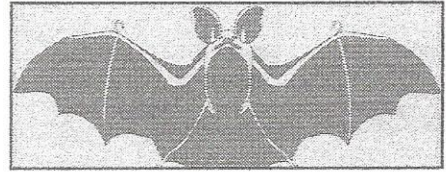


BATS

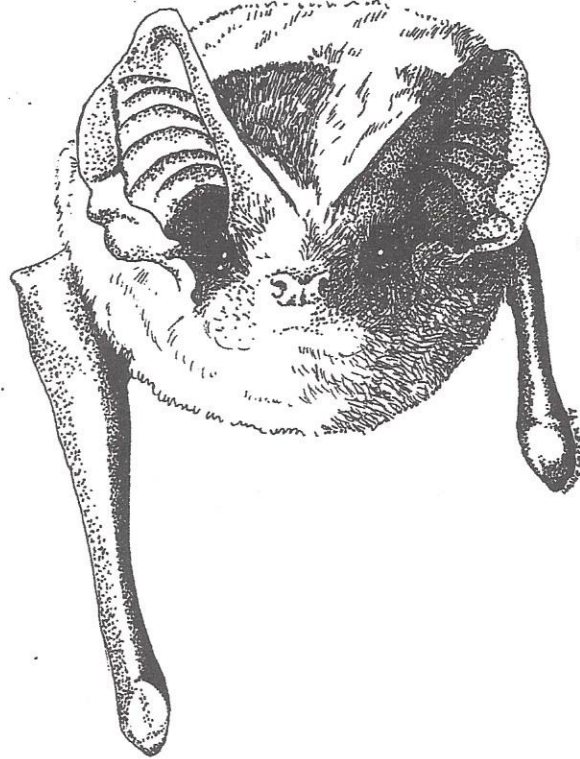


WHAT ARE BATS?

Bats are mammals; they have fur, give live birth, and feed milk to their young. They are the only mammals capable of true flight. Although the German word for bat, *fledermaus*, translates to "flying mouse", bats are not rodents. They are more closely related to primates than they are to mice. However, biologists have placed bats in their own order, Chiroptera. Chiroptera means hand-wing; bats' wings are supported by the bones in the bat's equivalent of human hands.

Chiroptera is a large order of over 900 species, accounting for one quarter of the world's mammals. One out of every four mammals is a bat!

Bats are truly marvels of evolution and adaptation, living on every continent except Antarctica, filling a wide variety of niches in many different ecosystems. They range in size from the world's smallest mammal - the hog-nosed bat is the size of a large bumble bee - to the flying foxes with their 6-foot wingspans.



ARE BATS BLIND?

Despite popular beliefs, bats are not blind. They can see, but they also use an advanced system of high frequency sounds to "see" with their ears. This natural form of sonar is called echolocation and is also used by whales, dolphins, and shrews. Not all bats rely on echolocation; fruit bats rely heavily on their sense of smell to sniff out ripening fruit.

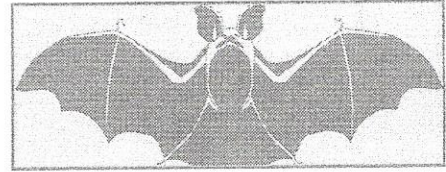
Another common myth is that bats are carriers of rabies and can transmit the disease while being immune to it themselves. But like all mammals, bats can contract the disease, though less than one percent of all bats do so and those that do die quickly and rarely become aggressive.

Although by nature bats are very docile creatures, it is still important to remember that they are wild animals. Bats will bite in self-defense. Children should be warned that while it is all right to observe wild animals, they should leave them alone. Any wild animal that can be caught is likely to be sick. The majority of sick bats are not rabid, but children should inform adults when they find what appears to be an ill bat on the ground. Adults can use leather work gloves or a towel to move a grounded bat to an area away from contact with people and pets.

WHAT DO BATS EAT?

Most bats eat insects and they are the primary predators of the night-flying insects such as moths, mosquitoes, and beetles. Due to their high metabolism, bats have huge appetites and can consume up to their full body weight in insects every night - this is equivalent to a 100 pound student eating 400-quarter-pound hamburgers! A colony of 10,000 bats, a modest colony size, can devour over 300 pounds of insects in one evening. Just one little brown bat (*Myotis lucifugus*) can catch 600 or more mosquitoes in one hour! Most insectivorous bats catch their food in flight, often using their wings like a catcher's mitt to capture their prey. If these animals were driven to extinction, there would be nothing to fill their niche in the ecosystem.

BATS



DO ALL BATS EAT INSECTS?

Not all bats eat insects. Fruit bats, found in tropical and subtropical areas, often roost in trees and can be seen during the day. They are nature's most important seed dispersing animal in the tropics and the southwest United States. Few fruit bats use echolocation, but instead rely on their sense of smell and eyesight.

In the tropics and subtropics, countless species of trees and shrubs are pollinated by nectar and pollen eating bats. Three species found in the southwestern United States are responsible for pollinating such plants as the Organ Pipe and Saguaro cacti. Plants pollinated in the wild by fruit, pollen, and nectar-eating bats give us such products as avocados, bananas, cashews, dates, figs, and peaches.

Other bat species have different dietary needs. There are bats that eat rodents, birds, lizards, frogs, and there are even bats that eat other bats. There are fishing bats that use their sonar to detect ripples caused by fish on the surface of a pond. And of course, one cannot forget the vampire bat, the only mammal that can live entirely on blood. There are 3 species of vampire bats all of which are found only in Latin America. The amount of blood these bats consume can be measured in tablespoons rather than pints. They do not suck blood, but lap it up after making a small cut with their incisor teeth. Small mammals and birds are their natural prey, but with the introduction of ranching in Latin America, cattle have become an easy and plentiful source of food.

BAT AND MOTH



OBJECTIVE:

Students will be able to define echolocation and demonstrate how bats are able to locate insects and other objects in the dark.

METHOD:

- 1) Have the group form a large circle. Blindfold one student. This student becomes "the bat". Select 2 to 5 other students to become "the moths."
- 2) Place these students in the center of the circle. Instruct the bat to shout its name "BAT" and each moth to respond by saying their name "MOTH". Each time the bat shouts "BAT", the sound is reflected off the moth and it must respond with its name "MOTH".
- 3) The blindfolded bat chases and tags the moths. When a moth is tagged, it becomes part of the circle. When the last moth is tagged, it becomes the new bat and the game starts again.

Stress that bats are not blind. Blindfolding the students is away of simulating the bat's ability to fly in the dark where eyesight is useless.