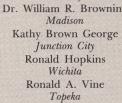


MAY/JUNE 1988



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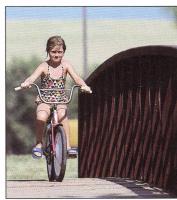


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About The Covers Front: A bluejay feeds its hungry young in an ap-ple tree in June. Mike Blair used a blind and fill-Blar used a blind and fill-flash to record the inti-mate moment. Shot with 105mm, f/22, 1/60. See re-lated story on Page 2. **Back:** Gene Brehm captured this close-up look of a fledgling golden eagle in its southwestern Kansas nest. Brehm used a 600mm lens and set his aperture at f/8, his shutter speed at 1/250. See re-lated story on Page 2.

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THE BUCK STOPS HERE

HIGH GROUND

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

THE BUCK STOPS HERE

Big Weekend In Kansas

n April 17, 1987, Gov. Mike Hayden signed a bill that permitted two free fishing days (no license required) and park-entrance days in Kansas each year. The two days this year are June 11-12. Why two free days? Quite simply, to get folks onto the water and into the state parks. These two days are an invitation to both residents and non-residents to get reacquainted with the joys of fishing and visiting the state parks. And to give adults who rarely fish a chance to introduce youngsters to the sport.

Free fishing and park entrance are good for the state economy, too. Kansas fishermen (more than 550,000 in 1985) and park-goers spend money on fishing tackle, food, gas and motels. And the Kansas Department of Wildlife and Parks benefits in the long-run because the weekend will attract new folks to freshwater fishing and the state parks system.

Activities for that weekend are still being planned as this issue goes to press. A related story and partial listing of events based at the state parks is found on Page 26. One of the fishing activities slated for June 11 is a Dodge City fishing clinic and contest. The program includes a senior citizens fishing contest from 8-10 A. M. followed by three youth clinics (ages 3-8, 9-12 and 13-16) from 10:30 A.M. to 5 P.M. For more information, call the Dodge City office at 316-227-8609.

Don't forget those dates — June 11-12 — free fishing and park-entrance days.

*

This is the second issue of KANSAS WILDLIFE & PARKS magazine, formerly known as KANSAS WILDLIFE. Your comments on the new name and area of coverage have been mostly favorable. But one Lawrence reader wrote to say that he didn't like the new name. Or area of coverage: The letter reads:

Editor:

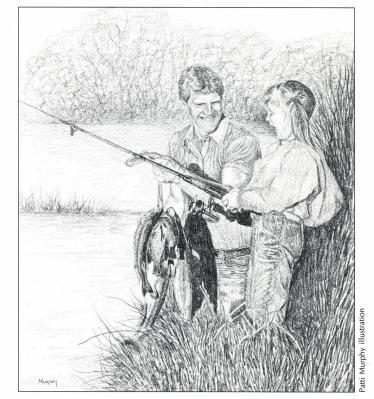
What happened?!! I subscribed to KANSAS WILDLIFE, a wonderful magazine, and have instead received the March/April issue of KANSAS PARKS with a 14-page wildlife insert.

Please give us back our magazine!

The letter brings a smile to my face as I can envision the reader drafting his comment with tongue firmly entrenched in cheek. Maybe.

Still, the point may need addressing one more time. The name change from KANSAS WILDLIFE to KANSAS WILDLIFE & PARKS was done to reflect this agency's new area of responsibility. Gone are the Kansas Fish and Game Commission and the Kansas State Park and Resources Authority. In its place, Gov. Hayden has created the Kansas Department of Wildlife and Parks. The magazine title change reflects this new direction.

Parks coverage will be part of this magazine, no question, but the reader is wrong to assume, if indeed he does, that half of every issue will be devoted to state parks. The 16page special section in last issue was a kickoff, so to speak, to introduce you to the state parks system. Those 16 pages



provide a general description of the 24 state parks, a map to show locations as well as a listing of facilities and phone numbers to call for more information. Reprints are available at state parks and regional offices.

This issue, you will find, features a story on El Dorado State Park in addition to a May/June calendar of events for several other parks. But call this magazine KANSAS PARKS, as our needling reader suggests? Hardly.

We will, as the need arises, run longer-than-normal stories, photo essays or sections in KANSAS WILDLIFE & PARKS. But the goal of each issue is to provide a balance of stories. For you, this means a variety of topics to read and enjoy. Wildlife stories and sharp, color photography will always be at the heart of this magazine. Hunting and fishing topics, nongame species, conservation, management and natural resources will remain major areas of coverage. And beginning with the March/April issue, so will the state parks.

Paul G. Koenig Editor



Nestling bluejays - June

The Nesting Season

text and photos by Mike Blair Staff Photographer

And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth. . . Genesis 1:22 The music of spring heralds the nesting season. Borne on the voices of singing birds, a thousand melodies greet each dawn. There is meaning in the anthems; from claims of territorial ownership, to the beautiful and precisely timed courtship duets between sexes of some species, birdsong celebrates the coming of warmth and new life.

From the owls of mid-January to the goldfinches of September, days of the nesting season are filled with an urgency to rear the next generation.

Nests are built in secret, hidden from potential foes and the sun's lethal rays. Construction plans and materials vary. From occupancy of a hollow tree limb, to crude twig platforms, to elaborate hanging baskets, each species follows its instincts to create a nursery for its young.

Snake skins, horsehair, kite string, plastic, rootlets, grasses, sticks and feathers — any pliable material is useful in nest building.

Eggs vary from one to many. Of every size and delicate color, they are keys to avian survival. If eggs are broken or robbed, the parents will often nest again. In many species, two or even three broods will be raised before work is halted by shortening days.

Incubation is an arduous task, commonly lasting about two weeks. The female must be fed on the nest or spelled by her mate as she forages. Dictated by species, turns at the nest may last 12 hours. With some birds such as woodpeckers, the male often incubates during the night.

Hatchlings require enormous amounts of food, and parents rest little on 16-hour summer days. For several weeks the pace continues — a mixture of hunting, nest-cleaning and defending the young.

As nestlings mature, their home grows crowded. Heat and insects bring extra hardships. Then almost magically in a score of days, they are free to occupy the aerial environment they were born for.

Training continues for a week or more. At first, parents feed the fledglings in their hiding places, answering hungry chirps. But as the young grow stronger, they are taught to hunt on their own and eventually dismissed.

Now they must survive alone. Wearing drab juvenile plumage, they learn for themselves in a time of plenty. As seasons change, they follow the sun to warmer climes or set up residence in winter homes.

Then, dressed in the beautiful colors of adulthood, they return to multiply in the earth once more.



Sandhill cranes - April





Dickcissel — June

Redwing blackbird — April

Courtship behavior is expressed in many ways. Sandhill cranes enact elaborate dances on stopovers during migration, while smaller birds rely on song, colorful plumage and visual displays to attract a mate.

English sparrow - May





Northern orioles - July

Fighting is common on breeding grounds as males guard choice nesting sites. Areas defended vary from a few square yards to many acres. With orioles, aggressive males may drive off even potential mates during the first days of territorial establishment.

Nests take many forms and may be found from the ground to heights of 100 feet or more. Construction may be a shared task but is often conducted by the female alone. Here an unusually marked robin collects straw for her nest.



Robin - June



Mockingbird eggs - June

Egg color and number are characteristic for each species, though slight variations occur. The female commonly lays an egg a day until the clutch is complete, then starts incubation so all eggs hatch at once. If incubation begins when the first egg is laid, the brood will be staggered in size.

The brown-headed cowbird makes no nest, but parasitizes active nests it finds unguarded. Eating a host egg and removing the shell, the cowbird replaces it with one of her own. On returning, the host may destroy the foreign egg, accept and brood it normally or build a new nest and start again. Cowbirds lay an average of 40 eggs a season, but only two or three reach maturity.



Killdeer eggs - May





Killdeer feigning injury - June

Some birds sit motionless on the nest when danger is near, relying on camouflage to hide them. Others flee instantly, sneaking away undetected. Still others feign injury, flapping the ground with the promise of an easy meal — and leading intruders away from their young.

Incubation may be shared by both parents or tended solely by the female, who is fed by her mate. Rhythms vary. House wrens spend only 12 of every 20 minutes on the nest, while female goldfinches rarely leave, incubating 95 percent of each day. Incubation usually lasts 12-14 days. When eggs hatch, the naked young are brooded until covered with down. Brooding chores may be shared by both parents, or the male must feed his mate as she tends the young. Later, both parents provide for the nestlings.



Bluejay — July



House wren - July



Mourning doves — July

Maternal instincts are strong, but sometimes mistakes occur. Doves commonly lay two eggs before incubating, but in this case (at left) a single egg was hatched before a second was laid. As the first dependent left the nest, the mother was forced to abandon the younger chick. That chick starved, indicating the second parent had also perished.

Young birds have ravenous appetites, growing to fledglings in two to three weeks. Feeding intervals vary, but in songbirds average every 8-10 minutes throughout the day. Many species rest for an hour at midday.

Barn swallows - July





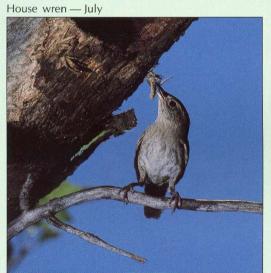
Eastern kingbird shading young - July

Parent birds spend most of their time hunting food, but other chores are also necessary. When sunlight strikes the nest, an adult may provide shade for its young with a drooping wing. Afternoon heat is nearly unbearable at times. Among steamy foliage, young birds have no choice but to await sundown with gaping mouths. Many foods are available for nesting birds. Fruits, berries, insects, spiders, crustaceans — even small snakes afford protein for small species. Larger birds use bigger prey.

Insects may be dismembered for easier swallowing by young birds. Removal of wings from a cutworm moth (middle photo at left) takes little away from its nutritional value.

Life for nesting birds isn't always easy. A handicapped female bluebird (bottom left) successfully raised two broods in a hollow apple tree last season, in spite of a badly deformed left foot.

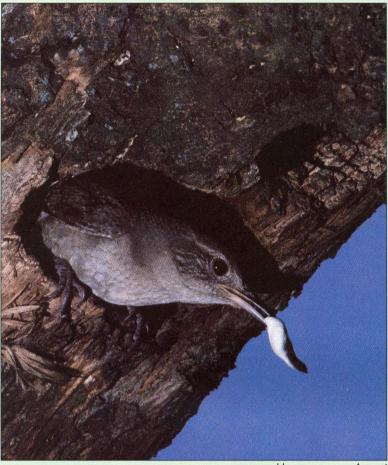
Brown thrashers - June



Bluebird — June







Mockingbird defending nest - July

House wren — August



Nests are often vigorously defended by parent birds. Swooping and screaming, some species physically attack all intruders. In the case of owls and other raptors, such attacks may cause serious injury.

A fledgling is a young bird that has left the nest but is still dependent on its parents for some or all of its food. This stage may last a few days or as long as two months. Bluejays have a long fledgling period; some may be seen fully grown in September, still begging food from their parents. Most bird species keep tidy nests by removing the feces of their young. A sanitary advantage, this also avoids whitewashed nests that might attract the attention of predators. Feeding stimulates young birds to void excrement, and parents wait expectantly after provisioning their young. Fecal sacs are taken directly and not permitted to touch the nest. When small, feces are simply swallowed; later they are carried from the nest and dropped.

Fledgling bluejay — July





The first few days after leaving the nest, young birds practice flying and beg loudly for food. Predation is high during this period. Danger subsides as the fledglings grow stronger. Parents teach hunting skills, first luring their young from perches to obtain a handout and later decreasing rations so the young must follow them on hunting forays. Prey may be crippled by adult birds, allowing the fledglings to catch and kill for themselves. Proficiency increases, and the young gradually become independent.

Eastern kingbird fledgling - July



Redwing blackbird — June Western kingbirds — July



Abandoned nest - December



El Dorado State Park: Pike's Paradise

El Dorado, one of the Kansas state parks, is home to some neat attractions. Haven't visited there? You should.

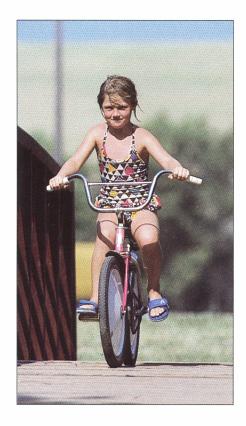
> by Martha J. Daniels Information Representative Valley Center

> photos by Mike Blair

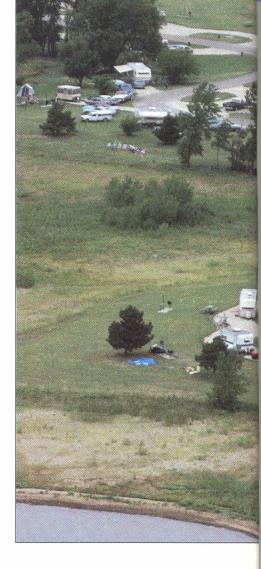
Zebulon Pike was downright impressed after he crossed the rough Flint Hills and rested for a spell on the banks of the Walnut River. And although his feet were blistered and sore from the trek, he later painted yarns of the clear streams and land he referred to as a hunter's paradise.

Well, that was back in 1806, and I'm betting that if Zeb could have stumbled up to the blue waters of El Dorado Reservoir, there'd be a mountain in Colorado with a name like Horatio's Peak, and Zeb would have soaked his sore feet in Kansas permanently.

About 1 million visitors, whether they know it, travel each year to a part of Zeb's paradise. But let's back up a moment to the beginning of El Dorado Reservoir. The U.S. Army Corps of Engineers constructed the lake to prevent flooding of the Walnut River Valley as well as provide both a local water supply and public recreation. One of the newest reservoirs in Kansas, El Dorado lies









The camera provides a scenic view of one of El Dorado State Park's four campgrounds. There are many things to do at this eastern Kansas state park. Some of the activities include riding a bike (bottom left) and watching jet skiers enjoy their sport.



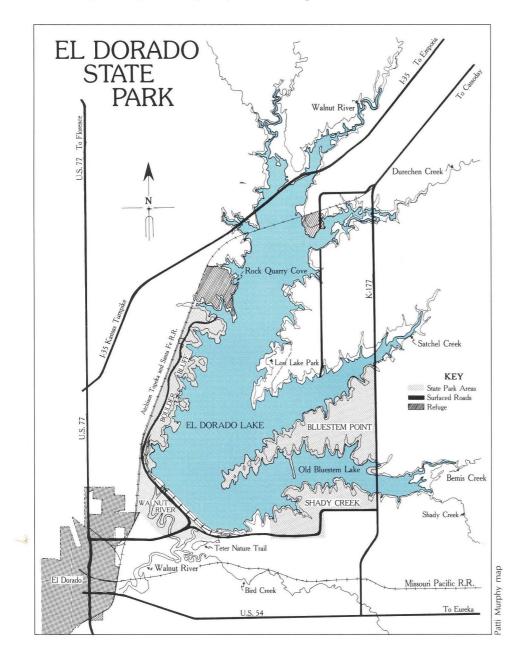
just two miles northeast of the city with like name.

The year was 1981 when the lake started growing. The dam gates were closed, and four years later El Dorado hit the full mark. At conservation pool, the lake is about 8,000 acres with almost 100 miles of shore and an average depth of 19 feet. Around this little lake are more than 3,000 acres of wildlife area and almost 4,000 acres of state park. OK, enough trivia. On to the fun stuff.

When it comes to outdoor activities, El Dorado State Park has some features that keep folks coming year-round. The main drawing card is the nearness of its sites to the water. Since the lake level fluctuates very little, camping and picnic areas were built right at the lake's edge. Plus, there's plenty of space to separate park-users. Camping sites are convenient; many of the level pads have pull-through loops.

Four park areas surround the southern end of the lake: Shady Creek, Bluestem Point, Boulder Bluff and Walnut River. 1987 was the first year all areas were opened for use, so the park can claim modern facilities.

Looking for a camping area? All of Bluestem Point and portions of Walnut River and Boulder Bluff are equipped for campers. Walnut River is the most popular. There are more than 1,000 spots with a camping pad, grill and picnic table. And for those of you who need a plug-in, there are about 475 electrical hook-ups. Water and sewage facilities are open from mid-March through Nov. 15. Tent campers can find primitive areas in Bluestem Point



and Boulder Bluff. And since tent camping is gaining in popularity, the state park is planning to add more tent campsites.

El Dorado State Park maintains a friendly atmosphere as well; camp hosts see to that. Serving as fee collectors, camp hosts also offer assistance and a wealth of local information to their guests.

El Dorado is one of the highest dayuse parks in the state, and there's 250 picnic spots to accommodate. Shady Creek Park is open to picnicking only, while Walnut River and Boulder Bluff each have several areas with tables and grills. Swimmers have two beaches at the state park to choose from. Walnut River and Bluestem Point both have marked swim areas. And, for all users, there are numerous shower areas, restrooms and water hydrants. The wildlife area at the north end of the lake is open only to day-use.

The reservoir has had a real boost from the local folks, too. El Dorado's Chamber of Commerce has sponsored the Prairie Port Festival, Independence Day fireworks and other events. Prairie Port activities are held both at the state park and in the community.

H l Dorado's water is clear. The Flint Hills grasses filter the rain and snow, resulting in water that is a striking hue of blue. All of which makes for some enjoyable boating.

Sailing is picking up on the lake; an increasing number of folks are joining the Walnut Valley Sailing Club and participating in regattas. Water skiing on the main lake keeps things astir, and the number of jet skiers and parasailers continues to grow. Check with the marina operator for the best SCUBA diving areas.

And boat owners, the state park is set with three four-lane ramps and one two-laner, while the wildlife area has two ramps. A private marina is located in Shady Creek Park.

Now for a look at El Dorado's fish population. The lake is stocked with all three species of black bass (largemouth, smallmouth and spotted), bluegill, crappie, walleye and channel catfish. Numbers of most species are good. To help keep the fish world in check, a 15-inch length limit is set for all black bass.

For a different fishing challenge, try seeking out the smallmouths. Most are

El Dorado 1988 Fishing Forecast

FISH	CONDITIONS	AVERAGE SIZE	SEASON	FISHING TECHNIQUES	LOCATION
Largemouth bass	Good	*12-15 inches	May	Casting with surface lures and spinnerbaits.	Spawning areas along the shores and in coves. Fish in 3-4 feet of water.
	Fair to good	*12-15 inches	Summer	Trolling, casting and drifting with a plastic worm or deep- diving lure.	Off the points in creek chan- nels, standing timber and deep water.
Smallmouth bass	Good	*8-12 inches	Mid-April to the first of May	Cast in rocky areas using jigs, deep-diving lures and any bait that resembles a crayfish.	Spawning areas along the face of the dam and rocky outcrops.
Bluegill and green sunfish	Fair to good	6-8 inches	All season but best during May spawn	Cast live bait along the shore- line. Worms are best, also crickets.	Throughout the lake in spots with slowly sloping shoreline, especially around weedbeds.
Crappie (black & white)	Good	8-10 inches	April-May	Minnows and jigs (rubber- tailed are best) cast along the shore.	Throughout the lake, but be sure to try off the face of the dam and in Rock Quarry Cove.
	Good	8-10 inches	Summer	Casting minnows and jigs.	Standing timber in the middle of the lake and around attractors.
White bass	Fair	1½-2 pounds	Mid- March	Use spinners, jigs and spoons.	Below riffles and creeks flow- ing into the lake. Spawning runs occur up the Walnut River and some of the creeks — Bemis, Durechen and Satchel.
Walleye	Fair	4-5 pounds	Mid- March to April spawning season	Use jigs and cast parallel to shore. At night try minnow- imitation lures.	Off the face of the dam in 2-3 feet of water.
			June	Drifting or trolling with minnows.	Fish the flats in 8-10 feet of water.
Channel catfish	Excellent	3 pounds	All season	Bait up with worms, crayfish, stinkbaits, cheese baits and es- pecially shad sides or fresh shad. Drift the bottom, fish along shorelines or try limb lines and trotlines.	Throughout the lake. Coves at the upper end are best.
Flathead catfish	Fair	Up to 40 pounds	All season	Bait setlines and rod and reels with large sunfish and goldfish.	Old creek channels are good, with the upper end of old Bluestem Lake as the hotspot.
Carp	Good	3-5 pounds	Summer	Fish along the shoreline with worms, corn and dough balls.	Throughout the lake.

*A length limit is in effect at El Dorado Reservoir for black bass. Bass under 15 inches must be returned to the water.

EL DORADO: A NATURAL CALENDAR

While you're visiting El Dorado Reservoir, take time to seek out some of these natural events and features.

SPRING

MOREL MUSHROOMS pop up in damp wooded areas surrounding El Dorado Reservoir. Look for the spongy fungi in mid-April. WILDFLOWERS carpet the woodland floor in Walnut River Park and along Teter Nature Trail. May apples, Dutchman's breeches, trout lilies, wood violets and blue flox are the early bloomers. Around the first of May, WARBLERS wander through the area — black and white, prothonotary and yellow-rumped — to name a few of the varieties. Watch for them catching insects in oaks and sycamores throughout the woods of Walnut River Park. There's a PAWPAW patch along Teter Natural Trail. Pawpaws are an understory tree that can be found in the woods at the west end of the trail. Their leathery red blooms appear in mid-April; the fruits ripen in late September.

SUMMER

CANADA GEESE, the giant kind, nest around the lake and creeks of El Dorado in mid-March. Occasionally they'll bring their downy broods in the camping and picnic areas. The geese frequent Boulder Bluff and Bluestem Point areas and may be seen year-round. The rocky outcroppings around Rock Quarry Cove offer a chance to see LIZARDS and other reptiles. Watch for critters such as the collared lizard. (Not to worry, the only poisonous snake known to El Dorado is the massasauga rattlesnake, a native of moist grasslands.) HERONS and EGRETS hang around the quiet, shallow waters in summer, feeding on fish and other water animals. They stand silent in the water, waiting to spear a meal.

FALL

During October and also in April and May, WHITE PELICANS stop at the lake. They winter along the southern coast and nest up north in central Canada. Pelicans fish in the coves and shallow water at the upper end of the reservoir. Fishing is often done in flocks, and meals are scooped up in the large beak. DUCKS and GEESE make pit stops at the lake, too. You can see a collection of mallards, pintails, teal, mergansers and other waterfowl along the dam and near the refuge in spring and fall.

WINTER

From late December through early February, BALD EAGLES may be seen perched in trees close to water. Check the snags in the lake north of the overlook by the dam and east of the old Bluestem Lake dam. They'll hang around as long as there are weak fowl for food. WILD TURKEYS venture into fields and grasslands to feed at the upper end of the lake and south of Walnut River Park. Grain fields also attract PRAIRIE CHICKENS in large numbers. Winter brings these birds to El Dorado Wildlife Area, where they feed in the morning and evening.

8-12 inches in size (catch and release), but there are also good numbers of smallmouths ranging up to 20 inches. Big smallmouths are more elusive and tend to hang around the rocky areas in water 12-20 feet deep. These areas are found off the face of the dam, at rocky points, in Rock Quarry Cove and at the mouth of Sailboat Cove.

A few white bass appeared at El Dorado in 1985, and the population's been expanding ever since. In mid-March the fish begin staging to make spawning runs up Bemis, Durechen and Satchel creeks and the Walnut River.

When the lake was built, about half of the timber was left standing and fish attractors were made throughout El Dorado. But when it comes to seeking cover, the greatest number of fish congregate in the standing timber of the main lake and at the attractors (m. ked with buoys) in the old Bluestem Like.

Some specific fishing areas worth

putting a star by are Rock Quarry Cove and the outlet below the dam. The quarry, located just north of Boulder Bluff Park, is about 30-40 feet deep and has some good shoreline fishing for crappie and smallmouths. Just after or during a water release from the reservoir, the outlet below the dam can provide good fishing for crappie, channel catfish and, in spring, walleye.

Before the time of Pike, the area was a hunting and farming ground for the Wichita Indians, and later the Osage. The prairie offered bison, turkey, elk and plenty of beaver to sell to fur traders.

Today hunters can find a variety of wildlife — deer, quail, dove, turkey, prairie chickens and waterfowl. The chances of finding greater prairie chickens are excellent at the wildlife area, perhaps some of the best public hunting in the state for greaters. Wild turkeys are also abundant on the area. Skeins of waterfowl take a break at El Dorado during their fall migration. Some of the birds nest locally. The refuge has served as a base for the growing flock of giant Canada geese. Honkers were first brought to the lake in 1984 as a part of the state's restoration project. Large numbers of pintails, mallards and teal also duck into El Dorado.

While you're at the state park and reservoir, take a few minutes to traipse along the Teter Nature Trail. The three-quarter-mile hike was set up by the Butler County Historical Society and takes you on a short trip through bluestem prairie, woodland and riparian habitats. In the spring, prairie and woodland wildflowers make a spectacle.

The next time you wander across the Flint Hills and find yourself in the footsteps of Pike, take time to enjoy the land, water and wildlife that's become a Kansas paragon.



Personnel: A Personal Touch

Looking for a job with Wildlife & Parks? Need to discuss your pension? Benefits? Personnel has a personal answer.

> by Lola Tritt Personnel Management Specialist Pratt

photos by Mike Blair

T T ow can I get on with this outfit?"

"We're ready to fill the maintenance conservation worker position in Osage County. How quickly can we move on that?"

"My doctor says I'm no longer able to do my job. What am I going to do now?"

"When am I going to get a raise?"

66

These are frequently asked questions in the Personnel Offices of the Kansas Department of Wildlife and Parks.

A recent merger of two conservation agencies - Fish and

The author (seated) and Cindy Baugh of the Pratt office look over an application. Arlene Wilhelm is the author's counterpart in the Topeka office. Wildlife and Parks applicants often make their first acquaintance with the Department through one of these specialists. Game Commission and Park and Resources Authority — resulted in offices located in Pratt and Topeka. Personnel management specialist Arlene Wilhelm is my counterpart in the Topeka office and Cindy Baugh, an office assistant, is my "right hand" person here in Pratt.

We often hear, "I'd like to be a game warden. We sure need more out there with all that deer poachin' going on." Very often administrators agree more employees are needed, but it's not that simple. Classified positions are acquired only after agency requests for additional positions have been approved by the Legislature. These jobs are assigned to an appropriate classification following extensive studies and reviews. The duties and responsibilities described in the position description determine the skills and qualifications needed to perform the required duties, whether the class requires a Civil Service test, and if so, what type of test and what schedule of pay.

The agency currently uses more than 70 different job titles. Some of the more popular are wildlife conservation officer (even though this class was more recently entitled game protector, many continue to refer to it as game warden), state park ranger, and fisheries or wildlife biologist.

Daily activities in the Personnel Offices involve employment, classification, compensation, labor relations, training, research, transactions and benefits. We provide personnel services to those whose job it is to conserve and manage wildlife and parks and provide employment information to prospective state employees.

Recruitment, yet another of our job functions, is probably the most visible to the public. Applicants usually aren't aware of the state's hiring system. We provide candidates with complete information for making themselves qualified job applicants for this agency, or for any other of the more than 100 Kansas agencies.

To become eligible for state service, one must meet the minimum qualifications, and if required, pass a Civil Service exam and be among the five top scores on the certification (eligibility) list when the agency requests the list to fill a vacant position. Permanent classified positions in this agency require testing.

Civil Service examinations are announced by the Division of Personnel Services, a division of the Department of Administration, as often as needed to appropriately meet the needs of the classified service. According to Civil Service regulation, "examinations shall relate to matters that will in a fair manner test the capacity and fitness of the applicants to perform efficiently the duties of positions in the class. Examinations may consist of ratings of training, experience, and other qualifications, written tests, performance tests, interviews, physical tests, assessment center evaluations, medical examinations, or other tests that the director deems appropriate." Our biological classes are continuously open for testing and scoring is done in the Pratt Office. The wildlife conservation officer (WCO) is among these classes. Since 1985 all applicants for WCO positions must have a B.S. degree in either fisheries or wildlife biology.

Each application is given special consideration whether it's submitted by an individual preparing for permanent work or by a student interested in summer employment. If it takes an extra call or letter to clarify particular coursework or work experience, we're happy to go that extra mile. After all, that might be the person who will one day solve an environmental problem or be instrumental in creating additional wildlife and/or park recreational areas in our state. Working in compliance with Civil Service regulations and Equal Employment Opportunity guidelines, we give applicants every possible assistance. Once they're introduced to the interview panel, however, they're on their own. Panels are usually made up of supervisors of the vacant position. It's not easy to break into the conservation field. There are far more applicants than vacancies. This is due, at least in part, to the lack of turnover experienced by conservation agencies. It takes dedication and perseverance to gain employment in wildlife and park agencies and, once in, conservationists usually stay put. Most vacancies are due to retirement or disability. Occasionally, I'm asked to participate in career fairs. I tell the students there's a lot of ground to cover before they don that wildlife agency uniform. "It's taken me 10 years to get here," remarked a recently appointed WCO.

ne of the most significant advancements in the Personnel Office during my 14 years of service (and I'm considered a newcomer by many of my co-workers) is the Kansas Integrated Personnel Payroll System (KIPPS). This computerized system gives us easy access to information on employees and positions. We continue to maintain personnel folders, however, for all temporary and permanent employees, but the computer provides a powerful tool to help employees, who know their Personnel Office is as near as their telephone. The personal contact we have with our employees is important to us. Our employees appreciate us, and they let us know. That's what makes our job rewarding.

One of the most important aspects of my job is to keep abreast of the ever-changing Civil Service regulations and policies. Agency employees are notified of any changes through bimonthly mailings.

A favorite part of personnel work is informing or counseling employees of their benefits. It's also rewarding to counsel and work with those preparing to retire from state service. You not only share their future plans but also relive years of agency history. Most retirees make it a point to keep in touch. We often hear "I wish I'd done it sooner." One gentleman who retired recently after 45 years of service wrote a letter to the appointing authority to volunteer his services. Another retiree is serving the agency as a temporary employee. The toughest part of my job is advising family members of benefits following the death of an employee or retiree.

Another job duty, filing worker compensation claims, is always full of variety. In one case, a fish spine was removed from a gentleman's toe years following his initial claim for a "fish fin" injury. The spine was detected from an X-ray taken for non-work-related reasons. A talon puncture caused from a wounded red-tailed hawk and contact with a regurgitating wolf are among some of the more unusual claims.

The State of Kansas recognizes suggestions that result in savings to the state. Employees are presented certificates, cash awards or both. Some rewards, however, are not received in the form of a certificate or cash. Take, for example, the view from my office window. It's not unusual to witness a rabbit hopping through the well-manicured office grounds, catch a glimpse of a brilliant cardinal in a snow-covered setting, or be amused at a squirrel that takes up temporary residency in an agency bird feeder.

The merger has brought about changes, and I'm sure there are more to come. I'm reminded of conversations with past supervisors regarding administrative decision priorities. One believed "agency first, employee second." Another "conservation first, agency second, employee third." I'm confident those in the decision-making roles have all three of these agency ingredients in mind as they complete the reorganization phases. The merger's goal: to improve wildlife and parks services for all Kansans. **WAP**

the center section

Edited by Mike Miller

LETTERS

SPREADING THE WORD

Editor:

We sure enjoy your magazine. Being a Kansas boy, I find it really interesting. We have introduced it to many people and are surprised to find out how many Kansans have not heard of the magazine. I'm truly impressed with every page of every issue.

> Jack Newton Culver City, Calif.

SUPPORTS CHEYENNE

Editor:

I have owned a farm in Jackson County for 12 years and am a long-time subscriber to KANSAS WILDLIFE & PARKS. As a resident of Illinois, I have been responsible for introducing many out-of-state hunters to Kansas birdhunting. I'd like to call the attention of your readers to an article published by the Kansas Wildlife Federation in February. The article highlights the need for attention and financial support for the Cheyenne Bottoms Wildlife Area.

Government officials must be made aware of the critical need for funding to prevent further deterioration of Cheyenne Bottoms. The Department of Wildlife and Parks will need outside assistance to maintain this area. I encourage readers to contact their local, state and federal representatives and stress the importance of Cheyenne Bottoms as a migration stop for waterfowl and shorebirds in North America.

The federal government has invested more than \$9 million in the preservation of a single species of quail (masked bobwhite), whose habitat is limited to an area in Arizona 50 miles long and 20 miles wide. If so much can be afforded to save a species with such a limited environmental impact, it's reasonable to expect that a program as far-reaching as the maintenance of Cheyenne Bottoms receive its share of federal funding. It's time that those of us concerned with the preservation of wildlife in Kansas make our views known. Support the Department of Wildlife and Parks' proposed request for funding under Section 6 of the Endangered Species Act.

> Patrick M. Gabor Lombard, Ill.

UNCOMMON READER

Editor:

We have had some reservations about renewing again. Really, we have seen and read enough about deer, fox, mallards, bass, bobcat and sunflowers. We'd be grateful if you'd run more photos and less text on the uncommon flora and fauna of Kansas in the next issues.

We will welcome more in-depth information on your natural wilderness and the unusual flora and fauna found therein. Include maps and directions on how to reach your best areas to observe the uncommon subjects of wildlife.

I think one of the best features found in your magazine during the three or four years we have been privileged to read it was on the Harris' sparrow.

> Bob Clearwater Ballwin, Mo.

Dear Mr. Clearwater:

It's no doubt a matter of "what's enough," but I'd like to believe we do a good job of covering the "uncommon subjects of wildlife" you speak of. Just a couple of recent examples include the March/April story on two new species of worms and the Gallery photospread on mushrooms. Paging through recent issues, I can find many examples of the species profile you like so much. And the Nature and Issues pages in the Center Section are always a good source of the information you seek. Your point is well-taken, Mr. Clearwater. We'll continue to provide a balanced coverage of the many wildlife species found in Kansas. You say you're looking for good things from us in the next few issues. So are we. Thanks for writing. Koenig

BLUEGILL PUZZLE

Editor:

I have been reading your magazine for more than three years now, and have been more than satisfied with every issue.

I did some interesting research last summer that left me puzzled. I do most of my fishing at two nearby ponds. What is interesting is that from 7 a.m. to 8 a.m., the fishes' bait preferences at the two ponds differ dramatically. While at one pond the bluegill won't touch anything but worms, the fish at the other pond go only for topwater baits such as spinners and minnow lures. The ponds are only one mile apart, and they are the same size. During the afternoon, the fish prefer similar baits. Is there a reason bluegills behave this way?

> T. Stallbaumer Topeka

Dear Mr. Stallbaumer:

I'm afraid I can't give you a definite answer to your question. But I guess if fish weren't such a mystery, trying to catch them wouldn't be as much fun.

There could be several reasons for the difference in behavior. I can only guess, because I've never seen your ponds, but it may have to do with the ponds' physical characteristics. If there's more shoreline brush along the pond where the fish prefer topwater lures, it may conceal you better. At the other pond, if you're more obvious, the fish may stay deeper and bite only worms. Also, you say the fish behave similarly in the afternoon; that could have something to do with the amount of sunlight that hits the water at each pond during the morning. There could be other factors involved such as available food or fishing pressure, so it's hard to be more precise in this response. Miller

LIKES NEW MAG

Editor:

Just wanted you to know how much I enjoyed my first issue of KANSAS WILDLIFE & PARKS magazine. It is of the finest quality.

The reason for this letter is the article "Kansas Spring Gobbler Fever." I thought it was great, especially the pictures. I noticed you listed tips for the turkey hunter. You can't stress safety enough. One tip you gave was never to wear red, white or blue clothing because any of these colors may look like the head and wattles of a tom turkey. I remember one of my spring hunts well. I was calling just above a dry creek bed. As I looked through some heavy brush, I saw a patch of red coming toward me. I knew it was a big old tom. To my surprise, it was an off-red cow. You can imagine how I felt.

Keep up the good work. I can't wait for my next issue of KANSAS WILDLIFE & PARKS magazine.

> Bob Hanak St. Louis, Mo.

COVER TO COVER

Editor:

We (the Riverview Bible Baptist Christian School) have subscribed to your magazine for several years, and I want to express my appreciation for your fine publication. Each issue that arrives goes to our school library only after I go through it from cover to cover. The photography is excellent, and I enjoy the well-written articles. Students have expressed their enjoyment also.

> Marvin Kaufman Principal Forsyth, Mo.

TOUCHY SUBJECT

Editor:

I am writing to you to express my opinions on a very touchy issue. I am upset with all the rules and regulations that confront today's hunters. Nowhere is the influence of contradictory codes and restricting ordinances more apparent than in outdoor recreation.

Each year American sportsmen tolerate more extentions, variations and fine-tuning of hunting and fishing regulations. It seems possible that one day we will wake up to find that we may only hunt or fish on the third day of every other month that begins with the letter J. Yet rather than admit we have gone too far, conservation agencies insist upon creating new rules and regulations that will make the oldest form of recreation in America even more of a hassle. I know of several hunters who have become so disgusted with the regulations of today, they refuse to go afield at all. Is this the goal of the conservation department? I think not, but it seems that this will be the outcome if the reigns are not loosened a little.

For a nation whose ancestry came here to escape oppressive legislation elsewhere, it seems we may be getting a little homesick.

> Tom VanKeirsbilck Shawnee

Dear Mr. VanKeirsbilck:

While I would agree that regulations can at times be confusing, I don't share your disdain for them. Nearly all of the regulations are in place to protect a resource. But they also protect a hunting tradition. There is a small percentage of Americans who hunt, a small percentage of Americans who would ban hunting today and a large percentage of Americans who are neither for nor against hunting. Regulations and game laws serve as a deterrent to those who would take any and all game, any way possible. Those types of individuals are seen by the neutral percentage as hunters. We all must regulate our behavior in the field to preserve our privilege to hunt.

Our ancestors did come to this country to avoid overregulation. And history shows us what their unregulated behavior did to the wildlife resource.

We do, however, live in a democratic society. All laws and regulations set by this agency are reviewed by a sevenmember, bipartisan commission that holds public meetings monthly. Your opinion on any wildlife regulation would be welcomed at these meetings. *Miller*

ARGUES EAGLES

Editor:

A friend of mine and I were sitting in a bar at Perry Lake talking about bald and golden eagles. I say bald eagles eat mostly fish, and golden eagles eat mostly rodents. My friend Mark says bald eagles eat ducks. Which one of us is right? Can you tell us of the general behavior of bald and golden eagles.

> Jay Barnes Ozawkie

Dear Mr. Barnes:

You're both right. Bald eagles do eat fish, but they're opportunists. They will take advantage of whatever food source is most easily caught. During the winter, when large numbers of waterfowl concentrate on marshes, bald eagles will take advantage of this abundant food supply. They are adept at picking out even the slightest injury in a duck or goose. They will then separate the injured individual from the flock and pursue it. Bald eagles will also readily feed on carion.

Golden eagles feed mostly on rodents. In Kansas, they are most common in the west and southwest parts of the state. There, jack rabbits are tops on the menu. *Miller*

AQUARIUM STUDY

Editor:

I've enjoyed a lifetime of fishing, hunting and enjoying our great outdoors, including reading KANSAS WILDLIFE & PARKS.

I've recently become involved with aquariums and find it a fascinating hobby. I'm interested in setting up an aquarium with local freshwater sportfish and other native fish for my son and me to enjoy. Is it legal to catch small sportfish and other native fish for an aquarium?

> Hardie Ward Bonner Springs

Dear Mr. Ward:

With a valid Kansas fishing license, you may seine many small species that adapt well to aquaria. Defined in the regulations as baitfish, these species include any minnow (shiners and chubs), suckers, carp, shad and sunfish up to 12 inches long. It's illegal to seine black bass, crappie more than 5 inches long and any species on the state threatened and endangered list. You may keep up to 500 bait fish. If you desire larger gamefish such as largemouth bass or channel catfish, they may be obtained through legal fishing methods or purchased from a commercial fish dealer. You may obtain baitfish from any stream or reservoir but not state fishing lakes.

If you want to keep any species that I haven't mentioned, such as one of the darter species, you'll need to purchase a scientific collecting permit. The permit is \$5, and you must apply through the Wildlife and Parks office in Pratt. You may also want to visit with your local wildlife conservation officer to let him know of your intentions. Ken Brunson, stream fisheries biologist

THE LAW

YEAR INVESTIGATION

Two Franklin County residents were each fined \$250 and had their deer hunting privileges revoked for two years as a result of a year-long investigation. Garnett wildlife conservation officer Johnny Ray began the case in December 1986. The subjects were finally charged in December 1987.

It all began on the afternoon of Dec. 12, 1986, when Ray received a call from the Franklin County Sheriff's dispatch. The report concerned two deer killed at a church camp south of Ottawa. Ray went to the camp and spoke to the camp manager. He explained that his 9-year-old son had seen the deer poachers and that his wife had chased them in the car.

The wife followed the suspects for more than a mile but turned back when they turned off the road. She was unable to get a tag number but had a good description of the car: a red Ford. Ray talked to the couple's son and got physical descriptions of the man and woman suspects.

The poachers had fled the scene, leaving two dead deer behind. Ray took the deer to two local men, asking that they dress the carcasses carefully, looking for bullet entrances and exits and, possibly, an embedded bullet. One of the men did find a .308-caliber slug.

Ray then went back to the scene of the crime to look around. He made plaster casts of the tire tracks and foot prints. He also found a .308 Winchester cartridge case. It appeared to have been fired from a clip-fed, automatic rifle.

Ray then began searching for the vehicle the suspects were driving. He ran license tag checks on more than 100 vehicles and investigated more than 10 suspects, but none were promising. Then, in April 1987, Ray drove out to a residence on routine business. There he noticed a red Ford that fit the vehicle description, but he didn't feel the owner fit the suspect's description.

No more leads were received on the case until the 1987 deer season. A deer hunter called to report seeing a man and woman shoot a deer and load it into a red pickup. The two were hunting on land managed by the caller's brother, and he was sure they didn't have permission. When the caller described the pair and supplied a license tag number, Ray knew he had a good lead.

With the tag number, Ray identified the owner of the red pickup. Ray knew that the man had previously owned a red car similar to the one described in the earlier poaching, so he located that car and checked the tire prints. They matched. He also learned that the woman suspect, whom he had contacted on routine business in April, owned a .308 rifle.

Ray compiled his evidence and got a search warrant. He and Lt. Larry Skeet of the Franklin County Sheriff's Office went to the suspect's residence. When he found a clip-fed .308 rifle, Ray explained his suspicions about the 1986 incident to the two suspects. Ray sent the rifle cartridge case and bullet taken from the deer carcass the K.B.I. Ballistics Laboratory in Topeka.

While waiting for the ballistic tests, the two suspects contacted Ray. They wanted to talk. On Dec. 12, 1987, Ray went to the suspect's residence and took statements. The subjects were issued three warnings for unlawful hunting and failure to wear red plus two citations: one for failure to tag a deer and one for hunting deer without a permit. *Miller*

HELPING THE FEDS

In an effort to curb rampant waterfowl and other wildlife violations in Louisiana, the U.S. Fish and Wildlife Service requested help from state wildlife agencies. Colorado, Kansas, Utah, Wyoming and North Dakota wildlife officers who hold federal enforcement credentials worked in Louisiana last January.

Great Bend wildlife conservation officer (WCO) Mike Ehlebracht and Hiawatha WCO Dave Hoffman worked in Louisiana from Jan. 4 through Jan. 16. Larned WCO Matt Stucker and Jetmore regional law enforcement supervisor Jim Kellenberger worked in Louisiana, from Jan. 18 through Jan. 30.

During the first segment, state and federal officers worked primarily duck hunting violations, including shooting after hours, baiting and extreme cases of shooting over the limit. In one instance, three hunters were cited for killing more than 150 ducks. Most of the work was done in Louisiana, but some officers did work in Mississippi and Georgia.

During the second segment, officers worked primarily goose hunting violations, but others including woodcock and robin violations were also worked.

In the region of Louisiana where Kellenberger and Stucker worked, more than 200,000 snow and blue geese commonly winter. It wasn't uncommon for five or six poachers to sneak up on large flocks and kill more than 100 birds. In an attempt to stop this type of poaching, Louisiana passed a state law prohibiting hunters from approaching geese by crawling, creeping or stalking.

The cooperative program was deemed successful as the Kansas officers made their presence well-known by apprehending illegal hunters. But the program also worked as a big deterrent factor. Jim Kellenberger

BIG SQUIRRELS

On Nov. 12, 1987, Tonganoxie wildlife conservation officer (WCO) Glen Cannizzaro received a call. An Operation Game Thief caller had reported seeing deer hanging in an Easton resident's barn. The caller thought the deer had been shot with a rifle, and rifle season didn't open for nearly a month.

The next day, Cannizzaro and Lawrence WCO James Dunn went to the suspect's residence. When Cannizzaro asked about the reported deer, the suspect denied it. He stated that he hadn't been deer hunting, but had been hunting squirrels. Cannizzaro then asked if the suspect had any deer meat in his freezer. "Maybe last year's roadkill," the suspect replied.

Then Cannizzaro spotted some buildings across the road. The suspect said that they were on his property. Cannizzaro figured if the man didn't have any deer, he wouldn't mind if the officers looked in the buildings. The suspect said they could look all they wanted, with the exception of the hog farrowing barn. That building had to stay sterile. Cannizzaro then asked to just look in the door.

As the two officers approached the farrowing building, they noticed blood stains on the step. When the door was opened, Cannizzaro asked the man to turn on the light. A bloodstained table was in one corner, and a bucket full of meat and fat scraps was on the floor. As the man turned on the light, he said, "Well, I'm caught."

The man then confessed to killing two deer while squirrel hunting. He'd shot a yearling buck and doe with a .22-caliber pistol. Cannizzaro and Dunn charged the man with two counts of taking deer illegally and two counts of taking deer with an illegal firearm. The officers seized 22 packages of deer meat and a .22 caliber Ruger pistol.

In a Leavenworth County court, the man was fined \$250 for each charge against him, totaling \$1,000. He was also sentenced to six months of unsupervised probation. *Miller*

HUNTING



STATE-RECORD DEER

On Dec. 11, 1987, Joseph Waters of Topeka killed his first deer, and he wrote his name into the record books. Waters' big nontypical antlered buck officially scored 269 3/8 Boone and Crockett points, more than 10 points better than the previous record. The former top non-typical was taken by John O. Band in 1965.

Waters, who had hunted deer once in Kansas and several times in Missouri without success, was hunting from a tree stand on the afternoon of Dec. 11, when several does ran past him. He had an any-deer permit and considered taking one of the does; he hadn't seen a buck since the season opened. As he pondered whether to take a doe, he caught movement out of the corner of his eye. It took several seconds for Waters to get a bead on the big buck because of the brush. But when the deer stepped out from behind a tree, Waters squeezed the trigger.

"After I shot, that's when I really got excited," Waters said. "I got down out of that tree real fast. He was so close, I knew he was big before I shot him."

The monsterous buck had a field-dressed weight of 185 pounds, giving him a body to go with the antlers. By breaking the 23-yearold record by such a large margin, Waters may have guaranteed himself a place in the staterecord books for a long time. His big buck will likely place eighth in the all-time Boone and Crockett North American record book. *Miller*

REGULATION CHANGE

In an attempt to get the Kansas Hunting and Furharvesting Regulation brochures distributed sooner, there will be a new twist in the 1988 brochures. Each year, printing of the brochures must wait until the state's waterfowl seasons are set in August. That makes it difficult to get the 400,000 brochures printed and distributed before Sept. 1. This year, a brochure without the waterfowl regulations will be distributed in August. A small brochure dealing only with waterfowl seasons and regulations will be distributed in early September. *Miller*

APPLICATION PERIODS

If you're a big-game hunter, make plans this summer for this fall's hunts. The permit application periods begin with antelope, which runs June 1-19. Firearms deer hunters need to apply July 1-17. Bowhunters can buy their deer permits over the counter from July 1 through Sept. 30 (this date may change). The fall turkey permit application period is Aug. 1-21.

Application forms are included in the Kansas Big Game General Information booklet. Pick one up wherever licenses are sold. *Miller*

BOWHUNTER ED.

The International Bowhunter Education Program (IBEP) is a global foundation that is dedicated to informing and educating bowhunters on safe bow techniques, an appreciation and respect for the environment and the importance of ethics in outdoor sports. The IBEP was introduced to Kansas some years ago with the help of the Kansas State Archery Association, the National Field Archery Association and the Kansas Bowhunter Association. The educational program is presented in two sections: The Hows of Bowhunting and The Field Experience.

Any bowhunter, young or old, who wants to learn more about bowhunting and bowhunting safety should take the class. Each student pays \$5. The Hows of Bowhunting consists of four one-hour sessions. The Field Experience is usually a two-hour session conducted outdoors.

Here's a list of scheduled classes. For more information about classes in your area, contact the master instructors listed.

Terry Clarkson Cimarron (316) 855-2479	Sept. 10, 1988 Feb. 4, 1989
Dave Easton Manhattan (913) 457-3789	4-H Discovery Days
Dennis Fredrickson Phillipsburg (913) 543-6228	July 16, 1988
Jerry Howarter Garnett (913) 448-6333	Sept. 3, 1988 Feb. 4, 1989
Bob Knapp Wichita (316) 722-6940	No classes scheduled yet.
Roger Lathan Cunningham (316) 298-4311	Sept. 3, 1988 Feb. 4, 1989
Ron Smith Topeka (913) 266-8466	No classes scheduled yet.
Charlie Stevens Cawker City (913) 782-4369	July 16, 1988
Jerry Burkhart Pratt (316) 672-2035	No classes scheduled yet.

FISHING

DOODLESOCKIN'

Crappie are usually in the spawning mood in early May. That means the large schools of fish will be much easier to find now than at any other time of the year. As the water temperatures reach into the 60s, crappie will migrate into shallow, brushy or weedy water.

Fishermen can find crappie by searching along shorelines, fishing in and around any type of underwater cover. These pre-spawn fish are surprisingly aggressive and will usually nail a jig dropped in front of them. The trick is putting the jig in front of their nose.

One popular technique is doodlesocking. That is simply dropping an eighth-ounce maribou jig straight down, bouncing it a few times then moving on. Fishing in waders or with a long pole from the bank can be just as effective as fishing from a boat.

The secret is being quiet in your approach. When the fish are in such shallow water, often less than 2 feet, they'll spook easily. Sneak along the shoreline, use a trolling motor if you're in a boat or wade carefully. When you feel a light tap or resistance, raise the fish straight up quickly. Land it as quickly as possible and get your jig back to the same spot. Keep working the area, but cause as little commotion as possible. You may be able to take several fish from one spot, or in larger lakes, you might fill your livewell from the branches of one submerged tree.

Take plenty of jigs. You'll want to fish right in the timber, so you'll snag up often. Resist the temptation to wade in or pull your boat in to free a snag. You'll spook any remaining fish. Instead, break the line and tie on a new jig; they're inexpensive.

The most popular jig colors are white, yellow and chartreuse. But don't be afraid to experiment with darker colors if the water's murky or the weather overcast. On days when the fish are finicky, an added touch such as glitter in a rubber jig body or a spinner on the jig can make a difference.

Four- or six-pound test line is recommended. And a light, sensitive graphite or boron rod will allow you to feel more strikes. *Miller*

CHENEY CHRISTMAS

In 1986, Cheney fisheries biologist Gordon Schneider asked fishermen to bring in their Christmas trees after the holiday season. Schneider wanted to build brushpiles at Cheney Reservoir. The brushpiles provide perfect habitat for the reservoir's crappie. Schneider was pleased when he received 500 trees. But Cheney's crappie will receive a load of cover this year as Cheney fishermen brought more than 1,600 trees.

A fenced enclosure was provided at the Department's Valley Center office for the otherwise trashed trees, and the response was overwhelming. With the help of local clubs and organizations, the trees were cabled together, anchored and sunk in several areas on the reservoir. The brushpiles will provide fishermen with ideal crappie fishing spots in the future. *Fisheries Division Update*

LIMB LINE LOGIC

Setline fishing is a dying art. Most of today's anglers are drawn to other fishing disciplines, which often are more glittery and almost always cleaner. But setlining is rich in tradition and unique excitement . . . not to mention the potential for catching really big fish.

Something in the shrill screams of riverbank toads, the sound of churning water in the night and the river's peculiar odor adds extra spice to setline fishing. And what angler can deny the excitement of seeing a tree limb jerking against a monster catfish?

It's not that setlining is so difficult. It's just that there are some subtle basics that one must know in order to achieve success.

Five basic guidelines are most important: 1) Never tie a line to an anchor that won't flex readily. Always use a green tree limb; or wire a bicycle inner tube between the line and any solid anchor. 2) Use fresh, braided (not twisted) nylon line, and tie a barrel swivel into the system to help prevent twisting. 3) Use sturdy hooks and keep them sharp. 4) Check your lines several times during the night and keep them baited. 5) Scout the water you plan to fish, and don't waste time setting lines where there is no good habitat.

The first four rules are fairly commonsensical, but number five requires a little more discussion. Good setline locations on rivers are near brushpiles and submerged rocks or other rubble. Look for places where the channel narrows, deepens or both. Try to make your sets just upstream or downstream from the brushpiles or other submerged structure. This prevents a hooked fish from tangling the line and tearing loose. In impounded water, the edges of submerged stream channels are often hotspots, too.

Oh yeah, and the bait . . . though channel catfish can be taken on a variety of prepared baits, the best all-around attractants for channels and flathead catfish are live baits. Crayfish and waterdogs are super channel cat baits, and green sunfish and goldfish are tops for flatheads. Take the time to get reliable bait.

The best time to go setlining is whenever you can. But an approaching storm front often triggers feeding activity among catfish. Once the front passes, though, the fishing generally gets tougher. Catfish may bite best of all when the water is rising. So the best setlining may come immediately after or even during a rain shower.

And one more thing . . . the laws. You may use eight setlines, each with no more than two hooks; or you may use one trotline with no more than 25 hooks. All unattended lines must be tagged with your name and address, and you must check each line at least once every 24 hours. Setlines may not be used within 150 yards of any dam or the mouth of any stream. Rob Manes, wildlife education coordinator

SAFE BOAT BASICS

The water is warm. The early summer breezes are warmer. And Kansas' 85,000 power and sailboat owners are heading toward the state's 240,000 acres of water.

Most Kansas boaters (58 percent) use their craft for fishing. Other major boat users, of course, include skiers, swimmers and sightseers. They all have one thing in common, though — they're in it for fun. But the fun of a boating trip can be ruined by equipment failure or worse, an accident. Following is a checklist that will help to keep your time on the water pleasurable and safe.

Fire Prevention

Are the fuel lines corroded or damaged? Is the ventilation system working? Is the carburetor flame arrestor in place? Are all the motor's fuel system connections and lines intact? Is your fire extinguisher in working condition?

Water Readiness

Is the hull cracked, or are any rivets or joints loose? Does the bilge pump system work properly? Is the light system in legal working condition? Do you have a drain plug? (Don't forget to put it in.) Are the sailboat riggings in good shape? Is the motor tuned up? Is there fresh gasoline and oil in the tank? Is there fresh lubricant in the outboard lower unit? Are the batteries fully charged? Are all the steering and throttle cables in working condition? Do you have an anchor? Is its line sturdy?

Other Safety Equipment

Do you have adequate numbers and types of life jackets on board? Are they in good condition? Is there a whistle, horn or bell on board? (A noise-making device is required for boats 16 feet or longer.) Is there a first-aid kit on board? Does your ski boat have a wide-angle, rear-view mirror? (An observer may substitute.) Do you know the basic boat piloting rules?

Go over this list long before you get to the boat ramp. And make sure your boat registration is up-to-date and the registration numbers and decals are properly displayed. When on the water, use common sense when operating your boat. Never operate a boat while under the influence of alcohol or drugs. It's unsafe for you, your passengers and other boaters, and it's against the law. If you have any questions about safe boating, contact the Kansas Department of Wildlife and Parks office in Pratt. You may also save on your boat insurance by completing a certified boating safety course, also available from the Department of Wil "ife and Parks. Rob Manes, wildlife ed tion coordinator

FOR WHAT IT'S WORTH



Five For The River

by Paul G. Koenig, editor

It begins with a simple conversation among five long-time friends, usually over the Christmas holiday season. And the question is raised:

"What weekend looks good for everybody?"

Someone pulls out a pocket calendar, five minds strain to remember any possible commitments on a given weekend six months hence, and suddenly, the dates are set.

The Weekend — annual highlights of which include fishing, horseshoes, nickel-dime poker games, discussions of the St. Louis Cardinals, sharing memories of parochial grade school and high school, rooming together at the University of Missouri, and the years since.

The meeting place has been the same since 1980, the year Kell, Gunner, Turk, T.L. and Red first hooked up as a fivesome at Kell's clubhouse. Overlooking the Meramec River in eastern Missouri, the clubhouse is nothing fancy but very dear to five guys who make the annual pilgrimage, ranging anywhere from a 90-minute drive to a 10-hour haul. The living room floor is decked out in indoor-outdoor carpeting, a long way from plush stuff but still comfortable beneath toes that have been water-logged in the chilly Meramec. An old card table is the second-most notable item in the room. The big attraction? A huge, 30-year-old mule deer head that guards over Kell's position at the poker table. Adjoining the living room are the bunkroom, porch and kitchen, birthplace of some dynamite breakfasts.

Just as this weekend remains a rite of summer, certain formalities remain a rite of the weekend. One, for example, is the silent calling for the dollar bill. One man goes to his wallet and pulls out a piece torn from a dollar bill. Within a minute, depending on where four other wallets are, the bill becomes whole in the middle of the poker table. The five once again examine the pieced-together buck, then each man picks up his 20-cent piece and returns it to its home. Schmaltzy? Probably so. The five could care less.

In earlier years, Wiffle Ball was a staple of Saturday afternoon. But once out of their early 20s, the five found it hard winging curveballs and knucklers on a hot summer day. So horseshoes became the game of choice. The winning team is allowed to keep playing. The odd man offers encouragement and eventually rotates into the losing twosome.

Also part of the weekend are two or more wades or floats down the river for a try at smallmouths, largemouths and goggle-eye. Fish are never kept but are fished for just the same.

The food is standard camp cuisine although there are a few mainstays. Peach pancakes and bacon are the rule on Sunday morning. And it seems now that only inch-thick New York strip steaks from Paul's Market will do for Saturday night dinner. If Gunner's wife or Kell's bride wants to send along a batch of homemade munchies, then all the better.

Weekend conversation includes anything from the whereabouts of Bun Hayes, an old grade-school buddy, to Sr. Brigid, one of the all-time great nuns, to a discussion of state conservation agencies. This year a midseason appraisal of the Cardinals without Jack Clark is appropriate. The five ponder these and other random topics each year, often overlooking the Meramec, coffee mugs in hand, eyes scanning the sunlit opening to their little piece of the river.

The Weekend starts winding down after lunch on Sunday. Time for a few more horseshoe games and maybe one last run down the river. Time, too, for yet another tradition — pose beneath a front-yard maple as a tripodheld camera self-times the quintet into history. The one variable is the year, usually scribbled on a sheet of paper and stuck to the tree trunk. The little light starts blinking, five grins crease five faces and — *click* — The Weekend is all but over.

The dates may change, but the annual gathering will not. It's a fix five grown-up Missouri boys can't do without.

ISSUES

PESTICIDE REPORT

The U.S. Fish and Wildlife Service has released a report that summarizes use of organophosphorous and carbamate pesticides and their potential hazard to wildlife.

More than 89 million acres are treated with these two types of pesticides each year. Most of the potential hazard to non-target wildlife reportedly is caused by only a few widely used and highly toxic chemicals.

The report, titled "Pesticide Use and Toxicology in Relation to Wildlife: Organophosphorous and Carbamate Compounds," describes the chemical characteristics of 67 products and assesses their threat to wildlife. It is available from the Publications Unit, U.S. Fish and Wildlife Service, Rm. 148, Matomic Building, Washington, D.C. 20240. *Wildlife Management Institute*

CRP FOR WILDLIFE

After the fifth sign-up period for the Conservation Reserve Program (CRP), Kansas was ranked second in the nation in acreage enrolled with 1.9 million acres. Now that the sixth signup period is over, Kansas has kept pace, boosting the total CRP acreage in the state to 2.3 million acres.

The primary purpose of CRP is to return highly erodible lands back to permanent vegetation. The program will reduce soil erosion and silt pollution of our streams. But a secondary benefit of the program is the improvement of wildlife habitat through the planting of grasses, trees and shrubs. And in Kansas, nearly 90 percent of the CRP ground is being put back into native grasses, which are so beneficial to our wildlife.

The impact of this program on Kansas wildlife is not yet known, but it can be compared to the Soil Bank Program of the 1950s. The Soil Bank Program left 1.4 million acres idle, and many consider the years during this program to be the "glory days" of Kansas pheasant hunting. Kansas already has nearly twice the amount of land enrolled in CRP and may end up with 3 million to 4 million acres by 1990. The next sign-up period is July 18 through Aug. 5, 1988.

One disappointing fact with the program is the lack of tree and shrub plantings being made on CRP acres. The Kansas Department of Wildlife and Parks has funds available to costshare the planting of trees and shrubs on CRP land. Interested landowners should contact the nearest Wildlife and Parks office for more information.

Wildlife biologists also discourage the planting of tame grasses such as fescue and brome. These grasses are not nearly as beneficial to wildlife as are the native grasses.

Now, a new practice called vegetative filter strips is being offered. This practice would apply to cropland, regardless of whether it's highly erodible, adjacent to perennial and seasonal streams or other bodies of water. The filter strips are to be 66 to 99 feet wide, planted to grass, shrubs or trees. They are designed to reduce sedimentation and associated pollution damage to streams.

A most important question remains: What happens to the land at the end of the 10-year contract period? Conservationists hope it will remain in permanent vegetation, protecting soil, streams and wildlife for future generations. Don Dick, wildlife management section supervisor

ENDANGERED SPECIES

Listing and recovery efforts for some of the nation's endangered species progressed in 1987. The year's successes were tempered, though, by the extinction of the dusky seaside sparrow and the necessity of bringing the last remaining wild California condor into captivity.

The U.S. Fish and Wildlife Service listed the second-highest number of endangered and threatened species since 1979. But, at the same time, the Service initiated a number of significant recovery programs.

Fifty-nine imperiled animals and plants were listed as threatened or endangered. And the extinction of a small Texas spring fish, the Amistad gambusia, was confirmed along with the dusky seaside sparrow.

On a brighter side, the American alligator was reclassified throughout its remaining Southeastern range to reflect its complete recovery. In fact, three states now permit limited hunting of the species.

Four pairs of red wolves were released on the 130,000-acre Alligator River National Wildlife Refuge in North Carolina. The red wolf is the first U.S. endangered species previously extinct in the wild to be returned to its former range.

A successful black-footed ferret breeding program was established in cooperation with the Wyoming Game and Fish Department. Two litters of ferrets were born in 1987, raising the known world population from 18 to 25 animals.

The second successful year of gray wolf reproduction was noted in the northern Rocky Mountains. Before 1986, it had been nearly 50 years since natural reproduction had been documented in this area.

And finally, an experimental population of California sea otters, a threatened species, was established on San Nicolas Island west of Los Angeles. *Department of the Interior*

SURFACE MINING

In a victory for the environmental community, a federal appeals court affirmed that citizens and environmental organizations can challenge the policies and regulations of the Reagan administration.

In the decision, the Court of Appeals for the District of Columbia Circuit ruled that the National Wildlife Federation (NWF) and seven co-appellants had legal standing to sue the U.S. Department of the Interior on behalf of their members. The court ruling involved a complex lawsuit filed by the environmental groups that challenged Interior's interpretation of the federal strip-mining law.

The court upheld broad protections for prime farmland affected by mining, ensuring that stripmined farmland be restored to its original production capacity. Likewise, the court upheld a lower court ruling that the unique features of alluvial valley floors be protected and restored if damaged. The principal farming and ranching lands and wildlife habitat in arid and semi-arid areas of the West are on such land.

Although NWF and its co-appellants (Environmental Policy Institute, Illinois South Project, Kentucky Resources Council, National Audubon Society, Save Our Cumberland Mountains, Sierra Club and Western Organization of Resource Councils) prevailed on these and other issues, the court ruled against the groups on some important concerns.

For example, the court overturned NWF's efforts to establish strong reclamation bonding systems in the U.S. The reclamation bond is posted by coal operators as an insurance against defaults on reclaiming the land. In addition, the court rejected NWF's appeal of a lower court ruling that failed to protect citizens from damage to their water supplies caused by underground coal operators. *National Wildlife Federation*

NATURE



LOOSE MOOSE

Some northwest Kansans can honestly say they've seen it all now. Folks in the Agra area, near Kirwin Reservoir, were flocking out to a local farm pond to view a real-live moose. No, the Department of Wildlife and Parks hasn't begun a new reintroduction program. Moose have never been native to the Kansas prairies. This one has apparently journied down from Montana.

The young bull made his way across Nebraska last month and on Feb. 23, was seen southwest of Agra. He decided to stay awhile when he found some familiar surroundings in the flooded timber near the farm pond. But on Thursday, Feb. 25, he set out in search of a quieter home. In March, the moose was seen near the Kirwin National Wildlife Refuge, only six miles from the farm pond.

While moose this far south are rare, it has happened before. More than 10 years ago, a Minnesota moose made its way through Iowa and into Missouri. And last year, another young bull moose followed the same path. The most recent meandering moose was followed closely by Missourians, who even named it "Moose de Leon" in a radio station contest. It had taken residence near a large river in central Missouri last spring but was never seen again.

Several theories have arisen over why these moose travel so far from their normal home range. One is that young bulls commonly travel great distances in search of new territory. These few just went a little farther than usual and possibly became disoriented. Another is that the moose are victims of brain worm, a parasite carried by white-tailed deer and one that is fatal to moose. The worm actually works into the moose's brain and causes the abnormal behavior before finally causing death. *Miller*

WETLANDS AMERICA

Ducks Unlimited's (DU) Wetlands America program has put another feather in its cap with the Big Meadow Waterfowl Production Area in North Dakota. When DU began construction in the wetland basin two years ago, it was bone dry. The same area now boasts 33 waterfowl nests per acre and a nesting success rate of better than 90 percent, according to the U.S. Fish and Wildlife Service. On comparable uplands in that area, 10 percent nesting success is considered normal.

Intensive grain farming in the area severely depleted the quality waterfowl nesting cover available. Water depth in the wetland varies from several inches to 3 feet or more, depending upon the amount of runoff received from the 50-square-mile watershed. DU construction work at the 2,270-acre management unit consisted of building 25 three-quarter-acre nesting islands. The ducks and geese that took up residence did the rest.

Wetlands America is an umbrella title that covers three key components:

*Habitat USA, which provides hands-on habitat construction in Minnesota, Alaska, Montana, North Dakota and South Dakota, all top waterfowl production states.

*MARSH (Matching Aid to Restore Habitat), which channels money to state wildlife agencies for use in acquiring and enhancing wetlands.

*Habitat Inventory and Evaluation, a unique process for evaluating and categorizing wetlands using computerized images generated by NASA's Landsat 5 satellite.

Big Meadow is just one of the 173 DU Wetlands America habitat projects that have been completed since 1984. Before that, DU had concentrated its efforts in Canada's prairie pothole region and, to a lesser degree, in the Mexico wintering grounds.

To date, DU projects in the United States encompass more than 268,000 acres, including nearly 144,000 acres of wetlands. That translates into homes for a variety of wildlife. *Ducks Unlimited*

WALK WITH NATURE

A flash of fur or feathers, and the critter's gone. Wildlife watching can be frustrating at times. But "Walk With Wildlife," slated for June 4, gives you a close look at owls, turtles, eagles, snakes and other Kansas wildlife while you walk along Chisholm Creek Park Nature Trail in Wichita.

The event, held from 9 a.m. to 4 p.m., is an opportunity to wander along the nature trail and see more than 50 native critters exhibited in their natural habitat. Local experts from wildlife agencies and organizations will be on hand to provide information. Hikers will be able to view the animals and ask questions.

The event is open to the public (including groups of all sizes). No admission fee or registration is required. Chisholm Creek Park Nature Trails are located at 3238 N. Oliver in Wichita. The trails are handicap-accessible. For more information, contact the Southcentral Regional office of Wildlife and Parks at (316) 755-2711 or Wichita Wild at (316) 264-8323. Martha Daniels, wildlife information representative

GOOSE SUCCESS

The Canada goose restoration program had another successful year, according to Gerald Horak, Kansas Department of Wildlife and Parks waterfowl biologist. Last spring, officials received a number of reports of nesting wild geese in two of the release areas: the Flint Hills and the Marais des Cygnes Valley.

The restoration program has been raising

geese, then releasing the goslings in suitable nesting areas. The theory behind the releases is that when the young geese mature, they will return to these areas to nest. And so far it's working.

The Department of Wildlife and Parks has several goose-rearing facilities in the state. Last spring, 300 goslings were raised at the Marais des Cygnes pen, 606 at the Cedar Bluff pens, 101 at the Mined Land Wildlife Area, 54 at the agency's Pratt office and 47 at the Sedgwick County Zoo. The goslings were rounded up and caught just before they learned to fly. They were then released in the Flint Hills, Marais des Cygne Valley and near the Mined Land Wildlife Area in southeastern Kansas. The dark goose hunting seasons have been closed in these areas, allowing geese to establish local nesting flocks.

As a result of the program's success, a special limited-permit hunting season was allowed last fall in the Marais des Cygnes Valley. Just 100 permits were allocated, and results from hunter report cards show that 73 permittees hunted and harvested 36 geese. The season will be recommended again next year, and the number of permits available will be increased. *Miller*

LARGEST AQUARIUM

What is being billed as Kansas' largest aquarium was unveiled last November at Salina's Central Mall. The aquarium holds 15,000 gallons of water, measures 25 feet by 12 feet and is $6\frac{1}{2}$ feet deep.

The mall's developer, Warmack and Co., initiated and funded the project. The aquarium was designed as a living and dynamic representation of a Kansas fish community. The backdrop is a naturalistic mudbank made from a special concrete mixture. Several tree branches are anchored in the aquarium. This, along with the rock rubble covering the bottom of the aquarium, provides a natural habitat for the fish.

Fish came from a variety of sources, including Kansas Department of Wildlife and Parks, Culver's Fish Farm of McPherson, and local lakes and ponds. Approximately 60 fish live in the aquarium, including channel catfish, bluegill, green sunfish, redear sunfish, black and white crappie, largemouth bass, walleye, paddlefish, white amur and flathead catfish. The aquarium also is home to two snapping turtles (one weighing 30 pounds), two painted turtles and a yellow slider.

The fish are fed about 3,000 minnows, some crayfish and a ration of floating fish food each week. A 100-gallon tank on the walkway above the aquarium holds the minnows so they can be rationed throughout the week.

A series of interpretive graphics are also on display. The boards are designed to educate visitors about Kansas fish; one board describes the Kansas Department of Wildlife and Parks. *Bruce Zamrzla, fisheries biologist*

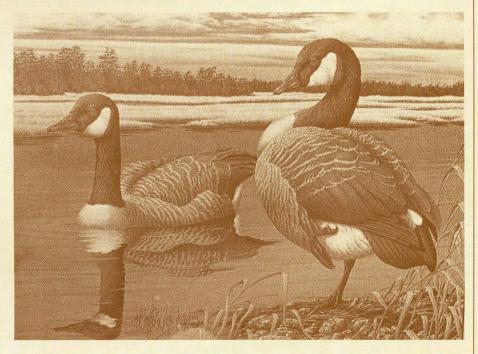
STATE DUCK STAMP

Ann C. Dohoney's depiction of two Canada geese will grace the 1988 Kansas State Waterfowl Habitat Stamp. Dohoney's painting won first place in the state contest on March 17. There were 36 qualifying entries this year, and Canada geese were required subjects. Steve Bertels of Nortonville was second, M. Wayne Willis of Wichita placed third, Wes Dewey of Chanute took fourth and Earl Kuhn of Medicine Lodge was fifth.

Dohoney, originally from the Kansas City area, has resided in Kansas since 1981 and now lives in Shawnee. No stranger to duck stamp contests, Dohoney also has received other art awards. Another of her paintings was chosen for the 1989-1990 Indiana state duck stamp. She placed third in the federal duck stamp contest in 1980 and has finished in the top ten four times in Nevada's duck stamp competition. She has also been invited to show her work at the prestigious Easton, Md., Waterfowl Festival the last two years. "There's nothing like winning in your own home state," Dohney said. "It was nice to win in Indiana, but it wasn't nearly as exciting as this one." Dohoney works mainly with waterfowl subjects and her success in stamp competitions reflects her accomplished skills. "You have to realize that the painting will be reduced a great deal to be put on a stamp," she said. "Some artists forget that. I work with closeups and try to create something that will look just as good when it's miniaturized."

Judges for the contest were: Sonny Hankel of Charleston, S.C., a member of the Board of Directors of the Southeastern Wildlife Exposition; John Moss of Jackson, Tenn., an attorney who's collected duck stamp art for 20 years; Bob Billingsley of Los Angeles, Calif., a former vice president of DU; Jim Rikhoff of High Bridge, N.J., the president of the National Sporting Fratemity Ltd.; and Gene Hill of Pennington, N.J., an associate editor of *Field & Stream* magazine who has collected sporting art for 30 years.

All licensed waterfowl hunters in Kansas are required to purchase the state waterfowl stamp. The stamp sells for \$3.25, and all receipts go toward waterfowl habitat enhancement and acquisition in Kansas. Peterson Prints of Los Angeles, Calif., contracts with the artist to produce and market prints of the painting. Receipts from print sales go to DU, and 20 percent is returned to Kansas for work at Cheyenne Bottoms Wildlife Area. *Miller*



Ann Dohoney's painting of two Canada geese won first place at the Kansas Waterfowl Habitat Stamp competition on March 17. Dohoney's art was chosen over 36 entries in the state's first stamp art contest.

Mike Blair photo

NOTES

FREE OUTDOOR FUN

The Kansas Department of Wildlife and Parks is sponsoring two days of free fun on state waters and in the state parks. The free fishing and park-entrance days will be June 11-12. Anyone who's interested can get into a state park free and can fish anywhere in the state without a fishing license.

The agency is promoting the enjoyment of our outdoor resources, encouraging people who wouldn't normally buy a park permit or fishing license to give it a try. Just go to your nearest state fishing lake, reservoir or state park and enjoy.

Some of the state parks around the state will be holding special activities over the weekend for park users to enjoy. Here's a list of some of the scheduled events:

At Cheney State Park, the Cheney Chamber of Commerce will sponsor a barbecue and mud volleyball tournament. At Cedar Bluff State Park, the State Park Advisory Board will sponsor a horseshoe and volleyball tournament.

Salina radio station KSAL will sponsor a fishing derby and kids fishing clinic at Kanopolis State Park.

Crawford State Park will feature a family day with a flea market and entertainment available.

At Fall River and Toronto state parks, a Ranger Program will be presented Saturday evening.

Perry State Park will host the Northeast Kansas Trails Endurance Run, sponsored by the Kansas Trails Council.

At El Dorado State Park, the Coast Guard Auxilliary will present the Blessing of the Fleet ceremony.

An antique tractor pull will be featured at Clinton State Park.

Other State Park Events in May and June include:

WILSON STATE PARK

Aay	1	Kansas Wildlife Federation
		Spring Fishing Tournament
Aay	21-22	Striper Magazine Fishing
		Tournament
une	4-5	Hell Creek Hoedown
A ay	29-	
bept.	24	Sunday Church Services
	LOVEN	WELL STATE PARK
Aay		Mother's Day Walleye
riay	° i	Tournament
Aay	10	Lovewell Marina Walleye
viay	10	Lovewen waneye

Tournament

	GLEN	ELDER STATE PARK
May	14-15	Glen Elder Lake Association
		Walleye Tournament
June	1	Prestinger Walleye Toum-
		ament
June	5	Tri-City Bass Club Walleye
		Tournament
Τι	JTTLE	CREEK STATE PARK
May	29-	
Sept.	4	Saturday night program and
		Sunday services sponsored by
		Lake Ministry Association

April 30 Concrete Canoe Races, sponsored by Kansas State University Engineering Department

MILFORD STATE PARK

June 19 Milford Annual Walleye Tournament

CHENEY STATE PARK

June 4-5 Wildcat Hobie Sailboat Race

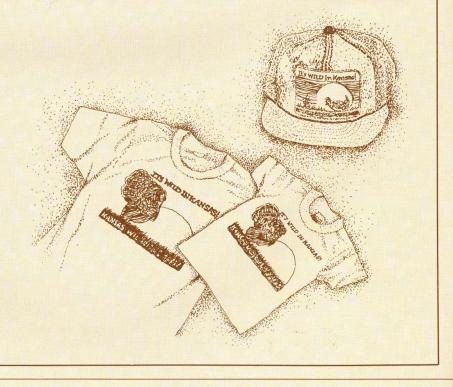
KANO	POLIS STATE PARK
May 29-30	AMA-sanctioned Motorcycle
	Scramble Races, sponsored by
	the Salina Motorcycle Club
June 4	McPherson Fishing Contest
CRAW	FORD STATE PARK
May 28	Jet Ski Show, Miss Budweiser
	Hydroplane Speed Show
May 29	Parking Lot Dance with live
	band, mud volleyball

PROMOTING WILDLIFE

The Kansas Department of Wildlife and Parks is again offering "It's Wild In Kansas" T-shirts and hats for sale. The T-shirts have a beautiful strutting turkey backed by a blaze sunrise. The hats feature a greater prairie chicken in a similar setting. Sales from the shirts and hats will go to construction of the Milford Conservation Education Center, a wildlife conservation education facility being built at the Milford Fish Hatchery.

The blue shirts are available in adult sizes S, M, L, and X-L and sell for \$7 plus \$1 for postage and handling. Youth sizes include 2-4, 6-8, 10-12 and 14-16 for \$6 plus 50 cents postage and handling.

The hats are available in rust, brown or tan. Order by sending \$5 plus \$1.50 postage and handling. Send orders to T-shirts and Hats, Kansas Department of Wildlife and Parks, Rt. 2, Box 54A, Pratt, KS 67124. *Miller*



NATURE'S NOTEBOOK by Joyce Harmon Depenbusch, Wildlife Education Coordinator

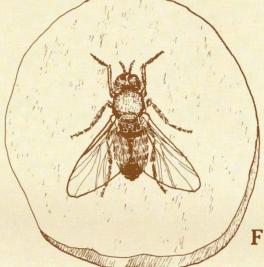
How have the species of living things changed through time in Kansas?

FASCINATING FOSSILS

Fossils are signs of life formed thousands or millions of years ago. Scientists, called **paleontologists**, use them to discover what kind of life has been here and when it lived in our state. Generally, the oldest fossil layers have simple life forms, while more complex animals are in the more recent fossil layers.

The many fish and other aquatic animal fossils found in the state suggest that Kansas was underwater at one time. This illustration shows the famous fish-within-a-fish fossil in the Sternberg Memorial Museum at Fort Hays State University. The fossil was collected in Gove County in 1952 by George Sternberg. It was in a Kansas Cretaceous chalk bed. These fish species lived about 135 million to 65 million years ago. At that time Kansas was covered by an ocean. Paleontologists think that the larger fish, a 14-foot *Xiphactinus*, swallowed the 6-foot *Gillicus*. Because the smaller fish was too big, the *Xiphactinus*' stomach ruptured, causing it to die. The fishes sank into the soft mud of the ocean floor. When the ocean dried, the hardened mud preserved the fish.

Fossils may be formed several ways. On rare occasions the whole organism may be preserved when tree sap hardens into clear **amber**. More commonly, a dead organism is quickly covered with sand or silt, slowing decomposition. A fossil of the organism is formed if the sand or silt turns to rock. Fossil **molds** are the imprints of organisms. Fossil **casts** are made when the mold is filled with sediment that later turns into rock. Ice has preserved specimens, such as the woolly mammoth in Siberia. The bone, hair, internal organs, muscles and blood of these frozen fossils are maintained under layers of ice.



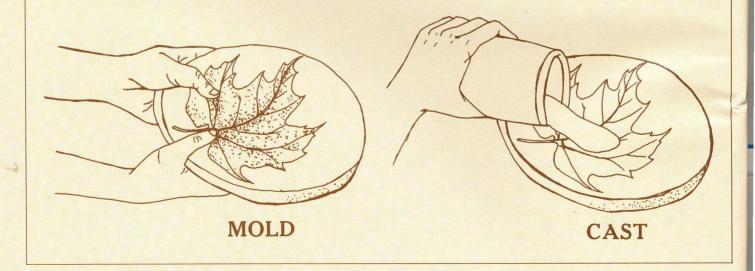
FLY IN AMBER

Now that your know how real fossils are made, you can make your own fossil-like models. You'll need modeling clay, plaster of Paris, petroleum jelly, water, container and artifacts, such as leaves, bones, or shells.

Cover your work area with plastic or newspaper. Rub a thin layer of petroleum jelly on a leaf, bone or shell. Press the side of the object with petroleum jelly into modeling clay. Remove the object carefully, leaving an outline, or imprint, of the object. Now you have a mold.

To make a cast, coat the clay mold with petroleum jelly. Mix the plaster of Paris with water until you have a thick batterlike consistency. Pour the plaster into the clay mold. Peel the clay away when the plaster cast is dry.

For amberlike fossils, place a few drops of nail polish or clear glue on waxed paper. Put a dead insect, leaf or other artifact on top of the polish or glue. Let the polish or glue harden. Continue to add a few drops of glue or polish as each layer dries until the artifact is completely covered.



To The Kansas Deer Hunter

An open letter to all Kansas deer hunters who'll be applying for a deer permit this summer.

> by Rose Ewing Licensing/Revenue Supervisor Pratt

ou ask why you didn't receive a deer permit last year and we had unfilled permits in the unit you wanted to hunt? My answer to you is this: The good old days are gone when we made the decision in the Pratt office as to what kind of permit you receive. Now you have to make the choice you can no longer send in an application and leave the rest to us. We need to know what kind of hunter you are.

A trophy hunter? You say you want that big buck you've been seeing as you drive to work? Then write in hunt numbers 101 and 102 on your deer permit application.

Are you a hunter who enjoys being with your friends in the out-of-doors? Then your choice should be all hunt numbers available in your unit or you

can choose more than one unit. If your goal is to put venison in the freezer, then you should select four hunt choices. If you hunt with a muzzleloader, make hunt number 106 your first choice. You can also hunt with your muzzleloader with the other hunt numbers, but you may not use any other type of gun on a muzzleloaderonly permit.

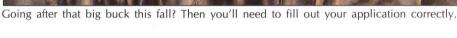
Changes in the deer permit process are made each year, so be sure to carefully read the big-game brochure available at county clerk offices, sporting good stores and all Wildlife and Parks offices. After June 1, feel free to direct your questions to licensing personnel here in the Pratt office. Once a permit is issued, it cannot be changed.

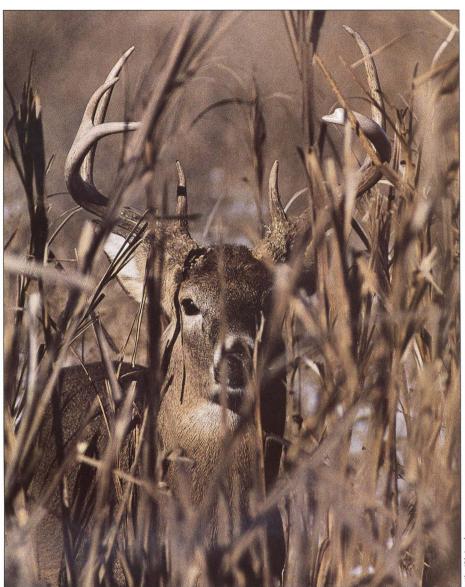
July is the time to apply for your regular-season firearms deer permit.

Please send your application as soon after July 1 as possible. This gives you time to correct any mistakes on your application should we have to return it for being incomplete. Some mistakes include failing to sign your application, not providing birth date or enclosing an incorrect fee.

But if you wait until the last week (approximately two-thirds of some 50,000 applications are received that week), the applications cannot be worked daily (as they are early in receiving period). So there's a good chance you won't be able to correct any mistakes you may have made and still return your application by the deadline.

Remember to mail in your deer permit as soon as possible after July 1 to avoid the last-minute rush. W&P





TRAINING TABLE BAASS

Three state fish hatcheries are working together to provide better bass fishing for you.

> by Chris Mammoliti Fish Hatchery Assistant Pratt

photos by Mike Blair

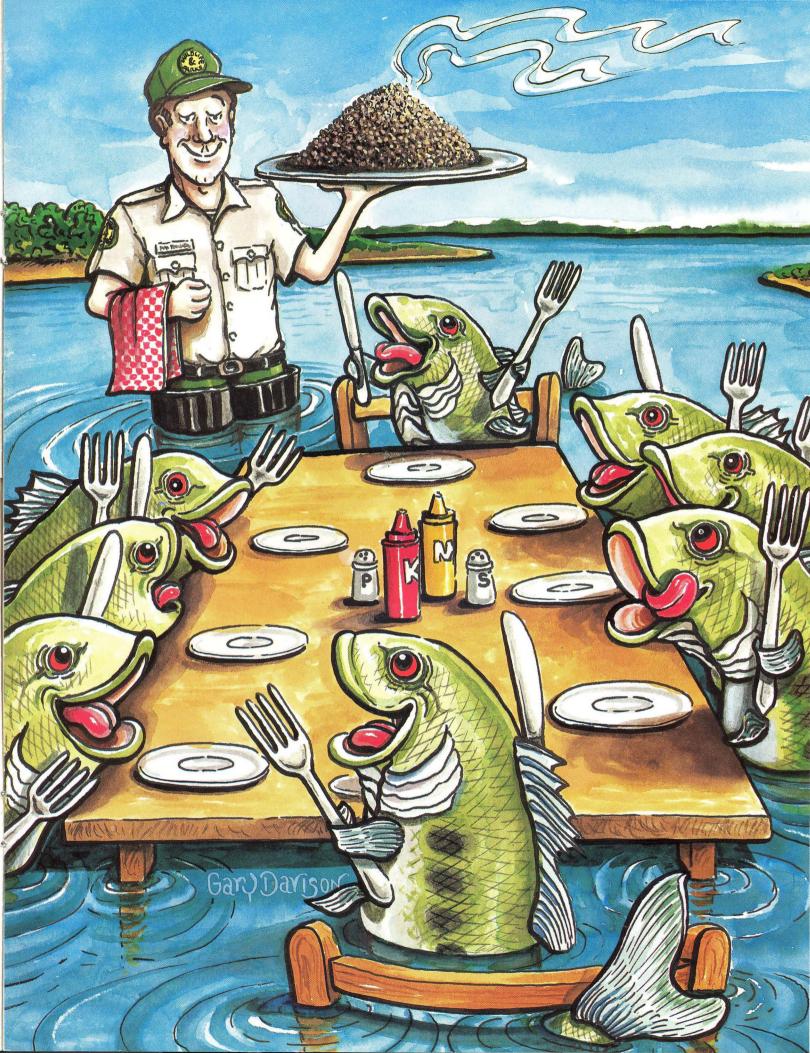
The sight of a largemouth bass hitting the surface in pursuit of a meal is one that sends the heart of many Kansas anglers racing. Imagine experiencing this sight thousands of times a day, every day for three months! That's just what fish culturists at the Pratt, Meade and Milford state hatcheries did last summer. A program to rear intermediate (6- to 8-inch) largemouth on artificial food pellets was undertaken to improve the quality of bass fishing in Kansas public waters.

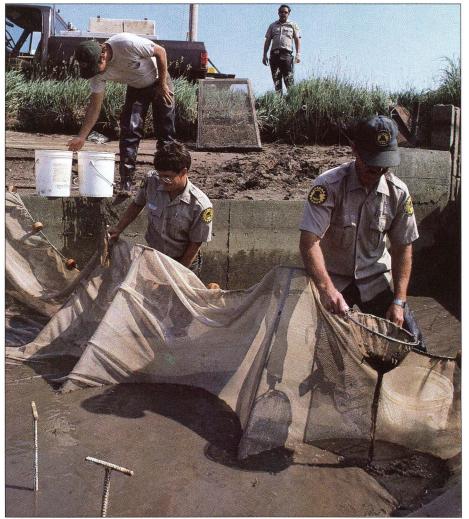
Largemouth hatchery culture in the United States dates to the late 1800s, when federal hatcheries began stocking the species in all states west of its native range. The initial demands for bass were centered around introductions into natural waters where the species was in short supply or absent. The eastern half of Kansas is part of the largemouth's native range, while the fish's occurrence in the western half of the state is the result of these introductions.

By the 1930s, these indiscriminate stockings weren't considered useful as a management tool. After the initial introductions, virtually all culture was devoted to producing 2- to 3-inch fish for stocking in new or recently renovated waters. Stocking small fish in these waters was successful because of low predation and minimal competition. The value of stocking intermediates in Kansas waters lies in the fact that most Kansas reservoirs are unable to successfully recruit 2- to 3-inch bass into the fish population. Although the small bass are present in the reservoirs in August, most die from natural causes before the spring growing season.

Early attempts to produce intermediates weren't successful because of inefficient techniques and inadequate knowledge of young bass behavior. As early as 1912, culturists at the Pratt hatchery were attempting to feed supplemental food to young bass. Grasshoppers, crayfish, roughfish, pig liver and beef steak were all tried with some success but the experiments were discontinued because the time, labor and cost involved made it impractical for a hatchery of Pratt's size. The preferred method for rearing intermediate bass was to raise another species such as goldfish or fathead minnows and feed their young to the bass. The problem with this method is it takes an average of 4 pounds of forage fish to produce 1 pound of bass. The 1986 season would have required more than 6 tons of forage to produce what 21/2 tons of artificial food pellets accomplished.

The production of intermediates actually begins in mid-May at the Meade Fish Hatchery. That's when spawing ponds are stocked with broodfish. After spawning and hatching, the young largemouth are transferred to rearing ponds at Pratt. These ponds are fertilized to promote zooplankton populations, which provide food for the bass. The ponds are monitored closely to predict a harvest date. Two things must be considered when predicting harvest:





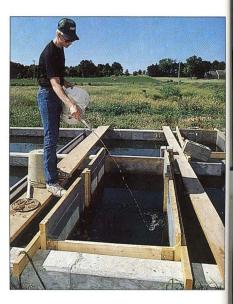
Hatchery workers (above) seine fingerling largemouth bass from a grow-out pond. The fish are then graded into training cages. The photograph below shows the necessity of grading to prevent cannibalism. If grading did not occur, larger fingerlings would feed on smaller fingerlings. At lower right, a hatchery worker disperses slurry (ground carp and water) to fingerlings in the initial step of the training process. Gradually, over a five-day period, the bass are weaned off the ground fish and onto artificial pellets.



fish size and food supply. At 1½ to 2 inches in length, largemouth begin a transition from zooplankton and small insects to large insects and small fish. If an abundant supply of food is unavailable, the young bass become cannibalistic. The goal is to harvest the bass when they are almost 2 inches but before cannibalism becomes a problem. Harvest marks the beginning of the most critical part of intermediate production, the training period.

This period begins with grading the fish into similar size groups and crowding them into cages. Grading is important because size similarity discourages cannibalism. Crowding is also necessary. The theory is that by crowding the fish and providing their only source of food, their environment is so altered that they must modify their behavior to survive. So instead of the transition from zooplankton to fish, they adapt to eat artificial pellets. Crowding also increases competition for food, which encourages the learning to accept pellets. Two drawbacks to crowding, however, are the increased incidence of disease and cannibalism. So close observation is necessary throughout the training.

Young bass are fed ground fish only their first day in the cage. Carp, buffalo or other roughfish are ground and mixed with water to form a slurry. A poultry baster is used to slowly disperse the slurry evenly through the entire case. Fish are fed 10 times each day the first two days. Feeding so often assures the fish come into contact with food often and aids the learning process. On the second day the composition of the slurry is



changed so that it is 25 percent artificial food and 75 percent ground fish. The third day the slurry is comprised of 50/ 50 mixture of artificial food and ground fish. Eight feedings per day are used for the rest of the training period. By reducing the ground fish and increasing the artificial food, the bass are weaned off the fish and on to the artificial pellets. Beginning with Day 5, ground fish is eliminated from the slurry. Young bass remain in the cages another five to six days while the water is reduced in the slurry until dry pellets are being fed exclusively. Approximately 70 percent to 80 percent of bass in cages can be expected to be "trained" at the end of the time.

The time spent in the cage acclimates the bass to the sight and sound of the feed truck. When bass are released into grow-out ponds or raceways, the sound of the feed truck is like ringing a dinner bell as the fish gather in that area for their meal. The largemouth will even swim alongside someone walking around the pond once they learn humans are the source of their meal. Then when the bass are released, daily feedings are reduced to five times per day. The amount fed each day is approximately 14 percent of the total pounds of fish in the pond. Fish are sampled frequently to inspect their condition as well as to adjust the feeding rate and pellet size to their growth. By early August, feedings are reduced to twice per day, and the fish are large enough to take a floating pellet. At this time they are not fed a certain percentage of food but just what they'll consume in a 20-30 minute period. Feeding continues in this manner until fall, when lower water temperatures decrease fish activity.

Intermediate bass are harvested in the fall, and fish are shipped to Kansas public waters. Glen Elder Reservoir was the major stocking site for 1986 and received almost 22,000 6-inch bass. In an established reservoir such as Glen Elder, intermediates will have a higher probability of success than fingerlings due to reduced predation and increased overwinter survival. Stocking in a large reservoir requires a great number of fish to make a noticeable impact on the fishery. In the past, producing these numbers has been impractical because of limited pond space to raise the necessary amounts of forage fish. But with this new training and feeding program, no ponds are needed for forage and pond space can be devoted strictly to bass.

This greatly enhances the availability of largemouth intermediates for stocking around the state. And it ultimately means better bass fishing for you. [W&P]



Sampling (weighing and measuring) occurs biweekly throughout the four-month growing season. Here the author measures bass to determine growth rate.

WHERE THEY GO

1987 was a productive year for feeding largemouth. More than 127,000 fish were produced at the Milford, Meade and Pratt fish hatcheries. Of these, 96,088 4-to 6-inch bass were stocked in seven public waters, including Tuttle Creek, Milford, El Dorado and Melvern reservoirs. The remaining bass were overwintered at the Milford hatchery for spring 1988 stocking. The goal for 1988 is to produce 125,000 to

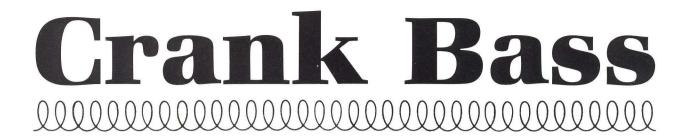
150,000 6- to 8-inch largemouth. The specific stocking locations will be determined from requests by district fisheries biologists.

Kansas is one of only a few Midwest and Southern states involved in this new training and feeding program. As the demand for larger bass increases and the technology improves, other states will develop similar programs to meet their needs.

Fin-clipping, the final step before stocking into public waters, provides one way for biologists to identify pellet-fed bass and determine the success of the stocking program.







Crankbaits are among the easiest lures to fish, making them a great bait for beginners. Veterans like them, too. Second in a three-part series on fishing baits.

> by Tommie Berger District Fisheries Biologist Dodge City

photos by Mike Blair

fter the sudden but quick hookset, the huge bass rapidly bored toward the surface, broke water, tailwalked for a couple of feet, shook her head violently and threw the lure back toward the boat.

"How can a bait with all those hooks come loose from a fish's jaw?" the disgusted angler asked.

His buddy answered, "You've been fishing with crankbaits long enough to know the answer to that question."

Sound familiar?

Some of you might ask: What the heck is a crankbait, anyway? A crankbait is one of many artificial lures that try to imitate live bait. They are known in fishing circles as



deep-diving baits, alphabet plugs and some even call them dummy baits.

Crankbaits are characterized by a plastic or metal lip or bill in front of a plastic, wood or foam body that's designed to resemble a baitfish, crawdad, frog, insect and just about anything a fish naturally feeds on. They generally are adorned with two or more treble hooks and are designed to work by throwing them out and cranking them back in, vibrating and wiggle-wobbling all the way. Hence the name crankbait.

Crankbaits differ from spinnerbaits in that all the flash and vibration is designed into the bait itself. Except for some topwater stickbaits, these baits have no flashy spinners or rotating parts. They generally don't contain any type of dressing or skirt, and they provide little action unless moved constantly, or at least consistently.

Crankbaits will catch largemouth or smallmouth bass, of course, but they'll also create heavy stringers and live wells full of white bass, walleye, crappie, wipers, stripers, drum and even channel catfish and flatheads. So don't think you have to be a bass fisherman to use crankbaits.

Let's look at some advantages and disadvantages of crankbaits before we get into types and specific uses. As for advantages, a crankbait fisherman can cover lots of water quickly. Crankbaits can be worked at a variety of depths, at varying speeds and are extremely effective when fishing around rocks or riprap. They work well for trolling, too. Many of the big-name fishermen feel that the No. 1 strike stimulus of predatory fish is the vibration (sound) effect of wounded or distressed prey. Crankbaits work primarily on that vibration principle.

All artificial lures obviously have their drawbacks, too. With the presence of two or more treble hooks, most crankbaits and topwater stickbaits are prone to snag up more often than other artificials. So they don't work well around heavy vegetation and brush. Some anglers have perfected methods of fishing crankbaits in these situations, but most of these

Crankbaits will catch largemouth bass (adjoining page) as well as smallmouth bass, white bass, walleye, crappie, wipers, stripers, drum, channel catfish and flatheads. At left, the author displays two of his favorite crankbaits bass. guys are boat anglers who can easily maneuver to a snagged lure to free it.

Another disadvantage is that the angler usually has to have a fair distance to work the bait effectively. You can't flip, buzz or vertically fish a crankbait as you can a jig, spinnerbait or worm. And because of the speed necessary to keep a crankbait working correctly, it loses its effectiveness in water cooler than 50 degrees.

There are three basic types of crankbait: shallow-runners, deep-divers and topwater baits. Two factors determine the depth at which a crankbait will run — buoyancy and the size and shape of the bill (or lip) on the bait. Most crankbaits are floaters, meaning they float when at rest. Obviously, topwater crankbaits are floaters, but they also have no bill or lip. Some crankbaits have neutral buoyancy, meaning that they will not sink or float up when at rest or when stopped on the retrieve. Then there are the sinkers, which slowly sink when at rest. Sinkers have some advantage in that they can be fished in deep water, but they also snag easier and do not float up when tension is released.

Crankbait bills are designed in many shapes and sizes to guide the bait down as it's retrieved, in addition to giving the bait its vibrating or wobble action. Big, broad bills or small, short bills cause baits to run shallower than long, pointed bills. Shallow-running baits rarely get down deeper than 6-8 feet. Deep-diving baits are designed for depths to 12 feet or so. The newest crankbaits on the market, however, will dive 20 feet or more. One nice thing about floatingtype, deep-diving crankbaits is that they can be fished at any depth — from right under the surface to 20 feet deep, depending upon speed and type of retrieve.

Crankbaits are manufactured to imitate every imaginable form of fish prey. The more common baits look like normal baitfish, be they shad, bluegill, minnows, baby bass or crappie, to name a few species. The object, of course, is to match the lure to the type of prey the fish are using. Then there are crankbaits that resemble crawdads, frogs, eels, in addition to somewhat obscure food items such as birds, mice and even beer cans (made to catch fishermen, not fish).

Crankbaits come in a variety of sizes, too. You can buy tiny crankbaits that run 3-10 feet deep, are less than 2 inches long and weigh less than a quarter ounce. Some popular models are Rebel's Teeny Wee Crawfish, Bagley's Honey B and Rapala's 2-inch minnow. These lures then range up to the 2- to 3-ounce Hellbenders that measure 6 inches or longer and are used to troll for striped bass. In between is a host of quarter-ounce to 1-ounce baits. Remember, try to match your lure with the particular prey the fish have available.

The best time to fish crankbaits in Kansas is generally April 1 up to about the first of November, so let's divide that stretch into spring, summer and fall.

SPRING

Early in the spring, fish become more active as the water warms. Crankbaits fished in the spring should be small- to medium-sized and worked slowly. The first crankbait I usually break out is a 2- to 3-inch Rapala minnow, which takes spawning walleye on the rocky riprap of dam faces in late March and early April. Farm pond bass will attack small crankbaits at this time, too. Ultralight crankbaits are particularly effective in the spring, when these baits more closely resemble the newly hatched fry on which predators feed. One disadvantage here is that these small lures are easily snagged in weeds. Their use is limited to open-water structure or edges.

My favorite springtime crankbait is a medium-running

crawfish-imitation lure. Bass and crappie tend to congregate around logs and brush where the water warms more quickly. A slow to moderate retrieve with a crawdad crankbait over and around logs will often produce well. Later in the spring, when the white bass move to the dam rocks to spawn, I've found that orange deep-diving crankbaits can be dynamite.

Topwater crankbaits are also popular in the spring, primarily for bass. They aren't as aggressive toward topwater baits so floating/diving minnow plugs worked just slightly under the surface seem to be the best. As the spawn approaches and water temperatures reach 60-65 degrees, a topwater bait with a single spinner or rear propeller is a good compromise between a quiet minnow lure and a noisy twinprop bait. Some like the small poppers such as Rebel's Pop-R or the Pico Pop. Some call these 2- to 3-inch baits "chuggers."

SUMMER

The summer season starts when most of the spawning activity of predators is over, usually mid-May or the first of June. This is the time to dig out your bigger, deeper-diving baits such as Hot-N-Tots and Thin Fins, popular baits when casting and trolling for walleye and white bass. Crankbaits can be hard to beat when the walleye are up on the flats or along the vegetation. Usually by this time the first shad spawn is over, and using shad imitations can be the best bet. In state lakes without shad, bluegill look-a-likes generally match the baitfish best.

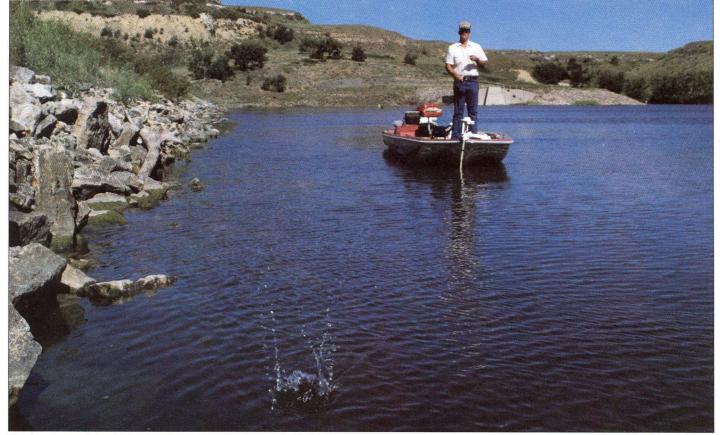
As the summer progresses, varying crankbait techniques can add fish to your stringer. Don't just cast and reel, cast and reel. Try a stop-and-go technique. Reel the lure fast for a few feet, then stop. Floating lures will slowly float toward the surface, sometimes instigating a strike. Then reel again, and stop. Some fellows call it pump-and-go because they use their rod to speed up the lure.

Don't be afraid to crank a deep-diver through shallow water. Often when it drags and bounces off the bottom, it kicks up a trail of mud, triggering a strike. The big lip on deep-diving plugs helps keep the hooks above most snags. If the lip hangs up in the rocks or brush, give the plug some slack and it will usually float free. A fast-cranked bait can be very effective. When fish are actively feeding, the erratically worked lure looks much like panicked prey. The fastmoving lure also works when fish aren't aggressively feeding. Fish will often respond to a fast-moving bait with a reflex, not really knowing what they're chasing, but not wanting it to get away.

Another deadly trick involves mistuning a crankbait, or bending the line tie eye to cause it to swim to one side. Bend the eye in the direction you want the bait to swim and you can make a crankbait swim into a line of stumps, under a dock or along the edge of a steep bank.

Midsummer, when the water temperature is above 70 degrees, crankbaits need to be fished deeper. Those reaching the 12-20 foot depths produce the best. Light line, long rods and the kneel-and-reel technique will produce fish now. Kneel-and-reel means kneel down in the front of a boat, plunge your rod down into the water and reel the lure at a moderate retrieve to reach maximum depth.

But don't think that summer always means active fish. In situations such as cold fronts, fish can be slow and sluggish. I remember our local bass club had a tournament on Pratt County Lake several summers ago. The bass in that lake then were fat, slow and lazy. The key to winning that tournament was casting huge crawdad-imitation crankbaits along the shallow edges of the riprap piers, running them by tantalizingly slow, and passing them within inches of the bass' nose.



The key to catching bass often lies in casting to the shallow edges of riprap, as the author demonstrates here.

Summer also is the time to fish topwater baits. Big, noisy stickbaits with propellers fore and aft work well around the weedbeds and along the dropoffs. Poppers and chuggers worked at a feverish pace will call up bass from the deep. Some topwater crankers prefer the big stickbait lures such as the Zara Spook, which has only the action you can put into it. Summer and topwater usually means bass, but if you find a school of surfacing whites or stripers, you'd better hang on to that rod!

FALL

As fall approaches and water temperatures begin to drop, fish tend to move shallower and become more aggressive. For some reason, a lot of species move toward rock and riprap during this period. Using medium, shad-imitation deep-divers and casting parallel to the riprap can be deadly. Over the Labor Day weekend last year we caught walleye, white bass, drum, largemouth bass, crappie and flatheads along the Cawker City Causeway at Glen Elder. All the fish fell to the same shad-type crankbaits.

And yes, I said flatheads. Catfish will usually take crankbaits at two times each year, in June when they are spawning in the rocks and in the fall, when they're on the rocks once again. Refer to Bill Layher's article in the May/June 1987 issue of this magazine for his flathead crankbait technique at Milford Reservoir. I've also caught a number of flatheads while throwing small crawdad-imitation crankbaits for smallmouths at Wilson and Milford reservoirs. This seems to be especially effective when the waves are high and crashing into the rocks.

Whites are generally schooling feverishly in the fall and shad-type crankbaits can be deadly. Both largemouth and smallmouth bass switch back to crawdads as a big part of their diet in the fall, so those types are a good bet. Remember, fish are shallower, so shallow runners will work. The water is cooling down so slow your retrieve. Work your baits around rocky points and riprap.

Fall is topwater time deluxe so don't put your surface cranks away yet. Keep throwing those noisy prop baits, chuggers and, occasionally, a stickbait. As the water cools, revert back to the quieter minnow floaters and you'll do well clear up to hunting season.

Crankbaits are among the easiest lures to learn to fish since the lure's action will often attract a strike, regardless of the retrieve. This makes it an excellent bait for beginners.

The edge many skilled anglers have over the average angler, however, is the ability to understand what their lures are telling them as they fish. Some anglers cast and retrieve their baits in a swimming pool or other clear water to get an idea of what the lure does underwater. Most good crankbait anglers even go so far as to say that the lures are talking to them; some call it "feel." During the retrieve you can see the lure running straight and feel the vibration of the bait. The feel of the bait changes greatly when weeds or the bottom are found. Combine what your lure is telling you with what you want to "tell" the fish. This can be a deadly combination.

Getting used to a crankbait takes time and practice. New crankbait anglers usually have two problems. First, they overcrank. With most baits on the market, a moderate retrieve will allow the crankbait to find the depth at which it runs best. Cranking too fast will often cause the bait to plane off to the side. Some crankbaits will do that right out of the box, so they need to be tuned. Don't throw a new bait away just because it doesn't run straight. Take a pair of pliers or a hook and turn the line tie-screw in the direction the bait should go. It may take one or two adjustments but with enough work, you can get that bait to run straight.

The crankbait is a fishing tool. You'll find that these socalled dummy baits can be among the most productive tools in your tackle box. Jalley Janey by Mike Blair

Young quail are on the go with their mother soon after hatching. Though vulnerable to predation, the birds are protected by their coloration. When caught in the open, mother and young freeze near the closest available cover. Shot with 105mm, f/11, 1/125.



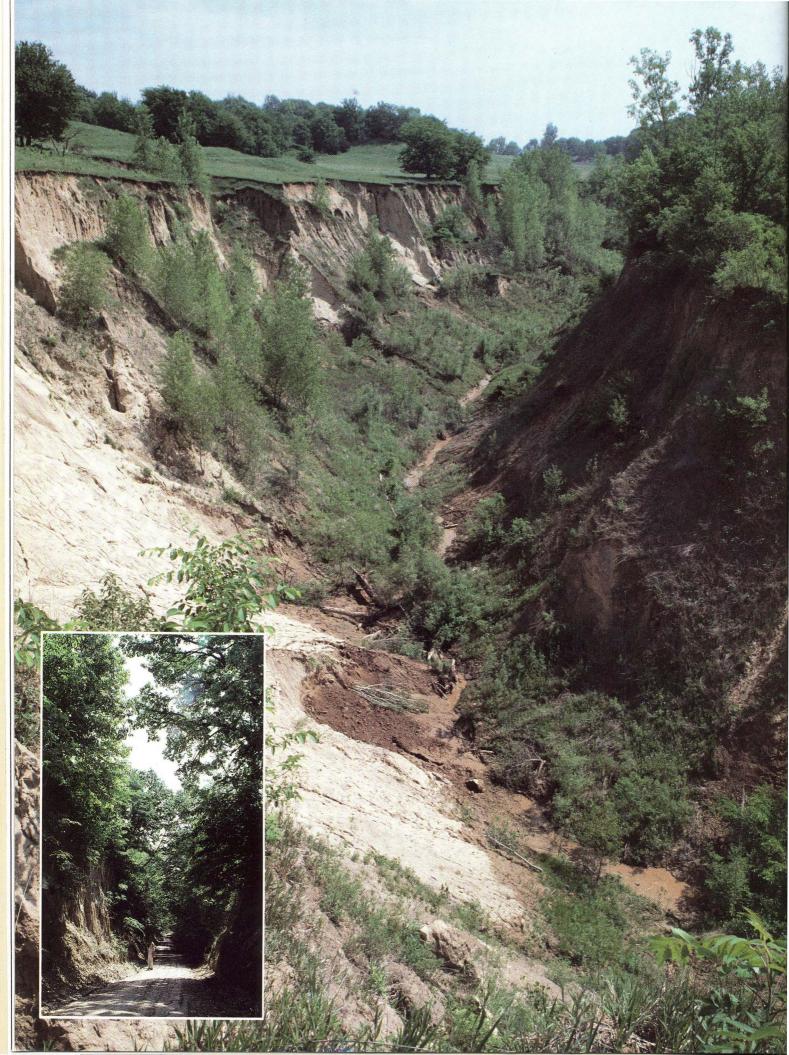


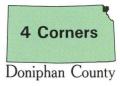
Bobwhites are social birds, living together in groups that may number 20 or more. Winter is a difficult time as dwindling food supplies may be covered by ice or snow. Quail, however, readily use feeding stations. Shot with 600mm, f/11, 1/250.

A foggy autumn morning greets a covey of quail as the birds fly to a feeding site. Shot with 400mm, f/4, 1/125. The bobwhite quail is named for its cheerful call, a signal whistled by males during the nesting season. Usually the male perches on a limb or fencepost to announce its presence to the ladies. Shot with 105mm, f/16, 1/60.









Little Switzerland

Known for its spectacular bluffs and steep rugged hills, Doniphan County is a fascinating place to explore.

by Mary Winder Troy

This is the first article in a four-part series profiling the corner counties of Kansas. The series kicks off with a look at Doniphan County. Next issue: Cherokee County.

fis just isn't at all the way I thought Kansas would look," my grandmother from Florida remarked as she gazed across the steep wooded hills and river bluffs of Doniphan County during her first visit here. "I always thought it was supposed to be flat and dry, with no trees."

My grandmother, like many firsttime visitors to Doniphan County, in the extreme northeast corner of the state, was quite surprised because this area simply does not fit the image most people have in mind when they hear the word Kansas. Many parts of the state don't fit this image, but Doniphan County doesn't even come close.

What makes this county's landscape unique? Well, for starters, a big chunk of it is hilly. I'm not just talking gentle slopes. I'm talking spectacular bluffs and steep rugged hills that have earned the county the nickname Little Switzerland.

Glacial events that occurred in Kansas tens of thousands of years ago played a major role in shaping the terrain here. During the Pleistocene Era, glaciers moved across a large section of North America and edged just into the northeast corner of Kansas. As the glaciers moved, they ground up rocks into



Evidence that a sea once covered Kansas is found in Doniphan County fossils (above). The "Big Ditch" (at left) provides a spectacular example of the county's highly erodible soil. The inset photo shows one of the so-called "Chinese roads," named for roads in north-central China.

fine material. Then when the glaciers melted, this fine material, known as loess, was left behind. The strong winds that blew during that time picked up the loess and deposited it over large areas of the Midwest, including Doniphan County. Geologists believe most of the loess was laid down about 50,000 years ago.

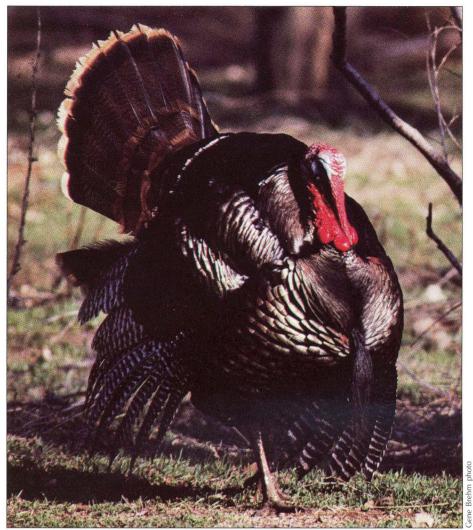
The loess is 60-100 feet deep on the river bluffs in Doniphan County, with especially deep deposits around the big bend of the Missouri River. "Some of the deepest loess beds in the world are found in this area," says Jim Thompson, physical science teacher at Highland Community College.

These river bluffs provide breathtaking views, including the scenic lookout near White Cloud. From this spot, one can gaze out over the meandering Missouri River and view land in Kansas, Missouri, Iowa and Nebraska.

Geologists believe the loess piled up so deep along the Missouri River Valley for two reasons: 1) it was abundant and 2) there was a lot of heavy vegetation there to catch the wind-borne rock dust. Farther from the river, the loess is not nearly as deep. Wind and water then further shaped and sculpted the loess hills and bluffs even more, putting the finishing touches on the unique landscape of Doniphan County.

This loess soil, which ranges in color from a soft buff to a yellowish brown, has many interesting qualities. William J. Miller, in An Introduction to Historical Geology, writes "where eroded or cut into, the loess exhibits a remarkable tendency to stand in perpendicular cliffs, sometimes with suggestions of a sort of columnar structure."

This property of forming vertical



Doniphan County has one of the highest concentrations of Eastern turkeys in Kansas.

banks is illustrated throughout Doniphan County. For example, there are roads in the county that look like steepwalled canyons. These are sometimes called "Chinese roads" because they resemble roads in north-central China, where deep loess deposits also exist. The roads form when wind and water blow or wash away soil loosened by travel.

Another place to see steep perpendicular banks of loess is a gargantuan gully known as the Grand Canyon of Doniphan County (or the Big Ditch) located north of Sparks. This Grand Canyon, thought to be the largest gully in Kansas, is more than 150 feet deep in the deepest part and more than 450 feet wide in the widest part, says John Meisenheimer, district conservationist with the Soil Conservation Service for Doniphan County. The gully grows larger with the rains and runoff of each passing year.

Both the Chinese roads and Grand

Canyon in Doniphan County illustrate another property of the loess soil — it is easily eroded. "Doniphan County soils are the most erodible in Kansas, if not in the U.S.," says former Doniphan County soil conservationist Andy Phelps.

Soil erosion is a serious problem in this county, with 78 percent of the county considered highly erodible and another 8 percent potentially highly erodible, according to Meisenheimer. Unique conservation measures such as steep backslope terraces are being used to curb erosion in Doniphan County. This type of terrace has a steep back side, with a 2:1 slope that isn't farmed but is planted to grass. No-till or minimum-till farming, water and sediment control basins to control gully erosion, and planting steep land to grass also help conserve the loess soil in Doniphan County.

If the highly erosive quality of Doniphan County loess is the bad news, then the good news is that the loess is excellent for growing crops, grass and trees. Rex Buchanan, editor of *Kansas Geology*, writes: "In northeast Kansas a very rich soil has developed on the loess, especially in Brown and Doniphan counties."

"The soil here is very fertile," says Jim Thompson. "It is fine and holds moisture well. It is perfect soil for crops." Thompson goes on to explain that the soil is so fertile in part because the loess material the glaciers left behind was full of minerals.

Because Doniphan County soil is so rich, residents have chosen to plant crops on more than 68 percent of it. The major crops grown are corn, soybeans, grain sorghum and wheat. "With adequate rainfall, there are places in Doniphan County where the average corn yield is 140 bushels per acre," says Curtis Kruse, ASCS County Executive Director for Doniphan County.

About 15 percent of the county is in pasture. Cool-season grasses are predominant, but native grasses seem to be on the increase. About 1,000 acres of Doniphan County land will be planted to native grass as part of the Conservation Reserve Program. Special crops such as vegetables, small fruits and fruit trees are also grown commercially in Doniphan County. In 1983 the county produced 3.4 million pounds of apples and 138,000 pounds of peaches.

Doniphan County soil is good for growing forest, too. The county ranks sixth in the state in percentage of woodland (11.6 percent). Leavenworth County, with 14.6 percent in woodland, ranks first. There are currently 29,900 acres of commercial forest in the county. In 1965 the number of commercial forest acres was 33,700.

Ray Aslin, an Extension Forester in Fire Control, comments on the reason for the decline in Doniphan County forest acreage. "The land has been converted to other uses," he says, "primarily agricultural uses like the growing of corn and beans."

The most common woodland trees in Doniphan County are Eastern red cedar, Eastern cottonwood, black walnut, hickory, bur oak, red oak, elm, hackberry, mulberry, sycamore, black cherry, honeylocust, redbud, sugar maple, silver maple, basswood and green ash. The timbered areas in Doniphan County provide excellent habitat for everything from tasty morel mushrooms to wild turkeys. The appearance of mushroom hunters coincides with the appearance of their fungal prey, usually in late April and early May.

Lois Owens of rural Doniphan County says she's hunted morels in the county for as long as she can remember. "There are some really good places to hunt mushrooms in Doniphan County. I usually look for them near creeks in timbered areas," she says. "I have the best luck finding them on a nice warm spring day after a rain."

The story behind Doniphan County's wild turkeys is an interesting one. "There were some remnant birds living in Doniphan County," explains Randy Whiteaker, a wildlife biologist with the Kansas Department of Wildlife and Parks. "But we believe that the bulk of the turkeys now living in the county came from Missouri. After Missouri started a turkey reintroduction program, the birds flew across the Missouri River into Doniphan County and settled there. We have documented evidence of the turkeys flying across the river.

"Now Doniphan County has an ex-

cellent turkey population," he adds. "In fact, that county has one of the highest concentrations of Eastern wild turkeys in the Eastern range of Kansas."

Greg Hanson, a wildlife research biologist with the Iowa Department of Natural Resources, had a memorable experience with Doniphan County wild turkeys several years ago. Hanson, who used to be the district biologist for the northeast Kansas area, was inspecting a landowner's farm as a possible site for live-trapping turkeys.

"We came upon a field that had recently been grazed by cattle and there were a bunch of gobblers flipping over cowpies, pretty as you please, to get to the insects underneath," Hanson recall. "Just about every dry cowpie in that pasture had been flipped over."

With eating habits like that," Hanson quips, "those wild turkeys probably had terrible breath."

Doniphan County is a fascinating place to explore. In the exposed banks along places such as the Chinese roads or Grand Canyon, a careful onlooker might notice concretions in the soil. These are white- or cream-colored masses, harder than the soil, composed of calcium carbonate. They are sometimes called kinchen (little children) of the loess, due to their childlike shape. Small, white snail shells and other fossils as well as geodes can also be found in Doniphan County. Another interesting feature occurs on grassy hillsides where the loess soil sometimes slumps, forming horizontal benches that look like stair steps. These are known as catsteps.

Troy resident Hillman Hull has a collection of hundreds of fossils and unusual rocks he's found in Doniphan County. "I've been interested in rocks since I was old enough to wear overalls," Hull says. "Doniphan County is a very good place to go rock hunting. I've found a variety of fossils in the county, including a fossilized fish. In Brush Creek, I've found a lot of Lake Superior agates with glassy deep red and brown colors and patterned lines.

<image>

The Indian Giver

Peter Toth's special gift to the people of Kansas stands on the Doniphan County Courthouse lawn in Troy. It is a 27-foot tall monument of an American Indian. Toth carved the monument in 1978 from a 300-year-old bur oak.

Toth's goal is to create an Indian monument in each of the 50 states to honor the American Indian. He's working on a monument for Hawaii at pres-

Peter Toth's monument of an American Indian stands on the Doniphan County Courthouse in Troy. Toth chose the site because Troy is rich in Indian lore. ent and when it's finished, he'll have reached that goal. Toth began his first Indian in 1972 and has been accompanied on his journeys by his wife, Kathy, since their marriage in 1977. He calls his monuments "Trail of the Whispering Giants."

"My monuments are . . . my way of saying what I must say," Toth said in his book, *Indian Giver* (Tribal Press, 1980). "They are made to remind people of the contributions of the Indian to this country and the fate we've left them."

The monument in Troy, which has been named Tall Oak, is his 29th state statue. Toth carved it from a log that stood 100 feet tall when felled and had a diameter of more than 5 feet. It took him several months to complete the Indian, using a mallet, chisel, gouge and other tools to shape the wood. The monument is mounted on a 5-foot base constructed from native stones that area residents donated.

Toth said he chose Troy for the site of his Kansas monument because it's a scenic spot and because several Indian tribes live in the area. The Kansas monument represents a composite of facial characteristics and ornaments from several Indian tribes that have lived in this state.

A native of Hungary, Toth sells small carvings to help finance his travels. He accepts no payments for his state monuments, however. They are his gifts to the American people. — *Winder* And I've found geodes in a road bank near Doniphan. They are a dull rough brown rock on the outside, and when you break them open, there are beautiful limestone crystals inside." Hull has found 50-100 pieces of petrified wood in Doniphan County as well.

Hull also mentions natural gravel pits located south of Wathena, a limestone bank covered with layers of fossils near Peter's Creek, and fossilized plant life embedded in limestone in a little stream north of Troy.

The Iowa, Sac and Fox Indian tribes once lived in Doniphan County and numerous Indian artifacts have been found in the county, too.

The Iowa, Sac and Fox Mission Museum, located east of Highland, houses a collection of Indian articles. The museum displays a variety of Doniphan County artifacts including arrowheads, swords made of bone, axes, tomahawks, pieces of flint, bits of pottery and pipes. Some date to the 18th century, says Art Snyder, the museum's curator. The museum also has exhibits of beaded work, shoes and ceremonial dress that Indians who lived in the area wore. The museum itself is housed in a building that originally served as an Indian mission. Built in 1837, the mission was the first white settlement in the county.

"Many of the artifacts we have were found near the towns of Fanning, White Cloud and Doniphan and near the Nebraska line," Snyder says. "These are the sites of old Indian encampments. It seems like the Indians would often camp on the hilltops, where they could look out, or down by a creek, so they could be close to a water supply. People are still finding Indian artifacts in Doniphan County."

ontributing to Doniphan County's uniqueness is the fact that it is among the few Kansas counties bordered by one of the nation's major waterways, the Missouri River. The Muddy Mo rolls on its turbid way along the north and east edges of Doniphan County for nearly 60 miles. Through the years, the river has profoundly affected the land and people of Doniphan County, and the people, in turn, have profoundly affected the river. Before 1929 the river was shallow and marshy. The main channel frequently changed its course, according to Ken Ingerly, a civil engineer with the U.S. Army Corps of Engineers.

"The Missouri had many sandbars, islands, split channels and it was generally wider than today's river. Navigation was treacherous in those days and frequent flooding occurred along the river," Ingerly says.

An Army Corps of Engineers pamphlet describes what happened to the town of Doniphan, in the southeast part of the county. Doniphan, Kansas, seemed to have the brightest future of the riverfront towns upstream of St. Louis. Between 1855 and 1870, the town developed into a center of trade with as many as 20 steamboats docked there in a single day. The town supported a population of 2,000 and contained 24 brick buildings. In 1870, the river which was the original spark of prosperity for Doniphan, removed its blessings. In the night with the populace looking on in horror, the Missouri claimed the town. Railroad tracks and stations, houses, barns, and thousands of acres of farmland were torn up and devoured. The river made a new channel and left what remained of the town completed landlocked."

Channelization of the Missouri River began in 1912. The goal was to create a dependable channel for navigation and to protect property and developments along the river. The project was authorized by Congress. Sharp curves were made more gentle, and the river's course was defined by means of dredging and constructing various structures such as pile dikes. Most of the channelization in Doniphan County occurred between 1929 and 1935.

River channelization has had both beneficial and detrimental effects. Two of the most obvious beneficial effects often cited are the creation of a navigation channel and stabilized banks. The navigation channel provides an economical way to transport bulk commodities such as wheat, fertilizer and coal. Stabilized banks have allowed the construction of numerous miles of levees near the river, which in turn has permitted the development of more than 1.8 million acres of productive farmland.

Another benefit of channelization is the improvement of water quality. The amount of sediment transported today is less than one-third the amount transported 30 years ago, according to the Army Corps of Engineers.

On the down side, the increase in farmland due to channelization has decreased habitat for fish and wildlife. Water surface has decreased by as much as 50 percent since 1879, breeding grounds for fish have been destroyed and riverside forests have been cleared for cropland. The stabilization of the banks and improved flood protection encouraged this clearing.

Steps have been taken to begin ad-

dressing this habitat loss. "A plan was developed to compensate and mitigate the (habitat) losses. The plan included reestablishment of some of the wetlands and timberlands lost and acquiring additional land to enhance the fish and wildlife on the river," says Ingerly. The plan was approved by Congress under the Water Resource Development Act of 1986. No funds have yet been appropriated by Congress to initiate the plan.

Many people don't realize that an odd quirk of nature occurred more than 30 years ago and left a rather big piece of Missouri on the Kansas side of the Missouri River. In April 1952, a major flood caused the river to change course and cut across a neck of land, leaving a section of Missouri land on the west side of the Missouri River instead of on the east side. This land, surrounded on three sides by Doniphan County, is the location of Missouri's Rosecrans Memorial Airport.

Numerous streams, creeks, and brooks thread their way through Doniphan County, including the scenic Wolf River, which empties into the Missouri River about three miles north of Sparks. As with the Missouri, people enjoy boating and fishing on the Wolf River.

In an effort to curb severe erosion problems in the area, the Wolf River Watershed Joint District No. 66 was formed. This group has worked diligently for years to study problems and propose solutions. A Watershed Plan and Environmental Impact Statement, including cost estimates of installing conservation measures and descriptions of benefits, has been prepared and is awaiting approval and funding by Congress. The estimated cost of implementing the recommended alternative described in the plan tops \$21 million.

And there you have it — an overview of Doniphan County and the look of her land. The steep, timbered bluffs and hills, the loess soil with its blessing of fertility and curse of erodibility, and the Missouri River running by all combine to create this unique and beautiful Kansas corner. Taking a look at a corner of Kansas reminds us that this state has many diverse landscapes within its boundaries.

For more information about the geologic history, soil and landscape of Doniphan County, refer to the books mentioned in the article or to *Pleistocene Geology of Kansas* by John Frye and A. Byron Leonard (University of Kansas publication), *Physical Geology*, by Chester Longwell, *Soil Survey of Doniphan County* by the Soil Conservation Service, or *Natural Kansas*, edited by Joseph T. Collins.

HIGH GROUND

by Marvin D. Schwilling

The Boss

A peculiar virtue of wildlife ethics is that the hunter usually has no gallery to applaud or disapprove his conduct. Whatever his acts they are dictated by his own conscience rather than by a mob of onlookers. It is difficult to exaggerate the importance of this fact. Aldo Leopold

It may be said that Aldo Leopold, more than any other individual, has been responsible for the expansion and refinement of wildlife management as we know it today.

Modern game management is the youngest of the natural sciences. For thousands of years it was practiced as an art by kings and gamekeepers, but only in the last few decades has it taken its place in the objective sciences.

Aldo Leopold was to become the standard bearer of the developing profession known as game management. His textbook, *Game Management*, was in wide use, and *A Sand County Almanac* was first published in 1949, during my junior year in college. Both books are still in wide use.

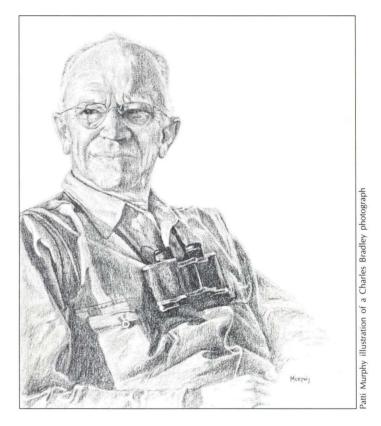
Professor Leopold was born Jan. 11, 1887, in Burlington, Iowa. He was interested in hunting and ornithology during boyhood and youth along the Mississippi River. An aggressive hunter, Leopold referred to himself as having "trigger-itch." His brother recalls that Aldo simply wore out the doublebarreled 16-gauge Lefever his father gave him.

Leopold was born into an affluent family and was insulated from the hard realities of social strife. He left Iowa to enter exclusive Lawrenceville Prep in New Jersey. And after spending several years at Yale's Sheffield Scientific School, he became one of the first students at Yale's new School of Forestry. He received a Master of Forestry degree from Yale in 1909. His formal education stopped there, but his own lack of a Ph.D. never bothered Leopold. It did, however, seem to bother some of his faculty colleagues, and it's one of life's ironies that an Aldo Leopold type without a Ph.D. could not get appointed to an assistant professorship in the department he founded, much less get appointed to tenure.

Following his graduation from Yale, Leopold took employment with the U.S. Forest Service as a forest assistant and worked in the Southwest until 1924. In 1928 he quit the service and began work as a private forestry and wildlife consultant. Leopold seemed to risk his career in doing so; he had a wife and five children to support and no private income. But he was able to get a job conducting a game survey of the north-central states.

1933 proved to the world that Leopold's bold gamble had paid off. Not only were the results of his game survey published to considerable acclaim but so was his spectacularly successful book *Game Management*, the comprehensive study that was soon recognized as the classic text on the subject. This book was so pioneering and so definitive that a group of University of Wisconsin alumni funded a special chair for him as America's first professor of game management.

The University of Wisconsin campus is just south of Wisconsin's "Sand Country." It was here that Leopold purchased a badly abused farm with a shed that was to be known as the famous "shack." His Sand County shack was literally that,



a slightly remodeled chicken shed with only a fireplace for cooking and warmth, and no indoor plumbing.

Although Leopold was universally known by fellow biologists and natural scientists, he was not widely known outside of this circle until publication of his *A Sand County Almanac* in 1949. Unfortunately this was after his tragic death on April 21, 1948. On one of the first real days of spring, Leopold was planting Norway pine trees on his beloved farm. A neighbor's grass fire grew out of control, and Leopold ran to help. He disappeared into the smoke with a bucket of water, was stricken by a heart attack and never came back.

The Almanac manuscript had been rejected by several publishers but was finally accepted by the Oxford University Press only a week before his death. The book is a series of essays about his poor sandy farm, his travels in western North America and the environmental philosophy that developed out of these experiences and observations. Since its publication, the Almanac has come to be regarded as a 20th century Walden — or more. Currently the book is used in dozens of universities as a text and reader for students of natural history, philosophy and literature.

Leopold has been referred to as the Professor, the Boss, the Father of Game Management, a dean of deans, a sort of ecology guru. He was convinced that man would be the worst enemy against ecology. He was right.

