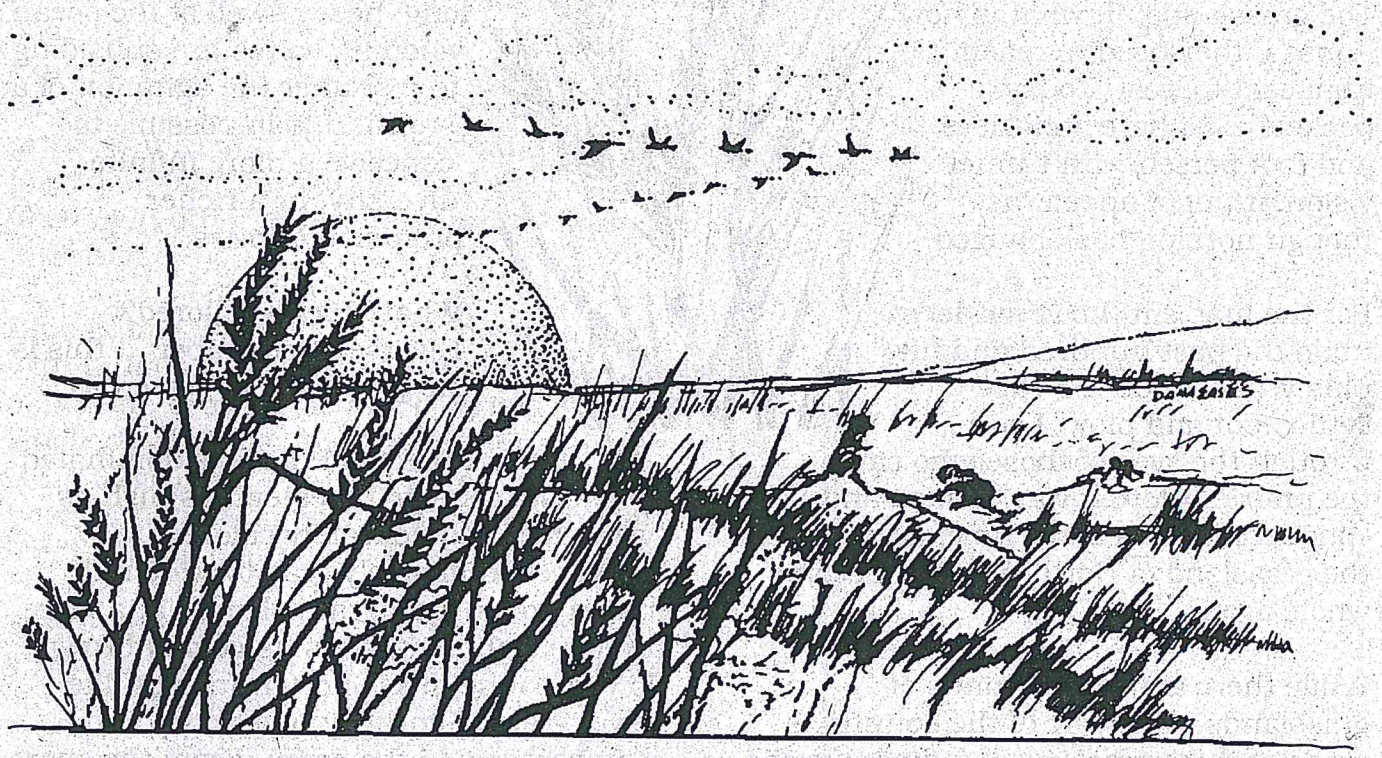
On T.R.A.C.K.S.

Teaching **R**esources **A**ctivities and **C**onservation to **K**ansas **S**tudents

VOL. 3 NO. 3 KANSAS WILDLIFE & PARKS SPRING 1992

THE PRAIRIE



The Species Spotlight shines on a unique little prairie bird -- check out page 7.

What is a prairie?? Learn about the many different kinds in Kansas. See pages 2 and 3.

Games, Games, Games -- page 13.

The diverse wildlife of the prairie is discussed on pages 8 and 9. What happened to the bison??

Wildflower Power -- mosey over to pages 10 and 11.

The prairie provided settlers with an essential item. What is it?? Page 6.

Resources.....Page 14.

A SEA OF GRASS

They evolved more than 70 million years ago. Since then, they have become so successful, they now cover a quarter of the lands on Earth. In North America they used to stretch from the Appalachian mountains to the Rockies.

The grasslands. In what is now Kansas, they used to reach from east to west. Today, pockets exist here and there, and to a person with tunnel vision, it might appear as though nothing has changed.

For the moment, however, let's undo the past hundred and fifty plus years. Undo the effect settlement and plow. Look through the eyes of those who saw the prairie before it was divided and conquered. For a short time, at least, let the grassland of North America become whole again....

While there are several kinds of grasslands, the heart of the country is made of three types, each fading into the other. The tallgrass prairie, starting as a narrow east-west band in Ohio, stretches across Indiana, Illinois, Wisconsin, Missouri, and the eastern fringes of the Dakotas, Nebraska, and Kansas—becoming wider the further west it goes. These grasses are generally four to nine feet tall. A north-south band of Mixed Prairie—grasses two to four feet in height—picks up from there and covers most of the Dakotas, Nebraska, Kansas, Oklahoma, and portions of Texas. The shortgrass prairie, under two feet in height for the most part, spreads from the western edges of these states and continues to the Rocky Mountains.

What comes to mind when you think of a prairie? Boring. Monotonous. Dull. Now look at it through the eyes of the settlers:

"These plains exhibit a gracefully waving surface, swelling and sinking with an easy slope. [It] resembles the long, heavy swell of the ocean when its waves are subsiding to rest after the agitation of a storm. It is impossible to conceive a more infinite diversity, or a richer profusion of hues..."

What? Richly colored? Diverse? Remember ... this is the grassland of yesterday.

The Tallgrass Prairie is dominated by grasses like big bluestem, as high as twelve feet and delicately colored anywhere from steely gray to wine red. Indian grass, a tallgrass shrimp at a mere three to eight feet, adds its golden brown flowers to the mix. Shorter grasses like velvet grass, Kentucky bluegrass, and switchgrass add the green. From the short to the towering, this grassland of the past is not so much a patchy field as a jungle: huge, unbroken, dense. The forest-like "canopy" of grasses catches ninety-seven to ninety-nine percent of the sunlight before it hits the ground. Immense fires ritually swept the land, knocking out many of the trees that chanced to take root, and giving grasses the upper hand.

The Mixed Prairie certainly doesn't generate this kind of excitement, even from the poetic pioneers of the west. Nearly completely devoid of trees, in 1820 it was dubbed The Great American Desert. Here you find some tall grasses, but little bluestem—two to three feet tall—is the ruler. With the shorter needle-and-thread

grass you see a more open, more diverse landscape rather than the dense, jungle-like tallgrass prairie. Autumn blazes with the crimson of shining sumac, yellow cottonwoods and elms. This type of grassland covers more ground than either the tall- or shortgrass zones. Is the mixed Prairie just a transition zone between the two, or are the other two merely the fringes of the one grassland?

The Shortgrass Prairie—the high plains of Kansas as an example—is a seething battlefield, constantly changing. Winners expand their territory at the expense of the weaker opponents. It's a place of fierce competition for water, good soil, and protection from the elements; wind and hail can pound a plant flat. Fire doesn't play a large role here as in other grasslands; there is simply too little fuel.

Blue grama, six to twenty inches tall, mixes it up with buffalo grass. Buffalo grass makes a worthy opponent, growing as much as two inches in a single day. Like many grasses, much of the battle is underground. Find the water, store the food, hold on tight! Root systems can reach twice the length of the plant you see above ground.

This is the Great American grassland of the past. Virtually unbroken, an astoundingly diverse sea of life. Coming back to the present, the sea has been drained. The prairie fires have been extinguished, and trees have moved in. Islands of prairie remain, and it is to these you must go to learn about the grassland jungle.

One last peek through the looking glass. A settler woman's thoughts as she watched a child leave home on the prairie:

"When I saw [the] child tripping out of home bounds, I had a feeling that it would never get back again. It looked like putting out to Lake Michigan in a canoe."

Ready for some teasers? Why does fire remove the trees but not the grass? Do grasses have flowers? Why are grasses so successful? Since the prairie has changed, how have the animals? If the prairie hadn't been settled, how would life in the United States be different?

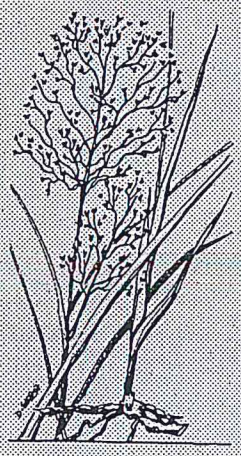
Kansas Wildlife & Parks identifies four prairie communities in Kansas.

Tallgrass. Dominant grasses include big bluestem, little bluestem, switchgrass and Indiangrass. Some of the more common forbs include compassplant, gayfeathers, prairie clovers and wild indigo.

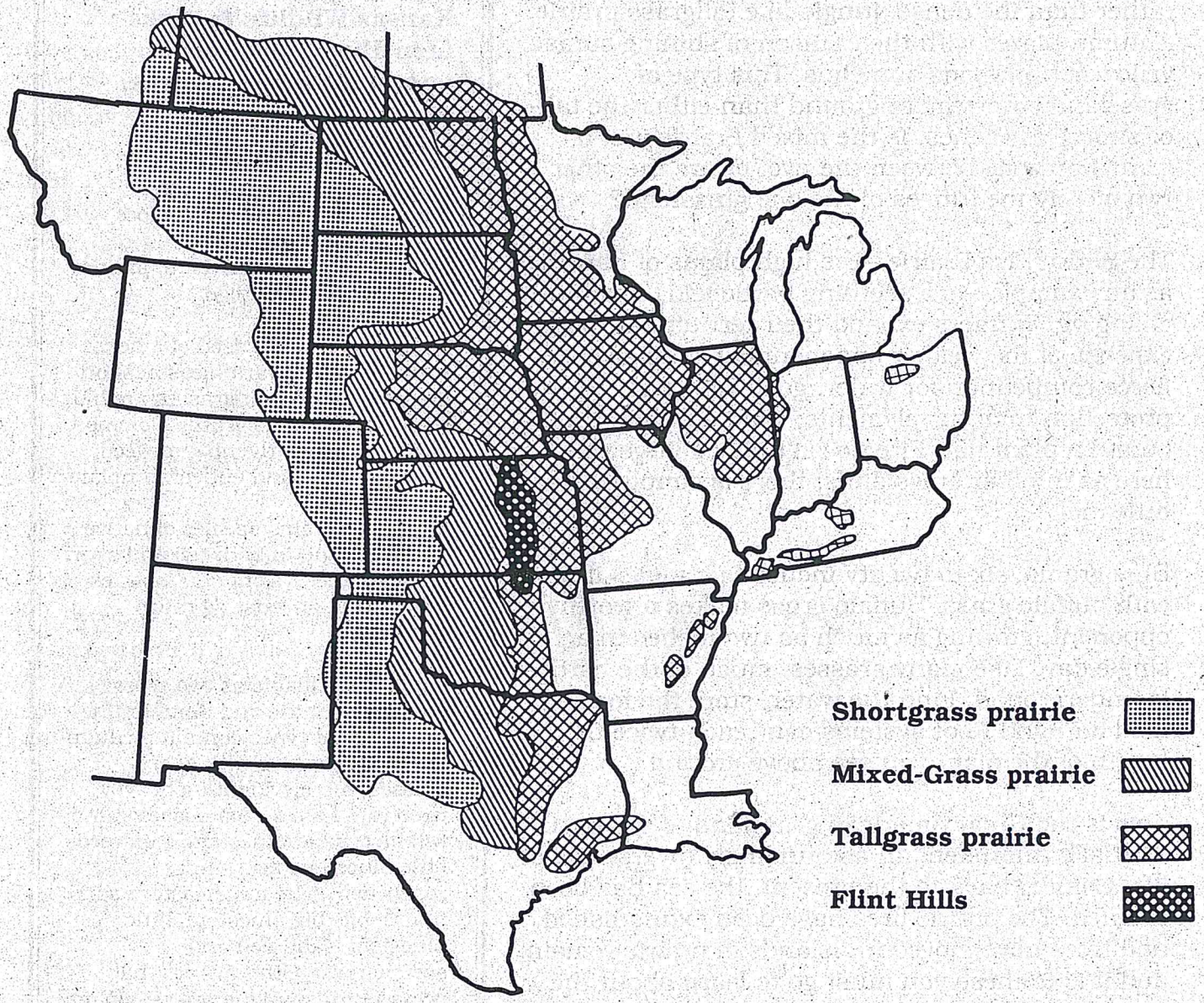
Shortgrass. Comprised of a dense stand of native warm-season short grasses. Dominant grasses are blue grama and buffalo grass. Common forbs include curlycup gumweed, skeleton weed and cutleaf ironplant.

Mixed. Contains species of native grasses found in both tall and short grass prairies. Dominant species will depend on existing range conditions.

Sand. Identifiable as two types: Sandsage Prairie and Sand Prairie. Both habitat types contain medium-tall to tall grasses with short grasses more evident on heavily used range sites. Sandsage prairie will have sand bluestem, sandreed, little bluestem, and sand sagebrush. The more eastern sand prairie has big bluestem, little bluestem, sandreed and switchgrass. Other plants that occur on this unique prairie include sand plum, sand milkweed and silky prairieclover. Sandsage prairie is found on sandy lands south of the Arkansas River and west of a line through Comanche and Kiowa counties. The Sand Prairie is found south of the great bend of the Arkansas River and is located primarily in Edwards, Kiowa, Pratt, Reno and Stafford counties.



ORIGINAL RANGE OF PRAIRIE IN NORTH AMERICA



WHAT IS A GRASS??

Over 180 genera and almost 1,000 species occur in the U.S.

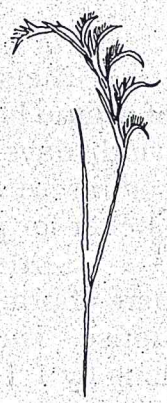
Almost all of our food comes from grasses either as plants we eat or food for livestock.

Evolved 70-80 million years ago.

Most commonly occurring flowering plants in the world.

Found in practically all habitats and on all continents --even Antarctica!!

THE RED BUFFALO



The Native Americans called prairie fire the "Stampede of the Red Buffalo".....

The tallgrass prairie is an ecosystem in conflict. Differing forces of nature pull this community in dissimilar directions. From the east, the forest invades the tallgrasses. Supported by rainfall, and on floodplains, the woodlands snake out into the prairies. Regular cycles of drought and our strong south winds push the woodlands back. The primary force keeping the tallgrass prairie intact is fire. Without fire, the tallgrass community would have a difficult job competing against the invasions of the woodlands.

People have strange and conflicting views of fire, as they do about all the outdoors. Many people see fire as the great destroyer with animals fleeing in its path. Quite the opposite is true. Fire is the savior of the tallgrass prairie and the animals are adapted to its presence.

Researchers at the KONZA prairie, near Manhattan Kansas, estimate that any given grassland burned on its own once every five years. These fires were started by lightning strikes on the dry grasses. Over the last 10,000 years that prairies occurred in Kansas, the plant and animal communities have become dependent on this regular burning cycle for their survival.

The true life force of prairie, about 66%, occurs below ground. The towering grasses of the tallgrass prairie are the only part visible to people, but the majority of the biomass and life force of the prairie is below ground. The face the tallgrasses show us changes each year as the above ground material dies back. The thick tangle of roots retain the life force of the prairie for winter. When trees invade, the prairie will retreat from the shade and hide below ground, waiting. When these areas are cleared, a "surprise" prairie will return to reclaim the area from below.

Fire moving through a prairie area has several beneficial effects. Woody plants invading the area have most of their energy stored above ground. When the fire comes through, it kills these plants. It will take several years for them to regrow. The prairie, on the other hand, will spring back from its roots and grow to its normal height that year. All of the nutrients in the plant material above ground are locked up in the dead plants. Burning releases this material and the ash acts as fertilizer to the root system. Soil pests and plant disease also can be removed by burning.

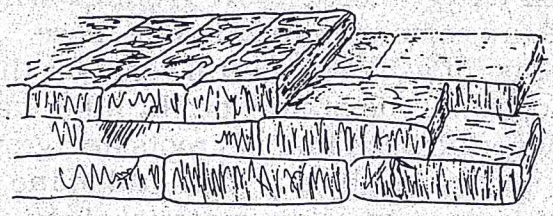
The truth of fire is that it allows this diverse and complex community to exist. When to burn is the final question. Prairie researchers feel that burning when the cool-season grasses are active and the native warm-season grasses are not yet growing, gives the best competitive advantage to the native community. At the Prairie Center, we feel this best occurs in the third week in April.

The Native Americans called fire the "Stampede of the Red Buffalo". If you would like to observe this increasingly rare natural phenomenon, join us at the Prairie Center on April 18th. Weather permitting, we will give a talk on how and why to burn at 7:00 p.m. followed by a demonstration burn. This event occurs as a part of our spring Prairie Festival. This festival will also include a Walk for Wildlife, nature walks, and Earth Expo. Join us for the day and in the evening watch the rebirth of the prairie. For more information call the Prairie Center at (913) 884-8832.

LITTLE SOD HOUSE ON THE PRAIRIE

The sod house was as much a part of prairie life as the grasses, bison and windy days. Due to a lack of trees, the sod house was often the only form of shelter for prairie settlers.

Settlers needed about a half to an acre of prairie sod to build a 12 by 14 foot house. They cut sod into "bricks", 3 feet long by 1 1/2 feet wide. They preferred moistened sod because it was easier to work with.



The foundation consisted of two to three layers of staggered sod bricks with an opening left for the doorway. To make the structure more solid, settlers placed every third layer of sod crosswise. Cracks were filled with dirt. The walls were sometimes reinforced with wooden rods driven down into the sod layers. Sod houses kept the occupants cool in the summer and warm in the winter.

Poorer settlers made their roofs by covering the wooden rafters with layers of brush, then prairie grass and finally a layer or two of sod. A more affluent settler would nail wooden sheeting to the rafters and top it with tar paper. Sod house roofs often leaked in wet weather.

The sod house floors were most often just dirt, packed to a concrete hardness. To keep out snakes and fleas, many sod homes had finished inner walls, plastered with a mixture of fine clay, water, sand or ashes.

Most houses were either an L or T shaped dwelling. Sometimes a side was dug back into a hillside. This offered more support for the walls and greater protection from the weather. Round houses were a rarity due to construction difficulties.

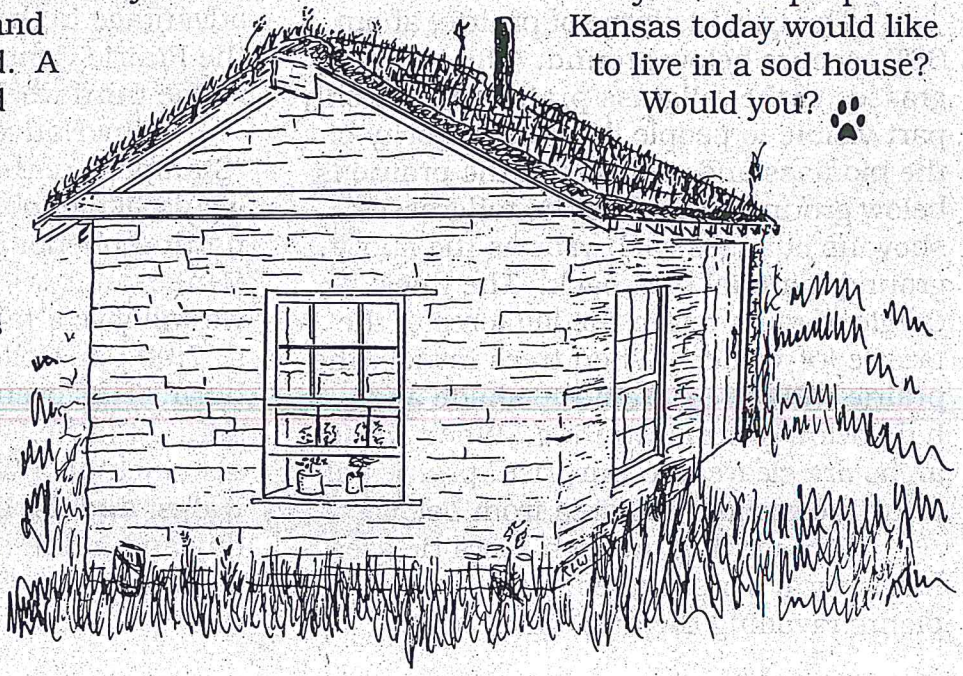
A sod house could withstand many of the perils the prairie presented. Very few blew away in a tornado. Although prairie fires would sweep across the prairie, sod houses seldom burnt down. The grass on the roof would sometimes catch on fire but it rarely affected the main structure.

A constant hazard to sod houses was cattle with itchy hide. They would frequently use the sod house as a "rub" which caused many a wall to collapse.

Sod houses provided a haven for small rodents and many children welcomed them. These creatures were often the only playmates the children had since most families lived miles from each other.

What did it cost to construct an average sod house? Less than $3.00 at that time. Most of the building materials were provided free of charge by the prairie.

Do you think people in Kansas today would like to live in a sod house? Would you?

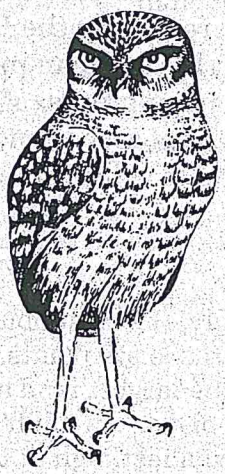


SPECIES SPOTLIGHT -- THE BURROWING OWL

Athene cunicularia

True Owls (Strigidae)

9-10" tall. Short-tailed and long legged; yellow eyes, no ear tufts.



Beneath the western Kansas prairie sod resides an unusual occupant, the burrowing owl. True to its name, this peculiar little raptor inhabits underground burrows. Its unique physical attributes and diurnal habits make it the easiest Kansas owl to identify. And with its comical gestures and clownish antics it is definitely one of the most fascinating and entertaining birds to observe.

These little owls stand very erect on extraordinarily long, knock-kneed legs and become most active during dawn and twilight hours. About 10 inches tall, their small head is compact and round, lacking ear tufts.

Burrowing owls occur throughout the plains of western North America and in the western two-thirds of Kansas where the short and midgrass prairie predominate.

The burrow is the most unique aspect of the burrowing owl's life history. It is the center of this little owl's social structure and is used for nesting purposes, shelter, and protection from predators. The burrow also aids in population dynamics, thermoregulation, and in social interactions. Although capable of digging their own in a pinch, burrowing owls would rather pilfer burrows from prairie dogs and other burrowing mammals. Burrowing owls use their wings, beak, and feet to modify and remodel the "borrowed" burrow to their specifications. Housekeeping involves lining the burrow, predominately the nesting chamber, with cow or horse manure. It has been suggested that the manure, or other linings, may mask the owl's scent and mislead predators. The burrow tunnel meanders below ground like a lazy stream and extends from four to eighteen feet. The nesting chamber is an enlarged area at the end of the tunnel.

Burrowing owls arrive in Kansas in the early spring to nest. Courtship involves a variety of vocalizations and acrobatics. An average of nine eggs are laid in a horseshoe-shaped single layer in the nesting chamber. The nesting peak occurs in mid May.

Burrowing owls employ many feeding techniques, but most often perch at an elevated position and wait for prey to come into range. Burrowing owls have an acute sense of hearing which can locate the rustling of an insect 100 yards away. Surprisingly for an owl, vision is thought to be equally important in the location of prey. They are perpetually hungry and feed throughout the day but are most active at twilight and dawn. Due to the large number of rodents and insects they consume, the burrowing owl ranks second, behind the barn owl, in its economic importance to man.

Lacking the luxury of a tree escape, burrowing owls must rely on their burrows and communal living system for protection. When danger threatens, burrowing owls have many amusing and comical defense strategies. Their bobbing behavior is very distinctive and characteristic. When threatened while in the burrow, owlets make use of an unusual, but rather effective, tactic. They imitate, quite accurately, the warning rattle of a rattle snake. Few predators, however hungry, will dare to venture into a burrow after hearing the buzz of a rattler, real or not.

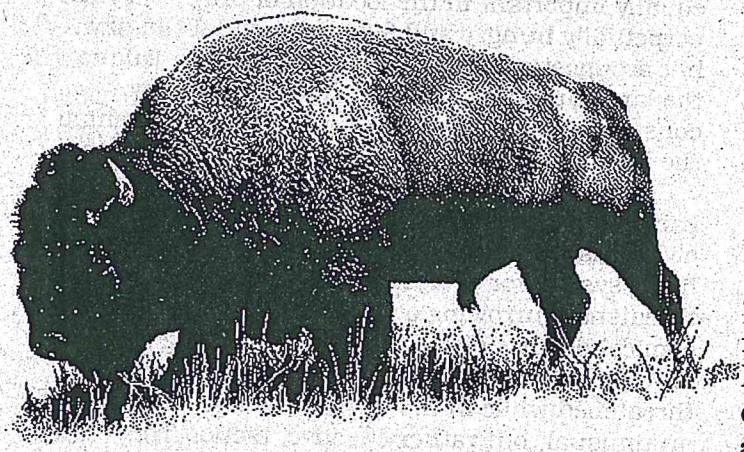
The future of this unique underground owl is uncertain. Burrowing owl populations have declined in recent years. Authorities attribute this decline to the loss of habitat due to land development and the loss of burrow sites resulting from the widespread control of burrowing mammals. The use of poison for rodent control not only destroys preferred burrowing owl habitat by lowering the number of burrowing mammals, but may also result in the poisoning of the owls. Hopefully an increased awareness and education will bring results to reduce the loss of this unique nether owl.

PRAIRIE ANIMALS

Many of the animals that once flourished on the prairie were among the largest or fastest of all North American mammals. Most of the vast populations of these animals have disappeared However, Kansas is still a good place to view many of them.

Large Grazers

Not surprisingly, the most abundant animals to evolve on the prairie ate plants. The largest of the grazers, and the largest land animal in North America, was the bison. An adult male (bull) could measure seven feet high at the shoulder, 12 1/2 feet in length, and weigh over 2,000 pounds! This lumbering figure also consumed as much as 30 pounds of grass a day! The bison, like all the ungulates (hoofed animals) of the prairie, is a ruminant. Ruminants have stomachs divided into three or four chambers. The first chamber, or rumen, contains bacteria and protozoans



which begin to breakdown the cellulose in the vegetation. The grass is later sent back to the mouth to be re-chewed then sent to the stomach proper.

As many as 30-70 million bison may have existed on the North American prairie before 1870. One herd in Southwestern Kansas was estimated to contain over 4 million animals in 1871. Bison were destroyed by the millions as man's ability to kill overtook his ability to reason. By 1900, they numbered fewer than 1,000. The bison became exterminated from Kansas in 1879 when the last survivor was killed west of Dodge City. Today, free-roaming bison can only be seen in Wood Buffalo National Park, Canada, and Yellowstone National Park, Wyoming. A great way to see bison in Kansas is to visit one of the Department's display herds such as the one at the 2,000 acre Maxwell Game Preserve near McPherson.

A number of other ungulates coexisted on the prairie with the bison. The pronghorn, the fastest of all North American mammals also numbered in the millions before the 19th century. Besides speed, the pronghorn possess telescopic vision equivalent to wearing 5 - powered binoculars. Often considered a mountain animal, the elk, or wapiti, commonly ranged on the prairie. Deer were abundant too, but it was the mule deer and not the white-tailed deer that roamed among the grasses. White-tailed deer prefer woodlands and forest edges but have become more abundant in Kansas in recent years due to a decrease in grassland and an increase in woody vegetation.

Other Herbivores

Besides the large grazers, other herbivores resided on the prairie. Probably the most well-known of these is the prairie dog. The black-tailed prairie dog was the only species of the four to exist in Kansas. A very social animal, this squirrel-like animal, lives in large subterranean towns, sometimes stretching over 1000 acres. The largest prairie dog colony on record occurred in Texas and measured 100 miles wide, 250 miles long, and contained about 400 million prairie dogs! Dog towns are subdivided into wards (5-10 acres) which are subdivided into coteries (1 acre). A coterie is a family unit of a single adult male, one to four adult females, and any offspring less than two years old. Sometimes a coterie can number 30 individuals. The very social members of a coterie maintain their unity by physical contact. When members of a coterie meet, they "kiss" by opening their mouths and touching teeth. Black-tailed prairie dog towns typically have between 30-50 crater-shaped burrow entrances per acre. Prairie dogs may often be spotted as they stand guard at one of these entrances.

Bison helped prairie dogs establish their towns. Grazing bison kept patches of grass short enough for prairie dogs to colonize. Their occasional return would keep the grass down.

Mule deer and elk preferred to eat the more nutritious vegetation in prairie dog towns. Pronghorn were attracted by the forbs that grew in abundance around the towns due to the prairie dogs' digging.

Other small grazers include rats, mice, jack rabbits, pocket gophers, ground squirrels, chipmunks, and grasshoppers. Although small, grasshoppers in large numbers proved to be a significant grazer of prairie grasses.

Predators

With so many herbivores on the prairie, naturally, predators occurred in abundance too. Predators of the bison, elk, pronghorn, and deer included the cougar, grizzly bear, and gray wolf. When the prey animals declined and disappeared, so too did these large predators. Without competition from the wolf, coyotes became the largest predator on the prairie. They have become so successful in modern times because of their great adaptability and habit of eating just about anything. Smaller cousins of the coyote are the red fox and swift fox. Both feed primarily on small and medium-sized mammals, fruits, berries, and insects.

Prairie dog colonies are ideal habitat for many other prairie animals including a number of prairie dog predators. Burrowing owls, prairie rattlesnakes and bullsnakes, weasels, and black-footed ferrets * made a good living off of prairie dogs. Coyotes and badgers, as well as red-tailed hawks and golden eagles, also preyed on prairie dogs. Though not a predator of prairie dogs, black widow spiders can often be found in abandoned prairie dog holes.

Prairie Birds

Many of the birds of the prairie can be found in the very important wetland marsh areas known as prairie potholes or playa lakes. These areas are the major breeding grounds for most of North America's waterfowl. Unfortunately, most of these areas have been destroyed by agricultural plowing. North Dakota has one-third of the remaining potholes in the United States. Kansas contains one of the most significant prairie wetlands area in North America. Cheyenne Bottoms (near Great Bend) is a major resting area for migrating waterfowl. As such, it has earned international recognition, but it has also been threatened by changes in land use and the loss of water from irrigation. Three of North America's largest birds, the whooping crane*, the sandhill crane, and the trumpeter swan were once common on the prairie. These birds have suffered from the draining of wetlands too.

Greater and lesser prairie chickens and sharp-tailed grouse can be found in the drier regions of the prairie. These birds are known for their elaborate mating rituals that take place on traditional sites known as "leks" or "booming grounds". Males compete for the females by dancing and inflating brightly colored air sacs on the neck. A "booming" noise is produced by the inflation of the sacs hence the name "booming grounds".

The ecosystem of the prairie, and its animals, is fueled by grass. This has put most of these animals in direct competition with man and his livestock. The conflict continues today. Because of so much habitat loss, remnant populations of some of these animals are all that exist. We can coexist with these animals through proper management. The complex community of plants and animals that is the prairie can continue if we make the right decisions.

*See the Winter '91-'92 of On T.R.A.C.K.S. for more information on these creatures.

WILDFLOWER POWER

Take a bunch of flower seeds, throw them on the ground. Call it beautification. Well ... that's not all you'd need for a successful wildflower effort, but it's a start. Why talk about wildflowers here?

While this newsletter is produced by the ***Department of Wildlife and Parks***, it really could be called the ***Department of Wildplants, Wildlife, and Parks***. Wildlife management is more often management of the *things* species need to survive rather than fooling with the species *themselves*. Habitat is the key. Wildflowers are an important part of good habitat.

As prairies gave way to range and cropland, so too did wildflowers fade. But wildflowers are getting government attention ... through the road system.

Courtesy the Oklahoma Department of Transportation

Highway departments in Kansas and other states now plant wildflowers. Some took their start from a national program that bloomed in the mid-70's, but other programs are just budding.

In Missouri, a new program is starting to show results. Native flowers now in their second year are just becoming established. With this young program, success is hit and miss...what flower mixes will work? What sites are best? How will the flowers grow in the harsh highway environment?

Oklahoma began their highway beautification program in 1975, and it shows. The Beautification Office works with 350 acres of active sites throughout the state. The Oklahoma program still uses an in-the-field test to gauge the success of different flower planting approaches.

Nebraska possibly has the great granddaddy of them all. A 1964 University of Nebraska research project compared tree and shrub planting with traditional turf. Once they stopped using mowers for roadway landscaping, the door was opened for wildflowers. Experiments began with a hit and miss approach —pick a spot, pick a species, plant, then wait. Now they select plants by matching known species needs and the nature of the site. With a history like this, is the program's future secure? Said a highway official, "It's about as permanent as a program gets with the Highway Department."

In Kansas, the program is less formal. For the past 15 years, the Department of Transportation's landscape designers have worked with garden clubs and city beautifiers. The clubs come up with the interest, and the landscape designers lend their expertise. New federal projects in Kansas mandate that a quarter of a percent of their funding goes to wildflowers. The state places emphasis on getting the mixed bag of seeds onto a friendly site, and then waiting to see which makes Mother Nature's first cut.

The benefits of going wild with flowers extend beyond the obvious eye-pleasing role. In short, this is what highway officials expect to get out of their native plantings—

Erosion control: many of these plants quickly form soil-holding roots.
Economy: native plants don't require as much maintenance.
More economy: A pretty flower doesn't just attract the birds and the bees, but may also create a favorable impression on tourists and the dollars they bring.

Nebraska, Oklahoma, Kansas, and Missouri are at different stages of "wildflower evolution". Each have learned different lessons in their pursuit of flowered byways. But they have much in common, and have a surprisingly important part to play in the resurrection of the prairie habitat....

In this issue of **On T.R.A.C.K.S.**, you'll be reading about the way the prairie used to be ... a virtually unbroken grassland from Ohio to the Rockies. Wildlife and Parks managers use native grasses on public properties to bring back at least a shadow of the Great Plains. But the power to do so is not theirs alone, because wildflowers aren't the only plants finding their way into highway landscaping. Along with flowers, native grasses from both the tall and shortgrass lexicon make up a new approach to greening our roadways. Will it really help keep the prairie alive?? Think on this... in Kansas, there are roughly 170,000 acres of roadside property. Added to Wildlife and Parks' 320,000 public lands, you can see its significance. This is the final benefit of a seemingly minor change in highway landscaping philosophy: bringing back the prairie habitat, flowers and all. Where our highways cross public lands managed by Wildlife and Parks, barriers to native plants...which means to native *wildlife*...start to fade. And you can help. Contact your local gardening club or city beautification committee.

COTTONWOOD LEAVES AS TOYS

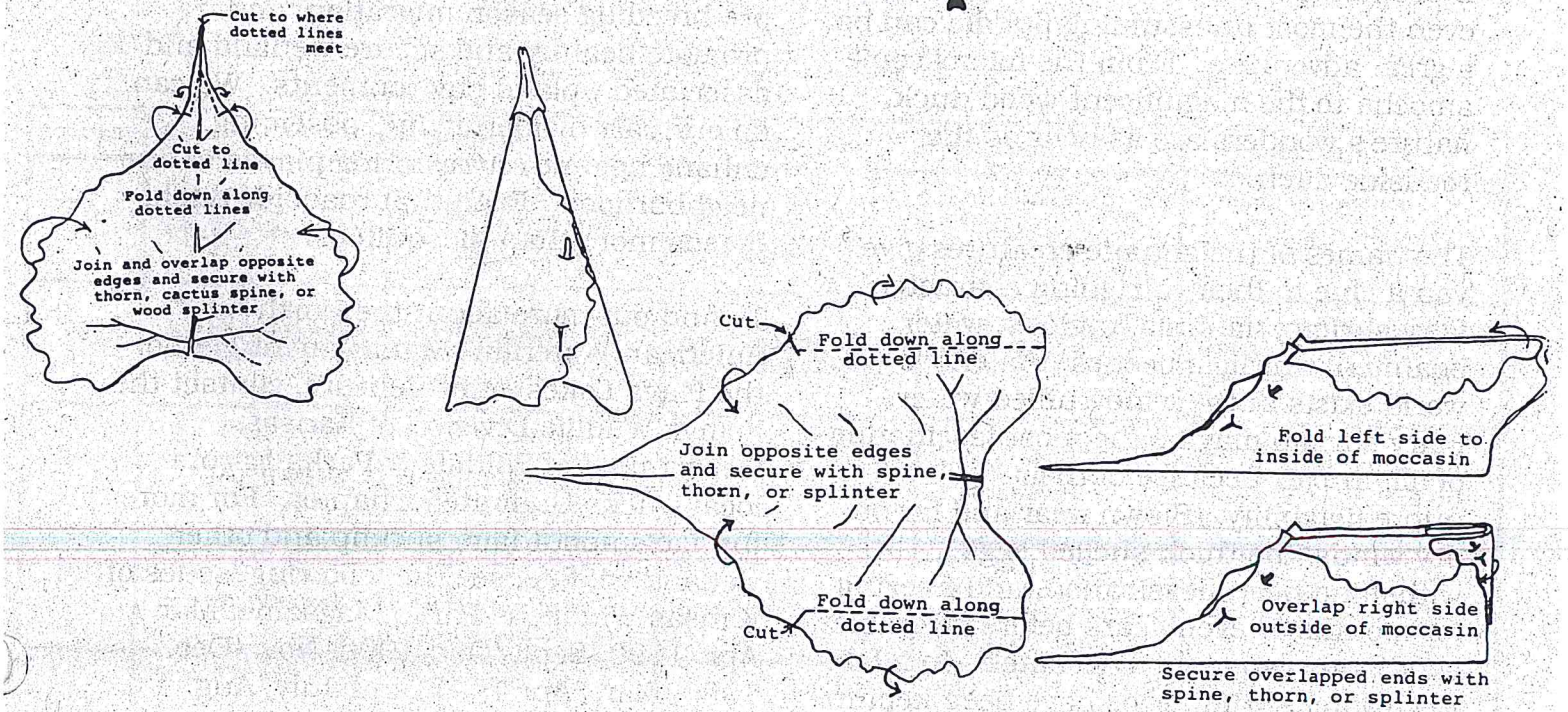
Paul Jantzen of Hillsboro, Kansas contributed the following. Living in a technological environment requires greater efforts on the part of naturalists, teachers, and parents to instill in children a feeling for their biological roots and their connections with the whole biological world. One aid to this understanding is to highlight our official state organisms. Such studies can introduce both children and adults to the natural world.

Among the many things that can be done with the Kansas State Tree, the eastern cottonwood, is to make toys like those made by children of the Plains Indians.

Melvin Gilmore described the making of miniature Plains tepees and moccasins with cottonwood leaves and cactus spines. Several tepees, each with smoke flaps, were made and placed in a circle like the camp circle of their tribe.

Paper leaves photocopied directly from leaves can be assembled with pins in the classroom. However, collecting and assembling actual leaves and cactus spines outdoors is much better. And when the tepees and moccasins are discarded, the natural ones are biodegradable. Even that can be a lesson in respect for the ecosystem in which we live.

The following diagrams can help you make your first set.



Reference: Gilmore, Melvin R. 1977. Uses of plants by the Indians of the Missouri River Region. University of Nebraska Press, Lincoln and London.

PLAYAS -- PRAIRIE OASES

Millions of years ago shallow basins formed. An underlying clay layer absent in the surrounding land makes them special. This water-holding feature allows plants -- which like their "feet" wet -- to move in, providing food and shelter to nesting and migrating birds. Over 700 species of plants and animals use wetlands, including 489 plant, 136 bird, 32 fish, 21 mammal, 12 reptile, and an unknown number of insect species.

Playas (ply-ahs) differ from marshes and lakes. Although wet only at certain times of year, they still qualify as wetlands. As such, playas are critical habitat for many types of wildlife.

During the dry parts of the year, it takes a sharp eye to identify a low weedy spot or a moist corner of a farmer's field as a playa. These ephemeral wetlands literally come to life after a good thundershower or a few days of rain.

Discovering the life forms that inhabit even the most unassuming puddle can be a great adventure. From the microscopic amoeba to the magnificent wood duck, nature's wonders are as near as the roadside ditch.

The names of the aquatic creatures give you a clue to their intriguing character: fairy shrimp, daphnia, cyclops, water boatmen, whirligig beetles. An entire world exists in the wind-ruffled water. Fairy shrimp may be the most fascinating of all, in part because of their unpredictability. Blown near and far on dry winds, the thick-shelled eggs withstand heat, dessication, and freezing for months or even years before favorable conditions cause them to hatch. In a lab, freshwater shrimp eggs have been kept in dried mud for as long as 15 years before they were hatched!

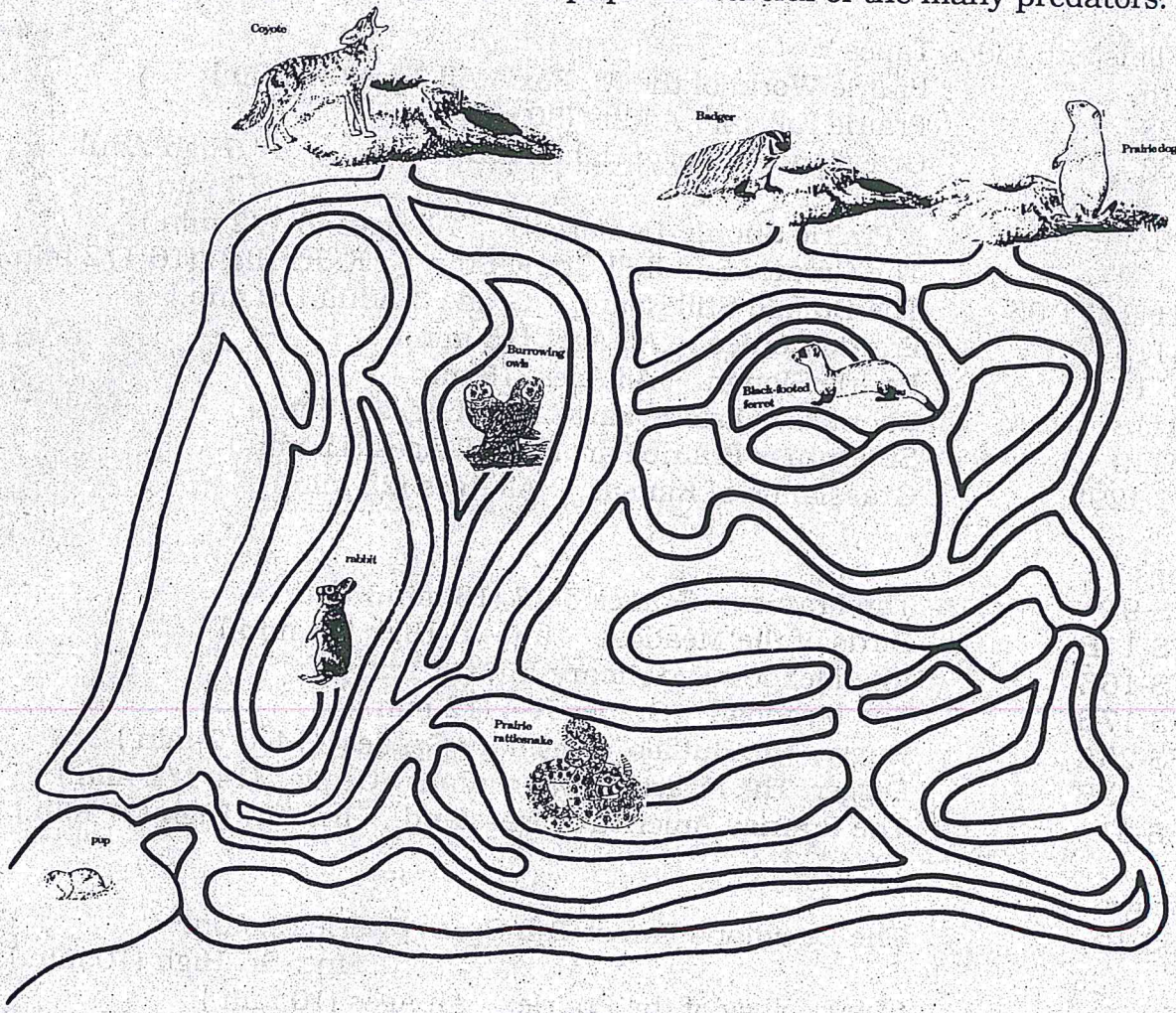
Invertebrates like the freshwater shrimp are an important source of protein for migrating waterfowl and shorebirds. Playas provide essential stop-over sites for these birds to feed and rest during their long flights. Without them, these birds would face overcrowding, competition, susceptibility to disease, and reduced reproductive success caused by concentration at other wetlands. Already, 70% of the playas which existed before settlers arrived are gone, and it continues as a thousand acres of wetland habitat is destroyed daily in the U.S.

To combat this, the Playa Lakes Joint Venture was formed in 1989. Under the North American Waterfowl Management Plan, this five-state program is designed to enhance and restore playas. Kansas, Texas, Oklahoma, Colorado and New Mexico are working together to: assure water quality in at least 40 playas, provide adequate feeding areas during the critical, pre-breeding season migration, and promote healthy and secure wetland and associated upland environments. We can do our part by identifying, observing, enhancing, and/or restoring playas in our neighborhood. Even that roadside ditch breeds more than mosquitoes.

To find out more about the North American Waterfowl Management Plan or the Playa Lakes Joint Venture, contact the Fish & Wildlife Division of Kansas Department of Wildlife & Parks or your local Ducks Unlimited Chapter. For more fun facts about fairy shrimp and other wetland wildlife, see the following issues of Kansas Wildlife & Parks Magazine: Mar./Apr. 1990, Sept./Oct. 1990, Nov./Dec. 1990, Mar./Apr.1991, and July/Aug. 1991. For other educational references, see the Reference Center section.

YOU'LL BE A MAZED

Can you help this prairie dog find her pup? Be careful of the many predators.



JEOPARDY!!

Points	Animals	Events	Birds	Places	Reptiles
20	Song dog of the west	A funnel-shaped cloud with strong winds	The state bird of Kansas	The homes of the prairie settler	Found throughout Kansas and is the state reptile
40	Fastest animal in the western hemisphere	When an animal is forever removed from an area	The falcon of open grasslands	An area where many prairie dogs live together	Its nasty disposition makes it the most dangerous venomous snake in Kansas
60	Can leap over twenty feet in one bounce	When a region suffers from prolonged drought and dust storms	Kansas has the worlds greatest population	An area where bison "dust" themselves	One of the characteristics which identifies a lizard from a snake
80	Smallest and fastest wild dog in Kansas	Helps to rejuvenate the prairie by keeping down wood plants	Raises it's young underground	The continent which doesn't contain some prairie land	The largest lizard in Kansas and it has no legs
100	The digger of the weasel family	Large numbers of insects swarming upon an area	A large stork like bird common to the prairie	Number of states which originally contained some prairie	When disturbed may squirt drops of blood from it's eyes

Answers on page 16.

PRAIRIE Reference Center Materials

16 MM Films and Video Tapes

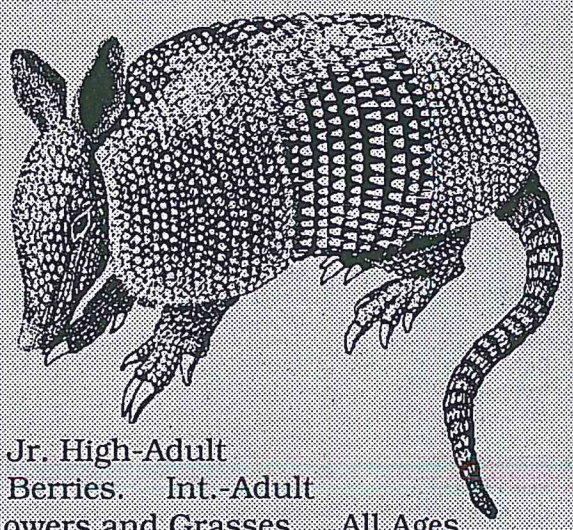
M15	Prairie World of the Kit Fox. All Ages (21 min.)
M28	Prairie Killers. Adults (30 min.)
M32	Grassland Ecology: Habitats & Change. Jr. High-Adult (13 min.)
M63	A Prairie Should Be Forever. All Ages (8 1/2 min.)
M102	The Greater Sandhill Crane Story. K-Jr. High (16 1/2 min.)
M111/VT 95	The Buffalo Still Roam. Grade 3-Adult (20 min.)
M113	Prairie Coulee. All Ages (15 min.)
M114	Prairie Slough. All Ages (15 min.)
M118	Shortgrass Prairie Part 1. All Ages (15 min.)
M119	Shortgrass Prairie Part 2. All Ages (15 min.)
VT 129V	Grasslands of Kansas. All Ages (25 min.)

Filmstrips

FS-9D	The Prairie. Grades 5-12 (13 min.)
FS-11B	Birds of the Meadow. Int.-Jr. High (11 min.)
FS-16E	In a Meadow. Primary-Int. (11 min.)
FS-17B	The Meadow. Grades K-4 (12 min.)
FS-23A	Rusty, The Buffalo. Primary Grades (14 1/2 min.)
FS-23B	Digger, The Prairie Dog. Primary Grades (14 1/2 min.)
FS-31	The Prairie: America's Grassland. Int.-Sr. High (27 min.)

Slide Shows

SS-19	The Decidious Forest-Tall Grass Prairie Ecotone. Int.-Sr. High (10 min.)
SS-20	The Ecology of the Prairie. All Ages (10 min.)



Game Kits

GK-18	Common Wildflowers

Posters

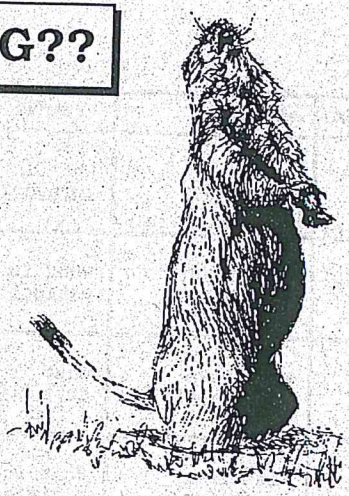
PP-57	Wild Flowers

Books

13-1	Nonflowering Plants. Jr. High-Adult
13-8	Wild Edible Fruits and Berries. Int.-Adult
13-9	Favorite Prairie Wild Flowers and Grasses. All Ages

Check out the neat prairie section in *Partners With Wildlife* (7-12 Grade curriculum materials) including a prairie plant I.D. sheet.
FOR MORE INFORMATION CALL KANSAS WILDLIFE & PARKS --SEE PAGE 16.

WHAT'S HAPPENING??



April 16, 17, 18 — Walk With Wildlife in Lenexa, KS. Over 50 different species of wildlife will be on hand for you to view as you walk along a beautiful nature trail. Schools can sign up for the 16th and 17th. This free program is open to the public on the 18th. For more information call Kansas Wildlife & Parks at 894-9113.

April 18 — Prairie Festival. For more info look on page 5.

April 19-25 — National Wildlife Week. Make sure you have the National Wildlife Federation's free packet -- full of great ideas, color posters and more.

April 22 — **EARTH DAY**. Call 1-800-223-0425!!

April 24 — Project WILD Workshop at Rock Springs Ranch in Junction City, KS. For more information call Laura Harmon at (913) 257-3551.

April 25 — *Natural Kansas* Book Signing. Hays. Joe and Suzanne Collins will sign their book from 1-3pm in the mall on Vine St. in Hays.

June 6 — Project Learning Tree Workshop at Pawnee Prairie Park. For more information call Terry Behrendt at (316) 838-4404.

June 6 — Fishing For Fun. Junction City. Free. For more information call the Milford Nature Center at (913) 238-LEAF (5323).

July 7 — Project WILD Workshop at Pawnee Prairie Park. For more information call Terry Behrendt at (316) 838-4404.

FOR EARTH DAY INFORMATION IN KANSAS, IOWA, MISSOURI, AND NEBRASKA CALL THE EPA (Environmental Protection Agency) AT 1-800-223-0425!!

BITS & PIECES

PLACES TO GO

Faris Caves Historic Site (Pioneer Home) on the backwaters of Kanopolis Reservoir. Guided tours on Saturdays after Memorial Day. Call Kanapolis State Park at (913) 546-2565.

JUNIOR NATURALIST PROGRAM

Don't forget: over the summer there are excellent outdoor learning experiences as close as your nearest state park, for children aged 6-12. The junior Naturalist Program offers achievement certificates, stickers, and patches for participation in fun and exciting activities. Also, for adults and families there is the Summer Naturalist Program, providing nature walks, talks, workshops, and games. Call your local state park or regional Kansas Wildlife & Parks office for more details.

JEOARDY ANSWERS

Points	Animals	Events	Birds	Places	Reptiles
20	What is a coyote?	What is a tornado?	What is a meadowlark?	What is a sod house?	What is an ornate box turtle?
40	What is a pronghorn antelope?	What is extinction?	What is a prairie falcon?	What is a prairie dog town or colony?	What is a prairie rattlesnake?
60	What is a jack rabbit?	What is a dust bowl?	What is a prairie chicken?	What is a wallow?	What are ear openings, eyelids or limbs?
80	What is a swift fox?	What is a prairie fire?	What is a burrowing owl?	What is Antarctica?	What is a slender glass lizard?
100	What is a badger?	What is a plague?	What is a sandhill crane?	What is 18?	What is a horned lizard?

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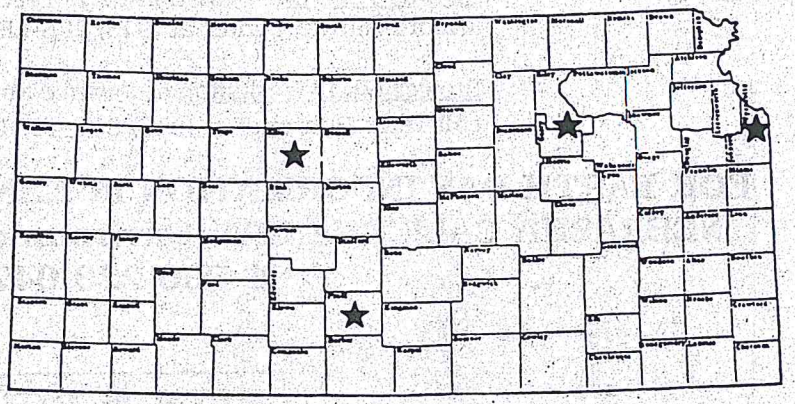

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