

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



Teaching Resource Activities and Conservation to Kansas Students

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Wild Encounters



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How do you care for wildlife in your class? A great 7-page guide begins on page 4.

You'd better know and follow the rules!! Page 2.

Hip-Hop over to page 19 for a fun trek through the wild.

Itch, Itch, Scratch, Scratch. Page 16.

Mirror Species Spotlight. Check it out on page 12.

They care for wildlife. Dedication on page 14.

Ask the Expert

We receive a lot of questions about the legality of keeping and caring for wild animals. If you want to keep wild creatures in your classroom, you need to know and abide by the laws. Ignorance is no excuse. We took some of the most commonly asked questions and asked the expert, Conservation Officer Bruce Bertwell.

Can I keep a wild bird feather?

No, unless the feather comes from a legally obtained game bird (pheasant, quail, wild turkey, etc.) or from a pigeon, starling or house sparrow. Every other bird in Kansas is protected by state and federal laws. This includes birds like cardinals, robins, blue jays, mockingbirds, song sparrows, bluebirds, goldfinches - and over 300 others. The law also prohibits the possession of nests, any bird parts and eggs. State and federal permits are required to possess these items. They are only issued in certain circumstances.

What are the laws regarding collection and possession of reptiles and amphibians?

For most species of reptiles and amphibians:

Any person with a hunting license may take and possess up to five of a species, and the season is year round.

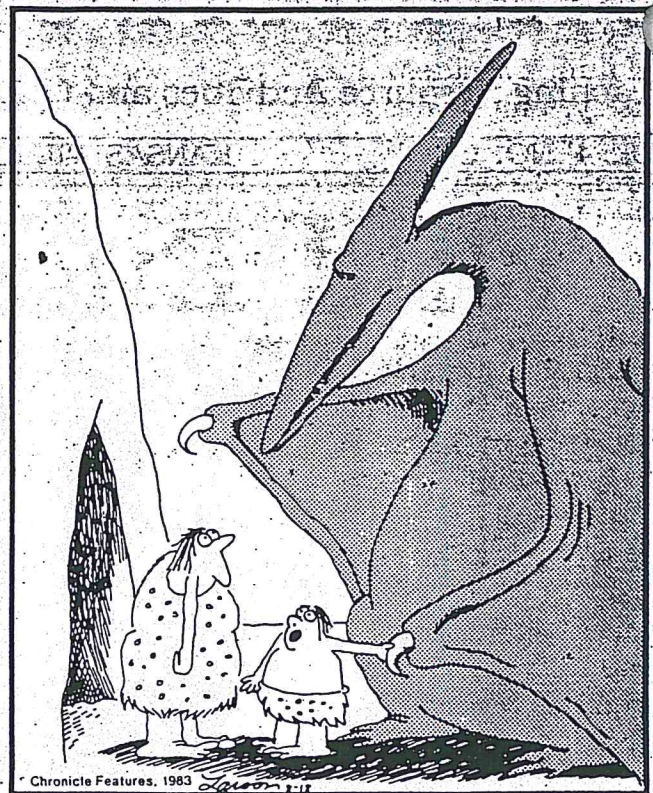
Another legal way to collect them is with a scientific, education or exhibition permit.

How can I learn to care for wild animals I keep in my classroom?

Attend workshops. KU Museum of Natural History has held these kinds of workshops in the past. Talk with professionals - nature centers that keep wild animals. Read, read, read. Check out the references on page 11.

THE FAR SIDE

By GARY LARSON



"Oh please, Mom! . . . I've already handled him and now the mother won't take him back."

The Far Side cartoon by Gary Larson is reprinted by permission of Chronicle Features, San Francisco, CA. All rights reserved.

What kinds of wild animals can I legally keep in my classroom??

Kansas wildlife (any member of the animal kingdom), wildlife parts, products or eggs can only be taken or possessed according to the law. The law varies by species. Some animals may be taken or possessed only at certain times of year, in limited numbers and by persons with the proper hunting, fishing or furharvester license. Some can't be taken or possessed at all. A person who wants to collect wildlife for scientific, educational or exhibition purposes may apply to Kansas Wildlife and Parks for a permit. For more information, contact a Wildlife and Parks office. Be aware that other agencies such as the USDA may require additional permits. 🐾

Field Encounters

You're strolling through the woods one day and happen upon this adorable ball of fluff, the cutest thing you've ever seen. Its eyes meet yours, you can't resist. You pick it up and cradle it in your arms. Taking a brief look around, you decide its mother abandoned it. And you must take care of it, at home.

You get the young fluffy puff home and put it in a cardboard box. Deluxe accommodations. After a call to everyone in the neighborhood, you soon have an audience of 12.

Now, what's wrong with this picture?

Although you had the best intentions, you have put this creature in more danger than if you'd have left it alone where you found it. Animal parents *very rarely* abandon their young. Biologists estimate that 75% of all wild 'orphans' rescued were not orphaned at all and should have been left alone. With young rabbits this figure probably goes up to 95%. As one wildlife biologist put it, "If you have to chase a young rabbit, it is not an orphan".

Young animals found alone may have just started out on their own or could be patiently waiting for parent(s) to return. Many wild animals must fend for themselves at an early age, sometimes right after birth. Remember, there is no room service in the wild. The parents constantly have to forage for food for themselves and their young. This doesn't indicate bad parenting - it's a matter of survival.

For example, a female rabbit visits the nest only two to three times in a 24 hour

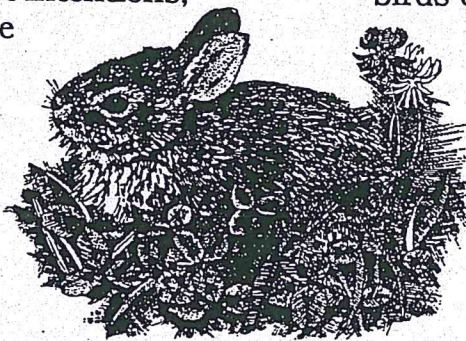
period. A doe beds her fawn down in a safe place while she leaves to go find food. The doe is out of sight, but not ear shot. She visits every few hours to groom and feed the fawn. The fawn's best defense its first three weeks of life is camouflage and no scent. The doe doesn't want to hang around too long and possibly place her fawn in harms way.

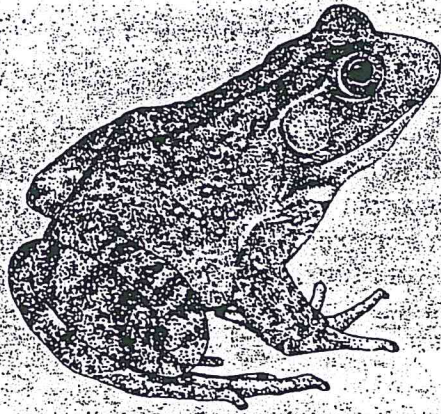
Remember, there is no room service in the wild.

A nestling (an unfeathered bird) can be placed back in its nest. If you can't find the nest, a strawberry box lined with tissues placed in the tree will work. Most

birds don't have a well developed sense of smell so you don't need to be afraid of a parent rejecting the young bird because of human scent. Often times another species of bird will take care of the young. Young birds with feathers have to practice flying and surely take a tumble or two. Don't assume the bird is abandoned because you can't see the parents. Put the young bird in a shrub or tree closeby so the parents can hear it call. The parents will continue to feed it until the bird is completely on its own.

Unless you're sure the parent is dead, leave the young animal alone. Come back to the area the next day and check on it if you want. If you don't see any sign that the parent has returned, call a rehabilitator. If you can tell the animal is injured or sick, call a Kansas Wildlife and Parks office or a rehabilitator. Remember, nobody can parent and teach the young rabbit (or bird, or raccoon, or whatever) how to "be" a rabbit better than another rabbit. So give them a chance, and leave them alone. 🐾





Classroom Creatures by Pat Silovsky, Director, Milford Nature Center

Studies have shown the value of education programs that emphasize direct contact and experiences involving animals. One such study showed that over a period of time, live animals in the classroom caused students to become more aware of and knowledgeable about animals than students that did not have daily contact (Journal of Research in Science Teaching, 1985). Daily contact with wildlife is disappearing at an alarming rate as we become a more urban society. The process of bringing students back into contact with their natural environment through wildlife related activities may be one of the greatest challenges facing educators today (Am. Biology Teacher, 1986).

So, should you keep live animals in the classroom? It depends. Can you provide food for the animal? Is it legal to possess the animal? Can you provide an adequate cage for the animal? Will you accept total responsibility for the animal's care?

This article does not address the ethical or moral values surrounding the use of live animals in any situation. That is a decision you will have to make. Instead, its purpose is to help you to properly care for animals once you have made the commitment.

Keeping Native Fishes in Aquaria

Some of the most colorful and attractive animals - and perhaps the simplest to keep - are native fishes. It is surprising that native fishes are not more widely kept as aquarium fish given that natives are hardy and require no special care beyond that given to common tropical fish. Nongame fishes may be collected for aquariums by the holder of a fishing license. Fish species must be collected using the methods specified and in

numbers specified under "bait collection" found in the Kansas Fishing Regulations. If you want to seine gamefishes or other fish not mentioned under bait fish, you must obtain a scientific collection and education permit for \$10.50 from the Department of Wildlife and Parks. If you should catch a small bass, crappie, catfish, or other gamefish using other legal means such as a hook and line, you can keep it **if** there is no length limit in place. The distinction here is the method by which you obtain the different fish. To be absolutely safe, however, obtain a scientific collecting permit.

Start with a small aquarium, one about 10 to 16 gallons. Gradually move up to larger aquaria as you gain experience. Choose a location for your aquaria out of direct sunlight (diffused sunlight is O.K.) and away from any heat sources. An aquarium hood with a full-spectrum or natural light such as the brand "Vitalight" will provide all the light needed if you do not have windows.

The key to aquarium care is proper filtration of the water. You can choose from several types of filters on the market. The undergravel filter is very popular, but I have found that this filter alone is not enough. Power filters, which hang on the outside of the tank, work best in my opinion. These provide both oxygen circulation and filtration. I typically have both an undergravel filter and power filter on my tanks. The submersible charcoal/floss filters work well for small aquariums and are inexpensive. Change the filters about once a week in most situations - more often if the water is particularly dirty or you have a large number of fish in the tank. A guideline to use for numbers of fish in an aquarium - about one inch of fish per gallon. You should also feed the fish only what they will consume in five minutes. More than that will cause excess build up and frequent water changes.

In choosing a substrate, the type you choose will depend on what type of habitat you are

reproducing - stream, pond, lake, etc.? You may purchase aquarium gravel at pet shops, however, avoid the brightly colored varieties. It distresses me to see pink gravel in a tank housing native fish. I prefer pea-sized gravel or smaller. Remember, your task as an educator and animal caretaker is to duplicate the animal's habitat as much as possible. Students have more insight into the animal when you closely mimic natural conditions. Rinse your substrate to remove any debris and place it in the aquarium, sloping it from back to front. Add larger rocks and rock shelves to provide hiding places for your fish. Plants provide a nice touch whether real or artificial. Today's artificial plants are very realistic and much easier to maintain. I have found that gluing rocks with silicon sealer onto the bottom of the plastic plants saves you from always reburying them in the gravel. I have also glued rocks on the inside back of the aquarium to provide a nice backdrop. A backdrop of some sort improves the viewing of fish.

Fill the aquarium with aged water. To "age" water, simply place tap water in a bowl or bucket for twenty-four hours to allow any chlorine to evaporate. Never add straight tap water to an aquarium and expect fish to survive. If you are anxious, you may purchase chemicals that will remove chlorine instantly. Fill the aquarium within one inch of the top. Set up the aquarium and let the filters run for a few days before adding any living organisms. Once set up, don't move the aquarium. The stress of moving can cause cracks - one gallon of water weighs eight pounds.

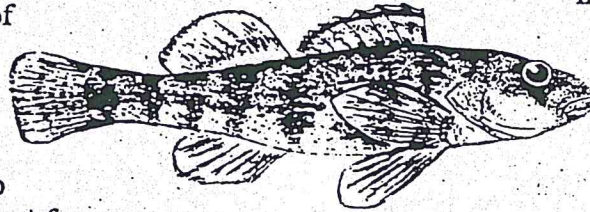
Now for the fish. The minnow family contains many good aquarium fishes. Most shiners, including the redbfin shiner, red shiner, and common shiner, do well in an aquarium situation. Speckled chubs and bluntnose minnows also do well. One of the most striking minnows in aquariums is the southern redbelly dace. In spring, the males have bright yellow fins and vibrant red lower sides. Minnows can be kept on a diet of

flake food or frozen brine shrimp. In nature, most minnows feed on insect larvae and small crustaceans.

Small catfish make good aquarium residents too. They easily train to a pelleted food that you can purchase at a pet shop or a farm supply store (Purina Catfish Chow). Catfish will appreciate rock ledges and shelves to hide under.

The orangespotted sunfish and the longear sunfish are some of the most colorful native fishes Kansas has to offer. They mainly feed on insects but do well on pelleted food (same as the catfish), and they will eat brine shrimp (frozen or freeze-dried) or freeze-dried tubifex worms. Other sunfishes such as the black basses (largemouth bass, smallmouth bass and spotted bass) and crappies feed mainly on insects and other smaller fish.

When mixing species in an aquarium keep in mind the food chain! Don't be surprised if all your small minnows end up in the stomach of the larger predatory fish. But hey, that's part of education too. The rule of thumb for what a fish will eat is anything that will fit

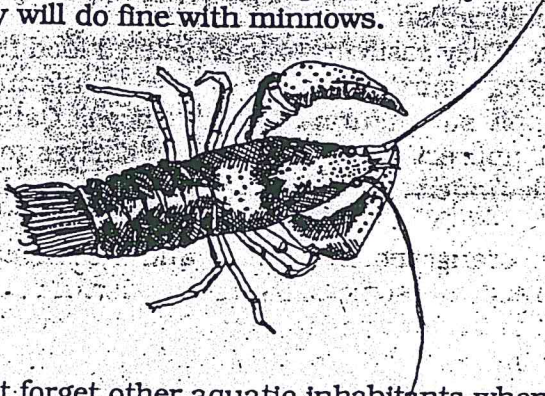


in its mouth! Bass have difficulty training to pelleted food, however, you can do it especially when dealing with small ones. Larger bass will probably need to be fed live fish such as goldfish or minnows from the local bait shop. Don't forget the local bait shop as a source of native fish. You can easily obtain fathead minnows and other species in this way.

Small gar make very interesting aquarium denizens, but finding the right size for an aquarium can be difficult. Look for 4" to 6" gar in rivers and large creeks. In the aquarium, as in nature, they prefer to feed on small fish which they capture by stalking.

No listing of native aquarium fish would be complete without the mention of darters. These small fish are named for the way they "dart" from rock to rock. These colorful fish and their interesting habits provide hours of entertainment. Their main disadvantage is they prefer to eat live food (insect larvae).

They can be conditioned to eat frozen brine shrimp or freeze-dried tubifex worms. Keep in mind their small size. Darters will not survive in a tank with larger predatory fish. They will do fine with minnows.



Don't forget other aquatic inhabitants when setting up the aquarium. Crayfish are extremely interesting to watch and can be quite colorful. They are death on darters and any minnows they can catch. Since most minnows stay near the top, crayfish rarely catch them. Crayfish will eat pelleted food which has sunk to the bottom. Beneficial tadpoles and snails will help control algae growth naturally. Observe tadpoles as they metamorphose into frogs. Aquatic insects can be interesting too. It is likely you will have to experiment a little to find the right mix of species to co-exist in harmony in your tank.

A word about diseases. Fish are susceptible to a number of diseases which are most likely to show up when temperatures rise or during the stress of handling. Try not to handle your catch when transferring them into your tank. Use a dip net instead. Check water temperatures and do not place the fish in the tank if you have more than a 10 degree Fahrenheit difference. Slowly acclimate the temperature by mixing the warmer water with the cooler water until it is within the suggested range. Cool water temperatures in the aquarium help keep down diseases and are preferable to warm temperatures. With native fish you will never need an aquarium heater! Non-iodized salt at the rate of a teaspoon per ten gallons of water is a useful home remedy, especially for fungus diseases. (Commercial preparations are also available but many exaggerate their potential.) A simple trick that may help prevent disease - bury two copper pennies per gallon of water in the

gravel. Copper is a common treatment for many diseases and will slowly be released into the water by the pennies.

Keeping Native Amphibians

Native amphibians and reptiles may be collected by the bearer of a Kansas hunting license. No more than five animals of one species may be possessed and under no circumstances may these animals be sold. No threatened and endangered amphibians and reptiles may be collected. The taking of bullfrogs requires a Kansas fishing license and must be taken during the season by legal means. To do so otherwise would require a scientific collecting and education permit as mentioned previously under keeping native fishes.

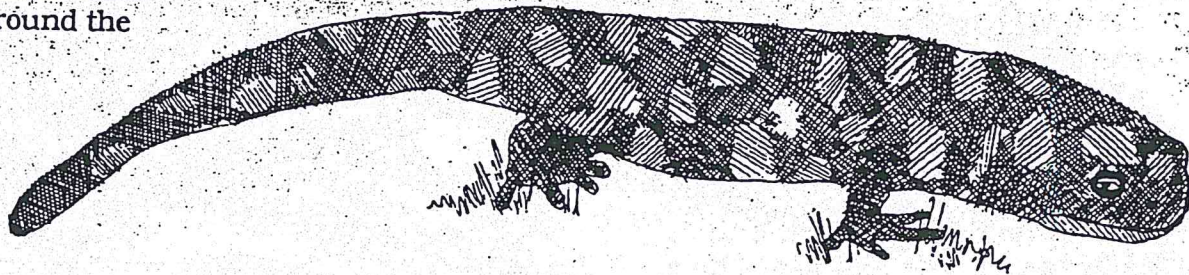
Provide captive amphibians with the same general living conditions they have in nature - adequate food, clean quarters and high humidity or water. Glass aquariums (10 gallon size for most amphibians) usually make the best vivariums.

Duplicate high humidity with a simple glass plate as a cover. To allow air to circulate under the glass lid, place several layers of tape on each side of the top edges of the aquarium to lift the glass up a fraction.



To prepare a vivarium, place a few inches of potting soil in the bottom of the tank. Peat and sphagnum moss make good substrates for amphibians. Place a layer on top of the potting soil. These mosses hold moisture well without becoming waterlogged. Stir them up regularly to keep the bottom layers aerated and loose. Place plants, waterworn pebbles, bark chips, small branches, and stones in the vivarium to provide hiding and climbing areas for the inhabitants. All amphibians need places to hide. Some need plants or branches on which to climb so they

can exercise. For best results, plants should be left in their pot and buried up to the rim. A shallow water bowl should also be buried in the soil even with the lip on the bowl. Small animals may need a bridge of stones or wood to get out of the water if the sides are too high. Provide a bowl large enough for the animal to sit in if it so desires. Instead of a bowl, I like to take a 3" to 4" high piece of glass and divide the tank into sections. I secure the glass using aquarium-grade silicon sealer around the



bottom and sides. This way I have a land side and a water side. You may use an air stone or filter in the water to provide circulation and keep the water fresh. Mist amphibians daily with a spray bottle (use aged water) even when a pool is provided.

All Kansas amphibians prefer a temperature range between 68° F and 77° F. Both amphibians and reptiles tolerate low temperatures better than high temperatures. Nothing will kill reptiles and amphibians faster than placing them in a glass aquarium in direct sunlight on a hot day. Do not allow temperatures to drop below 50° F to 59° F.

Avoid overcrowding. Too many animals will foul the vivarium and only create more work for you. Remove feces when possible and change water bowls twice a week. Sanitize bowls once a week. Try to change the soil in the vivarium once every month or so to remove urine and feces build-up.

All adult terrestrial amphibians such as frogs, toads and salamanders are carnivorous and generally must be fed live food. Very simply, they will eat anything that moves and they can swallow. Earthworms, cockroaches and crickets make ideal foods and can be obtained easily. Most pet shops carry crickets but be aware, they can be highly overpriced! There are a

number of places you can order crickets from and deal directly with the grower. Dust the crickets or other insects once a week with a reptile vitamin supplement such as Reptical. Place the crickets in a paper or plastic bag, sprinkle in some vitamin supplement, shake, and walla! Dinner is served! Feed amphibians on a regular schedule, two to three times a week. Remove uneaten food as soon as possible to prevent decay and pollution of the vivarium.

Mealworms are not ideal foods for amphibians since amphibians do not chew or chomp their food before swallowing. As a result, mealworms are swallowed intact and protected for some time from digestive juices by their tough exoskeleton. They will wriggle around in your amphibian's stomach and may begin to chew on the stomach wall of the animal. There have been instances where mealworms have chewed their way out of frogs and toads.

Aquatic amphibians such as newts, tiger salamander larvae and mudpuppies, find food by smell and movement. They will accept worms, fish, and sometimes bits of meat such as liver. Newts will eat frozen brine shrimp or blood worms. Tadpoles like algae and tender plants. Try wilted romaine or escarole lettuce. Do not use spinach since it will produce kidney stones. Tadpoles will also feed on small bits of meat or pelleted fish food that has fallen to the bottom.

All amphibians have smooth moist skin that is very fragile. Hands should be kept moist (use aged water) whenever handling amphibians. Dry hands will remove the protective coating ("slime") from the body. Without this slimy coating, amphibians are open to invasion by bacteria and other disease-causing organisms.

Keeping Native Reptiles

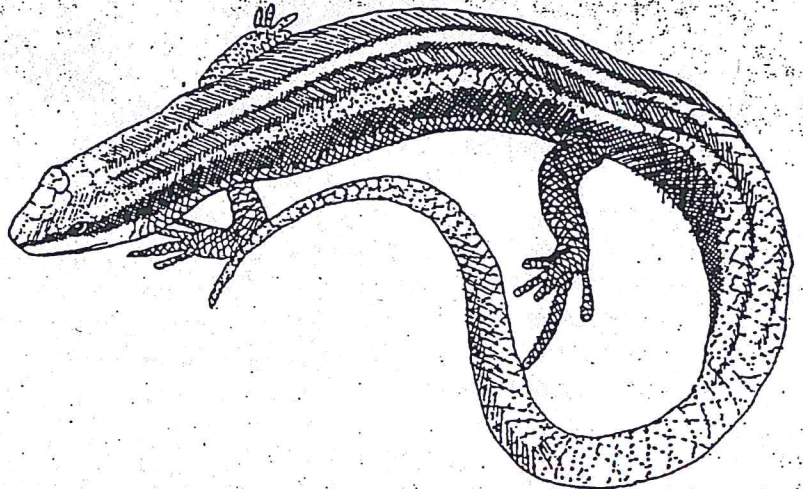
The vivarium for reptiles should contain the same basic furnishings as for the amphibians i.e. water bowl, hiding places, branches, rocks, etc. The cage must be large enough to meet the animal's needs - provide a thermal gradient, room to exercise, and enough perches, basking sites, and (psychologically) secure areas for each animal. Two or more animals will need more space than one. The screen covers for aquariums make good cage lids for the vivarium. A thermal gradient can be provided by using a "hot rock" which is purchased from a pet supplier or an incandescent light bulb. A 75 or 150 watt "plant light" reflector bulb placed above a flat rock or stump will create an ideal basking site. Set lamps on a 12 hour cycle year round. The red heat lamps can be left on all night since reptiles don't see in the red spectrum (in effect giving them a "night"). But, it is a good idea to turn the lamps off during the night to allow the reptiles to cool down (avoid cold and drafty!). Reptiles should be provided with a full-spectrum fluorescent light (Vitalight) in addition to any incandescent lighting. Certain UV wavelengths (Vitamin D₃) are necessary for reptiles to properly metabolize calcium.

Depending on whether the cage is on exhibit or not will often determine the kind of substrate used in the cage. Those wishing to recreate the natural environment of the animal will have to pay more attention to the "looks" of the substrate. Newspaper is probably the best all-around-substrate for reptiles. It is easy to come by and the cage can be kept clean and dry. It, however, is not attractive in an exhibit. Astroturf carpeting is another good floor covering but not attractive either. Gravel tends to work well in large cages with live plants to cover pots, etc. and give a unified appearance. Hardwood mulch provides a good substrate for species which like to bury themselves such as skinks or glass lizards. I frequently use cypress mulch. Change the mulch about every 3 months. Sand works well for

small scale desert-like environments. Avoid these substrates: corn cob, kitty litter, wood shavings, coca shells, and soil for the reptile cage (soil is fine for the vivarium housing amphibians).

Lizards

All lizards benefit from a variety of food items. Kansas lizards eat insects and feed on crickets, mealworms (O.K. for lizards since they chomp their food), spiders,



cockroaches and fruit flies throughout the year. Add variety by sweeping a net through the grass during warm months. Supplement the food with a vitamin powder as with amphibians. Feed lizards about twice a week.

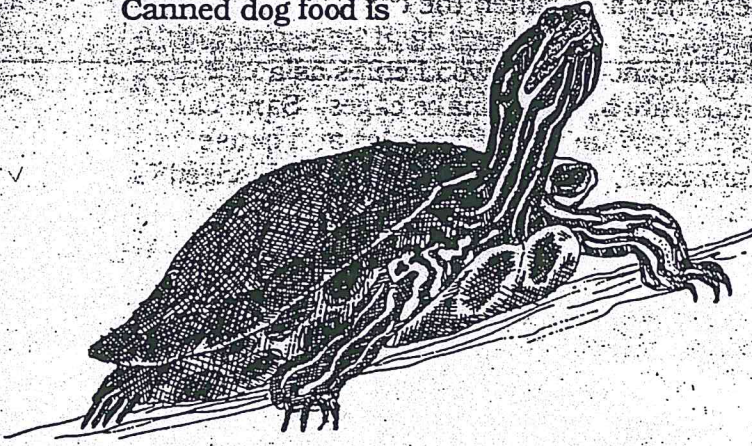
Male lizards do not usually tolerate each other. Placing several males together will lead to aggression and stress which can result in illness and death. Some are more communal than others such as the prairie-lined racerunners.

I do not recommend keeping Texas horned lizards as they require a very specialized diet (ants!) and invariably die in captivity even in the hands of the experienced. Collared lizards are also difficult to keep healthy in captivity. Both these lizards require temperatures between 80°F and 90°F to remain healthy. Fence lizards, racerunners and skinks make suitable vivarium inhabitants.

Aquatic Turtles

Aquatic turtles are primarily carnivorous but a varied diet is important. Most will accept chopped mice, chopped whole fish, insects, and earthworms (whole animals are important for good health).

Canned dog food is



O.K. but it will foul the water very quickly if you are not careful. Commercially prepared reptile floating food sticks are adequate food as well. I have used these with painted turtles, red-eared sliders, and snapping turtles. Adult painted turtles in particular will accept some vegetation, such as chopped greens or chopped vegetables. Feed adult turtles about twice a week and younger turtles three times a week.

Most aquatic turtles in Kansas, with the exception of the snapping turtles, are basking turtles and need an area in which they can completely remove themselves from the water. Place an incandescent reflector type light above this area to simulate heat from the sun. The area closest to the light should reach a temperature of 85°F to 88°F.

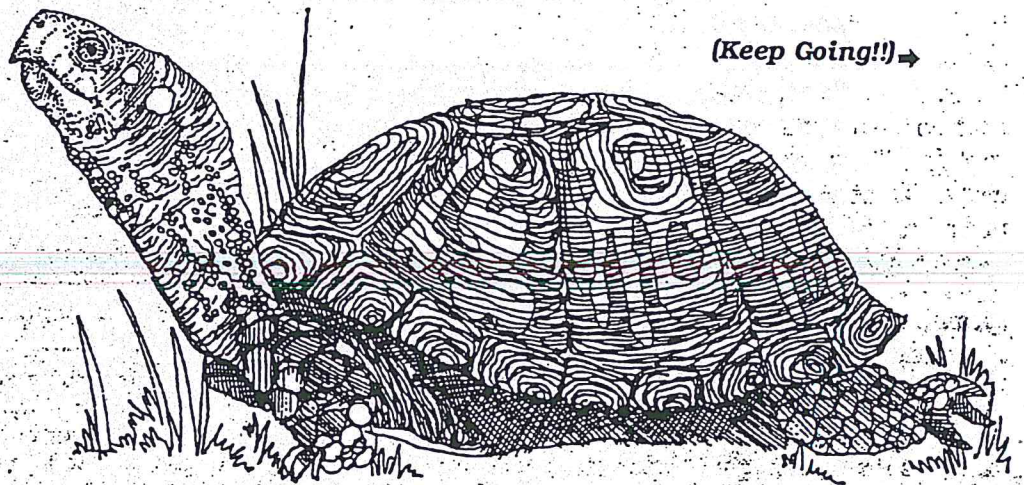
Box Turtles

Many people find box turtles each year. Keep in mind these are the "land" turtles of Kansas and they do not

enjoy swimming in the bathtub! They will drown if left in this condition. Provide water in a shallow dish. The turtle should be able to enter and leave the water at will. Give them an area where they can hide.

About 50% to 70% of their diet consists of insects and other animals. They will eat earthworms, crickets, beetles, grasshoppers, and mealworms. Plant material makes up the rest of their diet. They will eat strawberries, cantaloupe and other melons, raspberries, bananas and grapes. They readily consume mushrooms, tomatoes, cooked sweet potatoes (good source of Vitamin A) and thawed frozen mixed vegetables. Variety is very important in the diet of a healthy box turtle. Offer the turtle many choices.

The most common turtle complaint (box or aquatic) is that of closed and swollen eyes with a loss of appetite. The cause - a Vitamin A deficiency, possibly compounded by inadequate temperatures. To remedy this situation check the temperatures and try to offer the turtle foods rich in Vitamin A. You can purchase commercial preparations for just this ailment. Daily salt baths (1/4 teaspoon salt to 1 cup water) given for 15 to 30 minutes once or twice a week will help the turtle to open its eyes. It may take several weeks before the eyes open and the turtle will eat. You may want to consult with a veterinarian or experienced animal caretaker if you are not sure.



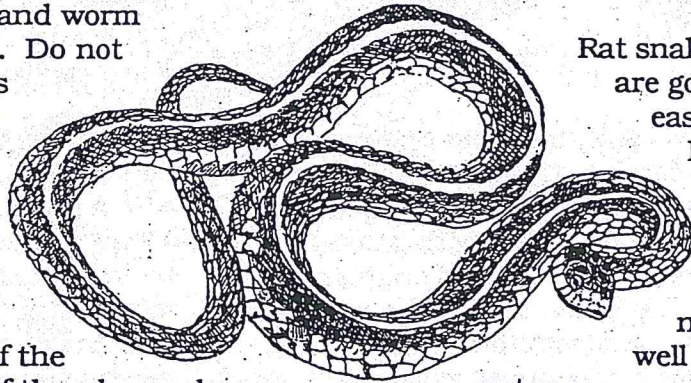
Snakes

A number of things should be considered before keeping a snake (or any other reptile and amphibian for that matter). Before obtaining an animal, find out about the animal's habits, behavior and needs, and locate a steady food supply. Snakes feed almost exclusively on whole animals or pieces of meat. They will reject vegetable matter. Acceptable food depends on the age, size and species of snake. Mice and young birds, small lizards and frogs, fish and insects make acceptable food items. Species such as kingsnakes eat other snakes in the wild but may be enticed to feed on mice in captivity. Water snakes and garter snakes eat fish, frogs and toads. Green snakes eat insects such as crickets, grasshoppers and caterpillars. Ringneck and worm snakes eat earthworms. Do not keep hognose snakes as they eat only toads and it is very difficult to locate a year round supply of this food. Feed the snake as much as it will eat once every week or two depending on the size of the snake. A general rule of thumb - snakes can swallow something about three times the size of their head. Adults need to be fed about every two weeks, but small snakes and juveniles need to be fed every 5 to 7 days. Remove uneaten animals, especially mice, because they can turn on your snake. Rodents left overnight in snake cages have been known to chew on the snake sometimes resulting in painful sores or possibly death.

Snakes will sometimes refuse food for weeks at a time, especially during the winter. They will suffer no ill effects provided it does not go on for a month or more. Try increasing the temperature a few degrees during the day. Do not allow it to drop below 75°F at night. Snakes will also refuse food right before they shed their skin. The first indication of a pending shed - the eyes begin to look cloudy. From this time until shedding (5-12 days) do not disturb the snake as it may become irritable. Help the process by misting the snake with water.

Sometimes the eyecap (transparent scale over the eye) does not shed. You can remove it by first soaking the snake in water for an hour or so then gently prying the cap off with tweezers. A small amount of petroleum jelly may help soften the cap.

Avoid sand, dirt or wood chips as a substrate in small snake cages. Sand can get lodged underneath scales and cause infections, and wood chips may get lodged in the mouth while feeding and also cause infections. Snakes from 1 to 3 feet do well in 10-15 gallon aquariums but larger species need more space. Provide from 8-12 hours of light each day and keep the cage between 75°F to 85°F.



Rat snakes and kingsnakes are good-natured and easy to care for.

Ringneck snakes are gentle but are real "Houdinis". Other snakes such as racers act very nervous and don't do well in captivity. I do not recommend anyone keep poisonous snakes.

It is possible to keep reptiles and amphibians in captivity, but the duration of their captivity should be as **brief as possible**. It is very difficult to duplicate their needs. You must be properly equipped to accommodate each animal's needs. It is best not to keep an animal through the winter but return it to the wild in time for it to go through hibernation. Take time to observe the animal as it feeds, learn about the conditions it needs for survival then turn it loose. The purpose for keeping any animal is to learn more about it and its habits. Through awareness we can be prompted to action and can make life better for those creatures still free in the natural world. 🐾

The author, Pat Silovsky, is director of the Milford Nature Center near Junction City. She has cared for many varieties of wild animals over the years. If you would like to know her sources or need further information, write or call her at the nature center (address and number on page 24).

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Living Amphibians and Reptiles in Nature Centers and Classrooms by Tom R. Johnson. Write to Johnson at Missouri Department of Conservation, Jefferson City, MO. 65102.

The Care of Reptiles and Amphibians in Captivity by Chris Mattison. Sterling Publishing Co., Inc. New York. 1987.

The American Federation of Herpetoculturists publishes a series of booklets on Care and Maintenance of Reptiles and Amphibians. Many can be located in pet shops or you can write to : AFH, P.O. Box 1131, Lakeside, CA. 92040.

Wild Animal Care Rehabilitation Manual. Kalamazoo Nature Center. Order by writing Kalamazoo Nature Center, Beach Leaf Press, 700 N. Westnedge Ave. Kalamazoo, MI, 49007 or call (616) 381-1574. Cost involved.

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Species Spotlight

Educator Hands-on (Cooper)

I creep silently through some of the wildest habitat I've ever seen. It's cold out, but nervous sweat soaks my shirt. I don't want to attract the attention of the native wild beasts, and slink along the edge of a well-used daily migration corridor.

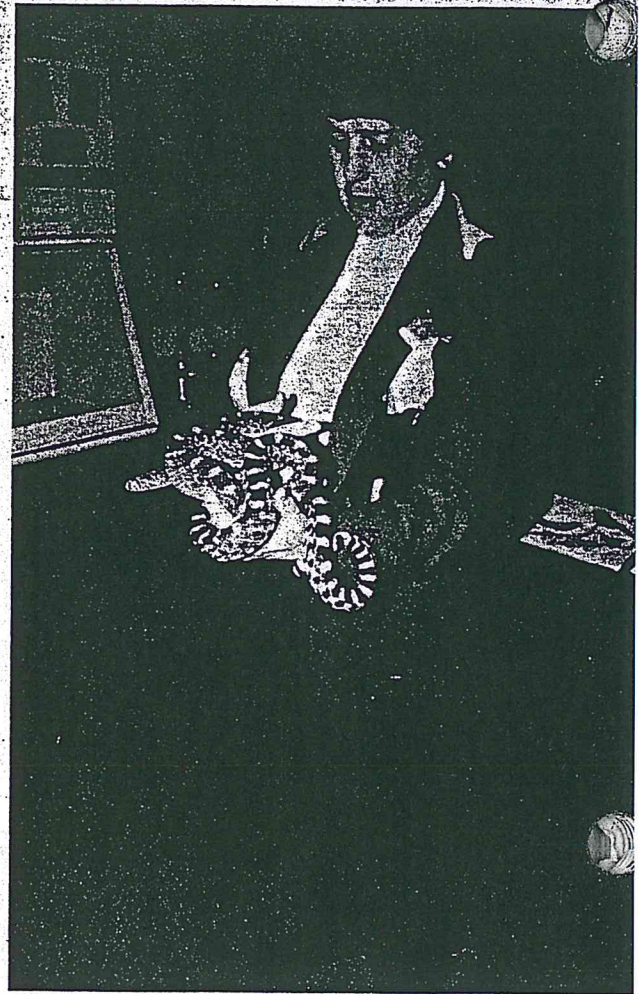
"Stupid to volunteer," I mutter. Doing the Species Spotlight for On T.R.A.C.K.S. can be pretty hairy. Sure, it's not National Geographic, but it still hurts.

I find the spot where my target is said to regularly appear about this time each day. Checking my camera and note-pad, I enter. Yup. This is the place. Room 111, Hays Senior High School. My target, biology teacher Donna Cooper.

Donna's classroom is as much the reason for my visit as an interview with the educator herself. The walls are covered with wildlife: bird posters (the current unit is on bird feeding, bird identification, etc.), native grasses, a bison skull (brought up on a seining trip to a local creek*). On the lab counters you'll find temporary displays of the real thing: snakes, turtles, salamanders, lizards, a sample of local aquatic life . . . a hands-on wildlife lab whose occupants change with the seasons.

You get the feeling students have their hands on much more than the usual textbook and worksheet.

Donna has definite feelings about the value of bringing students and wildlife together. "There's nothing like it. The



students get a real sense that these animals are just visitors, that their real place is out there [most animals are collected on field trips, then released after a brief stay]."

Want to start? This issue of On T.R.A.C.K.S. can help. Donna's example is useful, too.

"Just start. Begin with one animal and let your program grow. Understand the costs involved with start-up [breeding mice, insects, etc], get the support of your administration, but most of all understand the needs of the wildlife," advises Donna. "Oh, and read, read, read."

*This particular trip changed a student's life. Keep reading.

Wildlife need food and shelter. What food? What kind of shelter? What temperature? How much water? There may be more sources of information than you think. Check your local libraries. Scout around for people in your town who already have their hands on wildlife, and can help you start (in Hays, for instance, Donna received mounds of help on reptiles and amphibians from herp enthusiast Karen Toepfer.) Kansas Wildlife and Parks biologists, educators, and publications are other options. A final vital link is the student body itself.

Through the interview, student aides cleaned cages and fed wildlife visitors (feeding is done after class hours out of respect for students who aren't quite ready for the reality of predator/prey relationships), and asked questions when confronted with a sticky situation. Class had been over for quite a while, but with wildlife in the classroom, opportunities to learn are continuous.

The next step in bringing students and wildlife together is to visit the state parks, according to Donna. "We haven't used the parks as much as we should. The kids want to do more, see more, so we're planning on exploring Kanopolis State Park [southwest of Salina]."

With the right attitude and preparation, wildlife in the classroom will open the door to educational success. It takes time and understanding - time to maintain the health of your wildlife visitors, and an understanding of boundaries. Some students may not feel comfortable around wildlife. Donna's goal is to bring students and wildlife as close together within the comfort zone of the student. Some don't want to touch, smell, or even be within 10 feet of certain critters. That's okay. Every student has the opportunity to see and understand: this is wildlife. It's here for a short while before returning to its real home out

there. Take this chance to look into its eyes.

When you're done, the rewards start rolling in. At the least, students get a first-hand look at Kansas wildlife, a chance to take the content of their textbooks and compare it with the real thing. At the most, you may strike a spark in a young man or woman that can be fanned into a lifelong interest in the natural world. Who knows. . . you might even get a phone call one day from a former student who is about to start her teaching block in fisheries biology*.

*Donna received just such a call from a student who exclaimed, "The most fun I had in my life is when you took me seining!" The rewards are sweet. 🐾

Go Wild - Things To Do

- * Build/Place birdfeeders to attract birds and other wildlife to your school so you can observe them. Keep records of your observations.
- * Improve habitat on your school grounds. Plant trees, shrubs and flowers. If you can, put in a pond for water. Check out Wildlife & Parks' OWLS grant program for establishing outdoor learning sites.
- * Take field trips to nature centers, wildlife areas, state parks and other outdoor areas.

Caretakers of the Wild

It's a familiar scene. . . a group of anxious, excited children come running inside and present you with their discovery: a young bird (bunny, squirrel, etc). What do you do?

- a) Tell the children to take it outside where they found it.
- b) Give in to their pleadings, keep it and care for it.
- c) Call a local wildlife officer for advice.

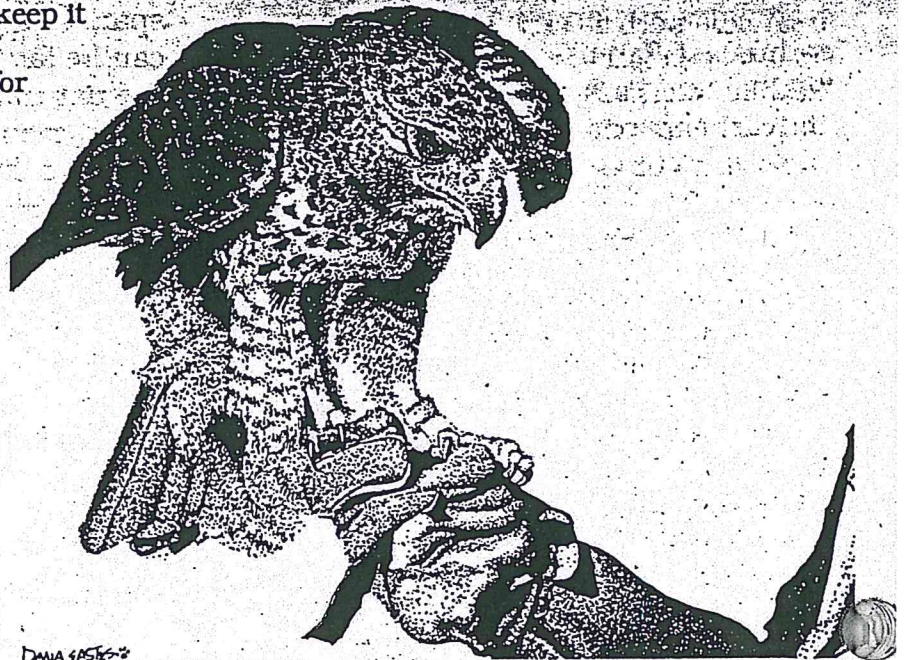
Whenever people and wildlife encounter each other, this scenario is repeated thousands of times each year, especially in the late spring and early summer months.

To understand what is best for the animal, and to help children understand the animal's role in nature, it is important to learn about the animal's needs and how wildlife differs from domestic animals. This will help the parent and educator make the correct choice for that animal and use the experience to further the children's understanding of wildlife and nature.

Human-wildlife interactions have become unavoidable as people expand into wildlife habitat. Wild animals frequently have negative encounters with manmade objects such as cars, wires, windows, plastic bags and fishing line. When people encounter injured or orphaned animals, there is a natural desire to help. Selecting the right kind of help is the critical first step to the survival of the animal.

Many people who find injured or orphaned animals try to care for them at home. In doing so they often discover that these animals have very complex needs. Each different kind of animal has specific dietary requirements, feeding habits and habitat needs. In order to adequately care for an animal, a person must be able to accurately

identify the animal, determine what it eats in the wild, how often and how much it will need to be fed, what kind of shelter it requires, and how to house it safely in captivity. If this animal is injured, the



person will need to be able to assess the injury and get appropriate medical attention.

Few people have the skills and knowledge necessary to make these decisions. Caring for wildlife can be complicated and in some cases expose people to risk. For this reason, injured and orphaned animals are best treated by trained, competent wildlife rehabilitators. Most communities have one or two individuals or facilities with an interest and special training in the care of wildlife. State and federal regulations require that individuals who find injured wildlife turn the animal over to a wildlife conservation officer or wildlife rehabilitator.

Most people interested in becoming wildlife rehabilitators begin by visiting a local rehabilitation facility or rehabilitator to learn what is involved in this activity. Wildlife rehabilitators must be licensed by the state and federal wildlife authorities. These

agencies will assess a potential rehabilitator's qualifications before issuing a permit. Most rehabilitators take courses offered through rehabilitation facilities. They also get hands-on experience from trained rehabilitators.

Most rehabilitators establish a relationship with a local veterinarian or veterinary school to help provide the necessary medical treatment such as setting broken bones and obtaining proper medications.

Rehabilitators assume all of the expenses of the care and treatment of injured animals. State agencies do not compensate for this care. Many rehabilitators receive grants or donations for their work.

The goal of all wildlife rehabilitators - return healthy animals to the wild. They feel a great satisfaction when a young animal is raised and released, or an injured animal recovers and is returned to its habitat.

Unfortunately, many animals are too sick or badly injured by the time they reach a rehab facility. Many of these die or must be humanely destroyed. This is one of the difficult parts of the job of a rehabilitator. Most rehabilitators return about 40% to 50% of the animals in their care back to the wild. Animals that survive but are permanently crippled must be sent to zoos or nature centers. They **may not** be kept as pets.

Rehabilitators make a tremendous commitment of time and energy. They must learn a wide variety of diets and treatments for the different animals for which they care. Daily cleaning and feeding chores absorb a large amount of time. (Young birds must eat every 15 to 30 minutes!!)

Wild animals require special conditions of handling and housing to reduce the stress and fear associated with captivity.

Rehabilitators must learn to handle potentially dangerous animals to minimize the risk to themselves and others. They must also take precautions against disease and parasites which are transmissible to humans.

The public can help by assessing whether an animal actually needs help. Most

"orphaned" birds and mammals have parents that are off gathering food or may be frightened by the presence of humans. In most cases, a juvenile can be returned to its nest safely and the parent will return. (Most birds cannot smell human scent.) Observing the nest from a distance or checking the condition of the young animal periodically will give information about whether the parent has returned. If a nest cannot be located or has been destroyed, the young animal can be placed in a box lined with tissue and returned to the tree.

"State and federal regulations require that individuals who find injured wildlife turn the animal over to a wildlife conservation officer or wildlife rehabilitator."

Any obviously injured animal needs care. A broken wing or leg, bleeding, inability to stand or flee, or strange behavior indicates that an animal needs help. Warn children **NOT** to try to handle wild animals. Animals may bite in fear or pain. Adult wild animals that appear tame are not normal, and may be dangerous if handled. A local conservation officer, wildlife rehabilitator or animal control officer will know how to capture and treat the animal.

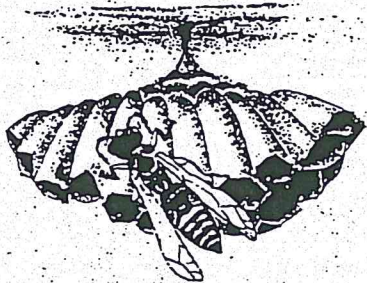
Children should be taught that it is not in the best interest of the animal to be cared for at home or school. Not only is it illegal, but in most cases, it is difficult to provide the proper care.

Learn who and where the local rehabilitators are in your community. Most enjoy speaking to classes about wildlife rehabilitation. Educating people about wildlife helps to make their job easier and more successful. 🐾

Close Encounters of the Unpleasant Kind

Most of our encounters with wildlife are the friendly kind. Many of us have also experienced chance meetings with wildlife which have not been so pleasant. There probably is not a person who has not had a painful encounter with the insect group Hymenoptera (bees, wasps, hornets, and ants). Most of these encounters usually only leave a painful swelling which disappears in a few hours. Some individuals are not so fortunate. They are very sensitive to the venom of any of the Hymenoptera. Fortunately, in most cases, the first allergic reaction provides a warning to the victim of his sensitivity. First reactions rarely cause death. Warning signs of an allergy can vary from dizziness to headaches, abdominal cramps to extreme nausea, difficulty in breathing, and hives swelling in a spot different from the location of the sting.

The insect group Hymenoptera causes 50% of all fatal allergic reactions. Bee stings alone account for more fatal allergic reactions in this country than any other venomous creatures. Adults are also more likely to be victims than children. This may be due to the cumulative allergic reactions to insect stings.



To avoid these unpleasant meetings with members of Hymenoptera consider the following measures:

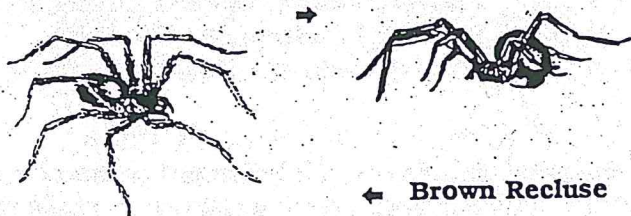
- 1) Avoid strong perfumes; especially floral fragrances, hair sprays, hair tonics, and scented sun tan lotions.

- 2) Wear dull white, dark green, or khaki for outdoor activities; avoid brightly colored clothing or flowery prints. According to some experts, black and dark colors also excite insects and causes them to be more aggressive.
- 3) Keep foods covered and avoid leaving food waste around.
- 4) Avoid swift movements around stinging insects. By all means do not slap at a stinging insect, most will not sting unless they are threatened.

Insects are not the only venomous creatures we can encounter in Kansas. Four members of the venomous pit vipers (Crotalidae) call Kansas home. The massasauga, timber, and prairie rattlers are all equipped with rattlers, but no one should rely on the rattling noise to "warn" them of their presence. Many rattlesnakes never rattle until they feel threatened by your presence or are stepped on. The small size of the massasauga also makes its rattling difficult to hear. The prairie rattlesnake can be quite aggressive and its disposition, when confronted, can be rather nasty. Because of this and the strength of its venom, it is recognized as the most dangerous venomous snake in Kansas.

The copperhead is the only venomous snake in Kansas without a rattle. Although reactions to their bite and those of the rattlers varies with the individual, in all cases of an actual bite, medical assistance should be sought immediately. This is especially true with children. Even a small amount of venom can have an immediate and sometimes deadly effect on small children.

Although all spiders possess venom, most spider bites do not cause a severe reaction. But two members of the family Araneidae can cause problems. Both the black widow and brown recluse can leave you with very unpleasant side effects. The black widow's venom is more powerful than a rattlesnake's but is given in much smaller amounts. The bite is very painful, and can affect large muscles with paralysis. In small children respiratory paralysis can result in death. **Black Widow**



(Not shown to scale)

The brown recluse's bite is almost painless and the victim rarely sees the spider. In two to eight hours, pain may be noticed followed by blisters, swelling, hemorrhage, or ulcerations. Medical assistance should be sought immediately. The bite may require hospitalization for a few days and full recovery may take from four to eight weeks.

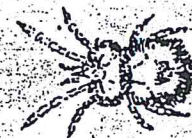
To avoid encounters with spiders, use caution when cleaning secluded areas in the home or outside storage areas. Wear gloves and long sleeve shirts when working in areas where spiders might be present. General cleanliness, paint and light discourages spiders from setting up a household in your home.

Other animals which you should avoid direct contact with are:

CHIGGERS: found in damp areas covered with vegetation, such as shaded woods, high grass and weeds, and the rough of golf courses (from personal experiences). These minute creatures (you can't see them with the naked eye) can cause an itching sensation by

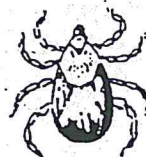
injecting a digestive fluid into a hair follicle, causing cells to disintegrate. They do not suck blood.

Apply proper repellents to clothing for protection.



(Not shown to scale)

SCORPIONS: crab-like in appearance, spend most of the daylight hours in secluded areas and roam freely at night. Scorpions sting by thrusting its venomous stinger on its tail. The sting is painful and medical assistance should be sought.

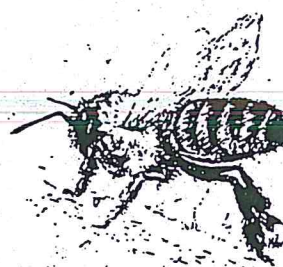


(Not shown to scale)

TICKS: found on low shrubs, grass, and trees. Ticks can carry Rocky Mountain spotted fever and Lyme disease. To remove a tick, gently grasp with tweezers and pull gently. Apply

antiseptic. Use the proper repellent and cover exposed parts of the body when in tick infested areas.

The best protection to avoid those unpleasant contacts with the above animals is to know what they look like, where you would find them, and how to avoid direct contact with them. 🐾



Honeybees make the sweet confection we call honey. Humans have harvested wild honey for centuries. Bees have been kept by people since the 1700's.

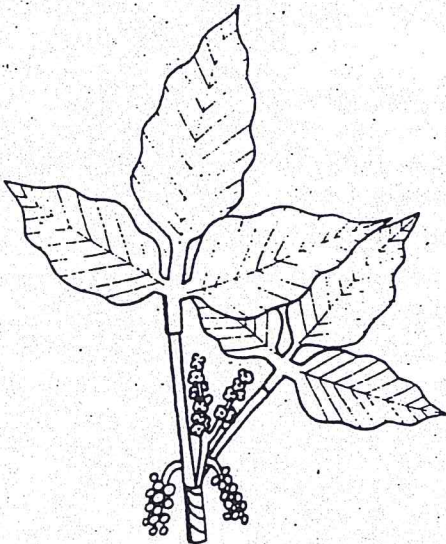
Touch-Me-Not!!

A popular song in the late 1950's told listeners of the consequences they would experience after an encounter with this perennial. This is one plant you should be aware of and avoid.

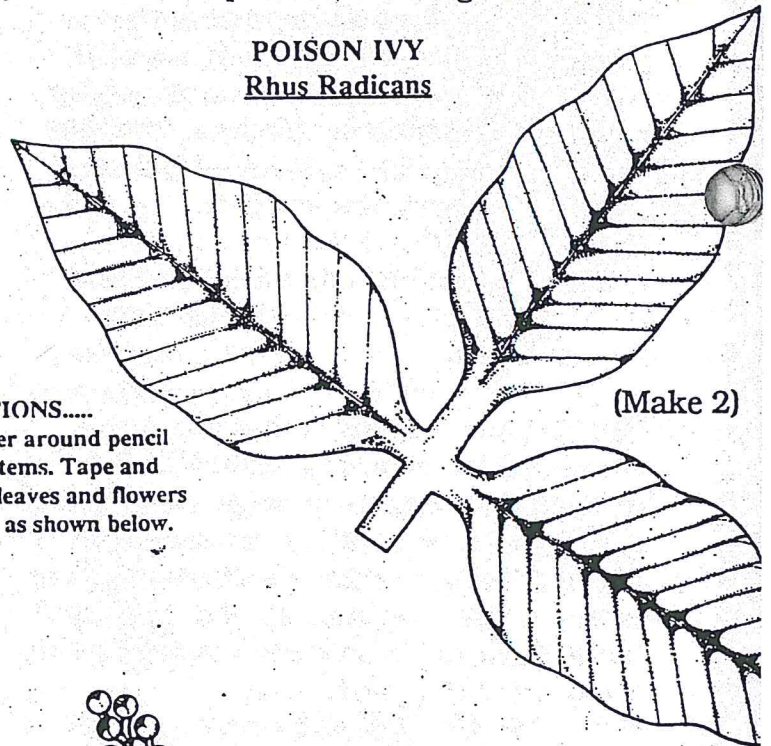
Recognizing poison ivy can be a problem for it grows both as a vine and shrub. The vine can be found on the ground, climbing trees or support objects. It is brown and covered with rootlets which make it look like a fuzzy rope. The shrub form ranges from a few inches to several feet in height. The leaves will vary in size, shape and color. The leaves are reddish to purple in spring, shades of green in summer and yellow to red or orange in the fall. From May to July small greenish yellow clusters of flowers are found on the plant. These flowers form small green berries which turn white in fall. The old saying "leaves of three, let them be" holds true.

Urushiol is the plant's oil which can irritate humans. The substance is found throughout the plant and can be nearly as toxic in dead, five-year-old plants as fresh ones. Touching clothing or pets that have come in contact with the poison ivy, even smoke from burning plants, can cause irritation.

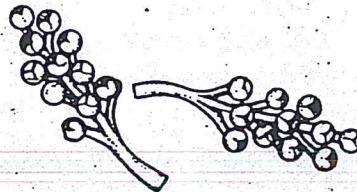
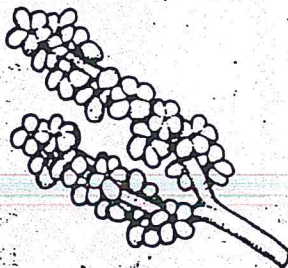
Avoiding the plant is the best method of preventing skin irritation. Contacted areas of skin and clothing should be washed thoroughly and frequently with cool, soapy water. Like the song Poison Ivy said, an ocean of caladryl lotion can help ease the itching. For severe cases, seek medical assistance. 🐾



POISON IVY
Rhus Radicans



DIRECTIONS.....
Roll paper around pencil
for two stems. Tape and
glue the leaves and flowers
on stems as shown below.



This pattern is from a booklet published by Kansas Wildlife and Parks called 3-D Patterns of Kansas Plants. For more information contact Roland Stein.

Trek Through the Wild - A Game

1. Kansas has four species of poisonous snakes, the timber rattlesnake, prairie rattlesnake, copperhead and the ...

Cottonmouth go to No. 18
 Hognose snake go to No. 11
 Massasauga, go to No. 5

2. The largest living rodent in Kansas is the ...

Opossum go to No. 4
 Beaver go to No. 16
 Woodchuck go to No. 8

3. We all know that the state flower of Kansas is the sunflower. The state insect - the honeybee. What about the state fish?? Arkansas darter? Channel catfish? Black crappie? When you think you've got it, swim over to No. 14.

4. Wrongo. The opossum isn't even a rodent. It's the only native marsupial (carry their young in pouch) found in Kansas. Up to No. 2 to try again.

5. Quite right, it's the massasauga, a tiny rattlesnake that only reaches a length of about 2 feet. Now on to No. 3 for a fishy question.

6. Nope, more than that. Try again. Back to 9.

7. No, this is a group of elk. Good try. Go back to 10 to try again.

8. Although this animal is a rodent, it isn't the largest living. Back to No. 2.

9. How many species (kinds) of wildlife do we have in Kansas?

About 1250 Go to 12
 About 14,000 Go to 6
 About 26,000 Go to 19

10. A group of woodpeckers is called a descent. What is a group of owls called?? (Top of next column)

Go to No. 17 if you think it's a knot
 Go to No. 13 if you think it's a parliament
 Go to No. 7 if you think it's a gang

11. Uh Oh. Bad start. The hognose snake, although quite an actor, is actually harmless (non-poisonous). Back to No. 1 to try again.

12. No, more than that. Back to No. 9.

13. Good Job, now off to No. 2.

14. Gotcha! Kansas, at this time, doesn't have a state fish. State animal - bison. state reptile - ornate box turtle. state bird - western meadowlark. Ready for another?? Try No. 9.

15. Does Kansas have elk?? When you think you've got the answer head on over to 20.

16. Alright!! You know your rodents. One exceptionally large beaver in Kansas weighed over 80 pounds!! That's a lot of rodent. Now, chomp your way to No. 15.

17. No way. A knot is a group of toads. Leap back to No. 10 and try again.

18. Not quite, but at least you picked a poisonous snake. We don't have cottonmouths in Kansas in any number. A few have been found in extreme southeast Kansas. Back to No. 1 to try again.

19. Yes siree. We have over: 400 species of birds, 80 species of mammals, 90 species of reptiles and amphibians, 120 kinds of fish, and well over 20,000 kinds of invertebrates. Just what is a group of woodpeckers called? Fly over to No. 10.

20. Hurray, you made it!! Was it fun?? Look back at the answers you missed. Oh, by the way the answer is yes, we do have elk in Kansas.

The WILD Exchange

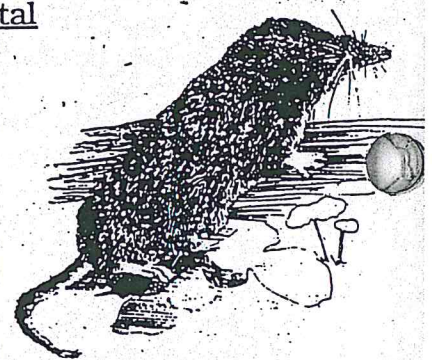
Thank You, Thank You!!

A big "THANK YOU" to all who participated in the 1992 workshops. We also appreciate the dedication of our volunteer facilitators. Without their enthusiasm and willingness to share the message of Project WILD through the workshops, we would never have had the acceptance and growth of the program experienced in 1992.

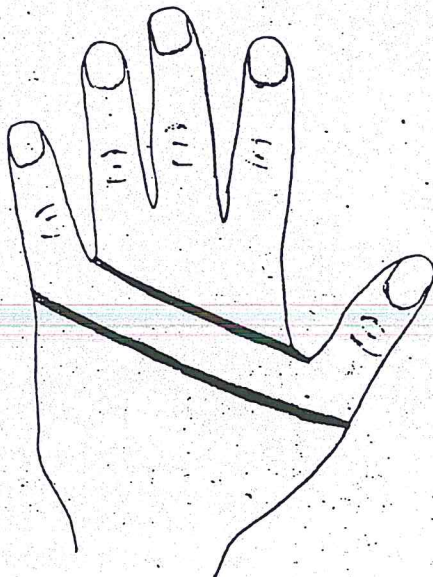
You're Part of a Bigger Picture

National Statistics on Project WILD:

<u>Year</u>	<u>Participants</u>	<u>Cumulative Total</u>
1984	4,000	4,000
1985	17,458	21,458
1986	34,982	56,440
1987	41,194	97,634
1988	41,158	138,792
1989	50,603	189,395
1990	53,771	243,166
1991	70,515	313,681
1992 (to date)	66,678	380,359



Net Results



- Theme: Human/Environment Interaction
- Objective: To experience a sense of entrapment similar to that of animals caught in nets.
- Materials: Rubber bands

Procedure: Have students stretch a band across the back of the hand as shown in the illustration. Without touching any other part of their body with their "trapped" hand, students try to wriggle free. Activity works best if rubber band is fitted snugly across the hand and is stretched well below the knuckles as shown in the illustration.

Hey, WE Can Do It!!

How many of us have attended workshops and in-services where we become enthused by the concepts and materials presented. We just know this will really work in our classroom and benefit the students. Unfortunately we become caught-up in our busy schedules doing the same old stuff and never have the time or energy to integrate these programs and materials into our on-going instruction. We often set them aside somewhere, just waiting to be rediscovered.

Is this the situation with the materials and enthusiasm you received from the Project WILD workshop you attended recently? Perhaps you need to re-evaluate why you took that workshop. Did you want to instill in your students a deeper understanding and appreciation of our natural resources, especially wildlife and the habitat it requires? Was this the avenue to lead your students into action activities which benefit wildlife and improves our environment? Is that activity guide on the shelf just collecting dust?

Your students need and deserve good instructional programs such as WILD. The well-being of this sector of earth called Kansas needs WILD. We can nurture an environmentally enlightened child by utilizing the spontaneous interest and enthusiasm children have for wildlife, the excellent activities from programs such as Project WILD, and your expertise in motivating and educating children. As their instructional leader **YOU** are the most important of the three. Without your commitment the other two will lay dormant.

Perhaps it is time to renew that enthusiasm and dust off that activity book. Renew your commitment to promote within your students an awareness and appreciation of their environment. **WE CAN DO IT!!**

CORRECTION

The address given for Kerry Wenzel, co-coordinator for region five was in error. It should read 322 N. Poplar, South Hutchinson, KS 67505.

DDT

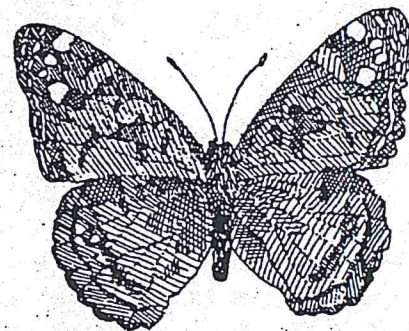
DDT, a chemical used as a pesticide, was significantly responsible for the decline of the bald eagle populations in the 1950's and 1960's. Used on crops to kill insects, DDT would wash into our water sources and remain in our rivers and lakes for long periods of time.

This chemical was absorbed by aquatic insects and other invertebrates. These organisms were eaten by minnows who in turn became food for large fish. Eagles then consumed the larger fish. At each level of the food chain, the effects from DDT become more serious because DDT accumulated in the fat cells of the animals.

Although DDT did not kill adult eagles directly, it did cause the female to lay eggs with very thin shells. They would often break during the incubation period. Consequently, fewer and fewer young eagles survived.

By the time the United States restricted the use of DDT in 1972, the contiguous United States population of eagles dropped from 50,000 to approximately 1,600. Now protected by the Endangered Species Act of 1973, the bald eagle has steadily recovered and now numbers over 6,000.

(See diagram on next page.)



"I have five senses you must reach if I am to learn and you are to teach. With taste, touch, smell and sight so clear, why must I receive all sense by ear?"

C. Harold Fabler

In the drawing, add the dots which represent DDT to show how it accumulates in the minnow, trout, and eagle.

1. DDT is sprayed on crops to destroy insects.

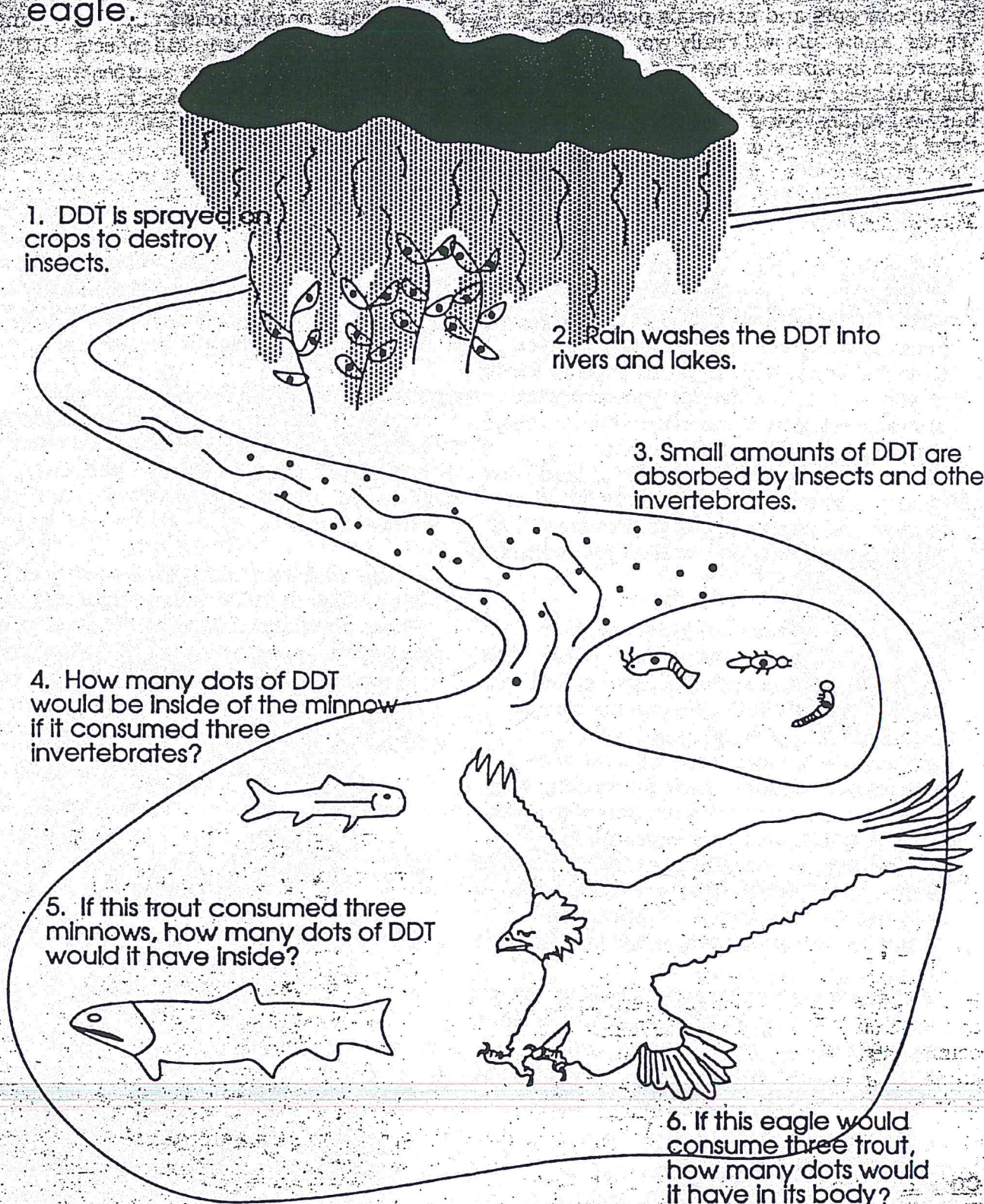
2. Rain washes the DDT into rivers and lakes.

3. Small amounts of DDT are absorbed by insects and other invertebrates.

4. How many dots of DDT would be inside of the minnow if it consumed three invertebrates?

5. If this trout consumed three minnows, how many dots of DDT would it have inside?

6. If this eagle would consume three trout, how many dots would it have in its body?



What's Happening??

April 18 - 24, 1993

National Wildlife Week. Celebrate this special week. This year's theme is "Rainforests Help Save Their Layers of Life".

April 22, 1993

Earth Day!!

April 29, 1993

Project Learning Tree. Milford Nature Center. Call Pat Silovsky at 913/238-5323.

May 9, 1993

Wildflower Sale. Milford Nature Center. A great way to start, or add to, your wild gardens. For more information call Pat Silovsky at 913/238-5323.

May 13, 14, 15, 1993

Walk With Wildlife. Olathe. Walk along a neat nature trail and see over 50 species of wild animals including a vulture, owls, hawks, snakes and more. The 13th and 14th will be held just for school children. Saturday is open to the public. For more information call Wildlife & Parks at 894-9113.

June 5, 1993

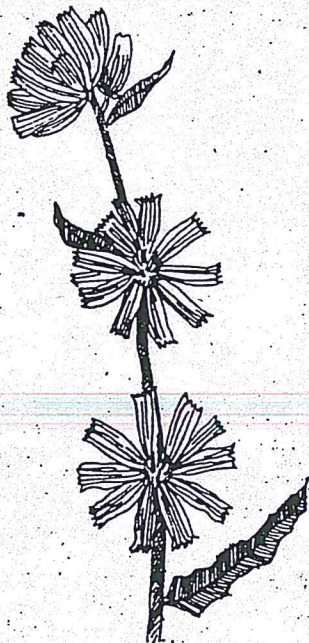
Fishing For Fun. Junction City. Free. For more information call the Milford Nature Center at 913/238-5323.

June 5, 6, 1993

FREE Fishing and Park Entrance Days. On these two days in Kansas you don't need a state fishing license or a park entrance (vehicle) permit to enter any Kansas state park.

June 10, 1993

Project WILD Aquatic. Milford Nature Center. Call Pat Silovsky at 913/238-5323.



National Wildlife Week: The Kansas Connection

Kansas has few woodlands areas, none of which could be called rainforests. April 18 - 24, 1993 celebrates rainforests. Although Kansas doesn't have rainforests, they are still important to us. We all depend on rainforests. We are connected, in many different ways. One example: many Kansas birds that nest in the sunflower state will spend the winter in the tropical rainforests. Some of these include:

Blue-winged Teal

Burrowing Owl

Dickcissel

Whip-poor-will

Eastern Kingbird

Cliff Swallow

Northern Oriole

Indigo Bunting

House Wren

Common Nighthawk

Yellow Warbler

Bobolink

Ruby-throated Hummingbird

Don't Forget!!

The new Nature's Notebook and Wildlife Reference Center Catalog are now available. For more information, give Roland a call or write him at the address below. The Satellite Center in Lenexa also has a new catalog. For your copy, give Mary Kay a call or write to the Lenexa address below.

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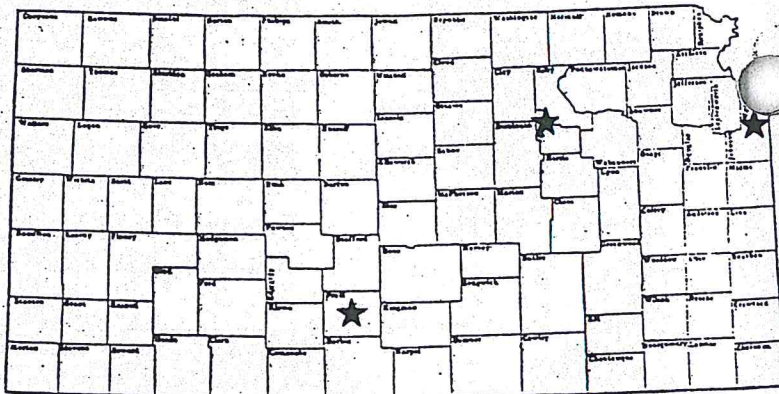
Top Guns!!

We would like to recognize the following educators who are special. They have brought something to their students and school that others have not recognized as 'above and beyond'.

Mrs. Clark, Easton Grade School
Sheree Gill/Heather Bravence, Vinland Elementary
Mike Martin, Chanute High School

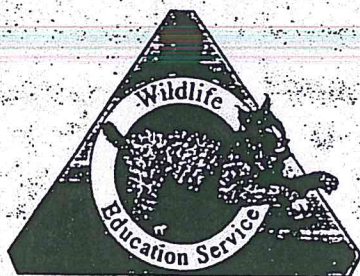
A copy of Natural Kansas and a Kansas Birds poster will be sent to these educators to thank them for their time and effort in bringing an excitement and awareness of Kansas' natural resources to their students. CONGRATULATIONS!!

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