and efficient of all the reels.

Baitcasters are mostly used for fishing artificial lures and are necessary to make some of today's lures work correctly. They are lightweight and compact and are perfect for the bass fisherman who fishes hard from daylight till dark. They have a larger gear ratio, which means fewer turns of the handle to bring in a given amount of line. Lure retrieves are faster with less strain on the angler.

Disadvantages? There are several. Most do not work well with light lines, but today, some compact baitcasters are capable of using lines down to six pound test. Most baitcasters are much more expensive than spinning reels. And, the one big disadvantage . . . many anglers are just plain afraid of these reels. Everyone has heard of the backlash, the “professional overflow,” or the bird's nest! All baitcasting anglers get them occasionally, but those who have mastered the reel feel that the advantages far outweigh the backlash potential of this reel.

No matter what kind of reel you use, it will serve you best if it's properly cared for. Occasional oiling of gears and bearings, simple cleaning of parts inside and out, and quick spot checks for loose screws and bolts will assure you that your reel will meet every fishing situation.

Second, most reels have drag systems. All drag systems work on friction created between hard metal washers and soft washers. These systems are designed to allow a fish to take out line when he puts on a burst of speed as you are playing him. Drag pressure can be adjusted on all reels by the angler.

The key word in drags is smooth-

ness. A jerky or poorly adjusted drag can spell disaster. A jerky drag is generally caused by dirt or sand getting into the washer system. The drag should be set just under the breaking test of the line so the line comes off fairly hard. If it's too loose, it'll slip when you set the hook and your fish will be gone. If it's too tight, a big fish will snap the line.

If you're wondering just how smooth a drag really is, try this. Let the reel alone dangle as you grasp the line and adjust the drag so the reel descends slowly. If the reel contains quality materials, and is clean and well oiled, you should be able to adjust it so that it descends slowly at a uniform speed.

**T**he line is the main link between the fisherman and the fish, probably the weakest link in the whole system besides the knot. Angling has advanced through cotton lines, braided lines, and monofilament lines, and some anglers are going back to high quality braided lines. Still, monofilament nylon is the overwhelming favorite for most fishing situations.

Premium quality monofilament lines are extruded; that is, the raw nylon is melted and then made into filaments. Then there are numerous finishing treatments in which the line is drawn, drawn again, heat treated, dyed, stretched, and so on. The purpose of these many steps is to internally orient the line's molecular structure to the highest possible degree of uniformity for maximum strength and performance. Cheaper lines are merely extruded, drawn once, and spooled. These "economy lines" are more costly in the end and can cost you the fish of a lifetime.

There is no one all-around best line. Your choice should depend on the kind of fish you're after and the cover he prefers. Several things must be considered when choosing a line: strength, handling, visibility, and the human factor.

Most mono's will break over the rating on the label when dry. How-

ever, when wet, nylon mono's lost ten to fifteen percent of their strength. So, you have to buy the pound test line that best suits your equipment and your fishing needs. The stronger the line, the bigger the fish you can handle or the more brush you can fish in. But, if you are fishing just for crappie or bluegill, stick with lighter line.

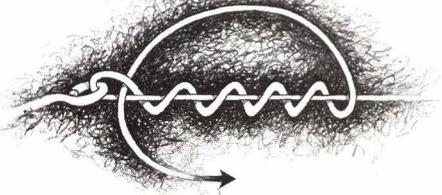
Handling is important when it comes to line. The stronger the line, the bigger its diameter, the more stiffness it has, and the less distance it will cast without lots of weight. Some brands of monofilament are stiffer than others. Most stiff lines will soften to some degree when in water. Check stiffness by letting a piece of line dangle. Some lines are soft, limp and manageable, others hang in spirals, loops or coils—called memory. The memory lines lessen casting distance and cause frequent backlashes. Limp lines cast smoothly for long distances.

Visibility is quite important. A shiny or glassy looking monofilament is generally of inferior quality and will shine in the water. High quality lines typically have a smooth semi-luster or almost a dull type finish for minimum underwater light reflection. Don't choose bright colored lines for clear water as the fish can see the line. In clear water, you may need to go to a lighter pound test to prevent line visibility.

The human factor in line means that you, the angler, must decide on the line best suited to you and your equipment. Consider your skill when playing a fish, the condition of your equipment where it touches the line, how you care for your line and the type of fishing you do. Remember, the line controls that fish until you get him into the net.

Many fishermen who fish hard change their line daily or weekly. When fishing with any sort of fishing outfit, the first ten to twenty feet of line should be cut off periodically if you are casting a lot. It is this end of the line that takes the most abuse. Age does not deteriorate monofilament as long as it is stored properly. Heat, ozone, and certain chemical

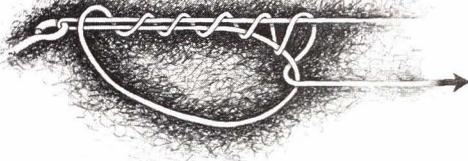
Clinch Knot



Improved Clinch Knot



Uni-Knot



*Cheap monofilament line is no bargain. It is often stiff and hard to cast, and it is likely to have irregularities that can substantially reduce its strength. Research in the extrusion of monofilament has resulted in limper line that retains a greater amount of its tensile strength when wet. Recently developed braided monofilament lines are less elastic than one-strand mono, which gives the fisherman a better "feel" for strikes and allows him to set the hook with more authority. The best line is only as good as the knots in it, however. The clinch knot, the improved clinch knot, and the uni-knot shown above are all far stronger and more dependable than an overhand knot or a couple of half hitches.*

vapors do weaken line. If you are storing line, store it in cool to moderate temperatures. Sunlight weakens nylon monofilament. Clues to deteriorating line include fading color or a white substance coming off the line when you run it through your fingers.

Okay, we've talked about lines, but before I go on to terminal tackle, I must discuss the connection between the line and the hook, swivel, or snap . . . the knot. The knot is the weakest part of the line! **NEVER USE AN OVERHAND KNOT ON A FISHING LINE!!!!** Any type of overhand knot will cut itself.

There are two good fishing knots that are used the most: the improved clinch knot and the uni-knot. The easiest way to tie the popular improved clinch knot (see illustration) is to pass the line through the eye with enough tail to be manageable. Double the line back on itself and hold it with one hand while you spin the lure five complete revolutions. This puts five turns on the line. Then, run the end of the line through the loop formed next to the eye and back through the loop formed at the top. Then, gently pull the knot tight down onto the eye before cutting the tail off.

To tie the uni-knot (see illustration), run the line through the eye for at least six inches. Fold it back to form a double line and make a circle back toward the hook or lure with the tag end. Make six turns with the tag end around the double line and through the circle. Holding the double line at the point where it passes through the eye, pull the tag end until the six turns are snugged into a tight barrel. Now grasp the standing part of the line and pull to slide the knot against the eye before cutting the tail off.

Now you have two knots that won't cut themselves, and they should provide eighty to ninety percent of the strength of the line.

**T**erminal tackle is something most

fishermen take for granted, but a little knowledge about hooks, bobbers, swivels, and sinkers can make a big difference in how many fish you land. Too many anglers think nothing of spending \$100 or more on a rod, reel and line, and then they pinch pennies when it comes to buying all the important bits and pieces, which, when assembled, are the parts the fish actually get a chance to look at.

Hooks are fairly reliable pieces of equipment, but I find most anglers use hooks that are too large for the situation. A broken hook is something you don't hear about very often. But, I do get lots of comments like, "I'm sure gettin' a lot of bites, but I can't seem to hook them." When I look at his hook and bait, I usually wonder if he's fishing for the state record. I'm sure everyone wants to catch a big fish, but most anglers are satisfied with just catching something. Keep your hooks small.

The same goes for bobbers. I swear, some could be used for beach balls! The less resistance the fish feels when he mouths the bait, the more apt he is of eating it. Keep bobbers small, use quill or pencil type bobbers, and see if your catch doesn't improve.

Snaps are generally used to attach artificial lures to the line. They are made of fine wire and can be straightened by a large fish. Use them only when you don't feel that tying directly to the lure is appropriate or when you plan to change lures often.

The swivel is the most over-rated and abused piece of fishing equipment I know of. Swivels are necessary only in a very few instances when you use live bait that will tend to twist your line. But, I see swivels everyday hooked to everything imaginable. *Most artificial lures will not run correctly if you use a swivel!* A jig will not hang right, a spinner will not spin right and many crank baits will do nothing but spin if you use a swivel. It takes longer to tie on a swivel and then hook it into a lure than it does to tie directly on to the

lure itself. If you plan to change lures often, use a regular snap or cut off the swivel and use the snap alone.

Sinkers are another piece of equipment used too often. Most anglers use too much weight for the situation at hand. If you need lots of weight to cast effectively, chances are you have line that is too heavy or too stiff or you do not have enough line on the spool of your reel. Clamp-on sinkers are used too often, especially in catfishing situations. Slip sinkers—sinkers with holes through the center—will allow the line to slide through and the fish will feel less resistance. Too many fishermen place the sinker too close to the hook. Try to keep it at least six to eighteen inches away from the hook.

Terminal tackle and its proper use can increase the weight of your stringer. Maybe you won't catch as many big fish, but numbers of smaller fish will generally add up to more pounds by the time the day is done. Terminal tackle probably isn't as likely to cause you to lose a lunker as are rods, reels, and lines, but remember—he's got to bite before you have any chance of catching him. Keep your terminal tackle simple and attractive.

Finally, I've discussed all important components of the fishing machine called the fishing pole. There is one other key component of the fishing machine: you, the fisherman. The more you know about your tackle and the critter you are pursuing, the more likely you are to have consistent fishing success. Choose and care for your rod, reel, line, and terminal tackle wisely . . . and when that trophy of a lifetime puts a deep bend in your rod, feel confident that he's all yours.

*Tommie Berger is the Commission's district fisheries biologist in southwestern Kansas and an angler of long experience. Tommie modestly claims to be an expert on landing huge fish, although confidential sources in the Fisheries Division say they have never seen any hard evidence supporting his claim. This goes to show how skilled he really is—any master fisherman knows he's far better off taking his best fish without witnesses.*



Photos by Sylvia J. and  
Lloyd R. Brockus III

## The Sting

**M**otherhood among thread-waisted wasps (*Ammophila*) is a combination of innate behavioral responses, prodigious labor, and unbridled ferocity. The female wasp goes to great lengths to hide her eggs and provide the larvae that will eventually hatch with food when they emerge. Her first order of business is to dig a burrow. Stopped here by a high-speed flash (left), the dig-

ging is actually a blur of leg movement that throws dirt several inches. When the hole meets her standards, she hunts. Different species of parasitic wasps specialize in different prey. Some take only grasshoppers, others pursue spiders exclusively. The thread-waisted wasp stalks caterpillars. The wasp doesn't kill the caterpillar with her sting, only paralyzes it so that it will live and stay



fresh while her eggs develop. Although the caterpillar outweighs her, the female wasp alternately flies and drags it back to her burrow (immediately above) and stuffs it in (top of page, left).

A stunned caterpillar can be of use to other creatures besides wasps. The tiny fly standing to one side of the burrow (top of page, left and right), is one of a group known as

satellite flies which have evolved to take advantage of the wasp's labor. The fly has followed the female wasp to her burrow and will seize the earliest opportunity to slip into the hole and lay her own eggs on the caterpillar.

If the wasp is aware of the fly, she is also aware that there is nothing she can do to prevent the more agile insect from sharing her caterpillar.

She lays her own eggs without challenging the bystander, fills the burrow (right), and tamps the dirt with her forehead, then finishes the job by skittering over the ground to camouflage her digging. After that, the kids are on their own.

