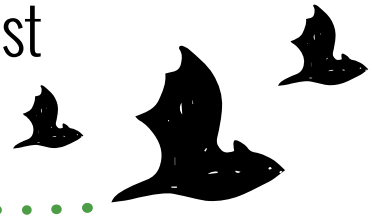
Natural History of Forest & Cave Dwelling Bats



There are more than 1364 species of bats in the world. Most bats live in tropical areas, but bats are found almost everywhere, except Antarctica and a few spots in high altitudes. Any spot that a bat stays for an extended period of time is called their roost site. In these roosts, bats rest, socialize, hibernate, and raise pups. More than half of all species of bats use plants as their roosts. Others roost in caves, crevices of rocks, mines, or manmade structures. Some bats roost opportunistically in habitats constructed by other animals. They might use old bird nests or insect nests, or even roost in tree cavities that were carved out by fungus or fire.

Many bats will pick different roost sites for the day and the night. Night roosts are used in between periods of hunting as a safe place to save energy, rest for digestion, hide from predators, socialize with other bats, and to retreat from bad weather. Usually night roosts will be somewhere near good hunting locations, whereas the day roosts—the spots a bat will go to in order to sleep at the end of the night—might be further away. With all roosts, bats try to choose locations that are close to sources of food and water.

Tree dwelling bats:

Trees serve as roost sites for bats in both temperate and tropical areas. Dead trees especially provide ideal cavities for roosting. Their peeling bark provides temporary shelter for many species when escaping inclement weather or predators. Bats also choose cavity roosts that will provide them with an appropriate climate in terms of temperature and humidity. Males and females will also often have different requirements when choosing a roost, and sometimes bats will use different roosts depending on the season. Finally, roosts with multiple emergency escape routes are very popular.

Some species have adapted foot and thumb pads that act as a suction cup, allowing these species to take temporary refuge in large curled leaves by sticking themselves to the underside of the leaf's smooth surface. And in the tropics, there are about 20 species of bats that roost in tents of their own construction! These bats will chew rows of holes alongside the vein of broad leaves. The two sides of the leaf will then droop downwards, providing a tent that the bats will use as a temporary shelter.

In temperate regions of western North America and Australia, most bats roost in trees. However, in areas with few native trees remaining, like western Europe and eastern North America, many cavity-roosting bats roost in manmade structures instead. Buildings, bridges, tombs, and bat houses can all serve as roosts for bats in the absence of more natural cavities.

Some bats have evolved different physical characteristics that help them hide from predators while they are roosting. Many bats have a fur color that provides camouflage against predation. Some bats even rest in a unique posture to blend in with their surroundings, resembling dead leaves or other natural parts of their environment.

Unfortunately, many bat habitats have been threatened by human activities. Understanding roost needs is imperative when analyzing the impact of human disturbance on bat survival. Conservationists can then use this information to determine how best to help different populations.

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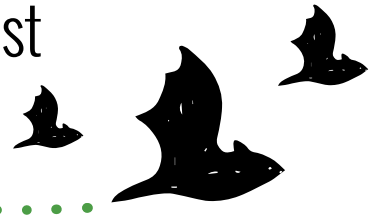

Cave dwelling bats:

Caves are also popular roosting sites for many species of bats. Although many animals avoid caves due to the lack of light, echolocation allows bats to navigate these dark environments. Different caves can be attractive as roosts to different kinds of bats based on qualities such as altitude, size, shape, humidity, and airflow. In addition to serving as roosts, caves are also often used as hibernation spots (also referred to as hibernacula) for some species of bats. While hibernating, bats lower their internal body temperature significantly to conserve energy. Different spots in a cave can provide a variety of different temperatures, so bats can move around from warmer to cooler spots as needed to find agreeable temperatures throughout the cold months. The various crevices, cavities, rocks, and crude walls also provide plenty of hiding spots from predators. Many cave-dwelling bats will have small, flat skulls that allow them to squeeze into the tight spaces that caves provide.

Caves are also useful to bats for energy-related reasons. Bats have fast metabolisms and high rates of both water and heat loss. Not only does flight take a lot of energy, but bats also have exposed wing membranes and small bodies. This combination causes bats to lose up to a third of their body weight each night in water evaporation. Occupying caves with high humidity can slow this constant dehydration, as the bats will not lose as much water from their bodies if there is already a lot of water in the air. Selecting an appropriate cave can be challenging for the bats. Even the most ideal roosting cave might be too far away from their hunting grounds to be practical—it takes a lot of energy to fly between sites!

Conservation:

Unfortunately, bats around the world are facing many different issues. Deforestation, urban sprawl, commercial development, and large agricultural expansion are consistently causing habitat loss throughout the world for a variety of wildlife. In some parts of the world, bats in particular are also hunted for their meat or for traditional medicine. Fruit bats are often seen as pests in fruit orchards around the world, due to the misunderstanding that they eat harvestable fruit. In reality, bats usually consume only very ripe fruit from trees, whereas farmers harvest unripe fruit so it will not become overripe before it gets into the market. The use of pesticides and other chemicals can also cause health issues if they get into a bat's system. Pesticides can block the ability of bats to echolocate, making finding food and a roost nearly impossible. Finally, in recent years an invasive disease called White Nose Syndrome has been taking huge tolls on the populations of North American bats. White Nose Syndrome has already killed millions of bats throughout the northern and eastern United States and it is known to be the worst wildlife disease we have ever recorded. Researchers and government departments throughout the country are working on finding ways to combat the effects of the disease.

Bats are also suffering from misinformation and a general lack of knowledge. In many parts of the world, including some parts the media, bats are consistently given a negative portrayal. Many people don't understand the huge environmental and economic benefits that bats provide. Education therefore also plays a huge role in bat conservation, as people are far more likely to want to help bats if they understand them.