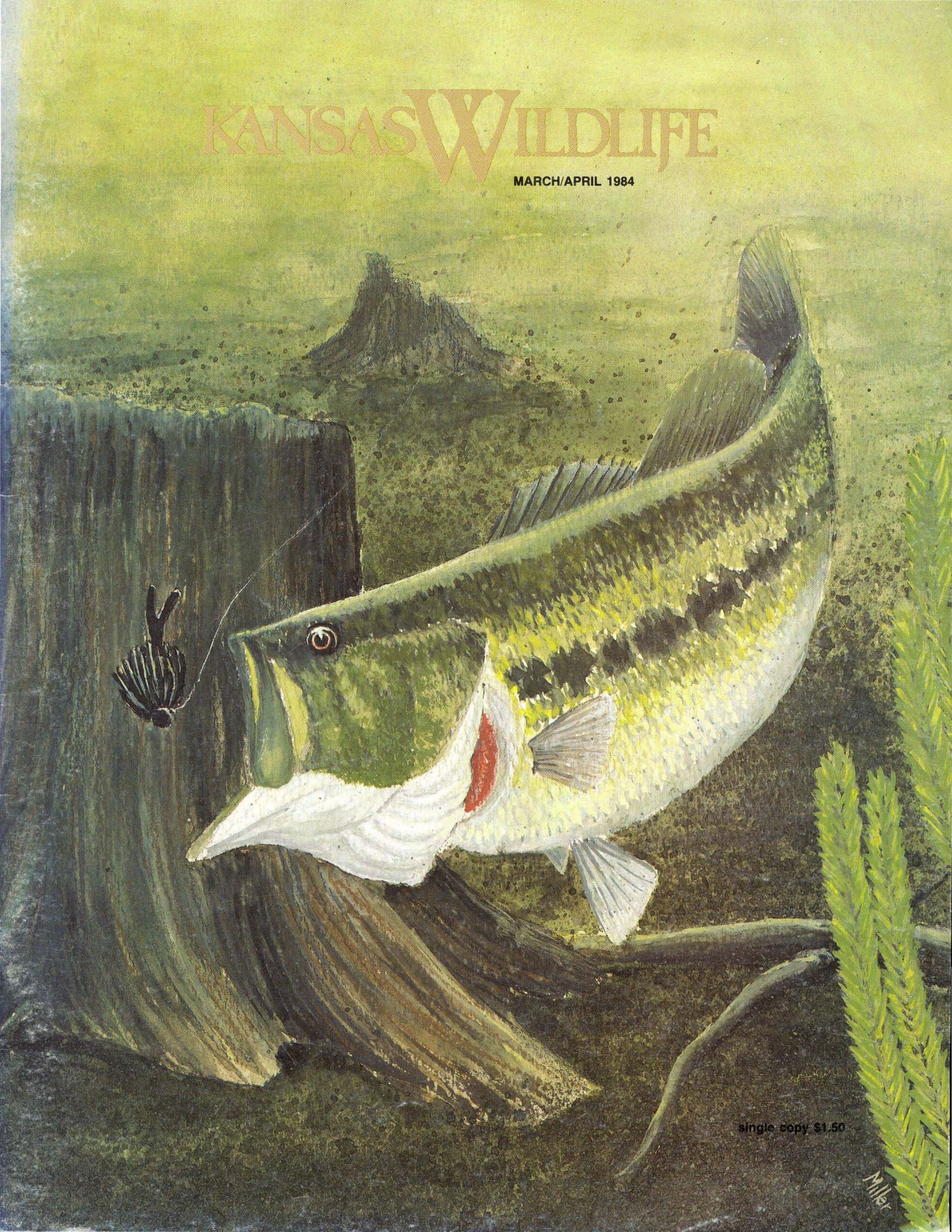


KANSAS WILDLIFE

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Miller

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lunker time!

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Editorial

Americans have a strange fascination for the biggest. Or the most. Or the first. Or the zaniest. The best is often overlooked; too often we achieve it only incidentally.

Who but Americans would think of hoisting an inflatable, life-size King Kong to the top of the Empire State Building? Or ringing an entire island chain with pink cellophane? To go further than anyone has gone before—even to knowingly exceed sane limits—appears to be a Yankee fetish. Purpose is often obscured, reason ignored. To be noticed, to be famous, to have one's name in print for having accomplished something unique is an obsession for many. It is a function of ego.

Such accomplishments make interesting news. How many pickles must one consume to emblazon his name in the Guinness Book of World Records? How big must a building be to be the biggest? But can the world's biggest diamond even be attractive on a slender finger? Or are we missing something?

Athletic competition, with few exceptions, does not suffer from this lack of purpose. Individual sports seek the limits of physical strength and endurance, the human potential of grace and speed and skill. Team games exploit not only these, but strategies, the flawless execution of complex field and court maneuvers. Athletes strive to be the best. The mark is there, the goal at least temporarily fixed: a 3:49 mile, a no-hitter, a perfect season.

Researchers working on a cure for cancer or a more sophisticated computer chip may not have the goalposts so firmly fixed. Still, the direction is clear, and success will be recognized when it is achieved. The accomplishment is inarguable, its value plain.

There is, then, a difference between working to accomplish or achieve, and striving merely to gain notoriety. Where do field sports fit in? More specifically, is taking a trophy deer or lunger bass a true measure of a sportsman's prowess?

To answer the last question first, no. The final score of a buck's antlers or the weight of that bass has nothing to do with the skill of the person who collected the trophy. Both are physical attributes of the quarry, and neither makes it less accessible to the novice outdoorsman. Older, wariest creatures are more difficult to procure than younger, less experienced ones, surely. But many variables enter in. Nowhere is it written the best hunter will always take the best deer, the most savvy angler the biggest fish.

Then why record books? Why this preoccupation with the weights and measurements of game? Further, is the pursuit of trophy-class individuals a healthy activity? What is its effect on the resource?

Viewed in proper perspective, trophy hunting or fishing is simply a way to elevate the challenge of the sport, to incorporate a numerical standard or goal, and to distinguish oneself as a purist, concerned not just with harvesting game, but with taking an exceptional specimen. In this light, trophy hunting and fishing are reputable sports—and certainly not harmful to the resource. A true trophy-seeker passes up or releases specimens not meeting a predetermined standard. That standard is a must. A sportsman committed to trophy-class specimens does not simply shoot the best buck

he sees, or hold big fish until a bigger one is caught. Many times he goes home empty-handed when he could legally have taken a sub-standard animal. Trophies to him are rewards at the end of a long trail, adversaries to be accorded honor in defeat, mementos of a challenge met and self-imposed hurdles overcome.

But the ranks of this elite group of sportsmen are being infiltrated by those who would garner trophies as testimonials to outdoor skills, to impress others, to put a name in the record book. No matter that many of these folks abide by the law (some, of course, don't); the pursuit and killing of anything for personal glory is not only a narrow, selfish endeavor, but one that is repulsive to people who do not hunt or fish. And, again, there is no basis for arguing that trophy specimens are always taken by the most skilled outdoorsmen. Over time a persistent, knowledgeable, and selective hunter or angler will collect more trophy-class creatures. But some of the best examples of game species were killed incidentally.

Next time you think that trophy buck on your wall entitles you to a special place in history, remember that the biggest mule deer ever shot was taken by a moose hunter looking for a winter's meat supply. Remember, too, that the true value of any trophy cannot be determined by tape or scale, nor recorded in a book. It is, instead, the accomplishment felt by one who has set standards and met them—not to be famous, but to have succeeded.

LUNKER TIME!



The big ones can bend your pole into a horse-shoe and straighten stout hooks. If big bass have **you** hooked, here's how to nab Ol' Bucketmouth!

Tommie Berger

Black bass fishing may be America's fastest-growing field sport. Because they are big, plentiful, adaptable, easy to catch (but not too easy), fight hard, make fine table fare, and are good candidates for catch-and-release fishing, black bass are surely the Midwest's premier gamefish. Some anglers even claim that, "inch for inch, pound for pound, the bass is the gamest fish that swims."

Fishermen who pick up any outdoor magazine today can find article after article on bass fishing. How-to articles, where-to articles, when-to articles—there's enough written every year, it seems, to fill a library. With this immense assemblage of information, how does an angler from a flat, dry state like Kansas go about deciphering enough usable data to put a lunker bass on his wall? Well, I'll try to deal with that problem, describe bass fishing in Kansas during the state's "lunker" season—which is coming up quickly—and give you ideas on where to find and how to catch that first or next trophy bass. Your preparation, after all, should begin now!

This is what it's all about: A lunker largemouth catapults out of the water.

First, let's identify your quarry. Kansas waters contain three different species of black bass. The most common is the largemouth—popularly known as "ole bucket-mouth." This fish is found in ponds, lakes, and reservoirs and is the most common bass caught here.

The other two species of black bass in Kansas are not nearly as abundant. They are the smallmouth and the spotted (Kentucky) bass. These two fish prefer the more turbulent water conditions of the stream-type environs of eastern Kansas. They're also found in some reservoirs and smaller lakes that have an abundance of rocky shorelines. Both these species are readily caught on artificial lures and will rival the largemouth bass in fighting ability. But because of their limited range, they are not as popular as the largemouth.

The black bass—in any of its forms—is one of the most perfect of the predatory fishes. Its shape, body design, and fin locations are masterfully formed into a killing, eating machine. Add to this a mean streak that makes it attack with little provocation, and you have a froth-churning, line-snapping combatant that makes other fish seem mild-mannered, indeed!

Black bass fishing has developed into something of a science. Savvy anglers these days keep log books on bass fishing, noting weather, time, moon phase, water conditions, and any other variables that might affect their catch. Some claim you need to take a bass's temperature to tell where he's been. Others swear by oxygen and pH levels. Most of us don't worry about these kinds of things. After all, the best time for a working angler to go fishing is on weekends—whatever the conditions!

But several of these factors *do* markedly affect fishing success and are worth noting if you're after lunker largemouths. The first and foremost is water temperature. All bass are cold-blooded creatures, meaning their body temperature is

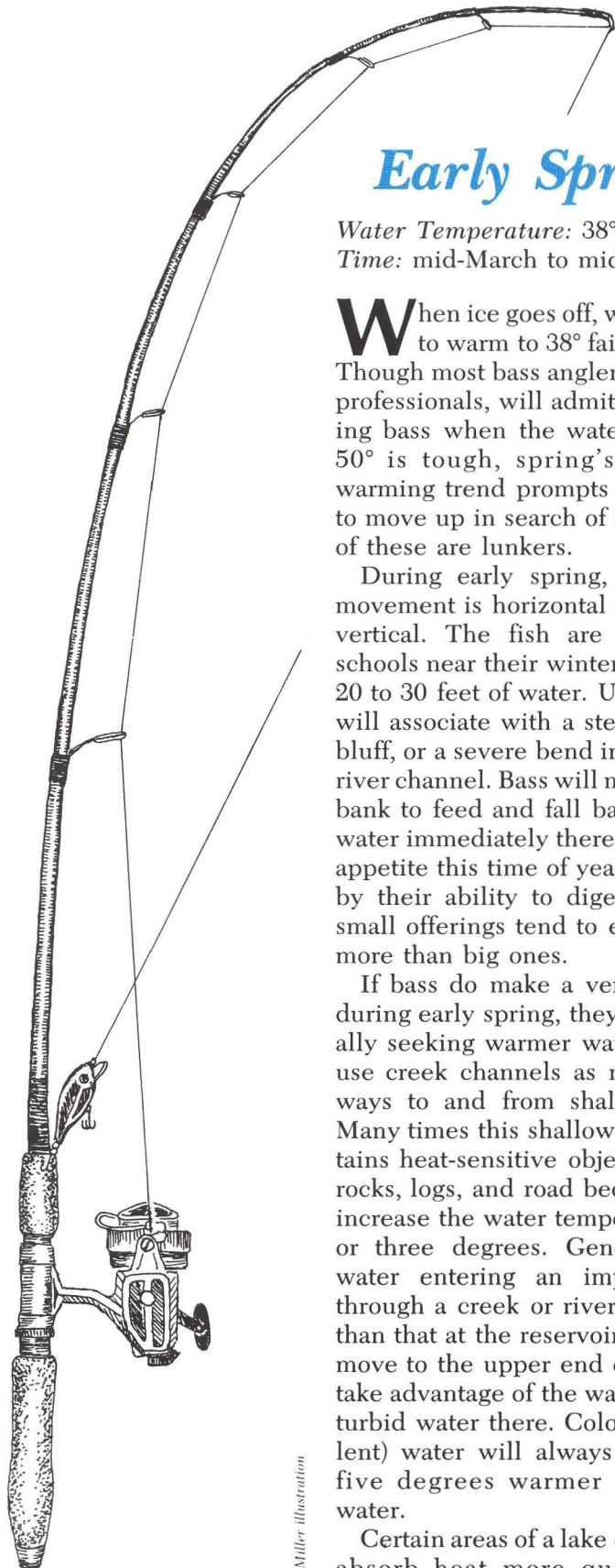
nearly identical to the water temperature (some say one degree higher due to heat generated by normal body functions). About 90 percent of what a bass does is governed by water temperature.

A second factor is oxygen levels. Without sufficient oxygen bass won't survive. The colder the water, the more oxygen-holding potential it has; spring anglers needn't worry about oxygen levels.

A third factor to consider is habitat or structure. Bass require proper habitat and never get very far from it. Habitat refers to something in the water, such as brush, weeds, bridge abutments, rocks, or dock pilings. It may include topographic changes in the bottom, as well. Whether you're fishing a pond, lake, or reservoir, don't forget that habitat is a key element in the life of a bass—especially big bass! Keeping these three factors of water temperature, oxygen content, and habitat in mind, let's move on to finding a lunker bass.

Spring is the best time of the year to catch really big bass. To some, a lunker may be a 5-pounder; others might set their goal at 7 pounds; and a few anglers consider a state record in Kansas (over 11 pounds, 12 ounces) the ultimate challenge. Whatever your definition of a lunker, spring months prior to the spawning season are the most productive. Bass are in good physical shape at this time, their metabolism having slowed to accommodate winter's stress. Now their body functions are speeding up, calling for food! In fact, a lunker's main ambition at this time is to fill its belly. Bass are also more concentrated in the spring and prefer shallow water. These factors make spring bass fishing exceptionally good.

Still, to make the most of bass fishing, you'll need to gear your techniques and tackle to specific periods within the March-May season we call spring. I break my timetable into three such periods: "Early Spring", "Prespawn", and "Spawning Time."



Early Spring

Water Temperature: 38° to 50°F

Time: mid-March to mid-April

When ice goes off, water seems to warm to 38° fairly rapidly. Though most bass anglers, even the professionals, will admit that catching bass when the water is below 50° is tough, spring's first true warming trend prompts a few bass to move up in search of food. Some of these are lunkers.

During early spring, most bass movement is horizontal rather than vertical. The fish are located in schools near their winter retreats in 20 to 30 feet of water. Usually they will associate with a steep point, a bluff, or a severe bend in a creek or river channel. Bass will move up the bank to feed and fall back to deep water immediately thereafter. Their appetite this time of year is limited by their ability to digest food, so small offerings tend to excite them more than big ones.

If bass do make a vertical move during early spring, they are generally seeking warmer water. They'll use creek channels as major highways to and from shallow water. Many times this shallow water contains heat-sensitive objects such as rocks, logs, and road beds that will increase the water temperature two or three degrees. Generally, any water entering an impoundment through a creek or river is warmer than that at the reservoir. Bass may move to the upper end of a lake to take advantage of the warmer, more turbid water there. Colored (turbulent) water will always be one to five degrees warmer than clear water.

Certain areas of a lake or reservoir absorb heat more quickly than others. On sunny days, south- and

west-facing banks will warm up quicker than north- or east-facing ones. Flats, sheltered from the wind, will be a few degrees warmer than exposed points. The north side of a lake generally warms faster, and areas where springs flow in can be early hotspots.

Afternoons are the warmest—and most productive—periods of the day to fish. Cloudy days usually limit the action in this early spring period, and windy days make life miserable for both fisherman and fish. Some say that with no sun to warm the surface, the lunkers put in deep water.

Tackle for this early spring period should include light lines (six- to eight-pound-test), light-action rods, and small lures. The key to success is slow but deliberate presentation of baits fairly close to or on the bottom. A jig or some semblance of a jig seems to be the most productive bait. Most professional bassers will tie on a jig-n-eel this time of year. This lure is a deer-hair or rubber-skirted 1/8- to 1/2-ounce leadhead jig in black or brown with a piece of soft, flexible pork rind attached as a trailer.

Other jigs are also productive. Small maribou jigs in white or yellow worked slowly over the bottom along dropoffs will catch bass. Some anglers spice these jigs up with plastic or pork rind trailers. Variations of the jig include soft, plastic-bodied lures (like the Shimmy Shad), small spinner baits, and heavy-weighted tail-spinner lures (like the Little George). Don't overlook small, deep-diving crawdad-colored crank baits or heavy jigging spoons for early season bass.

Fishing may be slow during this period; but, remember, those bigger bass are hungry! If you work the warmest water around, move your lure close to good bass habitat, and keep your retrieve slow, you might be surprised. If you catch one big fish, chances are there are more close by—or at least in the closest deep water. Work the area thoroughly.

Mike Miller illustration

These early spring anglers know bass congregate in warm shallows during snow-melt. . . .

A good assortment of bass lures is essential for success. And you must know when to use each.

Prespawn

Water Temperature: 50° to 60°F

Time: mid-April to early May

A water temperature of 50° seems to be the “magic” temperature for spring bass. There is something about 50-degree water that sparks the rambling urge in these fish. They begin to move in numbers to shallow water and may stay there for extended periods of time. They tend to roam more, always on the move in search of any type of food available.

Water temperatures of about 50° also trigger the emergence of frogs, salamanders, tadpoles and crayfish. These food sources, as well as small baitfish, respond to warming water temperatures and concentrate in the warmer areas of the lake. Where food is, the bass will be also!

Vertical movement is the routine this time of year. Bass tend to use flooded channels as routes of travel to the backs of coves, up creek channels and onto flatter banks where prey species congregate. The only time bass will drop back to extremely deep water is when a cold front passes through. Otherwise, they’ll stay near shallow areas, most of which have lots of suitable habitat.

During this prespawn period, “lunker days” are a bit easier to predict. A prerequisite for success is warming water in the top five feet. Sunshine is important, and warming trends (several days of balmy weather) can make for fast action. Don’t miss the mid-day hours during prespawn. Cloudy days have a



Gene Brehm photo



Gene Brehm photo

lesser effect on the fishing if the temperature is still high. If the air temperature is lower than the water temperature, you might as well stay home.

This is the time of year you must have your tackle in tip-top condition. You will want to go to heavier line—10- to 14-pound test—and heavier-action rods, because your chances of catching that lunker are getting better. Remember that you will be fishing around and in more cover, so choose your lures accordingly.

Lure size can be increased now, since the bass are more active and their digestive tracts have been accustomed to heavier feeding activity. Most full-time bassin’ men will still have lots of jig-n-eels (sometimes called jig-n-pig) on hand. Jigs

in the 3/8- to 1/2-ounce category are popular, used with big four- to six-inch pork rinds cut to imitate salamanders or frogs. Spinner baits in chartreuse and yellow colors are good, too. Now’s the time to really throw that crawdad imitation crank bait, even in the brushy areas. Bass love crawdads this time of year! And I’ve had good success with six-inch plastic worms, especially those in the ‘motor oil’ or natural brown and orange colors.

Spend your time in fairly shallow water and thick, dense cover. Work an area thoroughly if you catch a bass, and don’t be afraid to go back to the same area time and time again. If you are catching lots of small bass in fairly shallow water, move out three to five feet deeper. You just might find that lunker!

Spawning Time

Water Temperature: 60° to 68°F
Time: late April to mid-May

This time period usually offers some of the fastest bassin' action of the year. Occasionally the fish are even visible near shore. The gravid females are cruising the shoreline in search of that perfect spawning location and they'll attack anything that gets in their way!

During the prespawn period bass have moved up from deep water, their main goal to satisfy hunger. But something magical happens when the water temperature hits 60°. Hormones activate and bass switch all their energy into reproducing their kind. Males head to even shallower water, seeking bottom soils and cover types that are best suited for spawning. It is their duty to get the nursery ready while the huge, potbellied females cruise back and forth until the time and water temperature are right.

Things to consider when searching for the spawning sites of bass in your favorite reservoir include soil type, cover availability, and water clarity. When it comes to soil type, largemouth bass are not hard to please. Although they prefer sand or gravel, they'll use just about any bottom, even sticks and mats of vegetation. Cover is definitely a governing factor. All bass will nest in the densest cover available, including trees, stumps, aquatic vegetation, and tumbleweeds. Water clarity will determine the depth of the spawning site. In extremely clear water, bass nest as deep as 20 feet. The more colored the water, the shallower the nest. But if a bass has excellent shallow cover, water clarity will have little impact on nest location.

On large reservoirs, most spawning bass are caught in creeks and rivers, away from the main lake. Bass will spawn in the backs of coves if cover is available. Bass on small lakes use coves and brushy shorelines. If you find a spawning area one year, chances are it will be used again in successive years. Also, bass are not very tolerant of close neighbors. You'll seldom find nests closer than 15 to 20 feet, so don't

spend all day fishing an area where you caught one fish. This is the time to move around, trying to find similar cover in different areas of the lake.

Although male bass feed during nest preparation, most often they are caught while attacking something that has invaded their territory. They are very aggressive and protective at this time. As the water temperature reaches 62° to 65°, the females move in, and the reproductive process is under way. When the female is near or on the nest, she, too, is very aggressive and will attack anything in her domain. Many times she will simply inhale a lure or baitfish, carry it away from the area and spit it back out. Neither sex is hungry now; both are mainly concerned with protection of their chosen area. But both are still catchable!

Spawning time will last until the water temperature reaches 68° to 70°. By then, the reproductive cycle is over, and many bass head out to deep water to rest and recuperate for a week or two. The few bass that are caught at this time are usually in poor body condition and are lethargic fighters.

There is some controversy over fishing during the spawning period. Some anglers feel that removing bass—especially female bass—before they spawn may affect reproduction in that body of water. My contention is that unless angling pressure is extremely heavy, little harm will be done by taking lunkers of either sex at this time. However, it is also a great time for catch-and-release fishing!

I stated before that your tackle had better be in top condition for the prespawn period; the same holds true later. During the spawning time, you are going to be fishing in the thickest brush around, hoping for that seven-pounder. Line ratings of 14 to 20 pounds are a must, and a long, stiff rod can be a great advantage. The bass are concentrated in shallow water in the thickest cover, so casting long distances is not nec-

State Largemouth Bass Records

State	Weight	Date Caught
Alabama	14 lbs.-8.5 ozs.	2-81
Arizona	14 lbs.-2 ozs.	1956
Arkansas	16 lbs.-4 ozs.	3-76
California	21 lbs.-3 ¹ / ₅ ozs.	1980
Colorado	10 lbs.-6 ozs.	5-79
Connecticut	12 lbs.-14 ozs.	6-61
Delaware	10 lbs.-5 ozs.	12-80
Florida	19 lbs.	6-61
Georgia	22 lbs.-4 ozs.	6-32
Idaho	10 lbs.-15 ozs.	early 50's
Illinois	12 lbs.-1 oz.	2-76
Indiana	11 lbs.-11 ozs.	6-68
Iowa	10 lbs.-5 ozs.	8-70
Kansas	11 lbs.-12 ozs.	3-77
Kentucky	12 lbs.-8 ozs.	8-66
Louisiana	12 ozs.	2-75
Maine	8 lbs.	7-70
Maryland	11 lbs.-2 ozs.	10-83
Massachusetts	15 lbs.-8 ozs.	2-75
Michigan	11 lbs.-15 ozs.	6-34 & 9-59
Minnesota	9 lbs.-4 ozs.	7-78
Mississippi	13 lbs.-8 ozs.	2-74
Missouri	13 lbs.-14 ozs.	4-61
Montana	7 lbs.-8 ozs.	1980
Nebraska	10 lbs.-11 ozs.	10-65
New Hampshire	10 lbs.-8 ozs.	5-67
New Jersey	10 lbs.-14 ozs.	6-80
New Mexico	11 lbs.	4-75
New York	10 lbs.-12 ozs.	10-75
North Carolina	14 lbs.-15 ozs.	4-63
North Dakota	8 lbs.-7 ¹ / ₂ ozs.	1 or 2-83
Ohio	13 lbs.-2 ozs.	5-76
Oklahoma	12 lbs.-1.6 ozs.	4-83
Oregon	10 lbs.-8 ozs.	1915
Pennsylvania	11 lbs.-3 ozs.	6-83
Rhode Island	10 lbs.	6-81
South Carolina	16 lbs.-z ozs.	12-49
South Dakota	8 lbs.-12 ozs.	4-57 and 5-74
Tennessee	14 lbs.-8 ozs.	10-54
Texas	15 lbs.-8 ozs.	2-81
Utah	10 lbs.-2 ozs.	3-74
Vermont	8 lbs.-4 ozs.	10-82
Virginia	16 lbs.-2 ozs.	1949
Washington	11 lbs.-9 ¹ / ₄ ozs.	4-77
West Virginia	10 lbs.-8 ozs.	1979
Wisconsin	11 lbs.-3 ozs.	10-40
Wyoming	7 lbs.-2 ozs.	8-42

essary. Most bassers this time of year spend all day flippin' (making short underhanded casts) or doodle sockin' (yo-yo fishing the cover straight up and down off the end of the rod). Short casts back into tight places may be necessary at times.

The jig-n-eel is among the favorite spawning-time lures, especially if the eel or pork trailer is a "spring lizard pup." Plastic salamanders rigged Texas-style are also excellent baits—and my favorite lure at this time of year. Salamanders are one of the bass's greatest enemies, as they feed on bass eggs. Bass on the nest will savagely attack any salamander or facsimile that invades their territory. Some anglers have good success with six-inch purple or black plastic worms. Chartreuse or gray 3/8-ounce spinner baits are very effective, too. You might as well leave your crank baits at home, as you'll likely never get them close to a bass under spawning conditions.

In conclusion, spring is the ideal season for a black bass angler to catch a lunker. Not only is fishing fever high after a long, cold winter, but the bass's urge to eat and reproduce is equally strong. If we anglers can understand the seasonal movements of our quarry, we have taken the first step to improving our fishing success. Still, weather variables, a plethora of habitat types, abrupt changes in water conditions, and other factors affecting bass prevent us from making rules. If we knew all there was to know, bass fishing wouldn't be any fun, anyway. Right?

For better bassin' this year, remember that timing is a vital, if basic requisite for heavy stringers. To reiterate briefly: A bass's spring is divided into three periods, all governed by water temperature. The early spring period is the time when your quarry is waking up from its winter nap, somewhat hungry but still too cold to move very far or eat very much. The fish will be close to deep water during this period, which starts at ice-out and

continues until the water reaches 50° or so. At that time bass have the itch to move around, feed freely, and search for the warmest water available. During this prespawn period, eating is a main goal. Then, when the water warms to 60°, the fish enter their spawning period and become territorial, striking at anything that invades their domain.

This spring may be the time for you and your lunker bass to meet. Now is the time to prepare. If you keep some of the above ideas in mind and present just the right bait in just the right location at just the right time, you may hook up with the gamest fish that swims—a big black bass.

Big fish aren't always caught by veteran anglers!



Gene Bréhms photo

... a Kansas river raft?

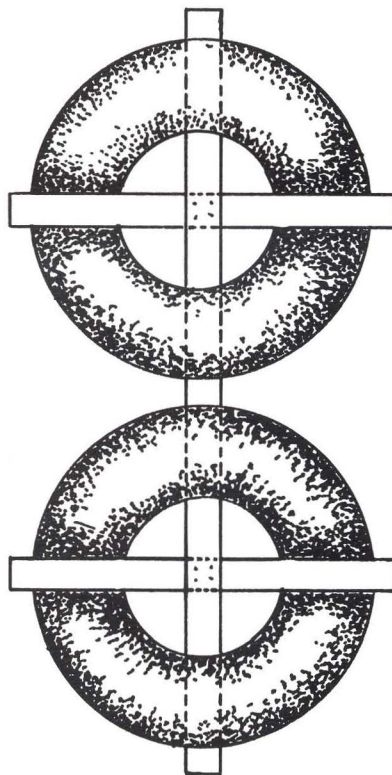
No, it probably wouldn't endure Hells Canyon rapids or survive the lower Colorado, but Kansas anglers may find this craft just the ticket for those hard-to-reach hotspots.

Doug Nygren

When I was young my father used to take me to the foothills of the Rockies to visit Grandma. Among the highlights of one year's vacation was a trout-fishing trip in the mountains. Most folks come back from such excursions laden with trout; I returned home with an idea—one that had nothing to do with either mountains or trout. I'd discovered how to build rafts—or, at least, one raft. It was made from two truck inner tubes, an eight-foot two-by-four, and two four-foot two-by-fours. People were using this to float white-water rivers, like the upper Rio Grande. I knew when I first saw it that this was something I would have to try.

When I got back to Kansas I made a prototype out of car inner tubes, then took it to the nearest body of water (a horse tank) to give it a test run. It was a dismal failure. I couldn't even keep it upright! Disillusioned, I picked up my creation and dragged it and my wet body home. I forgot all about rafts for the next seventeen years . . .

I've always loved to fish rivers, but in Kansas many are difficult to fish on foot because of poor access



RIVER RAFT
scale: $\frac{1}{2}'' = 1'$

to rugged or vegetated banks. Also, many streams are too shallow to float a canoe or johnboat much of the year. Others have been altered by man to the point that the "holes" are long distances apart and you spend more time walking than fishing.

It occurred to me last summer that maybe the old raft I saw in the Rockies would be the answer. So I bought a couple of big truck inner tubes and made my second raft. Sure enough, it worked! This raft cost me only 10 dollars for materials, was stable, and supported my 200 pounds easily in less than a foot of water. With a raft of this type, I reasoned, anyone could fish those hard-to-reach pockets in Kansas streams.

Well, to test the theory, an angling buddy and I decided to do just that. Our gear consisted of two rafts, life-jackets, small double-ended paddles, fishing poles, and creel baskets. Each creel basket was full of catfish bait (hamburger-limburger mixture), extra hooks and weights, and a stringer.

After putting in at a favorite spot on the Arkansas, we split up, covering both sides of the river and look-

Mike Miller illustration

ing for holes that might hold channel catfish. The best holes were those harboring tree roots and rocks—especially if located under cutbanks. When one of us would find a good spot, both would stop just upstream and drift our lines into the hole. We got strikes on nearly every presentation. On this particular trip, about two of every 10 fish were keepers—mostly one- to two-pound cats. We found a new hole every 50 yards or so. After floating a five-mile stretch, we had two nice stringers of fish. We pulled out at a predetermined point where we'd parked a second vehicle. We'd found rafting not only productive, but a pleasant way to fish as well. There's no wading, no sinking in the mud or sand, and, best of all, no portaging a heavy canoe or johnboat!

If you'd like to try something different this spring, why not put your creative skills to work and build a river raft? It's an inexpensive, enjoyable way to spend a few hours. And testing your craft may put you into some of the best river fishing you've ever had!

A few tips for more enjoyable floats:

- Never float flooding streams.
- Always wear a life jacket.
- Always get permission from landowners when floating private streams.
- Tie a cord from yourself to the raft so you don't become separated if you capsize.
- Tie your gear down.

Good luck building that raft—and floating those fish-laden Kansas streams!

RECOMMENDED FLOAT STREAMS

Try these just after snowmelt but before spring rains. Channel catfish are particularly vulnerable at this time, and present in the rising water. White bass spawning runs in early spring can also make raft trips productive.

NAVIGABLE STREAMS:

1. Arkansas River
2. Kansas (Kaw) River
3. Missouri River

NON-NAVIGABLE STREAMS

(those listed below all have public access)

Northeast Region

1. Wakarusa River above Clinton Reservoir (3-4 miles)
2. Dragoon Creek above Pomona Reservoir (3-4 miles)
3. Delaware River above Perry Reservoir (4 miles)
4. Marais des Cygnes River above Melvern (3-4 miles)
5. Blue River above Tuttle Creek Reservoir (5-10 miles)
6. Vermillion—check on public access

Southeast Region

1. Elk River above Elk City Reservoir (3-4 miles)
2. Neosho River above John Redmond (5-6 miles)
3. Big Bull River above Hillsdale (2 miles)

4. Pawnee Creek in Hollister Wildlife Area (2 miles)
5. Deer Creek & Lightning Creek in the Mined-Land Wildlife Areas

Northcentral

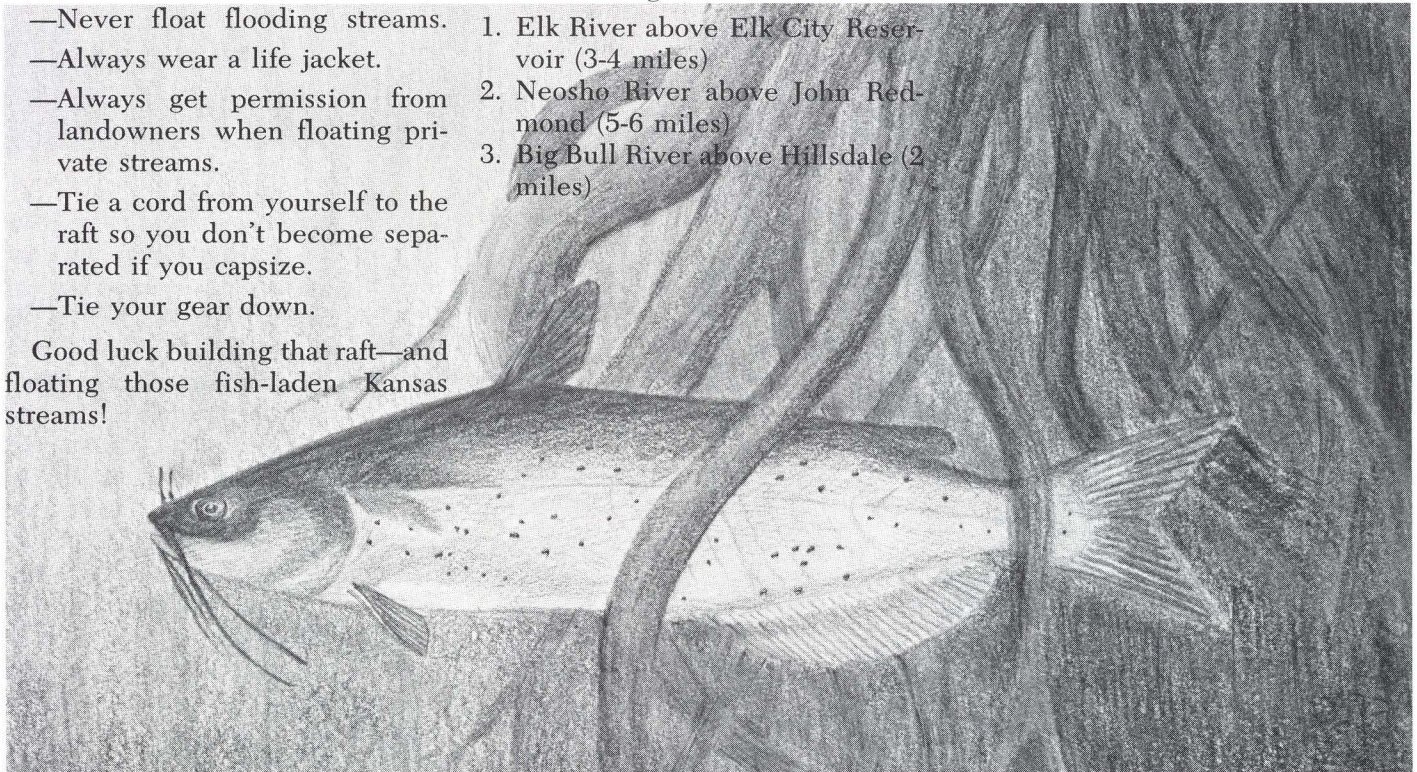
1. Republican River above Milford (4-5 miles)

Southcentral

1. Fall River above Fall River Reservoir (5-7 miles)
2. Cottonwood River above Marion Reservoir (3-4 miles)
3. Verdigris River above Toronto Reservoir (5-10 miles)
4. North Fork of Ninescah above Cheney Reservoir (1-2 miles)
5. South Fork of Ninescah in Kingman Wildlife Area (2 miles)
6. Arkansas River at Kaw Wildlife Area (8 miles)

Many other streams are controlled by landowners but can be used for floating. The Kansas Canoe Association has established canoe trails on some of these. For more information write:

Kansas Canoe Assoc.
Box 2885
Wichita, KS 67201



Mike Miller illustration

The Lizards of Oz



J. T. Collins photo

Tails that come apart at a touch, eyes that shed blood instead of tears — lizards are among the Sunflower State's most unusual creatures.

A hot June sun over the Flint Hills grasslands had wilted just about everything in sight, including our enthusiasm for hunting lizards. But Kelly Irwin and I wanted lizards, so we clamped our wide-brim straw hats firmly on our heads, rose from a cool resting spot beneath a stunted cedar, and continued to search in the 90-degree heat.

Kelly, my long-time field companion from Topeka, went over a ridge. I walked along a rocky hillside and soon spied a cocky collared lizard perched on a small boulder about 20 feet away. The lizard saw me at the same time, leaped from its

lookout, and raced beneath a flat limestone slab nearby. Working my way to the slab, I prepared for a routine catch. With tough leather gloves to protect my hands, I lifted the rock and grabbed for the surprised lizard. I missed. The lizard dashed under another neighboring slab, I lost my balance, and the up-raised rock dropped on my boot.

After the pain in my foot subsided, I set up to make a second try for the lizard in its newly-chosen hiding place. This time there were no big rocks nearby under which the lizard might dodge, so I felt reasonably sure I could get the critter. Up came the rock; I grabbed at the blurred movement of the lizard as it took off, missed it, jumped back, and ran a 100-yard dash away from the slab. The buzzing hornets I'd exposed beneath that rock were reaching out to touch someone—me!—and they were ready to give a stinging rebuke for disturbing their home. After the sprint, I caught my breath, joined up with Kelly, and we walked back to the car, contemplating the vagaries of lizard-hunting. Then we drove to a new location and began anew the search. Eventually we would get some lizards.

And eventually we did, because lizards are so abundant in the Flint Hills that the odds were weighted strongly in our favor. We caught about a dozen lizards that day, and saw well over a hundred as we hiked across the Hills.

Most people gaze in awe at the beauty of wild Kansas, the vast grasslands glowing in a stunning sunset, or the thousands of waterfowl in low flight over Cheyenne Bottoms. I prefer to look around and under things, to see little-known creatures that live on the prairie or

Opposite: This prairie-lined racerunner even looks fast. And you thought lizards were homely!

Top right: The Texas horned lizard secretes blood from its eyes to cool itself during hot weather.

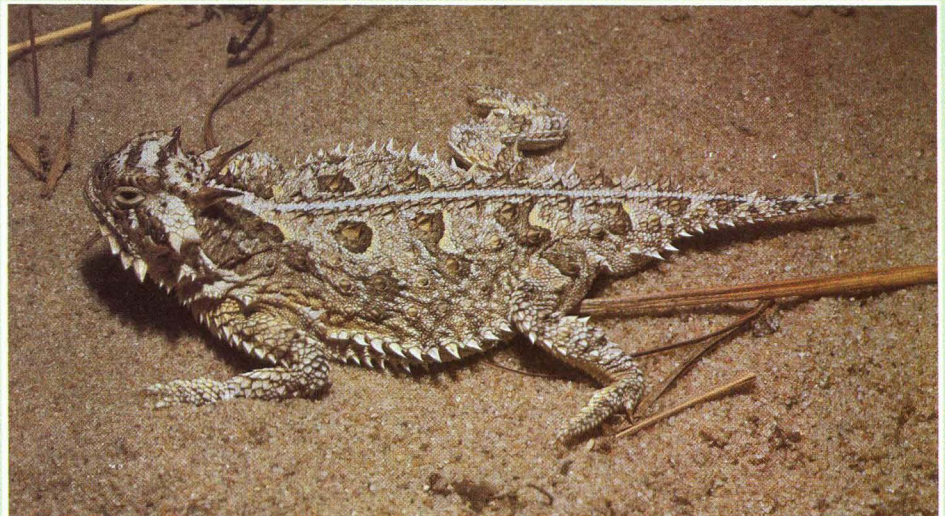
Bottom right: Collared lizards are easy to identify, harder to catch.

in woodlands. Not that I don't appreciate the great scenery, but I want a little more. Snakes, turtles, frogs, salamanders—and lizards—are the animals that perk my interest. So a lizard hunt lends a little more zest to my jaunts in the wild areas of our state.

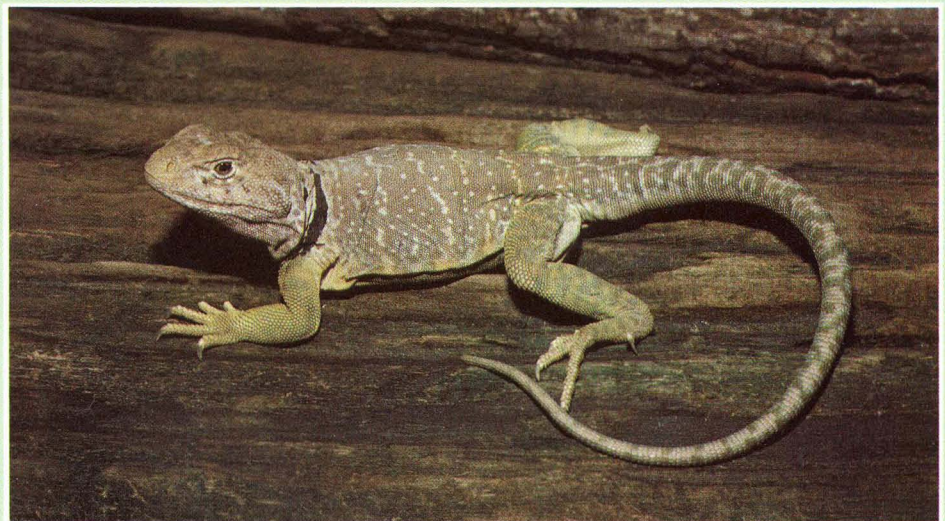
Kansas has twelve kinds of lizards living within its borders, a small percentage of the over 3,300 kinds that are known throughout the world. Nonetheless, most of the twelve Kansas species are very abundant, and many can be observed during the warm parts of the year. Ranging in size from the tiny earless lizard (less than five inches in length) to the big western slender glass lizard (up to 30 inches long), these miniature dragons are a diverse and integral group of critters that enrich the Kansas environment.

Most lizards like to take the sun, so bright days are the best times to look for them. Some, like the colored lizard and fence lizard, are active on the surface, sitting on rocks or scurrying about in sandy areas. Others are secretive, like the many skinks that call the Sunflower State home. Skinks stay beneath things, curled under a warm rock or log, or darting about in the thick, dry leaf-litter of a forest floor. At least some good habitat for lizards is found everywhere in Kansas, and every county has its share of these reptiles.

Like most wildlife, lizards lead a harsh existence. Their activity is temperature-controlled. That is, they cannot maintain a warm body without help from the temperature around them. So they are out and about during the late spring, sum-



J. T. Collins photo



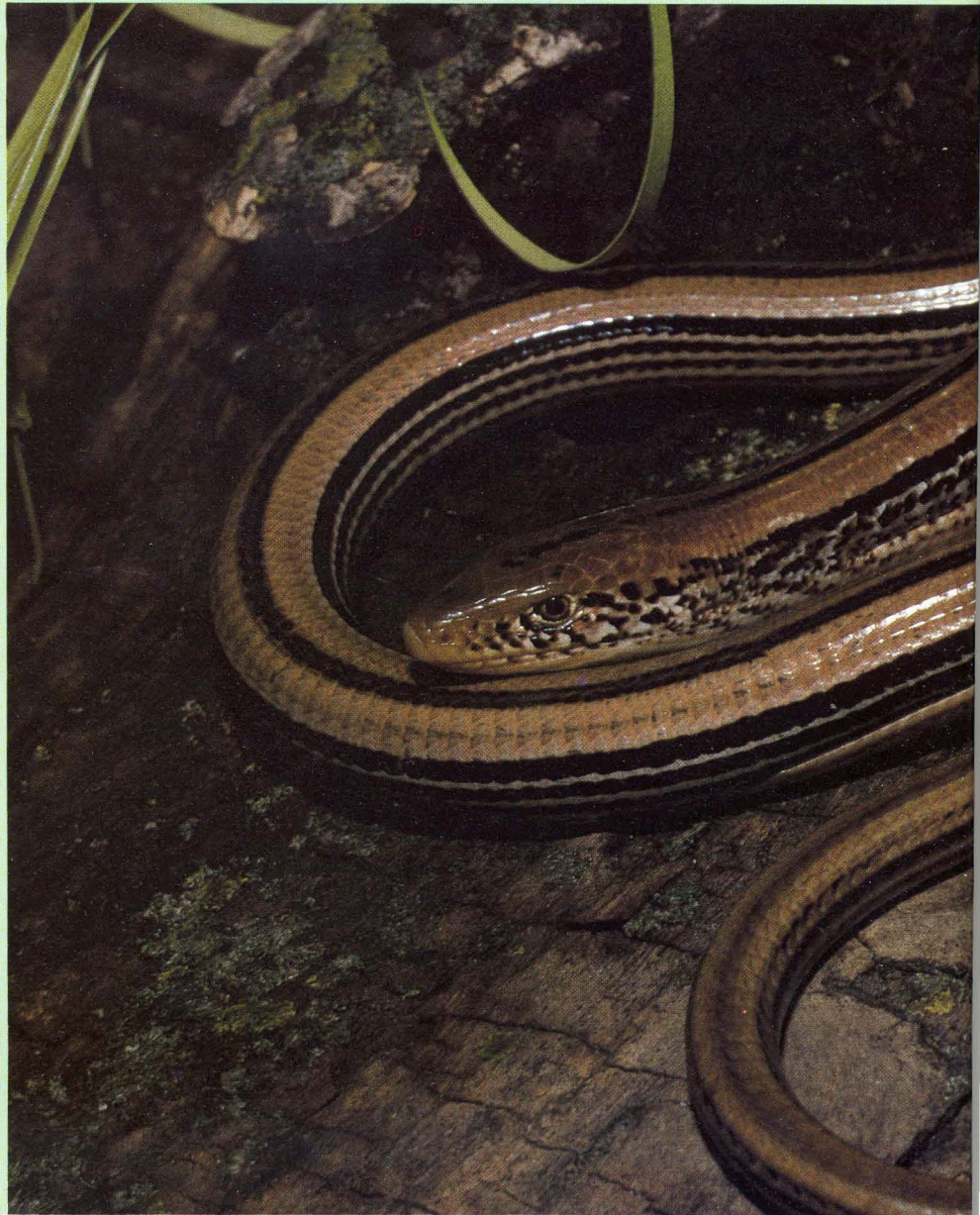
J. T. Collins photo

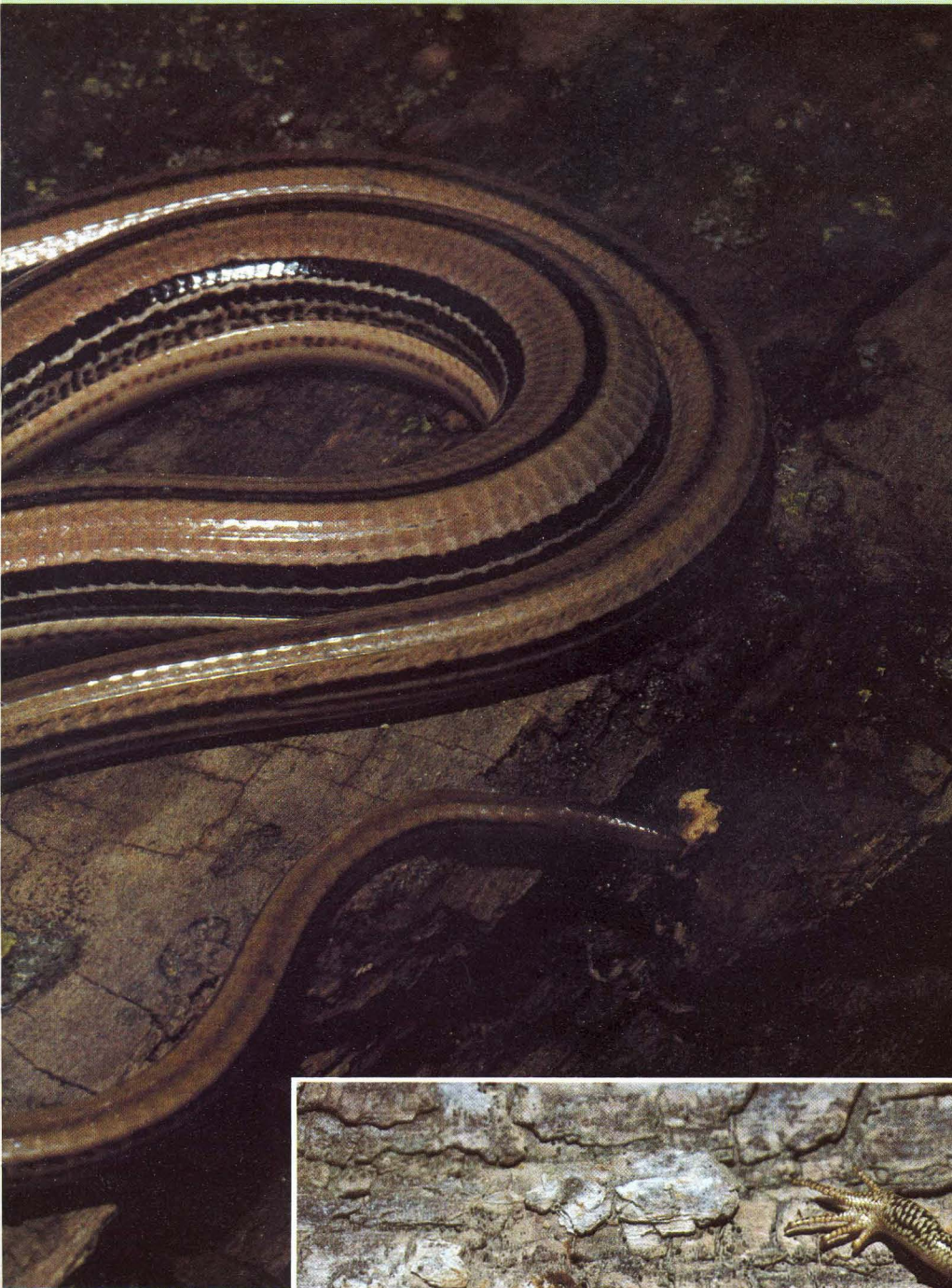
mer, and early fall months, but retreat below the ground during the bitter cold of a Kansas winter. On the other hand, despite their affinity for hot weather, most lizards have enough sense to give up basking in the August sun of Kansas, when temperatures reach 100 degrees and humidity makes the air thick enough to cut. With a shortened and unpredictable activity period, both daily and annually, lizards must make the most of what time is available to them—courting, mating, laying eggs, finding food, and avoiding enemies.

And their enemies are legion; just about every predator in the Kansas environment finds lizards good to eat. Hawks swoop down from the skies to snatch them from boulders, coyotes stalk them in the prairie grass, snakes hunt them continually. Besides all this, cars run over them and lizard hunters pester them from time to time. Still, lizards remain plentiful in our state. They consume great quantities of insects, add variety to our fauna, and provide a lot of food for Kansas predators.

The Texas horned lizard, a denizen of areas with sand or loose, fine soil, is found throughout most of Kansas, except in the northwestern quarter of the state where winters are too long and cold for it to exist. This spiny little reptile likes to bask in the sun's rays at high noon, often buried in sand with just its head exposed. It has developed an excellent internal mechanism to control the temperature of its blood by simply shunting cooler blood from its sand-covered body to its sun-baked head. This prevents overheating on a hot Kansas day. Every now and then, when I catch one of these little lizards, it squirts a few drops of blood from the corner of its eyes where some weak blood vessels pass just below the skin's surface.

Many people, particularly biologists, used to speculate that the blood-squirting was a defense against enemies—that the blood of the lizard was noxious or distasteful to other animals. But this explana-





tion is open to question. Consider. The Texas horned lizard can burrow beneath sand or soil to hide from enemies, and its coloration makes it very hard to see when it sits motionless on the ground. Also, it has big, sharp spines on its head to discourage any predators that might try to bite it. Need it squirt blood at an enemy as well? I wasn't surprised when a biologist finally demonstrated that blood-squirting was done only when a horned lizard was overheated and stressed. Further, I watched a Kansas coyote eat two horned lizards a few years ago. The coyote showed no ill effects and evidently found the unfortunate lizards quite tasty.

One of the most unusual Kansas lizards doesn't look like a lizard at all—it looks very much like a snake, and Kansans often call it a “glass snake.” The western slender glass lizard has no legs and, indeed, does

Center: The colorful western slender glass lizard will sacrifice its tail to avoid capture. A new tail will replace the lost appendage.

Bottom left: The broadhead skink is rarely seen in Kansas. It prefers forest habitat, often laying its eggs in abandoned woodpecker holes.

Below: The Great Plains skink changes colors as it matures. A Kansas specimen caught in 1981 was the largest skink ever recorded.

J. T. Collins photo



J. T. Collins photo

J. T. Collins photo

resemble a snake. But, unlike all snakes, this lizard has eyelids (it can blink) and ear openings on each side of its head. In addition to these features (that most lizards possess), the glass lizard is different from snakes in another, more striking way: it breaks into pieces when grabbed. Although these lizards may grow up to two and a half feet long, their body takes up only the first third or so. The rest is tail, and a delicate tail at that. When grabbed, the glass lizard wriggles and writhes vigorously to escape, and invariably its tail breaks free from the body. The lizard hunter who catches one of these harmless reptiles often winds up holding head and body only, while the ground is littered with moving pieces of tail. Just as often, the hunter is left clutching a hunk of the tail, while the lizard sneaks away to safety. An ingenious defense mechanism—and an effective one! Apparently losing a tail doesn't bother these lizards too much, as they readily grow a new one. But the new tail never reaches the length of the original.

Speed is also essential to the survival of most lizards. They use their speed to escape enemies and to catch food, mostly insects and smaller lizards. The fastest lizard in Kansas is the prairie-lined racerunner. Quick and nervous, this critter is always in motion, darting this way and that, poking its head into holes, dashing after an insect, or racing across a highway barely out of reach of the wheels of an on-coming car. Racerunners that are born and live near well-traveled roads rarely survive to old age, instead becoming a permanent part of the pavement. The more fortunate racerunners—those living in the wilder parts of Kansas—survive a lot longer. They enjoy their hot, sandy habitat, and catching one of them takes some doing. I sometimes use a noose made of a short piece of filament tied into a loose loop at the end of a long pole. Creeping close, I can usually snare a few racerunners by dropping the noose over their heads

and lifting the pole quickly. But I'm lazy. An easier way is to get up early on a summer morning, before the sweltering heat of day arrives, and lift small rocks where these lizards live. When cool, racerunners don't move very fast, so I can catch more of them with less effort. It's also less embarrassing this way—who wants to spend their time being outrun or out-maneuvered by a little lizard?

I have more success capturing skinks. There are fourteen kinds of skinks in the United States, and six of these occur in Kansas. Most are small in size, growing no more than seven or eight inches long. But two kinds, the broadhead and Great Plains skinks, get a bit larger, with some big adults measuring over a foot in length. The broadhead skink is found only along the extreme eastern border of the state, in those places that have thick stands of tall timber. This reptile is rare and secretive. Its habitat needs are specific, restricting its range in Kansas. It prefers to lay its eggs in abandoned woodpecker holes in big, dead trees—particularly those standing near a lake or river. This is in contrast to the preferred habitat of Great Plains skinks: a hillside and a few rocks under which the creatures can hide and lay their eggs.

Of all Kansas skinks, the Great Plains skink is the most widespread and abundant and can be found in large numbers under flat limestone rocks in spring. The little skinks with their characteristic bluish tails and orange-yellow chin spots look different from their parents and at one time were assumed to be a distinct species. But when the young grow up their colors change to those of an adult skink: gray-brown with dark spots scattered over smooth, shiny scales. The broadhead skink was once thought to be the largest of skinks, holding the record length at 12 and $\frac{3}{4}$ inches. But not any more. In 1981 Stanley Roth, a biology teacher at Lawrence High School, brought me a Great Plains skink captured by Brad Anderson and John Fraser in Cheyenne County in

northwestern Kansas. This lizard measured 13 and $\frac{3}{4}$ inches long, the largest skink ever taken in North America. That record still stands, but I bet a fourteen-inch skink is out there somewhere in Kansas, and I'll be looking for it whenever I'm lizard hunting.

I not only like to hunt lizards, I like to look at them. I get a great deal of pleasure observing them as they sit on logs and rocks, alert for food or trouble. In the spring they spend a lot of time looking for mates, and many lizards engage in elaborate courtship displays. The males bob and nod their heads and strut their bright spring courtship colors, while the females run around in apparent indifference to all the attention being lavished on them. But ultimately the males and females come to terms, mate, and lay eggs; and soon little lizards are present on the landscape, ensuring that another generation of these creatures will grace our state.

Lizards are a hardy group, solid pioneers of prairie and woodland. I suspect they will always thrive on the Kansas plains. This makes me feel good, for they are a harmless lot—and beneficial to man. Like many other small, seldom-seen animals, they receive little attention. You can't eat them, they don't make good pets, and nobody takes up a rifle to hunt them. They normally won't sit still long enough to be photographed, either. But I've become familiar with them over the years, and learned some techniques to get them to pose for my camera. The lizards whose portraits accompany this article were good enough to pause for a few seconds before my lens so that Kansans might get to know them better. They have since returned to their native habitat. Look for them the next time you stroll the natural places of Kansas.

Joseph T. Collins is currently a vertebrate zoologist and editor for the State Museum of Natural History at the University of Kansas in Lawrence.

the yellow pages

Edited by Rob Manes

READERS WRITE

Ghost cats?

Editor:

My husband and I live northwest of Sedgwick (southern Harvey County).

In the July-August issue of Kansas Wildlife, on the August calendar, it was stated that the last known cougar in Kansas was shot in 1904 in Ellis County. In August 1981 a beautiful cougar was in our yard for thirty minutes. It then walked over to a milo field and disappeared. Several days later, a neighbor walked in his field, and a cougar jumped up in front of him.

In 1982, I saw the cougar again. This year we did not see it, but saw the tracks along the Little Arkansas River.

We really enjoy Kansas Wildlife. The pictures are beautiful.

Mrs. Vergil Janzen
Sedgwick, KS

Dear Mrs. Janzen:

Reports of cougar sightings are received at Kansas Fish and Game offices; and several of these reports are investigated each year.

While there is no documented evidence of cougars in Kansas since the 1904 sighting, many of the state's wildlife experts believe the big cats do roam the state in very small numbers. Cougars have vast territories and may travel several hundred miles, making it difficult to prove the existence of a resident population. In addition, they are nocturnal, secretive, and well-camouflaged.

Some food for thought: Why wouldn't cougars live in Kansas? Prey is abundant, and suitable habitat is available along streams across the state. Conversely, if there are cougars here, why haven't any of the 40,000 Kansas big-game hunters and countless wildlife photographers provided solid evidence of their existence . . . a picture, a carcass, anything?

Manes

Funding wildlife

Editor:

Once again, the Kansas Fish and Game Commission is doing everything in its power to keep people from coming to Kansas to fish or hunt.

Not only have you raised the cost of Kansas hunting and fishing licenses, you have caused Missouri to do the same thing, "to create some equity." With the costs you have imposed, Kansans will, in the long run, lose money.

Patrick Miller
Kansas City, KS

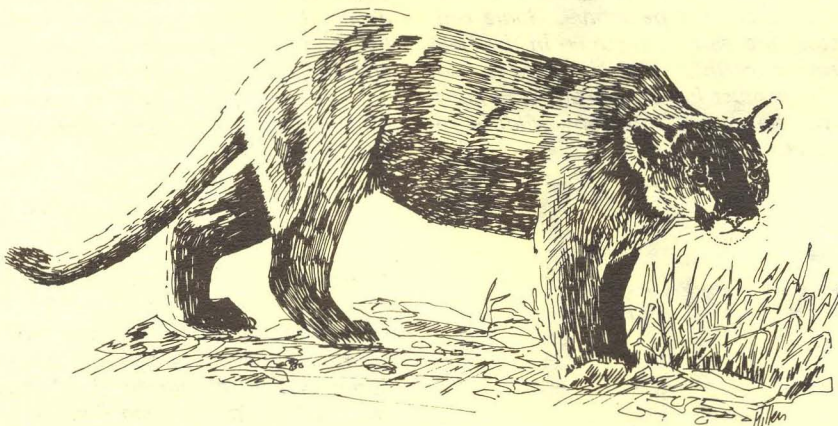
Dear Mr. Miller:

The assertion that the Kansas Fish and Game Commission is discouraging participation in hunting and fishing is untrue. The agency is funded, for the most part, by sales of hunting, fishing, and furharvester licenses. A significant portion of that money comes from non-residents.

Fee increases are needed to compensate for the rising costs of wildlife management. Without proper management, Kansas' wildlife resources are certain to diminish.

Kansas nonresident license costs compare favorably with those of other states. Some agencies, such as the Missouri Department of Conservation, receive large portions of their funding via sales taxes, thereby keeping license prices artificially low. Sales of Kansas nonresident licenses have continued to increase despite fee hikes.

License and permit fees comprise less than seven percent of the expenses



involved in hunting and fishing. The largest expenditures are for food, lodging, and equipment.

Manes

A new twist

Editor:

While hunting pheasants near Ransom, Kansas in 1982, we discovered that, if we'd face our three vans into the field, with lights on high beam and emergency flashers working, the birds would hold much better than for human blockers.

On many occasions when pheasants flushed far ahead of us, they would see the flashing lights, turn, and fly back to us. In 1983, we didn't bother to use human blockers. Everyone walked. Is this legal . . . illegal?

Frank Canfield
Houston, Texas

Dear Mr. Canfield:

That's a new one on us.

While the use of automobiles as blockers may be aesthetically disturbing, it is not illegal in Kansas. Vehicles may not be used to pursue game; and, of course, the lights may not be used to spot the birds after shooting hours.

Manes

Concern

Editor:

I read with interest the December article on buck hunting. In our part of the state *most* rather than much of the hunting for whitetails is done from a vehicle. I hear of dozens of fine deer shot from pickups each year, but never about anyone being penalized. Is there a difference between not making any serious attempt to enforce the law and condoning lawbreakers? Obviously, landowners are irate over this situation. To live in the country is to be the potential backstop for some road hunter's gun. There are nine days each fall when it is danger-

ous to walk on your own place. I suspect it will not be long until this lax attitude toward the law on the part of hunters and our state officials will result in the death of some unwitting non-hunter or legal hunter.

Several changes in our current hunting laws could help to correct this dangerous situation. At least during the hunting season, we should require that all guns in vehicles be unloaded and enclosed in cases. Only shotguns loaded with either slugs or shot should be legal. Finally, we should divide the state into three zones and stagger the hunting season, so that the thinly spread enforcement personnel can concentrate their efforts and be more of a deterrent.

William R. Browning, M.D.
Madison, KS

Dear Dr. Browning:

While road hunting may seem distasteful to many deer enthusiasts, it can be done legally, with permission from adjacent landowners. Of course, shooting from a vehicle is not legal.

Attempts to restrict transportation of loaded and uncased guns during firearms deer season have met resistance from farm groups. The safety record for Kansas deer hunting is quite good, with only three shooting fatalities in the season's 18-year history.

While staggering season dates in separate deer-hunting zones would allow concentrated enforcement efforts, it remains difficult to observe a road hunter in the act of firing from a vehicle. Enforcement of Kansas game laws cannot be effective without assistance from concerned citizens, such as yourself. It is the obligation of anyone who witnesses a violation to report it to local law enforcement personnel. Game protectors are easily contacted in the field through county sheriff's offices. All Kansans must join in the effort to conserve the state's abundant wildlife resources.

Manes

Invitation

Editor:

I received a letter asking why I didn't renew my subscription to your magazine. I really didn't have a reason,

but I am renewing now because of this invitation.

David DeVault
Overland Park, KS

Renewal notice

Editor:

I received a notice from you that the KANSAS WILDLIFE magazine is due for renewal.

Enclosed please find the label from the last issue I received. You will see it shows my subscription runs out July 1985.

E. Gene Gimple
Douglas, KS

Editor's notes:

Editor's note:

Some subscribers have not been receiving renewal notices prior to the expiration of their subscription. That is being corrected. From now on, one renewal notice will be sent just before the last issue of a subscription is mailed. For your convenience, our circulation department is also listing the last scheduled issue on each mailing label.

The KANSAS WILDLIFE promotional flier you may have received in the mail was sent to everyone who once subscribed to the magazine and then dropped it. These names were obtained by computer search and were not checked against a current subscriber list.

Your subscription is unaffected by this notice. Thanks for reading KANSAS WILDLIFE!

Wayne van Zwoll

Oops!

Though we've received no mail from sharp-eyed birders on the error, surely some recognized the "chipping sparrow" on p. 7 of Jan./Feb. as a lark sparrow. Our apologies!

Wayne van Zwoll

THE LAW

The mouths of babes

An old game warden anecdote illustrates the importance of anonymous . . . or not-so-anonymous tips: While visiting a local second grade class, a game warden was approached by a proud youngster, who announced, "My daddy shot a great big, mean coyote." "Is that right?" responded the game warden. "Yeah, and he buried the antlers in my grandma's garden," replied the boy.

Game Protector Valeda Haworth was recently involved in a similar incident. A local first grade teacher phoned her on October 10 and related a conversation he'd had with one of his students.

"One of the girls in my class told me her father had shot a deer yesterday. I asked if he had hunted with a bow and arrow (it was archery season), and the little girl said, 'No with a shotgun.' So I thought I'd better give you a call."

When Val went to visit the parents, both denied knowing where their daughter could have come up with such a story. Then the wide-eyed youngster, who sat listening to her parents' perjury, tried to clear her confusion, "Why does she want our deer, Daddy?"

The parents stammered, then sheepishly pointed Val to the frozen deer meat. It was impossible to prove the girl's father killed the already-butchered deer with an illegal weapon, so he was cited for illegal possession only. An Ellsworth County judge fined the man \$250 and \$19 in court costs.

Manes

No time for plowing

Game Protectors Jack Dunbar and Tracy Galvin received a report from a Kingman County farmer, saying a deer had been shot after dark, near his farm. Dunbar knew the Fish and Game Com-

mission's airplane was in the area, and he asked for aerial assistance. Further help in locating the night shooters was received from the Kingman County Sheriff's office.

While Dunbar, Galvin, and Deputy Sheriff Wyman were enroute to the scene of the crime, the Fish and Game aircraft maintained watch on the spot.

Shortly the airplane radioed that two suspects had returned to recover the deer . . . only to be discovered by the farmer who was now chasing the pair at high speed down a dirt road. The farmer succeeded in apprehending the driver, but the passenger escaped into the darkness. Less than an hour later, the officers collared the escapee and started writing tickets.

Judge Shay of Kingman County imposed fines and court costs totalling \$688.

Manes



Long arms

Scott City Game Protector Claude Blair spent a good part of November following anonymous tips to deer poachers; and Judge Roger Yost of Dighton made the effort worthwhile.

An unidentified caller provided the first tip, saying he saw a deer hanging on an oil rig in the area. When Blair's investigation turned up an untagged deer, a worker on the rig was identified as the poacher. He received one ticket for killing the animal, and another for possessing it.

When the culprit's day in court came, the hammer fell . . . hard. Judge Yost required that he pay \$1,419 and revoked his license for a year.

A couple of deer-poaching brothers also felt the long arm of Judge Yost and Game Protector Blair. An anonymous tip led Claude to Utica where one of the brothers lived. The deer had already been parceled out, making proof of the crime harder to secure. However, Blair's alert eye caught a bit of blood and hair on the bumper of the suspect's car, and that was enough. He read him his rights, wrote him a ticket, and asked for a signed statement. In the statement, the Utica brother admitted taking the deer illegally.

Both brothers lost their hunting privileges for one year; the one who shot the deer paid \$1,269, and the brother who transported it paid \$519.

Manes

Heard 'em all

In January of 1979, the snow in northeastern Kingman County was deep and drifted. Patrolling Game Protector Jack Dunbar spotted a yellow compact car with two men in it. The passenger got out and loaded what appeared to be a semi-automatic pistol, then climbed

onto the hood. The car moved slowly down the road.

Jack followed at a distance for a couple of miles, until the man on the hood fired three shots into a tree row.

While Jack watched through binoculars, the shooter hurriedly got back in the car, which sped from the scene. Dunbar turned on his lights, stopped the pair, and asked what they were doing.

"Nothin'," they replied.

"Tell you what I saw," Jack said, "I saw the passenger get out on the hood, ride down the road, and shoot at a rabbit in the tree row."

"Officer, that ain't the way it happened," said the passenger, "I was standing in the middle of the road, admiring my new pistol, when this VW came along and hit me. I was firing the pistol, trying to get the driver's attention, so he'd stop and let me off."

G.P. Bill Burlew has heard his share of stories too. He was checking licenses on a county lake when he observed two women fishing . . . with too many poles.

"The fish warden's here," one lady hissed.

The other quickly cranked in one pole and leaned it against a station wagon. Burlew advised her that she was breaking the law.

Flustered, she motioned toward the car. "I was only practice casting with that one," she said.

Burlew observed a live night crawler on the hook, and inquired about it.

"You know, Officer," she pleaded, "I put that worm on there last week. The water just revived him tonight."

Manes

OK corral

Thirty-three people have been convicted or pled guilty in Oklahoma courts since March 17, and have paid fines totaling almost \$15,000 on charges of selling game and nongame fish.

Seventy-four people were charged, or indicted on 63 Federal and 151 State counts involving illegal fish sales. Twenty-two Federal charges are felonies. The charges stem from a crackdown by State and Federal law enforcement officers last March.

Senior Resident Agent Dale Horne of the U.S. Fish and Wildlife Service said more than 50 persons remain under

investigation, with the bulk of the charges expected to be tried in State District Courts. There have been four jury trials, with at least one more to be heard, according to Horne.

In addition to the fines, the Fish and Wildlife Service confiscated six trucks, four boats, three trailers, three motors, six chest-type freezers, a walk-in freezer, and assorted nets and illegal fishing gear. *OK Dept. of Wildlife Conservation*

Kids these days

A father and his 17-year-old son were hunting deer during firearms season in southcentral Kansas. The boy shot a nice buck and watched it jump a fence and run a short distance before falling.

When the ecstatic young hunter hurried to his trophy, two strangers appeared, saying the deer was *their* kill. Not wanting to see anyone hurt, the boy's father assured him there would be other deer, and the season was young. So they left the animal for the game thieves.

As the father and son were leaving, they heard another shot and turned in time to see a doe fall. They watched for some time, then left, sure neither deer had been tagged.

The frustrated pair stopped to tell the landowner what had happened, and he wasted no time in informing Game Protector Bill Cox.

Cox interviewed the two witnesses and determined the identity and addresses of the culprits. He learned the suspects were brothers, living in Beaumont.

When Cox went there to question them, he found a deer in a garage belonging to one of the brothers and soon elicited a confession concerning the other animal.

The father and son came to court, and would have testified if needed. However, the two brothers pleaded guilty. Judge John M. Jaworsky fined them each \$500 plus court costs, sentenced them to six months in jail, and revoked their hunting privileges for one year. The jail terms were later reduced.

The father and son have been nominated for the Kansas Bowhunter Association's cash reward for their fine conduct.

Cyanide: Beware

Cyanide guns can be effective means of control for coyotes and other predators, but they are also hazardous to pets. For this reason such traps may be used only by special permit in areas where the need has been proven.

A southwest Kansas man thought he would make a little money using cyanide guns to trap furbearers. He might have gotten away with it, if a local ranch hand hadn't come close to injury, or even death, as a result of one of the guns set near a gate. He reported his discovery to Game Protector Claude Blair, who then spent several days observing the unlicensed cyanide gunner through a spotting scope, trying to get the needed evidence. Finally, after he was able to witness the man baiting a set, he moved in and offered to "help run his trap line."

When they finished, Blair had collected 80 cyanide guns and had cited the 'trapper' for illegal use of the devices.

When the dust settled, the violator paid \$519 in court, lost nearly \$1,000 in guns and equipment, and forfeited about \$200 in pelts.

Manes

Stooping low

It isn't often two veteran bowmen stoop to poaching deer with a rifle, but that's what happened just before Christmas in Barber County.

Game Protector Tracy Galvin learned of the shooting through a casual conversation with a farmer who said a Hudson man and a Manhattan man had taken a huge buck on his land during firearms season. Recognizing the Hudson man as a strict archery hunter, Galvin checked his permit with records in Fish and Game's Pratt headquarters, and found both men had archery permits, not firearms.

With that piece of evidence, Galvin interviewed another witness, who told him the deer had been tagged with a firearms permit belonging to someone else. Galvin then located both men and issued them tickets. Barber County Judge McGuire followed up with fines of \$500 each.

Manes

Manes

ISSUES

A new interior?

The conservation community entered its first act with the new Secretary of the Interior William P. Clark when his confirmation hearings were held by the Senate Energy and Natural Resources Committee.

Clark left his inquisitors clearly frustrated, as he acknowledged question after question, and then deferred each for later consideration.

This prelude to the Interior's leadership succession gave sportsmen and other conservationists little evidence there would be the wholesale changes in policy and personnel they have called for. Clark deflected hard-put questions by the National Wildlife Federation and other conservation groups aimed at clarifying whether he would repudiate pro-development resource decisions made by former Interior Secretary James Watt. In response, some organizations, including the Sierra Club and The Wilderness Society, opposed Clark's appointment as the country's 44th chief resource steward. Others, including the National Audubon Society, refrained from rejecting Clark until further developments provide more clues to what direction the Department of Interior takes.

"We have looked hard for information on which to base a decision on Mr. Clark's nomination," N.W.F. Executive Vice President Jay D. Hair told the Senate panel during hearings. "Unfortunately, the record to date does not provide a substantive basis on which to justify a positive endorsement. Mr. Clark's record with regard to conservation matters is mixed, at best," Hair continued.

The National Wildlife Federation identified several critical policies, ranging from coal leasing and park refuge land acquisition to federal land management including hard rock mining, oil and gas leasing, wetlands protection, Bureau of Land Management land sales, and water rights.

But as each issue was raised, Clark's replies remained neutral. He

promised only "an in-depth review from an independent standpoint." Clark added that the President had given him a mandate to "review all Interior policies." *National Wildlife Federation*

Rescuing streams

Kansas streams received an important endorsement from the state's policy makers when the Kansas Water Authority approved a state water management plan which will be submitted to the Kansas Legislature this year for final approval. One component of the plan is aimed at preserving minimum flows in the state's streams. The water management guidelines were developed by the Kansas Water Office, based on recommendations made by several state water agencies, including the Kansas Fish and Game Commission.

The first year of the plan's implementation includes minimum stream-flow guidelines for four Kansas rivers: the Neosho, Cottonwood, Marais des Cygnes, and Little Arkansas. Minimum flow guidelines for several other Kansas streams will be submitted to the legislature through the same process during the next two years.

These guidelines prescribe minimum flow levels to be left in the streams. Once the level has been reached, further withdrawals of water would be restricted. Preserving those base flows would assure the perpetuation of fish and wildlife that depend on streams for survival.

Manes

Traps of the city

This story begins in 1979, when St. Paul, Minnesota officials succumbed

to anti-trapping pressure and, in effect, banned trapping within the city.

Ban in force, raccoon and beaver problems escalated. Coons raided garbage cans, attics, and basements. They tore screens off windows and attacked dogs. They destroyed and unearthed newly-laid sod.

According to furbearer biologist Ed Bogges, a city resident who had replaced extracted sod several times, lighted his yard late at night and found 14 coons removing the lawn in search of worms.

"The situation was bad", said Bogges, "Raccoons can be a real problem."

As a result, the 1979 anti-trapping victory was short-lived. The ordinance, which effectively banned trapping, was rewritten in 1982. Everyone involved agrees that the revised version liberalizes trapping restrictions, allowing licensed furharvesters to trap within the city. But that's where the agreement ends.

Disagreement stems from a passage which reads, "Trapping will be permitted for or in connection with lawful animal control activities by federal, state or municipal officials or by licensed trappers."

The Department of Natural Resources interprets this to mean that licensed trappers, in adherence to state laws and with landowner/controller permission, can trap for any legitimate purpose. Population control and fur harvesting are considered legitimate purposes by the DNR.

The anti-trappers feel the ordinance allows for trapping only as a damage control measure.

The city is responsible for enforcing the ordinance, and they say leghold traps can only be used for beaver; unlicensed landowners who are not pest control employees cannot trap even if they are experiencing animal damage, and licensed trappers cannot trap in the city unless authorized and working on damage control.

"There are no trapping seasons in the city," said Pest Control Supervisor Earl Conly, "St. Paul is a game refuge."

DNR spokesman Dick Carlson says, "Maybe there is an obscure law that allows municipalities to establish themselves as game refuges I

know the city isn't a state game refuge."

"There have been no violations in connection with the new ordinance," said Conly. "As long as there are damage complaints, coons and beaver will be trapped, and those doing the trapping will encounter few problems. Trapping within the city has really helped. Before the ordinance was changed the raccoon problem was terrible. Trapping has been a good thing." *Trapline Journal*

Pronghorn conflict

It took a personal plea from Wyoming Governor Ed Herschler to free 1,600 pronghorns trapped against a fence erected by a rancher to keep the animals off traditional wintering grounds. Some of the animals perished as they huddled along the fence in the bitter winds while negotiations for their freedom were underway.

The pronghorn wintering area is federal public land managed by the Bureau of Land Management, and the antelope have a legal right to access. But the rancher, claiming that pronghorns would eat public forage that he was leasing for domestic livestock, put 28 miles of fence on his property that surrounds the public land so that the antelope could not enter.

Wyoming conservationists say the real reason for the fence was to exclude the pronghorns so they would not complicate proposed strip mining for coal. The rancher owns coal rights in the area.

In agreeing to remove sections of the fence to allow pronghorn passage, the rancher said the sections would be replaced next spring. *Wildlife Management Institute*

Who's best interest?

The U.S. Army Corps of Engineers apparently is trying to keep the U.S. Fish and Wildlife Service from making in-depth reviews of Corps water projects. Such studies are necessary to determine how damage to fish and wildlife habitat can be minimized in the construction of Corps projects.

For years, the Corps transferred funds to the Fish and Wildlife Service so that the Interior agency could evaluate the impacts of Corps projects on fish and wildlife, as mandated by the Fish and Wildlife Coordination Act. If the Corps transfers are terminated, funds will not be available for the Service to participate. It is the Corps' responsibility to pay for all costs incurred under its programs.

State fish and wildlife agencies are concerned by the Army Department's actions because they have a long history of involvement with the Service in reviewing proposed Corps projects. State agencies are most knowledgeable about local conditions and resources, and the Army's stance could deny crucial input on proposed projects.

It is unclear why the Army wants to alter a system that has worked well for so long. A September 1983 report from the Corps' Engineer Institute For Water Resources concluded: "... the FWS was found to be a cost-effective source of expertise when compared to private consultants and universities. The current arrangement is an efficient one, since the FWS possesses an on-demand institutional memory and familiarity with the federal requirements and applies it to numerous, diverse, small-scale Corps planning surveys."

Eliminating the Fish and Wildlife Service from the review process would allow the Corps undue control in habitat impact evaluations. *Wildlife Management Institute*

Prairie protection

The U.S. Senate approved a bill to control the conversion of highly erodible rangeland into cropland, and Iowa

Senator Roger Jepsen introduced additional legislation to create a pilot erosion control program, shortly before Congress adjourned in December 1983.

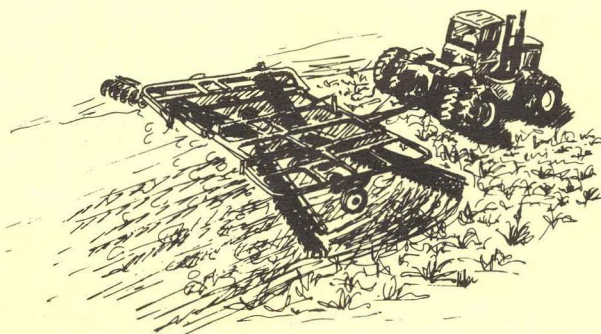
The measure is S. 663, the so-called "sodbuster bill" introduced by Senator William Armstrong of Colorado. It would deny price supports and other subsidies to farmers for crops grown on newly-plowed, fragile lands. It is an attempt to stop subsidizing speculators who buy huge parcels of arid grassland, plow under the natural vegetation, and make quick profits by reselling the land at higher cropland prices. Meanwhile, the soil erodes, and taxpayers are saddled with disaster payments and other subsidies for the ill-conceived ventures.

The bill was weakened considerably before being adopted by the Senate. As reported from committee, the bill would have prohibited subsidy payments for all crops grown by a farmer who plowed highly erodible prairie land. As passed, however, the bill would prohibit payments for only those crops grown on converted rangeland. The farmer could be paid for crops on other types of land.

Montana Senator John Melcher was opposed to weakening the bill, but finally acquiesced in order to get the measure out of the Senate. Melcher said he hopes the House will reinstate the more restrictive language when it handles the bill this year.

Jepsen's bill included "planned grazing or haying practices, fish and wildlife habitat preservation, production purposes, and recreation" as allowable uses of the idled acres. The program calls for long-term land retirement with farmers entering into five- to ten-year contracts with the Agriculture Department.

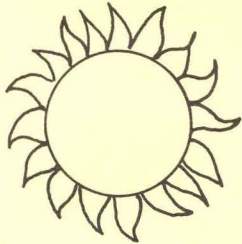
The drawback to Jepsen's bill is that fish and wildlife enhancement is merely authorized and not mandated. This will be discussed when the bill is reviewed by the Senate Agriculture Committee. *Wildlife Management Institute*



Nature's Notebook

by Joyce Harmon
Wildlife Education Coordinator
Kansas Fish and Game Commission

Have fun coloring these Kansas scenes.



WILDLIFE'S RAINBOW



Yellow is the color of bumblebees, dandelions, meadowlarks, and dried buffalo grass in the morning light. The sun shines on the sunflowers, wheat, and sunfish we have in Kansas.

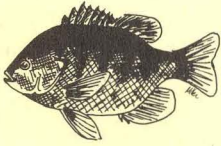


WILDLIFE'S RAINBOW



Black is the color of a skunk's bushy fur, salamanders in the mud, and a caterpillar in the blackbird's beak. Dark clouds rain on chickadees, crows, and the raccoon's mask.











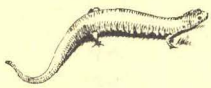









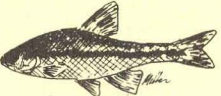

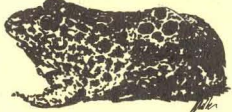
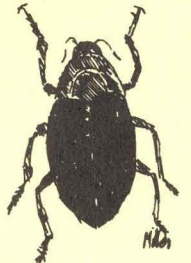
Spring is a great time for being outside—fishing, planting trees and discovering the activities of wildlife.

APRIL

<p>"Life is not so much a matter of discovering something new as it is a matter of re-discovering what has always been present." — W. Ralph Ward, Jr.</p>	<p>Play an April Fool's prank by leading friends on an "Un-nature Hike." Hide several unnatural items such as pencils, cans, and books along a short trail. See how many of the objects they can find.</p>	<p>April 1906. Distribution of 3,342 Asian ring-necked pheasants began in Kansas. The birds were imported for \$11,739.77. They were released in 84 counties.</p>	<p>In 1982 1.5 million pheasants were harvested in Kansas. How would you evaluate the success of the pheasant stocking program? Write your own definition for adaptation.</p>	<p>April 5, 1895. Fish wardens were required in every Kansas county that had ponds, streams or other water capable of supporting fish. Today, the state is divided into 22 districts, each with a fisheries biologist.</p>		
<p>Learn more about animal behavior and habitat selection by studying the following words. Name one species for each category.</p> <p>aquatic- living or growing in water.</p>	<p>terrestrial- living on the ground.</p> <p>arboreal-living in or among trees.</p>	<p>xeric-living in a dry environment.</p> <p>psammolittoral-living among sand grains at the water's edge.</p>	<p>marine-living in or near the sea.</p> <p>estuarine-living in or near a river's juncture with the sea.</p>	<p>limnetic-living in an open, fresh - water pond or lake.</p> <p>arctic-living at or near the North Pole.</p>	<p>palustrial-living in a marsh.</p> <p>fossorial-living underground in a burrow or tunnel.</p>	<p>parasitic-living on or in an organism or another species.</p> <p>littoral-living on the shore of a lake, sea, or ocean.</p>
<p>April 15. Taxes are due. The Kansas Nongame Wildlife Program is supported by donations made through the state income tax system. Can you find the "Chickadee Check-off" line on the Kansas tax form?</p>		<p>The Nongame Wildlife Program supports many projects including reintroduction of swallow-tailed kites and mountain plovers. It also has provided bird feeders, an observation tower, and educational materials.</p>	<p>April 18, 1980. Governor John Carlin signed into law the Income Tax Chickadee Check-off to provide funding for the Nongame Wildlife Program.</p>	<p>Tall tales and fish stories seem to go together. Chat with some of the experienced fishermen in your area. Record their tallest tales and share them with friends.</p>	<p>Here's a Kansas fish story that is hard to top: In 1856 a 250 lb. blue catfish was caught. It required the aid of a steamboat tow-line and a yoke of oxen to get the fish to shore.</p>	<p>What is the current state record for blue catfish? Stream alterations and land use practices have reduced the number of blue catfish in Kansas rivers.</p>
<p>April 25, 1896. Congress created the Division of Biological Survey in the Department of Agriculture. What is the Biological Survey responsible for?</p>	<p>April 26, 1785. James Audubon's birth date. What can you learn about this famous ornithologist and artist?</p>	<p>Select one of Audubon's bird illustrations. Research this species and make your own sketches.</p>		<p>April 23, 1875. On Topeka's first Arbor Day, more than 700 trees were planted in the capital square.</p>	<p>Celebrate Arbor Day in your community. What species of trees are most appropriate for wildlife habitat in your area? How do trees improve the environment?</p>	<p>The first Arbor Day was held in Nebraska on April 28, 1872. The first public planting of trees in honor of distinguished people was reported to have taken place in Cincinnati, Ohio.</p>

This month is dedicated to the threatened and endangered wildlife of Kansas. Learn as much about each species as possible. Discover why they are threatened or endangered. What is being done to improve the status of these species?

MAY

<p>"Before many years, the Buffalo, like the Great Auk, will have disappeared; surely this should not be permitted." — John James Audubon, 1843</p>		<p>May 1900. President McKinley signed the Lacey Act, which prohibits interstate shipment of illegally-killed wildlife and restricts importation of foreign wildlife.</p>		<p>May 1, 1980. The present Kansas list of 16 endangered and 8 threatened wildlife species was adopted by the legislature.</p>		<p>ENDANGERED: black-footed ferret</p> 	<p>gray bat</p> 	<p>peregrine falcon</p> 
<p>whooping crane</p> 	<p>eskimo curlew</p> 	<p>bald eagle</p> 	<p>Neosho madtom</p> 	<p>pallid sturgeon</p> 	<p>sicklefin chub</p> 	<p>central newt</p> 		
<p>grotto salamander</p> 	<p>cave salamander</p> 	<p>graybelly salamander</p> 	<p>warty-backed mussel</p> 	<p>heel-splitter mussel</p> 	<p><u>Pomatiopsis lapidaria</u> (no common name) small amphibious snail</p> 	<p>THREATENED: prairie falcon</p> 		
<p>least tern</p> 	<p>blue sucker</p> 	<p>Arkansas darter</p> 	<p>Topeka shiner</p> 	<p>alligator snapping turtle</p> 	<p>northern crawfish</p> 	<p>riffle beetle</p> 		

HUNTING

Like their forefathers

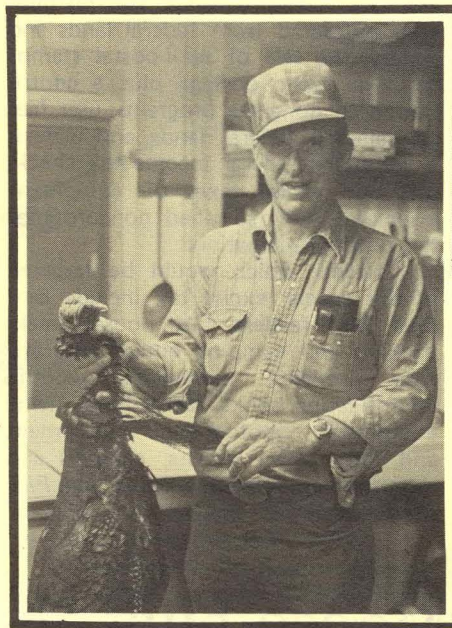
Some black powder hunters may like to think of themselves as clear-eyed, sun-bronzed recreations of Boone, Bridger, and all the other frontiersmen who formed our heritage. Detractors think of the same hunter as an unwashed, buckskin-clad nut, attacking his quarry with an inadequate firearm. As with most things, the truth lies somewhere between the two extremes.

All types of game can be hunted with muzzleloading arms. From upland game with smoothbores and small game with the small-caliber Kentucky rifle, to big game with larger rifles, the muzzle-loader is still making its voice heard in the hunting fields. Modern muzzle-loading hunters have taken everything from bear in Alaska to elephant in Africa. Most states allow the use of muzzle-loaders, and several have special seasons set aside for muzzleloaders only.

Those who hunt with muzzle-loading firearms generally fall into two broad categories—the hunter who uses primitive weapons so he can hunt more seasons, and the one who hunts with muzzleloaders to the exclusion of modern arms. The second hunter uses the old-type gun because he is attracted to the historical and traditional aspects of the sport. He likes to identify with his forefathers and with their traditions and values.

The black powder hunter feels a close relationship with the game he is hunting as well as the outdoors in general. He, like the bowhunter, feels that the use of primitive weapons puts him on more equal footing with his game.

The muzzleloading shooter must get closer to his target than modern riflemen. Because of this he must hone his stalking prowess to a higher degree. Matching of wits with denizens of the wild becomes more important than harvesting game. The real pleasure of a hunt comes, ultimately, from nature observed up close. *"Doc" Carlson, Izaak Walton League of America*



Getting involved

As March rolls around, the season's hunting lingers as memories of big bucks, fast birds, and tales of high times. All that remains is to pickle the gun and cut the cockleburs out of the dog's hair . . . at least for some hunters.

But sportsmen who value their outdoor privileges are getting involved in crucial work being done through local, state, and federal wildlife organizations. Groups like the National Wild Turkey Federation, Quail Unlimited, Ducks Unlimited, the National Wildlife Federation, and a host of others need the support of dedicated outdoorsmen who are willing to donate time and even money to important conservation and education programs.

Sportsmen need to be well-informed about issues involving the environment, as well as those which directly affect hunting, fishing, and trapping. Wildlife magazines and organization newsletters are valuable sources of such information. But many folks don't stop there. The 50,000-plus volunteer instructors who introduce youngsters to hunting every year exemplify the level of involvement needed to ensure the future of such sports. Other projects undertaken by sportsmen's and wildlife organizations include habitat development, legislative activities, and wildlife reintroduction programs.

All wildlife enthusiasts owe it to themselves and future outdoorsmen to get involved. Good intentions can only be implemented through organized effort.

Manes

Turkey trophies

Turkey hunters now may register trophy birds in the new wild turkey records program offered to members of the National Wild Turkey Federation. Body weight, spur length, beard length, and unusual characteristics of both sexes will be recorded. Any subspecies may be listed.

A Rio Grande turkey taken by Don McDonald of Howard during the 1983 fall firearms season appears to have claimed the world record for total beard length. Seven beards, growing in a row down the breast, totaled almost 30 inches. While the bird's wings stretched 50 inches, it weighed only 20 pounds, and had 3/4-inch spurs.

McDonald is a veteran turkey hunter, and an outstanding outdoorsman, according to Game Protector "Tiny" Wilnerd who works Elk County where the record turkey was harvested.

For information on wild turkey records, write: Wild Turkey Records, P.O. Box 530, Edgefield, South Carolina 29824.

Joining forces

Do the 83 million Americans who watch birds, photograph wildlife, and travel to national wildlife refuges support wildlife as well as sportsmen do?

The U.S. Fish and Wildlife Service is asking this question, as it investigates 18 potential sources of revenue that could be tapped to support state fish and wildlife programs.

This money would be used to support some of the nearly 3,700 vertebrate species, most of which are nongame not sought by sportsmen. These animals do not carry special distinctions or protections, such as endangered species and marine mammals and are not classed as feral species that have returned to the wild from domestication.

The effort to identify an equitable source of public funds is required by the Fish and Wildlife Conservation Act of 1980. The results, when presented to Congress, could lead to authorization of funding for state nongame programs. It is possible that the funding could take the form of an excise tax similar to the Pittman-Robertson and Dingell-Johnson Federal aid programs. Under these programs, sportsmen have been financing the conservation of game and many nongame animals for nearly 50 years.

Although federal income taxes and certain state taxes help to support some fish and wildlife management programs, sportsmen have traditionally carried the bulk of this financial responsibility. State fish and game management is supported largely by the sale of hunting and fishing licenses and supplemented by the Federal excise taxes on fishing and hunting gear. In 1983 alone, nearly \$140 million was returned to the states and U.S. territories under such federal aid programs, bolstering the \$484 million that fishermen and hunters paid for licenses and permits during the preceding year.

Nongame species benefit from sportsmen-financed management programs aimed at game animals. Habitat improved with Pittman-Robertson funds benefits all wildlife, both game and nongame, as does aquatic habitat development funded by Dingell-Johnson monies.

For these reasons, experts in wildlife management feel the time has come for the nonhunter and nonfisherman to

provide a larger share of the financial support required to conserve the nation's wildlife resources.

Potential revenue sources being examined by the U.S. Fish and Wildlife Service for state nongame programs include annual appropriations from general U.S. Treasury funds; fees on minerals extracted from federal lands and waters; the sale of semi-postal stamps to cover basic postage plus a contribution to nongame programs; user fees on selected federal lands and waters; a voluntary federal income tax check-off; and excise taxes on equipment associated with so-called nonconsumptive outdoor recreation.

Items which would be targeted in this special excise tax include bird seed, bird feeders, bird houses, backpacking and camping equipment, off-road vehicles, binoculars, wildlife identification books, recreational diving equipment, photographic equipment and film, travel trailers, campers and motorhomes. *Arkansas Game and Fish Commission*

Moose hunt ok

In what turned out to be one of the biggest off-year elections of Maine's history, some 300,000 voters went to the polls to decide whether moose hunting should be allowed to continue in the state.

The large turnout at the balloting stations added even more suspense to that which had been building across the state in the preceding weeks. Radio talk shows, television debates, and newspaper editorials focused on moose hunting.

When the votes were counted, a clear majority sided with the moose hunter. The final vote tallied 60 percent in favor of continuing the limited moose season and 40 percent opposed.

Warner Shedd, National Wildlife Federation's Regional Executive for Maine, said sportsmen throughout the state pulled together on the issue, helping to dispell arguments that continuing a limited season on the animal would endanger the species.

Spokesmen from S.M.O.O.S.A. (Save Maine's Only Official State Animal), the group which initiated the referendum, report their organization has no plans to bring the issue before the voters a second time. *National Wildlife Federation*

Passing it on

Dedicated members of the Kansas Bowhunter's Association, Inc. have been traveling the state, teaching young people about their sport. The educational curriculum, established by the International Bowhunter Education Foundation, teaches techniques, safety, and ethics of bowhunting.

Charlie Stevens of the Kansas Bowhunters says there is a need for additional volunteers who will teach new bowhunters the art of taking game with a bow. In an attempt to meet this need, an instructor certification course will be held in Great Bend on March 17. To qualify, an applicant must be an experienced bowhunter, at least 18 years old, with "an unquestionable record as a sportsman." Other qualifications also apply. For additional information, contact Charlie Stevens at Box 61, Cawker City, KS 67430, or (913) 781-4369.

Manes

Transgressions

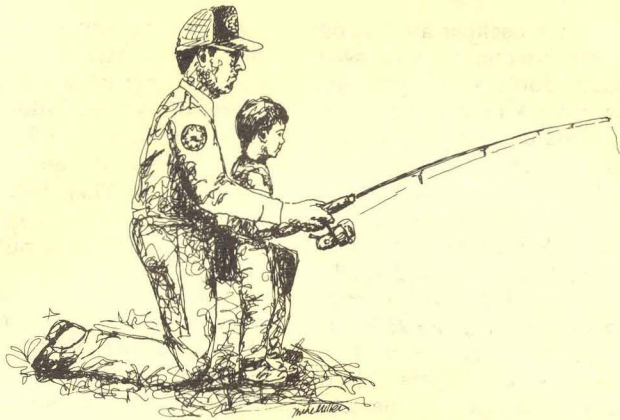
The following is a list of the most common violations from the 1983 firearms deer season in the order of greatest occurrence.

- 1) Hunt, take or possess deer illegally
- 2) Hunt with the aid of or from a vehicle
- 3) Hunt with an artificial light
- 4) Failure to tag a deer
- 5) Failure to wear hunter orange

Another problem, not represented by statistics, is that of falsification of deer permit applications. Some hunters, when successful in the 1982 drawing, and knowing their chances for 1983 permits would be reduced, made application under the name of another family member who did not intend to hunt. This is unethical and denies honest applicants a fair chance at the limited deer permits.

Wayne van Zwoll

FISHING



Teach a man to fish...

If it weren't for the likes of Mike McFadden and Doug Nygren, many city folks would never know the exhilaration of catching a fish. The two men are fisheries biologists, working for the Kansas Fish and Game Commission in Kansas City and Wichita. They devote their energy and imagination to providing angling opportunities for the people who inhabit Kansas' two largest metropolitan centers.

One of the most perplexing problems unique to urban fisheries is that many city-raised children have never held a fishing pole. Educating novice anglers is an important challenge for Nygren and McFadden. Throughout the warm months, they spend hours in classrooms and city parks, helping children and adults discover the joy of fishing.

Predictably, urban areas are plagued with a shortage of places to wet a line. Agreements with industries, local governments, and private individuals are aimed at opening new waters for public fishing.

Metropolitan lakes and streams receive the heaviest fishing pressure of all waters, necessitating almost continuous stocking. Annual releases in the two urban areas total about 90,000 keeper-size fish, including trout, carp, bullheads, black bass, white bass, flathead catfish, crappie, bluegill, walleye, drum, and most of all, channel catfish. Both

biologists note with enthusiasm that the new Milford Hatchery will help to satisfy their intense demand for fish.

The fish of the future in Kansas' urban waters may be a bluegill-green sunfish cross. Easily spawned and quick to grow, this species holds promise for put-and-take fisheries.

In just a few years, Kansas' urban fishing programs have achieved great success, providing many thousands of recreational days each year and increasing the environmental quality of urban life.

For additional information about the Kansas Urban Fishing Program, contact Doug Nygren at Box 4034, Wichita, KS 67204, (316) 832-9787; or Mike McFadden at Cloverleaf Bldg. 1, Suite 221, 6811 W. 63rd St., Shawnee Mission, KS 66202, (913) 722-6024.

Manes

Blood money

A Rapid City firm and the state of South Dakota have settled out of court for the poisoning of trout in a portion of Rapid Creek last summer.

A plumbing company paid the \$4,000 settlement after negotiations with the Department of Game, Fish and Parks and the Department of Water and Natural Resources.

The state felt the firm should be penalized for negligence in causing the fish kill. The incident occurred while the company was using chlorine to sanitize a water main. The discharge caused a large fish kill, including many catchable-size trout.

Bob Hanten, staff specialist in fisheries for Game, Fish and Parks, said the loss of the fish was not the only concern. "There was a considerable loss of recreational opportunity because of the fish kill. Food organisms, which the trout feed on, were also killed. Until these organisms have a chance to reestablish themselves, restocking would not be practical. Rapid Creek is a popular fishing area, and the people of South Dakota needed to be compensated for the loss. There was a need to obtain a settlement that would show our streams are regarded as valuable assets and will be vigorously protected by the state." *S.D. Dept. of Game, Fish and Parks*

Turtle laughed last

Like most fishermen, Missourian Bob Rothlisberger would like nothing better than to have a chuckle at his buddies' expense.

Fishing alone in a farm pond, he hooked the biggest bass he'd ever seen. Rothlisberger decided to hide the fish near water's edge, then invite his friends out for a day on the pond. When none of his fishing buddies were able to go that day, Rothlisberger went back to the pond to collect his fish. But he was beaten to the punch by a turtle, which had consumed much of the lunker bass.

The partly-eaten bass weighed an even 12 pounds. It is estimated the fish would have topped 13 pounds fresh-caught, threatening the long-standing Missouri record of 13 pounds, 14 ounces.

Somewhere a well-fed turtle laughs last and best. *Missouri Dept. of Conservation*

NATURE

Red wolf return

The red wolf has been eliminated from the wild, and less than 75 exist in captivity. That may change soon, however, due to state and federal restoration efforts. Under a proposal before the U.S. Fish and Wildlife Service, Kentucky and Tennessee wildlife agencies, and TVA, five pairs of red wolves would be released at Land Between the Lakes beginning in 1985. Before the reintroduction proposal is approved, meetings will be held to assess public reaction.

Biologists plan to fit some of the wolves with radio transmitters to monitor their activities and make sure the animals remain in the designated release area.

The red wolf's demise was caused by expanding human populations and extensive land clearing in the South, especially bottomland hardwoods. Not only did clearing help eliminate the wolf; it also created conditions which allowed the more adaptable coyote to expand eastward from its traditional prairie range. The small wolf readily inbred with the coyote and was in danger of being hybridized out of existence when the remaining pure individuals were captured. *Wildlife Management Institute*

Agent orange peel

A powerful insecticide that smells good and is harmless to the environment can be made from orange peelings. Tests have demonstrated the tremendous killing power of citrus oil against fire ants, flies, fleas, and wasps, say scientists at the University of Georgia. Researchers must isolate the insect-killing substance in citrus oil, before it can be produced in a laboratory. In raw form,

the crushed orange peelings are less potent than some insecticides now available. Scientists don't know yet how powerful the insect-killing citrus chemical will be, or the cost of producing it.

Another important step will be determining how many insect species are vulnerable to citrus oil. So far, the substance has killed all species tested, and there is no evidence that citrus oil is harmful to warm-blooded animals.

In one experiment, the scientists put an orange in a cage with flies. None died. After scratching the skin of the orange and replacing it in the cage, the flies acted ill within 15 minutes, and two hours later all were dead. *U.S.D.A.*

Spring whoopers

Each spring about 40 whooping cranes pass through a narrow corridor in central Kansas. They are returning from the Aransas Wildlife Refuge in south Texas to their summer range in Canada's Northwest Territories.

Only about 120 whooping cranes remain in the world, but that's a great

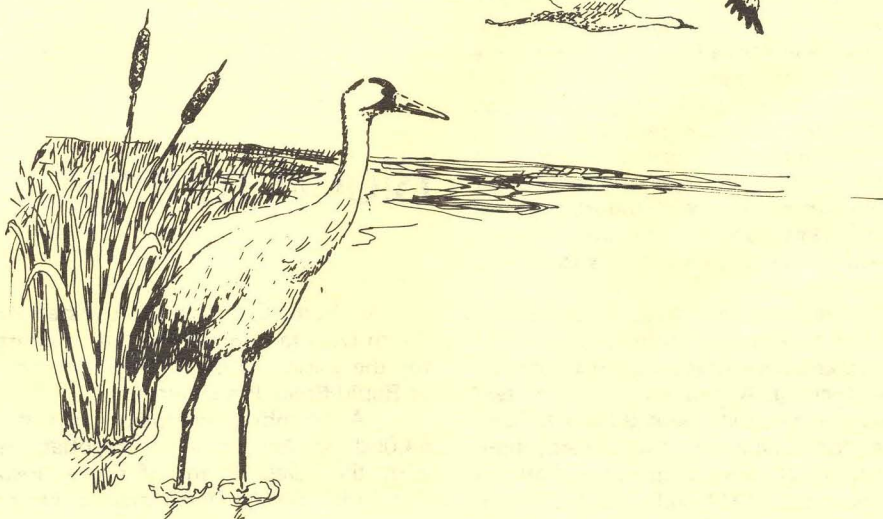
improvement over the mere 14 that existed just a few years ago. Biologists speculate that whoopers are the last survivors of an evolutionary path that ended during the Ice Age. It appears the long-legged birds are destined to become extinct. Their failure to adapt has put them at a disadvantage to other cranes, and they are out-competed for habitat.

Whooping cranes are among only a few species which remain as a result of man's efforts, rather than in spite of human activities. Protection of whooping crane habitat, radio telemetry studies, and aerial monitoring efforts have helped improve the whoopers' status. Production of young whooping cranes was extremely high in 1983.

Favorite whooping crane stopovers in Kansas are the Quivira Wildlife Refuge, Cheyenne Bottoms, and Wilson Reservoir, but the birds will roost in any nearby open water when they are ready to rest. Whoopers often land after dark and leave prior to first light, so ground sightings are rare. Long necks, white bodies, and black wing tips aid in identifying whooping cranes in flight.

Persons sighting whooping cranes should contact local Kansas Fish and Game personnel as soon as possible.

Manes



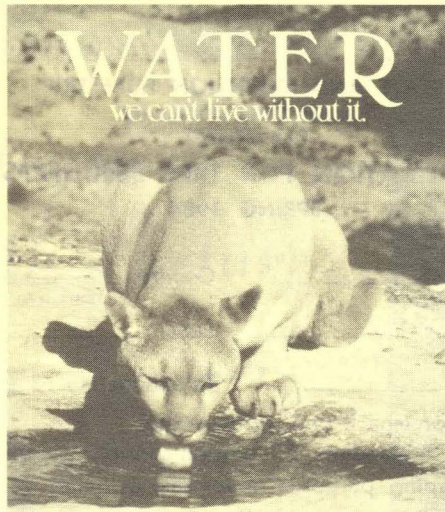
Water and wildlife

Water will be the focus of the 1984 National Wildlife Week, to be held March 18 through 24. Each year since 1938 the National Wildlife Federation and its state affiliates have sponsored the nationwide, educational event.

This year's theme, "Water—we can't live without it", spotlights what may be the most important natural resource crisis of all time. NWF educational materials, which are available to schools and organizations across the nation, cover basics of the hydrologic cycle, the importance of water to humans and wildlife, pollution, depletion, and solutions to water problems.

For additional information about National Wildlife Week and the National Wildlife Federation contact: The National Wildlife Federation, Department CEC, 1412 16th St. N.W., Washington, D.C. 20036.

Manes



Back yard refuge

Properly managed, a back yard can be a refuge for an astounding variety of wild animals.

Manes

The National Wildlife Federation offers a program aimed at establishing a system of miniature wildlife refuges in back yards across the nation. Guidelines for tree and shrub planting, landscaping plans, and tips on feeding birds and other wildlife are included in the materials received as a part of the enrollment in the Backyard Wildlife Program. Information gained through the program will provide an inventory of urban and suburban habitats.

The program's newsletter, *The Backyard Wildlifer*, features articles on a wide variety of subjects, including use of dead trees for desirable wildlife habitat, attracting unusual animals to back yards, and rehabilitation of injured animals.

To date, 36 Kansas yards have been enrolled in the Backyard Wildlife Program. Applications for enrollment are available from the National Wildlife Federation, 1412 16th St. N.W., Washington, D.C. 20036. Qualifying yards may be no larger than three acres, but no minimum size applies, "even a window box" will do.

SPECIAL NOTES

Poster contest

The theme of the 1984 National Hunting and Fishing Day Poster Contest, "How Sportsmen's Duck Stamp Dollars Help Wildlife", spotlights the importance of Federal Duck Stamp funds in conserving wildlife and coincides with the 50th anniversary of the Federal Duck Stamp program. National prizes totaling \$5,200 in U.S. Savings Bonds will be awarded to students who best illustrate the 1984 contest theme.

The National Hunting and Fishing Day Poster Contest is open to all students in grades five through twelve. So that youngsters can compete on a more equal basis, there is a Junior Division for grades five through eight and a Senior Division for grades nine through twelve.

In addition to the Grand Prize of the \$1,000 savings bond, national prizes include \$500 savings bonds for First Place, \$250 bonds for Second Place, and \$100 bonds for Third. First, Second, and Third Prizes will be awarded in both the Junior and Senior Divisions. Also, there will be ten Honorable Mention Prizes of \$75 savings bonds and 35 Merit Awards of \$50 savings bonds.

In order to be considered for national awards, entrants must first be winners in locally-sponsored National Hunting and Fishing Day Poster Contests. On the local level, contests can be organized by schools, sportsmen's clubs, conservation or civic groups, newspapers, or other organizations. Prizes for local winners may be awarded by the sponsoring organization. Winning posters should then be sent to National Hunting & Fishing Day Headquarters for judging by May 1, 1984.

For information on how to sponsor or participate in a local National Hunting & Fishing Day Poster Contest, write: NHF Day Poster Contest, P.O. Box 1075, Riverside, CT 06878.

Manes

Wisdom

"When the dawn wind stirs through the ancient cottonwoods, and gray light steals down from the hills . . . what if there is no more goose music?"

—Aldo Leopold

STATE AND EXTENSION FORESTRY
Kansas State University
 913-532-5752
APPLICATION FOR TREE SEEDLINGS
SPRING 1984



Name _____ County _____
(Where order is to be delivered.)

Address _____ Date _____

_____, Kansas Zip _____ Telephone No. _____
Area Code

I agree these seedlings will be used for (check one, primary use)
 windbreaks, field shelterbelts, woodlots, erosion control, wildlife habitat, or Christmas trees.
 I will **not** use these plants for landscaping purposes or for sale as living trees.

See Instructions on Back of Form

Bare root plants

- Total shrubs, evergreen and deciduous trees _____ @ \$12.00 per 50 \$ _____
- Total wildlife bundles _____ @ \$31.00 each \$ _____
- Small nongame wildlife bundles _____ @ \$7.50 each \$ _____
- Large nongame wildlife bundles _____ @ \$12.00 each \$ _____
- Special rate** (pine orders of 500 or more of a kind)
- Total pines _____ @ \$12.50 per 100 \$ _____

Container grown plants

- Total plants _____ @ \$24.00 per 30 \$ _____
- Special rate** (any species of 480 or more of one kind)
- _____ @ \$20.00 per 30 \$ _____

Stratified seeds

- Total seeds _____ @ \$6.50 per 100 \$ _____

Marking flags

- Total flags _____ @ \$6.00 per 100 \$ _____

TOTAL COST

X

Applicant Must Sign Here.

Do not write in this space

\$ _____ by Check _____ Cash _____ M.O. _____

PAYMENT RECEIVED
 STATE AND EXTENSION FORESTRY

By _____ Date _____

Order Number _____

Payment must accompany application.
 Make check payable to: State and Extension
 (No Sales Tax Required) Forestry

BARE ROOT PLANTS
 (Order in multiples of 50)

- Shrubs**
- _____ American plum
 - _____ Autumn olive
 - _____ Cotoneaster
 - _____ Fragrant sumac
 - _____ Honeysuckle
 - _____ Lilac
 - _____ Sand Hill Plum
- Evergreen trees**
- _____ Austrian pine
 - _____ Ponderosa pine
 - _____ Scotch pine
 - _____ White pine
 - _____ Eastern redcedar
 - _____ Arborvitae
- Deciduous trees**
- _____ Blacklocust
 - _____ Bur Oak
 - _____ Cottonwood
 - _____ Green ash
 - _____ Hackberry
 - _____ Honeylocust
 - _____ Lacebark elm
 - _____ Pecan
 - _____ Redbud
 - _____ Russian mulberry
 - _____ Russian olive
 - _____ Siberian elm
 - _____ Soft maple
 - _____ Black walnut

CONTAINER GROWN PLANTS
 (Order in multiples of 30)

- _____ Austrian pine
- _____ Scotch pine
- _____ Rocky Mountain juniper
- _____ Eastern redcedar

STRATIFIED SEEDS
 (Order in multiples of 100)

- _____ Black walnut
- _____ Pecan

WILDLIFE BUNDLES
 bundles (130 plants)

NONGAME WILDLIFE BUNDLES

- _____ Small bundles (15 plants)
- _____ Large bundles (30 plants)

MARKING FLAGS
 (Order in multiples of 100)

- _____ flags

Nursery License No. 5100

This is to certify that the nursery stock now being grown by Kansas State Extension Forester has been officially inspected and certified for sale in the state of Kansas.—State Entomologist.

From

STATE AND EXTENSION FORESTRY
Kansas State University
2610 Claflin Road
Manhattan, Kansas 66502

Do not write in this space

Order Number _____

County _____

(Please Type or Print)

Send to: _____

Street: _____
(Street or Rural Route No. for Delivery)

Town: _____, Kansas _____
Zip Code

Telephone: _____

LIVE TREES—PERISHABLE—KEEP FROM HEAT and FROST

IMPORTANT—Inspect contents and report claims immediately. Keep roots moist and seedlings in cool, shaded location until planting. If not planted within a few days, heel-in seedlings. Planting instructions in box.

I will pick up order in Manhattan.



David Case

The bitter winter wind hits me full force as I step onto the front porch to pick up the morning paper. I brush the snow off it as I scamper back into the house and head for my warm cup of coffee—and the fire that by now is starting to chase the chill out of the room. I open the paper. The headline in the outdoor column reads “Late Snows Threaten Game Birds.” Just last night I saw on the news that deer were starving in the Rocky Mountains because of winter storms. I begin to wonder what effect winter has on wildlife in Kansas. More questions pop into my mind—will mortality this winter influence my success afield next fall?

Are all types of wildlife affected the same? What, if anything, can be done to prevent winter mortality?

* * *

Most Kansans have probably asked themselves similar questions about wildlife and winter. Winter is a time of stress, and wild animals have evolved a variety of means of dealing with it. Some, such as groundhogs, frogs, and snakes, simply avoid winter altogether by hibernating. Many birds migrate south to warmer climates. Insects survive the winter months by becoming dormant or by migrating.

The wildlife species that don't leave Kansas or hibernate are left to tough it out. How well an animal population is going to survive through harsh winter weather will depend on a variety of factors, including the condition of the animals

prior to winter, how long the winter lasts, the temperature and chill factors throughout the winter, and the amount of snowfall.

Of critical importance to the survival of wildlife through the winter is habitat. Habitat, or the place an animal lives, has three components: food, water, and cover. The habitat requirements for wildlife vary from season to season. Hence, a good place for a quail to raise a brood in the spring may not necessarily be a good place for it to spend the winter. Food supplies are lower in winter than during the other seasons. What food is available is often of lesser quality or covered by snow and ice. The snow, ice, cold, and wind place increased energy demands on wildlife; thus, animals have to eat more to maintain their body weight. Much of the dense, lush vegetation of summer is gone

or matted down by snow. Without proper shelter to conceal them, animals may be more susceptible to predation. Cover becomes a critical factor in winter, and many species cannot survive the cold winds of the Kansas prairies without it.

Wildlife mortality due to winter weather conditions, or "winter-kill", can occur in a number of ways. Starvation may occur when food supplies are covered by ice or snow. Or, wildlife may die from prolonged cold even when food is available. Winter blizzards may freeze the mouths of animals shut, causing them to die of suffocation. Winter conditions can influence mortality indirectly by making animals more susceptible to factors such as predation, hunting, and highway accidents. Winter stress may also activate latent diseases, including rabies.

Studies have shown that winter affects each species differently. Conditions that may be extremely hazardous for one may be of no significance to another. An individual look at a few familiar animals in Kansas reveals some startling differences in how they are affected by the stresses of winter.

Bobwhite quail are very suscepti-

ble to winter-kill in Kansas. When conditions are right, storms can kill large numbers of birds in a relatively short time. Freezing rain or sleet can cause quail mortality by adhering to the feathers of the bird. When this happens, the feathers lose their insulating capabilities, and the birds die of exposure. Quail rendered flightless by frozen rain or sleet are also more susceptible to predation. Cold, windy, and snowy weather conditions can have a devastating impact on quail populations. When temperatures drop below 30°F the already-high energy requirements of quail may increase by as much as 25 to 50 percent. As a result, quail are forced to forage almost constantly to obtain enough food to keep their bodies going. Even when food is abundant and of high quality quail may not be able to keep up with their high energy needs. They will begin to use body fat and then muscle tissue as a source of energy and will eventually die if warmer temperatures do not arrive. When high winds are associated with cold temperatures this situation is made more difficult.

Quail are sometimes capable of keeping their body temperatures up under cold conditions by staying

close to the dark ground, where temperatures are slightly higher, and by remaining in open sunlight. But when the ground is covered with snow or the sky is cloudy for extended periods, quail populations may suffer accordingly. Snowfall not only lowers the temperature at quail height but may cover food sources as well. Unlike the larger ring-necked pheasant, quail are not able to scratch through deep snow for food. Studies have found that at below-freezing temperatures quail will die after only three days without food.

Roger Wells, Kansas Fish and Game small game biologist, estimates that the average overwinter quail mortality from all sources, including predation, is between 50 and 60 percent in Kansas. The severe Kansas winter in 1979 resulted in statewide winter mortality in excess of 80 percent. In the Flint Hills region the toll may have reached 90 percent.

The severity of the winter, and resulting winter mortality, will have a direct impact on quail populations the following fall. A severe winter will not only result in fewer birds surviving to the spring but may also influence the reproductive success

Energy reserves are in short supply during winter. This whitetail burns precious calories as it struggles through the ice toward shore.



Gene Brehm photo

Quail are very susceptible to cold and snow. These birds look cautiously optimistic as they bask in a March sun.



Gene Brehm photo

of females. Females that are emaciated and weak from winter stress will have less stored energy to devote to laying and incubating eggs and raising young, resulting in fewer chicks. It took three years for quail populations to rebuild to pre-1979 levels after that winter.

The quality of the habitat, especially cover, plays an important part in determining the extent of winter mortality in quail populations. Mortality can be minimized by ensuring that good, dense quail cover is present close to food sources. Landowners who want to provide quail habitat should leave a few rows of crops, such as milo or soybeans, standing in areas where quail spend the winter. Farmers can provide cover by leaving heavy grass or weed growth in field corners or by planting nonproductive waste areas to shrubs such as plum, fragrant sumac, autumn olive, or evergreens. Good winter quail habitat must be thick and brushy to offer protection from the elements. Roger Wells observes that: "A good winter area for quail will look like a jungle in the summer."

Artificially feeding wild quail to help them through Kansas winters is useful only on a limited scale. First, food must be in short supply or such efforts will be wasted. Second, one must know where the birds are spending most of their time, and place the food in that location. Obtaining this information is very time-consuming and not practical for most landowners.

Citizens often express concern over hunting when harsh winter weather begins to affect quail populations. It is sometimes suggested that the season should be closed. From a practical standpoint, the impact of closing the season would probably not be significant. In January, when quail first become stressed, the hunting pressure is usually quite low. Hence, the number of quail killed by hunters is minute compared to the number that die from winter stress. Also, closing the season statewide may not be useful, since often only cer-

tain portions of the state are affected.

Closing small plots of quail cover to hunting may be a practical way to maintain populations. If, for instance, a landowner has only one or two coveys on the property and wants to maintain them, a break in hunting pressure during severe weather will help ensure that some of the quail will survive to the breeding season.

When it comes to surviving Kansas winters, ring-necked pheasants are surprisingly hardy critters. Death by starvation is almost nonexistent for pheasants in Kansas, and even for pheasants in states further north. Pheasants are associated with agricultural areas where their favorite foods are abundant. When snow covers the ground pheasants can usually locate food by scratching through the snow or by feeding in wind-swept crop fields. Of great significance to winter survival of ring-necks is their ability to go without food for extended periods. Research conducted in Iowa and Minnesota indicated that pheasants could survive in cold weather without food for up to two weeks. As a result, pheasants are able to wait out most deep snow, as it rarely stays on the ground for extended periods in Kansas.

Pheasant mortality may occur during blizzard conditions when blowing snow or sleet freezes on the nasal openings (nares) of the birds, forcing them to open their mouths to breathe. Snow then plugs the mouth, and the birds die of suffocation. Although this type of mortality can be significant during severe blizzards, such storms occur infrequently. For instance, the blizzard this past November in northwest Kansas caused some pheasant mortality, but, according to pheasant biologist Randy Rodgers, the die-off was not substantial. It should be pointed out that most pheasants that succumb to suffocation usually do so during the storm, and birds that survive are no worse for the wear.

Pheasant mortality due to suffocation occurs most often when

pheasants do not have access to adequate winter cover. Given protection from strong winds and blowing snow, many pheasants will survive even the worst blizzard. So the key to minimizing winter-kill in Kansas pheasants is providing winter cover. In many parts of western Kansas this habitat component is conspicuously absent. Dense, weedy areas left in field corners or along fence rows will provide the needed cover. Fireweed, a common volunteer plant in wheat stubble, creates good winter habitat as well as excellent summer nesting and feeding habitat. Even areas of tall, dense grass will provide adequate winter cover. Grassy areas should be at least 20 to 30 feet wide, since snow will drift for 10 or 15 feet on the windward side.

Biologists feel that only in very exceptional years would winter mortality be more important than summer weather and habitat conditions in affecting fall populations of pheasants in Kansas. The number of cocks that will be available for the game bag in the fall is more a function of the hatching success than the severity of the previous winter. As a matter of fact, lots of snow during the winter increases the amount of moisture available in the spring. This, in turn, increases the amount of summer cover and food available to hens and their broods.

For big game animals in Kansas, winter brings a change in habits, but causes little direct mortality. Both whitetail and mule deer inhabit areas that have excellent spring, summer, and fall food supplies. By the time winter blows in full force Kansas deer are "fat and sassy" and well prepared for the worst conditions.

Big game biologist Keith Sexson says Kansas winter weather is rarely harsh enough (or lasts long enough) to affect deer populations. Winter food supplies are normally plentiful in the form of milo, corn, or wheat. Deer have no difficulty pawing through snow to expose food. When snow does, on occasion, become deep enough to cover crop residues,



Wayne van Zuoll photo

Deer feeding programs are not always good for the animals, but they can be beneficial during unusually severe weather.

sery-raised plants are more nutritious than the older, wild browse, and deer know it. Browsing on trees by deer can also be a major problem for orchardists who are trying to establish new fruit trees.

According to turkey biologist Terry Funk, the wild turkey population in Kansas has been growing steadily since the inception of a trap-and-transplant program by the Kansas Fish and Game Commission in 1966. Biologists feel the wild turkeys in Kansas, like deer and pronghorns, suffer little or no winter mortality.

Because of their large size, compared to other game birds like the pheasant or quail, turkeys are able to withstand cold temperatures and wind. In addition, these birds are rarely found in areas without adequate cover to protect them during blizzard conditions. In winter, turkeys will feed on milo, corn, and other agricultural crops and can easily scratch through snow or thin ice. When deep snow hits, turkeys are capable of switching to a diet of tree buds. Wild turkeys in Kansas are also quite willing to pilfer food from cattle feeding operations.

Prairie Chickens are true prairie inhabitants that are well adapted to the difficulties of winter. Of the small gamebirds in Kansas, the prairie chicken seems to be the one least affected by the hardships of winter. In fact, their habits don't seem to change significantly from fall to winter, except during blizzards. In the event a big blizzard whips across the flatlands, prairie chickens have a unique way of dealing with it. To get out of the wind and blowing snow, the prairie chicken can't head for heavy cover like the pheasant or quail, because there isn't much of it around. Instead, it just burrows into the snow. This tactic provides protection from the wind and insulation against the cold. Prairie chickens are adept at scratching through snow for food, but if the snow gets too deep, they

deer switch to feeding on the buds and twigs of woody plants. The supply of such browse is abundant and of high quality, since deer rarely have the need to deplete it.

Deer in the northern Great Lakes states don't have nearly as easy a time as do Kansas deer. In these areas deep snow and a lack of food can spell disaster for deer herds. Deer congregate each year in coniferous areas called "deer yards" to escape the blowing winds and deep snows. Food in the yards is scarce as a result of years of utilization by deer. In some areas of northern Michigan, Wisconsin, and Minnesota harsh winters may result in the starvation of thousands of deer. Hunting in these areas as well as in Kansas plays a key role in keeping

deer numbers in check so the range will not be over-utilized.

Pronghorn antelope, like deer, usually have no trouble finding food during the winter months. But because they inhabit the open plains, where little protection from the elements is provided, pronghorns may experience stress during severe winter storms. Still, direct mortality from winter weather is rare.

Ironically, the biggest issue concerning deer and winter is not deer mortality, but deer depredation on man's crops. Deer learn quickly that hay mounds out in the pasture are better chow than twigs along the creek. Deer are also fond of newly-planted shrubs and trees around farmsteads and suburban dwellings. The young twigs and buds of nur-

will switch to eating buds out of cottonwood trees.

Songbird populations are occasionally subjected to enormous die-offs when unexpected snow and ice storms hit their wintering grounds or interrupt migrations. In March 1904, a wet snowstorm killed millions of lapland longspurs during their northward migration through Iowa and Minnesota. An estimated 750,000 dead birds were found on two ice-covered lakes alone. Mass die-offs of songbirds and other small wildlife have occurred in Kansas when ice storms covered food plants for prolonged periods. For the most part, these catastrophic winter kills are rare. Research has indicated that, while the immediate effects of these storms may be great, the populations usually return to previous levels within a few years.

Nongame biologist Marvin Schwilling says that most songbirds that spend the winter in Kansas are well adapted to the cold and snow and, except in unusual circumstances, survive the winter in good shape. For example, in the warm months, the eastern bluebird lives almost exclusively on insects, but bluebirds wintering in Kansas switch to a diet of berries such as rose hips, bittersweet, juniper, or autumn olive. Raptors like the great horned owl, rough-legged hawk, and prairie falcon will be influenced by harsh winter weather but rarely suffer direct mortality as a result. The stressed animals they prey upon are easier to see and catch against a white background. Still, many of their prey species are hibernating or live under the snow, and thus are not available.

Fish can also be affected by harsh winters. When ponds, small lakes, and intermittent streams become frozen and covered with ice, sunlight does not penetrate the water. As a result, plants and phytoplankton die and cease to produce oxygen. The oxygen remaining in the

Some people argue that hunting seasons should be closed during hard winters. But birds that would winterkill are better harvested.

water is gradually used up by the fish and decomposing vegetation. If ice and snow cover the water for too long a period, fish will begin to die for lack of oxygen. Shallow ponds or streams are the most susceptible to this type of winter-kill. In addition, ponds that are over-populated with fish or that have excessive vegetation in them are likely candidates for a winter fish kill. Shad seem most prone to winter-kill, followed by gamefish like bass, crappie, and walleye. Catfish and carp are least susceptible.

The effects of winter on wildlife are neither simple nor clearly understood. Winter stresses can cause substantial mortality in some species, yet go unnoticed in others. A particularly severe winter may affect wildlife immediately through direct mortality or in more subtle ways by influencing reproduction and susceptibility to predation. Although some mortality is independent of habitat conditions, it is clear that habitat plays a critical role in

determining how certain wildlife, especially gamebirds, will survive winter. Without the proper habitat components, wildlife cannot live, reproduce, and provide Kansans with enjoyment.

* * *

Mud and water splatter the side of the car as I bump down the dirt road. The wind blowing in my wide-open window seems balmy—though the air temperature is only 50 degrees. The snow is gone, save a few inches where snowbanks once stood. The wheat seems longer since I last took note of it. I see a “V” of geese approaching from the south. Their arrival confirms what I had been thinking about all morning: spring is on its way. The bitter winds and snow of winter will soon be but memories. Some wild animals have succumbed to the hardships of another Kansas winter; most survived. I wonder, as I watch the geese head north, if they feel as relieved to see spring arrive as I do.



Alice van Zwoll photo



about me, about herself, about the world around us.

And so, to the creaking sounds and gentle motion of the wooden rocker, we talk about meaningful things that might otherwise never be considered.

I want her to know what I hear in the wind, that she may never believe it says nothing at all. I want her to grow up listening, that she may someday tell me what it says to her. I want her to know how the darkness feels to me—that it is not to be feared. I want her to know the questions I have as I gaze at the stars, that soon she may find answers as well. I want her to sense the pulse of the bluestem rustling in the dark, the breath of dawn whispering of the coming day.

nightwatch

Mike Blair

We'll marvel together at the season's change, and why green leaves turn red in the face of a northwest wind. We'll speak of the beauty of snow, and its coldness, and the hardships it brings to the land. We'll ask of each other: Who paints the sky; and where do the rivers go? Who calls the geese northward in spring; and how do fish live in the water?

Mike Miller illustration

Through the silent house we shuffle, to the big oak rocking chair by the window; and we sit together in darkness and look across the blackened fields and listen to the sounds of the night.

It is no accident that each of us are made like we are. She is content to gaze out the window, head on my shoulder, and listen, while the dim and distant moonlight tugs at the tides assailing my memory, drawing out the things I want her to know

Occasionally, at night, when the wind blows and dreams become too real for sleep, a little girl makes her way to my bedside, and together we go to a place that is somehow just right for such times.

In the darkness, in the quiet of the sleeping house, in hushed tones, we'll consider the ways of the natural world, and the One who made it.

Always too soon, it seems, the little girl fades away, back to the land of dreams, leaving me to search for the answers alone. But somewhere on the way, near the edge of sleep, she'll see the beauty and know the peace that makes the darkness a place of recognition, appreciation. And she, like me, will be changed.

hatchery help for walleyes

Mark Kumberg

Kansas waters hold a variety of gamefish, among them the malevolent-looking walleye. With its opaque, stony glare and a mouthful of sharp teeth, the walleye is, at first glance, a consummate predator. It is also one of the most delicious of fresh-water fish, and highly prized by sportsmen.

Walleyes existed in Kansas in the mid-1800's, but vanished soon after and were not successfully reintroduced until the 1960's. Now walleyes are a popular quarry in the lakes and reservoirs of our state. Their reestablishment, however, has not been just a matter of releasing brood stock in suitable habitat. Hatcheries—like the Fish and Game Commission's Pratt facility—give a needed boost to these fish during the spawning season.

Walleyes spawn in Kansas in March and April when the water temperature reaches 45 to 50 degrees Fahrenheit. In their natural habitat they usually spawn at night in rocky areas such as riprap along dam faces and deep, rocky shorelines. The males move into the spawning area first, followed by the females. Eggs are broadcast over rocks and gravel, where they settle into cracks and crevices, adhering to the substrate. The female leaves the spawning area immediately after the eggs are deposited, though the male may linger several days before leaving the spawning grounds. This

The walleye is one of our state's premier gamefish. This specimen is a dandy!

The natural mortality of walleye eggs and fry is extremely high. Much of it can be eliminated when biologists give spawning fish an assist. Here's how they do it.

Gene Brehm photo



Ron Spomer photo

in mid-April. Field biologists set trap nets along dams and in large reservoirs to collect broodstock. As the traps are checked, "ripe" (ready to spawn) females and males are placed in fish-hauling boxes on a boat and transported to the shore where the egg "stripping" process takes place. "Green" females (those with undeveloped ovaries) are immediately returned to the water.

Males are caught, held with one hand and "milked" with the other by applying pressure on the abdomen. Milt (sperm) forced out of the fish is caught in a shallow pan containing about an inch of water. The sperm is inactive until it comes in contact with either the chorionic fluid surrounding the egg or water. While this procedure is taking place, the ripe female is secured and readied for stripping. Eggs are forced from the female in a manner similar to that used on the males for sperm collection. Since sperm life is around 30 seconds and egg life one minute, timing is an important fac-

tor in this operation. When eggs and sperm are united, the sperm penetrates the egg through the micropyle (a small hole in the chorion), then moves into the egg proper where the actual exchange of genetic material occurs.

The eggs and milt are thoroughly mixed to allow proper fertilization. After several minutes Fullers Earth is added to the eggs to reduce their natural adhesiveness. Fullers Earth is a clay with an expanding lattice. It adheres to the eggs and absorbs water, thus coating the eggs with a layer of water which prevents them from sticking together or clumping. The clay is then washed away, and the eggs are left undisturbed for two to four hours to "water harden." The egg increases in size as hardening (absorbing water through the chorion or shell) takes place. Plastic bags in styrofoam boxes are then used to transport the eggs to the hatchery for hatching.

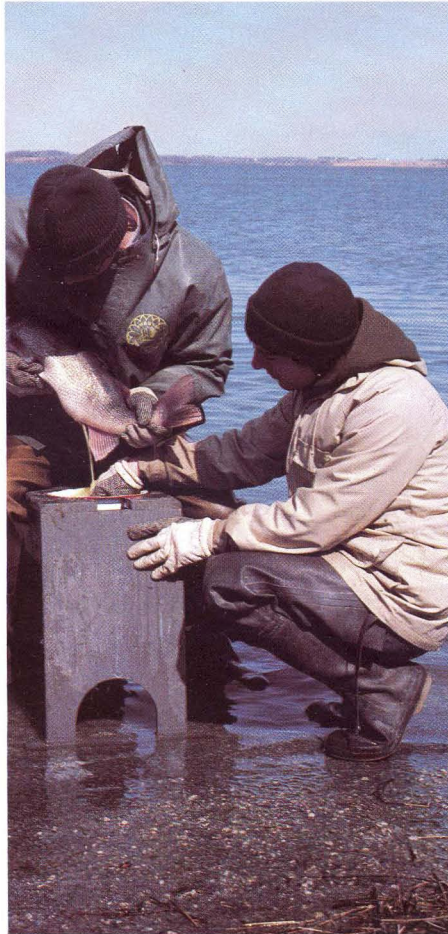
An alternative to spawning only ripe fish is to induce green fish to

Left to right: Nets are employed to catch walleyes that are ready to spawn. Eggs and sperm are stripped from the fish, then mixed well to ensure proper fertilization. Fullers Earth is added to prevent eggs from adhering to one another. Next, the eggs are washed and placed in plastic bags for transport to the hatchery.

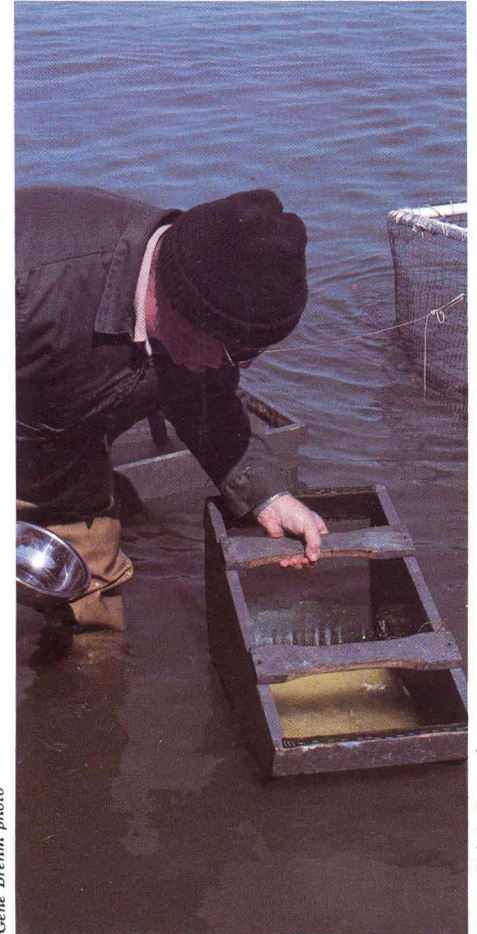
lack of parental care is the reason why walleyes must produce large numbers of eggs to regenerate their populations. The average female walleye produces 25,000 to 40,000 eggs per pound of weight. A large female may broadcast as many as 300,000 eggs!

In a natural situation, environmental hazards (fluctuating water temperatures, wave action, siltation) destroy many eggs; fewer than 20 percent normally hatch. For this reason artificial spawning and hatching are widely practiced to increase the egg survival rates. The result is more fry for restocking into reservoirs and lakes.

Spawning operations at the Pratt hatchery are timed to coincide with natural walleye spawning—usually beginning in mid-March and ending



Gene Brehm photo



Kansas Fish & Game photo

spawn. This method involves transporting the green females to the hatchery, injecting them at the base of the pelvic fin with varying rates of Chorionic Gonadotropin (CG), and waiting 24 to 72 hours for them to ripen. CG is a hormone which causes the eggs to mature more rapidly, hastening ovulation. The fish are checked twice daily for ripeness and stripped when ready.

When ripe fish are used, water is added to the bags of eggs soon after they reach the hatchery. This allows them to gradually warm up to the temperature of the hatchery water (60°F). The number of eggs is calculated after they've been placed in jars. These jars are graduated in milliliters, so the top layer of eggs establishes volume. A small sample of eggs is taken and counted, yielding the number of eggs per milliliter. Multiplying this by the volume gives the total number of eggs per jar. Each jar holds approximately 4000 milliliters—or half a million eggs. The hatchery capacity at Pratt is 60 jars, so nearly 30,000,000 eggs can be hatched at once.

During the initial stages of egg processing, water is piped down the center of the hatchery jars and upwells from the bottom, keeping the eggs in suspension, or “rolling” them. It is essential that eggs not be clumped. Clumped eggs sink to the bottom of the jars and become susceptible to fungus infections. Dead eggs are less dense than live eggs and rise to the top of the jar to be siphoned off regularly. The dead eggs not coming to the top are evaluated by taking random samples and applying a tenth of a percent of acetic acid to the samples. This acid causes the germinal disks of dead eggs to turn white, allowing for easy separation of live from dead eggs.

After the eggs have been held five days, the eyes of the fry become visible through the nearly-transparent

chorion. Hatching generally occurs on the eighth or ninth day. As the fry break out of the egg case, they swim and are carried upward by the water and out into troughs, which lead into large circular holding tanks. Sometimes, when lights are suddenly turned on at night, a phototactic response is triggered and hundreds of thousands of fry hatch at once.

The fry are held two to four days in the tanks—or until their mouthparts are well developed. They are then ready to be stocked into lakes, reservoirs, or hatchery ponds for rearing to large (usually fingerling) sizes. For shipping, the fry are

transferred to plastic bags in styrofoam boxes with water and oxygen added.

Since the hatching percentage at Pratt usually exceeds 50 percent, artificial hatching obviously results in more fry in our waters than natural spawning. By continuing their research and perfecting hatchery procedure, Kansas fish biologists will increase the efficiency by which walleyes are produced in our state. Thanks to sportsman-supported facilities like the Pratt hatchery, angling for these great sport fish will get even better in the future. Better, in fact, than nature herself could provide.




Kansas Fish & Game photo



Ron Spomer photo

Top: Eggs are transferred to graduated jars at the hatchery. Each jar holds roughly half a million eggs.

Bottom: Hatching time. About thirty million walleye fry can be handled at once in the Pratt facility.



new life for nongame

Joe Schaefer

Not all wildlife is pursued for sport. Many species are protected. Can we afford to manage these creatures? Can we afford not to?

What is wildlife? To a sportsman, it might be a deer or a pheasant, to an angler a big bass, to a bird-watcher a rare warbler. To a youngster, it may mean anything animate! Actually, the latter view is the most accurate. Wildlife *does* comprise many different life forms. To study or manage these, biologists break them into categories. One such category is nongame wildlife.

Nongame wildlife was defined in 1975 by the Kansas legislature as "any species of wildlife not legally classified as a game species, furbearer, threatened species, or endangered species." Every taxonomic class of animal has nongame members. About 400 species of nongame birds have been seen in Kansas, as well as 53 species of nongame mammals. About 100 nongame fish reside in our state, including 41 species of minnows and 17 of darters. There are 64 reptiles and 23 kinds of amphibians. Aquatic invertebrates (4,000 species) and insects (20,000 species) are the two largest nongame groups.

So why would the Fish and Game Commission be concerned with bats, bluebirds, and butterflies? Obviously no license moneys accrue from these species. And because the Commission receives most of its money from the sale of hunting and fishing licenses, it only makes sense to provide the best possible services for those paying the bills.

Well, first of all, this agency *has* directed much effort to achieving greatest sustained yields of game species, maximizing opportunities for the sportsmen supporting wildlife management and research. Still, nongame wildlife has never been completely neglected; all wildlife management practices designed to benefit game profit nongame creatures as well.

Non-consumptive use of wildlife resources is increasing. Some people actively pursue or attract animals to photograph, observe, or study. Others merely enjoy inci-

dental contact with these creatures while on a hunt, on the way to work, or in a city park. Of course, all Kansans benefit when predators help control pest populations on farms and in towns. Not all that we derive from wildlife is as tangible as a limit of pheasants, a 60-inch beaver blanket, or a 30-pound striped bass. Non-consumptive experiences with wildlife add variety and a sense of oneness with nature to our lives. They are easy to take for granted, but how uneventful and monotonous living would be without these experiences! Who can't thrill to the exuberant song of a meadowlark? Doesn't the sight of a bald eagle excite duck hunters and bird-watchers alike? Would we enjoy spring as much without crickets and frogs serenading at night? The Fish and Game Commission has reacted to this new sense of environmental awareness by developing a more holistic approach to wildlife management.

Some legal documents have also resulted from public concern for the environment. The 1973 National Endangered Species Act provided federal protection to rare plants and animals. This legislation brought attention to species which had re-

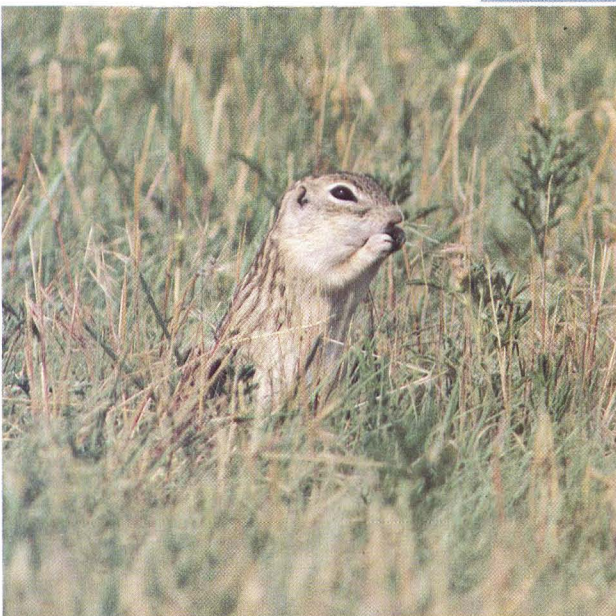
ceived hardly any in the past. It also provided federal financial assistance to state conservation agencies that passed similar legislation and entered into a cooperative agreement with the U.S. Fish and Wildlife Service. So in 1975, the Kansas legislature passed the Nongame and Endangered Species Act, which charged the Fish and Game Commission with conservation and management of all native wildlife. This is the first time the agency had authority to conduct activities designed primarily to benefit nongame species.

One new agency responsibility was preparing a list of wildlife in need of more intensive management or protection. The Commission then was to determine if species on the list were endangered or threatened. Endangered wildlife is "any species of wildlife whose continued existence as a viable component of the state's wild fauna is determined to be in jeopardy." Threatened wildlife is "any species of wildlife which appears likely, within the foreseeable future, to become an endangered species."

All species are adapted to unique habitat conditions, or niches, that provide for their specific living re-

quirements. If their requirements are limited in any way, then survival is adversely affected. Threatened and endangered species have not adapted well to various changes in their environments. In fact, habitat alteration is the major cause of endangerment. Kansas listed 16 endangered and 8 threatened wildlife species on May 1, 1980. This list will be revised as more information is obtained about our little-known species. A Nongame Wildlife Advisory Council was organized in 1980. Membership of the council consists of representatives from nine organizations: Kansas Biological Survey, Kansas Academy of Science, Kansas Farm Bureau, Kansas Chapter of the Wildlife Society, Kansas Wildflower Society, Kansas Wildlife Federation, Kansas Ornithological Society, Kansas Audubon Council, and Kansas Advisory Council on Environmental Education.

The last piece of legislation concerning nongame was passed on April 18, 1980. Governor John Carlin signed into law a state income tax mechanism (Chickadee Check-Off) to fund nongame management and research under the Kansas Nongame Wildlife Improvement Program. A line on the state indi-



Gene Brehm photo



Gene Brehm photo

Nongame wildlife can be rare, like the endangered whooping crane (above), or common, like the thirteen-lined ground squirrel (left). Both contribute to the quality of life we Kansans enjoy.



vidual income tax form now allows all people who work in Kansas to help nongame wildlife. The Chickadee Check-Off fund received \$128,788 during the 1981 tax season. In 1982, this amount increased to \$137,474.

With its Chickadee Check-Off program, Kansas played a leadership role by adopting an innovative solution to a problem confronting many state wildlife agencies. Only Colorado and Oregon had used this funding technique previously. In 1984, 28 states will receive contributions via similar tax check-off systems. Kansas compares favorably with other states in 1983 nongame funding, ranking 3rd in the average amount of each contribution. But with only two percent of its eligible taxpayers participating, our state ranks 13th in the total amount contributed. This suggests that Kansans who are aware of the Nongame Program support it enthusiastically—but also that more people must be informed of its existence.

Gene Brehm photo Some nongame species are striking in appearance. Northern orioles (left) build pendant-style nests. The poisonous coral snake has the same colors as the milk snake (below), but in a different arrangement: red and yellow bands are adjacent.



Gene Brehm photo

Not all nongame wildlife is gaudy. Great horned owls (top right) are common, though seldom seen during the day. There are few creatures better camouflaged than the homely bullfrog (bottom right).

Just where do Chickadee Check-Off funds go? Well, the moneys are funneled into five major subprograms in Kansas: Reintroductions, Habitat Improvement, Investigations, Education, and Urban . . .

Reintroductions

At least 22 species of wildlife that once were part of the state's fauna no longer reside in Kansas. But, wherever habitat is now available, reestablishment of some of these is being considered. Three nongame reintroduction projects have already been funded. In 1983, biologists began work to reestablish the swallow-tailed kite and mountain plover as summer residents in Kansas. Both projects involve transporting young birds into the state in hopes they will return to nest near the transplant sites.

The swallow-tailed kite reintroduction is being accomplished through a cross-fostering of nestlings into Mississippi kite nests. Originally, two young swallow-tailed kites were obtained from Florida, and one was successfully fledged in Meade County by Mississippi kite foster parents. The next year four more Florida swallow-tails were introduced into Butler County. One survived to be released. Though such a low survival rate seems discouraging, it is really not a deterrent to future introductions.

Mountain plovers fared better than the swallow-tails when introduced. In 1982, 50 young plovers were received from Colorado and placed in Wallace County. Survival was excellent. The birds fledged, formed small groups, and appeared to migrate normally. Eighteen more juvenile plovers were released in 1983. The release site and nesting areas are being monitored for return of these birds. No further releases are planned until the merits of this technique are evaluated.



Joe Schaefer photo



Gene Brehm photo

This past year eastern chipmunks were obtained from Missouri to establish a resident colony in the Emporia zoo. Two releases were made: 22 of the rodents in May and an additional 24 in June. Plans are being made to relocate these animals to other suitable areas in eastern Kansas.

Habitat Improvement

Habitat improvements usually are made by local Fish and Game staff

on both public and private land. These people have developed a rapport with the residents of their communities and, as professionals, can best determine the needs of native nongame wildlife. Check-Off money has been used to improve many state-owned lakes, parks, recreation areas, and nature centers. Activities range from the erection of artificial nest structures and perches to the planting of native vegetation. In addition to these projects, a great deal of technical assistance and ad-

vice is provided by Fish and Game staff to people who want to attract nongame wildlife to their back yards and other areas.

Investigations

The nongame program currently has 18 active investigative contracts that concern distribution and density of little-known species. Two well-known investigations are the annual midwinter Eagle Survey and the Whooping Crane Migration Survey. The former is part of a nationwide count coordinated by the National Wildlife Federation and organized in Kansas by the state Fish and Game Commission.

The world's entire population of whooping cranes comprises only about 144 individuals. Of these, 30 nest at Grays Lake in Idaho and winter in New Mexico. Approximately 78 others nest in Wood Buffalo National Park in Northern Alberta and migrate through Kansas to winter at Aransas National Wildlife Refuge on Texas' Gulf Coast. Since

1977, about 40 birds from the latter group have been color-marked, some equipped with radio transmitters. Radio-tracking data and chance sightings of color-marked birds have helped delineate the migration patterns of this species.

Education

Education is a vital part of all wildlife management. Educational materials—films, slide series, learning kits, posters, games, cassette tapes, pamphlets, and books—are available for loan to Kansas schools through the Wildlife Reference Center at the Fish and Game Commission's Pratt office. Wildlife information materials for children preschool through third grade were distributed to all Kansas elementary schools in 1983. Materials for fourth, fifth, and sixth grades should be available by spring of 1984. Nongame contributions have helped fund a number of books and other publications as well as reprints from KANSAS WILDLIFE magazine.

Urban

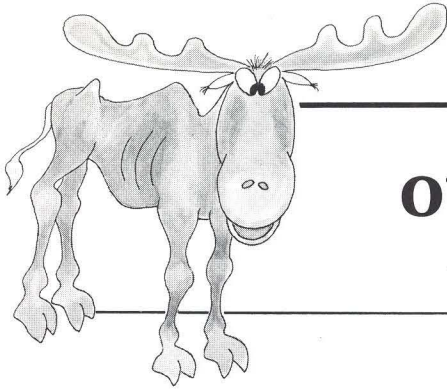
More than 60 percent of Kansas residents live in or around metropolitan areas. The goal of this subprogram is maximum appreciation of nongame wildlife in urban areas. Current projects include: educational presentations, local press releases, habitat and nature trail development in city- and county-owned parks, wildlife feeding and shelter workshops, bird feeder distribution, and bird-watching courses.

In summary, the purpose of the Kansas nongame program is to maintain habitat diversity and to support nongame wildlife populations at current or higher levels. If Kansans continue to "Do Something Wild" and contribute to the Chickadee Check-Off Fund, this goal will be achieved. We will then all enjoy a greater diversity in the wildlife we see and hear—the creatures that subtly, but undeniably, make our lives just a little brighter.

The value of a nongame program is nowhere so apparent as in a child's back yard. Teaching children about wildlife, inspiring them to appreciate and care for it, is not a classroom chore. Even the lowly turtle can work wonders in the minds of youngsters, who will someday be the stewards of our natural resources.



Joe Schaefer photo



off trail

... with Stub Snagbark®

Lately I've been deluged with requests for advice on a broad gamut of outdoor questions. This is understandable, considering my first brush with the Kansas news media some months ago.

I was sipping tea at a Chinese restaurant, wondering out loud why my fortune cookies always contained typographical errors, when a comely lass in a red kimono sidled over to my table and observed that I looked like I was enjoying my number four. I should have suspected something then. I'd ordered a number two, and had, indeed, enjoyed it; my plate was bare.

Anyway, we struck up a conversation, she toying with a cookie, I with a chopstick I'd splintered while trying to stab a shrimp. She seemed interested in my background and asked me all sorts of questions, some trivial, others of great import. Among the latter were queries on how to avoid getting trampled if you fall out of a tree stand into a rampaging herd of Holsteins, how to take a beaver trap off your wrist without the help of the scoutmaster whose troops you're instructing, and how to untangle a backlash from a "no fishing" sign in six seconds flat.

Since my extensive outdoor background covers not only these but various related topics, and since I once had a friend who looked good in red kimonos, I obliged the lady with detailed answers to all her questions. Too late I found that she was an undercover reporter on the Chinese restaurant beat, that her fortune cookie was a cleverly-disguised microphone, and that her kimono hid, among other things, a miniature tape recorder.

Well, the article appeared in a small weekly newspaper, and my mailbox was at once filled to overflowing with letters soliciting advice on everything from the mating habits of snapping turtles to the proper knot to employ while tying a

new mantel on a Coleman lantern in a blizzard.

To save my secretary the task of answering all such correspondence—as well as to free her up on Saturday evenings—I've elected to respond to the most common questions periodically in this column.

Q. Dear Stub: Why doesn't Kansas have a hunting season for bighorn sheep?

A. Quite simply because it would conflict with our fall turkey hunt. Bighorn sheep are coveted trophies and a season would no doubt draw large crowds into the hinterlands. Obviously, such pressure would disrupt the efforts of those stalking gobblers. Some thought was once given to a late bighorn hunt, but the idea was scrapped when an astute sportsman observed that opening day conflicted with the Superbowl.

Q. Stub, My son won't attend school regularly. On warm spring days he gets up early, grabs his spinning rod and a box full of black plastic worms, and spends all day at a nearby farm pond. I've tried talking to him about the problem, but with no success. Can you help?

A. You didn't say whether your son was fishing for bass or crappie. Plastic worms are OK for largemouths, though I prefer purple to black. If he's after crappie, though, his tackle selection is all wrong. I'd suggest professional counseling.

Q. Mr. Snagbark: Last fall I took my wife to the range to sight in our deer rifles. She outshot me. How can I prevent this from recurring?

A. The most obvious solution, of course, is to look for another wife. Should yours have qualities that override the above-mentioned fault, you might try the following: 1) Tell her to sight in her rifle alone. 2) Loosen her scope mount screws when she isn't looking. 3) Spray her

shooting glasses with black paint. If none of these works by itself, consider using them in combination. Practicing to improve your own score will, naturally, narrow the gap. In my experience, however, this technique just spurs unhealthy competition between spouses. And you may find yourself having to purchase new, more sophisticated shooting gear for your lovely.

Q. Dear Stub: I've long admired the photography in KANSAS WILDLIFE. How was the January/February cover photo taken? That's a big bunch of ducks!

A. It certainly is! And training all of them to fly to the camera at once was a big job!

Q. Dear Mr. Snagbark: Why is it that pheasants get up within range only when I'm halfway through a barbwire fence?

A. You're obviously a beginning bird hunter. Not only do roosters wait until you're in the fence, they generally time their rise to coincide with the top wire snagging your game pouch. This tradition is just a corollary to the well-known Murphy's Law—and almost as hard to circumvent. Still, you might try the following: Non-chalantly approach the fence, opening your shotgun action loudly. At the same time, step on your dog's foot so that he yelps. Then exclaim with all the consternation you can muster: "What's that boy? Are you caught in the fence *too*?" At this point, take a denim rag out of your shell vest and tear it. A creaking of the wires will add credibility to your performance. Remember to close your action before shooting!

If this fails, set up a barbwire fence at the number eight station on your local skeet range and practice shooting from the snagged position, closing your gun's action when you hear the trap. This won't endear you to other club members, but it does wonders for your handicap!

Q. Stub Snagbark: My husband is an outdoorsman, though I confess I know little about field sports. I'd like to learn enough to discuss hunting and fishing intelligently—but not so much that I threaten his ego. Can you give me any advice?

A. No.



Cover illustration by Mike Miller