



SHARING SPACE WITH WHAT?

Time: Two 1-hour sessions

OBJECTIVE: To explore the habitat needs of specific animals and to dispel frequent misconceptions about these animals.

To create an awareness of how animals might help humans.

MATERIALS: Background information on animals to be studied (example page 4)

Writing materials, possibly drawing materials

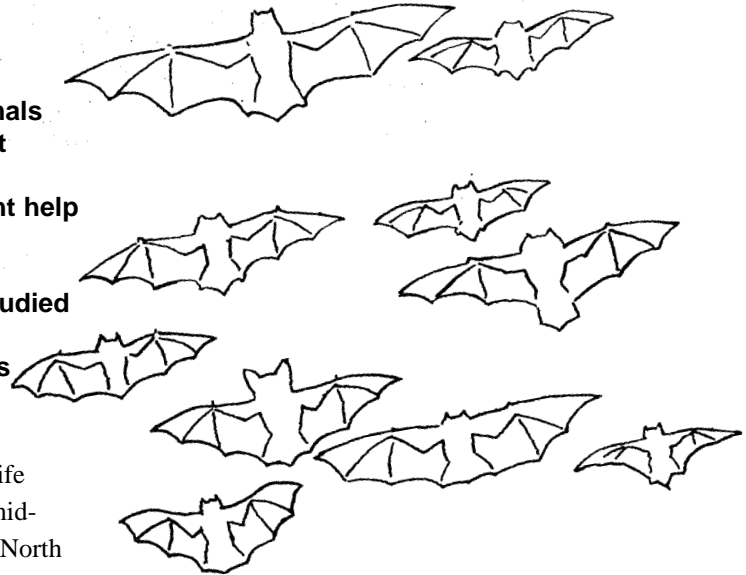
BACKGROUND:

North Carolina's geographical location creates numerous wildlife habitats thus allowing a species diversity that is unequalled in other mid-Atlantic states. Because of the convergence of two climatic zones in North Carolina, the lower reaches of Northern species and the uppermost reaches of many Southern species can be found here. Additionally, according to the U.S. Fish and Wildlife Service, North Carolina is the fifth leading state in numbers of endangered plant and animal species in the southeastern United States.

Not all wildlife species are liked or considered friendly nor are all species understood. Species such as snakes, owls, bats, and hawks are frequently viewed as dangerous or ugly. This impression can be the result of insufficient knowledge or folk/old wives' tales. Snakes, which are much maligned, help control the rodent population. Bats are good for North Carolina's environment because of the quantity of insects that they eat. Owls and hawks eat rodents and sometimes snakes, but when owls and hawks occasionally eat domesticated animals, they conflict with humans.

Even though conflicts with wildlife do arise, humans have a responsibility to identify and protect wildlife habitat. This responsibility begins with learning about wildlife and its relationship to the human environment. This education could begin with learning that snakes need shelter from the cold. Bats, too, need shelter in the winter when food sources are low. Owls and hawks are both hunters, but owls are night-hunters, while hawks hunt during the day.

Increased knowledge about wildlife and a greater awareness of habitat needs help not only animals but also humans, who benefit from wildlife existence.



BEFORE THE ACTIVITY:

- Review resource information about wildlife.
- Bring in a bat box, if possible. (See example on page 3.)
- Collect myths about misunderstood animals.

LEAD-IN:

Do you know that some people believe that bats are vampires, and other people believe all snakes are aggressive and dangerous? Do you agree with these people? You shouldn't.

We can begin by trying to answer some questions.

Snakes often sleep on sun-warmed rocks or hide under logs. How could this cause problems for people?

Hawks hunt by day; owls hunt by night. What problems could this cause?

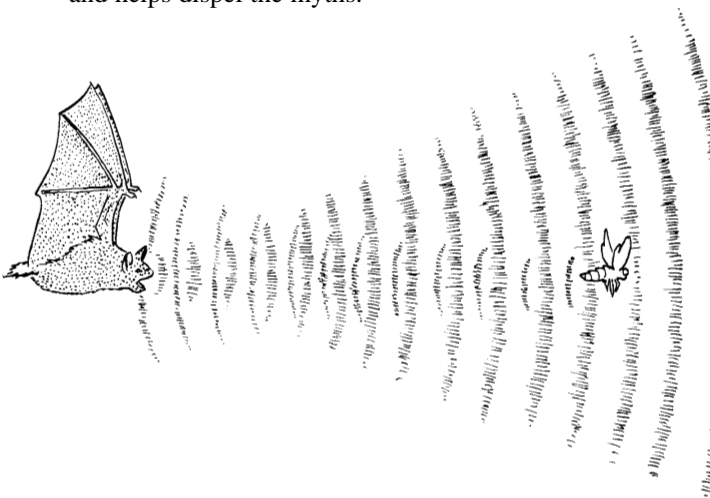
Bats fly at night and are attracted by certain sounds.

What types of habitats do you think these animals need for survival?

How can we help other people understand snakes, bats, owls, and hawks?

ACTIVITY:

1. Begin by exploring myths that surround animals.
2. Ask for examples of stories students have heard. Ask the students to identify the setting of the stories. Were the people in the animal's territory, or was the animal in the human's territory?
3. Ask what experiences students have had with "wild" animals.
4. Distribute resource material for background information. This material should show where animals live, what needs animals have, and how animals benefit the human environment.
5. Ask students to produce a public service announcement for television that shows the positive features of an animal and helps dispel the myths.



BRANCHING OUT:

1. Students can create tabloid-type headlines about animal myths and explain why the headline is not true.
2. After learning how animals help the environment and people, students may write short stories focused on what they have learned.
3. Invite a wildlife enforcement officer to speak about human and wildlife contact or wildlife rehabilitators to speak about their organization. Ask them to speak about misconceptions about certain animals.
4. Students can build a bat box.
5. Take a trip to a natural history museum and talk with a herpetologist or other animal specialist.

Resource Example: BAT FACTS

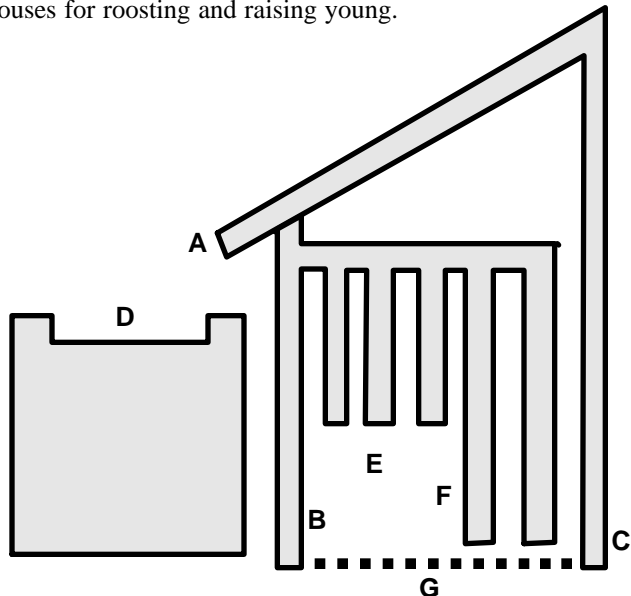
Order: Chiroptera

- Vision is poorly developed.
- Hearing is an echoing device to locate food sources.
- Ultrasonic sounds are emitted through the mouth or nose and returning echoes received by the ears allow the animals to determine location, size, distance, and speed of nearby objects.
- The bats of the Carolinas and Virginia are insect-eating. Their food supply is often unavailable during the winter. The bats hibernate or move to warmer climates. Hibernation is usually in caves.
- Bats affect humans in the Carolinas and Virginia by eating insects: one bat will eat thousands of insects in a day.
- Bats are the only mammals capable of sustained flight.

BAT HOUSES

Bats spend over half their lives in roosts and rely on sheltered, undisturbed natural sites such as caves, crevices in rocks, and tree cavities to meet their needs. During winter months, insulated roosts are important for hibernating bats; in late spring and early summer, roosts that can sustain daytime temperatures between 80 and 90 degrees Fahrenheit are important for raising young bats. Bats are opportunistic in their roost selection and will utilize man-made structures where natural roosts are unavailable.

Properly constructed artificial roosts may be installed in areas where natural roosts are scarce or absent. Solitary species such as the hoary bat will not use bat houses consistently as will colonial bats which include the little brown bat, big brown bat, red bat, and Eastern pipistrelle. Use the following diagram to build effective, maintenance-free bat houses for roosting and raising young.



Plans for constructing a bat house

Dimensions

- A Roof 16 1/2" X 11 1/4"
- B Front 18 1/4" X 9 1/4"
- C Back 27" X 9 1/4"
- D Ceiling 9 3/4" X 9 1/4"*
- E Partition 9 1/4" X 8"
- F Partition 9 1/4" X 14"
- G Sides 11 1/4" wide,
27" back,
18 3/4" front

Spacing between partitions (front to back):
3/4", 3/4", 3/4", 1", 1 1/2", 1 1/4"

* Insert cut 1 1/4" X 6 1/4"

Construction Tips:

***Use cedar, cypress, or pressure-treated pine lumber to ensure durable, longer-lasting boxes.**

***Use rough lumber, cut shallow grooves, or attach fine plastic or wire mesh to the inner surfaces of the box so bats can easily crawl up and into the house.**

***Avoid painting or varnishing the inside of the house.**

***Paint or cover the roof and the top four inches of the sides with tar paper or another dark material to ensure the high temperature ranges required by both young and adult bats.**

***Seal all seams with silicone caulk to waterproof houses and prevent heat and moisture losses.**

Installation Tips:

***Place bat boxes close to rivers, lakes, ponds, marshes, or other permanent water sources where insects are abundant.**

***Secure boxes to the sides of trees with a ten penny nail or with crimped wire that can be loosened as the tree grows. Boxes mounted on fast-growing conifers may have to be remounted every two to three years.**

***Tilt houses at a 10 degree angle to help young bats stay in the box.**

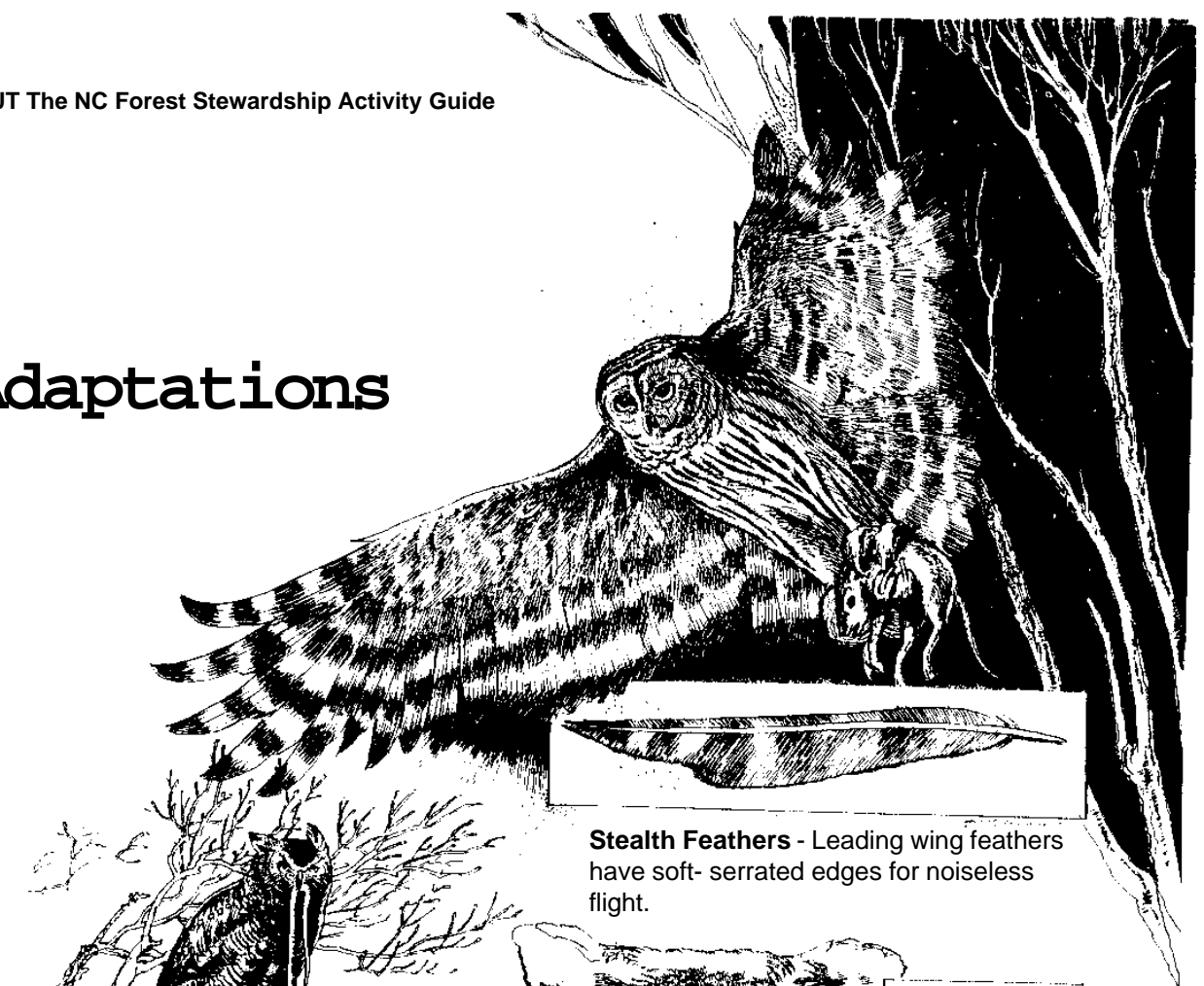
***Place bat houses ten to fifteen feet off the ground.**

***Locate boxes where they will absorb maximum sunlight. Where possible, place four boxes per tree, facing north, south, east, and west, to allow the bats to choose the box they need.**

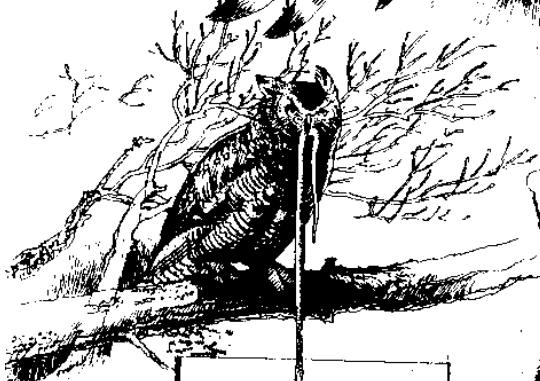
***Install bat houses by early April, but bats may not use the houses immediately. A Bat Conservation International (BCI) survey showed a 52% occupancy rate for all boxes. Bats may take up to two years to find and begin using artificial roosts.**

***Inspect bat houses annually and remove any vegetation that could interfere with entry to the roost or allow access to predators. Attach predator guards or roofing tin onto the mounting post or tree three feet off the ground to protect roosting bats from predators such as house cats, raccoons, and snakes.**

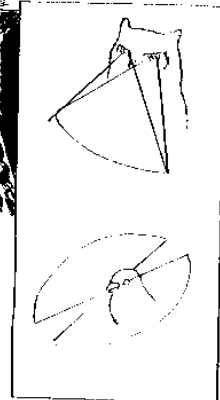
Owl Adaptations



Stealth Feathers - Leading wing feathers have soft- serrated edges for noiseless flight.



Regurgitation - Owls absorb nutritious foods through stomach walls but regurgitate "pellets" of indigestible hairs, feathers, bones, and claws.



EYES

Many rods - High concentrations of rods (light gathering cells).

Binocular vision - Fixed eyes view the same scene from slightly different angles improving depth perception.

Large head with wide ear spacing - Disk-like design receives sound at minute thresholds; large ear openings and asymmetric ear positions improve hearing.



Large retinas - Vision is 50-100 times better than humans in poor light.