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

Teaching Resource Activities and Conservation to Kansas Students

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KANSAS THREATENED AND ENDANGERED SPECIES REVISITED

INSIDE...

Why is Biodiversity Important?

This issue of On T.R.A.C.K.S. , revisits a topic that that appeared in these pages in 1991. Unfortunately, the topic of "Threatened and Endangered Animals," is a fast-paced, ever-changing subject that demands constant attention, for in the blink of an eye, a species can disappear. Our goal is to update you on the current status of animals in Kansas listed as threatened or endangered. But the most important questionis this: "WHY SHOULD YOU CARE ABOUT THREATENED AND ENDANGERED ANIMALS?"

The answer lies in biodiversity . Biodiversity refers to "biological diversity" or the incredible variety of life on this planet--from birds to bugs to bacteria and everything else in between. The greater the diversity of life, the healthier the environment. The following article entitled, "Why is Biodiversity Important" was written by Thomas G. Barnes, an Extension Wildlife Specialist at the University of Kentucky. (reprinted with permission from Farmers and Wildlife, 1998)

~~Why should you care about some n~~ondescript, rarely seen snail? Would it make a difference if you knew this snail did not get cancer? Would it make a difference if scientists discovered why this happens and applied this knowledge to prevent or cure cancer in man? This is just a simple answer of why people should care about protecting and managing for a variety of living organisms.

Biologists contend that if the loss of biodiversity continues, many aspects of our quality of life will be lost. The diversity of life benefits us in infinite ways. The reasons to manage for biodiversity touch on ethical, aesthetic, economic, and practical factors that ultimately affect our quality of life.

Practical Reasons

It is difficult to dispute the "practical" and potential economic reasons for protecting biodiversity. Are you aware that the world's food supply depends on about 20 different plant species that were derived from native or wild ancestors? Are you aware that 20 years ago blight wiped out about one-fifth of the corn crop in the United States? By crossing domestic varieties of corn with their wild cousin, scientists created a type of corn that resisted blight. One of our most important agricultural defenses against blight, pests, drought, and disease may be to invigorate domestic species by hybridizing them with their wild counterparts.

You have a cold or fever and take aspirin to relieve the symptoms. You have an infection and take penicillin to cure it.

Are you aware that aspirin is derived from the willow and penicillin from a fungi? Recently, a compound called cyclosporine was identified from a mushroom. It has the ability to suppress the rejection response in humans undergoing tissue transplants. Thousands of people undergoing heart, lung, liver, kidney, and bone marrow transplants are alive today since the introduction of this drug. It is surprising to many people that from one-fourth to one-half of all our medicines contain plant extracts.

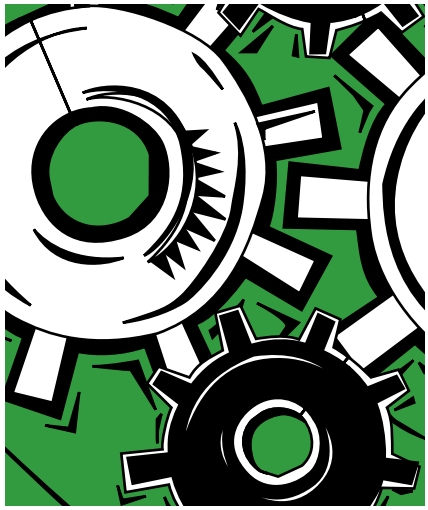
Each "cog and wheel of the land mechanism" can be considered an encyclopedia of genetic information or a treasure chest of information that may be useful to humans. Because each species is unique, to lose a species is to deny future generations the opportunity to use the chemical and genetic secrets to improve their quality of life. The quest for indentifying useful organisms that may improve the quality of our lives has just begun. Scientists have described less than one-half of all living things on this planet. Of all the plants and animals we do know, less than 1% have been tested for a possible benefit to humans. We have barely start-

ed to unlock the potential benefits of the world's plants and animals yet with the loss of each species we may be destroying the potentially important drug or agricultural commodity of tomorrow.

Ecological Reasons

Biologically diverse communities of plants, animals, and other species provide indispensible ecological services. While scientists have been studying nature for years, we are still largely ignorant of the complex interrelationships in any given ecosystem. Another way of looking at ecological relationships is to think of each species as a brick in a house. Every brick contributes to the support of the house. If you slowly and randomly removed bricks, cracks would develop in the wall, the roof would sag, and leaks would appear. At some point, the house would collapse.

No one knows how many of nature's "cogs and wheels" can be lost without turning an ecosystem into rubble. No one can predict if or when a catastrophe will strike. However, it is certain we are eroding the fabric of life with each species lost. Consider a simple example. There is one single wasp species that pollinates the majority of fig trees that grow in the tropics. What would happen if that wasp were eliminated from the ecosystem? Because figs are an important food source for many tropical birds and mammals during the dry season, losing the figs might mean losing bats, spider monkeys, peccaries, and other species dependent on the figs for food. Once these animals are gone, would we lose the jaguars and other predators? Once the bricks begin to disappear from the house, how long before "our house," the planet Earth, begins to crumble?



Some species also serve as environmental barometers that indicate something is wrong with the environment. Just as canaries warned miners of poisonous gases, so do some species warn us about unhealthy ecosystems. The same factors that cause more sensitive creatures to decline may ultimately affect the human population.

Other Reasons

Aesthetic, recreational and ethical reasons to protect biodiversity are also important. The beauty of the many other varied life forms with which we share the earth may be another reason for preserving biodiversity. As a society, we spend billions of dollars acquiring, protecting, and enjoying beautiful works of art, music, or architecture. We are outraged when vandals attack precious paintings, sculptures, or other works of art. Have you ever looked closely at a monarch butterfly, a lady-slipper orchid? Their beauty and intricacy rival the finest works of art. Shouldn't we protect these natural works of art?

Finally, many people believe we should manage for biodiversity because we have a moral or ethical responsibility to future generations. We are wiping out species at the rate of at least 1 per day. Because man is the primary cause of the loss of these organisms, we should also have the obligations to preserve them for future generations. Future generations are entitled to expect an environment as biologically rich as the one inherited by today's generation.

Endangered Species of Kansas

ENDANGERED

STATUS: Endangered in KS and US **CLASSIFICATION:** Mammal
COMMON NAME: Gray Myotis (*Myotis grisescens*)

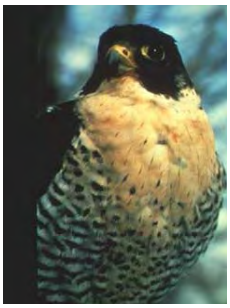

Photo by Merlin Tuttle, BCI

Description: This bat is gray to rusty brown in color with a body length of up to 4 inches and a wingspan of up to 12 inches. In Kansas, it is known only from the southeastern part of the state and may occur as occasional transients along stream corridors. One colony is known to exist in the storm sewer beneath the city of Pittsburg, Crawford County.

STATUS: Endangered in KS and US **CLASSIFICATION:** Mammal
COMMON NAME: Black-footed Ferret (*Mustela nigripes*)

Description: The Black-footed Ferret has a long body with short black legs and feet. The muzzle, forehead, and ears are white, with a black band between and around the eyes. Adults may reach a total length of 24.5 inches. This ferret formerly occurred over the western 2/3 of the state. The last confirmed record of a live ferret in Kansas was in 1957 near Studley in Sheridan County. The Black-footed Ferret is largely dependent upon prairie dog towns for food and cover.

STATUS: Endangered in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Peregrine Falcon (*Falco peregrinus*)



Description: Peregrine Falcons are crow-sized birds with long, pointed, slate-colored wings, narrow tails, and swift flight. The head is black with a distinctive "black mustache" on each side of the face. Adults may reach a length of 21," with a wingspan of slightly more than 36." Historically, the Peregrine Falcon was a regular transient throughout Kansas but it is now only a rare transient and ocassional winter visitor, especially where waterfowl concentrate.

STATUS: Endangered in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Whooping Crane (*Grus americana*)

Description: The Whooping Crane is a large white bird with black wing tips and a distinctive red crown on its head. Depending on age, it may have cheeks of red or black. Adults may attain a height of 4 feet, with a wingspan of 7 1/2 feet. The Whooping Crane is a spring and fall migrant through Kansas with most observations recorded at prairie marshes like Cheyenne Bottoms in Barton County.

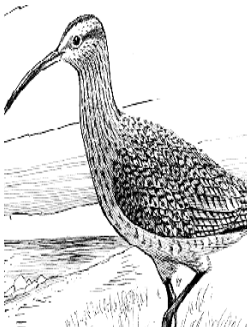
STATUS: Endangered in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Least Tern (*Sterna antillarum*)

Description: Adult Least Terns grow to 10 inches in length and are the smallest member of the tern family, with a wingspan of just 20 inches. When in breeding plumage, this tern has a black cap and a black line through the eye. It has a deeply forked tail with white outer tail feathers. It is an uncommon migrant throughout Kansas and a local summer resident in the central and western parts of the state. It prefers sandy islands, sandbars, and open alkali flats along rivers, lakes, and marshlands.

STATUS: Endangered in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Black-capped Vireo (*Vireo atricapillus*)

Description: The Black-capped Vireo is a small songbird reaching a maximum length of 4.5 inches. Adult males are olive green above and white below with faintly yellow flanks; the upper half of their head is black with a white eye-ring and lores, giving them a spectacled appearance. Females are duller in color, and have a slate gray crown and underparts washed with greenish yellow. Once a summer resident of the Red Hills in south-central Kansas, it has not been confirmed in the state since 1953. This species prefers low dense woody cover in ravines in native prairies.

STATUS: Endangered in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Eskimo Curlew (*Numenius borealis*)



Description: The body of an Eskimo Curlew is buff-colored, interspersed with black. It has a short (up to 2.5"), thin, slightly downward-curved bill. Adult Eskimo Curlews may attain a length of 14." It was formerly a regular spring transient in the eastern 2/3 of the state where it used heavily grazed grasslands and bare fields. This bird was last reported from Kansas in 1902, but sporadic records from throughout the Western Hemisphere keep surfacing, leaving hope that a small breeding population may still exist and migrate.

STATUS: Endangered in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Cave Salamander (*Eurycea lucifuga*)

Description: This small salamander (max. 7 1/8") has a slender body, 14 or fewer vertical grooves, and is bright orange with irregularly scattered black dots. The belly is white or yellow. It is found only in the Ozark Plateau of Cherokee County (extreme southeast corner of the state) and lives in the twilight zone of limestone caves, crevices in limestone rocks around springs and beneath rocks in moist forested areas near caves.

STATUS: Endangered in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Many–ribbed Salamander (*Eurycea multiplicata*)

Description: This is the smallest salamander (max. 4 1/16 in.) in Kansas with a very slender body, 19 or 20 vertical grooves, and a broad brown stripe running its back with a dark line bordering the stripe. The belly is pale gray to lemon yellow. It is found only in the Ozark Plateau of Cherokee County (extreme southeast corner of the state) and has only been collected as larvae in Kansas. Human disturbance and groundwater contamination have caused a decline in their population.

STATUS: Endangered in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Grotto Salamander (*Typhlotriton spelaeus*)

Photo by Suzanne L. Collins

Description: Adults of this species are blind and found only in the interiors of caves. The Grotto salamander has a slender body, small eyes, 16 to 19 vertical grooves, and is pinkish white in color. The maximum length of this salamander is 5 5/16 inches. It is found only in the Ozark Plateau of Cherokee County (extreme southeast corner of the state). Human disturbance and groundwater contamination have caused a decline in their population.

STATUS: Endangered in KS and US **CLASSIFICATION:** Fish
COMMON NAME: Pallid Sturgeon (*Scaphirhynchus albus*)

Description: This rare fish attains a length of more than 60 inches and a weight of nearly 70 pounds. It looks similar to the shovelnose sturgeon except for the spacing between the rows of large scales. The belly is naked and the outside barbels are longer and situated farther back than the two inside barbels. This fish is found only in the Missouri River main stem and prefers the swifter, more turbid water.

STATUS: Endangered in KS **CLASSIFICATION:** Fish
COMMON NAME: Arkansas River Shiner (*Notropis girardi*)

Photo by Frank B. Cross

Description: This small fish attains a maximum length of 3.25 inches and inhabits the broad, sandy channels of the major streams of the Arkansas River system in southwestern Kansas. It is straw-colored with silvery sides and scattered brown flecks. Reduced stream flows in Kansas have been a major reason for the decline of this species as well as competition from non-native species.

STATUS: Endangered in KS **CLASSIFICATION:** Fish
COMMON NAME: Sicklefin Chub (*Macrhybopsis meeki*)

Photo by Frank B. Cross

Description: This small fish grows to a maximum of 4.25 inches and has sharply pointed, sickle-shaped fins as its name implies. The eyes are small and it is color is tawny brown or green with plain or silvery sides. This fish is known to occur historically and may still occur in the Missouri River main stem. It prefers areas of strong current over sand or gravel substrate. Dredging and stream alterations are the major contributor to the decline of this fish. It is now a candidate for listing on the Federal endangered list.

STATUS: Endangered in KS **CLASSIFICATION:** Fish
COMMON NAME: Speckled Chub (*Extrarius aestivalis*)

Photo by Joseph T. Collins

Description: This tiny chub grows to a maximum length of 3 inches and sports a slender, nearly transparent body scattered with dark dots along its back. One or two barbels may be seen on each side of the mouth. It prefers currents over a substrate of clean, fine sand, and avoids areas of calm water and silted stream bottoms. It is known to occur historically and may still occur in the main stem of the Medicine Lodge River and its larger tributaries.

STATUS: Endangered in KS and US **CLASSIFICATION:** Insect
COMMON NAME: American Burying Beetle (*Nicrophorus americanus*)

Description: This is a large, shiny black beetle with two pairs of irregularly shaped, reddish-orange spots on its wing covers. The antennae are large, club-shaped, and tipped with orange. As its name implies, it buries small dead animals it finds then lays its eggs close by. Both the young and adults feed on the carcass. This beetle may occur in suitable grasslands and upland woodlands, however, the last one observed in the state occurred in 1940 in Riley County.

STATUS: Endangered in KS **CLASSIFICATION:** Insect
COMMON NAME: Scott Rifle Beetle (*Optioservus phaeus*)

Photo by Leonard C. Ferrington

Description: This is a small black beetle with an oval to cylindrical body and long legs. It grows to a maximum of 1/8th inch. Both the adult and larval stages are aquatic. This beetle requires clean water flowing over gravel-rubble substrate. These insects do not swim but crawl around slowly on underwater rocks and debris. The only place in the world that the Lake Scott Riffle Beetle is known to occur is a spring area within Scott State Park in western Kansas.

STATUS: Endangered in KS **CLASSIFICATION:** Pelecypoda
COMMON NAME: Elktoe Mussel (*Alasmidonta marginata*)

Description: Mussels are freshwater clams and the elktoe mussel outline resembles an elk or deer track. The shell is usually yellow to light brown with many greenish zigzags and dots on the outer surface. Maximum length of this mussel is 4inches. The elktoe mussel is an obligate riverine mussel that occurs in silt to gravel substrates in streams with moderate flows. It is known to occur in low numbers in the Spring River.

STATUS: Endangered in KS **CLASSIFICATION:** Pelecypoda
COMMON NAME: Flat Floater Mussel (*Anodonta suborbiculata*)


Photo by William Busby

Description: This mussel may exceed 7 inches in length and is a large, thin-shelled mussel, roundly oval in outline. It may be straw-yellow to dark brown and the inside color is an iridescent light salmon-color. It is known to occur in the shallow areas of permanent oxbow lakes along the Neosho River and Marais des Cygnes. Declines of this mussel are associated with the overall decline of oxbow lakes and impoundments that reduce periodic flooding of oxbow lakes, as well as pollution and a reduction in host fishes.

STATUS: Endangered in KS **CLASSIFICATION:** Pelecypoda
COMMON NAME: Neosho Mucket Mussel (*Lampsilis rafinesqueana*)

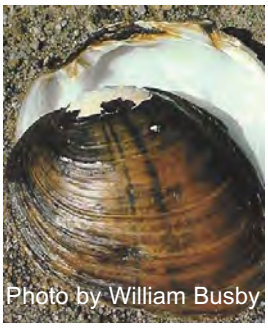


Photo by William Busby

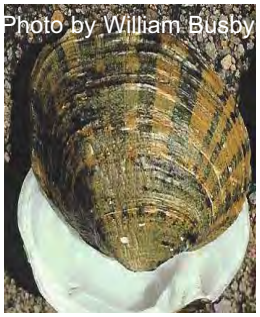
Description: This mussel grows to about 6 inches and has an elongated shell that is slightly rounded. The shell is light brown and has a dull, waxy luster which usually becomes darker with age. This species is an obligate riverine mussel preferring shallow clean-flowing water over a substrate of fine to medium size gravel. In Kansas, it remains common only in the Spring River, where it is a dominant mussel species.

STATUS: Endangered in KS **CLASSIFICATION:** Pelecypoda
COMMON NAME: Rabbitsfoot Mussel (*Quadrula cylindrica*)


Photo by William Busby

Description: Shaped somewhat like its name, this mussel has an elongated, rectangular shell that is moderately inflated and heavy. The shell is olive or sometimes yellow-brown with dark green or black triangles. It grows to a maximum of 5 inches. It is a riverine mussel requiring clear streams with sandy gravel substrates and moderate currents. Remnant populations of this mussel still occur in the Neosho and Spring rivers.

STATUS: Endangered in KS **CLASSIFICATION:** Pelecypoda
COMMON NAME: Western Fanshell Mussel (*Cyprogenia aberti*)

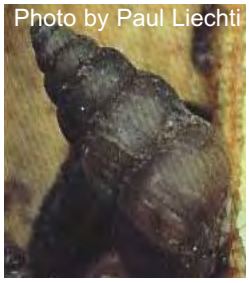


Description: This mussel is somewhat triangular in outline with a rounded ventral margin. The shell has wide distinctive green and tan rays and is bumpy and wrinkled. It grows to a maximum length of 3.5 inches. This mussel is an obligate riverine mussel found in mud, sand, gravel, and cobble substrate, generally associated with riffles less than three feet deep. Scattered individuals have been documented in recent years in the Fall, Spring, and Verdigris rivers.

STATUS: Endangered in KS **CLASSIFICATION:** Pelecypoda
COMMON NAME: Ellipse Mussel (*Venustaconcha ellipsiformi*)

Description: The shell of this mussel is elliptical to elongated and not thick. It is smooth except for growth lines and green rays of varying widths are usually present. It grows to a maximum of 2.5 inches. This mussel is an obligate riverine mussel that prefers clean streams with moderate flow over gravel substrate. Currently, this mussel is only known to occur in Kansas in the Spring River.

STATUS: Endangered in KS **CLASSIFICATION:** Gastropoda
COMMON NAME: Slender Walker Snail (*Pomatiopsis lapidaria*)



Description: The shell of this snail is a spiral cone, dark brown or chestnut in color. The entire shell consists of seven whorls, each well-rounded, and slowly and regularly increasing in diameter. This semi-aquatic snail seems to prefer wet ground instead of underwater settings and requires wetland vegetation growing on sandy soils. It is known to occur in Kansas in the Delaware River basin in northeast Kansas.

Species accounts for the above endangered animals and the following threatened animals were taken, in part, from An Illustrated Guide to Endangered or Threatened Species in Kansas by Collins, et. al., 1995. Photographs, where noted by photographer, were also taken from this guide.

Prone to Extinction? (Adapted from NatureScope *Endangered Species*)

What do gray bats, bald eagles, and black-footed ferrets all have in common? Besides having the dubious distinction of being listed as an "Endangered" or "Threatened" (T & E) species, these animals also share many other characteristics that make them extremely susceptible to becoming extinct. When we take a look at those species in most critical need, we discover some traits that are more common among this group when compared to the "non" T & E group.

Animals are more prone to extinction if they.....

A. INTERFERE IN SOME WAY WITH PEOPLE'S ACTIVITIES.

Many predators such as wolves, eagles, or bears are more likely to be shot, poisoned or harmed in some other way because they conflict with people's activities. A predator may kill livestock on occasion or they may simply feed on animals that people also like to eat. Some animals may eat or ruin crops (i.e. ducks, geese, and blackbirds) which places them in conflict with people.

B. MIGRATE.

Animals that migrate usually depend on several different habitat areas. Because of this, they can be very vulnerable to habitat destruction. Many songbirds (known as neotropical migrants) fall into this category. Thousands of acres of their "winter" habitat (the rainforests) have been developed into pastures, farms, and towns leaving little for the songbirds.

C. HAVE VERY SPECIFIC FOOD OR NESTING REQUIREMENTS.

When animals eat almost exclusively one thing (black-footed ferrets eat prairie dogs) or require specific nesting habitats (spotted owls require 300-year- old trees for nest sites), they are more prone to extinction. These animals are referred to as specialized and can become endangered if their food source or nesting sites disappear. The opposite of specialized is a generalist. Generalists such as coyotes or crows can eat a wide variety of foods and live in a vast array of habitats, making it less likely that these species will become endangered.

D. ARE VERY SENSITIVE TO CHANGES.

Changes in the environment may include chemical additives (such as pesticides or pollution), changes in the landscape (roads, houses, cities, etc.) or competition with "introduced" animals. Birds of prey, such as bald eagles and peregrine falcons, were particularly sensitive to DDT in the 1950's and 1960's resulting in low hatching rates of eggs. Some animals have a hard time competing with "introduced" animals like starlings or zebra mussels. "Introduced" animals often lack natural predators when removed from their native environment. Bluebirds have been particularly affected by starling introductions in the early 1900's.

E. HAVE SMALL BROODS AND LONG GESTATION PERIODS.

Animals that produce only one or two offspring every year or every other year cannot easily recover from a drop in numbers due to other factors (bats are a good example). It takes more time for their populations to recover and the animals sometimes become extinct before they have time to make a comeback. These animals have another problem, too. They don't reproduce fast enough to produce offspring that can adapt to changing conditions. It would take an elephant 60 years to produce 6 generations but a cockroach takes just 3 years!

F. ARE NATURALLY RARE.

Some animals are rare throughout their range, and others have a very limited range. In both cases, these animals are often vulnerable to habitat destruction and other people-caused problems (Examples: California Condors and Black-footed ferrets).

Now, ask yourself, "What if an animal fits more than one category?".....

The Endangered Species Act

(taken, in part, from the U.S. Fish & Wildlife Service homepage)

The early beginnings of the Endangered Species Act (ESA) were in 1966 when Congress passed the Endangered Species Preservation Act. This law allowed listing of only native animal species as endangered and provided limited means for the protection of species so listed. The Endangered Species Conservation Act of 1969 was passed to provide additional protection to species in danger of "worldwide extinction" and it called for an international ministerial meeting to adopt a convention on the conservation of endangered species. Thus was held a 1973 conference in Washington which resulted in the signing of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This convention restricted international commerce in plant or animal species believed to be actually or potentially harmed by trade.

Further representing America's concern about the decline of many wildlife species around the world, the Endangered Species Act (ESA) of 1973 was passed in the same year. This act broke new ground in some areas and considerably strengthened the provisions of its predecessors of 1969. The principal provisions of the act were:

- U.S. and foreign species list were combined, with the same provisions applying to both.
- Categories of endangered and threat ened were defined.
- Plants and all classes of invertebrates were eligible for protection just like in CITES
- All Federal agencies were required to undertake programs for the conservation of endangered and threatened species and prohibited from taking any action that would jeopardize a listed species or its "critical habitat."
- threatened and endangered animals were protected from "taking"(This term means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct.)
- Matching Federal funds became available for states with cooperative agreements
- Authority was provided to acquire land for listed animals and CITES-listed plants
- U.S. implementation of CITES was provided

Major amendments have been enacted in 1978, 1982, and 1988 but the framework of the original act is basically unchanged.

The U.S. Fish & Wildlife Service (USFWS) is the agency that oversees the listing of species on the Federal List of Endangered and Threatened Wildlife and Plants. When a candidate species has been proposed for listing, a very methodical evaluation is undertaken and criteria such as the magnitude of the threat and the species' taxonomic distinctiveness are reviewed. The USFWS is also the agency charged with enforcement of the Act. Violations of the ESA can result in a maximum penalty of a $100,000 fine and/or a year in jail.

The Endangered Species Act is not the only law to protect species of wild mammals, birds, reptiles, amphibians, and fishes, clams, snails, insects, spiders, crustaceans, and plants. There are many other laws with enforcement provisions to protect declining populations of rare species and their habitat, such as the Marine Mammal Protection Act, the Migratory Bird Treaty Act, and the Anadromous Fish Conservation Act. The Lacey Act makes it a federal crime for any person to import, export, transport, sell, receive, acquire, possess, or purchase any fish, wildlife, or plant taken, possessed, transported or sold in violation of any Federal, State, foreign or Indian tribal law, treaty, or regulation.

Myths and Realities of the ESA

Myth: Extinction is a "natural" process and we should not worry about it.

Reality: Extinction is a normal process, but the current extinction rate is not. The environment is changing so rapidly that species have no time to adapt. Since the pilgrims landed at Plymouth Rock 369 years ago, more than 500 North American species have become extinct.That is more than one species becoming extinct each year. Scientists estimate that natural extinction rates are one species lost every 100 years!

Myth: The Endangered Species Act is causing loss of jobs and economic devastation in many areas of the country.

Reality: Economists from the Massachusetts Institute of Technology analyzed the economic impacts of endangered species. They found that states with many listed species have economies that were at least as healthy as those with very few endangered species. Even in the Pacific Northwest, where logging restrictions were imposed, in part, because of the northern spotted owl, the regional economy is booming. Three years after the curtailment of logging in Federal forests, Oregon posted its lowest unemployment rate in a generation.

Myth: Thousands of private citizens have been prosecuted for harming or killing endangered species, even when killing occurred accidentally.

Reality: Most of the people prosecuted under the Endangered Species Act are illegal wildlife traffickers who illegally and knowingly collect rare wildlife and plants to sell for personal profit.

Myth: Many irresolvable conflicts with endangered species occur every year, stopping many valuable projects and hindering progress.

Reality: Of the 225,403 projects that were reviewed from 1979 to 1996, only 37 development projects were halted. That is one project stopped per 6,092 projects reviewed. In most cases, projects that were halted did proceed once the project design was modified to avoid endangering species.

Myth: Billons of tax dollars are being spent on endangered species.

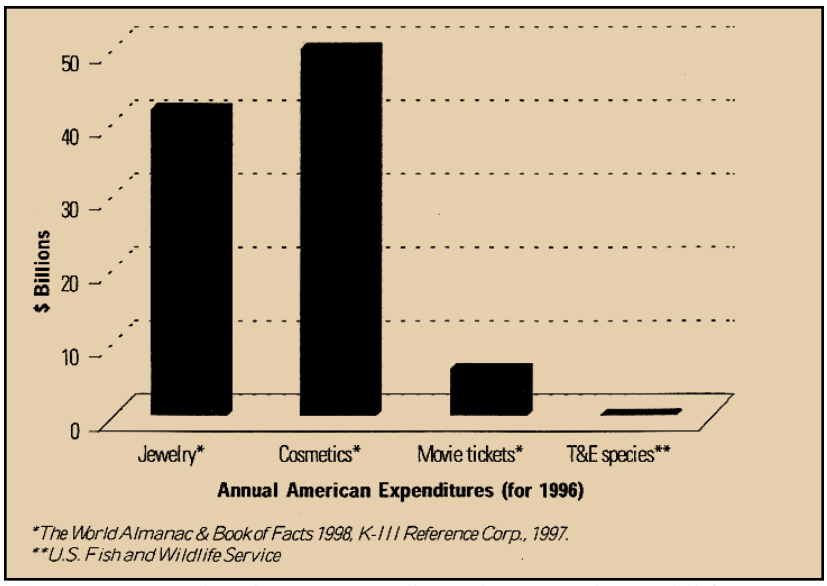
Reality: In FY 1996, the annual budget for the nationwide endangered species program was approximately $.06 billion. This amounts to an average of 23 cents per person in the United States. By comparison, Americans spent over $8.2 billion in 1992 on pets, pet food and pet supplies and the amount has grown since then (U.S. Bureau of the Census, Statistical Abstract of the U.S. 1997).

Myth: Most endangered species are worthless, insignificant, lower forms of life that have no value to humanity.

Reality: Size and emotional appeal have no bearing on a species' importance. Aldo Leopold, the father of wildlife managment, said it well in his book, The Sand County Almanac:

> "The last word in ignorance is the man who says of an animal or plant: 'What good is it?' If the land mechanisms as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."

Remember that penicillin was discovered from a mold!



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You and Your School

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What you can do to help conserve rare, threatened, and endangered species and their habitats

Awareness and Understanding You and Your Community

• "Adopt" an endangered species native to your area, find out how you can help conserve it, and inform the citizens in your community about your adopted plant or animal with speeches, newspaper articles, brochures, buttons, signs, videos, etc.

• Start a school newspaper to tell others about endangered species.

• Produce public service announcements about environmental issues you care about and distribute them to the media

• Conduct a community awareness survey. Write a newspaper column for a local paper to educate members of the community about their environment.

• Sponsor an environmental seminar or debate for both students and the community. Topics could include endangered species, water quality, recycling, composting, and environmental alternatives to harmful practices.

• Identify causes of erosion. Develop and distribute a stream or watershed protection guide.

Habitat Restoration

• Hold a school Arbor Day tree planting. Invite local officials

• Replant riverbanks, under supervision, with native plants to anchor the soil and provide wildlife habitat.

• Adopt a stream, wetland or watershed. Monitor water quality and the health of local plants and animals. Distribute your findings.

• Participate in river cleanups.

• Plant a garden on your school grounds to attract wildlife, birds, and butterflies.

• Build homes for bats and birds, and have the project certified by National Wildlife Federation's Backyard Wildlife Habitat program.

• Adopt an area of your school's playground, and then develop a plan to improve it.

• Conduct a public awareness campaign on the threats of non-native, invasive or exotic species. Under proper supervision, participate in native plant habitat restoration projects.

Sustainable Use of Earth's Resources

• Conduct a school energy audit. Brainstorm ways the school could lower energy use.

• Challenge other schools in your community to an energy conservation contest.

• Establish a school energy committee. Read energy conservation tips during morning announcements.

• Conduct a waste audit at school and identify materials that can be recycled or re-used.

• Establish a school organic garden, and teach others the techniques you've learned.

• Participate in an annual bird count.

Threatened Species of Kansas

THREATENED

STATUS: Threatened in KS **CLASSIFICATION:** Mammal
COMMON NAME: Eastern Spotted Skunk (*Spilogale putorius interrupt*)

Description: The eastern spotted skunk, though black and white in color, is smaller and more slender than the more common striped skunk. There is a triangular white patch on the forehead and 4-6 broken white stripes on the back and sides. This skunk prefers woodland edges along streams, brushy prairie with rock outcrops, brushy fencerows, debris piles, and abandoned farm buildings. The predatory habits of this mammal on insects, rats and mice make it economically valuable.

STATUS: Threatened in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Bald Eagle (*Haliaeetus leucocephalus*)

Description: As an adult, the Bald Eagle is a large, dark brown bird with a white head and white tail. They have become increasingly common winter visitors, and even nesting, at large reservoirs and rivers in the eastern half of the state. It feeds mostly on fish and waterfowl. Once listed as endangered, due primarily to the effects of DDT and loss of habitat, the Bald Eagle has made a triumphant recovery. The first Kansas nest in over 100 years of record keeping occurred at Clinton Lake in 1989.

STATUS: Threatened in KS and US **CLASSIFICATION:** Bird
COMMON NAME: Piping Plover (*Charadius melodus*)

Description: This is a small, pale-colored shorebird with bright orange legs and a single dark band across the breast during the breeding season. It is approximately 7 inches tall. Piping Plovers are most likely to be seen in the spring and fall at Cheyenne Bottom or Quivera National Wildlife Refuge in open sandy areas. Their numbers have been reduced due to loss of beach habitat from dewatering, channelization or damming of rivers.

STATUS: Threatened in KS **CLASSIFICATION:** Bird
COMMON NAME: White-faced Ibis (*Plegadis chihi*)

Description: The White-faced Ibis is a large (25 inches tall) chestnut-bronze marsh bird with a six-inch decurved bill. During the breeding season, it has a band of white feathers around the base of the bill, under the chin, and behind the eye. This bird is a spring and fall migrant likely to be found at Cheyenne Bottoms or Quivira NWR. Populations have declined due to pesticide usage and the drainage of wetlands.

STATUS: Threatened in KS **CLASSIFICATION:** Bird
COMMON NAME: Snowy Plover (*Charadrius alexandrinus*)

Description: This bird may be confused with the Piping Plover, however, Snowy Plovers have an incomplete black neck band and the feet and legs are black, not orange. Snowy Plovers are about 6 inches high. They can be found statewide during migration and prefer open salt flats, beaches, and sandbars with little vegetation. Like the Piping Plover, their numbers have been reduced due to loss of beach habitat from dewatering, channelization, and damming of rivers. These practices eliminate flooding and sandbar formation, and permit vegetation to grow on critical use areas of this bird.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Broadhead Skink (*Eumeces laticeps*)

Description: This skink is about 12 3/4 inches long. Females are brownish with yellow stripes on the back and sides that may fade to brown or gray. Males are larger, a uniform olive or tan color and lack stripes. Young are black with bright yellow stripes and a blue tail. This lizard is known to occur in mature woodlands in eastern Kansas where it depends upon tree cavities for nesting habitat.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Common Map Turtle (*Graptemys geographica*)

Description: Semi-aquatic in nature, this turtle inhabits large streams, lakes, and oxbows having abundant basking sites, slow to moderate current, soft substrate with much aquatic vegetation, and tree-lined banks. It is found in the streams of the Osage Cuestas in the southeastern part of Kansas. The shell of this turtle grows to a maximum of 10 3/4 inches. The upper shell is dull olive-gray with yellowish lines and circles and a roughly jagged rear edge. The head, limbs, and tail are olive or brownish with yellow stripes and a small yellow spot behind each eye.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Checkered Garter Snake (*Thamnophis marcianus*)

Description: Reaching a maximum length of 42.5 inches, the checkered garter snake has three narrow yellow stripes, one on each side and one running down the middle of the back.The area between and below the stripes is brownish yellow with a bold checkered pattern of dark brown or black spots. The belly is yellowish with no pattern. This snake is restricted to the southern border of the state. It frequents margins of pools in streams and near small impoundments.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Northern Redbelly Snake (*Storeria occipitomaculata*)

Description: Besides being small (8-10 inches long), this snake is very secretive and restricted to the extreme eastern edge of the state. The head, body, and tail may be slate gray with two, thin darker stripes on each side of the back or reddish brown with indistinct darker stripes. The belly may be bright orange-red or jet black. This snake is known to occur in mature upland woodlands having dense leaf litter, rocks, logs, and other debris. It prefers small forest slugs, but it also eats snails and earthworms.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Smooth Earth Snake (*Virginia valeriae elegans*)

Description: This snake has smooth scales on the front part of the body, a gray or brown unpatterned head, body and tail and a white belly. Its maximum size is 15 3/8 inches and it may occur on rocky hillsides in moist woodlands in the northeastern part of the state. It spends the daylight hours beneath rocks, logs, or in leaf litter. The Smooth Earth Snake feeds exclusively on earthworms.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Texas Blind Snake (*Leptotyphlops dulcis dissec*)

Description: This snake, at first glance, resembles a worm with its uniform pinkish tan color. The eyes are tiny black dots and the belly scales on this snake are the same size as the scales on the upper body. Little is known of this snake because of its nocturnal habits and underground living. It is found only along the southern border of the state and known to occur in moist sandy areas where rocks and burrows provide cover. The maximum length for this snake is 10 3/4 inches and it feeds on ant eggs and termites.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Texas Longnose Snake (*Rhinocheilus lecontie tessel*)

Description: The ground color of this snake is yellowish or cream with 18-35 black blotches on the body separated by pink or reddish interspaces. The belly is generally white or cream and unpatterned. This snake grows to a maximum length of 41inches. It is found in the Red Hills and southern High Plains of southwestern Kansas and prefers semiarid grasslands with sandy soils and/or rocky outcrops.

STATUS: Threatened in KS **CLASSIFICATION:** Reptile
COMMON NAME: Texas Night Snake (*Hypsiglena torquata jani*)

Description: Unusual for a nonvenomous snake, the Night Snake has vertical pupils which are an adaptation for prowling at night in search of food. The maximum length for this snake is 20 inches. The body and tail of this snake are gray or grayish yellow with 50-70 dark brown blotches on the back. The head is gray or brown and the neck has three elongate large brown blotches. This snake is found in the Red Hills in southwest-central Kansas along the Oklahoma border in dry rocky rangeland. It feeds primarily on small lizards and other snakes.

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Longtail Salamander (*Eurycea longicauda*)

Description: This very slender salamander grows to a maximum length of 7 7/8 inches. The back and head are brownish yellow to bright yellowbut the sides of the body from the snout to the tail are dark brown or black. The belly is dull white and black spots may be seen on the back arranged in a double row or scattered irregularly. In Kansas, this salamander is restricted to the Ozark Plateau of Cherokee County. It uses moist areas near streams, in or near caves, and under rocks and debris where moisture is suitable.

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Eastern Newt (*Notophthalmus viridescens*)

red eft stage

Description: Newts are unlike most salamanders because they lack vertical grooves on each side of the body between the front and hind limbs. The adult Eastern Newt has a distinctive yellow belly covered with small black spots; and its body, head, limbs, and tail are olive green to brown, also with small black spots. The Eastern Newt in Kansas appears to be restricted to suitable aquatic situations in the Ozark Plateau in Cherokee County and in the Marias des Cygnes River floodplain in Linn County. Adults are totally aquatic and inhabit ponds, small lakes, swamps, marshes, and ditches.

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Green Frog (*Rana clamitans melanota*)

Description: The head, body and limbs of this frog are olive to olive-brown, sometimes with small black spots on the back. The belly and throat are white and the limbs have dark, indistinct narrow bands. In Kansas, this frog can only be found in the Ozark Plateau in the extreme southeast corner of the state. It is fond of backwater areas near streams and small impoundments and eats primarily terrestrial insects.

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Spring Peeper (*Pseudacris crucifer*)

Description: This small frog (max. length 1.5 inches) has slightly enlarged toe pads on the front and hind feet and a dark brown or grayish X-shaped mark on the back. The belly is yellowish with no pattern but the males have a dark throat. This frog requires small pools and wetlands with abundant aquatic vegetation located near woodlands. In Kansas, it is found only in the Ozark Plateau of Cherokee County in the extreme southeast corner of Kansas and possibly the eastern edge of the Osage Cuestas in Miami and Linn counties.(This population is thought to be non-existent due to habitat destruction.)

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Strecker's Chorus Frog (*Pseudacris streckeri*)

Description: This frog has a short head, squat body (max. size 2 inches), and thick limbs which are brown, gray, or green. Dark spots on the back are dark brown or black and irregularly scattered on the back and sides. A dark triangular or V-shaped marking may or may not be present between the eyes. This frog requires shallow pools of relatively unpolluted water where some aquatic vegetation is present and no predatory fish occur. In Kansas, it is known only from the Red Hills in extreme southcentral Kansas along the Oklahoma border.

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Eastern Narrowmouth Toad (*Gastrophyne carolinensis*)

Description: This tiny toad(max. length of 1.5 inches) can be recognized by a fold of skin across the back of the head between the eyes, a very pointed snout, and a small head compared to the rest of the body. The head, limbs, and body of this toad range from a uniform brown to reddish-brown. It is known to occur in suitable habitat in the Spring River Basin (Cherokee County) in extreme southeast Kansas. It seems to prefer moist soil areas where rocks and debris provide cover.

STATUS: Threatened in KS **CLASSIFICATION:** Amphibian
COMMON NAME: Western Green Toad (*Bufo debilis insidior*)

Description: The Green Toad possesses enlarged kidney-shaped glands behind each eye on its neck but no bony crests between or behind its eyes are present. The head, body, and limbs are green or green-yellow with black spots or streaks, which may form a network pattern. The maximum length for this toad is 2 1/8 inches. The Green Toad is restricted to the High Plains of extreme western Kansas. It prefers arid grasslands at elevations of 2,500 feet or higher and can be found along intermittent streams and wet places below tanks or dams of ponds.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Arkansas Darter (*Etheostoma cragini*)

Photo by Joseph T. Collins

Description: This small member of the perch family does not exceed a length of 2.25 inches. Its stout body is mottled brown, however, breeding males are orange along their entire ventral surface and their dorsal fin has a diffuse orange band. The Arkansas Darter prefers sand bottom springs or seeps that are partly overgrown by watercress or other aquatic plants. It occurs only in small prairie streams in the Arkansas River basin as well as streams in extreme southeastern Kansas along the Ozark Plateau border.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Blackside Darter (*Percina maculata*)

Photo by Joseph T. Collins

Description: This darter is green and gray (or black) with 6-8 large, oblong dark blotches on the sides of their body. Unlike most darters, this darter lacks an orange band in the dorsal fin. This fish is known to occur only in Mill Creek in Wabaunsee County. It requires cool, clear, medium-sized streams where it depends upon shallow pools having moderate current and bottoms of clean gravel or mixed gravel or sand. Threats for this fish include agricultural pollution, channelization, and dam construction.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Chestnut Lamprey (*Ichthyomyzon castaneus*)

Photo by Richard T. Bryant and Wayne C. Starnes

Description: Adults of this species are parasitic and possess a round, sucking-disk mouth. It lacks the fins typical of most fishes but has a keel-like, rayless fin along its back and around the tip of its tail. The maximum length for this fish is 15 inches. At the time of settlement, this fish occupied the eastern third of Kansas, however, within the last 40 years it has been found only in the Missouri River and near the mouth of the Kansas River. The decline in Kansas is probably due to degradation of streams in which eggs and young are produced.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Flathead Chub (*Platygobio gracilis*)

Description: The Flathead Chub is a minnow with long, sickle-shaped pectoral fins and a broad, wedge-shaped head with a large mouth and one small barbel ("whiskers") on each side of the mouth. Its back is light greenish or brown with silvery, unspotted sides and belly. Maximum length for this fish is 12.5 inches. It prefers turbid streams with unstable sand bottoms.This fish is known to occur historically, and may still occur, in the Missouri River main stem.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Hornyhead Chub (*Nocomis biguttatus*)


Photo by Joseph T. Collins

Description: This fish seldom reaches sizes of more than 6 inches and can be identified by its large head and large mouth. A small barbel is present on each side of the mouth and the eye is larger than in most minnows with barbels. The back is greenish and the belly is white. The Hornyhead Chub is known to occur in the Pottawatomie Creek basin in eastern Kansas. It requires gravelly, low-gradient streams with pools and slow to moderate runs and is often associated with aquatic vegetation. Runoff from fields, roads, and feedlots has caused streams to become polluted and muddy, degrading its habitat.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Redspot Chub (*Nocomis asper*)

Description: Redspot Chubs are similar in appearance to Hornyhead Chubs except the two fish occur in different river drainages in Kansas. This fish has a large head, large mouth with two barbels ("whiskers"), and a large eye in comparison to most other minnows with barbels. The back is greenish and the belly is white. It grows to a maximum of 8.5 inches. This fish may occur in tributaries of the Neosho River, especially Shoal Creek. It prefers deep pools and runs with gravel bottoms and some aquatic vegetation. Habitat loss due to intensive land use has been the primary factor in population declines.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Sturgeon Chub (*Macrhybopsis gelida*)


Photo by Richard T. Bryant

Description: This minnow has a slender, nearly transparent body with a small keel on each dorsal scale. It has a long snout, a small eye, and a small mouth on the bottom of its head. It has one or two barbels ("whiskers") on each side of the mouth. In Kansas, this fish is only found in the Missouri, Kansas, and Smoky Hill rivers. It prefers large sandy rivers where it stays in turbulent areas frequently swept by currents (i.e. at the heads of islands and sand bars). Declines can probably be attributed to impoundment construction on rivers, causing changes in flows, suspended solids, and substrates.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Neosho Madtom (*Noturus placidus*)

Description: This small member of the catfish family rarely reaches a length of 3.25 inches. It is mottled dark- and light-brown with dark bars on its tail fin. Its dorsal and anal fins have dusky streaks but are not black-tipped. The lower jaw closes against the upper jaw behind the front edge of the head. The Neosho Madtom lives only in the main streams of the Neosho River, the Cottonwood River, and the Spring River. It is known to occur in gravel riffles and gravel bars in moderate currents.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Silverband Shiner (*Notropis shumardi*)


Photo by Richard T. Bryant

Description: This minnow is pale green and transparent, with a narrow silvery stripe on each side of the body. It has a high, sharply-pointed dorsal fin that is situated directly above its pelvic fins. It may grow to 4 inches in length. The Silverband Shiner is found in Kansas only in the mainstream of the Missouri River. It prefers moderately deep areas of flowing water over sand or gravel substrate. Extensive channelization of the Missouri River has destroyed the preferred habitat of this fish and is the probable reason for its decline.

STATUS: Threatened in KS/Endangered in US **CLASSIFICATION:** Fish
COMMON NAME: Topeka Shiner (*Notropis topeka*)

Description: This minnow has a stout body that is nearly as wide as high. Its mouth is small and on the bottom of the head. The tail fin has a tiny, chevron-like spot at its base. Although formerly widespread in Kansas, this species is now restricted to small streams in the Flint Hills plus a very few streams elsewhere in the state such as Willow Creek. Topeka Shiners prefer open pools near the headwaters of streams that maintain a stable water level such as from springs. This fish is listed by the USFWS as ENDANGERED. States do not have to list a plant or animal under the same category as long as it is listed.

STATUS: Threatened in KS **CLASSIFICATION:** Fish
COMMON NAME: Western Silvery Minnow (*Hybognathus argyritis*)


Photo by Suzanne Collins

Description: This fish has a slender body that is flattened top to bottom. Its mouth is on the bottom with no barbels ("whiskers") and the lips are thin. The body is straw-colored with yellowish white or dull silvery sides that are not transparent. Maximum size of this fish is 4.75 inches. The Western Silvery Minnow prefers large, shallow, sandy rivers where it utilizes runs and backwater pools. It is currently known from the Missouri River and in the creeks of its floodplain.

STATUS: Threatened in KS **CLASSIFICATION:** Invertebrate
COMMON NAME: Butterfly Mussel (*Ellipsaria lineolata*)


Photo by Edwin J. Miller

Description: The Butterfly Mussel has a triangular, flattened shell of moderate thickness. It is brightly yellow to tan on the outside and covered with dark rays of dots, dashes, and chevrons. It grows to about 5 inches. This mussel is only found in rivers and prefers clean water with a good current over gravel substrate. Currently, it has been documented in much reduced numbers in the Neosho River in southeast Kansas. Its decline is due to habitat alteration, water pollution, and the loss of host fishes.

STATUS: Threatened in KS **CLASSIFICATION:** Invertebrate
COMMON NAME: Fluted-shell Mussel (*Lasmigona costata*)

Description: The shell of this mussel is elongate to quadrate in shape with folds and ridges on the back end. Its color is tan to black with indistinct broad green rays. This mussel is found only in rivers and is dependent upon riffles comprised of small to medium-size gravel with clean water and a moderate current. Today, this mussel is found only in Spring River in south-east Kansas. Habitat alteration, water pollution, and the loss of host fishes are the major factors affecting populations of this mussel.

STATUS: Threatened in KS **CLASSIFICATION:** Invertebrate
COMMON NAME: Ouachita Kidneyshell Mussel (*Ptychobranchus occidentalis*)


Photo by William Busby

Description: The shell of this mussel is elongated and compressed. Its exterior color ranges from yellow to tan to brown, with fine wavy rays over most of the shell. It grows to be about 5 inches. This mussel is found only in rivers and requires clean-flowing water over gravel substrate. Currently, it is known to occur only in much reduced numbers in the Spring and Verdigris river systems. Habitat alteration, water pollution, and the loss of host fishes are the major factors affecting populations of this mussel.

STATUS: Threatened in KS **CLASSIFICATION:** Invertebrate
COMMON NAME: Rock Pocketbook Mussel (*Arcidens confragosus*)

Description: The shell of the Rock Pocketbook is rounded on the front end and blunt or square on the back end. It is heavily sculpted with knobs, ridges, and folds. The shell is green or brown in young, becoming blackish in older individuals and it may grow to 6 inches in length. This mussel is only found in rivers and is adapted to mud, silt, and silty gravel substrates in pools in medium to large streams. A small population of this mussel may be found in the lower Marais des Cygnes River; recently it was found in Pottawatomie Creek.

STATUS: Threatened in KS **CLASSIFICATION:** Invertebrate
COMMON NAME: Sharp Hornsnail (*Pleurocera acuta*)

Description: The shell of this snail is very thick and solid with its opening on the right when the narrow end is up. The whorls of the shell do not bulge out distinctly on the sides. This makes the sides of the shell almost straight lines with only shallow incisions between the coils. This snail prefers shallow, sheltered reaches of larger lakes and streams. Currently it is known only in the Marais des Cygnes main stem.

Endangered IQ

Would you like to test your Endangered IQ? The following questions pertain to threatened and endangered animals, all (except one) of them included on our Kansas lists. Play this game by setting up a game board (see following pages) then choose a category and a point value (the more points, the more difficult the question).

Points and Questions

Category: Birds

10 I am our national symbol. My recovery has been so successful that I have been downlisted from 'endangered' to 'threatened.' Who am I?

20 I am one of the fastest birds in the world? I can dive at 200 mph! Who am I?

30 I am a white, long-necked bird whose numbers were down to only 20 in 1941. Today, there are about 300 of us because of help we get from people who care. I like to dance and migrate long distances. I even stop in Kansas! Who am I?

40 I am the smallest member of my family with a wingspan of 20 inches. My head is black on top and I have a deeply forked tail. I like sandy islands in rivers.Who am I?

50 I used to be abundant and migrate through Kansas, but the last one seen here was in 1902. The first word of my name is the same as the people who live in the Artic.Who am I?

Category: Mammals

10 I travel in packs and have recently returned to Yellowstone but not Kansas. I'm usually gray, but can be brown, black, white, or any combination of these. Who am I?

20 I am a long, slender mammal with a black mask on my face and black feet. I am a member of the weasel family. The last one of my kind seen in Kansas was in 1957. Who am I?

30 I am nocturnal and belong to the only group of mammals that can truly fly. The color of my fur is gray to rusty brown. You might find me living in the storm sewers of Pittsburg, Kansas. Who am I?

40 I am a threatened mammal in Kansas. I may be small but I can really make a stink. I have black fur with four to six broken white stripes or spots. Who am I?

50 I am not threatened or endangered yet, but I am a species in need of conservation. I am a mammal that glides from tree to tree. Like other members of my family, I eat nuts.Who am I?

Category: Swim, Hop, or Crawl

10 We are small amphibians that have four legs and a long tail. You may find us living in caves or clear springs. We have names like long-tailed, cave, grotto, or many-ribbed. Who are we?

20 I am a semi-aquatic reptile that is rather shy. You might think from my name that I could lead you to a lost place. I love to sit on logs in ponds and soak up the sun's rays. Who am I?

30 I am a long, slender reptile that doesn't have any legs. I have red and black blocks of color on my back and sides, like the red and black on a popular game board. Who am I?

40 Elktoe, flat floater, Neosho mucket, and rabbitsfoot are part of our names. Who are we?

50 I am a very small type of catfish that doesn't get any bigger than 3 1/4 inches. I live only in the main streams of the Neosho River. Who am I?

Category: Endangered! Recovered!

10 If this happens, a species will be gone forever. What is this word?

20 What is the law that protects plants and animals that are in danger of disappearing forever?

30 What word means "any species which is in danger of extinction throughout all or a significant part of its range?"

40 What is the ultimate goal of the Endangered Species Act?

50 What do habitat loss, introduced species, pollution, population growth, and overconsumption of resources do to fish, wildlife and plants?

This page is based on *Risky Critters* from the U.S. Fish & Wildlife Service Endangered Species Teachers Packet but modified for Kansas. Copies of *Risky Critters* may be obtained by calling 1-800-344-WILD or at www.fws.gov/r9endspp/endspp

Birds	Mammals	Swim, Hop, & Crawl	Endangered! Recovered!
10	10	10	10
20	20	20	20
30	30	30	30
40	40	40	40
50	50	50	50

Endangered IQ con't.

How to build your own gameboard

1. Write out the question on the top half of a sheet of paper. Write answers on bottom half of the sheet. Fold in half.

2. Tape folded question/answer sheet to foam core board.

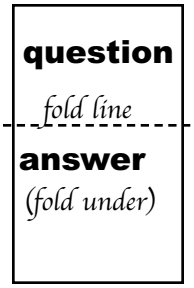
3. Write point value of question on top half of another piece of paper. Fold in half.

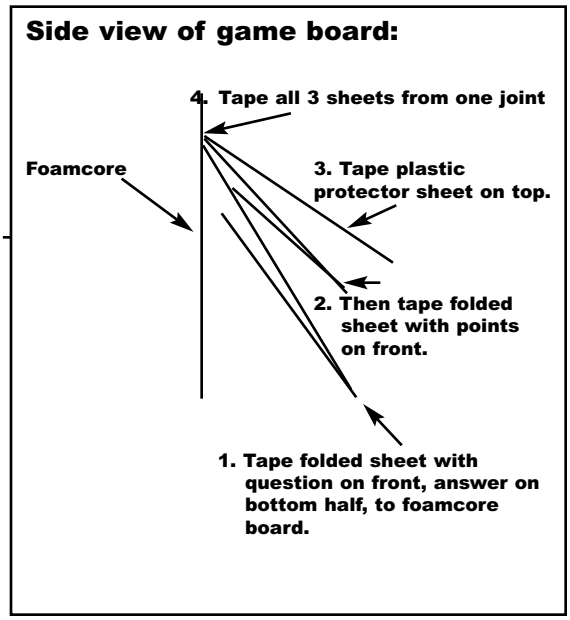
4. Tape folded point value sheet above question/answer sheet. (You could make some "double points" on bottom half of point value sheet).

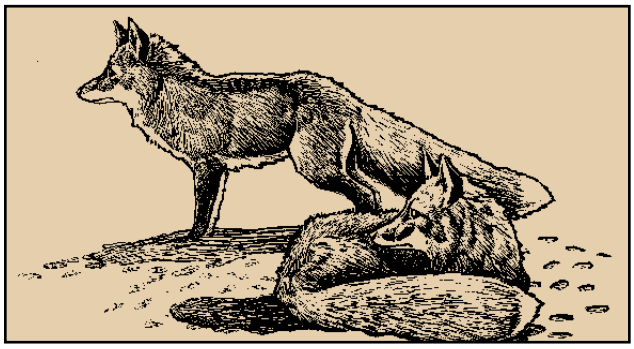
5. If using in bad weather, tape plastic protector sheet above that (transparencies work well).

6. Arrange in same pattern as the game board layout (previous page).

7. Have fun!







Materials List

40 sheets of paper (8.5" x 11")

10 transparencies/protector sheets(8.5" x 11", cut in half)

1 poster size foam core board (20" x 40")

Tape

Questions/Answers

Points and Answers

Category: Birds

10 Bald Eagle
20 Peregrine Falcon
30 Whooping Crane
40 Least Tern
50 Eskimo Curlew

Category: Mammals

10 gray wolf
20 Black-footed ferret
30 gray bat (or gray myotis)
40 spotted skunk
50 Southern flying squirrel

Category: Swim, Crawl, or Hop

10 salamanders
20 common map turtle
30 checkered garter snake
40 endangered and threatened mussels
50 Neosho madtom

Category: Endangered! Recovered!

10 extinction
20 The Endangered Species Act
30 endangered
40 recovery
50 They cause species to become endangered.

T & E Species List for Kansas

REFERENCES:

An Illustrated Guide to Endangered or Threatened Species in Kansas, 1995
by Collins, et al., KU Press
Threatened and Endangered Species of Kansas (leaflet), 09/2000
Kansas Department of Wildlife & Parks
U.S. Fish and Wildlife Service T & E web site
http://endangered.fws.gov/

MAMMALS

	Scientific name	State Status	U.S. Status
Gray Myotis	*Myotis grisescens*	Endangered	Endangered
Indiana Bat*	*Myotis sodalis*	none	Endangered
Black-footed Ferret	*Mustela nigripes*	Endangered	Endangered
Eastern Spotted Skunk	*Spilogale putorius*	Threatened	none

BIRDS

	Scientific name	State Status	U.S. Status
White-faced Ibis	*Plegadis chihi*	Threatened	none
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	Threatened
Peregrine Falcon	*Falco peregrinus*	Endangered	none
Whooping Crane	*Grus americana*	Endangered	Endangered
Snowy Plover	*Charadrius alexandrinus*	Threatened	none
Piping Plover	*Charadrius melodus*	Threatened	Threatened
Eskimo Curlew	*Numenius borealis*	Endangered	Endangered
Least Tern	*Sterna antillarum*	Endangered	Endangered
Black-capped Vireo	*Vireo atricapillus*	Endangered	Endangered

Reptiles

	Scientific name	State Status	U.S. Status
Common Map Turtle	*Gratemys geographica*	Threatened	none
Broadhead Skink	*Eumeces laticeps*	Threatened	none
Texas Blind Snake	*Leptotyphlops d. dissectus*	Threatened	none
Texas Night Snake	*Hypsiglena torquata jani*	Threatened	none
Texas Longnose Snake	*Rhinocheilus l. tessellatus*	Threatened	none
Northern Redbelly Snake	*Storeria o. occipitomaculata*	Threatened	none
Checkered Garter Snake	*Thamnnophis m. marcianus*	Threatened	none
Smooth Earth Snake	*Virginia valeriae elegans*	Threatened	none

* The Indiana Bat (*Myotis sodalis*) does not have “endangered status” in the state since there are no historical records nor current records of the Indiana Bat occurring in Kansas. It is found near by in both Missouri and Oklahoma. Should individuals of this species be found in Kansas, they will be given “Endangered” protection. Southeast Kansas would be the most likely area for occurrence.

Amphibians

	Scientific name	State Status	U.S. Status
Central Newt	*Notophthalmus louisianensis*	Threatened	none
Longtail Salamander	*Eurycea l. melanopleura*	Threatened	none
Cave Salamander	*Eurycea lucifuga*	Endangered	none
Many-ribbed Salamander	*Eurycea m. griseogaster*	Endangered	none
Grotto Salamander	*Typhlotriton spelaeus*	Endangered	none
Western Green Toad	*Bufo debilis insidior*	Threatened	none
Spring Peeper	*Pseudacris c. crucifer*	Threatened	none
Strecker's Chorus Frog	*Pseudacris s. streckeri*	Threatened	none
Green Frog	*Rana clamitans melanota*	Threatened	none
Eastern Narrowmouth Toad	*Gastrophryne carolinensis*	Threatened	none

Fish

	Scientific name	State Status	U.S. Status
Chestnut Lamprey	*Ichthyomyzon castaneus*	Threatened	none
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered	none
Speckled Chub	*Extrarius aestivalis*	Endangered	Endangered
Western Silvery Minnow	*Hybognathus argyritis*	Threatened	none
Sturgeon Chub	*Macrhybopsis gelida*	Threatened	none
Sicklefin Chub	*Macrhybopsis meeki*	Endangered	none
Redspot Chub	*Nocomis asper*	Threatened	none
Hornyhead Chub	*Nocomis biguttatus*	Threatened	none
Arkansas River Shiner	*Notropis girardi*	Endangered	Threatened
Topeka Shiner	*Notropis topeka*	Threatened	Endangered
Silverband Shiner	*Notropis shumardi*	Threatened	none
Flathead Chub	*Platygobio gracilis*	Threatened	none
Neosho Madtom	*Noturus placidus*	Threatened	Threatened
Arkansas Darter	*Etheostoma cragini*	Threatened	none
Blackside Darter	*Percina maculata*	Threatened	none

Invertebrates

	Scientific name	State Status	U.S. Status
American Burying Beetle	*Nicorphorus americanus*	Endangered	Endangered
Scott Riffle Beetle	*Optioservus phaeus*	Endangered	none
Bleedingtooth Mussel	*Venustaconcha pleasi*	Endangered	none
Butterfly Mussel	*Ellipsaria lineolata*	Threatened	none
Elktoe Mussel	*Alasmidonta marginata*	Endangered	none
Ellipse Mussel	*Venustaconcha ellipsiformis*	Endangered	none
Flat Floater Mussel	*Anodonta suborbiculata*	Endangered	none
Fluted-shell Mussel	*Lasmigona costata*	Threatened	none
Mucket Mussel	*Actinonais ligamentina*	Endangered	none
Neosho Mucket Mussel	*Lampsilis rafinesqueana*	Endangered	none
Ouachita Kindeyshell Mussel	*Ptychobranchus occidentalalis*	Threatened	none
Rabbitsfoot Mussel	*Quadrula cylindrica*	Endangered	none
Rock Pocketbook Mussel	*Arcidens confragosus*	Threatened	none

Invertebrates con't.

	Scientific name	State Status	U.S. Status
Western Fanshell Mussel	*Cyprogenia aberti*	Endangered	none
Sharp Hornsnail	*Pleurocera acuta*	Threatened	none
Slender Walker Snail	*Pomatiopsis lapidaria*	Endangered	none

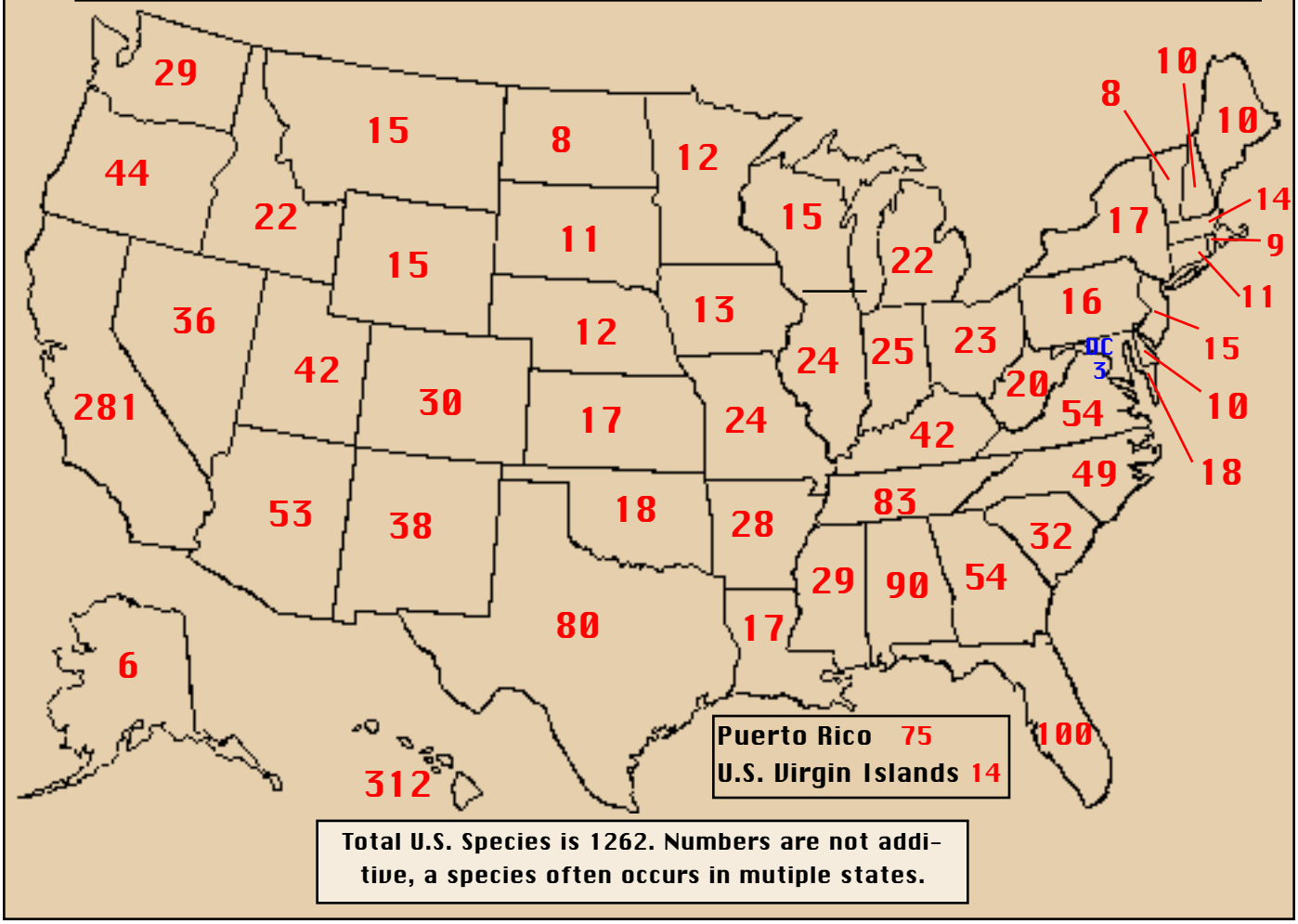
Plants**

	Scientific name	State Status	U.S. Status
Running Buffalo Clover	*Trifolium stoloniferum*	extirpated	Endangered
Mead's Milkweed	*Asclepias meadii*	none	Threatened
Western Prairie Fringed Orchid	*Platanthera praeclara*	none	Threatened

(**Note: Kansas law does not allow state listing of plant species.)

Threatened and Endangered Species in the U.S.

Listed Species Range by State/Territory as of December 2002.
Does not map whales and non-nesting sea turtles in State coastal waters but does include pinnipeds (seals, etc.) and anadromous fishes under the sole jurisdiction of the National Marine Fisheries Service. Plants are also included.



Total U.S. Species is 1262. Numbers are not additive, a species often occurs in mutiple states.

Species in Need of Conservation for Kansas

Species **I**n **N**eed of **C**onservation, or SINC species, are just what the name implies--species that need help. The species contained on this list are those likely to become threatened in the near future if nothing is done to protect them and their habitat. Endangered or threatened represents a higher priority than designation as SINC. A permit issued by the Kansas Department of Wildlife & Parks, and where appropriate, the U.S. Fish & Wildlife Service, is required to collect the species listed as SINC for scientific purposes. None of these species may be exploited commercially.

A SINC designation in Kansas is only for Kansas. Other states may or may not have species on a "watch list" such as the SINC list represents. The Kansas list represents 7 mammals, 16 birds, 6 reptiles, 2 amphibians, 22 fish, and 16 invertebrates for a total of 69 species considered in need of conservation.

MAMMALS

	Scientific Name	State Status	US Status
Eastern Chipmunk	*Tamias striatus*	SINC	none
Franklin's Ground Squirrel	*Spermophilis franklinii*	SINC	none
Pallid Bat	*Antrozous pallidus bunkeri*	SINC	none
Southern Flying Squirrel	*Glaucomys volans volans*	SINC	none
Texas Mouse	*Peromyscus attwateri*	SINC	none
Townsend's Big-eared Bat	*Plecotus townsendii pallesc*	SINC	none
Southern Bog Lemming	*Synaptomys cooperi*	SINC	none

BIRDS

	Scientific Name	State Status	US Status
Black Rail	*Laterallus jamaicensis*	SINC	none
Black Tern	*Chlidonias niger*	SINC	none
Bobolink	*Dolichonyx oryzivorus*	SINC	none
Cerulean Warbler	*Dendroica cerulea*	SINC	none
Chihuahuan Raven	*Corvus cryptoleucus*	SINC	none
Curve-billed Thrasher	*Toxostoma curvirostre*	SINC	none
Ferruginous Hawk	*Buteo regalis*	SINC	none
Golden Eagle	*Aquila chrysaetos*	SINC	none
Henslow's Sparrow	*Ammodramus henslowii*	SINC	none
Ladder-backed Woodpecker	*Picoides scalaris*	SINC	none
Long-billed Curlew	*Numenius americanus*	SINC	none
Mountain Plover	*Charadrius montanus*	SINC	none
Red-shouldered Hawk	*Buteo lineatus*	SINC	none
Short-eared Owl	*Asio flammeus*	SINC	none
Whip-poor-will	*Camprimulgus vociferus*	SINC	none
Yellow-throated Warbler	*Dendroica dominica*	SINC	none

REPTILES

	Scientific Name	State Status	US Status
Alligator Snapping Turtle	*Macroclemys temminckii*	SINC	none
Eastern Hognose Snake	*Heterodon platirhinos*	SINC	none
Glossy Snake	*Arizona elegans*	SINC	none
Rough Earth Snake	*Virginia striatula*	SINC	none
Timber Rattlesnake	*Crotalus horridus*	SINC	none
Western Hognose Snake	*Heterodon nasicus*	SINC	none

AMPHIBIANS

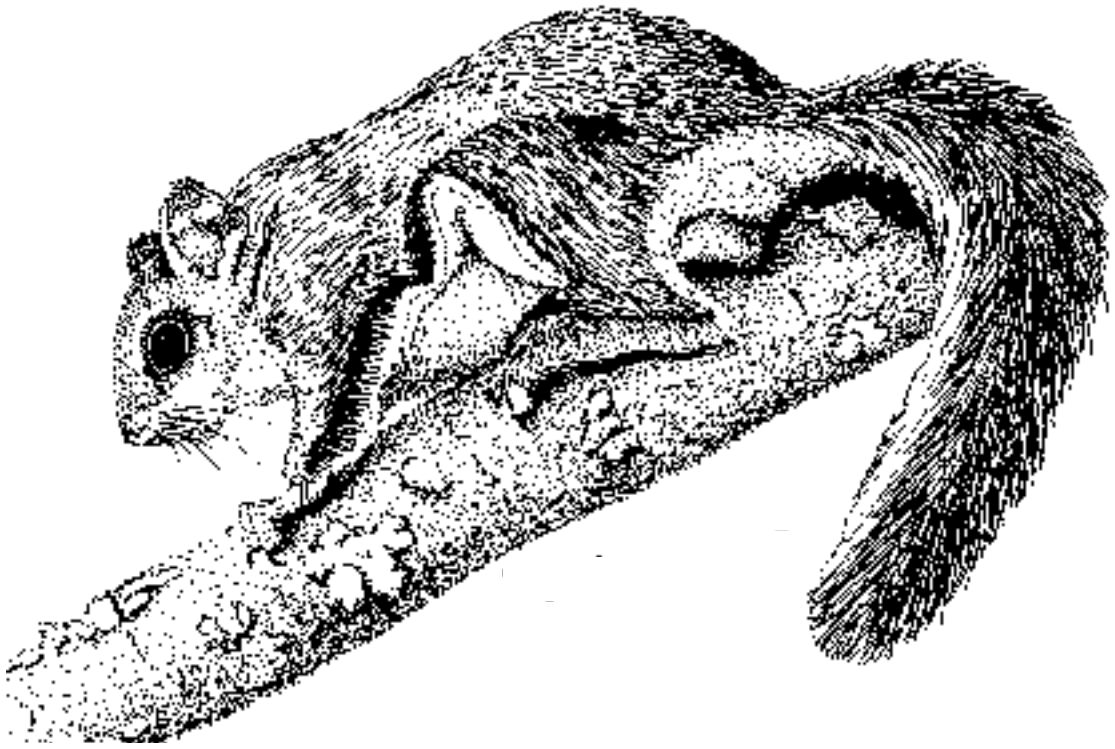
	Scientific Name	State Status	US Status
Northern Crawfish Frog	*Rana areolata circulosa*	SINC	none
Red-spotted Toad	*Bufo punctatus*	SINC	none

FISH

	Scientific Name	State Status	US Status
Banded Darter	*Etheostoma zonale*	SINC	none
Banded Sculpin	*Cottus carolinae*	SINC	none
Black Redhorse	*Moxostoma duquesnii*	SINC	none
Blacknose Dace	*Rhinichthys atratulus*	SINC	none
Blue Sucker	*Cycleptus elongatus*	SINC	none
Bluntnose Darter	*Etheostoma chlorosomum*	SINC	none
Brassy Minnow	*Hybognathus hankinsoni*	SINC	none
Gravel Chub	*Erimystax x-punctatus*	SINC	none
Greenside Darter	*Etheostoma blennioides*	SINC	none
Highfin Carpsucker	*Carpiodes velifer*	SINC	none
Northern Hogsucker	*Hypentelium nigricans*	SINC	none
Ozark Minnow	*Notropis nubilus*	SINC	none
Plains Minnow	*Hybognathus placitus*	SINC	none
River Darter	*Percina shumardi*	SINC	none
River Redhorse	*Moxostoma carinatum*	SINC	none
River Shiner	*Notropis blennius*	SINC	none
Slough Darter	*Etheostoma gracile*	SINC	none
Speckled Darter	*Etheostoma stigmaeum*	SINC	none
Spotfin Shiner	*Cyprinella spiloptera*	SINC	none
Spotted Sucker	*Minytrema melanops*	SINC	none
Stippled Darter	*Etheostoma punctulatum*	SINC	none
Tadpole Madtom	*Noturus gyrinus*	SINC	none

INVERTEBRATES

	Scientific Name	State Status	US Status
Creeper Mussel	*Strophitus undulatus*	SINC	none
Cylindrical Papershell Mussel	*Anodontoides feruscianus*	SINC	none
Deertoe Mussel	*Truncilla truncata*	SINC	none
Fat Mucket Mussel	*Lampsilis siliquoidea*	SINC	none
Fawnsfoot Mussel	*Truncilla donaciformis*	SINC	none
Round Pigtoe Mussel	*Pleurobema sintoxia*	SINC	none
Snuffbox Mussel	*Epioblasma triquetra*	SINC	none
Spike Mussel	*Elliptio dilatata*	SINC	none
Wabash Pigtoe Mussel	*Fusconaia flava*	SINC	none
Wartyback Mussel	*Quadrula nodulata*	SINC	none
Washboard Mussel	*Megalonaias nervosa*	SINC	none
Yellow Sandshell Mussel	*Lampsilis teres*	SINC	none
Gray Petaltail Dragonfly	*Tachopteryx thoreyi*	SINC	none
Neosho Midget Crayfish	*Orconectes macrus*	SINC	none
Ozark Emerald Dragonfly	*Somatochlora ozarkensis*	SINC	none
Prairie Mole Cricket	*Gryllotalpa major*	SINC	none



GLOSSARY

BIODIVERSITY refers to the diversity of life on Earth. Biodiversity is reflected in the number and variety of species and populations, and the communities that they form.

CONSERVATION the wise use of the environment.

ENDANGERED a species in serious danger of becoming extinct throughout all, or a significant portion of, its range.

ENVIRONMENT all the surroundings of an organism, including air, water, soil, climate, and other living things.

EXTINCT a species of plant or animal that has died out and is gone from the earth forever. At least 2% of animals and plants already listed as threatened or endangered have gone extinct.

HABITAT the area where an animal or plant lives and finds food, water, shelter, and living space.

INTRODUCED SPECIES an animal or plant species that has been brought into areas where the species never lived before. Introduced species often compete with and cause problems for native species. These species are also called *exotic* or *non-native*.

NATIVE SPECIES a species that occurs naturally in an area.

POPULATION an interbreeding group of animals or plants of the same species that live in the same area.

POACH to hunt, kill, or collect a plant or animal illegally.

RARE SPECIES a species that has a small number of individuals and/or has limited distributions. A rare species may or may not be endangered.

SPECIES IN NEED OF CONSERVATION (SINC) a species that will likely become threatened in the next few years if little or nothing is done to protect it.

THREATENED a species whose numbers are low or declining. A threatened species is not in immediate danger of extinction, but it is likely to become endangered if it isn't protected.

Summary of Listed Species as of 01/31/2003

Group	Endangered		Threatened		Total Species
	U.S.	Foreign	U.S.	Foreign	
Mammals	65	251	9	17	342
Birds	78	175	14	6	273
Reptiles	14	64	22	15	115
Amphibians	12	8	9	1	30
Fishes	71	11	44	0	126
Clams	62	2	8	0	72
Snails	21	1	11	0	33
Insects	35	4	9	0	48
Arachnids	12	0	0	0	12

Group	Endangered		Threatened		Total Species
	U.S.	Foreign	U.S.	Foreign	
Crustaceans	18	0	3	0	21
Animal SubTotal	388	516	129	39	1072
Flowering Plants	570	1	144	0	715
Conifers & Cycads	2	0	1	2	5
Ferns & Allies	24	0	2	0	26
Lichens	2	0	0	0	2
Plant SubTotal	598	1	147	2	748
Grand Total	986	517	276	41	748

Total U.S. Endangered--986 (388 animals, 598 plants)
Total U.S. Threatened-- 276 (129 animals, 147 plants)
Total U.S. Species--1262 (517 animals, 745 plants)

On TRACKS is published by the Kansas Department of Wildlife & Parks two times during the school year.

The purpose of On TRACKS is to disseminate informational and educational resources pertaining to the natural, historic, and cultural resources of the state, emphasizing Kansas ecology. Information is presented from the perspective of current scientific theory.

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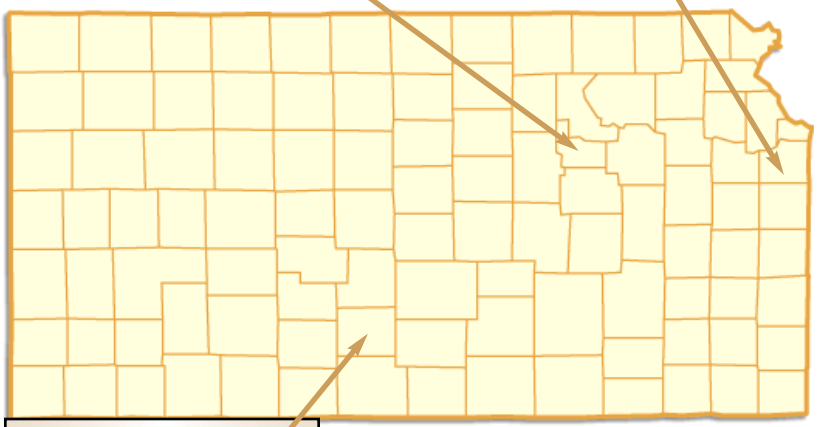

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