

KANSAS WILDLIFE

MAY/JUNE 1987

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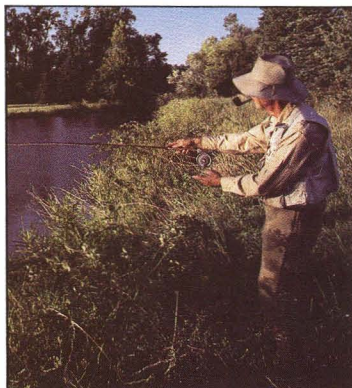
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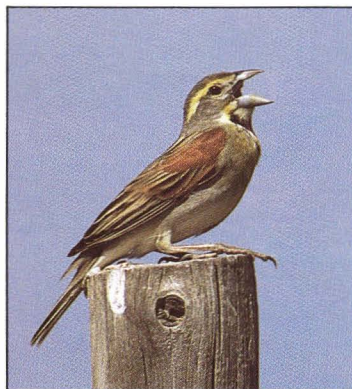
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Front: Staff illustrator Patti Murphy applied oils to stretched canvas to create this issue's cover painting. See related story on Page 2.

Back: Shortly after its emergence from a cocoon, this monarch butterfly took its first feeding from a sunflower in a studio setup. Mike Blair captured the moment using a 70-210mm zoom lens with bellows. Blair, using a flash, set his aperture at f/8 and shutter speed at 1/60. See Pages 36-37 for related photos.

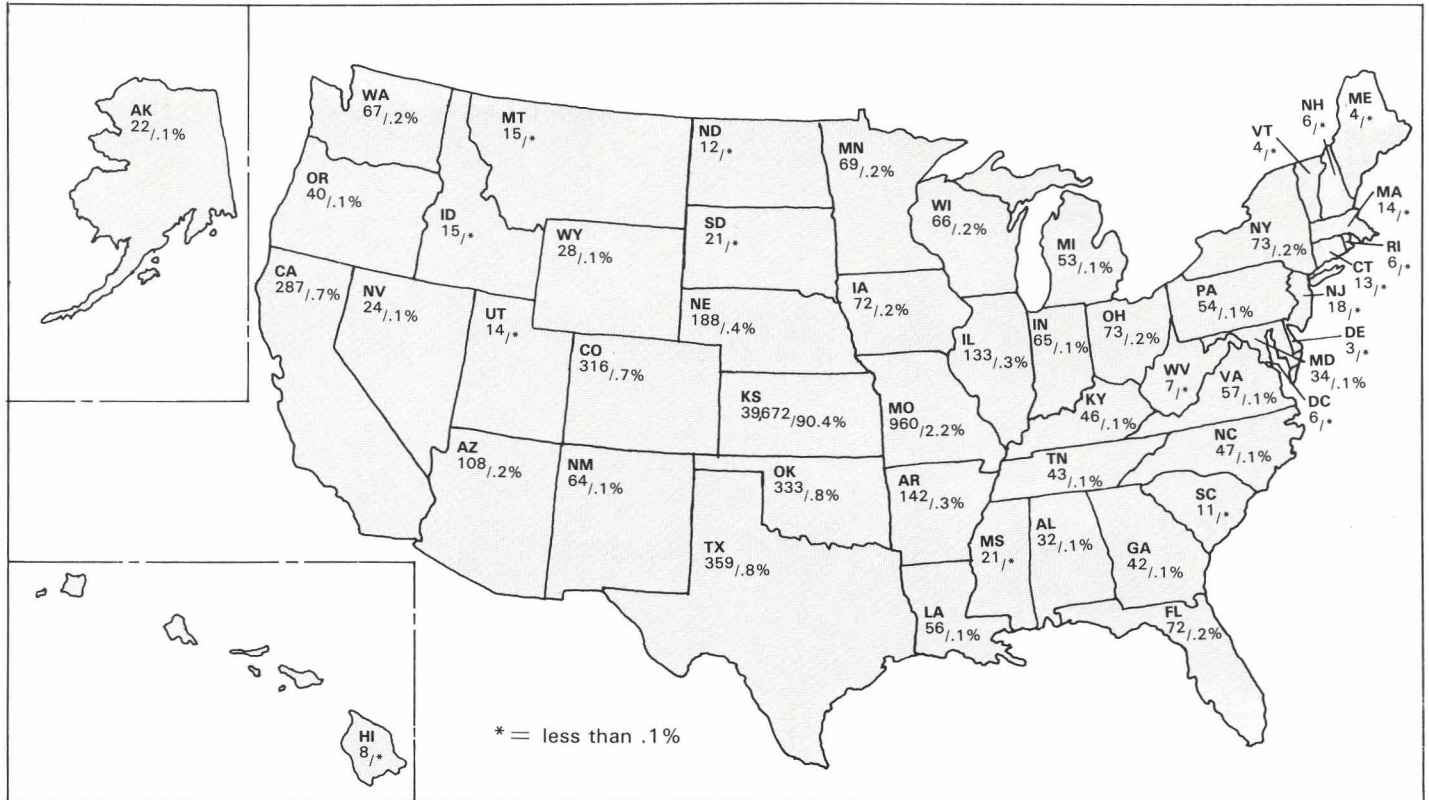
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Editorial Creed: To promote the conservation and wise use of our natural resources, to instill an understanding of our responsibilities to the land.

THE BUCK STOPS HERE



Map shows location (by number and percentage of total) of U.S. subscribers to *Kansas Wildlife*. Another 30 subscribers live in 14 foreign countries.

Where You Live

For several months after joining the KANSAS WILDLIFE staff, I had this question in the back of my head: Where do you live? You. The reader who subscribes to our bimonthly magazine. Where do you live? What state? What country?

I tend to drag on projects that don't require immediate attention, but I finally put those questions to Arlan Hair in early January. Arlan, based in Pratt, is a Kansas Fish and Game computer programmer. Soon after I hit Arlan with the questions, he returned with a few computer printouts and maps. Neat what a computer can do.

What Arlan had done was ask a state computer in Topeka to break down our most recent subscription list state by state. Then he asked the computer to figure what percent of the total number of subscribers live in each state. The percents and numbers for U.S. subscribers are shown above. Finally, Arlan asked the computer to figure how many subscribers live in foreign countries. The computer relayed that we have 11 subscribers in Canada, three in both Australia and England, two each in France and Japan and one in each of the following countries: Belgium, Holland, Indonesia, Ireland, Korea, Norway, New Zealand, Singapore and West Indies. That comes to a total of 30 readers living in 14

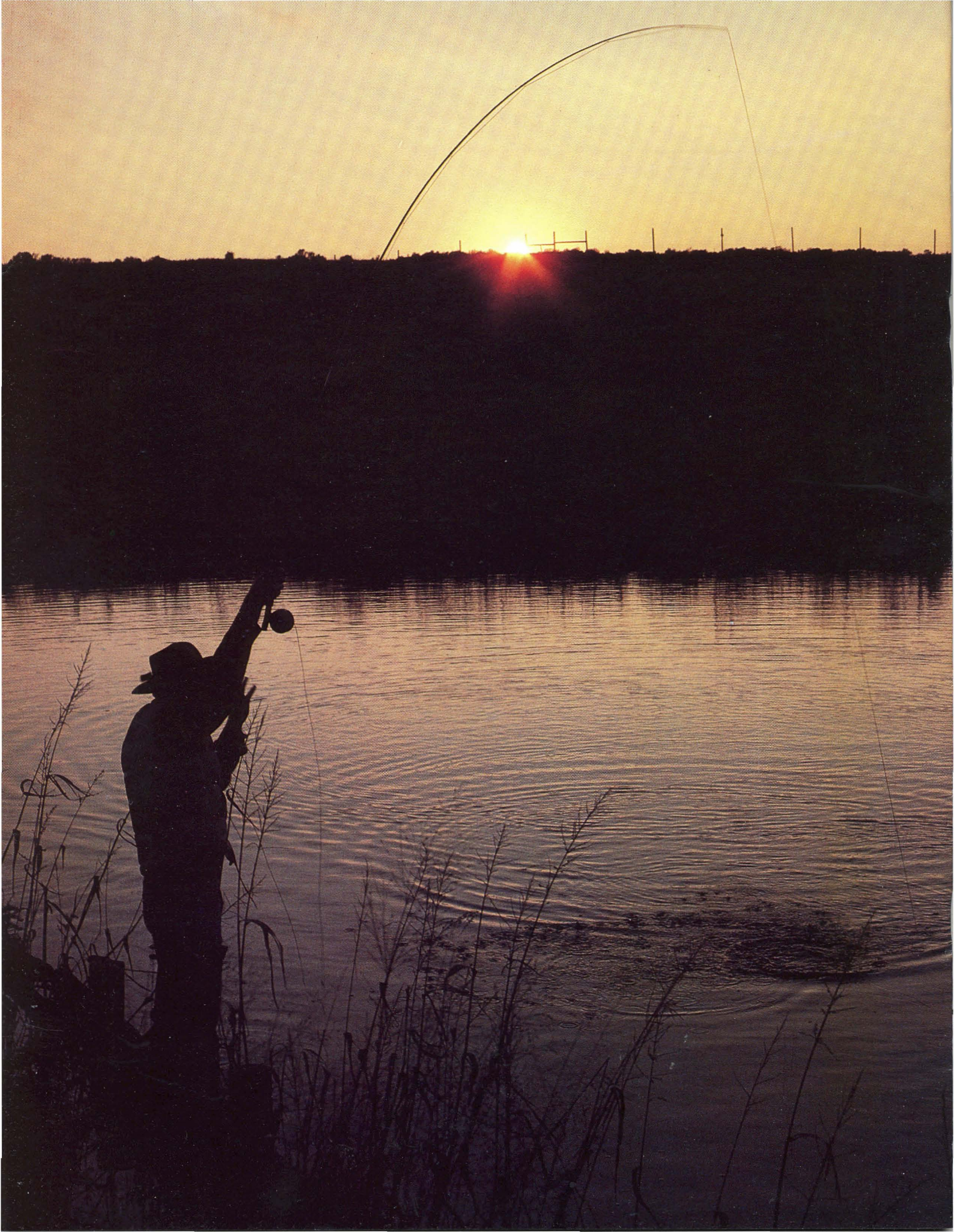
foreign countries, plus one reader living on Guam. I imagine most, if not all, can trace their roots to Kansas.

The printout of U.S. readers shows that 90.4 percent of our subscribers live in Kansas, according to the latest figures available. Also of interest is that KANSAS WILDLIFE goes to all 50 states as well as to the District of Columbia. Missouri had the second-highest number of subscribers with 960, or 2.2 percent of the 43,927 subscribers we had in early 1987. Texas had the third-highest number with 359. Oklahoma had 333 and Colorado tallied 316. The states with the fewest number of subscribers include Maine (4), Vermont (4) and Delaware (3). The data also show that we send eight copies to Hawaii and 22 copies to Alaska.

I don't consider myself a trivia buff, but I did want to know where you live. And I thought you might want to know, too. Keep in touch.

Paul

Paul G. Koenig
Editor



Calif Bold

The Flyweight Division

Flyfishermen have a vocabulary all their own. But don't let the terminology intimidate you. You'll be missing out on a lot of fun.

by **Tim Lilley**
Olathe

Fish after fish smashed my topwater lure one late summer evening on Douglas Fishing Lake, and my partner refused to believe the outing was my first ever on Midwestern waters.

He was throwing plastic worms and Beetlespins, and he'd caught a few fish. A few feet away, in the bow of a tiny rented boat, I was enjoying action on every cast. I only lost fish when my 3X tippet parted.

Yep, I was flyfishing.

Kansas offers as many fishing opportunities to flyrodders as any state in the union. You can catch hatchery trout, slab crappie and spawning walleye in the spring, big bluegill and largemouth bass in the summer, and, possibly, a northern pike from the flats of a reservoir as fall flights of dove and teal chatter overhead.

If you don't own flyfishing gear, you won't have to spend an arm and a leg to get started.

"I would recommend a graphite rod in the 8-foot range, and a 7- or 8-weight, weight-forward floating line," said Dave Parker, who owns the Gun Shop in Olathe.

Don't let all that terminology intimidate you. The principle of flycasting is to use a 90-foot weighted line (as opposed to adding lead weights above your lure) to propel your offering to waiting fish.

Seven- and 8-weight lines are designed to handle flies that are just the right size to fool any Kansas gamefish. Weight-forward means the line has been designed with most of its weight in the front third of the line.

Weight-forward lines are easy to cast. They're probably the best for a beginner to buy, although many flycasting veterans also swear by them.

"When it comes to leaders, the beginner has two choices,"



Popular offerings for Kansas bass and panfish (shown clockwise from upper left) are: Royal Wulff, panfish popper, marabou muddler, tarpon fly, weedless keel fly, deer-hair frog and hellgrammite. Late afternoon, at left, is a good time to work your favorite pond.

Parker explained. "Many guys like to tie their own leaders, and there are several kits available for that. The past couple of years also has seen the introduction of knotless tapered leaders, which are the ultimate in convenience."

Since the diameter of flyline is quite large, anglers must use a section of monofilament that tapers down to sometimes minuscule proportions as their terminal tackle. Your best bet would be to start out with knotless leaders. But if you decide you really like flyfishing and plan to do a lot of it, invest in a kit and start tying your own. It's a little cheaper, and you have more options with the leader's length and taper.

Flyfishermen generally match the hatch, which means using artificial baits to imitate prevailing food sources. For Kansas flyrodders, that means everything from mayflies to minnows.

That night on Douglas, I was startled at the size of the cream-colored mayflies that began hatching into a blaze orange sunset. Having moved to Kansas from West Virginia, I was used to a late-May hatch of inch-long Green Drake flies that turn bruiser brown trout into easy pickings. You can imagine my delight, then, at witnessing a mayfly hatch that produced insects almost 50 percent larger.

The full impact of these insects on the state's fish-forage base was proven to me one early-summer night on Lake Olathe, a medium-sized community impoundment about 10 minutes from my front door. Although it was too dark to fish a dry fly, I listened from the boat in amazement as the water around me churned from the surface feeding frenzy taking place. It was the kind of action some trout fishermen dream about.

I've seen those flies hatching as early as May and as late as August. So pick up a few large, cream-colored mayfly imita-



Flyfishing need not be a waist-deep-in-water affair. This fisherman found a spot on the bank that had plenty room for his backcast.

tions and tuck them in your flybox.

“In my opinion, the flyfisherman in Kansas not only has a larger variety of fish to catch, he also has many more lures to choose from,” Parker said. “Depending on whether he enjoys fishing topwater or subsurface, he can come up with all kinds of effective patterns. All he has to do is get out there and start fishing.”

The toughest aspect of getting started is learning the rhythm of flycasting, which appears much more complex than it really is.

To start, take your flycasting gear out in the backyard, strip off 20 feet of line and begin moving the top of your rod from the 10 o'clock position to the 1 o'clock position, with 10 in front of you and 1 just behind your head.



Mike Blair photo

Watch your line and the rod tip, and time your forward casts and backcasts so all of the line plays out in each direction. Having mastered this (known as false casting), simply finish your presentation by snapping the rod forward to 10 o'clock, which will play out your fly toward the fish.

Longer casts will require only your concentration on the rhythm of the false cast. You must allow the line to fully

extend behind you before propelling it forward, then in front of you before moving it backward. If you can learn to cast 30 feet of line, including the monofilament leader to which your fly is knotted, you'll catch fish.

Once you learn the cast, it's time to start fishing. Cork-bodied and deer-hair popping bugs, along with some larger (sizes 8, 10 and 12) mayfly patterns, should make up your

initial topwater assortment. For subsurface fishing, get some hellgrammites, leeches, streamers (minnow imitations) and crawdad patterns.

Specialized patterns such as the keel fly, which is designed for weedless fishing, also prove effective. But you don't have to have every available kind of fly to catch fish. Following are some personal flyfishing recommendations for Kansas waters.

Large reservoirs — Popping bugs will work around shoreline cover and in flooded timber. Cast to likely looking spots, and don't move the fly until the rings created by its landing have disappeared. Bass and surface-feeding panfish will often smash the lure as its entry splash begins to settle.

Should hits not come right at the start, experiment with various retrieves until you start catching fish. Sometimes a jerky, bubbling sputter will produce action. At other times a slow, steady retrieve is in order.

The hours around dawn and dusk are best for surface flies, but you'll also get action by casting into schools of surface-feeding fish such as white bass. Many of us have enjoyed throwing crankbaits, jigs or minnows into dozens of white bass tearing up a school of baitfish. Substitute a flyrod for your spinning or casting outfit, and you're in for a real treat.

Submerged structure and fish suspended over deep water are candidates for the hellgrammites, streamers or crawdads. Although I moved to Kansas with a preference for hellgrammites, the last year has convinced me that crawdad imitations probably are the best of these flies.

Use a crawling retrieve as slowly as you can. In water more than 15 feet deep, you may have to use a sinking fly line to get your lure down where it should be.

Although I haven't tried it, slow trolling a fly through likely looking spots should produce. A similar technique involving crankbaits has worked wonders for me on large crappie and white bass.

For springtime walleye, concentrate on traditional spawning areas, and use a steady retrieve with one of your minnow imitations. In the fall, fish the flats with streamers and leeches, and use a fairly fast retrieve to interest pike and other large predators.

Farm ponds — Belly boats can be as useful in these small impoundments as they can be in the timber-strewn backs of coves on bigger lakes. Remember, you need room for your backcasts, and often a belly boat is the only way to avoid hanging in brush and shoreline weeds.

I'd concentrate on poppers and leeches in these waters, but crickets and grasshoppers will occasionally work well, too.

Streams — The Flint Hills streams are as pretty as any trout stream you'll ever see, and fishing there can be better than many brookie, brown and rainbow waters.

Fish upstream if you can. Whether fishing topwater or subsurface offerings, cast to the head of a good-looking pool and let your offering dead drift with the current. If a fish hits on top, just tighten up on him. When fishing underwater, set the hook when your line stops moving or veers to one side.

And for you winter anglers who fish through the ice or from heated docks for crappie and other panfish, don't be afraid to take along a flyrod. Just use a longer leader (taper is not critical here, since you're fishing vertically), and have the time of your life taking those big ones on a fly.

Pretty basic, these tips, but you know your favorite waters better than I do. Don't be afraid to experiment with flies, presentations and retrieves. The first jump of that 5-pounder will hook you for life. KW

Tim Lilley is the outdoor columnist for The Olathe Daily News.

Big Bass, Little Bug

If a state record is any indication, flyfishing in Kansas certainly can be productive.

Wichita resident Clarence McCarter learned that lesson 10 years ago, when an April 1977 outing to Marion County Lake produced a 4-pound, 7-ounce spotted bass that still stands as the state record.

McCarter caught his big spotted bass on a fly.

"I had been trying to catch a record Kentucky bass from the lake for about three years," McCarter said. "My boss (the late Ben Dwyer, also of Wichita) had held the record for a short time before I started fishing the lake. He talked me into going up there and trying for the record fish."

Dwyer caught a 4-pound, 1-ounce spotted bass on a plug at Marion in April 1972, and it stood until Council Grove resident Newell "Beaver" Julian took a 4-pound, 2-ounce fish from Council Grove City Lake on a jig and worm in September 1973. Coincidentally, Julian had held the state record (3 pounds, 15.25 ounces, taken at Council Grove City Lake in April 1970 on a Scorpion and pork tail) that Dwyer broke with his catch.

McCarter said conditions were normal for that time of year — a spring shower had ended about an hour before he started fishing.

"About a half hour before sundown, I came to a cove at the south end of the lake," he recalled. "The caretaker had cut down a rather large tree, and it had fallen into the edge of the water.

"The wind was creating a small ripple on the water. I made about a 50-foot cast, and my black-and-yellow bass bug landed right under an overhanging limb on that old tree. I let the bug lie still for a moment . . . twitched the rod tip . . . and she struck."

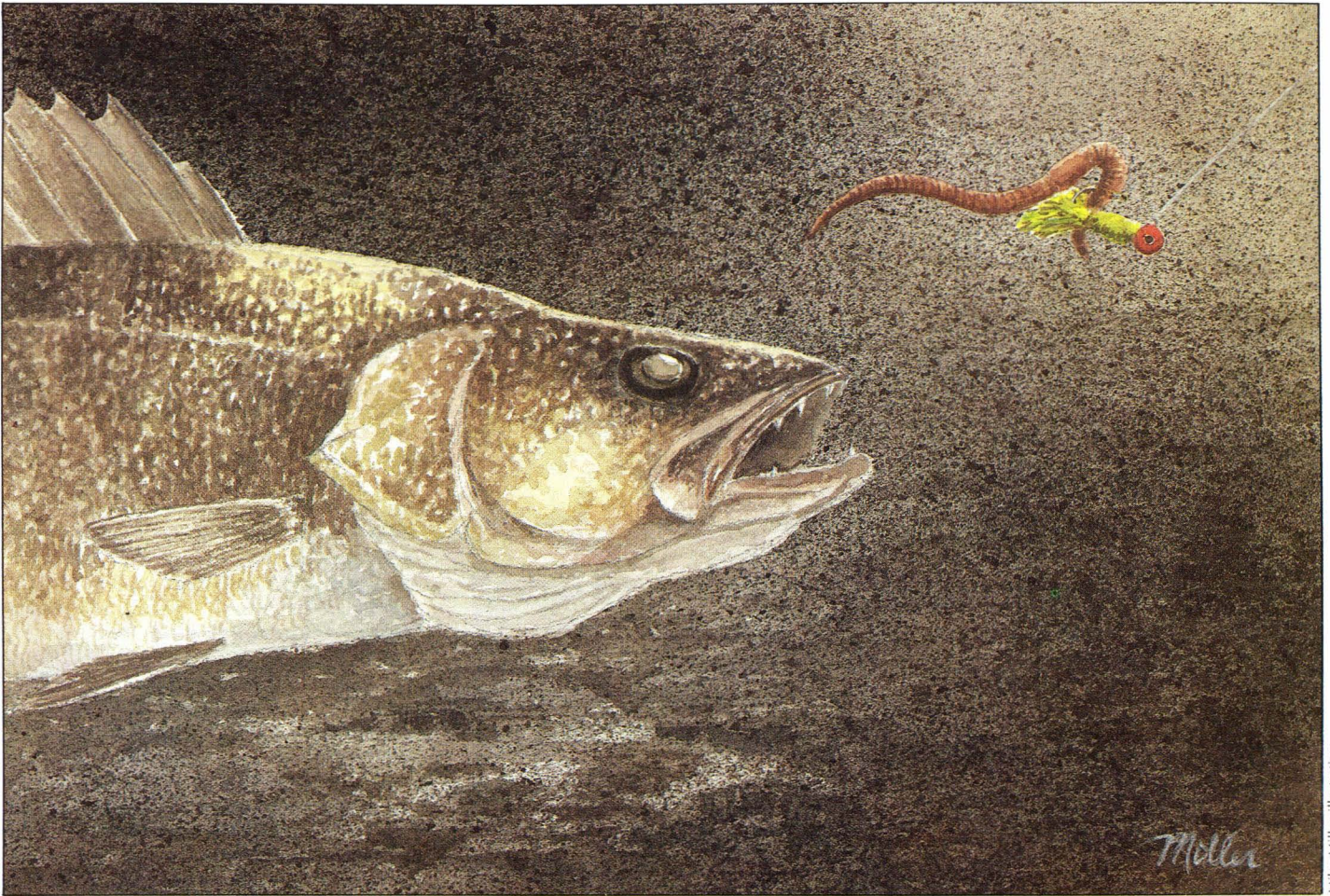
McCarter was using a 2-pound-test tippet. "With that light a tippet, you don't dare put too much pressure on the fish, so I just held a very tight line and let her do what she wanted to do," he said.

"She jumped clear of the water three times," McCarter continued. "At the time, I couldn't tell she was a Kentucky. When she finally tired, I lifted her very carefully into the boat and headed for the caretaker's place to have her weighed."

The caretaker told McCarter the fish was a spotted bass, and his scales suggested a state record. "We took a couple of pictures," McCarter remembered, "and I headed toward town to get the fish weighed on the grocery store scales."

The rest is Kansas flyrodding history. "I smile every time I think about that evening," McCarter said. "I'm awfully proud of that record . . . especially since it came while I was flyfishing."

McCarter's mark came within a month of being the longest standing of the state's three black bass records. The large-mouth record was set by former Topeka resident Kenneth Bingham on March 20, 1977. McCarter caught his spotted bass on April 16, 1977. The small mouth mark has been broken three times since then. — *Tim Lilley*



Mike Miller illustration

The Word On Walleye

This glassy-eyed member of the perch family is quickly becoming one of the most popular fish among Kansas anglers.

by Mike Miller
Associate Editor

Each spring anglers turn their focus to one of the most palatable fish that swims Kansas waters. Most Kansas reservoirs are home to the king of fried fillets — the walleye. This glassy-eyed member of the perch family is fast becoming one

of the most popular fish among Kansas fishermen, especially during the spring. Catching a mess of walleye, though, requires good timing.

The first place to look for walleye is along reservoir dams when the fish are spawning, usually in March. Walleye

are concentrated at this time, but they're busy spawning and not feeding aggressively. Walleye can be taken during the spawn, but the real catching takes place several weeks later.

Just after the spawn, however, walleye seem to disappear. Probably sus-

pended in deep water, they are difficult to catch until after they recuperate from the rigors of courtship. When they do, though, they've developed a powerful hunger. To satisfy this hunger, walleye cruise the shallow mud flats of reservoirs feeding on aquatic insect larva. In most Kansas reservoirs, they can be caught on the flats from mid-April or early May until late June. At this time walleye are usually in large schools, and if you catch one, it's a safe bet others are down there.

Paul Miller, wildlife conservation officer from Manhattan, spends a lot of his free time each spring chasing walleye. Miller does most of his fishing on Milford Reservoir near Junction City. He likes to find a flat with a hard mud or clay bottom, 7-8 feet deep with deeper water nearby. An old underwater farm field near the river channel is ideal. To find these areas, Miller uses a topographical map and a depthfinder. He uses the depthfinder to check depth and bottom hardness of old farm fields marked on the map.

Once he's found a likely spot, Miller drifts his boat across the area fishing a jig-and-nightcrawler combination. He's extremely careful not to make noise while over the flat. Miller never starts his boat until it's drifted clear of the flat, and he motors around the area to begin another drift. Noise, especially from a boat motor, will spook walleye. Throw out a marker buoy as soon as the first fish is hooked. Note the water depth and bottom condition. It's important to mark the spot in case the fish are concentrated. If the fish are scattered you may be able to drift anywhere on the flat and catch fish. But if walleye are concentrated you'll be glad you marked the first fish. Noting the depth and bottom condition will help you find more fish, too.

If the fish are tightly schooled over a small area, Miller likes to anchor over them. First, he positions the boat upwind using a 100-foot anchor line. When the anchor catches, he feeds out rope until the boat is over the area. Miller's most effective technique for catching these fish is to stillfish jig-and-nightcrawler combinations. He baits two rods and lowers the jigs to about a foot off the bottom. Then he lets the wind action on the boat move the jig. When a rod tip dips indicating a strike, Miller hesitates until he feels the fish move off with the bait. Then he sets the hook.

Glen Elder fisheries biologist Ken McCloskey starts fishing over the submerged points,

channel drop-offs and old roadbeds. McCloskey prefers to fish brushy drop-offs or weedy ditches along roadbeds. He fishes these areas either by anchoring over them or by using the trolling motor to drift along an area.

If McCloskey doesn't find fish over structure, he begins drifting the mud flats. And he knows that excessive boat traffic on the Glen Elder flats will push walleye back into deep water. One of McCloskey's favorite areas to drift for walleye is a timbered flat that was clear-cut before the lake was filled and is now loaded with stumps and brush.

Steve Price, Webster Reservoir fisheries biologist, begins trolling for

Using nightcrawlers is a point all three veteran anglers agree on although each may fish them a little differently. All three anglers stressed the importance of keeping the bait about a foot off the bottom. All believe walleye see a bait better when it moves above them rather than one that bounces alongside.

walleye in mid-April. He concentrates on the drop-offs near the flats and trolls lures such as the Thinfin and Hot 'N Tot. Walleye fishing usually peaks at Webster from early May to early June, when walleye spend lots of time feeding on the mud flats. Price then switches to a nightcrawler rig and drifts it across the flats. He recommends rigging a nightcrawler to whatever lure you choose to fish, even a trolled crankbait.

Using nightcrawlers is a point all three veteran anglers agree on although each may fish them a little differently. Miller prefers the bare jig baited with a whole nightcrawler. It

takes a little more skill to fish the jig and keep it at the right depth. Miller varies the jig size, line weight and the amount of line he lets out to keep the jig about a foot off the bottom. McCloskey prefers a nightcrawler rig with a drop weight that keeps the bait off the bottom. The Lindy Rig is one such example. Other walleye worm rigs have spinners, which may improve success. McCloskey also likes to drift a floating minnow bait behind a Bait Walker sinker. The Bait Walker rides along the bottom, letting the minnow lure float to just off the bottom. All three anglers stressed the importance of keeping the bait about a foot off the bottom. All believe walleye see a bait better when it moves above them rather than one that bounces alongside.

Wind was another important factor all three anglers stressed. Some breeze is needed to push the boat when drifting, but fishermen are usually more successful when the wind is kicking up whitecaps. The wind action stirs up food, often causing walleye to scatter and feed actively. On these windy days, Miller looks for a mud line in the water. Wave action erodes a mud bank, washing insects and other morsels of food into the water. Miller likes to drift his bait right on or just inside the mud line. Walleye are often feeding below.

On calm days or during cold fronts, walleye are more likely to school over drop-offs or points. That's the time to anchor over this structure and fish vertically.

The biggest mistake fishermen can make is believing walleye will behave the same way day after day or year after year. Miller and McCloskey both advise fishermen to be flexible. Attempting a new technique or new area should never be ruled out just because it's never been tried. To illustrate that point, Miller related a trip he made last summer. It was early July. That's late for good walleye fishing, right? Not necessarily. In fact, when warm temperatures were "supposed" to be pushing the fish into deep-water seclusion, Miller found the walleye in shallow water. It's a pattern he'd found before. When the fish moved off the flats, he found them along the shallow, rocky shorelines.

On this particular day, Miller and his partner caught two limits of walleye in two hours. The fish were in such shallow water that Miller used the trolling motor to pull the boat back over deeper water after they hooked fish. After boating the fish, Miller let the wind push them back into the shallow water. Those 16 walleye, by the way, averaged 4½ pounds each. **KW**

More Tips For Walleye

On excessively windy days, a bucket dragged behind the boat will slow the drift to a better fishing speed.

- * When walleye are striking short and stealing worms, cut your night-crawlers in half. You'll catch more fish.
- * Fishing is usually slow when a cold front moves through. The ideal day to fish is the second day after a front has passed through the area.
- * Walleye are believed to have a tremendous sense of smell. Be conscious of odors on your hands (such as gasoline or smoke) when handling bait and lures. Many anglers use a commercial fishing scent to mask undesirable scents.
- * A 6- to 7-foot medium-action rod will give you more control of your bait when drifting for walleye. You can control the depth of your bait by raising or lowering your rod tip. On windy days, switching from 8-pound line to 6-pound or 4-pound line will help get your bait deeper.
- * Watch the shoreline. Walleye will congregate where a mud bottom abruptly changes to rock. Fish over the transition line.
- * Note the depth and bottom type after catching your first fish. Find the same depth and bottom in another part of the lake, and you should find more fish.
- * When a walleye hits your bait, hesitate before setting the hook. When they're feeding aggressively, walleye will move off with the bait quickly. Set the hook as soon as they begin swimming away. On other days they may fool with the bait even longer. Give these finicky fish a little time and line before setting the hook.
- * Year in, year out, the best walleye reservoirs in Kansas are Glen Elder and Milford. Many other reservoirs have walleye populations, but because of spring water fluctuations the fishing may be inconsistent. Reservoirs that offer good walleye fishing include Melvern, Pomona, Kanopolis, Wilson and Webster. —
Mike Miller

Rig a nightcrawler to whatever walleye bait you're fishing. It could pay big dividends.



Gene Brehm photo



Mike Blair photo at left; Gene Brehm photo at right.

Dickcissels, above, nest on the Kansas tallgrass prairie, but their highest densities are found in fallow fields.

Dickcissel

Dickcissels occur in Kansas five months each year. They bring color and sound to our fields and prairies.

by **John L. Zimmerman**
*Division of Biology
Kansas State University
Manhattan*

Long before settlers from the eastern states and Europe entered Kansas Territory, the prairie sod had been repeatedly broken by huge herds of bison. The land became heavily disturbed from thousands of bison munching on grass as well as trampling and cutting the terrain with their heavy hooves. Large patches of landscape were stripped of

the original mat of prairie plants, thereby allowing sunflowers, pigweed, wild lettuce and thistle to invade. This new community prevented further erosion by the drenching rains of spring and the searing winds of summer. In time, the prairie vegetation would eventually return and reclaim these disturbed sites.

The change in vegetation, of course,

brought a change in the bird life. The disappearance of lush grasses meant the song flight of the upland sandpiper no longer arched across the morning sky. The staccato scoldings of sedge wrens could no longer be heard due to the loss of prairie cordgrass. Greater prairie chickens no longer nested in the bluestem, although they probably found good winter forage in the abun-

dant bluestem seeds. Other bird species took their place. Foremost among these birds was the dickcissel, which had adapted to the scattered, successional communities that followed the bison devastation. The dickcissel nests on the tallgrass prairie, but it reaches its highest densities in fallow fields. Indeed, the bird was highly suited for just the sort of changes that bison had introduced. Dickcissels readily invaded disturbed sites from adjacent prairie.

Because it was adapted, this species now is one of the most abundant birds in Kansas, occurring wherever the prairie has been replaced by croplands. The bird is common in eastern Kansas, where it occurs in hayfields and idle land. It's also found on the high plains of western Kansas wherever rank associations of weeds are present along irrigated fields and old farmsteads. Dickcissels are among the three most abundant birds in eastern Kansas. Volunteers who take the roadside breeding bird surveys have counted as many as four dickcissels per mile of road during June bird counts.

Dickcissels return from their South American wintering grounds in late spring. Males appear during the first week of May, filling up fallow land and hayfield habitats first, then spilling out on to the tallgrass prairie. By this time, red-winged blackbirds already have eggs in fallow field nests, and Eastern meadowlarks may even be feeding nestlings on the prairie.

The vegetation in these old fields, as well as on the prairie, is not uniform. Some parts of the mosaic provide better nest sites for dickcissels than other parts. Males proclaim ownership of the best patches of habitat by repetitively singing their *ah-dick-sis-el* from tall weed stems and actively chasing any other male that invades their space, even if the invader is merely flying overhead. Males spend more time singing than in any other activity, and their belligerent behavior has been described as despotic. Competition for territory space is intense because the rewards are great.

When the females return about a week after the males, they seek out the best patches of habitat for their nests rather than selecting the most attractive male, at least in the more preferred fallow field habitats. If a particular male is defending a territory with several suitable nest sites, he will attract several females. Other males defending territories with fewer suitable nest sites may attract only one mate. And some males remain bachelors, never attracting a nesting female.

Our studies have shown the aspect of vegetation most important to the nesting female is its depth and density. Males with territories containing a greater volume of herbaceous weeds and grasses attract more females because the nest must be placed barely off the ground and deep within the vegetation. This provides protection from the summer heat. At nests where we've artificially opened up the vegetation, the females had to spend so much time shading the young from the direct sunlight that they spent little time gathering food. While the young did fledge, they left the nest at a lower weight than young from more covertly placed nests.

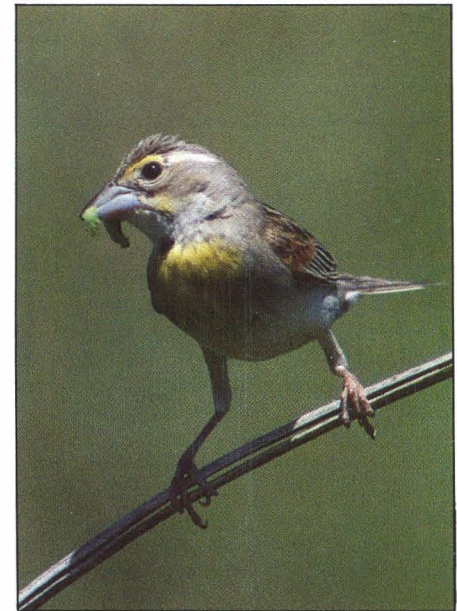
Males who do not initially attract a mate to their territory are not condemned to celibacy. By carefully watching males from sunrise to sunset, we've discovered that males occasionally leave their territories, flying over the horizon and out of sight.

The amount of time a male spends in these distant flights each day is a function of the number of mates. Mateless males do it the most; males with several females do it the least. We think that these are exploratory flights by which males discover new sites — sites where perhaps competition for space is less intense and where they might have a better chance of establishing nesting habitat and attracting a mate. This may be the mechanism by which birds find newly disturbed habitat. We also know that bachelors do not maintain a particular territory for long during the nesting season. They apparently leave to establish another somewhere else. Males that attract several mates during a particular breeding season will return to that same territory the next year. Less successful males set up their territory in a new area.

While we have records of as many as six eggs in a single nest, female dickcissels normally lay four pale blue eggs in a grassy nest, preferably in stout weed stems although grass clumps also are used. It's rare, however, that you can find such a clutch. This is because dickcissels suffer intense social parasitism by the brown-headed cowbird. In May and early June almost all dickcissel nests have at least one cowbird egg in them, and the proportion of parasitized nests doesn't drop below 50 percent until mid-July.

The cowbird also was highly evolved to follow the bison herds.

The bird is common in eastern Kansas, where it occurs in hayfields and idle land. It's also found on the high plains of western Kansas wherever rank associations of weeds are present along irrigated fields and old farmsteads.



A dickcissel pauses with a ready-to-eat meal.

Mike Blair photo



Mike Blair photo

Cowbirds regularly parasitize dickcissel nests, above, especially during May and June. The dickcissel egg is pale blue, the cowbird egg mottled brown.

Cowbirds feed on the insects disturbed by grazing bison. Cowbirds, which actually feed between bison hooves, appeared to have become so dependent upon bison that they stayed with the herds moving across the plains. In doing this, cowbirds were giving up territoriality and using prairie nests made by meadowlarks, grasshopper sparrows and dickcissels as convenient places to lay their eggs. They left their offspring to be reared by these foster parents while they continued to follow the migrating bison herds like so many camp-followers.

I once found a dickcissel nest with seven cowbird eggs, but two or three cowbird eggs in a nest are more common. This indicates that more than one female cowbird is using the same host nest. When the cowbird lays its egg in the nest of another bird, it usually removes one of the host's eggs. Heavy parasitism results in an average loss of two dickcissel eggs per nest in May and June and one egg by late July, depressing the average productivity of parents by almost 30 percent. Cowbird parasitism appears to be dependent upon the availability of nests. The lower the density of the nests, the

greater the impact of cowbird parasitism. Thus in prairie habitat, cowbird parasitism is severe, while in fallow fields where dickcissels are more numerous, it is less severe.

But dickcissels nesting at higher densities in fallow fields are not exempt from nest loss. These high-density populations provide food for a large population of snakes, which discover and devour the eggs and young. On any given day during the incubation and brooding periods, about 5 percent of the available nests are lost to predators. In fact, high predation losses in fallow fields are approximately equal to the losses resulting from cowbird parasitism on the prairie. Nest survival, then, is equal in both habitats. The chance for a dickcissel nest producing young dickcissels is about 15 percent.

If a female is successful in fledging young after about 26 days of nest life, she will continue to care for them for another two weeks. But she doesn't re-nest. There's barely enough time to successfully rear a second brood, even if she initially began in early summer. The time of molting and the regrowth of a new set of feathers is upon her. And after those energetic demands, it's

time to put on fat in preparation for fall migration. Females do try again when their first attempt fails. About 25 percent of the time they start the new nest with the same mate or another male in the same field, but 75 percent of the time the female disappears after the loss of a nest. I assume she seeks a new site in another field, because we continue to see new females coming into our study populations until mid-July.

If the summer has been abnormally dry and hot, breeding tapers off in late July. Males spend less time defending their territories and advertising for mates and more time sitting in the shade. In a more normal year, however, breeding doesn't start waning until early August. Males then abandon their territories, sometimes even before the nesting females have finished breeding. Unsuccessful females join other adults and the juveniles in rank, weedy vegetation along streams and waterways where they gorge themselves on insects. Indeed, they overeat and gain weight, becoming almost obese as they put on fat, the fuel for the upcoming migration. These molting and fattening flocks grow to as many as 50 birds and gather individuals from the local breeding population. Then on a September morning they are gone, having left during the night to return to their tropical wintering grounds. Search carefully, though, and you can still find a few birds in October. Usually these are females that were successful in a late nesting attempt or are stragglers coming down from the Dakotas.

Dickcissels are with us for only five months, but their presence adds color, sound and activity to the Kansas fields and prairies. So take the time to stop along the roadside and watch the male as he sings and sings and sings and sings, stopping only occasionally to chase intruding males in a twisting, turning flight. Find the drab females of his harem, perched quietly on tall weeds, preening their feathers after a session incubating eggs down deep in the vegetation. Look for the flocks of late summer gathering in ragweed and sunflowers along streams, and know that they soon will be traveling far to the south. But watch again in May, when the males return and proclaim a new summer in Kansas. KW

Author's Note: Special thanks to Gil Blankespoor, Jeff Fergen, Elmer Finck, Steve Fretwell, Scott Hatch, Leigh Schartz, Harvard Townsend and Steve Wiegert, whose knowledge and insights have enhanced my appreciation of the dickcissel.



Milford Fish Hatchery, which works in conjunction with the state's three other hatcheries, lies just east of Milford Reservoir (shown at top of main photo). Part of the 100-acre outlet lake is shown at left. Assistant hatchery manager Tom Dorzab, inset, cleans debris from one of the 24 raceways.

This Is Milford

Milford Fish Hatchery is a source of pride to many Kansans, yet has, at times, also been a disappointment. Did we expect too much too soon?

by Paul G. Koenig
Editor

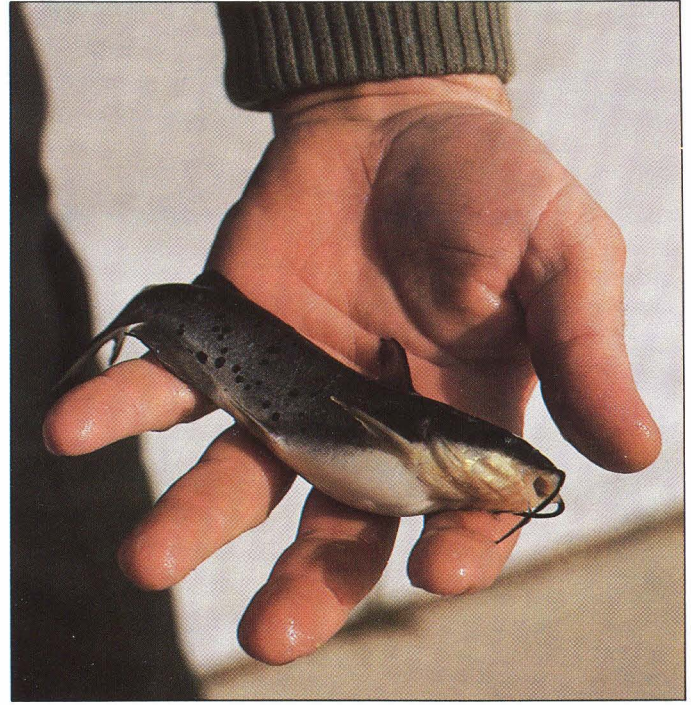
photos by Mike Blair

About a half mile east of the Milford Reservoir Dam in Geary County sits a \$4.5 million state facility that's a source of pride to state fisheries officials and many Kansans, yet has, at times, also been a disappointment.

The pride stems from the fact that the facility, known as Milford Fish Hatchery, is the state's first warmwater intensive hatchery and only the fourth in the U.S. Iowa can boast

of the nation's first warmwater intensive hatchery, which went into production in the late 1970s, while Illinois' two facilities went on line in the early 1980s. Milford's first year of production was 1985. Colorado is building the nation's fifth intensive warmwater hatchery, set to go into operation this spring.

The disappointment with the Milford facility would seem



Milford hatchery manager Tommie Crawford, at left, bumps the trigger release on a catfish feeder and displays a young channel cat, at right. About 800,000 channel catfish of varying size groups overwintered at the Milford facility in Geary County.

to be based on the early, unrealistic expectations placed on a new culture system that has little in common with assembly-line production. Milford has experienced problems similar to those seen at the Iowa and Illinois facilities. It's also had a few growing pains of its own.

Intensive fish culture relies on a system in which fish are hatched in small containers, then grown to stocking size in nearby concrete raceways. This revolutionary technique of raising fish is often referred to as state-of-the-art, a phrase meant to describe two important points. One, intensive fish culture is the most advanced way of raising fish to meet the ever-growing need to supply fish to federal, state and local waters. And two, this new system is dynamic. Meaning there is no precise recipe for growing fish, no textbook to follow when raising hundreds of thousands of channel catfish and largemouth bass and millions of walleye fry.

Still, intensive fish culture is the most efficient way to raise fish. The method of raising fish for the past 100 years — called extensive culture — uses earthen ponds to rear fish at low densities. This technique works, but not nearly as efficiently as an intensive system, which:

- * allows for a constant monitoring of water.
- * permits closer observation of fish. Eating disorders and diseases, for example, are more closely monitored than under a pond-rearing system. Disease is detected earlier, treated cheaper and more effectively under the raceway (intensive) system.
- * uses less labor than an extensive system does and with greater results.

At the Pratt Fish Hatchery, for example, fish culturists are able to produce about 8,000 channel catfish intermediates (10-inch) per surface acre of water. Milford, in comparison, is capable of producing 350,000 channel catfish intermediates

in one-quarter of an acre of surface water. Put another way, one 100-foot raceway can raise as many catfish as a 3-acre pond. The difference is dramatic.

Equally impressive is Milford's capability to supply catfish almost year-round. This is especially important for the state's two large urban areas — Wichita and Kansas City — which support heavy fishing pressure.

Too, catfish at Milford can be regularly sorted and grouped by size, which promotes more efficient feeding and better growth. And winter fish survival is higher at intensive hatcheries than at earthen-pond facilities. Milford's relatively warm water keeps fish feeding and in excellent condition.

Yet there are growing pains associated with intensive fish culture that may take years to resolve. Milford, for example, has experienced water-quality problems, algae blooms and equipment failures resulting in fish mortality higher than could be expected under normal operating conditions. And while Kansas fisheries officials have drawn criticism for bugs in the system, some of these bugs were to be expected. Fisheries administrators knew that before ground was ever broken at Milford. They'd been forewarned by their counterparts in Iowa and Illinois.

"We've been on line for more than 10 years, and we're still having problems (at Iowa's Rathbun Fish Hatchery)," says Jim Mayhew, the superintendent of fisheries for the Iowa Department of Natural Resources. Rathbun began production in 1977. "Anyone who believes that you can raise fish in close confinement, load raceways at these densities and not have problems, one, they don't know about fish culture, two, are foolish, or both," Mayhew adds.

Kirby Cottrell, conservation resource administrator for the Illinois Department of Conservation, has similar thoughts.

Please turn to Page 27.

the center section

Edited by Mike Miller

LETTERS

WIPER CORRECTION

In a story titled "Deal Of The Decade," which ran in our March/April issue, we mistakenly reported that Kansas State University (KSU) is working with the Kansas Fish and Game Commission on a hybrid bass (wiper) research project. Emporia State University (ESU), not KSU, will be assisting KF&G with the project.

ESU graduate student Tom Brungardt, working under the direction of Dr. Carl Prophet, has begun the implanting process and will be tracking wipers and walleye on Marion Reservoir through next spring. *Koenig*

CRAZY FEES

Editor:

I have seen some of the new fees on permits and licenses that the Kansas Fish and Game Commission is trying to get, and I think it's crazy. I don't understand why they have to raise the fees so much. They want to up the hunting and fishing licenses to \$15, the trapper's license to \$25 and the game breeder's permits to \$25. Why do they want to raise them so high?

I pay \$107 or more for fees so I can do what I like to do. If the fees go up, I'll be paying \$150 or more. I'll keep hunting, fishing and trapping, but it won't make me happy if they pass the new fees.

I would like to know more about this issue and where the money is going. If I'm going to pay for privileges, I would like to see it work for the outdoorsmen and the young sportsmen coming up in the future.

Robert C. Orth Jr.
Centerville

Dear Mr. Orth:

The license and permit fees you saw were framework limits. During its 1978 session, the Kansas Legislature gave the Commission authority to set license and permit fees by rule and regulation with a framework that listed maximum limits. Since then the agency has raised the prices of resident licenses by about \$1 every other year. These increases are necessary to keep pace with the rising costs of game and fishery management. During the 1987 legislative session, the Commission asked to have these limits raised. The limit on the resident hunting license will be \$15. Your 1987 hunting license will not cost \$15 but the Commission will have the option of raising it Jan. 1, 1989.

The fee increase will only be enough to cover agency costs of the future.

The Kansas Fish and Game Commission is funded through license and permit fees and with federal tax money from the sale of hunting and fishing equipment. Your license and permit fees go directly into fishery and game management programs. *Miller*

AGREES WITH BERGER

Editor:

I am writing this letter in response to the letter titled "Offended" in your March/April issue. When I read this letter I immediately picked up my pen and paper and responded. I will have to agree with Mr. Berger. There is a far cry difference from shooting a cardinal and shooting a bobcat, or any animal which is called in. I am a caller, and I can assure those humane hunters like Mr. Walker that if he just once had the exciting experience of calling a 'cat or coyote in, or just getting a good shot once in every five calling places, he would change his mind. There are no words to

describe the sporting feeling that quickly comes over you when you finish a series of calls and suddenly, out of the corner of your eye, catch a glimpse of a coyote charging full blast. Man, what a challenge.

I found your article on calling in the January/February issue to be super!

Jeff Clark
Lyndon

CHANGE IS NEEDED

Editor:

I enjoyed Randy Rodgers' article "Diversity Is Our Strength" very much. I applaud his and other biologists' efforts to improve wildlife habitat in Kansas. After all, habitat is what having wildlife is all about.

I am glad we elected Mike Hayden our governor. Maybe with him as chief executive, Kansas can make great headway in the world of wildlife conservation. Combining the Park Authority and Fish and Game will put the whole system in tune with public demand. We need more public land in Kansas, and I hope somewhere in the new structure we can come up with more funds to purchase land — be it waste ground or prime crop lands. The money might come from a percentage of the sales tax (such as Missouri's) or a land stamp added to licenses and permits on public camping areas.

We need to get it together. Our farmers' capability to overproduce is very evident today. Perhaps we should ensure that if a farmer doesn't want to produce a crop on a piece of land, he at least wouldn't have to pay any taxes on it. I am sure some land might be idled to the benefit of the landowner.

Another great threat to wildlife and humans is the extensive use of herbicides and pesticides. But what could we expect since the chemical companies have had almost complete control over the research and development of agriculture? We can only rape Mother Nature so long before she gives us up.

Tom Taggart
Bunker Hill

WHY TRAPPING?

Editor:

I can't believe that the bobcat and fox are considered game animals in Kansas. I've only had the pleasure of briefly seeing one bobcat in my over 30 years in Kansas. I'm still waiting to see my first fox. How abundant can they be? Perhaps they should be protected instead. I don't understand the usefulness of fur trappers in the 1980s. Trapping is no longer a necessity.

C.E. Schott
Lawrence

Dear Ms. Schott:

You are luckier than most Kansans. Many have spent years in the field without seeing a bobcat or fox. The reason is not low numbers in either of these animals. On the contrary, Kansas' bobcat population has increased steadily for the past six years, according to furbearer biologist Lloyd Fox. Kansas boasts a healthy bobcat population that fluctuates with the availability of prey and habitat. Right now Kansas has good habitat and high numbers of cotton rats and cottontail rabbits, so bobcats are doing well. The red fox competes directly with the coyote, and its numbers are higher in areas with few coyotes. Both species are reclusive and almost exclusively nocturnal, so seeing either one isn't easy.

Trapping, a traditional form of harvesting furbearers, serves a management purpose. Surveyed trappers provide biologists with much of the information they receive on these animals. Trappers also pay license fees so that furbearer habitat is maintained and managed and game laws enforced. Populations are monitored closely and, rest assured, if a certain species' numbers ever fell to a certain level, the trapping and hunting seasons on that species would close. *Miller*

GOOD IDEA

Editor:

About four years ago I set a goal to someday earn a Kansas Master Angler Award. My goal was to catch a largemouth bass over 7 pounds from public waters. I soon found out

that this is not an easy goal to achieve, but last March I finally achieved my goal with a 7-pound, 15-ounce bass taken out of a public strip pit.

I would like to make a suggestion on how you could improve the Master Angler program at almost no extra expense. We avid bass anglers just love to wear fishing jackets with patches. Please offer a jacket patch with the award. If money is a problem, you can offer the patch as an option for a few dollars.

Mike Howerter
Parsons

Dear Mr. Howerter:

Thank you for your interest in the Master Angler Award Program. Interest like yours has spread tremendously over the past few years. We are co-sponsoring an awards banquet at Glen Elder Reservoir for the 1986 Master Anglers. This year more than 300 anglers have been invited.

Thanks for the suggestion about patches. We'll consider them as a future improvement of the program. For now, however, awarding certificates and organizing the banquet is all we are able to do. *Miller*

UNHAPPY READER

Editor:

As a 20-year veteran of herpetology and past-president of the Kansas Herpetological Society, I must say that Robert Hartmann's article "For Sale: Frogs, Turtles and Snakes" in your January/February issue was the most muddled, poorly researched and written article I have ever read in your magazine.

I am tempted to think that Kansas Fish and Game is too eager to earn a little revenue off of permit sales and too unconcerned with the actual welfare of these animals. Apathy on the part of the public, law enforcement officers and the entire tangled beauracracy is the worst enemy these animals face, not bait fishermen or school kids collecting turtles!

I have traveled many times to the Miami, Fla., area and witnessed the pet wholesaler's warehouses with cages and stock tanks jammed with Kansas herps. Box turtles are often piled in layers four or five deep awaiting shipment to Europe. It seems a shame that a creature capable of surviving 50 years or more in the heat of Kansas summers and the bitter cold of

Midwestern winters is doomed to such a fate for the sheer profit of the pet trade. Mr. Hartmann would do well to research the pet trade further than the scattering of Kansas pet shops before writing such a piece.

Only a handful of law-abiding collectors bother with the permit system anyhow. For instance, collectors from Sedgwick County took over 300 milk snakes from the Smokey Hills region of our state last spring, a fact not on file in KF&G records.

Until such a time when the Commission is ready and well-informed enough to make such a commitment, the permit system will do little to check the exploitation of these creatures and serve only to add a few dollars to KF&G revenues.

Marton Capron
Oxford

Dear Mr. Capron:

Your appreciation for, and emotional interest in Kansas' amphibian and reptile resources is gratifying. However, you missed the point of my article. It was written to inform readers, including "law-abiding" collectors, and create an awareness of historical and current exploitation and uses. Uses were described, but not geographically identified either locally, in Florida, Europe or Japan. No attempt was made to judge use morality.

The point made was that even though the agency has taken measures to protect species that are endangered, threatened or "in need of conservation," more information is needed. Before we can protect and manage the state's native amphibians and reptiles, we need to know more about population trends and densities.

Our present mode of funding is through the user-pay concept. Therefore, it's time individuals who receive monetary benefits from these wildlife resources begin paying for resource maintenance.

If you know of Kansas wildlife law abuse, I am confident that any wildlife conservation officer will appreciate your cooperation. *Robert F. Hartmann, Supervisor, Fisheries Investigation and Development Section*

We welcome comments from readers. Please send letters to Letters to the Editor, Kansas Fish and Game, RR 2, Box 54A, Pratt, KS 67124. All letters are subject to editing in the interest of clarity and brevity.

THE LAW

sentence was suspended, but the judge confiscated the shotgun the man used and ordered it to be sold. The proceeds went to KF&G's southeast regional law enforcement budget.
Miller

SHOT IN THE BACK

The year was 1916, and the dusty streets of a small Kansas town were blood-stained. A game warden claimed he'd been gunned down — shot in the back.

It all started when deputy Fish and Game warden Oscar Walker found three skunk carcasses in a sugar sack on a Leavenworth County creek bank. Deputy Walker suspected a Jarbalo shopkeeper he called Mr. V. North was responsible. North, the warden claimed, was a habitual poacher who was taking skunks before the trapping season started.

Deputy Walker went to North's house and asked him if he had any furs. North said he didn't, and Walker wasn't invited to make an inspection.

The next day, Walker learned from the county clerk that North had no hunting or fishing license. The deputy alleged his suspect had been hunting and fishing several times without the required permits.

Deputy Walker visited North at his shop, where several other men were swapping stories and spitting through cracks in the floor. North demanded Walker apologize for accusing him of poaching. When Walker refused, North reportedly became outraged and began to beat and choke the deputy.

Some of the men present pulled North off Walker, but North broke free and resumed his alleged attack. Walker's report says he drew his revolver and used it to strike North in the head, knocking him to the floor. Walker then turned for the door.

Deputy Walker's report says he was almost outside when he saw North get up and reach behind the shop counter. Someone inside yelled, "Run, Oscar, he's got a rifle!"

The first shot from North's .45-70 Springfield missed, but it quickened Walker's pace. The second shot struck the running deputy just right of the spine and above the hips. It sent him sprawling in the street. Walker's report claims he heard North say, "I killed him. There he lies in the ditch."

Walker didn't die, though, and after several months of recovery was able to testify against North in court. The 71-year-old trial records are unclear, but they indicate that Mr. North was not convicted of the charge, "Assault With Intent To Kill." *Rob Manes, education coordinator*

DALLAS RECAPTURED

Claude Dallas, convicted of the 1981 murders of two Idaho Fish and Game officers, was recaptured by FBI agents in Riverside, Calif. Agents nabbed Dallas outside a convenience store on March 8, according to an Associated Press story. Dallas had been on the run since March 30, 1986, when he used a pair of boltcutters to clip through two fences and escape from the Idaho State Penitentiary.

Claude Dallas was somewhat of a modern-day mountain man. He had traveled west as a young man and had worked as a cowboy, ranchhand, gunsmith, logger and trapper. He was a survival expert who liked to live off the land while he ran his trap lines. Dallas reportedly took what he wanted from the land with little regard for game laws and was not fond of game wardens. A few years earlier, when arrested for a game law violation, he vowed never to be taken into custody. He was trapping in southwestern Idaho's Owyhee County when his darker side was revealed.

It was the morning of Jan. 5, 1981, when Idaho conservation officers Bill Pogue and Conley Elms visited a rancher who had reported illegal trapping. The rancher had reportedly rode on horseback into Dallas' camp and had seen bobcat hides and fresh deer quarters. Deer season was over, and bobcat season hadn't opened. Pogue and Elms went to Dallas' Bull Camp to check it out.

What transpired after they arrived is taken from testimony from the only witness, Jim Stevens. Stevens had driven to Dallas' camp to deliver supplies. Shortly after he had unloaded supplies for Dallas, he heard Dallas talking with the officers. As the two officers looked at some bobcat pelts in Dallas' camp, Dallas reportedly drew a gun and shot Pogue twice. Elms was then shot twice before he could reach his revolver. Pogue was still trying to get his gun out of his holster when Dallas shot him two more times. Then Dallas went into the tent and came out with a .22 rifle. He shot each officer in the temple, making sure they were dead.

Stevens, reportedly out of fear for his life, helped Dallas load Pogue's body in his vehicle. Elms, who weighed 280 pounds, was too large to pack up the hill to the vehicle, so Dallas

dumped the body in the south fork of the Owyhee River. Then Stevens drove Dallas and Pogue's body to Paradise Hill in Nevada. Dallas then borrowed a friend's pickup and hid Pogue's body. Stevens later turned himself in to authorities. No charges were filed because authorities believed that he acted out of fear.

Dallas then avoided capture for 16 months. Some of the locals believed Dallas to be a folk hero. The nationwide manhunt was followed closely by those for and against Dallas.

Finally, in April of 1982, Dallas was captured after a shootout in Humboldt County, Nev. During his trial Dallas claimed that he acted in self-defense. The local sentiment was strong enough in his favor that the jury found him guilty of only manslaughter. Not first-degree murder, which the prosecution had sought. He was sentenced to 30 years in an Idaho prison and was serving his term when he escaped.

After Dallas' escape, a reward fund for information leading to his capture had reportedly grown to more than \$30,000. As this issue went to press, Dallas was in custody in California awaiting extradition to Idaho. *Miller*

WRONG STATE

On Nov. 16 a Miami County landowner heard a gunshot near his home. When he went to check out the shot, he saw a man loading a deer into a pickup truck bearing a Missouri license tag. The landowner wrote down the tag number and called Paola wildlife conservation officer Terry Cloutier.

The tag number was traced to a man living in Kansas City, Mo. After interviewing neighbors, Cloutier learned the man who owned the pickup had recently moved to Drexel, Mo., a town that straddles the Kansas-Missouri border.

Cloutier found the man and charged him with illegal possession of a deer, unlawful hunting, no hunting license and shooting after hours. The man plea-bargained the charges to unlawful hunting and no hunting license. A Miami County judge fined the poacher \$500 and sentenced him to 30 days in jail. The jail

HUNTING

BOW SHOTS

Many sportsmen forget all about hunting when spring and summer roll around. They head for the lakes with fish pole in hand. Other sportsmen however, are already thinking of next fall's hunting season and heading to the archery range.

Fanatic bowhunters jump at the first warm spring weather for a chance to shoot at the local archery range. Many bowhunting clubs have started in Kansas, and most of these clubs maintain an outdoor shooting range that simulates hunting conditions. Shooting is fun and an ideal way to prepare for the fall hunting season.

Most clubs build a shooting course with 15 or more target butts. The shooter walks along the trail shooting each target at unknown distances. Only one shot is taken at each target. Scoring is simple. The targets are game animal outlines with the vitals marked. An arrow in the vitals is worth 10 points, out of the vitals is five points or zero. The shooting is great practice for hunters and it teaches them to judge distance as well as pick their own spot to shoot at. There's no bull's eye on the target.

Another excellent hunting exercise is the three-dimensional shoots. The target course is set up with life-size, 3-D targets of deer, elk, turkey, bear and other game animals. In a competitive meet, shooters walk the course and shoot once at each target. The scores are tallied at the end of each round, and winners are presented trophies. Shooting under the pressure of competition is excellent practice for hunting. The anxieties felt in competition are similar to those felt when a deer walks by. *Miller*

HUNTER FACTS

The National Shooting Sports Foundation recently commissioned a study of Americans who hunt. The telephone survey reached 500 hunters. Here are some interesting findings from that survey:

Hunters are dedicated. According to the survey, 95 percent of hunters who hunted in 1985 had hunted in the four previous years.

Hunters ranked "gaining access to hunting land" as the No. 1 problem with hunting. This

is followed closely by "crowded hunting areas," "finding time to go hunting," "less landowner cooperation" and "less game in general."

The only game animals that are being hunted more now than in 1981 are deer, crow and turkey. There was a decline in waterfowl hunting, particularly goose hunting. This was puzzling because the Wildlife Management Institute indicates that the goose population has been stable over the past five years. An explanation may be that it is becoming more difficult to gain access to wetlands.

The average hunter has been hunting for 23 years. Given the fact that the average hunter is 38, this means that he or she started hunting at age 15.

Deer is the most popular type of game hunted, with 85 percent of those surveyed pursuing deer. The next most popular game is rabbit (71 percent) followed by squirrel (60 percent).

The average hunter owns 6.4 guns. Of these, 2.7 are shotguns, 2.4 are centerfire rifles and 1.3 are rimfire rifles.

One out of five firearm hunters said they also hunted with a bow. The bowhunters were most likely to mention "challenge/requires more skill" as the primary reason for participating in this sport. *National Shooting Sports Foundation*

GUN CARE

When the hunting seasons end in January, many hunters put their guns in the cabinet until the September dove opener. For those who do little shooting outside of the hunting seasons, some extra care is required when storing guns.

The first order of business is a thorough cleaning. The gun has collected dust, sand and other debris as you tromped through the woods and fields. If this debris is allowed to build up, it can ultimately jam the action. Clean the receiver, bore and internal workings of the gun with a gun solvent or oil. Powder residues, dirt and rust spots should be carefully cleaned off. Hard-to-reach areas may be cleaned with a cotton-tipped swab. The solvent and excess oil should be wiped off with a clean cloth. Finally,

wipe a thin coat of gun oil over the gun to protect against rust.

A varnished stock can be buffed with furniture polish or paste wax. A little elbow grease may remove many of the scratches that occurred in the field.

Always store the gun on a horizontal rack or standing with the barrel down. Excessive oil will seep into the stock on a gun placed with the stock down. If you store the gun in its case, never zip the case shut. Leave the end open so that moisture won't gather and cause rust.

Miller

RECORD HARVEST

Kansas hunters harvested more deer than ever during the 1986 firearms deer season. The season, which also saw more hunters afield than ever before, was still slightly below some expectations. Nearly 40,000 permits were issued in 1986. Of the 37,617 Kansans who actually hunted, 24,123 were successful for a 64 percent success rate.

Kansas biologists have increased the permits allotted each year in an effort to curb the state's growing deer numbers. Another way to slow the herd growth is to issue more antlerless deer permits. Last fall 48 percent of the deer harvested were antlerless.

Chautauqua County led the harvest with 630 successful hunters. It was followed closely by Montgomery (536) and Elk (511). Those counties also had the highest numbers of active hunters. As in past seasons, hunters in northwest Kansas recorded the highest success rates. Wallace County hunters recorded an 86 percent success rate, and many of the surrounding counties had success rates above 70 percent.

Cedar Bluff Wildlife Management Area was one of the best public hunting areas. There 169 hunters brought home 108 deer for a 63 percent success rate. Kansas public hunting areas accounted for 763 deer harvested.

The rifle was by far the most popular hunting arm used with 35,194 hunters carrying one afield. It was also the most successful; sixty-five percent of those hunters bagged their deer. Muzzleloader hunters were the second-most successful group. Of the 1,653 who hunted with the primitive arm, 54 percent were successful. The 339 hunters using shotguns posted a 43 percent success rate. Of the 413 hunters who opted to use handguns, 167 harvested deer for a 40 percent success rate. *Miller*

FISHING



Darrel Davis of Lebanon proudly displays his state record wiper. Davis caught the fish on Jan. 25, 1987, while icefishing on Glen Elder Reservoir.

WIPER RECORD

On Jan. 25, 1987, Darrel Davis of Lebanon enjoyed 15 minutes of pure excitement on Glen Elder Reservoir. Davis was icefishing when he hooked a large fish that worked those 15 minutes trying to break Davis' fishing line. The fish is now officially the state-record white bass/striped bass hybrid (wiper), weighing in at 11.8 pounds.

Davis said he was fishing with 10-pound line. "I was real lucky to get the fish in," he said. "It made a lot of runs and tangled a lot of other lines up before we got it in." After tiring the fish, Davis' biggest problem was getting the fish through the 8-inch hole he'd been fishing through. The big wiper had a girth of 20 inches. Luckily, a nearby fisherman had a gaff he was happy to loan Davis. "To get the fish through the hole, we had to gaff him under the ice and pull the fish up through the ice," Davis said.

Davis was fishing west of the causeway on the upper end of Glen Elder. He was jigging a silver Kastmaster over the creek channel in about 18 feet of water. On the previous day Davis and his partner had caught 19 nice white bass. On this day, however, fishing was much slower. In five hours of fishing, the wiper was the only fish caught. There are no recorded stockings of wipers in Glen Elder, but several have been caught. The only explanation is that

wiper fry were incidentally stocked with stripers.

Davis' state record measured 29½ inches long with a 20-inch girth. To qualify for state-record status, the fish was weighed on certified scales. Fisheries biologist Ken McCloskey identified the fish as a wiper. The previous record, which weighed 11.56 pounds, came from Keith Sebelius Reservoir near Norton. *Miller*

WHITE BASS FEVER

You'd have to look long and far to find a fish that fights harder, grows faster, is more prolific and more numerous than the white bass. You don't, however, have to look far in Kansas for white bass. Most of our larger reservoirs have healthy populations of white bass. But even with these attributes, the real reason the white bass is loved among fishermen is the fact that he's nearly always hungry.

Many fishing trips that would have otherwise ended up fishless have been saved by white bass. Even when all other species seem to disappear, a school of hungry whites can usually be found.

After the April spawning run, May and June are prime months to catch whites. As they return to the reservoir from the rivers, whites will congregate in the upper end. One popular way to catch these fish is to troll shad-imitation

crankbaits near the creek and river mouths. Another way to catch these fish is to locate drop-offs or brush in the upper end of the lake. Whites will often suspend over drop-offs or hold near submerged trees. These fish are vulnerable to yellow or white eighth-ounce crappie jigs. Light tackle and 4- to 6-pound line makes this fishing enjoyable. A 2-pound white will stretch ultralight tackle to its limit.

As the water warms in June, white bass will move deeper and become a little harder to find and catch. Trolling deep-diving crankbaits over submerged points is a successful method now. If you catch a fish while trolling near a point, mark the spot with a buoy. Anchor the boat over the point and vertically jig spoons or jigs. This can be a successful technique if the fish are schooled.

In late June the white bass come alive again. This is usually when the first young-of-the-year shad are big enough to become white bass food. Large schools of white bass will cruise the flats hunting shad. When they pin a school of shad on the surface, a feeding frenzy ensues. This can provide some exciting fishing. Fishermen should watch the surface for the white froth that marks the frenzy. Gulls also will gather over the area to pick up scraps. When the feeding school is located, ease the boat up and cut the motor so the fish aren't spooked. Then throw almost any lure, jig, spoon or topwater bait to the feeding fish. Strikes are almost immediate, and the fishing is fantastic until the feeding stops. Whites will surface like this through July.

Many Kansas reservoirs will provide good to excellent white bass fishing this summer. These reservoirs include Melvern, Pomona, Tuttle Creek, La Cygne, Cheney, Fall River, Marion, Toronto, Glen Elder, Milford, Kanopolis, Wilson and Cedar Bluff. *Miller*

MISSOURI HYBRID

Richard Slaybaugh of Kansas City, Mo., set a Missouri white bass/striped bass hybrid record when he caught a 20.5-pound fish. He broke the previous record by more than 3 pounds. Biologists identified the fish by characteristics and then double-checked with electrophoresis. Electrophoresis is a laboratory technique that positively identifies species.

Slaybaugh caught the big fish below Truman Reservoir Dam on the Osage River. The fish was fooled by a shad-imitation lure. The Kansas wiper record was broken this winter as well; it stands at 11.8 pounds. The Missouri fish shows the trophy-size potential these superb sportfish have. *Miller*

NECESSARY TACKLE

The 1987 Kansas Fishing Regulation brochure should be a part of all Kansas anglers' fishing tackle. The handy brochure provides fishermen with information about the laws and regulations governing the state's fishing waters. Other useful information also is included.

The regulation brochure has quality illustrations to show beginning fishermen how to tell the difference between a white bass, striped bass and wiper (hybrid). There also are illustrations showing all three of the black basses: largemouth, smallmouth and spotted. There is a listing of the weights of all state-record sport-fish. This information could keep you from cleaning what might be a state record. An application for a Master Angler award is included, along with the minimum weights for the award.

The brochures are available at all Fish and Game offices, license vendors and County Clerk's offices. Pick up a copy and keep it in your tackle box. *Miller*

BOATING TIPS

You've waited all winter for a chance to put your boat on the water. Now with the warm spring weather, you're ready. But your boat has been sitting idle for four months, and you'd have some real headaches if you just hook up the hitch and head for the lake. Some preventative maintenance should be done.

First, change the lower-unit grease on the outboard. Many boaters will drain the lower-unit grease in the fall. This drains out any water that may have seeped in and prevents it from freezing while the boat is stored during winter. New grease should be added each spring.

The batteries should be charged. That doesn't mean hooking the charger up for a few hours before you leave for the lake. Take time to make sure each cell is properly filled with fluid before placing the battery on the charger. A deep-cycle marine battery charges best on a trickle charger. If your charger doesn't shut off automatically, test the battery's charge after a few hours. It's important that you don't overcharge the battery.

Empty old gas from the gas tank. Rinse the tank, the fuel hose and bulb with fresh gas. Also check all rubber fuel lines. Alcohol in gas will make these lines brittle and may cause cracks. Replace any lines that appear brittle or cracked. It's also a good idea to clean the carburetor with a commercial solvent spray. This will remove any old gas.

Other items also should be tested. Make sure all the trailer lights work. Connections may have corroded, bulbs burned out or wiring may be worn. This could save you a traffic ticket or worse, an accident. Grease the trailer hubs. Do this before each outing. If you're planning to drive a significant distance on your first trip, it is a good idea to haul your boat to a local fishing lake. Put the boat in the water for a trial run. While the boat is off the trailer, check the boat skids for loose nuts or worn spots that may damage the craft while traveling. Check all safety equipment. Make sure all life vests are in good shape and on board. Check the fire extinguisher. All the checks and testing may take several hours, but having everything work properly when you're at the lake will be worth it. *Miller*



SUMMER CATS

It was a hot, windy summer day. I was stubbornly casting my purple plastic worm, but the bass in the little farm pond just wouldn't hit. I finally forced myself to try for bluegill, but they were small and didn't keep my attention very long.

Then I had an idea. Why not use bluegill for bait, throw one out in the deep water, kick back and relax in the sun? I'd rather be here not catching fish than home watching television not catching fish.

My relaxing in the sun idea didn't last long. I watched intently as my slack line began to tighten. I quickly grabbed the rod and fed the fish more slack. As the line began moving

faster, I extended my arms and tensed. When the fish reached the end of the slack line, I reared back hard and felt something solid at the end of my line. The rod began to pump, and I knew I was in for a battle.

Many fishermen, including me, often overlook channel catfish. The largemouth bass craze, along with the immense popularity of walleye, crappie and white bass, leaves the channel cat overshadowed. In most Kansas reservoirs and ponds, that's a mistake. Statewide, no other fish offers as much good fishing as the channel cat.

The channel cat has a bad image because of its eating habits. Surviving in muddy water as well as clear, the channel cat uses its olfactory senses to locate meals. Usually, the worse a bait smells, the better. But channel cats can be caught on almost anything. I've taken channels on cut bait, worms, chicken livers, beef liver, minnows, prepared stinkbait and prepared shad sides. When a bass or crappie fishing trip turns sour because they aren't biting, you can usually find some kind of bait that will catch channel cats.

In early summer channel cats will come up on the flats to feed in reservoirs, and fishermen drifting bait on the flats are successful. The windy side of a point will also hold feeding channel cats. The channel cat doesn't have quite the table reputation the walleye has but is still an excellent eating fish. And a channel cat could whip any three walleye in a fight. The aggressive, hard-fighting nature of the channel catfish makes it enjoyable to catch.

The ideal time to catch channels is during or right after a rain. The sudden rise of water will wash nutrients into the water and send the cats into a feeding frenzy. After a rain, fishing near the mouths of rivers or creeks is often productive. The fish will congregate in the moving water to pick up food that washes in.

The channel cat is often thought of as a night feeder, but don't restrict your fishing to just after dark. I've caught many channels in the middle of a sweltering summer day. The channel cat is a scavenger and opportunist. If a channel scents a potential meal, it'll usually check it out.

Don't ignore channel cats on your next fishing trip. Wherever you fish in Kansas, there's usually good to excellent channel catfishing. Fisheries biologists report the following reservoirs will provide top-notch fishing for channel catfish: Clinton, Melvern, Perry, Pomona, Tuttle Creek, Elk City, Hillsdale, John Redmond, La Cygne, Cheney, El Dorado, Fall River, Marion, Toronto, Council Grove, Glen Elder, Lovewell, Milford, Kanopolis, Wilson, Cedar Bluff and Sebelius. Channel cats are also generously stocked in state and community fishing lakes. *Miller*

ISSUES

CHLORDANE WARNING

In March the Kansas Department of Health and Environment (KDHE) and the Kansas Fish and Game Commission issued a health advisory warning that bottom-feeding fish in the Kansas River in Kansas City are unsafe to eat. High levels of chlordane, an insecticide used for termite control, have been found in samples of fish taken from the river. The advisory warns people not to eat catfish, carp, buffalo, carp-suckers, sturgeon or drum.

The advisory applies to the Kansas (sometimes referred to as Kaw) River from the Turner Street Bridge to the mouth of the Kansas River. The average concentration of chlordane in two samples, each a composite of three carp, exceeded the U.S. Food and Drug Administration "action level" of .3 parts per million (ppm). The average concentration in the edible portion of the samples was 1.5 ppm. One sample had a concentration of .81 ppm, the other 2.1 ppm. Although there is evidence that chlordane causes cancer in laboratory animals, the long-term human health risks resulting from the consumption of fish contaminated with chlordane are unknown.

The advisory applies only to bottom-feeding fish. Data from other sites indicate that contaminant levels in predatory fish, such as white bass, should not be of concern to anglers.

This is the first advisory in Kansas warning that fish are unsafe to eat. Advisories issued last year for the Wichita and Lawrence areas recommending a consumption limit remain in effect. KDHE and KF&G and the Environmental Protection Agency will continue to study the situation. *Miller*

FUNDING THREAT

The Department of the Interior's FY 1988 budget calls for a "one-time" transfer of \$25 million from the Wallop/Breaux Trust Fund to the Fish and Wildlife Service's resource management budget. This is according to an American League of Anglers and Boaters (ALAB) news release. Wallop/Breaux funds are excise taxes from the sale of fishing tackle and motor boat fuel. The funds are distributed

to the states for fisheries programs.

Interior estimates that Wallop/Breaux funds will total \$174 million in 1988. With the proposed cut, only \$149 million would be dispersed to the states. ALAB believes this estimate to be high, but supports the full amount available going to the states to restore, enhance and manage sportfishery resources. The Wallop/Breaux funds, which must be matched with state money, have had a significant positive impact on fishing and boating opportunities in the United States. State-level actions to raise new matching funds through licensing programs have given the program even greater impact.

The Fish and Wildlife Service already receives a percentage of the Wallop/Breaux funds to cover administrative costs. The proposed \$25 million transfer in FY 1988 would go into the Service's basic operating account for general "program responsibilities related to wildlife and fisheries." This transfer violates the basic user-fee principle ALAB supports: the boaters and fishermen who agreed to contribute to the fund through excise taxes should be the direct beneficiaries.

The Wallop/Breaux fund is designed to provide money to the 50 states to improve lake and river accesses and to improve the fishery resource — not to balance the federal budget. This turns a well-accepted fishing program into a hidden tax.

The Wallop/Breaux amendments to the Dingell/Johnson Fund legislation in 1984 resulted in significant funding increases. Monies collected rose from \$39 million in FY 1984 to \$141 in FY 1986. The program survived strong attempts in 1985 to remove a large portion of the newly-allocated monies.

This year's transfer, if accepted, would result in the loss of \$365,345 to Kansas fisheries programs. *American League of Anglers and Boaters*

KF&G NOT AFFILIATED

The Kansas Fish and Game Commission is not affiliated with nor does it endorse the R & R Sportsmen's Club. The club is a network marketing operation based out of Mound City. This past spring, representatives of the club have been holding meetings to sign up farmers

and land. In the club's plan, farmers will pledge land that's available to dues-paying sportsmen members to hunt on. Farmers are paid to have up to 40 acres of land planted to wildlife habitat.

"Our agency has had a habitat improvement program (WHIP) for many years, but we do this independently of any other entity," KF&G director Bill Hanzlick said. "We're not interested in working with a private hunting group whose motives may be profit-oriented. It would appear this company is interested in promoting fee hunting. At this point, our agency has no desire to be involved with promoting fee hunting."

Although an earlier review by KF&G did not find the network marketing program to violate state fishing or hunting laws, the Commission does want to dissociate itself from any direct interest in the R & R Sportsmen's Club. *Koenig*

1986 FISH KILLS

Kansas Fish and Game biologists and officials from the Kansas Department of Health and Environment investigated 64 fish kills in 1986. A total of 66 bodies of water were affected. Biologists estimate 213,253 fish were killed. But this estimate should be considered conservative because observing and determining individual mortalities is difficult.

The reported fish kills involved 24 streams, 27 ponds, 12 lakes and three large reservoirs. The total is less than in 1985 mainly because of fewer pond kills. Most of the kills were a result of oxygen depletion during the summer. This can occur naturally when large amounts of aquatic vegetation dies. As the vegetation decomposes, oxygen is used up, suffocating fish in the warm water. Other natural die-offs occur when hail and wind storms wash large amounts of leaf litter into streams and rivers. The foliage decomposes, depleting oxygen in the water.

Other kills resulted from feedlot drainage, ammonia spills, oil spills and pesticides. Biologists estimate the monetary value of fish killed in 1986 to be \$114,353.85 If spills resulting in fish kills can be traced to a specific source, there is a provision for compensation. In the past, companies responsible for fish kills have paid restitution fees to restock the water affected. Tracing the cause and source of a fish kill is sometimes difficult and requires immediate investigation, especially in streams. If time is lost before the kill is reported, the stream washes away the pollutant and only some of the dead fish are found. *Miller*

NATURE

BIRDERS INCREASE

The stereotyped birdwatcher, the little old lady in tennis shoes, is fast disappearing, giving way to birders of many different ages and professions. Millions of dollars are spent on bird guides, seed and backyard feeders each year. The trend shows that birding is becoming an American pastime.

According to *National Wildlife* magazine, these facts prove the point:

More than 62 million Americans regularly put out seed in backyard feeders, according to a 1980 U.S. Fish and Wildlife Service study.

About 600,000 bird guides are sold in the U.S. each year, grossing approximately \$18 million. At Houghton Mifflin publishers, the all-time best-selling book on any subject is Roger Tory Peterson's *A Field Guide to the Birds*, first published 52 years ago.

Experts estimate that approximately 1.2 million tons of bird seed are sold annually in the U.S.

The interest has grown to include bird watches where groups try to find the most species possible in a given area. These have grown into competitions between groups to see which observe the most different species. Theoretically it's possible to see 836 species of birds in North America. One birder, Benton Basham from Chattanooga, Tenn., recorded 711 species in 1983. *National Wildlife Federation*

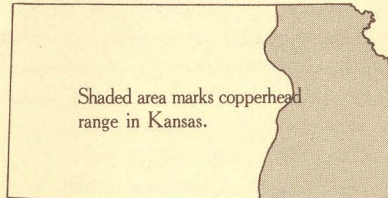
POISON SNAKES

Thirty-seven species of snakes live in Kansas, writes Joseph T. Collins in his book *Amphibians and Reptiles in Kansas*. But only four are poisonous: The copperhead, the massasauga rattlesnake, the timber rattlesnake and the prairie rattlesnake. Collins has found cottonmouths within one-quarter mile of the Kansas border in northeastern Oklahoma but not in Kansas. There is also the possibility of diamondback rattlesnakes thriving along the Kansas-Oklahoma border in southwest Kansas, although there are no recorded sightings.

Many people see snakes as scary or repulsive, but the thought of coming upon a poisonous snake strikes fear into almost everyone. We can put some of that fear to rest

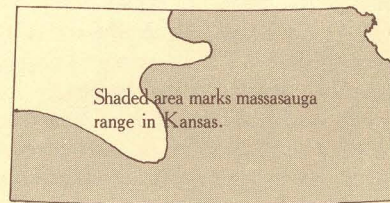
by learning a little about our poisonous snakes.

All of Kansas' poisonous snakes are pit vipers. The pit is a small depression on either side of the head, between the eye and nostril. The pit is heat sensitive and allows snakes to locate prey in darkness.



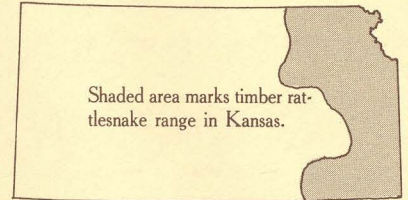
The copperhead snake is common in the eastern third of Kansas. It prefers deciduous forests with rocky hillsides, particularly near streams and ponds. Copperheads have dark brown or gray cross-bands on a light gray or brown body. Young specimens have yellow-tipped tails, which may be twitched to lure prey within striking distance. Copperheads commonly grow 24-36 inches long. The largest Kansas specimen measured 38 inches although the maximum length is 53 inches.

The color pattern on copperheads matches the leaf-littered forest floor perfectly. They lie motionless waiting to ambush prey such as cicadas, frogs, toads, lizards, small birds and occasionally other snakes. Population densities can be as high as seven copperheads per acre in northeast Kansas. The snake is not aggressive and the few people that are bitten usually stumble over or try to catch a copperhead. While painful, copperhead bites are rarely fatal.

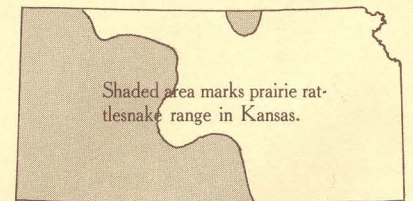


The massasauga is the smallest rattlesnake in Kansas. It inhabits the eastern two-thirds of the state, and a subspecies, the desert massasauga, is found in the Southwest. Massasaugas are gray or brown with dark gray or brown blotches on the back. They're found in open prairies and wetlands and are common on the Cheyenne Bottoms waterfowl marsh. The word massasauga is a Chippewa Indian word meaning "great river mouth." This probably

relates to the snake's preferred habitat of swamps and boggy areas near river mouths. Massasaugas eat frogs, lizards, other snakes and rodents. They can be aggressive in nature and, because of their small size, can be difficult to hear when they rattle. Never depend on any rattlesnake rattling a warning; even aggressive snakes may stay silent.



The timber rattlesnake's range includes the eastern third of Kansas. It's not found west of the Flint Hills. Timber rattlers are commonly found along heavily vegetated rocky outcrops and partially forested hillsides. Timber rattlers have dark chevron-shaped bands over a pink-gray or yellow-brown body, and the last several inches of the tail is black. They sometimes have a reddish line down the middle of the back. The timber rattlesnake has a milder disposition than the massasauga or prairie rattlesnake and will often lie motionless to avoid being seen. They normally grow 36-54 inches in length. The largest recorded Kansas timber rattler was 63½ inches long. The maximum length for the species is 74 inches. Timber rattlers commonly feed on mice, rats, squirrels, rabbits, bats and other small mammals.



The prairie rattlesnake is considered by some to be the most dangerous Kansas rattlesnake. Its range is restricted to the arid High Plains of western Kansas. The snake is dangerous because of its aggressive nature. It will usually rattle when approached too closely. Prairie rattlesnakes are marked with dark blotches on the back and bands on the tail. The body is colored greenish-gray to brown. Prairie rattlesnakes are commonly 35-45 inches long, although they can attain a length of 57 inches. The largest Kansas specimen measured 48½ inches. Rats, mice, gophers and young prairie dogs are most often on the prairie rattler's menu.

All of these poisonous snakes are born alive and are venomous at birth. Most of the young are born in late summer or early fall. To avoid cold temperatures in winter, they take refuge in burrows or crevices deep underground. They

are active from April to early November. During spring and fall the snakes are diurnal (active during the day) and are most likely to be seen. During the summer, however, they become mostly nocturnal.

These snakes shouldn't be feared but should be respected. Learn which ones are common in your area and know their habits and behavior. Most snake-human confrontations are avoided when the snake makes a hasty retreat before it's even been seen. Taking special precaution to watch for them when in their habitat is the best way to avoid a snakebite. If you do find one of these poisonous snakes, give it a wide berth and leave it alone. *Miller*

ACID RAIN THREAT

Acid rain may be as threatening to some of the nation's duck populations as it is to fisheries. According to a report by the Izaak Walton League, acid rain may reduce waterfowl numbers by limiting the production of young ducks and destroying critical food organisms that are needed by egg-laying females.

The black duck may be the hardest-hit species; it breeds almost exclusively in areas receiving the heaviest acid rainfall. Black ducks nest early in areas hit with sudden rises of acidic water when snow melt flows into lakes. Studies show that acid-stressed lakes produce few ducks. Black duck numbers have decreased by 60 percent in recent years.

At least 10 other species are feared threatened, and the problem isn't just in the Northeast. Some of Canada's prairie pothole region is considered within the acid rain region. *Izaak Walton League News*

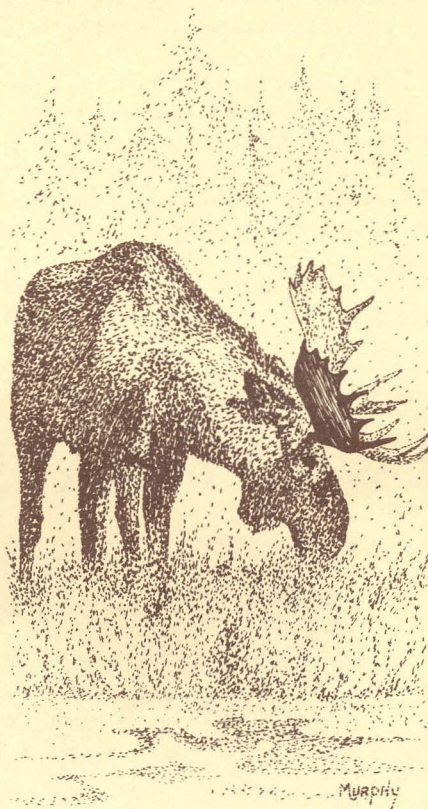
RIVERS MONTH

This June will mark the fourth year Kansans join the nationwide observance of National Rivers Month. The state of Massachusetts began the idea in 1979, and its popularity has grown westward. Streams and rivers are acknowledged for their contribution to the quality of life.

Fishermen can enjoy about 10,000 miles of fishable streams in Kansas. But these waterways support much more than just fish. Hunters, fishermen, trappers, birdwatchers and canoeers are just some of the people that depend on rivers for their enjoyment. Too often, that

enjoyment is taken for granted. Designating a month to recognize the value rivers are to us is a way to create an awareness. Action needs to be taken whenever a river or stream is threatened by water depletion, channel alterations or pollution. When the water is gone or polluted, not only are the fish and aquatic life gone, but the habitat along the rivers is gone as well. Riparian habitat supports countless wildlife species including deer, turkey, quail, song birds, eagles, and many more.

One organization that actively promotes an appreciation of streams is the Kansas Canoe Association (KCA). For more information about Kansas streams, contact the KCA at P.O. Box 2885, Wichita, KS 67201 or Ken Brunson, Kansas Fish and Game Commission, Rt. 2, Box 54A, Pratt, KS 67124. *Miller*



MOOSE DE LEON

Missourians had a new and unusual resident last winter. A moose. The moose, followed closely by the public, traveled down through the state after crossing the border from Iowa. It's not the first time this has happened as another moose followed a similar route in 1976. But this moose appears to have taken up residence in Chariton County near Dalton.

The southerly progress of the big bull has been followed by the press, too. A radio sta-

tion even sponsored a "name the moose" contest. The winning name: Moose de Leon, (searching for the fountain of youth).

Moose de Leon has been seen frequently in the Dalton area. A local conservation agent photographed the animal and estimated him to be 6-feet tall at the shoulders. At last sighting the bull had shed both of its antlers.

According to a Minnesota Department of Natural Resources official, it's not uncommon for moose to travel down the Minnesota River from the Detroit Lakes area. The reason for this particular moose's continued southerly travel is unknown. *Missouri Department of Conservation*

DU TURNS 50

On Jan. 29, 1937, a small group of dedicated sportsmen incorporated Ducks Unlimited (DU) in Washington, D.C. Today there are 600,000 members from across the continent.

DU's major objective has been to preserve waterfowl habitat. The draining of marshes and wetlands is the most serious threat waterfowl face. DU has more than 3.7 million acres under reserve in Canada, 280,000 under its management in Mexico and more than 138,000 acres that it's helping to manage in the U.S.

During the Dust-Bowl era of the 1930s, the prairie wetlands began to dry up. DU was convinced that the Canadian wilderness was the key to saving our waterfowl. Through survey methods DU theorized that more than 70 percent of the continent's waterfowl were produced in the Canadian wetlands. A DU organization was formed in Canada to carry out the actual earth-moving and restoration of wetland projects across the provinces. Since those early days, DU has built more than 2,800 wetland projects in Canada, providing waterfowl and other wildlife with nearly 16,000 miles of protective shoreline.

DU's efforts were also directed to Mexico. The ancient wintering ground for millions of waterfowl also was facing severe habitat problems. Ducks Unlimited de Mexico was born in 1974 because if the birds didn't return from their wintering grounds in good health, nesting success would diminish.

In 1983 DU was asked to step in and formulate plans for habitat work in South Dakota, North Dakota, Minnesota, Montana and Alaska, where more than 90 percent of the U.S. waterfowl production occurs. To date DU has completed 80 habitat projects in those states. *Miller*

NOTES

STEEL SHOT AREAS

The U.S. Fish and Wildlife Service has proposed regulations that establish non-toxic shot zones for the 1987-1988 waterfowl seasons. The proposed regulations implement the Interior Department's decision to phase in non-toxic shot requirements for waterfowl hunting throughout the U.S. by 1991. The regulations establish a schedule for implementing non-toxic shot zones according to the size of waterfowl harvest in any given county:

Number of waterfowl harvested per square mile	Year nontoxic shot required
20 or more	1987-1988
15 or more	1988-1989
10 or more	1989-1990
5 or more	1990-1991
Fewer than 5	1991-1992

Under this proposal, muzzleloaders will, for the first time, be required to use non-toxic shot for waterfowl hunting in non-toxic zones.

In Kansas, Montgomery and Neosho counties will be added to the list of counties and areas that were designated steel shot last year. *U.S. Fish and Wildlife Service.*

FISHING WEEK

June 1-7, 1987, has been designated as National Fishing Week, according to an American Fishing Tackle Manufacturers Association news release. More than 60 million Americans will observe the ninth annual event around the country.

Fishing attracts a broad spectrum of participants and is one of the most enjoyed outdoor sports. A theme for the week is "Take a Kid Fishing." Fishing is a good way for families to spend time outdoors together and is also a good way to introduce youngsters to nature.

If you're interested in getting started in fishing, watch for events in your area such as

fishing clinics. If you already fish, take a young person you know out and introduce them to the fun sport of fishing. *Miller*

MASTER ANGLER NOTE

In coordination with the Master Angler Program, the Kansas Fish and Game and the Waconda Lake Association will host a Master Angler banquet on June 6. All anglers who received Master Angler awards or broke state records in 1986 have been invited. The lake association has planned a fish fry along with a program by Lowrance and tips on catching walleye in Waconda Lake (Glen Elder Reservoir). Awards will be presented to state-record holders and snapshot boards will display all Master Angler catches from 1986. Tackle and boat companies have donated money and door prizes for the event.

Interested fishermen can also sign up to fish in the Waconda Lake walleye tournament held on the following day, Sunday, June 7.

If you're interested in getting invited to the 1988 banquet, you'll find minimum weights and an application with instructions in the 1987 Kansas Fishing Regulation brochure. Applications can also be obtained from bait and tackle dealers and from KF&G offices. *Miller*

IT'S WILD IN KANSAS

Kansas Fish and Game is offering this attractive hat to KANSAS WILDLIFE readers. Funds from sales of the hats will go toward the construction of the Milford Conservation Education Center. The hat comes in rust, brown or tan and features the Wildtrust patch showing a prairie chicken in front of a setting sun. It makes a perfect fishing hat, but is attractive enough to wear any time.

To order through this special offer send \$5 plus \$1.50 for postage and handling to Wildtrust Hat, Kansas Fish and Game Commission, Rt. 2, Box 54A, Pratt, KS 67124. A wildtrust patch is also available for \$2.50 plus \$.25 postage and handling. To avoid paying postage and handling, the hats can be purchased at Kansas Fish and Game regional offices and at the headquarters office in Pratt.



NATURE'S NOTEBOOK

by Joyce Harmon Deppenbusch Wildlife Education Coordinator

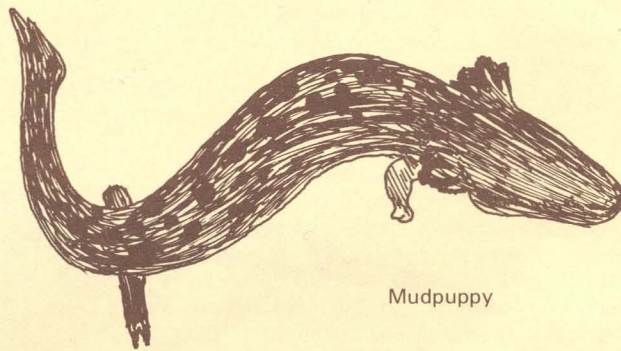
FROM EGGS TO LEGS

Of the five groups of vertebrates — mammals, fish, birds, reptiles and amphibians — we may notice amphibians the least.

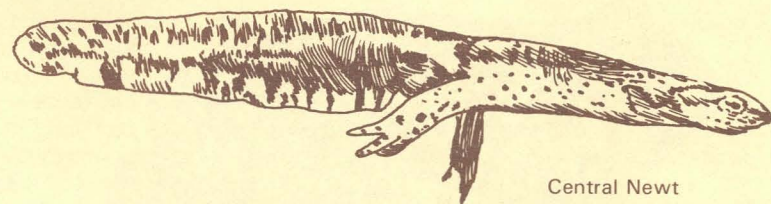
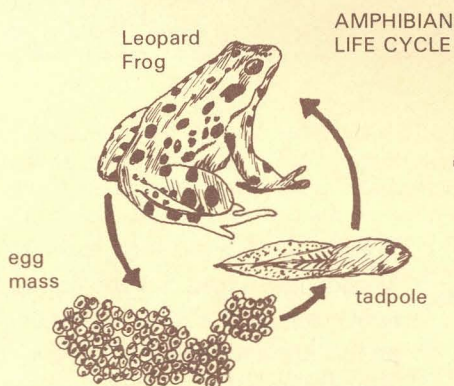
Amphibians are fascinating animals. Not only do they grow from an egg to a four-legged vertebrate, but they also spend part of their lives in water and part on land. They are **cold-blooded**, meaning their body temperature is controlled by their surroundings. Since they are unable to regulate their body temperatures, they spend the winter hibernating beneath the ground or water so they won't freeze. Kansas has 28 **species**, or kinds of amphibians, including salamanders, frogs and toads.

Amphibians can be identified from **reptiles** by their skin. Amphibians have moist skin, while reptiles, such as turtles and snakes, have shells or scales. Amphibians depend on water and moisture because they can easily lose body moisture. Therefore, amphibians are generally found near water.

There are four families of salamanders represented in Kansas: newts, mudpuppies, mole salamanders (like the tiger salamander) and lungless salamanders such as the cave salamander.



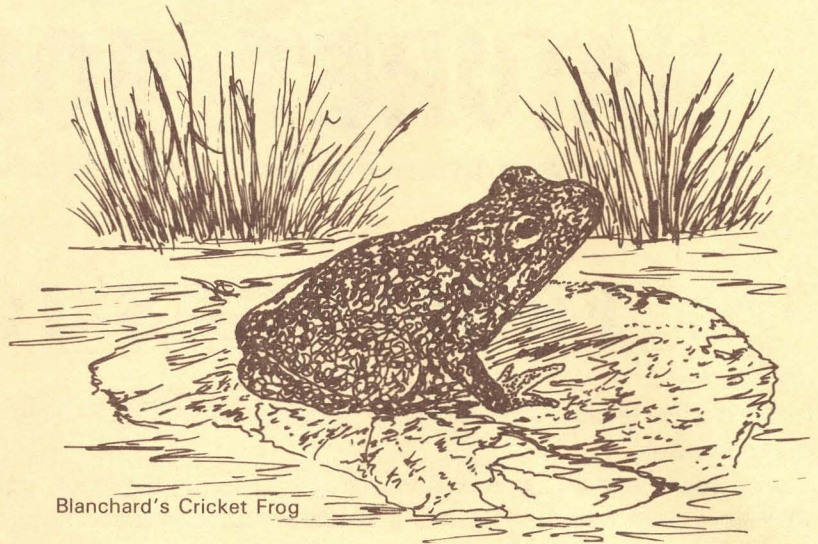
Mudpuppy



Central Newt

Amphibians lay soft eggs in moist areas. The eggs have no shell and must remain moist to survive. The eggs hatch into **aquatic**, or water living, **larvae** or **tadpoles**. The first part of an amphibian's life is spent in the water until they **metamorphose**, or change. The adult life is spent as **terrestrial**, or land, animals. Most adult amphibians feed on insects, other invertebrates and small vertebrates.

The two major groups of Kansas amphibians . salamanders, and frogs and toads . differ in several ways. Salamanders have tails, while frogs and toads do not. The front and hind legs of salamanders are similar in size, but the hind legs of frogs are larger than the front legs. Also, frogs and toads make a familiar call or chorus (especially during breeding). None of the Kansas salamanders make sounds. Salamander larvae have gills on the back of their heads, while tadpoles do not.



Blanchard's Cricket Frog

The most common Kansas salamander is the tiger salamander. Found statewide, it is the only salamander found in western Kansas. Tiger salamanders have dark bodies with light spots and are generally from six to eight inches long. During times of extreme temperatures, tiger salamanders can be found in caves or burrows. One female can lay up to 1,000 eggs, which hatch into larvae in a few weeks.



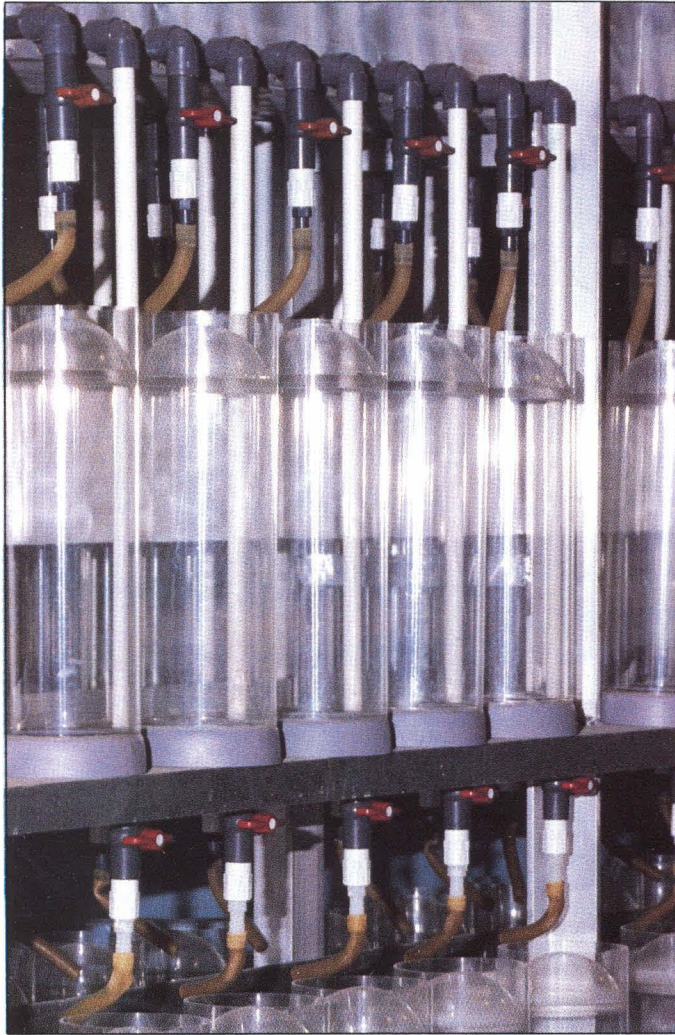
Tiger Salamander



Woodhouse's Toad

Among the Kansas toad species, the Woodhouse's toad may be one of the most common. It is found statewide, but prefers lowlands and shady areas. The Woodhouse's toad is active from March to late September. Like most toads, the Woodhouse's is **nocturnal**, or active at night. In the spring and summer male Woodhouse's chorus in small groups to attract females. One female can lay up to 25,000 eggs.

These hatching jars are used to produce walleye. After hatching, walleye fry migrate out of these jars into collection tanks.



Cottrell oversees work done at that state's two intensive hatcheries — Little Grassy near Carbondale and Jake Wolf near Peoria. "One thing to remember," Cottrell says, "is that fish culture is still an art even though we've moved ahead technologically. Fish are still living organisms, and that sets (this process) apart from factory production. Fish respond to (management techniques) and tell us very quickly if we're doing a good job or not."

Every intensive hatchery, Cottrell continues, "has to be given a chance. And by that I mean just because (a hatchery) doesn't turn out a crop of fish for a year or two doesn't mean it's a failure."

The idea for a new state hatchery was first discussed in the early 1970s. At that time, Kansas fisheries officials had watched the state's demand for sportfish grow with each year. Three hatcheries, located in Pratt, Meade and Farlington, were not meeting all the state's need for sportfish, and the consensus was that this three-hatchery operation would, some day, have to be replaced by an

all-inclusive facility. Or at least augmented by a fourth.

In 1978 the five-member Kansas Fish and Game Commission asked Kramer, Chin and Mayo, Inc. (KCM), a Seattle-based engineering and design firm, to draw up plans for that all-inclusive hatchery. KCM proposed an \$18 million facility capable of raising 12 species of fish. The plan also had provisions for an education center. Under the plan, the Meade and Farlington hatcheries would be closed. The Pratt facility would remain in operation as a research facility.

But the commissioners rejected this plan due to the extravagant price tag. Way too expensive, the commissioners said. Give us another option. KCM returned with a scaled-down blueprint that called for a \$6 million facility to be run in conjunction with the existing three hatcheries. The commissioners liked Plan B.

Then in 1982 the Kansas Legislature authorized the Commission to issue revenue bonds that would finance the \$6 million warmwater intensive hatchery. But when state fisheries officials saw they could keep the cost at \$4.5 million, they refinanced the loan at a lower interest rate. This financial move meant a huge savings for Kansas sportsmen, who since 1983 have been paying for the hatchery via a \$3 surcharge on their fishing license. 1989 is expected to be the last year for the hatchery fee.

Kansas sportsmen had been paying on the bond for nine months when ground was broken east of Milford Dam in late September 1983. A little more than a year later Milford Fish Hatchery stood as the newest warmwater intensive fish hatchery in the country. Former Gov. John Carlin dedicated the facility on May 11, 1985.

The hatchery site had been carefully chosen. It lies close to impoundments that would be receiving many of the fish produced there. Too, it is easily accessible to some of the state's major highways. Most importantly, Milford benefited from an adequate supply of water. Water could be drawn from nearby wells and from an adjacent 100-acre outlet lake.

The hatchery was designed to raise channel catfish, black bass (largemouth, smallmouth and spotted) and walleye and operate within a \$150,000 base annual budget. One-third of that annual allotment goes to feed the hundreds of thousands of channel catfish and largemouth bass produced there. Both fish are highly efficient feeding machines. During the normal growing season, for example, channel catfish and largemouth bass convert 1½ to 2½ pounds of food into 1 pound of flesh. A cow, in comparison, will eat 8 pounds of food before putting on a pound of flesh.

Intensive culture systems work. But when problems occur, they must be tackled one of two ways: Do it yourself, or pay someone else to study and solve the problem. The Kansas Fish and Game Commission has done both with Milford.

"It would have been great if 1985 (the year Milford went on line) would have been a great production year," says Mike Theurer, chief of fisheries for Kansas Fish and Game (KF&G). "But we were building equipment such as hatching batteries and baffles and screens for the raceways, and at the same time we were putting fish on the station. I guess we were a bit naive saying we can do all this and raise fish, too. (We probably) shouldn't have phased into production as quickly as we did."

Some decisions involved trade-offs. Do it yourself and save the money, or buy the component and save the time? In the case of the raceway screens and baffles, fisheries officials decided to save the money. Wayne Daley, then KCM's project leader for the Milford facility and now a senior

bioengineer for another Seattle engineering firm, estimates KF&G saved sportsmen between \$60,000 and \$70,000 by having hatchery workers build the aluminum screens and baffles for the 24 raceways.

A faulty alarm system, which has failed to satisfy the performance requirements, is under negotiation with the manufacturer and installer. The hatchery roof, yet another problem, has been replaced by the contractor to KF&G's satisfaction.

Water quality also is being addressed. In a mid-February summary of its findings, the Kansas Biological Survey recommended reducing or eliminating algae blooms (phytoplankton) on the supply lake — a primary source of hatchery water — by increasing the organisms (zooplankton) that feed on these tiny green plants. The way to increase zooplankton, then, is to reduce the number of bigmouth buffalo and gizzard shad that feed on zooplankton. Through early spring, about 90,000 pounds of roughfish (primarily bigmouth buffalo, but also gar, river carpsucker and smallmouth buffalo) had been netted out of the lake.

"Biomaniipulation (one of the Survey's recommendations) is not a simple approach," Theurer says. "Changing zooplankton communities is only part of the plan we'll address to improve water quality."

The Survey also recommended that water from the supply well closest to the dam not be used unless absolutely necessary. Survey biologists found the water from that well to be higher in undesirable ammonia content than water from the other two supply wells, both of which meet acceptable water-quality standards. What this tells Kansas fisheries biologists is to drill additional wells as far from Milford Dam as possible.

Iron deposits in both the facility's hatchery and domestic water also have been a problem. Hatchery workers are treating the hatchery water supply via sand filters and purifying the domestic water with phosphates and chlorine.

And the addition of an oxygen-injection system is yet another step in the tackling of Milford's water-quality problems. The system would accommodate additional pounds of fish in each raceway. Verl Stevens, the state's supervisor of fish culture, says the \$70,000 system should be operational by midsummer.

Milford's growing pains are being addressed, and the goal of producing fish to meet the state's demand remains the top priority. Milford's 1987 production goals have been set at 350,000 intermediate channel catfish, 100,000 6-inch largemouth bass and 50 million walleye fry. Both channel catfish and walleye were raised in 1985 and 1986 at Milford, but this is the first year for largemouth bass. Hatchery workers didn't even try to raise largemouth bass the first two years due to poor water quality. Milford coordinates with the Pratt, Meade and Farlington facilities to meet as many of the state's fish requests as possible.

Hatchery manager Tommie Crawford and his four assistants continue to learn how to operate the hatchery most efficiently. Milford's hatchery positions have been filled deliberately. "I still think the proper way to (staff the hatchery) is to go in with a minimal staff and grow into the manpower need," Theurer says.

And time must be given to meet expectations, says Wayne Daley, KCM's former project leader at Milford. "It takes 3-5 years to get that kind of a system going before you reach the intended production goals," he says.

"One thing that goes along with these facilities is the initial hype," explains Kirby Cottrell of Illinois, "and that's part of the selling process. Everybody associated with the project wants it to work correctly and perfectly from Day 1. But that's unrealistic."

Theurer would agree. "We've been very positive," he says, "but maybe we had an overzealous approach. I'm convinced we'll overcome the biological problems, but the majority of the cures will be operational in nature. The quicker we are into normal production, the quicker anglers will realize the benefits of their \$3 hatchery punch."

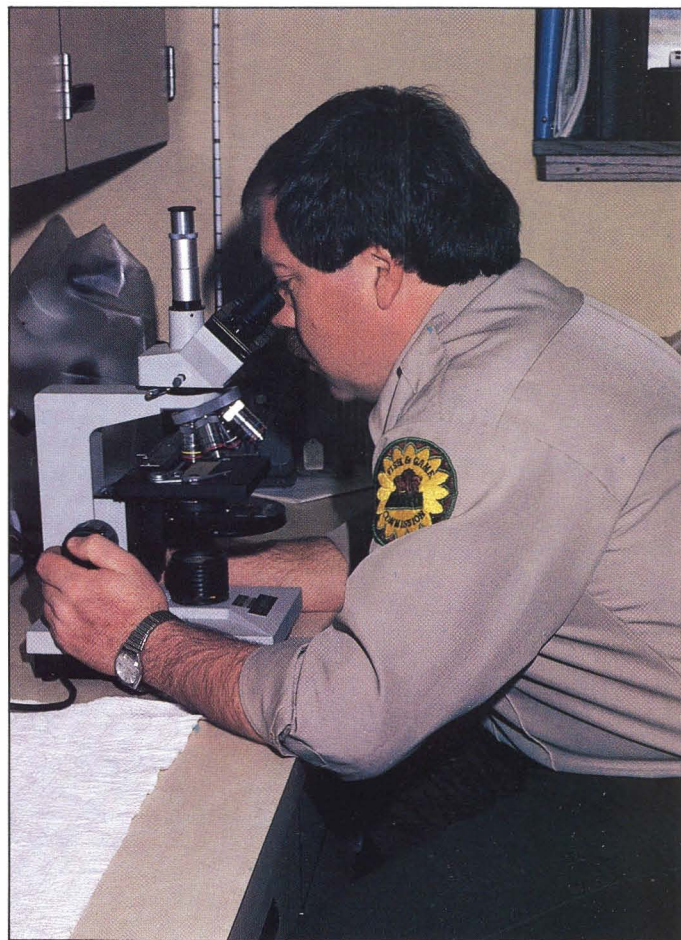
Iowa's Mayhew adds this enlightenment: "We've made (Rathbun) work, but it's not been easy. It is pretty easy to second-guess a hatchery manager. They'll work out (the kinks) if you give them time."

But at least one state legislator is questioning Milford's benefits. Last November Sen. Mike Johnston (D-Parsons) asked the Legislative Post Audit Committee, a 10-member bipartisan panel, to review Milford's progress and problems. On Feb. 25, the committee approved a Milford audit.

Barbara Hinton, performance audit manager for the Legislative Division of Post Audit, says the review should take about six weeks and begin sometime this summer.

"Until Milford Hatchery produces fish to meet the current demand, we will continue to answer questions and prove the facility worthwhile," Theurer explains. "This audit is one more requirement of proof." KW

Crawford and his staff routinely make disease analyses in the lab.





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KANSAS LIFETIME HUNTING & FISHING LICENSE

Fish & Game
Commission

Curtis Lynn Peterson

Mike Blair photo

Experience Outdoor Kansas

If you're ever looking to give the perfect gift (and who isn't?), consider giving a Kansas lifetime hunting, lifetime fishing or lifetime hunting and fishing combination license. Truly, it's the gift that keeps on giving, even if the holder moves away from Kansas.

Give the license for graduations, for birthdays, for Father's Day, for Mother's Day, for Christmas, or just because. In March, Gov. Mike Hayden signed two bills that provide even more incentive for buying one of these valuable licenses.

Effective July 1, any holder of a Kansas lifetime hunting or lifetime hunting and fishing combination license may apply for all state big-game permits, the same as any Kansas resident. The other statute allows a person to buy a lifetime hunting or hunting and fishing combination license for another person prior to the recipient's passing of the Kansas hunter-safety course. Anyone born on or after July 1, 1957, however, must pass an approved hunter-safety course *before* the license is valid. This makes a lifetime sporting license a great gift for youngsters, even newborns.

The lifetime hunting license costs \$200. The lifetime fishing license also is \$200, and the lifetime hunting and fishing combination license runs \$400. Buy one of these three, and you'll never be affected by a license fee increase again.

Pick up an application at your county clerk's office, any of the Fish and Game regional offices or by writing Fish and Game headquarters in Pratt. The address is Rt. 2, Box 54A, Pratt, KS 67124.

Gov. Hayden has supported lifetime sporting licenses long before he signed House Bills 2067 and 2068. In 1983, then-Speaker of the House and Atwood insurance agent Mike Hayden bought a Kansas lifetime fishing license. He was the 42nd Kansan to do so.

Farming For Wildlife

Small changes in farming practices can have a big impact on Kansas wildlife. Here's how to make it a positive impact.

by **Steven G. Sorensen**
*Regional Wildlife Supervisor
Concordia*

photos by **Mike Blair**

It sounds like a contradiction in terms, farming for wildlife. You don't sow quail seeds or plant pheasant bulbs, but wildlife is a direct product of the soil. As with agricultural

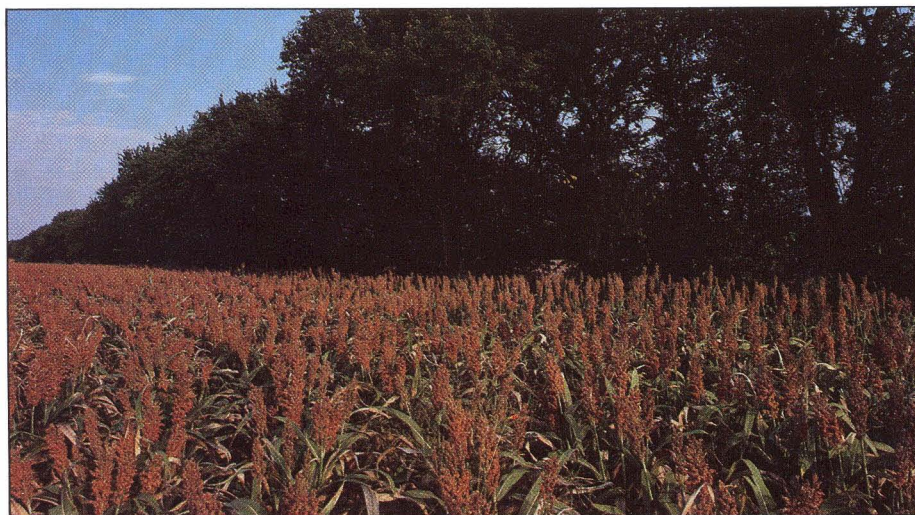
products, the more fertile the soil, the higher the carrying capacity is for wildlife. With approximately 45 percent of the state routinely turned under by the plow, the type of man-

agement carried out on agricultural land can have a significant impact on the wildlife produced.

Western Kansas has traditionally been our most productive pheasant

When you're growing crops, the author says, you're also farming for wildlife. Here two whitetail bucks feed on a wheatfield.





country. Because of insufficient rainfall, wheat is produced in a fallow rotation. This allows the ground to lay out one year and attain enough moisture for a crop the following year. During this fallow year, the stubble from wheat harvested in July is allowed to stand until the following spring, when it is worked down in preparation for fall seeding. This standing stubble, with its summer growth of annual sunflowers and fireweed, provides excellent winter habitat for pheasants. Hen pheasants prefer this cover as nesting habitat, which may conflict with farming operations.

Normal wheat cultivation practices call for the first tillage operation in late May or early June, which is also late in the pheasant's incubation period. Traditionally this tilling has been done with an offset disc to control volunteer wheat and early-season weeds. Recently, however, the use of woodcutters with mulch treaders has become more common. Both of these implements result in surface vegetation and any nests present to be incorporated into the soil.

A pheasant hen will re-nest if her clutch has been destroyed early in the incubation cycle and she can find suitable habitat. This second clutch will have fewer eggs than the original attempt. Late in the cycle, however, she may be unable to lay additional eggs because of a physiological change. As the hatching date approaches, the hen sits very tightly on the nest and is less willing to flush when faced with an intruder. A hen may sit tight as a tractor passes only to be killed by the disc. Once the hen is lost, the egg factory is gone for the season.

Fish and Game research has shown a way for landowners to save 30 percent to 40 percent of those nests without hindering weed control and put money in their pocket as well. All that's required is the use of undercutters (also called sweeps or V-blades) without the mulch treaders for the first field operation. An undercutter will generally jostle the eggs in a nest as it passes underneath, but the eggs are rarely broken or even cracked. If a nest is not hit by a tire, the eggs will survive the undercutter and, in nearly every case, the hen will return to incubate and hatch the eggs.

The bigger the undercutter the

Root plows, above left, are single-shank rippers that sever lateral roots extending into adjacent fields. A root plow prevents field borders from sapping moisture from cropfields and permits farming right up to the border, at left.



This field border provides necessary winter cover for many wildlife species.

higher the proportion of nests that will be saved. Use the biggest possible blade as it lessens the times the tires hit the ground.

Instead of chopping up the weeds, an undercutter loosens the soil around the roots, causing them to wilt and die. A disc, on the other hand, levels and destroys vegetation. Because of this difference, you may have to be more selective as to when you use the undercutter. Your ground should not be especially wet nor should rain be forecast. If rain is forecast for the evening, stop field work in midafternoon so the sun can work on the weeds you've already undercut.

Undercutting offers numerous agronomic benefits over the use of discs as the first tillage tool. Since there's little disturbance of the soil, weed growth is suppressed. The stubble remains relatively erect, providing shade that further slows new weed growth. Retarded weed growth means fewer tillage operations are required to control weeds. You can save one or two operations by letting the stubble stand through July. Mulch treaders tend to flatten the stubble, which has been proven to be less effective in preventing evaporation and controlling wind erosion than erect stubble.

Pheasant broods use wheat stubble a great deal, particularly around field edges. While there is little chance for a flightless chick to survive a disc, most chicks do survive an encounter with an undercutter. Broods seem to fare even better than nests since young chicks are probably able to move a little to avoid being struck by a tire. Biologically, a saved brood is more important than a saved nest. Should a hen lose a nest, she may try again. But if she loses her brood, she cannot re-nest and her reproductive effort for that year will have been wasted.

While I've only discussed the importance of the undercutter to pheasants, it is just as beneficial for other ground-nesting birds. Even the mourning dove's fragile nest will survive an undercutter. Although it's difficult to say how many small birds nest in wheat stubble, meadowlarks, horned larks and grasshopper sparrows use these fields and are susceptible to being killed by a disc.

Wildlife benefits from agriculture fields also are dependent upon the quality of the field borders. Most wildlife species are inhabitants of edge, that zone where two or more types of vegetation meet. Increasing the edge in agriculture fields results in better wildlife habitat. One of the best types of edge for Kansas wildlife is the osage orange hedgerow. Hedgerows provide nesting sites for songbirds, loafing sites during the summer, winter protection and travel lanes throughout the year.

Some hedgerows were planted as homestead boundaries during Kansas' early settlement. Others may have been planted as a source of fenceposts while others served as an impenetrable livestock fence.

As farm equipment grew in size and efficiency, hedgerows became field borders and started competing with agriculture crops, especially summer row crops. Because of the lateral extension of the hedge roots, hedgerows competed with nearby summer crops for moisture. In this situation, grain production was poor adjacent to hedgerows, and landowners began removing this valuable habitat to eliminate the competition.

Kansas Fish and Game research, in an effort to counter the moisture-sapping characteristics of hedge and still maintain habitat, led to the use of root plows. Root plows are single-shank

rippers that sever the lateral roots extending into adjacent fields. Otherwise, these lateral roots compete with crops for water and nutrients.

The roots do not have to be severed very deep, generally 18-24 inches since that's the zone agriculture crops use most. The roots should be severed no closer to the hedgerow than the drip line, or outer extension of the branches. Cutting them any closer can damage the hedge trees. Pruning a couple of feet farther into the field is recommended; annual tilling will reduce the possibility of starting a second hedgerow where the roots were severed. The area under the branches can be left to vegetate, thus increasing the wildlife habitat without interfering with crop production. If you own both sides of the hedgerow, allow one growing season to pass before root plowing the other side.

Once the lateral roots are pruned, a hedgerow becomes an asset to crop production. Hedgerows tend to increase moisture levels by trapping drifting snow. They also reduce evaporation caused by hot, dry summer winds and thus reduce the amount of moisture crop plants need. Once the roots are pruned, field average yields can be produced right up to the severance line. Pruning should only be necessary once every eight years or more.

Quail Unlimited chapters in Kansas have seen what root plows can do to save existing hedgerows and the quail habitat they provide. Many chapters have purchased root plows and made them available to landowners. Some Fish and Game field personnel have done likewise. Many Soil Conservation Service Districts also have root plows available in counties where Fish and Game personnel are not stationed.

Some of the best field borders for wildlife are nothing but weeds. While most farmers don't like the thought of weeds growing on their land, the annual sunflowers, ragweeds and pigweeds that grow in fencelines have little impact on crop production. In fact, they can act as small hedgerows and reduce evaporation by protecting the crops from dry winds. To maintain a good weed strip for wildlife, disc it early in the spring and disc only half the strips each year.

Field borders also can be enhanced by leaving some milo (sorghum) standing as a winter food. A patch of milo four rows wide and 50 feet long is equal to one one-hundredth of an acre. One of these patches left every 220 yards along a weedy or brushy fencerow could mean the difference between a covey of quail or flock of pheasants making it through an abnormally harsh winter.

Grassed waterways can provide a

good source of edge within a crop field. Most waterways are planted to smooth brome, which is of little benefit to wildlife. New waterways should be planted with a mixture of brome and switchgrass to increase these benefits. Established waterways can be interseeded with switchgrass to accomplish the same composition.

Begin haying waterways no earlier than June 25. This gives young broods a chance to get started. Make the initial swath down the center if possible. This allows flightless chicks to work toward the edge and gives them a good chance to survive in the vegetation along the berm. If you start on the outside and work in, you force the chicks to the center strip of vegetation. Entire broods may be lost in the final pass.

This cutting pattern also works well when haying alfalfa. Alfalfa is highly attractive as nesting cover because of its early spring growth. Nebraska reports that one-third of the pheasant nests in a 10-year study were located in alfalfa, yet 95 percent of these birds are killed by mowing. The first alfalfa cutting in Kansas comes in May, long before pheasants have had time to bring off a brood.

Pheasants, which are attracted to alfalfa because of high insect populations, do most of their nesting and brood-rearing activity within 50 yards of the field border. That's why starting in the center of the field and working out can save many pheasant broods. An alternative pattern would be to start at one end and cut back and forth across the field. If you find neither of these patterns acceptable, wait an hour or so before cutting the last swath down the middle. Young chicks will leave the strip for safer cover if given the chance, especially if the hen is allowed time to return.

Another unfortunate aspect of alfalfa cutting is the loss of the hen. Many farmers report seeing hens go through the swather or seeing a hen flush late in front of the swather only to find her feet still in the nest. A clutch of eggs can be replaced, but the hen cannot. The only solution may be to slow the swather speed or attach some sort of flushing bar to the front of the swather.

Small changes in agricultural operations can have a big impact on the wildlife resources in Kansas. When you're growing crops, you're also farming for wildlife. KW



Planting terraces to native grasses and allowing weeds to flourish provides travel lanes and nesting cover for wildlife.

Wildlife In The Pits

The Mined Land Wildlife Area has a reputation for excellent bass fishing, yet don't forget about the area's other drawing cards.

by Tom Glick
*District Wildlife Biologist
Pittsburg*

The Mined Land Wildlife Area, located in scattered tracts in Crawford, Cherokee and Lette counties, comprises more than 14,000 acres. Most of this land was once surface- or strip-mined for coal. The area's vegetation is comprised of grasslands, brush, woodlands and croplands. The many strip-mined lakes found throughout the area are nationally known for their fine bass fishing. The many hunting and nongame viewing opportunities, however, are often overlooked.

The area was first mined in the early 1900s, long before state ownership. Then after they extracted coal from the ground, mining companies began donating that land to the state. The first units were donated in 1926; the latest and largest gift of 8,028 acres was made by the Pittsburg and Midway Coal Mining Company in 1981. The last mining to occur on what is now the Mined Land Wildlife Area ended in 1973.

There are three types of terrain on the area: land mined before reclamation laws, land mined under reclamation laws with gradient and seeding requirements, and unmined land.

The land mined prior to reclamation laws is characterized by many parallel ridges (locally called dumps) often



Goose, gander and goslings swim at the base of their man-made nest.

separated by small strip-mined lakes. The material making up the ridges is a mixture of topsoil, subsoil and rock that made up the overburden above the coal seams. No effort was made by the miners to separate the overburden layers, so the dumps are rocky, high in clay content and often acidic. These ridges range from being devoid of vegetation to moderately wooded and are extremely difficult to traverse.

The areas mined under early reclamation were smoothed over to certain grades, but the overburden was still mixed. Since this mining was accomplished by large, modern equipment, deeper mining was possible, and the resulting soils are poorer than earlier mined areas. Most of these areas were overseeded by the coal companies to fescue grass. But because fescue is considered by most wildlife managers to be only one small step above Astro-Turf in its value to wildlife, a large part of the area's management is directed toward its elimination. On these units the lakes are larger and deeper although less frequent, and the topography is more rolling.

The area's unmined tracts include narrow bands that the miners avoided due to the nearness of roads or streams, blocks of land that miners never got to and small areas that were purposefully

left untouched. Many unmined areas are croplands and are share-cropped with the Kansas Fish and Game Commission. The Commission's share goes toward the management and development of the wildlife area. Tree/shrub and native-grass border strips have been extensively developed on most of the croplands to provide edge, the junction of two or more types of vegetation. Other unmined areas, especially those near creeks, are mature woodlands with oaks, hickories and walnuts.

Bobwhite quail are found throughout the area. Quail are most abundant on the woody, grassy or weedy borders of the unmined lands and in the edge zone between pre-reclamation mines and unmined areas. Most of the land development and management is directed toward bobwhite quail.

Bobwhites hunted near dumps will flush into rugged terrain and are generally safe from further harassment. Gunners need to be alert; covey rises may be your only chance at the birds. Even with the best of dogs, few birds will be found or harvested once scattered into the dumps. Often the quail will light just beyond a nearby strip-pit lake. Getting to the birds, however, will mean a long, tedious walk around the pit.

On the unmined areas, quail should be hunted with the same methods used throughout eastern Kansas. Use the old rights-of-way, hedgerows, weedy fencelines and grass strips as a starting point, and then let the dog and birds dictate the strategy. Reclaimed land also provides productive bobwhite hunting, but finding the coveys may be more difficult than on unmined lands. Choose areas that have the native grasses; avoid those still in fescue.

Cottontail rabbits are common throughout the area. Look for cottontails where you find quail, and pay special attention to draws heavily vegetated with prairie cordgrass. There are plenty of sporting opportunities for rabbit hunters to run their beagles here.

The Mined Land Wildlife Area and nearby private strip-mined areas also harbor excellent deer populations. Many of the parallel ridges have become wooded and lie adjacent to other land-use types, creating ideal habitat for white-tailed deer. The ruggedness of these dumps gives deer security near abundant food reserves as well as suitable fawning sites. Unmined woodlands, hedgerows and cropfields found on the wildlife area also harbor whitetails. The area is popular with deer hunters.

Other game species also may be hunted here. Fox squirrels are most abundant in the unmined mature woodlands, but the older, wooded mined areas have hunttable numbers as well. Mourning doves are abundant on this area. The lightly vegetated spoils and mined areas kept in wheat stubble attract doves and dove hunters.

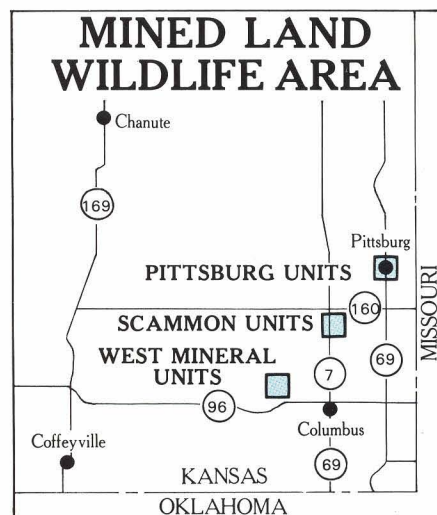
Controlled dove hunting is one management practice used on the area. This is the only public wildlife area in Kansas to employ this technique. Each year one to three units are closed to dove hunting except on certain days of the week, and then only between 1 p.m. and 4 p.m. Each spring several acres in each controlled hunting unit are planted to domestic oil sunflowers. By dove season the sunflowers are ripe, shattering and drawing thousands of doves. The time and day controls are designed to lessen the chance of driving the doves from the field. On opening day 1985, hunters harvested 750 doves over 16 acres of sunflowers.

In 1982 wild turkeys were released into a mature, riparian woodland adjacent to a large tract of wooded

dumps. This largest of the North American gamebirds has done well on the area, and several have been harvested. The turkey population should continue to expand into unoccupied tracts.

Although deep-water pits aren't considered prime habitat for attracting waterfowl, certain areas do provide suitable conditions for ducks. We've developed several controlled-level, shallow-water marshes to enhance the area's waterfowl potential. Especially attractive to geese (mostly snows) are the reclaimed areas seeded to wheat.

We've also tried to establish a nesting flock of giant Canada geese on the area. A 30-acre predator-proof pen was erected to hold about 100 pairs of flightless brood geese. During 1986, the program's first production year, 146 goslings were raised to flight stage. These and future fledglings will



be allowed to free-fly from the pen, nest in adjacent areas and become the nucleus for a resident population.

In order to protect these resident geese, certain units on the area are closed to all waterfowl hunting. All hunting is prohibited in or around the goose pen.

Furharvesters have found the Mined Land Wildlife Area productive. The pre-reclamation law mined spoils harbor good populations of bobcats, coyotes and raccoons. Nearly all the strip-mined lakes contain beaver, and most hold muskrats as well. The marshes developed for waterfowl also are home to muskrats. Other furbearers that occur on the area include skunk, opossum, red fox, gray fox and mink.

Nongame critters on the area range from mature woodland dwellers such as flying squirrels and pileated wood-

peckers to grassland species such as dickcissels and bobolinks. Herons, egrets, sandpipers and plovers are common on the area's wetlands. Occasionally ospreys and bald eagles may be seen. Birdwatchers and wildlife photographers should plan a visit to the Mined Land Wildlife Area.

Another important area project is the replacement of fescue with native grasses, tree and shrub border strips, legume plots and food plots on reclaimed lands. In order to plant the covers conducive to ground nesters such as quail, we must first destroy the fescue. Several methods have been used to kill this European grass. The hard, rocky land doesn't lend itself to tillage, and even a dozer-pulled roam disc will not cut deeply enough into this soil to sufficiently disturb the fescue's root zone. Contact herbicides also have met with only marginal success. Herbicides developed for small grains are not effective on fescue, so cropping alone is not the solution.

The method that thus far has proven most effective for large-scale fescue removal on mined land is to heavily graze the area, follow it with two years of wheat production (share-cropped), till the land and then seed with desired covers.

On both the unmined and reclaimed lands, border plantings have been and continue to be established. The basic planting design is a single, central tree row with a row of shrubs on either side. Then every 100 yards or so, a three- to four-row shrub clump is planted on alternating sides of the central row. Native grass is heavily seeded between these clumps. This pattern was selected not only because of its attractiveness to wildlife, but also because of its accessibility to hunters. More than 20 miles of this type of border have been planted, and more than 100,000 trees and shrubs were required for the job. Additional borders will be established each year, further increasing the area's hunting potential.

Approximately 4 percent to 5 percent of the share-cropped grain on the area remains in the field to serve as supplemental wildlife foods. The grains are left standing near covers most likely to harbor the desired wildlife. The rest of the Commission's grain share is used for buying native grass seed, tree and shrub stock, goose feed and other materials used to operate the wildlife area.

For a free map of Mined Land Wildlife Area, write: Kansas Fish and Game Commission, Information-Education Division, RR 2, Box 54A, Pratt, KS 67124. **KW**

KANSAS WILDLIFE

Gallery

photos by Mike Blair

Butterflies are often covered with dew on the cold nights of early summer. Cold-blooded, they must wait for the rising sun to warm them, as shown by this monarch roosting on a salsify. Shot with 70-210mm zoom, f/5.6 and 1/60.

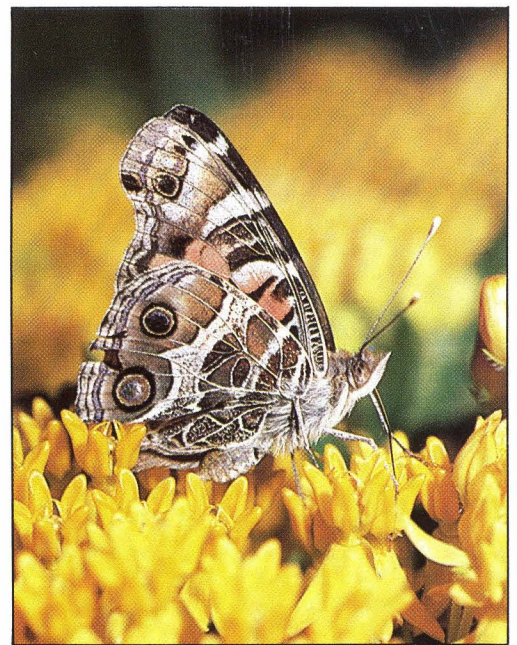


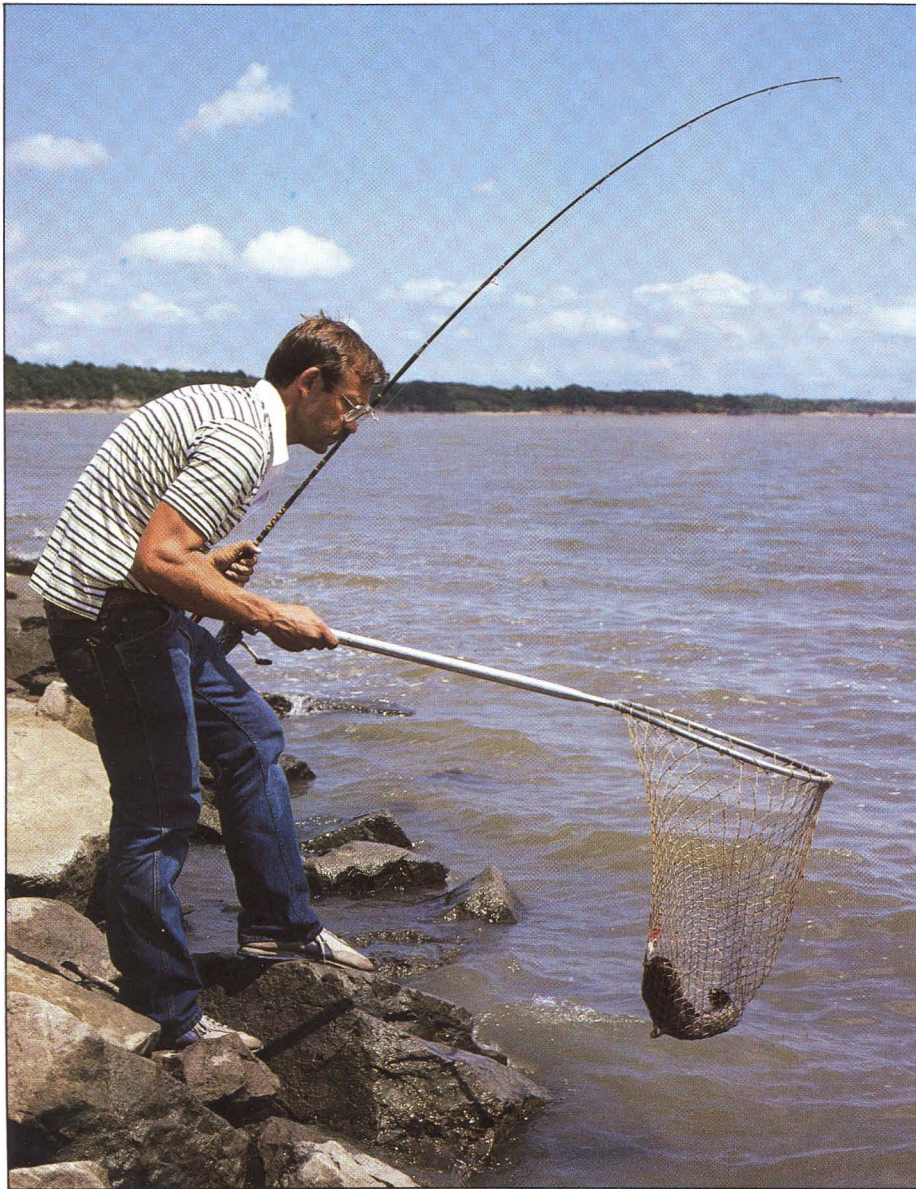


Top Left: A butterfly of the tallgrass prairie, the regal fritillary may be disappearing with the habitat. The striking silver spots of the underwings identify this handsome rust-and-black butterfly when at rest. Shot with a 105mm micro using flash, f/11, 1/60.

Bottom Left: Beautiful as an adult, the larva of this black swallowtail butterfly is often a pest on garden dill. Shot with 55mm micro using flash, f/11, 1/60.

Bottom: The furtive painted lady butterfly is found throughout Kansas during the summer. Here a specimen rests momentarily on butterfly milkweed at Maxwell Game Reserve in McPherson County. Shot with 105mm micro using flash, f/9.5 and 1/60.





The author nets a flathead catfish from the riprap on Milford Reservoir.

Catfish On The Rocks

Most folks don't believe me when I say I catch Milford Reservoir flathead catfish on lures. Then they've never tried it either.

by **Bill Layher**
Aquatic Ecologist
Pratt

photos by **Mike Blair**

It was the summer of 1971. Late July had come to the Kansas plains bringing along its typical hot and windy days that Indian folklore describes so aptly. (Kansas means Land of the Southwind.) I was on summer vacation from Emporia State University, where I was working on a bachelor's degree in biology. I'd been working for a local farmer, discing ground about six miles south of Wakefield. About 15 minutes before the local tavern closed, I pulled into town. Getting out of my pickup and looking more like a coal miner than a farmer, I entered the bar to cut some of the dirt from my throat.

"Been doin' any fishin', Bill?" was

my greeting as I pulled up a stool at the bar.

"Not much," I replied. "Been too busy."

"They've been hittin' on the rocks," was the old fisherman's response.

I finally derived what rocks the man was referring to and entered into the conversation with open ears. The man told me he'd been catching catfish on lures at the causeway, a rocky, riprapped landfill crossing Milford Reservoir at Wakefield.

The next evening, hoping the fisherman who had told me the story hadn't had too many beers, I took off work early and went down to the rocks the man had spoke of. I only took a few

lures as I couldn't afford to lose any. That's usually the case when you're on a limited budget and trying to save money for school.

I guess I'd cast and retrieved my lures for about two hours when I decided to try 10 more casts before giving up. I sent cast No. 1 straight out and began a slow retrieve — nothing. The next cast was angled between the causeway and my first. Again no results. I repeated the procedure, getting closer to the riprap each time. Cast No. 8 was the one I'd been looking for. I was half asleep when the fish struck and the reel was almost yanked from my hands.

The drag was set rather tight, and

the pole bent almost double, nearly touching the water. Line began playing out as if the lure were caught on a car bumper instead of a fish's mouth. I worked the huge fish slowly to the bank but hadn't brought a dipnet. I guess I really didn't believe the old man in the bar. I reached down with a pair of pliers I'd been carrying and tried to hook the handle under the fish's gill cover. I missed, and the fish again ran for the depths. Fifteen minutes later the fish was again at my feet. The pliers handle found the mark this time, and I landed the first flathead I'd ever caught on anything but a trout line. He weighed in at 10¼ pounds — not a big flathead by any means but a real fighter on light gear.

The scene was repeated many times during the following summers. In 1975 I embarked on a research study of Milford Reservoir flatheads. Fishing was my main method of collecting specimens. I managed to catch 102 flatheads on rod and reel that summer. Actually, I had help from some fishing buddies.

I invited Jim Simonsin, an avid bass angler and pharmacist from Emporia, to try his luck on the rocks with me. He'd been visiting his wife's parents and hadn't brought along his fishing gear. So he borrowed an old Zebco, and we headed for Milford. We hadn't been fishing long when Jim's pole bent and line began stripping off the reel. One snap and it was all over. "Good grief," Jim said. "I thought we were fishing for normal fish, not whales." A little while later I hooked one, and about 25 minutes later I landed an 18-pounder.

Most fishermen never believe me when I tell them of my flathead-on-lures experiences. I always have to show them before they're convinced. On another trip a fishing buddy and I landed seven flatheads each weighing between 2 and 12 pounds in 45 minutes. That was fast action. Usually a little patience is required.

Friend Bob Kahl was with me the day I caught my most memorable flathead. Trying for several afternoons with little success, I finally hooked a nice one. I'd cast parallel to the earthen dike, about 2 feet from the



A 20-pound flathead, right, isn't an everyday occurrence, but these brutes will hit Lazy Ikes.

rocks emerging from the water. My retrieve was stopped short, apparently indicating my lure had lodged on some rocks. I immediately stopped the retrieve and began walking toward where I'd cast. This is often the way I unhook lodged lures. But this time the line had tightened and was far from shore. That's when I knew I had a fish.

For about 45 minutes, I kept the line tight and gradually moved the fish

the lure, Bob went to town to borrow a boat. We thought that by getting on the other side of whatever the fish had hung up on, we might again have a chance at landing it.

After waiting for half an hour, Bob returned . . . without the boat. In disgust, I threw a rock just beyond where my line entered the water. That was all it took. The fight was on again, and the fish made a run. I grabbed the

hook to the breaking point. And the fish? It wasn't as large as I'd first thought. It weighed in at 26¼ pounds.

Flatheads enter the rocky area for a couple of reasons. First, as the water temperature rises in June, algae begin growing on the rocks. This in turn attracts young gizzard shad, which graze on the algae. Flatheads are predators. They won't chase down a fish, but hide and wait until the prey comes to them. As the shad graze, they move by flatheads lying in rock crevices. A powerful thrust of the large square tail allows the predator to take its dinner. An analysis of the stomach contents of more than 200 flatheads shows that more than 90 percent of these fish consume gizzard shad and small ones at that. Even large flatheads eat small shad.

Flatheads weighing less than 6 pounds also feed on crayfish, which are abundant in the rocks. As flatheads grow they can no longer enter small crevices where crayfish abound. So they begin putting more importance on the shad diet.

Secondly, flatheads enter the riprap to spawn. Spawning is initiated as the water reaches 68 degrees in June and continues until late July. The rocky area provides silt-free nest sites as well as ample insect forage for juvenile fish.

The larger flatheads appear to leave the rocks about the end of August, when fishing success also dwindles.

When the flatheads are there, however, Lazy Ike lures work best. They rarely snag in the rocks. A slow retrieve works well. The slower the better. The lure must be presented in front of the fish. This explains why casting parallel to the bridge produces the best results. The chance of crossing in front of a fish hiding in a crevice is much greater using this tactic. All large flatheads (greater than 18 pounds) I've caught have been on red-and-white lures. I have, however, caught smaller flatheads on green-and-orange, brown-and-white and black-and-white lures.

Other lures such as Thinfins also work well. So do crappie jigs. Live bait is almost impossible to use; minnows or goldfish swim into the rocks and invariably snag up your line.

If you're looking to catch a large fish and one with a lot of stamina, try for Milford flatheads on the rocks. Early morning or the hours just before dusk are probably best. I have caught fish during midday, though. Anytime between June 1 and Aug. 31 should be good, but windy days are best. Wave action washes your lure back in the crevices as you retrieve. **KW**

"That fish must weigh 45 pounds," I remember saying. As I dragged the flathead on shore, the treble hook on the Lazy Ike broke in two. Working the line with the fish lying still had apparently bent the hook to the breaking point. And the fish? It wasn't as large as I'd first thought. It weighed in at 26¼ pounds.

closer to the bank only to see it run back into the lake.

Finally all movement ceased. I thought the fish had either hung up on an old tree or rock or had gotten off and snagged my lure. I repeatedly tightened the line and let it go limp, hoping the lure would jiggle loose from whatever it had caught on. Unsure of how to proceed, I laid my pole down.

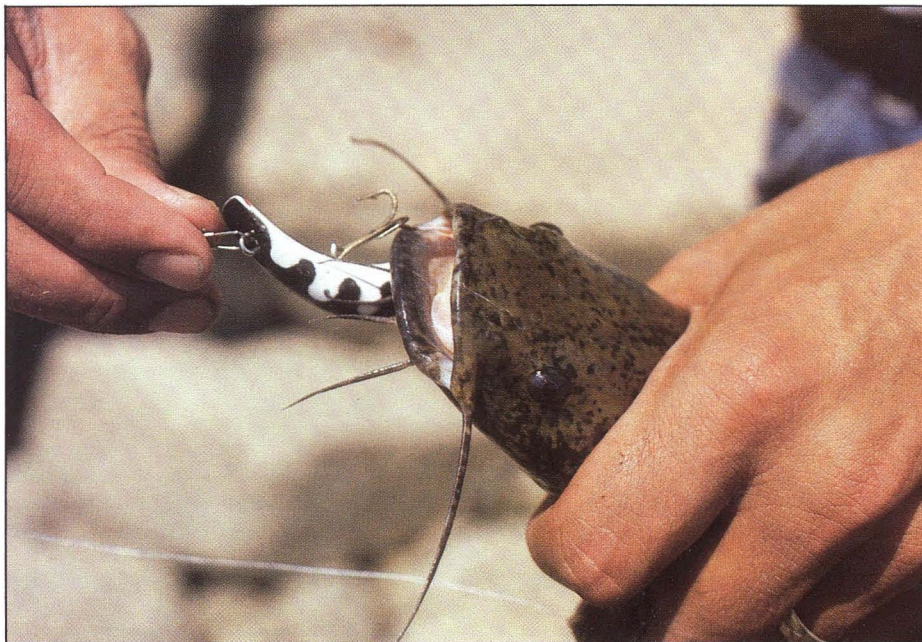
Thinking the fish might still be on

pole before it entered the water. Keeping the line tight and the fish moving finally paid off. A full hour later that rascal broke the surface about 20 feet from shore.

"That fish must weigh 45 pounds," I remember saying.

As I dragged the flathead on shore, the treble hook on the Lazy Ike broke in two. Working the line with the fish lying still had apparently bent the

Red-and-white lures are best for large flatheads. Other color combinations work on smaller fish.





by Mike Blair

A Rock And A Hard Place

Editor's Note: This column first appeared in The Hutchinson News in 1985. It is reprinted here with permission.

Dear Terry:
It's been 54 years since you were in Horsethief Canyon. No one knows who gave the place its name, whether Indians or white men, but its high, narrow walls and boxed end made it a convenient place to pen stolen horses. They also made it a place of rugged beauty.

I'll bet you were horseback at the time you visited. Nearby Kanopolis Reservoir, which now draws many visitors to the area, hadn't yet been built, nor had the national recreation trail which invites exploration of the canyon. Back then, it must have been a quiet place, full of itself.

You discovered the softness of the Dakota sandstone which made up the sheer walls, the reason that water cut such a spectacular canyon in the first place. And that allowed you to scratch your name and city deeply into the rock. But the date — 1931 — was what caught my attention. Your words had weathered well the time that spanned our generations.

You weren't the first to leave your mark. Faintly now, a handful of signatures circa 1900 can be seen. One from 1891 is nearly 100 years old, and I suppose it will remain another 30 before it's weathered away. I know you held no ill intentions when you carved a notation of your visit, but it was a proud and careless act, imposing on generations to come.

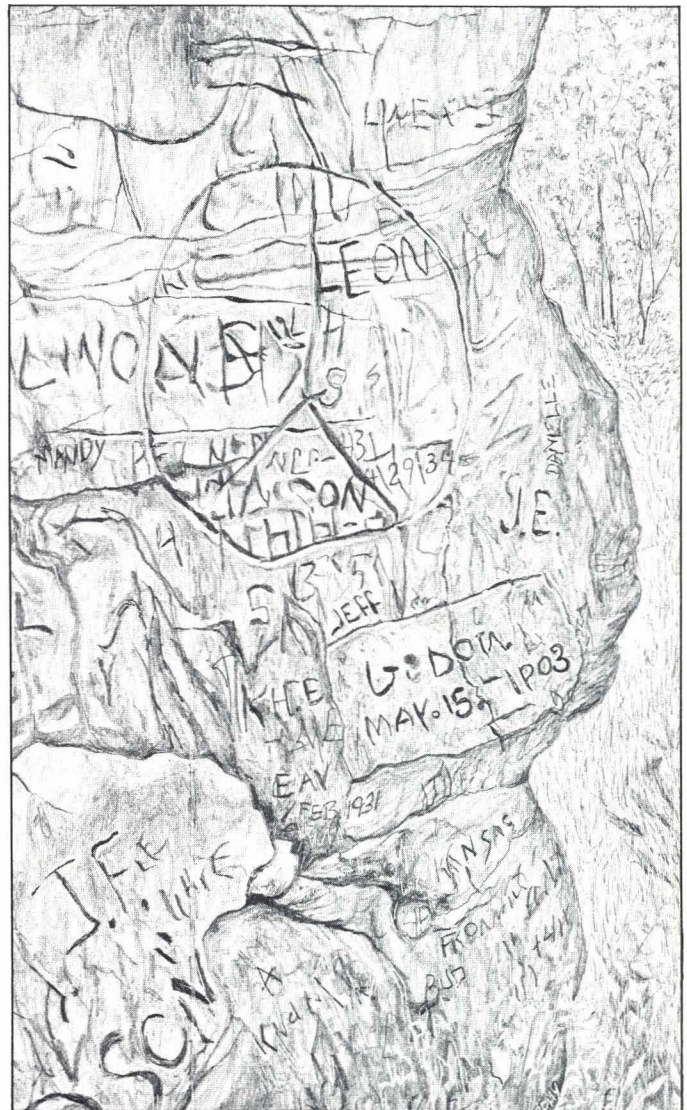
Your early example caught on.

I wish you could see what's happened now. Thousands of names and messages cut deeply into the canyon walls, forever destroying the wildness of the place. Some are etched so severely they may be readable into the 22nd century. My great grandchildren eight times removed will read those names.

But it's not all your fault, Terry. Many people today seemingly disdain the beautiful earth God has given us, and the precious few wild places we have left. Was the beaver dam there when you visited so long ago? Today its calm and crystal water was visually polluted by a floating beer can. Along the trail more cans and empty cigarette packs littered the ground, travesties upon the natural beauty the trail was constructed to celebrate.

Do you remember the vertical shaft at the end of the canyon, where the force of water-driven rock hewed and drilled the unusual formation? Today its gravel floor is littered with broken glass from bottles cast against the rocks.

I can't tell you why. What makes people so short-sighted they would throw a can into a clean stream, a can that remains a testament of their carelessness for hundreds of years? Or while driving down a highway, to throw a sackful of trash out the window? Why, when there are landfill facilities available in every county, would someone dump their garbage down a riverbank, or into a roadside ditch? Or pour deadly chemicals into a stream for disposal?



Patti Murphy illustration

There are no excuses. Those who destroy the natural world heap serious consequences on us all. Whether by the contamination of water supplies, or simply the abuse of natural resources, those guilty of ruining our environment deserve no leniency.

So I'm not letting you off the hook, Terry. I walked down the Horsethief Canyon trail with anticipation, expectations. Instead I saw your name, and the names of countless others, and the refuse they left behind. The beauty was lost, contaminated by the same people who thought the canyon noteworthy enough to see.

And I was ashamed.

KW

