

NATURE DETECTIVES



Fall 2018

Bats Are Super Flyers and the Only Flying Mammal

Little Brown Bat stretched her wings then fluttered into the air as more bats began to stir around her in their roost. She woke up thirsty as usual. She and other little brown bats headed for the pond. Most evenings she flew the same route, dodging branches through a stand of trees. At the pond she zigged and zagged over the water, dipping down to take little sips.

Pinpointing Things as Thin as a Human Hair

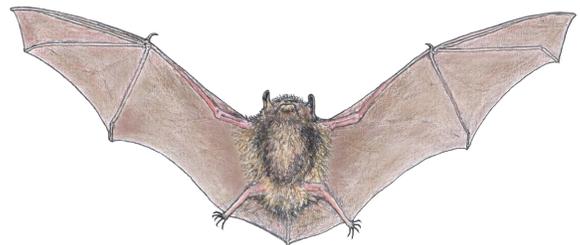
Little Brown Bat yelled as loudly as a smoke alarm as she flew. Her high-pitched, echolocation sounds, which human ears can never hear, bounced off of a flying mosquito. With a skill honed by lots of practice, she smacked the insect with her wing tip and bounced it back toward her tail. Her tail and back legs are connected by a skin membrane. Little Brown Bat curved her tail and back legs toward her belly to form a catcher's mitt for the incoming mosquito. Then she tipped her feet and tail toward her mouth and gobbled down her meal. She tumbled in the air for an instant as she dined.

She would repeat her *hit, catch and eat* routine until her stomach was full. Each bug capture and swallow was as quick as you can blink your eyes. In fifteen minutes she'd eaten 140 mosquitoes, quite a nice bellyful.

Fly, Eat, Rest, Repeat – The Nightly Little Brown Bat Routine

Ready for a break, she headed to her usual nearby roosting spot underneath some loose bark on an old cottonwood tree. A few other little brown bats were flying to that same tree. With a back flip that would make a gymnast happy, she landed upside down with her toes gripping the edge of the bark.

Lots of energy had gone into bug catching. Little Brown Bat cleaned her fur, rested and waited for digestion to empty her stomach. Then off she flew, zigzagging back on her usual path until she'd eaten enough to last her until the next evening's hunt. On some nights she would eat as many as 1,200 mosquitoes or similar tiny insects!



Big Brown Bat Flies Straight

At sunset **Big Brown Bat** left his roost earlier than the little brown bats, but he didn't head for water. Most nights he and several of his kind visited the same pond as the smaller bats, but the big brown bats quenched their thirst toward the end of their food foraging.

His keen ears picked up the sound of a moth and his echolocation shouts pinpointed it precisely. Moth wings fluttered to the ground as he chewed his snack. He caught many more moths as he continued his hunting. The moths were flying to a nearby farm to lay their eggs. Big Brown Bat's feasting meant fewer larvae would be eating plants on the farm.

Big Brown Bat flew on a straight course, and he flew higher in the air than the little brown bats. He hunted in open spaces surrounded by houses. He mostly ate beetles but also moths and other night-flying insects.



Little Brown Bats, Big Brown Bats, A Dozen Kinds of Bats, Oh My!

Bats have been adapting to different environments all over the world for at least 55 million years. About a dozen species of bats summer in Boulder County or live here year-round. Many bats live in the foothills, but some bats live at lower elevations or as high up as tree line. Bats need safe roosts for sleeping. Different species roost under bridges, or in holes in trees, or crevices in rocks or in hiding places on buildings. Some species roost in groups and some roost alone.

At dusk when most birds go to bed, bats begin to fly. Watch for bats while a little light remains in the sky. All Colorado bats eat insects. Little brown bats are common in Boulder County and so are big brown bats. Both species are known to fly near towns, and both spend all year in our area.

No Bugs to Eat Means Can't Wait to Hibernate



Hibernation sites need to have the right combinations of temperature, humidity, and safety so bats can sleep without freezing or drying out or being disturbed. Big brown bats hibernate in Colorado in places such as old mines, caves, rock crevices and even storm sewers. There is still a lot unknown about where little brown bats choose to spend the winter in Colorado. Caves and mines are likely choices.

If bats are awakened during hibernation, they may use up vital energy needed to survive until spring. For insectivores there is no food available during the cold months to restore the body fat wasted by being active during a disturbance.

Baby Bats are Pups

Little brown and big brown bat moms give birth to one pup at the very beginning of summer. Like dog pups, bat pups are born with closed eyes. A baby bat's eyes open in two days. Mother bats recognize their pup's call and scent so they can find their baby in crowded bat nurseries. Pups can cling to their mom in flight if escape from the roost is necessary. Baby bats learn to fly on their own in three weeks! **Bats are the only mammals with true flying ability.**

Bat Predators and Other Dangers

As nighttime flyers, bats avoid competition with daytime insect eaters such as frogs and many birds. Darkness and echolocation also help them avoid predators. There are still many dangers from the air and at their roosting sites. Predators may include owls, hawks, snakes, weasels, raccoons and house cats. Misinformed people who fear bats sometimes kill them. Insecticides meant to kill bugs can harm bats too.



Survival is toughest for young bats. They need to learn to fly, to hunt and to avoid danger. It is hard for young bats to store enough fat to make it through migration or hibernation. Bats with good skills and luck can live to be over 30 years old.

Factoids About Bats

Bats are amazing at avoiding obstacles and catching prey by using echolocation, so people used to think bats were blind. In fact bats have vision on par with human sight. Echolocation certainly helps find stuff in the dark. Humans have yet to invent a machine that can function with the complicated ability of bats. These awesome flyers can send out different sounds for different purposes then correctly interpret the returning echoes in their brains.

Grooming keeps bats clean. Cat-like, they lick and groom themselves and their relatives in the bat colony.

Bats are pretty smart, maybe similar in intelligence to dolphins. Scientists studying bats have trained them to do simple tasks.

Bats are not rodents so don't believe it when someone says they are flying mice.

Some other common bats in Boulder County include: long-eared myotis, silver-haired bat, long-legged myotis, hoary bat, and small-footed myotis. Use a library book or the Internet to see what these bats look like and the habitats they prefer.

Sherlock Fox says: Don't be afraid of bats. It is not true that rabid bats fly around ready to attack. Rabies is rare and bats are no more likely than other mammals to carry disease. Bats avoid people so a bat within reach may be sick, and bats will bite defensively.

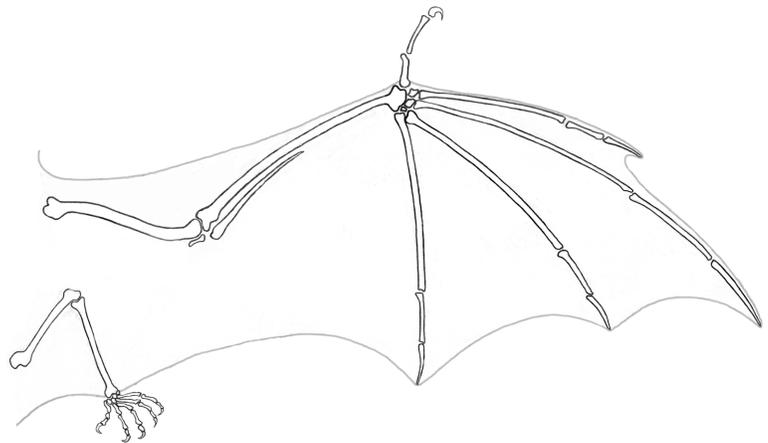
The rule with all wild animals is the same. **Never** try to touch one, even if it is dead.



Bat Wings are Hand Wings

You use your hands in many different ways. Bats use their wings in many ways too!

Try this: Stand with your elbows at your sides. Bend your arms so your hands are next to your shoulders. Hold your hands straight out to each side and spread your fingers out. **If you were a bat, your fingers would be the bones in your wings!** You just have to imagine



that your fingers would be MUCH longer. Your thumb would be used to help you crawl around on cave walls, up trees, or on the ground. The webbing on bat wings is made of a very thin skin.

Play an Echolocation Game

Humans can't hear the echolocation sounds that bats make. Sometimes you may hear a bat squeak, but that's not the same thing. We can see how echolocation works by playing a game:

Needed: Blindfold, plastic insects, fanny pack or paper bag

Gather friends or family together. Choose one person to be the bat. The "bat" wears the blindfold. Others spread out around the room or your backyard silently so the bat doesn't know where they are. These people are the "insects" and each one holds a plastic insect. When it's time to start, the bat faces a certain direction and says "beep." If there is an insect in front of the bat, that person has to beep back! (This is like the echolocation signal that the bat sends out – it hits the insect and bounces back to the bat's ears.) The insect can take only one step in a certain direction and as long as the bat keeps beeping, the insect has to beep back. If the bat gets close enough, it can "catch" the insect and put the plastic insect in the fanny pack (which you can pretend is the bat's stomach). See how many insects the bat can catch, and then take turns being the bat.



Watch for Bats!

Summer is a good time to look for bats, especially if there is some type of water source nearby. Near dark, when birds have stopped flying, look for small, flitting mammals in flight. Bats have many muscles inside their wings. They can bend and shape their wings in ways birds can't. They make much sharper and quicker turns than birds. Think about all the insects they are catching!

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