



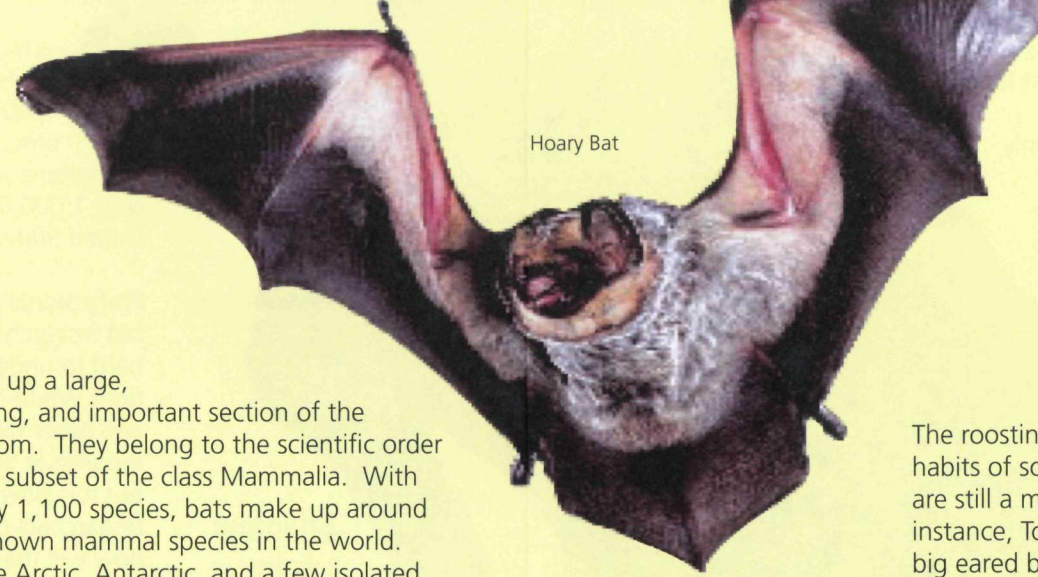
Bats of Jewel Cave



Bats make up a large, fascinating, and important section of the animal kingdom. They belong to the scientific order Chiroptera, a subset of the class Mammalia. With approximately 1,100 species, bats make up around 20% of all known mammal species in the world. Except for the Arctic, Antarctic, and a few isolated islands, bats are found most everywhere. Within Jewel Cave National Monument, nine different species thrive in the forest, meadows, caves, and rocky terrain.

Bats Found Within the Monument

- Little Brown Bat
Myotis lucifugus
- Townsend's Big Eared Bat
Corynorhinus townsendii
- Big Brown Bat
Eptesicus fuscus
- Hoary Bat
Lasiurus cinereus
- Silver Haired Bat
Lasionycteris noctivagans
- Long-Legged Bat
Myotis volans
- Western Small-Footed Bat
Myotis ciliolabrum
- Northern Myotis
Myotis septentrionalis
- Black Hills Fringe-Tailed Bat
Myotis thysanodes pahasapensis



Hoary Bat

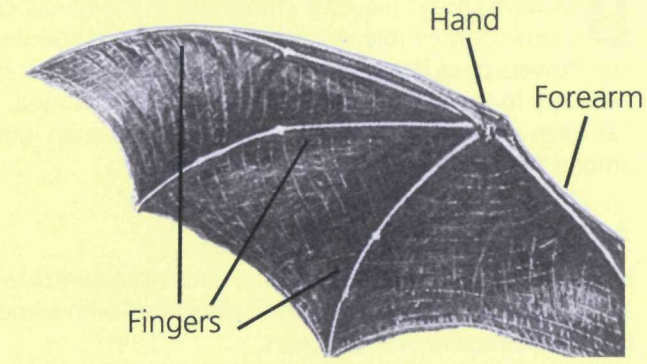
Where They Live

Bats at the Monument have the choice between two different roosts: the ponderosa pine forest or cave passages. Hoary bats and silver-haired bats, for example, are forest dwellers. They live inside hollow snags and under loose bark during the summer months, migrating south for the winter. Other species stay year round, using Jewel Cave's historic entrance as a winter hibernaculum. These hibernating bats ignore most of the extensive passages inside Jewel Cave. Instead, they roost within the first few hundred feet of the cave's entrance. For this reason, Jewel Cave National Monument only offers Historic Lantern Tours during the summer months.

The roosting sites and habits of some bat species are still a mystery. For instance, Townsend's big eared bats use Jewel Cave as a winter roost; however, no summer roosts have been found nearby. Summer roosts mainly serve as nursery colonies. Their discovery may be a key factor in saving this species of concern.



Northern Myotis



Chiroptera: The Hand - Wing

Bats are more similar to humans than they are to birds or other winged creatures. Both species are mammals that give live birth and are covered with hair. Our similarities with bats also include our bone structures.

The scientific order to which all bats belong, Chiroptera, is a Latin word meaning hand-wing. Like humans, bats have arms, hands, and fingers.

Feeding Time

All bat species in the Black Hills are insectivorous. They feed on moths, flies, beetles, mosquitoes, and other small flying insects. Some species show a preference for one insect over another, but many species are not choosy. Most bats grab meals based on ease rather than taste.

Bats usually hunt prey and search for water at night, when their advantage over

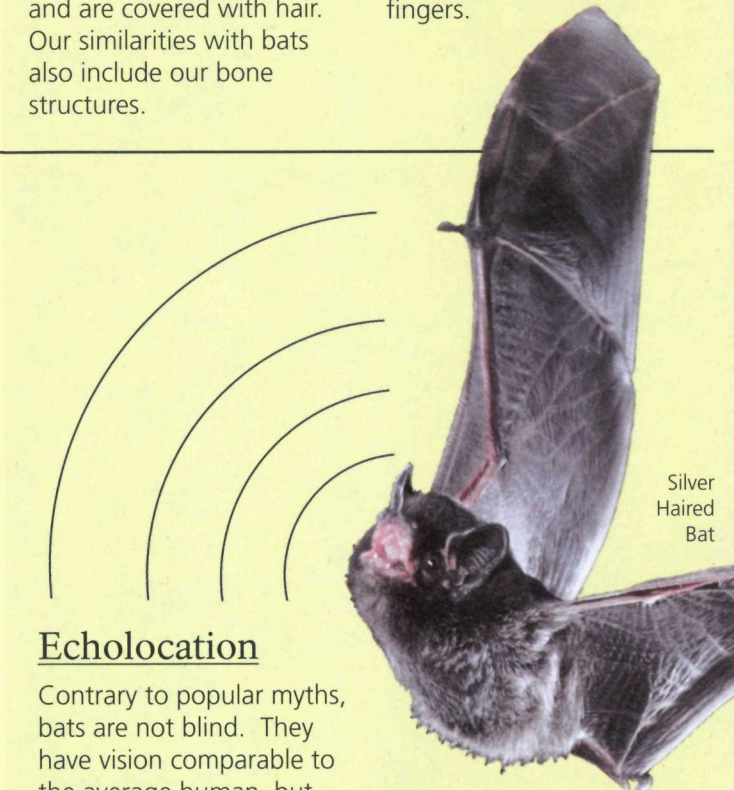
predators and prey is greatest. This advantage comes from the way bats use sound to navigate. They are world class hunters who chase down their prey in mid-air, catching, and consuming them while flying. Perhaps most interesting is not what these bats eat, but how much they eat. The little brown bat can consume up to 1,200 insects in one hour.

Though they are amazing predators, bats receive little respect. Because of bats, some insect populations remain well balanced. Yet, bats are not often considered as pest controllers even with the huge number of insects consumed every night. With more educational information, perhaps bats will be known as insect controllers and fewer pesticides will be necessary.

Echolocation

Contrary to popular myths, bats are not blind. They have vision comparable to the average human, but they spend large portions of their lives in dark environments. In these environments, bats use echolocation - the process of navigating by sound. It involves producing ultra-high frequency sounds that travel outward, bounce off objects, and return to the bat. These returning sounds are then interpreted by the bat as spatial information.

The accuracy and efficiency with which bats use echolocation is impressive. Bats complete the process of sending, receiving, and interpreting these sounds 200 or more times every second. This allows bats to move with speed and quickness. The effectiveness of echolocation among bats is so great that they can easily detect objects as thin as human hair.



Silver Haired Bat



National Park Service
U.S. Department of the Interior

Jewel Cave National Monument
11149 US Hwy 16
Custer, SD 57730
South Dakota

605-673-8300 phone

Cover Photo: Townsend's Big Eared Bat

White-Nose Photo by Gerrit Vyn

Townsend's Big Eared Bat, Hoary Bat, Northern Myotis, Silver-Haired Bat, Western Small-Footed Myotis, and Big Brown Bat Photos by Merlin D. Tuttle, Bat Conservation International, www.batcon.org



Western Small-Footed Myotis

Bats have always played a crucial role in the global community. Some species are useful for their role in insect control. Other species are vital as pollinators of fruits and flowers or as dispersers of seeds. Although the roles of bats and their necessity to the global environment have not changed, their environment certainly has been altered. Habitat loss, disease, and human ignorance are most noted among the woes of the modern day bat.

Addressing the Myths Q & A

Many myths exist regarding bats. From wicked witches to Count Dracula, bats have been associated with some horrific characters over the years.

Q. Do bats suck blood?

Vampire bats do exist. They make up approximately one-quarter of one percent of all bat species; however, none are found in North America. They may sound frightening, but humans owe vampire bats for their medical assistance. An anticoagulant in the bat's saliva is the base for an effective treatment for blood clots.

Q. Do bats carry rabies?

Bats, like all mammals, can contract rabies, but they tend to do so rarely. Their agile flying and reclusive roosting behavior keep them largely out of contact with other disease carrying animals. Their hygienic personal habits also serve to keep bats healthy. Even if you come across a rabies infected bat, the likelihood of transmission is very low. Unless cornered or provoked, bats usually avoid humans.

Habitat Loss

The problem of habitat loss among bat species is easy to understand but difficult to solve. As the human population grows, more land is needed to sustain it. Every day, humans build new homes, expand farmlands, and alter more natural areas. As a result, bat habitats are shrinking. Caves and forests are important roosting sites. In fact, some bat species require unique locations for roosting, such as large snags or specific cave rooms.

Even some of humanity's most well intentioned concepts are consuming habitats and contributing to bat mortality. Wind turbines, when not carefully engineered, pose a serious threat to bats in flight. Some of the pesticides that fight crop insects also harm bats. In response to their changing environments, some bats are adapting; others are migrating. The rest are dying.

Big Brown Bat



Disease

Bats are susceptible to diseases, just like humans. Most notable is the mysterious White-Nose Syndrome. Little is known about the condition, where it came from, or how to stop it. Bat researchers first observed the disease in

a New York cave in February of 2006. Since that time, it has spread to multiple states and killed over 1,000,000 bats in the United States.

Professional and volunteer bat researchers are working hard to understand and fight White-Nose Syndrome and other diseases. Progress is being made, but it is slow. Even if the researchers discover a cure, how will they apply it to bat management? At present, only one thing is certain; the solutions will come from the diligent work of motivated individuals, and from the understanding and support of everyone.

Ask a Park Ranger for the most recent information on White-Nose Syndrome.



Little Brown Myotis Killed by White-Nose Syndrome

The Solutions

The first step toward preservation is awareness. Only by learning the facts about bats can appreciation develop for these skilled predators. Only by understanding the dangers faced by bats can people work to negate them.

The second step is education, spreading the word and dispelling the harmful myths about bats. Informed persons must share their knowledge so that all humans may come to understand and appreciate bats.

The final step is action. There are many things that the average person can do for bats. When it comes time to care for your garden, you can do so without using chemicals. To create more habitat for bats, you can build a bat house. They are small, inexpensive structures that provide additional roosting space for bats.

You probably already have bats in your backyard.

Why not invite bats to stay? They may even return the favor by pollinating your plants or controlling your local insect population. Or, they may provide you with extra entertainment after dark.

Bat house plans are available at the Jewel Cave Visitor Center and bookstore.

