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Glenn Dudderar, Wildlife
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Member's Guide

WILDLIFE



Where You Live

WILDLIFE WHERE YOU LIVE

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Glenn R. Dudderar
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SECTION I

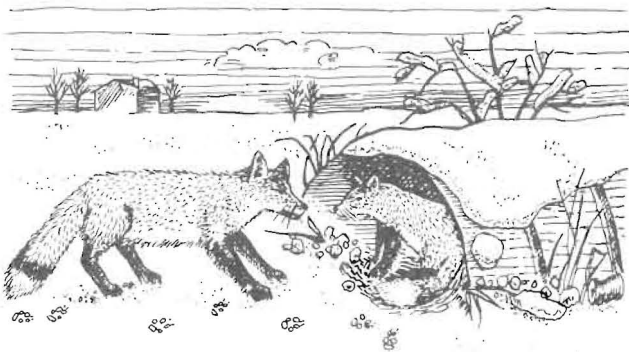
YOUTH AND WILDLIFE

Every boy and girl can learn how to enjoy wildlife and have fun doing things that involve wildlife. You can enjoy wildlife from your window, by walking around your neighborhood, or by hiking in fields and forests.

Some people think that boys and girls who live in a city or who are handicapped cannot find and enjoy wildlife. This is not true! If you want to learn how to enjoy wildlife, follow this booklet step-by-step. The only things you will need are this booklet, time, patience, and perhaps an adult to help you. Begin by reading or by asking an adult to read the story of the secret foxes to you.

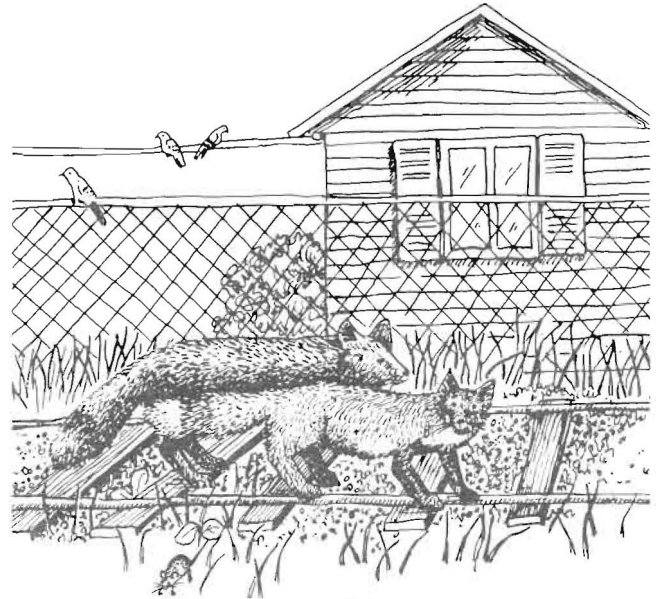
THE SECRET FOXES

As the sun set, leaving the snowy landscape in twilight, the female fox, called a vixen, was awakened by the whining of her mate just outside the den. The den was an old drain pipe that was almost buried when the road above it was repaired, and the foxes had dug enough soil out of the pipe to make it into a cozy den.



Now it was time for the vixen and her mate to hunt. Because she would soon give birth to four kits, the vixen was especially hungry. The foxes set off down the road toward the grain elevator where the road crossed the railroad tracks. Rats and mice lived in burrows in the bank of earth next to the railroad and fed on the grain that had been spilled when the railroad cars were loaded. The rodents, clearly visible against the snow, were prey for the foxes that crouched at the top of the bank.

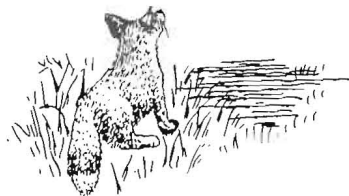
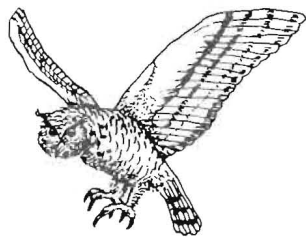
When a rat left its burrow and started towards the railroad tracks, the vixen pounced on the rodent. It took only a few bites to devour the animal. Her mate had not been successful; the rat he chased was too close to another burrow and went down the hole before he could catch it. It would be a while before the rodents would come out again, so the two foxes trotted along the railroad tracks toward the city. The plant growth between the railroad tracks and the yards of the houses alongside the tracks was thick and was the home of many field mice, some cottontail rabbits, and many kinds of songbirds. The foxes would hunt here next.



Rabbit signs were plentiful: tracks, trails, droppings in the snow, and bare places on the stems of bushes where rabbits had gnawed to eat the inner bark. Many of the small trees were severely gnawed and would soon die. The vixen started down one side of the thick brush while her mate went down the other side. Soon the vixen caught the scent of rabbit and moved toward the source of the smell. The rabbit heard and saw the fox and sat completely still. When the fox's nose told her that the rabbit was near, she too stood still and waited, watched, and listened. After a long while, her sharp eyes saw the rabbit's ear as he turned it to try to hear the fox. She pounced, but the rabbit quickly dodged around her.

Her mate ambushed the surprised rabbit before it could react. In a short time, the rabbit that had eaten the trees had been eaten by the foxes; and the tracks in the snow revealed the story to anyone who cared to look.

The pair hunted together the rest of the winter and into the spring. One day, late in April, the vixen went into the den and did not let her mate follow. The next day she gave birth to four kits—three males and one female. She stayed in the den most of the time with the kits, nursing them, cleaning them, and keeping them warm, while her mate brought her food. The kits grew rapidly and soon it was time to wean them from their diet of milk. As they were ready, the fox began to give the kits pieces of meat that her mate brought to the den. In time, however, the kits needed more meat than the male fox could provide alone, so both parents had to leave the den to hunt for food.



One male kit was very adventuresome and tried to follow his mother one evening. His wobbly walk took him only a few yards from the den before he realized that his mother was not there. His whining for her caught the attention of a great horned owl that dove in silent flight at the small fox. The great talons of the mother owl snatched the young fox, and it soon became food for the baby owls.

As the three remaining kits grew larger, the parent foxes would take them on hunting trips. One summer evening, they took them down the railroad tracks and into some farm land. There the kits learned to catch meadow mice by sitting quietly, watching and listening carefully, and then pouncing quickly. The fox family also found a blackberry patch with ripe berries and ate their fill. Late in August the nearly grown kits ate grasshoppers from

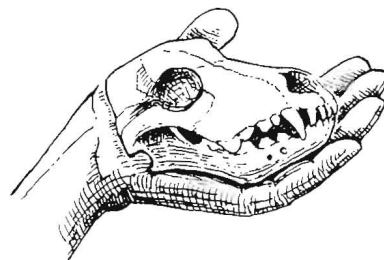
the same farm field. Early one morning, they surprised a wandering chicken also looking for grasshoppers.

By late fall, the kits were full grown and on their own. One of the young male foxes discovered where the rest of the chickens lived and began to visit the farmyard regularly. When more of the chickens fell prey to the fox, the farmer had no choice but to set a trap for the fox. The fox was caught and killed, but the fur was saved and sold to a fur dealer. The lady who bought the coat with the beautiful fox fur collar didn't know that it had come from a place so close to the city.

The first snow of winter was just beginning to fall as the vixen headed to the den. She had been in the city park early in the morning hunting for squirrels and chipmunks that lived there and had also eaten some of the white oak acorns still on the ground. Perhaps the falling snow hid the sound of the oncoming truck, or perhaps her hearing was getting poor with age; but for whatever reason, she did not notice the truck as she crossed the road. The force of the crash threw her to the side of the road where she died and was buried by the falling snow.

The next spring, on a day when most of the snow had melted, a young person who was walking along the road looking for wildlife happened to notice the remains of the fox. Only the skull was undamaged, and the youth picked it up to show to the members of a local youth club. At the next meeting, the members were surprised when the leader helped them identify the fox skull. They were excited to learn that the fox had lived so close to where they lived; but what they did not know was that at that very moment, another fox, the daughter of the dead fox, was giving birth to kits in the same nearby buried drain pipe in which she had been born the year before.

The young people were very close to discovering the secret foxes. Do you think they will? Would you like to learn the secrets of the wildlife that live near you? Continue reading and find out how to learn them.



SECTION II

DISCOVERING WILDLIFE

DID YOU KNOW?

Did you know that at this moment there are wild animals just outside your home or maybe in your home? No matter where you live in Michigan, in a big city or in a wilderness, wild animals share your neighborhood. The place where you live determines the kinds and numbers of wild animals that live near you.

Wildlife—perhaps like the wildlife in the story of the secret foxes—is part of your environment. Would you like to learn to find this wildlife, to identify it, and to discover where and how it lives and dies? This booklet and your leader will help you do just that.

A WILDLIFE SEARCH

The best way to learn about wildlife around your home is to find it yourself; but before you do, there are some things you should know.

WILDLIFE is any animal that is not owned, fed, fenced, and cared for by a person. Thus, animals like dogs, cats, cows, chickens, and caged birds like canaries are domestic animals. Wildlife is any kind of animal that is not controlled by a person and that can take care of itself and its young without help from a person.

Animals that have backbones, just as you have a backbone, are called **vertebrates**. There are five kinds of vertebrates: birds, mammals, reptiles, amphibians, and fish.

BIRDS are vertebrate animals that have feathers, two wings, two feet, and a bill. Some wild birds are robins, sparrows, and mallard ducks.

MAMMALS are vertebrate animals that have hair or fur, four legs or two arms and two legs, and feed their young by nursing them with milk made by the mother's body. Some wild mammals are mice, squirrels, rabbits, fox, and deer.

REPTILES are vertebrate animals that have scales or a shell and lay eggs on land. Some wild reptiles are snakes, turtles, and lizards.

AMPHIBIANS are vertebrate animals that have moist skin that is either smooth or warty and live both on land and in water. They lay eggs in water. Examples of amphibians are frogs, toads, and salamanders.

FISH are vertebrate animals that live under water, have scales and fins, and breathe the air that is dissolved in water through their gills. Some kinds of fish are trout, bass, carp, and sunfish.

Animals without backbones are called **invertebrates**. Creatures such as insects, spiders, crayfish, and snails are invertebrates. There are separate 4-H projects for animals in these groups.

To help you learn what kind of wild animals are vertebrates and what kind are invertebrates, decide whether each animal pictured below is a vertebrate or invertebrate and circle the correct word.



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate



vertebrate or
invertebrate

On page 6 is a chart to help you record the wild animals that you see. If you find many wild animals, you may wish to make more charts for your use. (Do not list domestic animals or zoo animals. You may list invertebrates if you wish, but pay special attention to vertebrates.)

HOW TO LOOK FOR WILDLIFE

Go outside your home; or, if you can't go out, watch carefully from a window. Walk slowly and look around carefully. Look up in the sky and up in the trees and at buildings. Look around you at eye level. Look down at the ground. Look up close and far away. Stop from time to time and stand still. Watch carefully. Listen all the time. If you hear a sound made by an animal or the sound of movement, stop, listen, and try to see where the sounds are coming from. Be patient! Any boy or girl can find wildlife around his/her home. No matter where you live or what your handicap, you can find wildlife. The only things you need to do this project are time, patience, and perhaps help from another person.

If you cannot go outside, sit quietly by a window. You will see a variety of birds and possibly other forms of wildlife.

WHEN TO LOOK FOR WILDLIFE

The best times to look are just before and just after sunrise and sunset. Midday is a poor time to look for wildlife. Night is also an excellent time, especially just before full dark. If you look at night, take a flashlight; but do not turn it on until after you get a glimpse of an animal or hear it and know about where it is. Watch for its eyes to reflect the light of the flashlight.

If possible, make several searches during each season of the year—summer, fall, winter, and spring. Do not try to look for wildlife during windy weather, especially if it is cold and wet.

WHAT TO LOOK FOR

Of course, you will be looking for the wild animal itself, but most of the time it is easier to look for signs left by animals.

Tracks — Look for tracks in sand, dust, mud, and snow.

Trails — Wild animals often use the same trails repeatedly. Look for trails in grass, leaves, brush, and snow.

Burrows and Nests — Look for burrows in the ground and nests in aquatic vegetation, grass, bushes, and trees. Look for holes in trees.

Food Remains — Look for stems, fruit, and leaves of plants that have been chewed upon. Look for the broken hulls of seeds and nuts on the ground. Look for gnaw marks and holes along the stems of bushes and trunks of trees.

Droppings — Look for the waste from animals on the ground, on rocks, or just about anywhere.

Other Signs — Wild animals often rub or scratch themselves on soil or trees. Birds take dust baths. Deer rub their antlers and paw the earth. Rodents gnaw things. Look for these signs.

WHERE TO LOOK

Remember, if the place where you want to search does not belong to you or is not a public place, ask permission first. Then look:

1. Up in the sky for birds and bats.
2. Up in big trees or under them for birds, squirrels, raccoons, and chipmunks.
3. Around bushes for birds, rabbits, opossums, skunks, foxes, and toads.
4. In tall grass for birds, mice, rabbits, woodchucks, foxes, and snakes.
5. Under rocks, boards, and logs for snakes, salamanders, and mice.
6. Along and in rivers, streams, and marshes for birds, muskrats, raccoons, frogs, snakes, turtles, toads, salamanders, and fish.
7. Along the edges of fields, woods, roads, railroads, and power lines for many kinds of animals.
8. Along buildings and around the bottom edges of buildings.
9. In vacant lots, parks, school grounds, church yards, old buildings, dumps, and cemeteries.
10. In your yard, in and around your house, and in your neighborhood.

If you live in the city, you can at least find —

BIRDS	MAMMALS	REPTILES	AMPHIBIANS	FISH
pigeons (A)	house rats (A)	snakes (S) (maybe)	toads (S) (maybe)	carp
starlings (A)	house mice (A)	turtles (S) (maybe)	frogs (S) (maybe)	catfish
house sparrows (A)	fox squirrels (A)			sunfish
chimney swifts (S)	raccoons (A)			minnows
robins (S)	opossums (A) (maybe)			salmon (maybe)
sea gulls (S) (maybe)	skunks (A) (maybe)			trout (maybe)
ducks (SFW) (maybe)	muskrats (A) (maybe)			perch (maybe)
	rabbits (A) (maybe)			
	chipmunks (A) (maybe)			
	bats (S)			
	moles (SF) (maybe)			
	ground squirrels (SF) (maybe)			

If you live in the suburbs, you can at least find all of the above, plus —

cardinals (A)	gray squirrels (A)	garter snakes (S)	toads (S)	bass
doves (A)	meadow mice (A)	brown snake (S)	tree frogs (S)	pike
bluejays (A)	foxes (A) (maybe)	box turtles (S)	leopard frogs (S)	crappie
song sparrows (A)	deer (A) (maybe)	painted turtles (SF)	salamanders (SF)	
woodpeckers (A)	shrews (SF)			
owls (A) (maybe)				
hawks (A) (maybe)				
pheasants (A) (maybe)				
bobwhite quail (A) (maybe)				
redwing blackbirds (SF)				
grackles (SF)				
orioles (SF)				
wrens (SF)				

If you live in the country, you can find all of the above, plus —

many kinds of hawks (A)	bobcats (A) (maybe)	many kinds of snakes & turtles (S)	many kinds of frogs and salamanders (SF)	many kinds of fish
ruffed grouse (A)	mink (A)			
owls (A)	otters (A)			
chickadees (A)	beaver (A)			
titmouse (A)	flying squirrels (A)			
nuthatches (A)	many kinds of mice (A)			
bluebirds (SF)	snowshoe hares (A) (maybe)			
many kinds of ducks and geese (SF)	bears (SF) (maybe)			
many kinds of herons & other water birds (SF)				
meadow larks (SF)				
whippoorwills (S)				
flycatchers (SF)				
swallows (S)				
thrashers (S)				
catbirds (S)				
many kinds of finches & sparrows (SFW)				

S — spring and summer
F — fall

W — winter
A — all year round

To help you identify and learn more about these animals, your leader or your county 4-H Extension agent has or can help you find many excellent books and booklets that will assist you. Ask your leader how to obtain these publications, or write to Extension Wildlife Specialist, Michigan State University, East Lansing, MI 48824, for information about these publications.

WILDLIFE AROUND MY HOME

Kind of Animal (mammal, bird, reptile, amphibian, fish)	Name of Animal (fox squirrel, brown bat, house sparrow, tree frog, brook trout, etc.)	Where I saw it (in a tree, in the grass, flying over water, in the forest, in a meadow, over a lake, etc.)	Season of Year (spring, summer, fall, winter)	Description of Animal, if you don't know its name (shape, size, colors, noise it made, things it did, signs it made)
---------------------------------------------------------------	------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

SECTION III

UNDERSTANDING WILDLIFE

Now that you have found wildlife around your home, you have also begun to learn something about it. For example, if you saw a chimney swift or a nighthawk, you did not see it sitting in the grass. If you saw a mouse, it was not swimming in the water.

If you saw a robin, it was never eating an acorn, but you may have seen a bluejay eat one. Perhaps you saw a squirrel eat an acorn, but you never saw it catch a mouse.

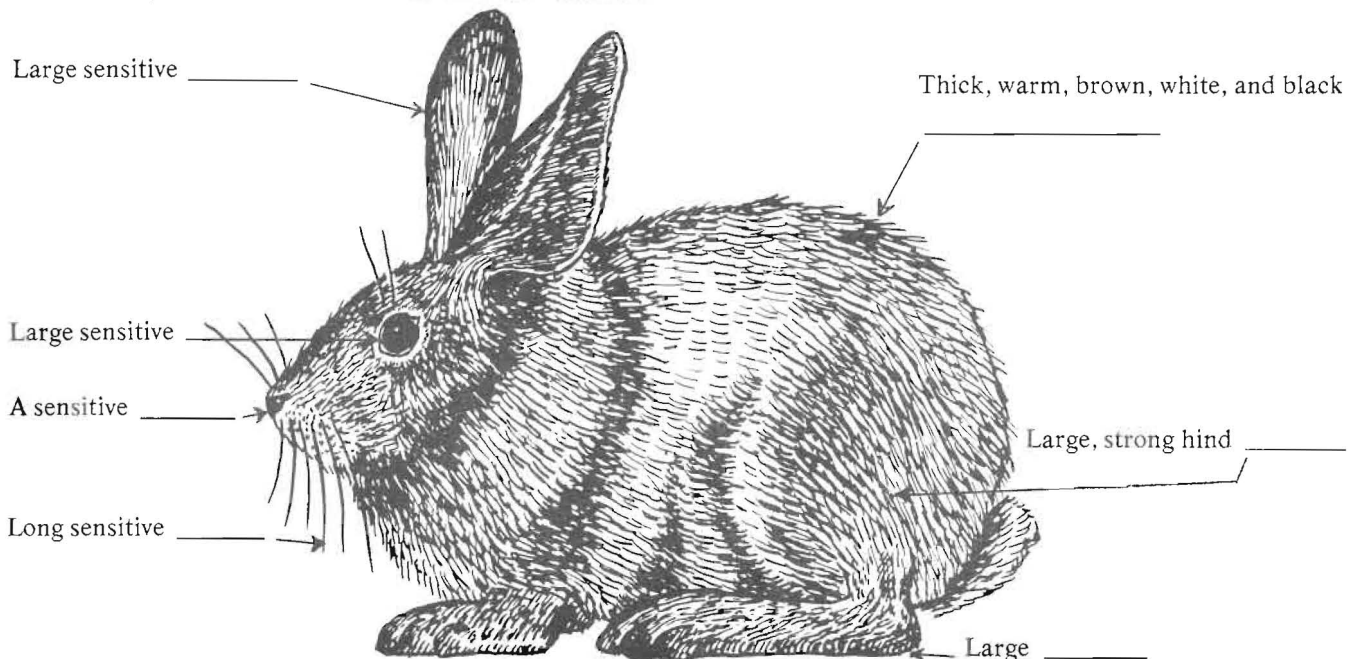
Because of what you have seen, you now know that certain animals live in certain places but not in other places. Each animal lives in a place where it can find food, cover, and water. A squirrel lives in trees because it can climb trees and eat nuts. Rabbits live in tall grass because they can hide in the grass and eat it. Squirrels do not live in grass, and rabbits do not live in trees.

The place where each animal finds the kind of food, cover, and water it needs is called its **habitat**.

The things that an animal has and does that help it survive are called **adaptations**. For example, a rabbit has things and does things that adapt it to its habitat of brush, tall grass, and weeds. It has a sensitive nose, big eyes, and long whiskers to find and eat grass, weeds, and bark. It is active at twilight and at night to avoid daytime enemies. The nose, eyes, and whiskers help when the light is dim. Its big ears also help the rabbit avoid enemies. The rabbit cannot climb trees or dig deep burrows, so it has long, powerful hind legs for running, jumping, and escaping when it is chased. Its thick fur keeps it warm and protects it from brush and thorns where it hides. It also hides by sitting still.

Name the adaptations of the rabbit pictured below by writing the correct word in the spaces provided.

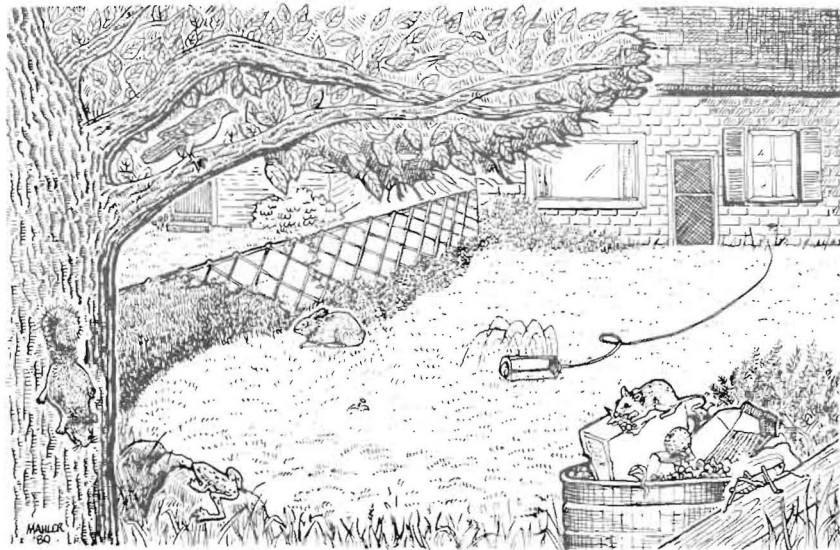
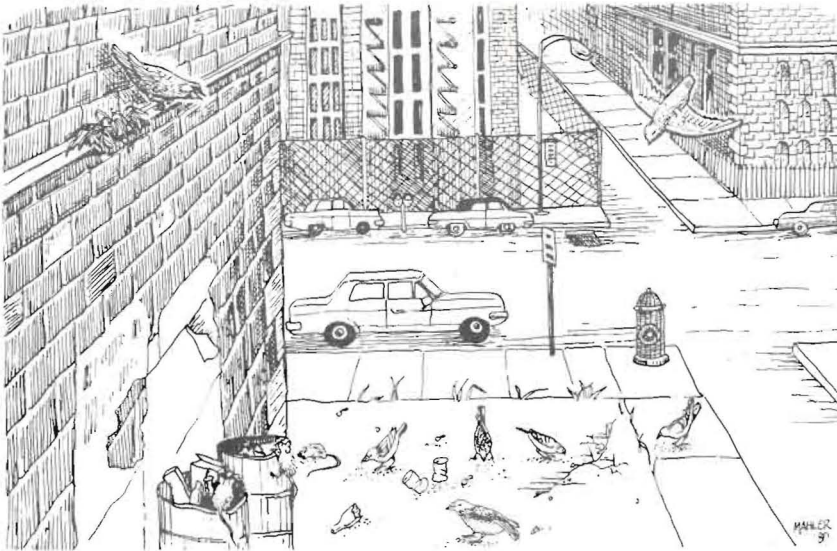
The drawings on the next page show different animals and different habitats. Try to match the animal with the habitat in which it lives.



This rabbit is _____ still. By doing this, it is _____ from other animals that would try to eat it. At the same time, the rabbit can _____, _____, and _____ for the other animals, other rabbits, and for food and cover. If other animals try to catch it, it can _____ and _____ very fast!

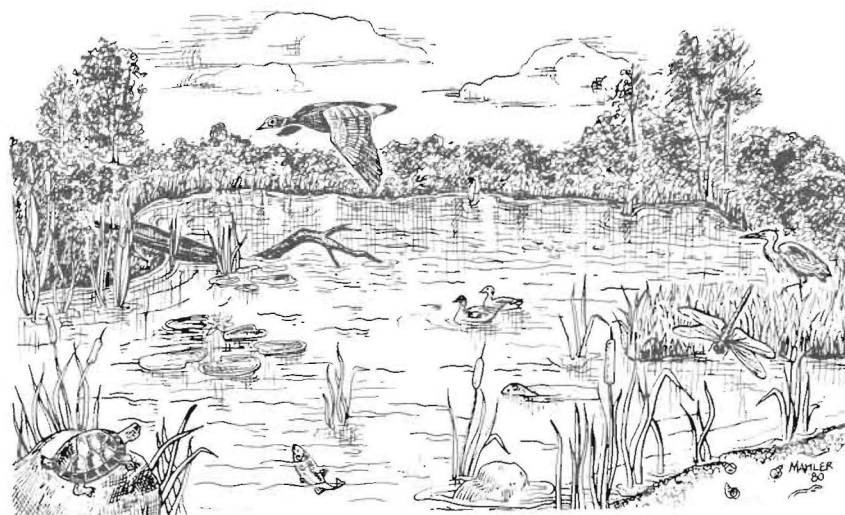
HABITAT

WILDLIFE



pigeon
redheaded woodpecker
mallard duck
cottontail rabbit
fox squirrel
woodchuck
muskrat
brown bat
painted turtle
garter snake
chimney swift
meadow lark
bobwhite quail
nighthawk
starling
house sparrow
wood thrush
robin
turkey
raccoon
white-tailed deer
bobcat
house rat
ruffed grouse
meadow mouse
ring-necked pheasant

HABITAT



BECOME AN EXPERT

Some excellent information about wildlife was discovered by people who observed animals in their neighborhoods—sometimes by looking through a window. You can have fun learning about wildlife by watching a wild animal carefully for as long and as often as you can. As you observe it, try to discover the answer to the questions below. If you cannot discover all the answers by watching the animal, you can find them in books.

For practice, reread the story of the secret foxes and try to find the answer to the questions in the story.

What is the animal's name? _____

What type of animal is it? _____

What covers its body? _____

Where do you see it? _____

What are its colors? _____

What kinds of signs does it leave? _____

What does it eat? _____

Where does it have its young? _____

When does it have its young? _____

How many young does it have? _____

What sounds does it make? _____

What is its habitat? _____

What other animals share its habitat? _____

If it migrates, when does it arrive; when does it leave? _____

What does its mate look like? _____

Does its mate stay with it all year? _____


How does the animal help people? _____

How does the animal cause harm? _____


THE ANNUAL CYCLE

Choose a wild animal that lives near you and write its name in the blank below. Then observe what it does each month. Record where it spends most of its time (its habitat), what it eats, when it migrates or hibernates, when it mates, when and where it nests, when the young are born or eggs are laid, how it grows, and when and what color changes it undergoes (if any).


— DECEMBER —




— JANUARY —



— NOVEMBER —



— FEBRUARY —



THE
ANNUAL
CYCLE
OF
THE


— OCTOBER —




— MARCH —



— SEPTEMBER —



— APRIL —



— AUGUST —




— MAY —



— JULY —



— JUNE —



SECTION IV

WILDLIFE, HABITAT, AND PEOPLE

By now you know that wildlife lives only where it can find the food, cover, and water that it needs and that the more food, cover and water there is, the more wildlife there will be that uses it. You also know that the kind of food, cover, and water an animal needs is called its habitat.

Now you are ready to discover many things that most people in Michigan do not know. To help you discover these things, this booklet contains a wildlife game. To begin, cut out all of the numbered pictures on pages 13, 15, 17, and 19. Then cut out four pieces of paper the same size as the pictures. Write "0-bare soil" on each one and add them to the rest. You now have a set of pictures. These pictures can be used to play games that show how people, habitat, and wildlife affect one another.

A. Urban Sprawl Game:

1. Line up pictures 1 through 5 in a row in numerical order using 2 of each kind—two 1's, two 2's, two 3's, two 4's, two 5's.
2. Pretend that seconds are years.
3. Count to 10 years slowly, and place a number 1 picture on top of the first number 2 picture. Then place a number 2 picture on the first number 3 picture.
4. Count to 10 years slowly again. Place a number 1 picture on a number 2 picture, and place a number 2 on a number 4 or 5 picture.
5. Count to 10 years slowly again, and place a number 3 on a number 4 or 5 picture.

What you have just seen happen in thirty years is the process called urban sprawl. What you now have before you is the result of urban sprawl.

a. What happened to city wildlife? _____

_____ Why? _____

b. What happened to suburban wildlife? _____

_____ Why? _____

c. What happened to wildlife in the meadow, the young forest, and the old forest? _____

_____ Why? _____

d. Is this what is happening to Michigan? _____

e. Why? 1) _____

2) _____

f. Are there any ways this process can be prevented?

1) _____

2) _____

This game represents what is actually happening in Michigan. Try playing the game again; but this time, try to use some of your solutions to solve the problems. Hopefully, one of your solutions was better planning.

B. The Natural Change Game:

The natural change where one group of plants and animals replaces another group is called **succession**. Lay down a picture numbered 0. Cover it with a number 3 picture. Cover the number 3 picture with a number 4 picture. Cover the number 4 picture with a number 5 picture.

The process you have just seen is called succession. In Michigan, one plant community follows another until the ground is covered with trees. Weeds are the first plants to grow in bare soil. Grass soon grows up between the weeds and forms a meadow. After several years, shrubs and young trees grow up through the grass and form a young forest. After many years, the young forest becomes an old forest. This process occurs everywhere in Michigan where people do not interfere.

1. What happens to succession if people make the meadow into a farm, or lawn, or golf course? _____

2. Why? _____

3. Can a forest be converted to a meadow? _____

How? _____

C. The Succession Game:

This is a game which you will play by nature's rules.

1. Arrange picture numbers 0, 3, 4, and 5 in a row in that order.
2. Pretend seconds are years. Count slowly to 10 years and place a number 3 picture on the number 0 picture.
3. Continue counting and when you reach 20 years, place a number 4 picture on the second number 3 picture.
4. Continue counting and when you reach 40 years, place a number 5 picture on the second number 4 picture and a number 4 picture on the number 3 picture.
5. Continue counting to 80 years, and place a number 5 picture on the second number 4 picture.
6. Continue counting to 100 years and place a number 5 picture on the number 4 picture.

a. As succession continues, what happens to wildlife in the meadow and young forest? _____

b. Some people think all wildlife can be protected simply by preventing people from changing habitat. Is this true? _____

1) What happens to meadow and young forest wildlife if people do nothing to those habitats? _____

2) Therefore, if people want to conserve meadow wildlife, what must be done to a meadow to stop succession? _____

Why? _____

D. Lay four number 5 pictures in a row. This is an old forest.

1. Are there any deer? _____
2. When old forests are cut for timber or pulpwood, young forests take their place. Place one or two number 4 pictures on the number 5 pictures. This is what happens to an old forest when it is cut for timber. Are there any deer now? _____

Why? _____

E. Now lay out one row of four number 5 cards. Lay out another row of four number 3 cards. Before you are an old forest and a meadow.

1. What must you do to the meadow in order to have some young forest wildlife? _____

How long will it take? _____

2. What must you do to the meadow in order to have some old forest wildlife? _____

How long will it take? _____

3. What must you do to the old forest to have some young forest wildlife? _____

How long will it take? _____

How long will the young forest last? _____

F. Place a number 3 picture and a number 4 picture side by side touching one another. The place where the two pictures come together represents another kind of wildlife habitat, called an **edge**. The edge that you see is a young forest-meadow edge. Edges are where two different kinds of habitat come together. Most kinds of wildlife live along edges.

1. Using your pictures, create other kinds of edges. What are they? _____

2. A cottontail rabbit is an edge animal. Why? _____

Hint: What does it eat in spring and summer? Where does it nest? Where does it hide? What does it eat in winter?

3. A robin is an edge animal. Why? _____

Hint: Where does it nest? Where does it find food?

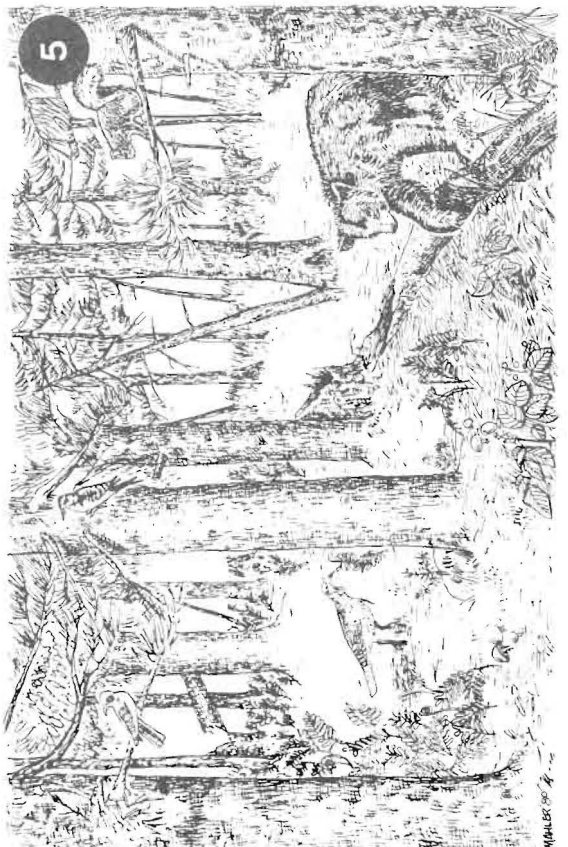
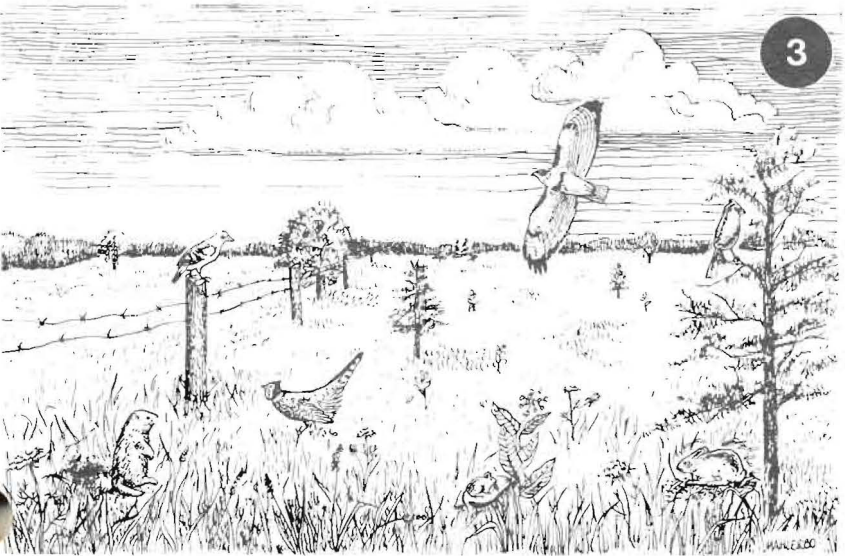
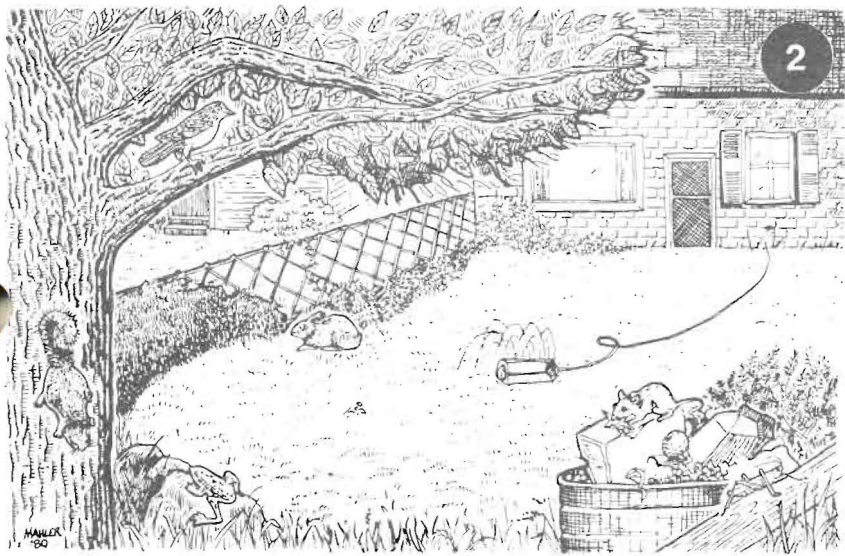
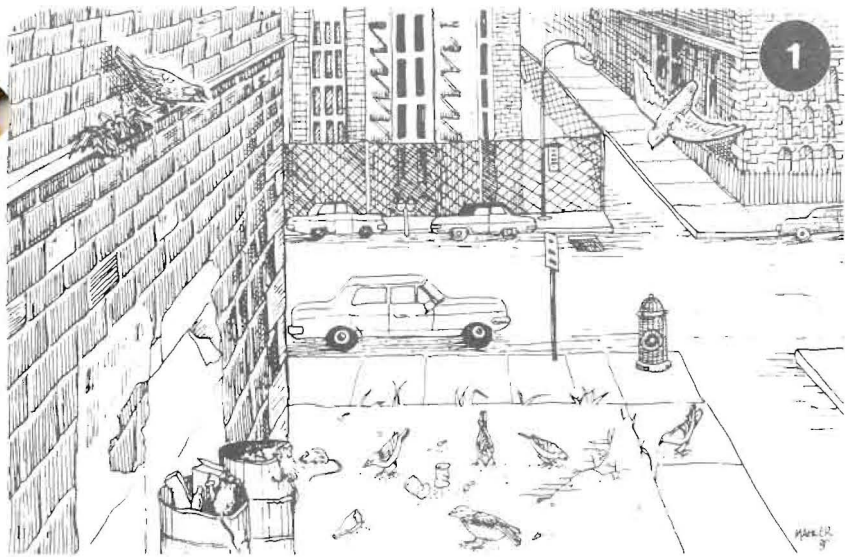
4. Are there any edges where you live? _____

What are they? _____

5. Can you name some edge animals that live near you? _____

6. What do people do that creates edges for wildlife? _____

What do people do that destroys edges for wildlife? _____



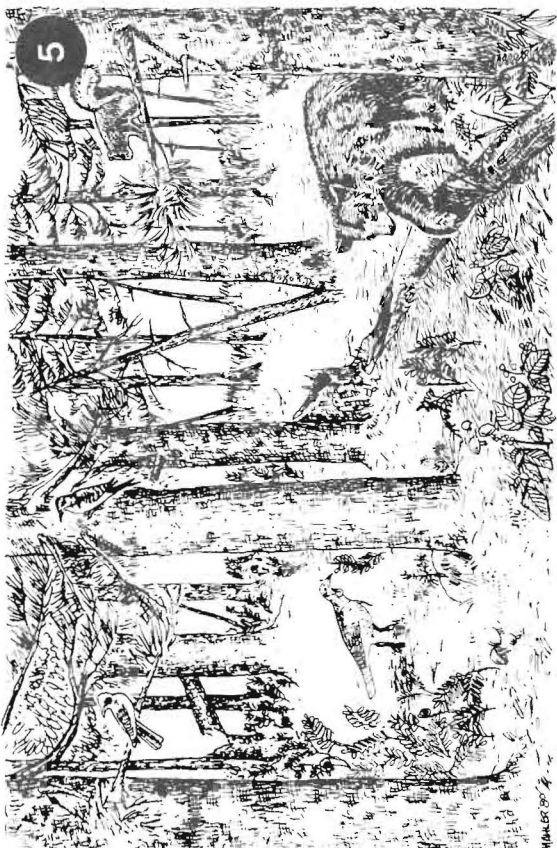
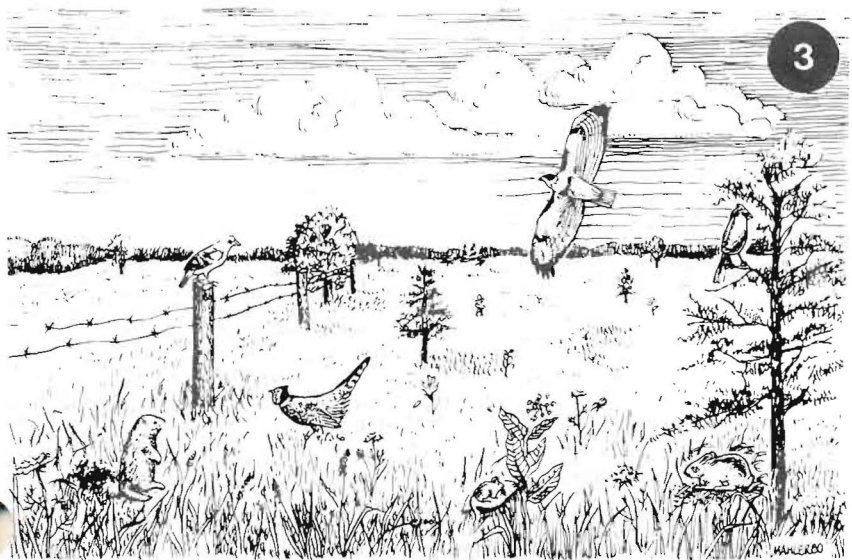
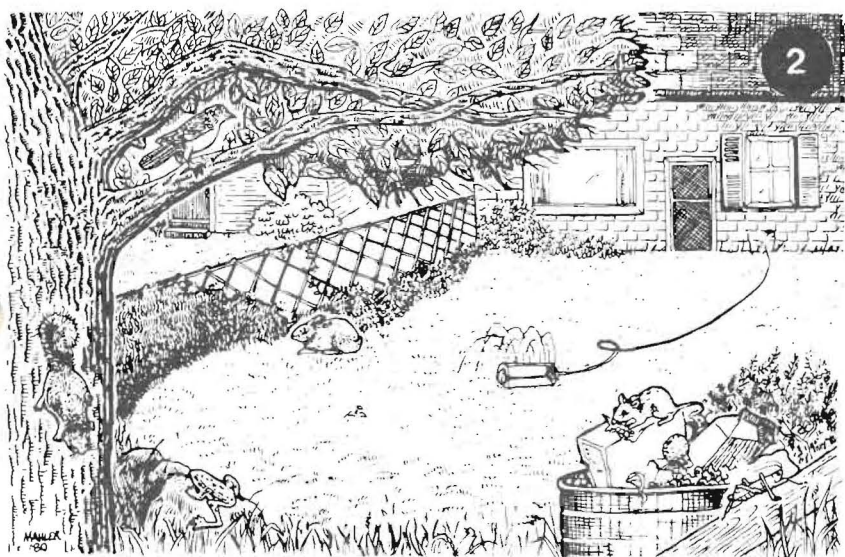
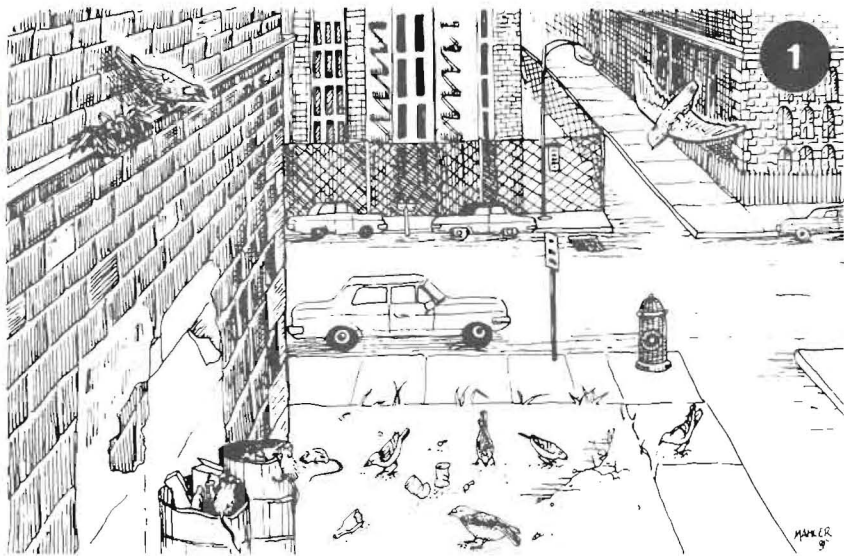
YOUNG FOREST WILDLIFE HABITAT

OLD FOREST WILDLIFE HABITAT

URBAN WILDLIFE HABITAT

SUBURBAN WILDLIFE HABITAT

MEADOW WILDLIFE HABITAT



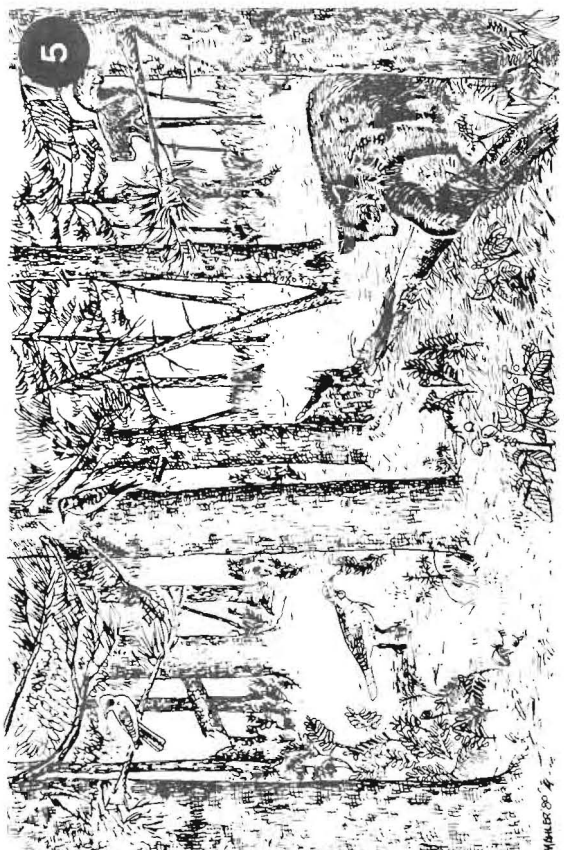
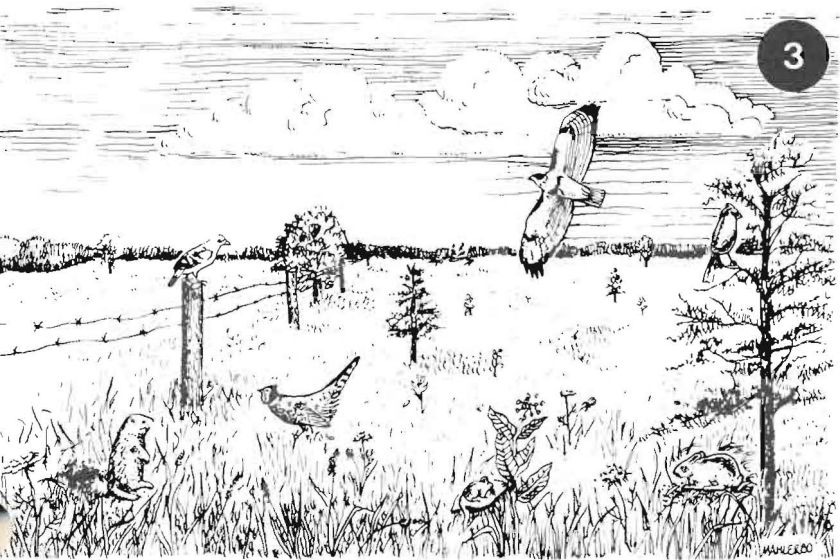
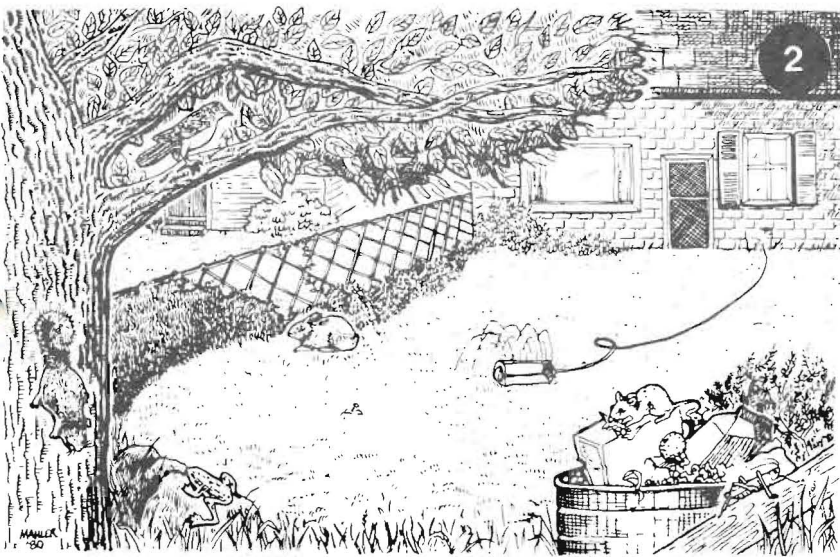
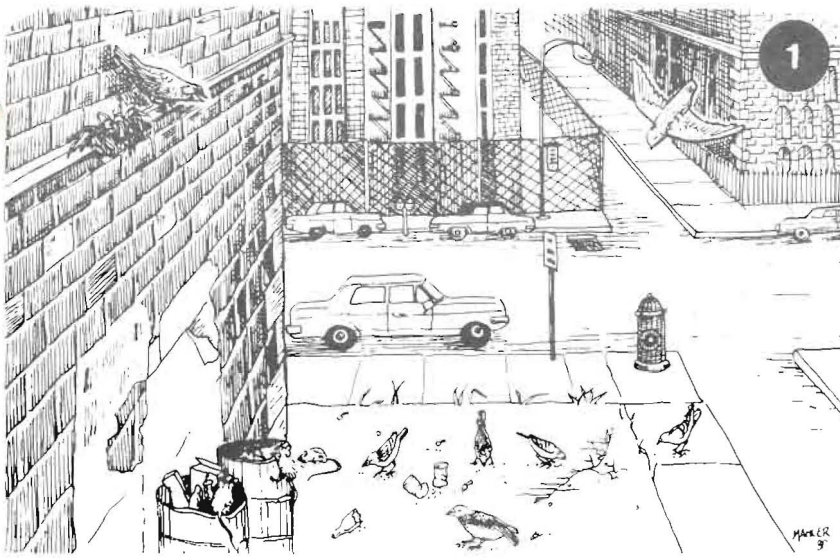
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OLD FOREST WILDLIFE HABITAT

MEADOW WILDLIFE HABITAT



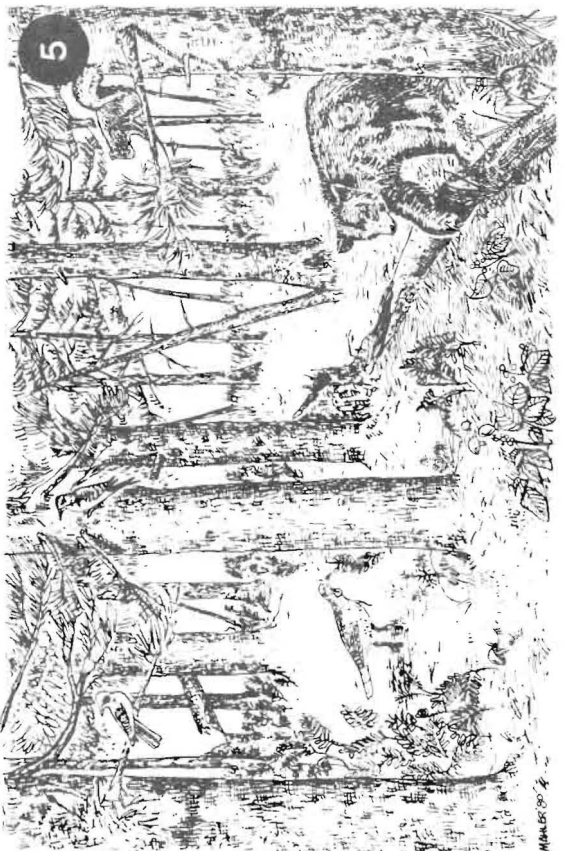
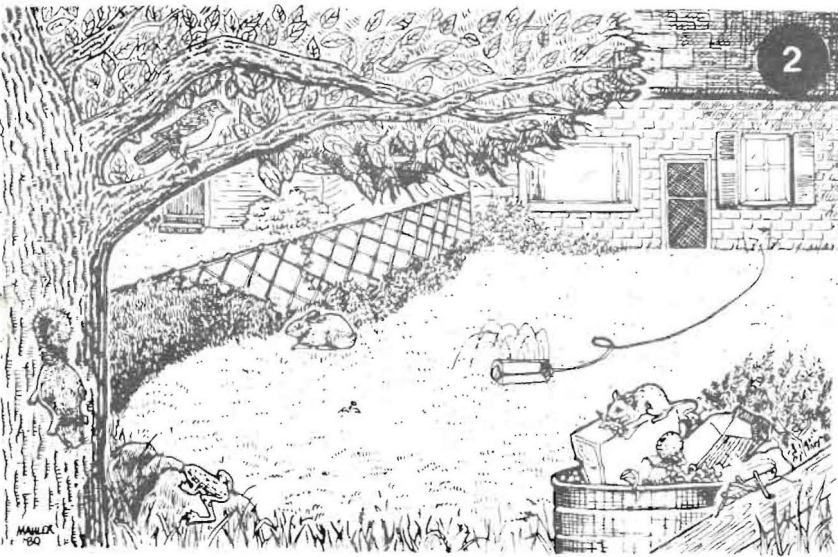
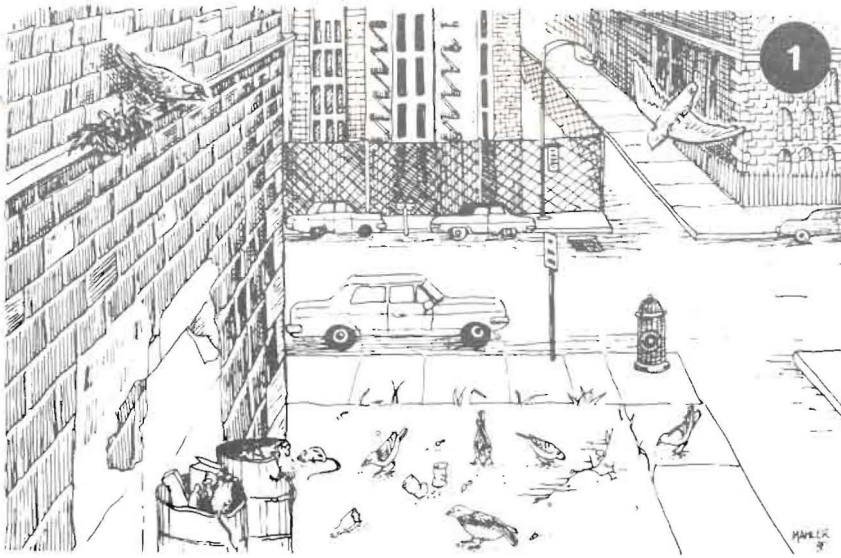
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MEADOW WILDLIFE HABITAT

SECTION V

OTHER THINGS YOU CAN DO

A WILDLIFE HABITAT DISPLAY

Obtain some pictures of wildlife or wildlife sketches. Pictures may be obtained from posters, magazines, newspapers, etc. To obtain sketches ask your leader, your county 4-H agent, or the Extension Wildlife Specialist, Michigan State University, East Lansing, MI 48824, for wildlife sketches to color. Color the sketches and cut them out, or cut out the pictures you found. Then cut out the sketches on pages 8 and 9 and using your cutouts, poster board, and ribbon or string, show where you are most likely to find each animal. As an example, tape, paste, or tack a squirrel and the sketch of the big woods on poster board and connect the squirrel with the woods by a piece of ribbon. If you wish, you may make this display as an exhibit.

A WILDLIFE FEEDER

Build a wildlife feeder or bird house and put it up in your yard and take care of it. If you wish, plant food- and cover-producing plants in your yard for wildlife. If you do not have a yard, try to develop a group project and improve the wildlife habitat in a school yard, church yard, park, or perhaps a vacant lot. Obtain information on how to do this from the Extension publication E-759, *Feeding and Attracting Wildlife*, available from your leader or county 4-H agent. If you wish, you may make a display showing what you did. It could include pictures, a plan of the area, model houses, feeders, etc.

PLASTER CASTS OF TRACKS

Make plaster casts of the wildlife tracks you find. Your leader has a set of directions on how to do it. Make a display showing your casts.

A WILDLIFE FOOD COLLECTION

Make a collection of wildlife foods. Things like fruit, insects, worms, etc., can be dried to preserve them. Feathers, fur, or bones can represent the prey eaten by predators. Make a display of these foods.

WILDLIFE PHOTOGRAPHY

If you have a camera, take pictures of the animal you chose to study. Although you will probably not be able to get close-up pictures of the animal, any picture that shows the animal, however small the image, is good. Take pictures of the animal in its habitat, pictures of its sign, pictures of where it nests, pictures of what it eats, and pictures of yourself studying the animal. Display your pictures.

COMPARING YOUR WORK WITH OTHERS

Compare your work with the work of another young person's. Find another young person in your community who studied an animal different from yours. How did the animals differ in type, shape, size, color, covering, food, cover, and habitat? Ask your leader to help you write to another young person who lives in a different kind of community from yours. Exchange and compare lists of wildlife observed. How were they the same? How were they different? Why? (Hint: Location and habitat)

AN EXPERIMENT

1. Collect small jars with lids. Put moist leaves and soil in jar 1. Put dry sand in jar 2. Fill jar 3 with hot water and allow it to cool. Do not shake it up. (The water now has very little air dissolved in it.)
2. Catch three earthworms. Dig them up, find them under rocks and boards, or find them crawling through the grass on a warm, damp, spring night.
3. Put an earthworm in each jar and put the lids on tightly. Observe each worm for 5 minutes. Then observe the worms as often as you can for the next hour. What happened? Why? (Hint: What is the earthworm's habitat? What did jar 2 lack? What did jar 3 lack?)
4. What happens to an animal that cannot find the habitat it needs?

HUNTER SAFETY TRAINING

If you are at least 12 years old and think you would like to hunt, take a hunter safety course. If you pass the course, you will be awarded a certificate that will permit you to buy a hunting license and hunt with an adult.

A WILDLIFE SIGN COLLECTION

Make a collection of wildlife signs. The collection can include bones, feathers, hair, skin, antlers, food remains, dried droppings, casts of tracks, old nests collected in the fall, browsed stems, and pictures of other signs. If you wish, make a display of wildlife and wildlife signs in your neighborhood. An example of a good title would be "Tracks and Trails."

WILDLIFE MANAGEMENT

Find a place in your neighborhood, yard, or farm where all of the plants (weeds, grass, shrubs, and trees) can be allowed to grow to create wildlife habitat. If the land is not yours, ask the owner to cooperate with you. Write to the Extension Wildlife Specialist, Michigan State University, East Lansing, MI 48824, and ask for a Wildlife Habitat sign. Follow the directions for mounting the sign and erect it in front of the area you are helping to conserve. The sign will help people understand the habitat and its importance.

A VISIT TO A WILDLIFE HABITAT

Ask your leader or your parents to take you on a visit to a national wildlife refuge or a state wildlife management area. Ask the refuge manager or DNR (Department of Natural Resources) wildlife biologist to go with your group to help you see the wildlife and explain how the area is managed for wildlife.

A BRAIN TEASER

Here's a brain teaser. What kind of fox is described in the story of the "Secret Foxes?" The following is a list of the kinds of foxes in North America: Red fox, gray fox, kit fox, arctic fox. If you answer the question correctly, you will have learned about foxes and about making the best decision with limited information.

A VISIT TO A POND


In the spring (usually April, May, or June, depending on where you live), ponds and small puddles contain hundreds of frogs, toads, and salamanders. The roadside puddle or the puddle in the park or vacant lot may be just the place. Visit the pond or puddle with a friend or an adult several times during the day and night. Try to see these amphibians. Look for the globs of jelly-like stuff that contains their eggs. Listen for them to sing. At night, take a flashlight, stand still until a frog near you starts to sing, and then turn on the flashlight, shine it on the frog, and watch the frog's throat swell like a balloon when it sings. Look for their young, the tadpoles. Try to catch a tadpole, a salamander, a frog, or a toad. Try to pick up some eggs. Return everything to the water. Here's how to identify some amphibians you may find.

- A. Toads have bumps on their skin called warts. Toad eggs are in long strings. Toad tadpoles are small and black. The toad song is a fast trill—"d-d-d-d-d-d-d-d-d-d-d-d."
- B. Most frogs have smooth, slippery skin. Spring peepers are little frogs with an X on their shoulders. Leopard frogs are green with black spots. There are many other kinds of frogs. Frog tadpoles are usually larger than toad tadpoles and are brown. Frog eggs are in oval clumps. The song of spring peepers is "peep-peep-peep-peep." The song of a leopard frog is a deep, rattling "knee-deep, knee-deep, knee-deep."
- C. Most salamanders have smooth slippery skin, short legs, and long tails. Salamander tadpoles have external gills (feathery branch-like structures just behind the head).

If you visit a large pond, also look for turtles and other wildlife.


A TRACK RECORDER

Make a track recorder. On soil, dig, pull up, and rake all the plants in a circle 3 feet across. Then rake the soil until it is soft and fine. If you wish, cover it with sand. On a hard surface, make a circle 3 feet across with sand or fine dust. In the center of the circle, put different kinds of food that will attract different kinds of wildlife—bread crumbs, bird seed, whole-kernel corn, bits of dry meat, dog



or cat food, or pieces of fruit. Check the circle each day for tracks. Try to identify the tracks. Take pictures of them. Remember to smooth the circle when it becomes messed up and to replace the food when it becomes stale or spoiled. Be patient, especially at first. If the food begins to attract rats or house mice, stop. For best results, place the circle near some kind of wildlife habitat.

FINDING BATS




On a warm summer evening while it is still light enough to see but is starting to get dark, go outside and look up for flying bats. Bats can usually be seen in city streets near old buildings, around street lights, in parks or playgrounds, over meadows near trees, near barns, or over ponds and rivers. Watch the bats fly, dive, and swoop to catch flying insects. How can they catch insects in the dark? To find out, pick up a **small** stone and throw it up in the air as the bat flies by. It will try to catch the stone. This is because it catches its prey by sound. It makes high-pitched sounds that we cannot hear but the bat can. The sounds reflect off the insect or the stone, and the bat locates it by the reflected sound. At first, the bat cannot tell the sound reflected off the stone from the sound reflected off an insect. If it catches the stone, it will drop it immediately.

How many times do you think the bat will mistake the stone for a flying insect?

A WILDLIFE KIT

Ask your leader about purchasing a packet of wildlife educational materials for you or your club. The packet contains color posters, black and white posters you can color and put in a notebook, decals, and "iron-on" T-shirt transfers. The kit is available from American Wildlife Education Foundation, Route #2, Box 514, Redlands, CA 92373. You or your club may wish to use these materials for displays, bulletin boards, notebooks, and a T-shirt making activity.

HIDING AND STALKING BY THE EDGE OF A STREAM



Starting at sunset, sit quietly for two hours by the edge of a stream that flows through your community. Take a friend and a flashlight. You must sit quietly and move very little. Sit 6 to 10 feet back

from the edge of the water and watch and listen. You will be amazed at what walks between you and the stream bank. You may see raccoons, muskrats, mink, or many other animals. When it gets dark, if an animal walks by you, turn on your flashlight and shine it on the animal. Often, after a few moments, the animal will ignore the flashlight. If this happens, keep the animal in the beam of the flashlight and walk as quietly as possible, stopping when it stops. You may be able to follow the animal for a long way down the edge of the stream, observing what it does.

A MOUSE SEARCH

Visit an unmowed field in the fall. If you look carefully at the ground, you should find meadow mouse runways and burrows along the surface ground and through the grass. By carefully parting the vegetation, you can see where the mice have gnawed on the vegetation, eaten it, and trampled it. If you search a little bit further, you should be able to find the round mouse nest made of cut grass and other vegetation. If you look into the nest you may even find some baby meadow mice.

WINTER COURTSHIP

In January many familiar mammals begin courtship. On a morning or evening when the wind is still and it is not snowing, or especially if the day is clear, try to see animals like the squirrel or the rabbit chasing, leaping over, and wrestling with one another. Sometimes when these animals are busy courting, if you are very careful, you can get quite close to observe. After you have watched the animals, look at the tracks they have left in the snow. Then you will be able to recognize what such patterns mean when you see them in the future.

CATCH A MOLE

When a mole burrows beneath the surface of a lawn or field, it raises the soil an inch or two to create a long, winding ridge. Some tunnels are made in search of insect larvae and earthworms and are rarely used again. Other tunnels are used repeatedly. To find one of the tunnels that is used repeatedly, find an area where a mole has been digging and gently mash down short sections of as many different burrows as you can find. Mark each

of these sections so you can find them later. Each day check the sections you have mashed down. Any section that has been pushed back up within two days is part of a tunnel that is used repeatedly. You will find that each time you mash a section of that tunnel down, it will be pushed up within a day or two. By repeating this process, follow the tunnel over its entire length. If you wish to catch the mole, mash down a longer section of the tunnel that is repeatedly used and watch it just before sunrise each day. Eventually you will see the mole raise the surface of the ground as it burrows. To catch the mole, you will need two shovels and a trowel. Stick the first shovel in the ground behind the mole to block its escape and the other shovel in front of the mole to keep it from going ahead. Then quickly dig up the mole with the trowel. Remember, moles are fast burrowers. Once the mole is on the surface of the ground you may wish to scoop it up with a shovel and place it in a box or jar where you can see what it looks like. Do not pick the mole up with your hands. It will bite as will any animal. If the mole is causing problems where you caught it, you may wish to release it where it will cause no damage, such as in a wooded area.

DECOYING PIGEONS

A common and familiar bird that will come to decoys is a pigeon. Draw a life-size outline of a pigeon on a piece of cardboard. Do not worry about how good your drawing looks. Cut it out and attach a piece of wood or metal to it to serve as legs. An old pencil split lengthwise can be easily attached to the cardboard and will serve as a leg and as a support that can be pushed into the ground to make the decoy stand up. Now paint your decoy dark gray on the body, light gray on the wings with dark gray bands, and bright orange eye spots. Once the paint

is dry, test your decoy. Stand it up on the ground where pigeons normally come to feed. Find a convenient place to observe what happens, but be far enough from the decoy so that you do not frighten the pigeons away. Did pigeons come to your decoy? Did they fly straight in or did they come in cautiously? How did they react when they discovered the decoy was only a silhouette? Make several copies of your decoy. Do many decoys work better than one? If you are interested, try making decoys bigger than life-sized pigeons or smaller than life-sized. Which works best? Try placing your decoys where pigeons do not normally come to feed. Compare how they worked in that location to locations where the pigeons normally come to feed.

WATCHING CHIMNEY SWIFTS

Chimney swifts are small gray birds with narrow wings that curve backward. Swifts twitter as they fly. During the spring and summer, watch the chimney swifts fly in formation over your community and catch insects in the air. Try to see them flutter down chimneys with twigs or insects in their bills to make nests or feed their young. In the fall of the year, many chimney swifts roost in the same chimney. Try to see a large number of these birds fly in a spiral and then suddenly all flutter down into a chimney.

MAKE THE BEST BETTER

Do you want to learn and enjoy more about wildlife? There are three special projects about birds, fish, and mammals. You may choose to try one, two, or all three. Ask your leader and fellow 4-H members to join you.

NOTES

**ENVIRONMENTAL
CONSERVATION
CREED**

I pledge myself, as a responsible human, to assume my share of man's stewardship of our natural resources.

I will use my share with gratitude, without greed or waste.

I will respect the rights of others and abide by the law.

I will support the sound management of the resources we use,
the restoration of the resources we have despoiled,
and the safekeeping of significant resources for posterity.

I will never forget that life and beauty, wealth and progress depend on how wisely man uses these gifts . . . the soil, the water, the air, the minerals, the plant life, and the wildlife. This is my pledge!



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