

Wildlife Foods

INTRODUCTION

Most plants and animals serve as food for some other living organism. Game birds and songbirds eat seeds, fruits, nuts, berries and insects. Herbivores — like the rabbit, woodchuck and deer — eat herbs, grasses, leaves, twigs and other plant material. Bobcats are carnivores, or meat-eaters. They feed on rabbits, woodchucks, mice, birds, and sometimes young or weak deer. Animals which feed on both plants and other animals are called omnivores. Foxes and bears eat berries, fruits, vegetables, insects, mice, birds, chipmunks and rabbits.

To provide food for wildlife or attract wildlife to an area, we must know what foods a particular species likes. The purpose of this activity is to make you aware of some of the wildlife foods, their seasonal availability and their uses in our area.

PLANT AND ANIMAL FOODS FOR WILDLIFE

Not only are many kinds of plants utilized by wildlife, but nearly all parts of the plants are eaten by one animal species or another. Fruits, seeds, leaves, twigs, bark, stems and roots furnish food to different kinds of animals.

Browsing and grazing mammals, some rodents, and a few gamebirds make the vegetative parts of plants a major part of their diet.

The fleshy fruits, rich in carbohydrates and vitamins, are especially important, relished foods. Fleshy fruits are mainly the products of woody plants and are generally available in summer and fall, but some fruits, like holly, grape, persimmon, gum and hackberry, persist into the winter.

Seeds and nuts are concentrated food parcels unusually rich in fats and proteins and are available over long periods. Grasses, weeds and particularly first succession plants produce a tremendous volume of food used by many birds and small mammals. Nuts are usually considered to be tree fruits with dry, hard exteriors. Dry fruits of woody plants are sometimes classed with nuts under the ambiguous name of “mast.”

All seeds and fruits of trees are good sources of nourishment for wild creatures but none are more important than the acorn. A season where there is a heavy crop of acorns is known as a “mast year,” and wildlife, especially forest-dwelling animals — such as deer, bear, wild turkey, squirrels and small rodents — and many woodland-type birds, live as if on a banquet table as long as the supply holds out. A bumper crop of acorns enables woodland wildlife to prepare for the winter season ahead. By storing up excess fat in their bodies, they are better able to live through the winter and be in good physical condition to rear their young in the spring.

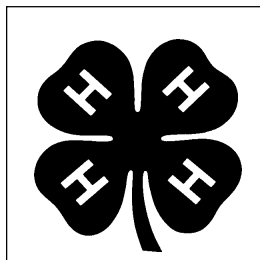
Very little is known about the interpretation of wildlife food preferences. A number of factors may enter into it. Certainly, both availability and nutrition value are important factors. For instance, seed-eating birds switch to insect feeding of their young when insects are plentiful during the early summer. Further, the nutritional needs of the animals may unconsciously make them select foods to meet their deficiencies. Still another factor, especially among browsing animals, is *palatability*, the taste of the food. It is not surprising that



Figure 2. Fruits and berries are a big part of many animals' diets.



Figure 1. Nuts are a vital food for many types of wildlife.



these animals prefer soft, succulent leaves to leathery ones and often pass by plants with bitter or milky juices. Meanwhile, some poisonous plants seem to be avoided instinctively.

Carnivores and omnivores rely on meat as a source of food. Predation (one animal killing another) is an important factor in the wildlife food chain. The physical abilities and external adaptations of some animals are highly developed to help in capturing and killing their food. For example, the otter is able to swim fast enough to catch fish. A kingfisher may keep watch from a branch, waiting to plunge headfirst into the water and seize a fish with its long, pointed bill. The osprey, though he doesn't usually become completely submerged, will extend his feet and talons into the water to catch fish. Night hawks have large mouths with stiff bristles at the corners forming a funnel to aid in catching insects as they fly at night.



Figure 3. Some birds have long talons to help them capture prey.

Soaring hawks have broad wings for ease in staying aloft while they search the ground below for mice and squirrels. Owls are relatively slow flyers with their silent moth-like flight. This is an adaptation that allows the owl to glide noiselessly through the forest and over the fields. It can capture roosting birds and nocturnal rodents before they are aware of its presence.

Bobcats and foxes have sharp-edged teeth adapted to shearing and cutting meat so that it can be swallowed. Bobcats' claws are so adapted for holding prey.

You now know of many foods used by wildlife. If you were not aware of it already, you are by now beginning to suspect that the use of foods in nature forms a kind of cycle. This is known as a "food chain."

THE FOOD CHAIN

Food chains are complex in any animal community. Several food chains make food "webs" and are interconnected in many different ways. You can probably recall many different food webs from your own experience. The grasshopper feeds on grass; birds and frogs eat the grasshopper; snakes eat birds, frogs and mice; hawks and owls will eat other



Figure 4. A "mast year" provides a bumper crop of acorns for squirrels and other woodland wildlife.

birds as well as snakes, frogs, and mice; when the hawk or owl dies, its body is fed upon and decomposed by worms, fungi and bacteria; worms, in turn, are eaten by birds; nutrients returned to the soil in the decay process are used in plant growth, and so it goes. If you were to try and connect green plants with a number of animals by lines representing their feeding habits, you would have a very tangled series of lines. Figure 6 shows a mobile of a simple food web. After a little thought, it will become obvious that every living thing is indeed dependent on other living things for a source of food or nutrients.

SEASONAL AVAILABILITY OF WILDLIFE FOODS

Wildlife use of a food depends, in part, on how much and when the food is available. Unfortunately, food supplies are not constantly available for wild creatures. Many birds and mammals live under seasonal threat of starvation. (This was also true of man centuries ago before he learned to use tools.)

Winter is usually the most difficult time of year for all forms of wildlife. There are fewer green plants, fruits and insects available at this time. Many seed-producing plants are not available in winter. Plants or seeds that persist through the cold months may be covered by snow or ice. Predators suffer a loss of food when the plant-eating animal population is lowered as a result of starvation. It is obviously not enough that wildlife have a good supply of food during *most*

of the year. If wildlife survives, it must have a sufficient supply of nourishing food all year long.

THINGS TO DO

1. Let a small portion of your yard grow up into weeds. Make a list of the plants which are found there and the species of birds or other animals which visit the area.
2. Make a mobile (a kind of movable sculpture made from materials such as thin forms, rings, and rods and suspended in mid-air by thin wire or string) of wildlife creatures and their foods. Each "arm" of the mobile should have a drawing, picture or papier-mache form of an animal. To each animal form, attach dried samples of plant materials or pictures of animals which are used for food. Label each kind of plant material or animal used. You will probably use wire or string in making the mobile. Use your imagination in its design. Display it at a 4-H meeting, school or some other function. (You may want to use a mobile to demonstrate a food chain or web.)

3. Read at least one book or article that has to do with wildlife foods and report on it to your 4-H group.
4. Make bird Christmas trees. Gather large pine cones and mount them individually on a wooden base. Melt beef suet and pour it over each pine cone. Add dabs of peanut butter. Set them on window sills and observe the birds that feed there. Display one of these cones at a 4-H meeting or school along with pictures or names of the birds that use it.
5. Diagram a food web for plants and animals found in your area. Make an attractive poster of this and include pictures or drawings of the plants and animals.
6. Write a report for your 4-H group describing examples of food competition between several species of wildlife in your area.
7. Make a series of posters with drawings or pictures of local wildlife and their foods. Include birds, herbivores, carnivores and omnivores. Label each animal and its food.

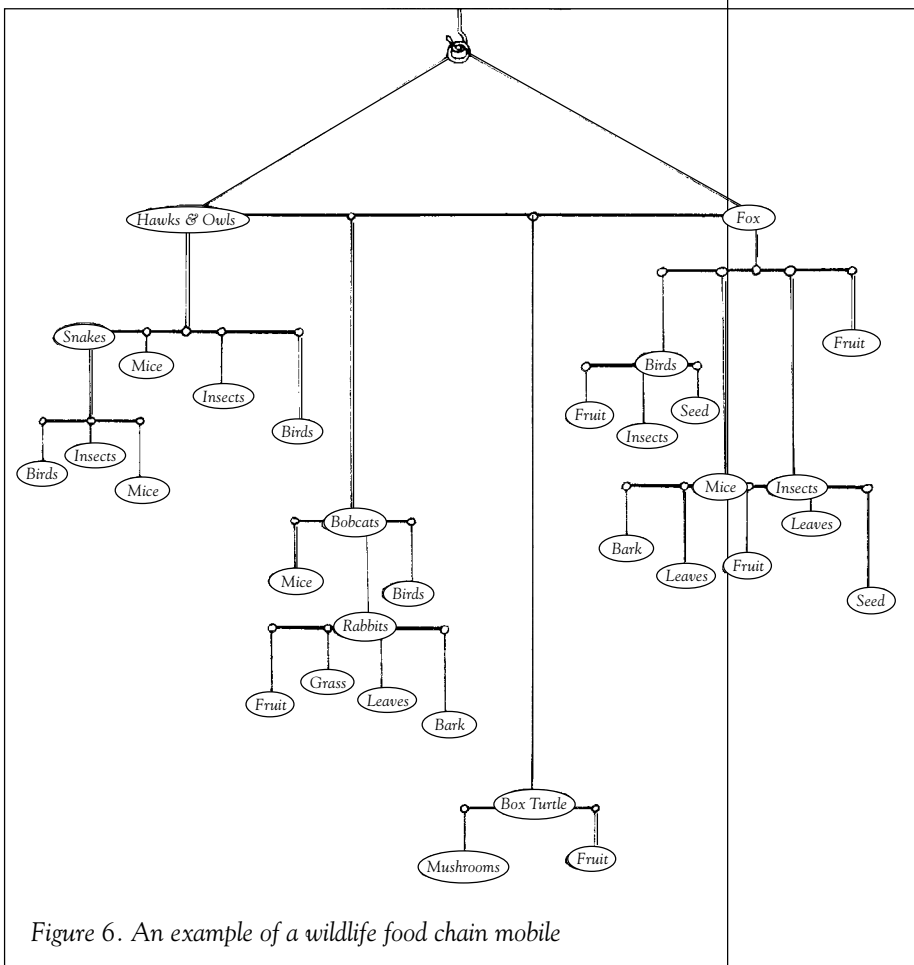


Figure 6. An example of a wildlife food chain mobile

8. Determine what forms of wildlife are in your area and plant seeds for appropriate wildlife crops close to brushy cover. When your "crop" is up, observe the kinds of birds and other animals which feed there. Exhibit samples of the seeds or dried plant materials along with the names or pictures of the wildlife that you observed. You will find books in your local library that will tell you what kind of foods are preferred by certain species of animals. (Some foods are listed in this booklet.)
9. Make a feeding station to provide extra winter food for wildlife that visits your yard. Observe the feeding at your station. Report to your 4-H

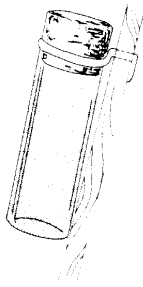
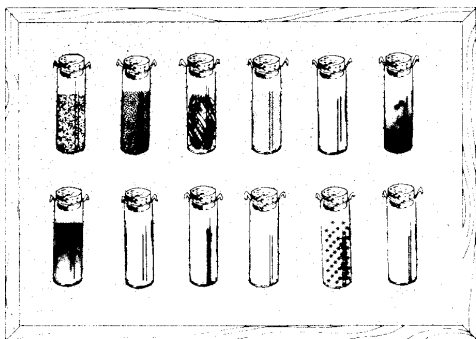
group on the kind of station, food and wildlife with which you worked.

10. Select three or more forms of wildlife that are found in your area. Write a thorough report on how each of these is adapted to capture, eat and digest its food. Make displays of drawings or pictures which will illustrate your report. Include at least one herbivore, one carnivore and one omnivore in your study.
11. Collect and identify seeds of three or more grasses and 10 or more weeds. Make a display of your collection, including the name of each seed and the species of animals that use it for food. You may want to include dried pieces of plant material and drawings or pictures of appropriate animals in your display. Follow these instructions.

You will need:

- 20 small plastic or waxed-paper sandwich bags
- Ball of string
- Plain paper scissors
- 20 vials with caps, about 2 inches high and $\frac{3}{4}$ -inch in diameter (pill vials are good)
- Small funnel
- Vial stand (drill a seven-eighths inch hole in a block of wood to hold vials, or attach to board as shown in drawings)
- Pencil

Figure 7. A collection of seeds, grasses and leaves



- Small can of moth crystals
- Magnifying glass
- Cellophane tape
- Pointed tweezers
- Two cigar boxes
- Rubber bands
- Newspaper or paper towels

Collect Seeds:

Take only ripe, dry seeds. In the field, identify those you know by recognizing the seeds themselves or the plants from which they came.

Put your seeds in small plastic bags. Put the seed-head in the bag, if you like, and shake the seeds off, or pick the seeds and drop them in the bag. Place only one kind of seed in each bag.

When you identify a seed in the field, make a label. Write (in pencil) on a piece of paper the name of the plant, date collected, location, elevation and habitat (such as a meadow, edge of woods, creekside). Put the label in the bag with the seed. Wrap a rubber band around the mouth of the bag.

If you find a seed plant that you cannot identify, collect and label the seeds in the same way, but give the seeds a code number rather than a name. For identification, also collect and preserve the plant. When you collect a plant, label it exactly as you labeled its seeds. Tie the label on the plant.

Identify Seeds:

Choose one of the bags that holds seeds you identified in the field. Pour the seeds onto a piece of paper. Remove all trash, leaves and other foreign materials. Look carefully at the seeds through a magnifying glass so that you can learn to recognize and identify them in the future. Check your identification against a reference book. Put a vial in the stand. Put the funnel in the vial mouth and pour in the seeds. Add two or three moth crystals to prevent insects from damaging the seeds. Make a label with all the information on the original label and put it in the vial. Replace the cap on the vial.

When you have prepared all the identified seeds, do the unidentified ones the same way. Keep your

Name of seed plant	Where found (habitat type)	Animals that eat the seeds

Figure 8. A sample record sheet for identifying wildlife foods and the animals that consume them.

reference books nearby. The only difference will be that the label you put in the vial will have a code number rather than a plant name. For identification, you should also collect and preserve the plant, giving it the same code number as its seeds.

Place the two groups of vials in separate cigar boxes, one marked “identified seeds” and the other, “unidentified seeds.”

After you have taken care of the seeds, identify the plants you collected. Use the reference books, or ask someone for help. When you identify a plant, take the seed vial with the same code number from the unidentified seeds, put an identifying label in the vial and store it with the identified seeds. You may discard the plants after they are identified.

Make a Record:

After you have identified the seeds, make your list of seeds and the animals that eat them. You may need to ask for help with this. The sample record sheet in Figure 8 shows the information you need to give for each kind of seed.

12. Collect and examine the crop contents of 10 doves or 10 quail. (The crop, or craw, is a food storage pouch located just in front of the bird’s

breast. It is under the base of the neck and forward of the wishbone. You may be able to obtain the crops from a hunter.) Identify and list the seeds you find in each crop. Make a reference collection for display to your 4-H group. Follow the instructions:

You will need:

- Crops
- 10 small plastic or waxed-paper sandwich bags
- Scissors
- Several vials with caps — about 2 inches high and 3/4-inch in diameter — (pill vials are good)
- Teaser (force the blunt end of a needle into the eraser end of a pencil or the end of a sucker stick)
- Plain paper
- Pointed tweezers
- Magnifying glass
- Small funnel
- Vial stand (drill a 7/8-inch hole in a block of wood to hold vial so it won’t tip over)
- Pencil
- Small can of moth crystals
- Rubber bands

Prepare the Crops:

Make a label to keep with each crop, showing the sample number you assign to each crop, the species

Figure 9.

Bird species	Crop number	Date killed	Crop contents and percentage of each type of seed

(dove or quail), and the date it was killed. Write in pencil.

You can prepare the crops at once or store them in plastic bags in the refrigerator. They may spoil if stored for more than a few days. To prepare a crop for examination, cut it open and transfer the contents to sheets of paper. Keep the label with the contents. Do not mix the contents of different crops. Dry the contents thoroughly, and then store them in a vial with the label.

Separate Seeds Into Kinds:

Place the dried contents of a crop on a sheet of paper. Using your tweezers, magnifying glass and teaser, separate the different kinds of seeds into groups. Put each group in a separate vial. Make labels exactly like the original and put one in each vial.

Follow the same procedure for all 10 crops. Put a rubber band around all vials containing seeds from one crop. Now the contents are ready for analysis. You can do this immediately or later.

Identify and List Seeds:

First, study the reference books so that you will recognize seeds you find. If you have made a seed reference collection you will want to check your seeds against that. If you cannot identify a seed, ask someone for help. If you still cannot identify a seed, record it by its code number.

When you have identified or coded all seeds, make a list of seeds found in each crop, giving the information specified in the sample in Figure 9. When your list is finished, you may add the seeds to your seed reference collection. Take all the vials containing the same kind of seeds, combine them in one vial and label it. Do the same with the other vials.

13. Write a paper concerning the seasonal changes in plants available to wildlife. Discuss the effects of seasonal changes on specific wildlife forms. Record how many kinds of plants are available (you may identify these if you wish). Note fruit and seed production and compare it from season to season. What changes take place? When is food best? When is shelter or

cover best? Does this correspond with wildlife reproduction times? What plants provide food and shelter year-round? What is the most critical time of year for wildlife in your area? You may want to design posters or charts which illustrate your paper. Present your report to your 4-H group.

14. Plant trees or shrubs which will provide natural cover and food for songbirds in your backyard. Sketch the area before and after your work. Research the best choices in plants using internet sources and helpful books in your local library.
15. Prepare some wildlife foods for your own consumption. Some examples are watercress salad, fruit and nut salads, rabbit stew, and marinated quail. There are several cookbooks which give recipes for game animals.
16. Make a study of foods consumed by predators. Cut open the stomachs of two or more predators and examine the contents. Try and identify any bones, hairs or other body parts that you find. Your predators might include certain fish, opossum, bobcat, foxes or snakes. These animals should not be taken for their stomach contents alone. If you have no other use for them, try to obtain the stomachs from a hunter or take advantage of road kills. If you can locate owls in your area, look for owl pellets. These are wads of bone, hair and other indigestible materials regurgitated by the owl after feeding. Make a report of your findings to your 4-H group. Display the dried food materials or pellets. Identify all food materials as closely as possible.

WORDS TO KNOW

Adaptation: The process by which an organism becomes better suited to its environment

Carnivore: An animal that feeds on other animals

Herbivore: An animal that feeds on plant material

Omnivore: An animal that regularly eats both plant and animal material

Predator: An animal that kills and eats other animals

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