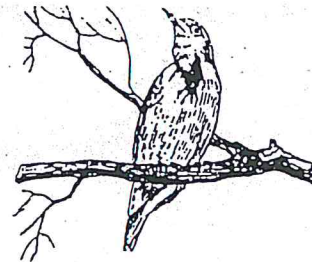


ON T.R.A.C.K.S.



Teaching Resource Activities and Conservation to Kansas Students

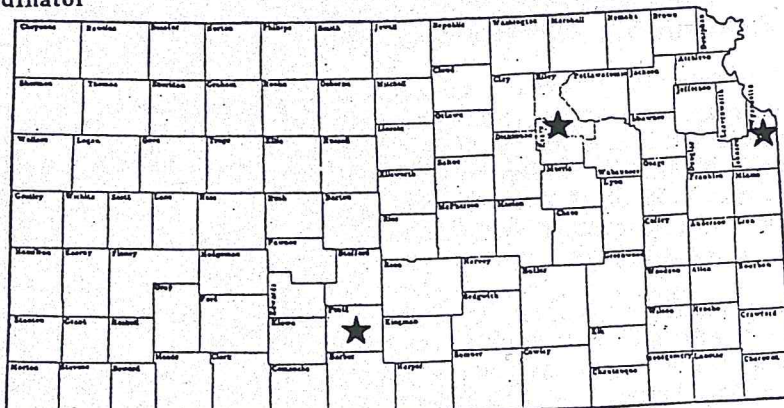
VOL. 2 NO. 1

KANSAS WILDLIFE & PARKS

FALL 1990

Welcome to the newly expanded ON T.R.A.C.K.S. newsletter. This publication combines previous statewide and regional Kansas City newsletters. But the basic ideas stay the same. ON T.R.A.C.K.S. is designed to provide you, the educator, with information and ideas for use in your classroom regarding natural resources and wildlife. The information is applicable to all grades and disciplines. Specific activities may be better suited for a particular age level, however, the imaginative and innovative teacher can adapt materials to fit to their classroom level. We are here to assist you. If we can ever be of help, just give one of us a call.

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WHO IS THIS GUY??

As the new kid on the block allow me to introduce myself: I am Roland Stein, the replacement for Joyce Harmon Depenbusch as the Wildlife Education Coordinator. Just a brief background regarding my education and work experiences.

My undergraduate degree was in biology and conservation. I have advance degrees in Outdoor Teacher Education and Secondary School Administration. As an educator for the last 22 years, I have serviced school districts as a science teacher, director of environmental education, secondary principal and district superintendent. So much for my pedigree.

I'm originally from Minnesota but have called Wisconsin, Illinois and North Dakota home too. Parts of Kansas remind me of the above states (one might have to use his imagination a bit regarding Minnesota and Wisconsin).

Since this is only my third month on the job some things are still new to me; it is a day to day learning experience. I must say I am very impressed with the educational materials and resources we have to offer the educators and students of Kansas. The Kansas Department of Wildlife & Parks has shown me it is committed to supporting a comprehensive program -- one which will enhance the knowledge, understanding and problem solving ability of our young people regarding environmental concerns and problems.

I believe the Wildlife Education Service can assist in nurturing a child to be an environmentally enlightened individual, with an environmentally sound attitude, by utilizing the following components: 1) the natural and spontaneous attraction and interest children have for wildlife; 2) the curriculum materials and support resources from the Wildlife Education Service; and 3) the educator's expertise in education and motivating children. The educator, as the instructional leader, is the most important of the three components. The most necessary ingredient for success is the educator's commitment and concern. Without it, the other two components will lay dormant.

We realize not all educators are experts in environmental concepts. Therefore the materials were written for anyone receptive and willing to provide an awareness within students for their natural environment. The lessons do not require additional preparations or special equipment. They are multidisciplinary in scope, and because of their flexibility, can enrich all aspects of the on-going curriculum.

The opposite page lists the curriculum and resource materials available through the Wildlife Education Services. They should be located in your school. Ask your librarian, science teacher or science coordinator for the location. If they are not available, please call me at (316) 672-5911 ext. 108 to arrange for these materials to be sent to your school.

We as educators share common goals and objectives in providing an awareness and appreciation of Kansas wildlife in children. The possibilities of such an alliance between us would appear to be limited only by our imagination and willingness to share in this common endeavor.

I leave you with this thought: "Children who care about the earth today can change the world of tomorrow".

A colleague in education,

Roland Stein

Roland Stein
Wildlife Education Coordinator



WHAT DOES THE WILDLIFE EDUCATION SERVICE HAVE TO OFFER YOU??

Free to all Kansas public and private schools are the following resources:

Wildlife Reference Center – This free-loan center provides films, filmstrips, slide series, books, posters, educational games, learning kits, and other wildlife-related materials. The only expense for use of these materials is return postage to the Pratt Operations Office. Catalogs listing the materials have been sent to each school district in the state. Additional copies can be requested from the Kansas Wildlife & Parks, Education Service, RR2, Box 54A, Pratt, KS 67124.

Wildlife Education Service Curriculum – The student instructional guides contain wildlife information worksheets, experience-oriented and experiment-observation student worksheets, a glossary, many supplementary activities, bulletin board motivation ideas, and a list of supportive resource materials. The worksheets and activities in the teacher's guide were developed to reinforce the informational, concept development and problem solving activities in the students booklets. This series of teacher guides and student booklets provides an approach of teaching wildlife/environmental concepts as an integral part of all subject areas at every grade level for all elementary and secondary students in Kansas.

Statewide Inservice Workshops – Fun and informative workshops are available to all school districts, individual schools and educational co-ops by contacting the wildlife education coordinator at (316) 672-5911 ext. 108. Teachers learn activities to do in their classrooms and are given an overview of the Wildlife Education Service. Scheduling is flexible, but advance notice is necessary. For the Kansas City area contact Mary Kay Crall (913) 894-9113 for workshop presentations. For presentations in the Junction City area contact Pat Silovsky (913) 238-5323.

"Nature's Notebook" – The educational section of KANSAS WILDLIFE AND PARKS magazine is printed in each bimonthly issue of the magazine. The activities, worksheets and information deal with a wide variety of topics. A compilation of these articles was sent to every Kansas school library in August, 1986. The bright yellow 3-ring binder is titled, "There's Something Wild in Nature's Notebook".

Interpretative Centers – The Kansas Department of Wildlife & Parks operates two interpretative centers, one each in Pratt and Milford. Both centers offer wildlife displays, living native fish, birds, reptiles and mammals, hands-on activities and self guided tours. An interpretative program of the displays and unique features of the center is available to school groups. The programs touch upon bio-physical interactions and relationships, conservation practices to maintain wildlife habitat and how people's actions and attitudes influence our outlook towards wildlife.

Miscellaneous Information – Information brochures, magazine reprints, and reference materials are available on a variety of topics from the Pratt operations office and regional offices. Contact your local Wildlife & Parks office for further information in your area.

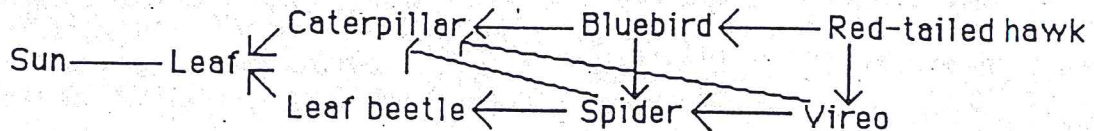
THANK YOU FOR YOUR INTEREST IN THE WILDLIFE AND YOUTH OF KANSAS!!

FOOD CHAINS AND WEBS -- EVERYTHING IS CONNECTED

All food chains or webs start with the sun, the source of all energy. The first group of organisms to utilize the sun's energy are green plants. They are the only organisms that can transfer the energy of the sun to food by the process of photosynthesis. Green plants are the first level in any food chain. The second group of organisms are the consumers that eat the green plants. Finally, we have a group of consumers that eat the plant eaters. In all food chains there is one group of organisms which represents the final consumer.

As one moves up the food chain to the next group/consumer, the number of organisms at each level decreases. There are more plants than plant eaters and more plant eaters than meat eaters. The organisms also increase in size as one moves through the food chain. It takes many more small organisms to support one large organism in the food chain. This is because there is a loss of bulk and energy at each level as one moves up the food chain.

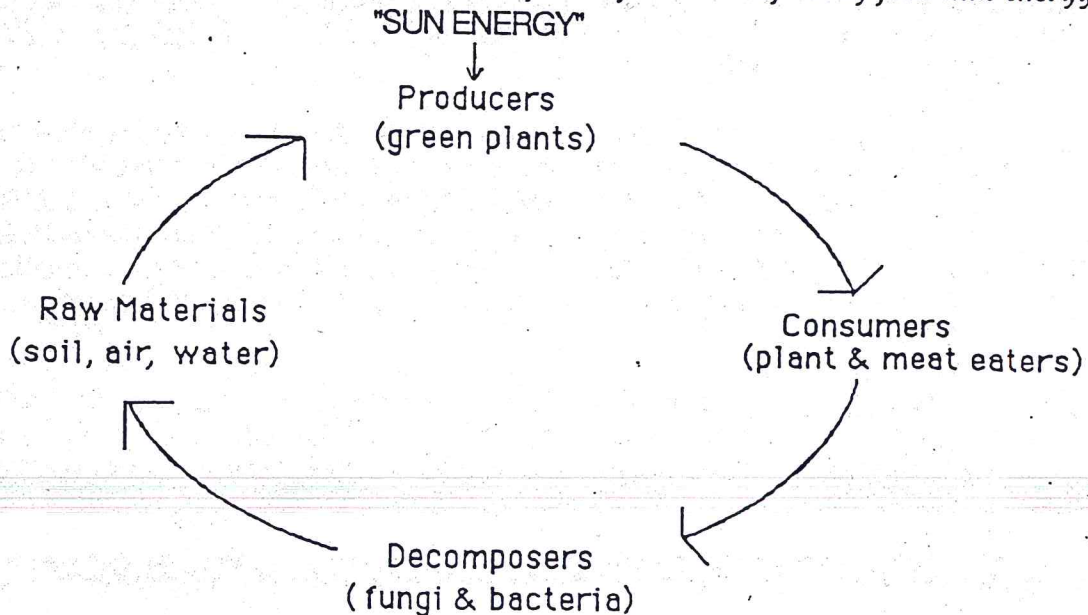
A food web is a number of food chains where organisms from the chains have direct interaction between each other. The following is an example:



In both food chains the green plant material is the leaf. The bluebird and hawk interact with both food chains as well as the spider and vireo. One could substitute other organisms or develop another interacting food chain (a cat for the hawk, a milkweed plant for the leaf or an inch worm for the beetle or caterpillar).

Decomposers are very important to food chains and webs. They break down the dead plants and animals and waste products into simple chemicals which can be used again by the green plants. Without decomposers the land and water would soon be layered with dead plants and animals. Life as we know it today would be impossible.

It is important that we have a respect for all the organisms in the food chain-web and to understand the importance and role each has in capturing and transferring food and energy.



ACTIVITIES:

Have the students make up their own food chains starting with a producer (green plant), a plant eater and finally meat eaters (they may have several). After the students have constructed their food chains, have several of their classmates help demonstrate the food chain by representing an organism in the food chain. The best way would be to have them draw or obtain pictures from old magazines of the organism. While the students are displaying the food chain, string a section of colored yarn from one student to another showing how each organism is directly connected with each other. Remove one of the organisms and ask students what will happen to the other organisms in the food chain. Try it with different members in the food chain.

Create as many food chains as possible with your students. Arrange them like spokes coming from a hub of a wheel. Have each food chain connect its members with a piece of colored yarn. Now have the food chains interact with each other (a meat eater eating a plant eater from a different food chain or a lower level meat eater being consumed by a higher level meat eater from another food chain). Connect these interactions with a different colored yard. Do this with as many organisms as possible. Soon you will have a spider web configuration which is an excellent visual concept of a food web.

Wildlife Reference Center Materials:

- M-22/VJ-27 Plant-Animal Communities: The Changing Balance of Nature. Jr-Sr. High (13 min.)
- FS-10 How Living Things Depend on Each Other. Grades K-6 (13 min.)
- GK-8 Predator: The Food Chain Game.
- CD-4 Wildlife Series: Biomes and Food Webs. Jr. High - Adult
- LK-13 Food Chain Game in OBLS, Large Groups.
- VJ-36 Pond Life Food Web. Jr. High - Adult (10 min.)
- 12-4 Book: Understanding the Game of the Environment.

"Whatever befalls the earth befalls the sons of the Earth. Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself."

--Chief Seattle

SPECIES SPOTLIGHT -- KANSAS' ENDANGERED SPECIES



Rather than just choose one species, I thought I would instead highlight a very important group of species -- those animals in Kansas that are either threatened or endangered. What is an endangered species?? a threatened species?? An endangered species can be defined as species (and let's not forget plants) that are in danger of becoming extinct (totally gone) throughout all or a significant portion of their range; a threatened species is protected by law and limited in number or range or both and they may become endangered if the decline continues. Threatened and endangered species have been protected nationally since the passage of the Endangered Species Act of 1973. Kansas Wildlife & Parks compiled and finalized their first list in 1978 with 26 threatened and endangered wildlife species. This list was amended to 24 species in 1980. The current list was updated on May 1, 1987 and now contains 45 species (list on page 7).

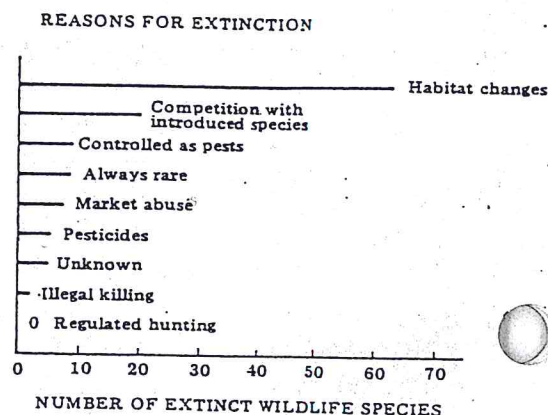
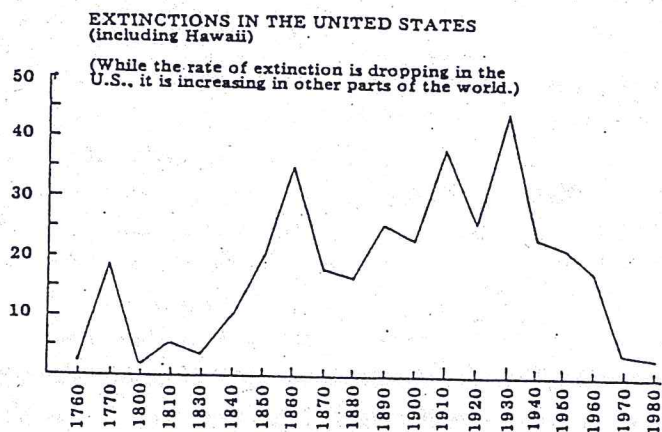
Why do animals become threatened, endangered and extinct?? Extinction is a natural process that has been occurring since time began. The problem today is that humans have accelerated this process and extinction occurs at a much faster rate today. For example, in the 1600's only 7 species became extinct. So far this century over 70 species have vanished, and most can be attributed to man's actions.

Wildlife becomes threatened or endangered for a number of reasons. The major problem facing wildlife (and not just endangered species) is the loss and alteration of habitat. Habitat consists of food, water and shelter. Each species has its own unique combination of these requirements. When changes occur in their habitats, wildlife either learns to adapt, leaves the area or just doesn't survive.

Since we have settled North America, we have brought in many new animals. Some of them are domestic species -- the chickens, cattle, goats and other animals we raise on the farm for food. Others are exotic wild animals, like the house sparrow and starling, which someone wanted to have in this country for fun. A few of native animals have had a hard time competing with these invaders. This is especially true on islands like Hawaii.

Another reason wildlife becomes endangered or extinct is pollution. We pollute the environment with wastes and pesticides that affect wildlife. We often don't know how all the chemicals affect wildlife, the land and the people. When we do something to the environment that makes it worse for wildlife, it is also worse for us.

Sometimes the combination of loss of habitat and unrestricted killing were the causes of extinction. Audubon's bighorn sheep and Merriam's elk were eliminated by settlers, prospectors and market hunters looking for meat. These two animals live in restricted habitats that people wanted to use for farming and livestock. Market hunters are very different from sport hunters. Sport hunters take the surplus wildlife that nature produces. The market hunter took nearly any wildlife that could be sold for meat, feathers, fur or other parts. (Market hunting does not occur any longer in the U.S. and many other countries.) Today's laws control the number and kind of wildlife that can be hunted. Regulated sport hunting has not caused any species to become threatened or endangered. In fact, the license fees from hunting and fishing are used to manage wildlife.

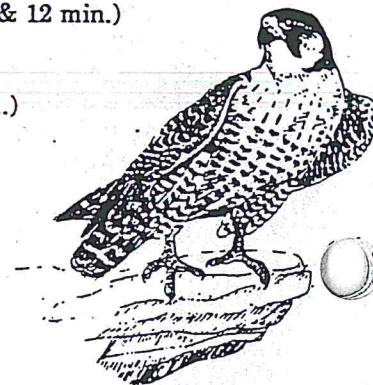


Thoughts to expand on/discussion topics:

1. Why is it important to save endangered species; are all species equally important-- is the Scott riffle beetle as important as the blue whale?? Why or why not??
2. Man is causing increased extinctions --could this be part of the natural process and not a problem after all?? Why or why not??

Wildlife Reference Center Materials:

- | | |
|-------|--|
| FS-2 | World of Endangered Wildlife. Intermediate and up (22 min.) |
| FS-35 | Endangered Species -- Special Report. Grades 7 - Adult (12 1/2 min. & 12 min.) |
| FS-38 | Vanishing From the Earth. Grades 5-9 (16-17 min. each) |
| SS-22 | Rare and Endangered Animals. All ages (10 min.) |
| SS-32 | Kansas Endangered and Threatened Wildlife. Int. to Adult (20 min.) |
| 14-5 | Book: Endangered Means There's Still Time. |
| PP-46 | Poster: Kansas' Endangered Wildlife. |
| PP-47 | Poster: Kansas' Threatened Wildlife. |



KANSAS' THREATENED AND ENDANGERED SPECIES

ENDANGERED SPECIES

Invertebrates

Amphibious snail
Heel-splitter mussel

Fish

Speckled chub
Sicklefin chub
Pallid sturgeon
Arkansas river shiner

Amphibians

Cave salamander
Graybelly salamander
Grotto salamander

Birds

*Bald eagle
*Peregrine falcon
*Eskimo curlew
*Whooping crane
*Least tern

Mammals

*Blackfooted ferret
*Gray myotis (bat)

* Species also occurs on the Federal List of threatened and endangered species.



THREATENED SPECIES

Invertebrates

Scott riffle beetle

Fish

Chestnut lamprey
Redspot chub
Hornyhead chub
Arkansas darter
Neosho madtom
Silverband shiner
Flathead chub

Amphibians

Northern crawfish frog
Green frog
Strecker's chorus frog
Western green toad
Eastern narrowmouth toad
Northern spring peeper (frog)
Dark-sided salamander
Central newt

Reptiles

Western earth snake
Eastern hognose snake
Checkered garter snake
Northern redbelly snake
New Mexico blind snake
Kansas glossy snake
Texas longnose snake
Texas night snake
Broadhead skink (lizard)

Birds

Snowy plover
White-faced ibis
Piping plover

Mammals

Eastern spotted skunk



THE SEEDY SIDE—SEED DISPERSAL



Plants produce seeds to grow into new plants. In order to survive, these plants require such raw materials as minerals, air, and water. Energy, in the form of sunlight, is required to transform these raw materials into nutrients.

A seed dropped directly underneath a plant may have a difficult time growing because the older plant, in the process of insuring its own survival, deprives the new plants of sunlight or one or more of the necessary raw materials.

One of the adaptations of plants which enables the plant to continue as a species is to distribute seeds to other growing sites. Plants can do so in several ways:

By Wind Action: Winged or tufted seeds float until they are washed ashore to sprout or become water-logged and sink. Among the floaters are elm, maple, ragweed, sedges, coconuts, dandelions, and milkweed. The seed holder of an American Lotus acts like a boat, keeping the seed dry as it floats. Seeds may have found a place to sprout by the time the "boat" rots or falls apart.

By Animals & Man: Birds eat the fruits of flowers and the seeds pass through their digestive tract, or they may stick to their feet and bills. The sticky seed of the mistletoe is carried this way. Squirrels and chipmunks sometimes cannot find the hickory, walnut, beech and oak seeds they bury for food. Animals and people collect "hitch hikers" on their fur, hair or clothing (burdocks, sticktight, and cocklebur). Some grasses and grains have long bristles or beards that stick to animals and people.

By Exploding Pods: Hardy sweet peas, black and honey locust, witch hazel, and castor oil seeds are spread when their dry pods burst. The squirting cucumber and touch-me-not's eject soft seeds.

ACTIVITIES:

Start a fall collection of seed 'travelers'. Display each group (how they are dispersed: wind, water, 'hitchhike' and exploding pods) on a different bulletin board or construction paper.

The students can write short stories on the travels of the different seeds. Example: I am an acorn seed. I fell from the tree and was buried by a squirrel. I hope to grow into a big oak tree. These could be attached to the displays for others to read.

A sure fire way to collect 'hitchhikers' is to visit a grassy field. Have each student wear an old sock over their shoe (make sure it is a large one, not their own) and walk through the field for a few minutes. You will be surprised at the number of 'hitchhikers' one can pick-up.

Try growing some of the seeds you have collected. It shows children seeds really do grow into plants. An excellent way to do so is to take two pieces of window glass and glue them to two strips of wood a half an inch thick and as long as the panes of glass. Close the bottom with a similar strip of wood. Add soil to the opening between the two panes of glass. Water and care for the seeds as any other plant. The student will be able to watch the seeds develop their root systems and other plant parts.

Wildlife Reference Center Materials:

- M-108 Blooming Secrets. All Ages (16 min.)
- M-105 Plant or Animal. K-3 (15 min.)
- LK-31 Seed Dispersal, OBIS, Biocrafts.
- Books 13-1 through 13-9





MONARCHS

Monarch butterflies are well known and easily recognized by their large size and orange and black pattern. The butterflies lay their eggs on milkweed plants which the caterpillars eat after they hatch. Many butterfly caterpillars are green for protection. Monarch caterpillars, however, have white, yellow, and black stripes which make them very noticeable. Why do they risk being so noticeable?? Because monarchs have other means of protection.

Monarchs are protected by poisonous chemicals that are stored in their bodies after eating milkweeds genus (*Asclepias*). These chemicals, called cardiac glycosides, are heart poisons that affect the heartbeat of all vertebrates and are poisonous to mammals and birds that ingest them. However, predators don't automatically know this and must learn from experience. The bright pattern on monarchs help predators easily identify them. Cardiac glycosides are very bitter and predators can get a taste of them after capturing a monarch, but before eating it. Predators associate the bad taste with the caterpillar's color pattern and learn to avoid them.

When caterpillars metamorphose into butterflies, the poisons are retained so that the brightly colored adult is also protected. Predators can learn by taste to avoid monarch adults just as they did with the larvae. Experiments have been done with bluejays that had never eaten monarch butterflies before. When they tried to eat the first one, the bitter taste made them vomit violently and they refused any more.

Another butterfly, the viceroy, mimics the monarch's pattern but is not poisonous. Mimicking is very advantageous to the viceroy. Since all butterfly predators are learning to avoid monarchs, a viceroy probably won't get eaten either. Viceroy caterpillars feed on willow and poplar trees, not milkweeds, and do not have protective chemicals stored in their bodies. Their caterpillars are camouflaged by looking like a bird dropping.

Monarch butterflies migrate to the northern United States and Canada in summer to breed, and south to California and Florida to overwinter. Swarms can completely cover trees. In order for viceroy butterflies to be protected from predators, they must not emerge until monarchs have migrated into the area and educated the predators. Fall is the time to look for monarchs passing through Kansas.

ACTIVITIES:

Carefully look for or catch monarch and viceroy butterflies and identify them both (Remember these animals are fragile--put them in a see-through container with ventilation before passing them around). Be sure and release them back to the wild. Can you tell the difference between the two?? Look them up in an insect identification book.

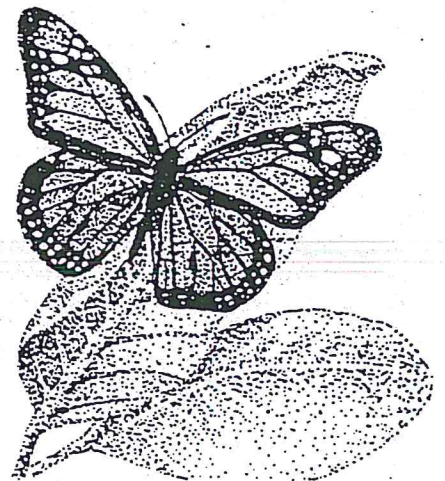
Discuss the different protection strategies of monarch and viceroy caterpillars and think of other examples of warning color and camouflage.

Discuss how pesticides and herbicides may be affecting butterflies, especially as caterpillars.

Discuss fall bird migration which will be occurring soon.

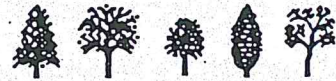
Reference Center Materials:

- LK-64 Wonders of Learning Kit -- Insects and How They Grow. K-2
 - M-77/VT-66 Animals Protect Themselves. Primary-Intermediate (11 min.)
 - FS-12 Investigating Insects. Intermediate-Jr. High (6 @ 13 min.)
 - FS-19 Protective Adaptations in Animals Int.-Jr. High (4 @ 9 min.)
 - LK-53 Wonders of Learning Butterflies. K-2
 - VT-59 Insects. 2-6 (12 min.)
 - CD-6A The Insect World Software. Grades 7 and up
 - CD-7I Insect Orders. Sr. High and up
 - CD-8A Insect Identification. Jr. High-Adult
 - PP- 2 Monarchs Poster
- Books 5-1 through 5-9





Autumn Leaves Are Turning



Have you ever wondered why leaves change color in the fall?? You may have been told that Jack Frost paints them, but frost is not the reason as many people believe. To learn the real reason, we must go back to summer.

The green color of summer leaves comes from the pigment chlorophyll. Chlorophyll uses sunlight to turn carbon dioxide, water, and minerals from the soil into sugar to feed the plant. This process is called photosynthesis and is busy taking place during the months of May, June, July and part of August. But chlorophyll is not the only pigment found in leaves. Tiny grains of yellow and red-orange pigments are also found in leaves. The yellow pigment, also in egg yolks, is called xanthophyll and the red-orange pigment, which gives carrots their orange color, is carotene. Because they are small, their color is hidden by the chlorophyll during the summer.

When day lengths become shorter and nights cooler in late summer, the tree begins getting ready for winter. No longer needed for producing food, the chlorophyll breaks down and the green color fades. This allows the other pigments to show through and the leaves turn the familiar yellow or red-orange color of fall.

The bright reds, purples, and blues found in some trees are caused by pigments called anthocyanins and these are formed because of sugar left trapped in the leaves. As winter approaches, the leaves are sealed off from the tree and the sugar trapped in the leaves is changed by sunlight into anthocyanins. The trees with the highest content of sugar, such as the sugar maple, turn the brightest red.

Being able to distinguish between different trees by leaf colors will help you enjoy the beauty of fall even more. Here are some common Kansas trees and the colors to look for this fall.

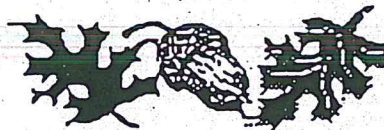
American elm.....	yellow
ash.....	yellow to dark purple
black oak.....	dull red to orange brown
box elder.....	bright yellow
red maple.....	bright scarlet, orange
red oak.....	dark red
silver maple.....	bright yellow, orange, scarlet
sumac.....	brilliant red
white oak.....	deep red, orange brown
willow.....	light yellow

ACTIVITIES:

All too quickly, the autumn colors fade and the leaves fall to the ground but while they are still bright with color, you can collect and preserve a few of them. Once dried, the color will last two or three years. One way to dry leaves is to place them between blotting paper or newspaper, and then between cardboard. Place a heavy object on top to press the leaves and in a couple of weeks the moisture should be removed from the leaves. If you don't wish to dry the leaves, you may preserve them by placing each leaf between pieces of waxed paper and pressing them with a medium hot iron. Fresh pieces of waxed paper will be required for each leaf because the iron melts the wax on the paper and transfers it to the leaf.

Try your skill at these tree riddles:

1. What tree always has a partner?? (pear)
2. What tree is always found after a fire?? (ash)
3. What tree grows nearest the sea?? (beech)
4. What tree is often found in peoples mouths??(gum)



5. What tree does everyone carry in his hand?? (palm)
6. What tree grieves more than any other?? (weeping willow)
7. What tree is used in kissing?? (tulips)
8. What tree do ladies wear around their necks?? (fir)
9. What tree is often found in bottles?? (cork)
10. What tree is often pulled from the water with a hook?? (bass)

Here are a few more tree challenges. 'Buried' within the sentences below are names of trees. See how many you can find.

1. Bring me a long strap, please. (apple)
2. A bumble bee chased him about the lawn. (beech)
3. The wind came up so a kite was flown. (oak)
4. The map led us to a lonely swamp. (maple)
5. I will owe you the balance. (willow)
6. The airplane appeared out of the clouds. (pear)
7. He went as hurriedly as possible. (ash)
8. He must leap each hurdle in turn. (peach)
9. Nancy pressed his suit neatly. (cypress)
10. The plumes waved in the air. (plum)

Wildlife Reference Center Materials:

- LK-66 Trees of Kansas Leaf Replicas
- FS-20 The Seasons. K-4 (5 @ 13 min.)
- LK-9 Neighborhood Woods, OBIS
- Book 13-3
- Book 14-18 Finder Guide to Trees



TAKE 'EM OUT TO THE:

MILFORD CONSERVATION EDUCATION CENTER

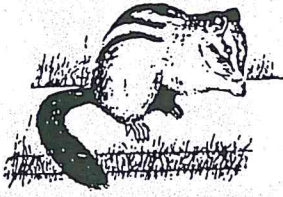
The Milford Conservation Education Center, located below the dam at Milford Reservoir (near Junction City) houses displays featuring Kansas animals in their natural habitat. Already completed is the large aquatic diorama depicting the fish and other organisms found in Kansas' three main aquatic habitats -- reservoir, stream and pond. This display alone has over 240 fish replicated in extreme detail. Other displays include live reptiles and amphibians, live birds of prey, and hands-on activities such as making animal tracks and feeling different skins and skulls of native animals. Still under construction, but due to be finished this winter, is the large terrestrial diorama which will feature animals native to Kansas' three main terrestrial habitats -- marsh, prairie and woodlands. Also nearing completion is the display of Kansas sport fish and game birds. The nature trail and nongame habitat demonstration areas are underway outside the facility.

Programs are available for your classroom or youth organization. The staff at the Education Center emphasizes hands-on programs using live animals in combination with other teaching techniques. The center houses a 50 seat theatre also used for programs. Tours of the Milford Fish Hatchery, adjacent to the Education Center, are available as well. Due to the construction of the terrestrial diorama and reduction in staff, one should call ahead to determine the hours and days the center will be open this fall. For more information call the Milford Conservation Education Center (913) 238-LEAF(5323).

PRATT MUSEUM AND AQUARIUM

The Kansas Wildlife and Parks' Wildlife Museum and Aquarium is located in Pratt, Kansas. Last year almost 5000 visitors signed in at the center. Out of these, 73% were from Kansas with about 750 from the local community. Another 1200 visitors came from across the United States and 66 from around the world. Due to renovation the center will be closed this fall and into early next year. For further information call the Wildlife Museum and Aquarium at (316) 672-5911.





WHAT'S IN A NAME??

Just why are coyotes called coyotes?? Where did the chipmunk's scientific name come from?? A fun way to learn about word origins and language arts is to study animal names. Here are some examples:

Man's scientific name (genus/species) is *Homo sapiens*, 'Homo' is the latin word for 'man' and 'sapiens' means 'wise'.

The scientific name of the Eastern chipmunk is *Tamias striatus*. 'Tamias' is greek for 'a storer' and 'striatus' is latin for 'striped'.

A chipmunk's common name is thought to be derived from the American Indian word 'Adjidaumo' (a CHIT a munk) which refers to the headfirst manner in which a squirrel descends trees.

The eastern mole's scientific name (genus/species) is *Scalopus aquaticus*. 'Scalopus' is from the greek words meaning 'digging' (skalops) and 'foot' (pous).

Mole comes from the middle english word 'molle' which is related to another middle english word, 'moldwarpe' meaning earththrower.

The spotted skunk's scientific name is *Spilogale putorius*. The species name is derived from the latin word 'putor' meaning 'foul odor'.

The common name for coyote is from the Aztec word, 'coyotl'.

The genus for squirrel is *Sciurus*, latin for the word 'squirrel'. It is derived from the greek word, 'skia' meaning 'shadow' and 'oura' meaning 'tail'. Squirrel comes from old french words *esquireul* or *escuriuel*.

Monax is the genus for woodchucks; it comes from a Native American word meaning 'the digger'.

The order Chiroptera (bats) comes from two greek words and means 'winged hand'.

Porcupine, *Erethizon*, means 'the one who rises in anger'. 'Porcus' is latin for 'pig'; 'spina' is a french word derived from latin meaning 'spike' or 'thorn'.

ACTIVITIES:

Have students research etymologies and trace the history of animals names (using a dictionary) -- both common and latin. You may be surprised where some of the names come from. Many are obvious, others a little more intriguing.

See how many words can be made out of an animal name. For example, put PRONGHORN ANTELOPES on the board and see how many 3-letter or better words (no proper names) your students can make. See who comes up with the most unusual, difficult and greatest number of words. So far I have come up with 197 words from pronghorn antelopes (Call Mary Kay for list)

ANIMAL GROUPS

A Crash of Rhinoceroses
A School of Fish
A Charm of Finches
A Skulk of Foxes
A Rafter of Turkeys
A Hover of Trout
A Paddling of Ducks
A Descent of Woodpeckers

A Spring of Teal
A Sounder of Swine
A Troop of Kangaroos
An Exaltation of Larks
An Army of Caterpillars
A Clowder of Cats
A Trip of Goats
A Cast of Hawks

A Knot of Toads
A Bale of Turtles
A Parliament of Owls
A Cete of Badgers
A Smack of Jellyfish
A Bouquet of Pheasants
A Shrewdness of Apes
A Dule of Doves



Reference Center Material Distribution

(PLEASE DETACH THIS PAGE AND KEEP WITH YOUR CATALOG)

The Kansas Wildlife & Parks reference materials are available on a free loan arrangement to schools, conservation clubs and professional conservation/environmental oriented organizations. Due to the demand on these reference materials we are required to limit the utilization of these materials on a first-come, first-serve basis.

Users are responsible for the return postage and insurance. We encourage users to insure the materials for they will be responsible for all materials lost enroute when returning. If you ship with UPS the materials are automatically insured for \$100.00.

Users of Reference materials are urged to make their requests as far in advance as possible. To insure your booking for the desired date, three to four weeks is recommended. It also would be beneficial for the user to select alternate dates and materials. This will assist in providing appropriate materials for the desired date. When users order in advance, a confirmation letter will be sent. Please review the confirmation carefully and call as soon as possible for corrections or schedule changes.

When an order is received, please note the due date on the postal card label for each item. It is very important that items be returned by that date, as our materials are scheduled very closely. It would be beneficial to everyone if the user would return the materials immediately after utilization. A delay in return not only interferes with the scheduling, but leads to disappointment in other customers who cannot receive their materials on time or are unable to obtain the materials. Be especially careful not to schedule materials over school holidays and vacation days. If for some reason you are unable to utilize the materials on your confirmed date, please contact the Reference Center personnel for a scheduling change.

To avoid possible damage or delays in handling and shipping of materials we ask you to consider the following:

- 1) Be sure all equipment used to present materials is in good working order.
- 2) If a film or filmstrip should break, one can temporarily repair the break with masking tape (no Scotch tape or other tapes, please). It is probably best not to attempt to make repairs. Just notify the Reference Center of the damage.
- 3) Take a careful inventory of all the parts before returning games and learning kits. Again, notify the Reference Center of any missing or damaged parts.
- 4) Moisture and dirt are hard on many of the Reference Center's materials. Avoid these when using the materials.
- 5) Make sure the shipping containers are secured well before mailing them. The reverse side of the shipping label should be utilized when returning materials. Check to make sure you are sending the materials to the Wildlife & Parks Reference Center and not to the company where purchased.

We are pleased to be able to provide these educational materials for your use. We are confident that you will allow us to continue to provide this service by assuring that materials are handled with care and returned promptly and in good condition.

The Reference Center address to order or return materials:

Kansas Dept. of Wildlife & Parks
Reference Center
RR 2, Box 54A
Pratt, KS 67124

To call in orders to schedule changes (316) 672-5911

The Nongame Wildlife Tax Checkoff Program helps to fund the Reference Center.

We look forward to fulfilling your needs. Please contact us if you have questions or concerns.

Additions to the REFERENCE CENTER as of 8-23-90

- VT-130V** **LAND USE & MISUSE** Jr. High - Adult (13 min.)
Same description as M-117.
- VT-131V** **HOW TO CALL COYOTES**
- VT-132** **BASIC SPINCASTING** Intermediate - Adult (16 1/2 min.)
An instructional video that follows Chris and Tom to Harry's tackle store where he teaches them about basic spincasting tackle and on to a fishing area where they learn the basics of casting.
- VT-133** **JUDGEMENT ON THE WATER** All ages (24 min.)
Same description as M-99.
- VT-134** **BEFORE YOU HUNT** All ages (27 min.)
Same description as M-39.
- VT-135** **WILDLIFE HABITAT AND THE HUNTER** All Ages (25 min.) Same description as M-2.
- VT-136** **HUNTING SUCCESS WITH STEEL SHOT: MAKING THE SWITCH** Intermediate - Adult
Learn how to shoot steel effectively. This video gives step-by step instruction and tips that eliminate steel shot confusion. Learn how to use steel to match the performance of lead loads, and more.
- LK-67** **PROJECT CLASSIFY: MAMMALS** Grades 4-8
Computer Courseware for science grades 4-8 128K apple 2 disks: The field Zoologist I & II. 11e, 11c, 11gs
Science students learn mammal identification, classification, and distribution of mammals from around the world. Each kit contains two, two-sided 5 1/4 inch disks, 1 sound filmstrip, 15 full-color student booklets, 8 pages each, teacher's guide and reproducible activity sheets.
- LK-67A** **EXTRA DISKS FOR PROJECT CLASSIFY: MAMMALS** Disk Pack of 10 Apple disks.
The Field Zoologist: Mammals II - 5 copies The Field Zoologist: Mammals II - 5 copies
- SS-33** **EARTH DAY EVERY DAY -- YOU CAN MAKE A DIFFERENCE!** K-9 (17 min.)
Taking action is what this audiovisual program is all about. In the program, you'll see kids recycling, cleaning up, and lobbying for what they believe in as they try to make positive changes in their homes, schools, and communities. The program also shows how each of us can help tackle the world's most pressing environmental problems by making small changes in our everyday actions. 80 slides, cassette tape and script.
- M-123** **ROADSIGNS OF THE WATERWAYS** Jr. High - Adult (10 1/2 min.)
Produced by the U.S. Coast Guard identifying some of the common Aids to Navigation a boater would encounter while on the water. It is created to give the new boater the basics of the U.S. Aids to Navigation System. It is appropriate for school use, for safety meetings, and in promoting navigation safety.
- M-124** **THE CHOICE IS YOURS**
- M-125** **A LITTLE COMMON SENSE**

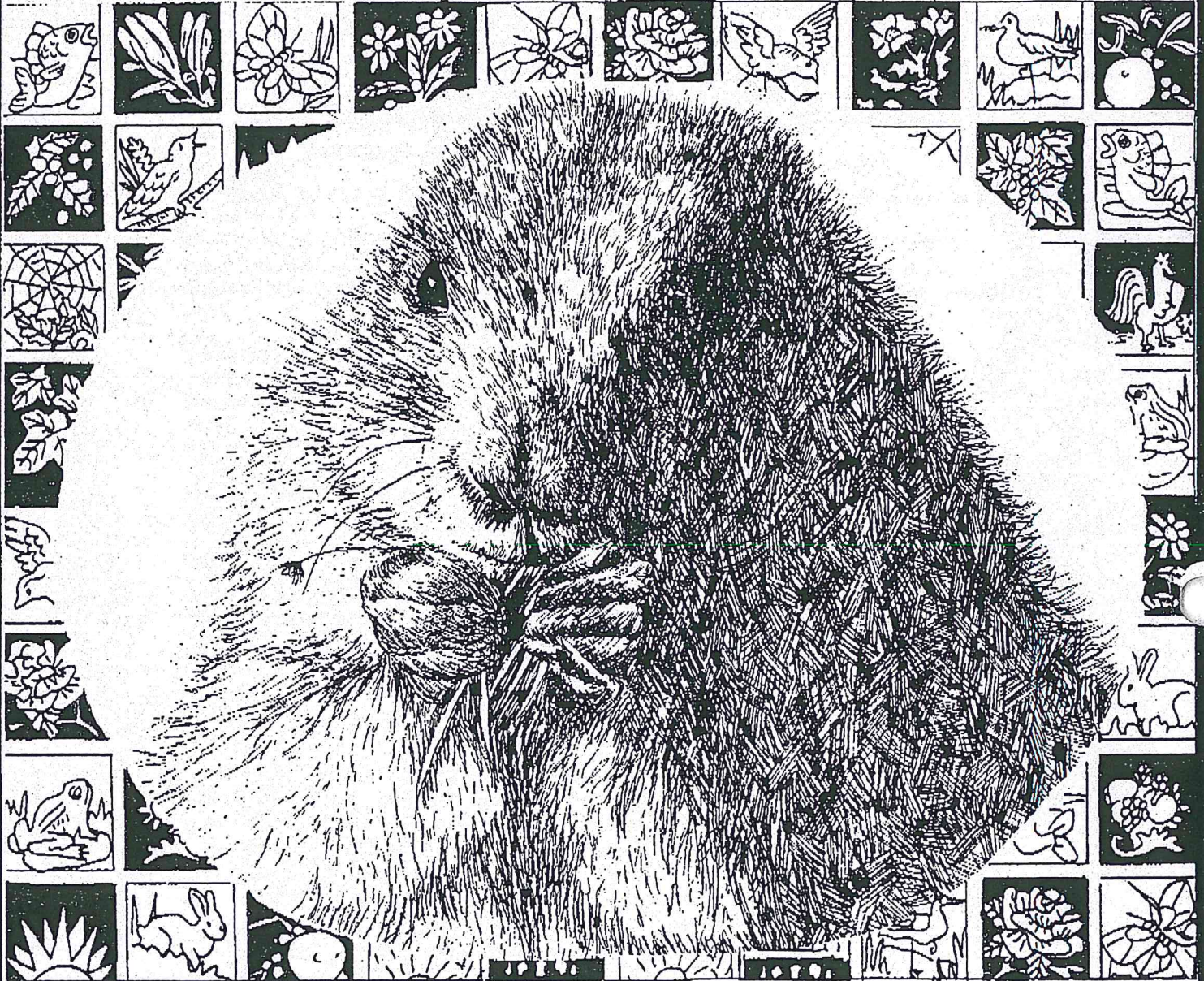
CATALOG CORRECTIONS

- p. 9 Correct title of M-84 is Fire Aboard Pleasure Boats
- p. 15 Correct catalog number for Gossy, the Canada Goose is FS-23F
Correct catalog number for Opy, the Opossum is FS-23F
- p. 19 Correct catalog number for Birds of Prey is SS-16
- p.28 LK-61 Crappie Rigs are no longer being sent with each rod and reel. Instead a bobber, hook, and split shot weight are included so students can 'rig their own'.
- p. 29 One copy of Mammals in Kansas (book 4-1) is included in each skins and skulls set.
Correct catalog number for Predator-Prey Populations Biokit is GK-1
- p. 37 VT-71 is the same description as M-20 (not M-71)
VT-74 is the same description as M-73 (not M-72)
- p. 43 Insect Orders catalog number is CD-7I (not 71)



DON'T MISS OUT ON YOUR SCHOOL'S SET OF WILDLIFE EDUCATION MATERIALS.

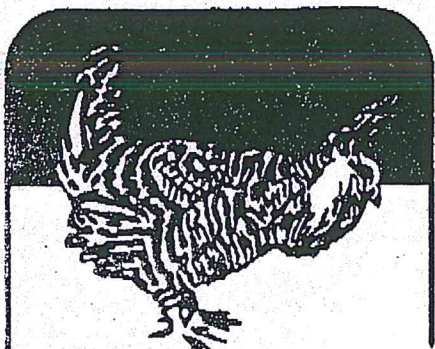
Kindergarten-3rd grade curriculum (1 teacher's guide and 25 student booklets) was delivered to every KS elementary building in 1983. The 4-6th grade curriculum was delivered to the school librarian in 1985. 7-12th grade curriculum was sent to every secondary level biology teacher in 1987.



Check first with your building principal and librarian for the whereabouts of these non-consumable materials.

For more information write to:

Roland Stein
Wildlife Education Service
Kansas Department of Wildlife
and Parks
Rt 2, Box 54A
Pratt, Kansas 67124



wildlife
education
service