

Madera Canyon Species Spotlight:

Bats

In the finale to another Madera Canyon summer's day, the distant Baboquivari Mountains appear to reach into the sky to tuck away the sun, throwing vibrant colors across the horizon and the canyon into twilight. As the light fades and Madera's daytime inhabitants settle in for the evening, the "night-shift" rouses and prepares to take over. Owls ruffle and blink awake, skunks and ringtails emerge to snuffle about and bats unfurl their leathery wings and launch into the glooming.

Despite extensive public education campaigns in recent years, myths, misconceptions and unfounded beliefs about bats still persist. Perhaps more than any other nocturnal animal, bats remain targets of human suspicion, superstition and fear. In 2003, the Friends of Madera Canyon initiated the Madera Canyon Bat House Project to promote bat awareness and conservation. Specifically, the project aimed to provide additional bat roosting space in the canyon, educate visitors about the canyon's many bat species and to help raise public awareness and understanding of the vital role these animals play in southern Arizona's natural ecosystems.

Bats are the only mammals capable of true flight. They are nocturnal, sleeping during the day in protected places and emerging at night to hunt for food. Though most bats have excellent vision and a well-developed sense of smell, they rely primarily on sonar or "echo-location" to find food and avoid flying into objects. There are nearly 1000 species of bats worldwide and 35 species of bats in the United States. Seventeen species of bats have been identified in Madera Canyon and the Santa Rita Mountains, including the only Arizona record of Ghost-faced Bat. Some of these bats live in the canyon year-round; other species are "snowbirds", residing here part time and migrating to other places with the seasons.

Different local species of bats prefer and utilize different habitats. Some, like California Leaf-nosed Bats, live and hunt down in the desert; others, like Silver-haired Bats, are only found high up in Sky Island mountain forests. A few species, like Big Brown Bats, are habitat generalists and utilize a variety of habitats. Mexican Free-tailed Bats and Pallid Bats are the most common species here in the southwest. For an idea of size, Mexican Free-tailed Bats have a 12 inch wingspan and weigh about as much as 4 pennies (4/10 of an ounce); the smallest bat in Arizona, the Western Pipistrelle, has an 8 inch wingspan and weighs 1/10 of an ounce (1 penny!).

The majority of our local bat species feed solely on insects and an individual is capable of catching more than 500 insects per hour! Mexican Free-tailed Bats from 3 caves near San Antonio, TX, consume up to a million pounds of insects a night! Such statistics illustrate the important role bats play in helping to control insect pests, such as mosquitoes. Two migrating local species, Lesser Long-nosed Bats and Mexican Long-tongued Bats, are pollinators that feed on the nectar and pollen of saguaro, ocotillo and agave blossoms; they are also famous for draining local hummingbird feeders at night. They are easy and

fun to observe swooping in to drink from feeders at the Santa Rita Lodge in the summer months. Pallid Bats often hunt on the ground, crawling and hopping about on the elbows of their folded wings to catch spiders, scorpions and centipedes!

In the past several decades, bat populations and numbers have declined sharply in the U.S. due to wasting disease, pesticide use, habitat loss/fragmentation and unjustified persecution. In a local response, the Friends of Madera Canyon researched and installed bat houses at 5 sites within the canyon, and also at La Posada and Continental School. A variety of bat house designs were tried and computerized data recorders installed in the houses to monitor daily temperatures. Colorful, informative interpretive signs about canyon bats and the project were also installed trailside at the Proctor and Whitehouse sites.

Over several years, direct observation and accumulations of guano beneath the bat houses in the canyon, indicated that bats were using the two small, compact house designs at each site, but not the larger, flat rectangular houses. Subsequent analysis of temperature data corroborated these observations. Data showed that the large houses, with their direct, west-sun orientation, were often too hot for bats to tolerate during the spring and summer months when they are most likely to be in Madera Canyon. This design also had a bad tendency to act like a sail in high winds and blow over! As a result, the large houses were replaced by a smaller, cooler design with improved ventilation. A new adjustable mount also allows for precise sun orientation- the new houses will not only be cool enough for bats in summer, but warmer in the winter too! During routine maintenance in May, FoMC volunteers were very excited to find several Mexican Free-tailed Bats residing in the first of the new houses put up the previous winter.

Bats are truly remarkable animals well-adapted to live in our Sky Island habitats and exciting to observe on-the-wing. Watching canyon hummingbird feeders at night may be the easiest way to see bats in the summer, but there are other fun ways to look for them in Madera Canyon. Evening picnics and trail walks can be a great way to observe bats flying in their natural habitat. The public recreation/picnic areas are open until 10:00 pm.

Proctor Ramada provides excellent open viewing over several habitats and the great sunsets are certainly an added bonus! The Bud Gode Interpretive Ramada in the center of Mt. Wrightson Picnic Area is another good viewing place. When Madera Creek is running, watching for bats hawking insects or dropping in for a drink is another exciting way to observe them. The pools around the Proctor Rd. crossing, the "creek spur" trail off the trail loop below White House Picnic Area and both the bridge and birding platform at Amphitheater Parking Area are good bets. Take a folding chair to relax and watch; make sure to bring a flashlight for walking back to your car! Please visit the bat house sites in the canyon and check out the bat interpretive signs, but do not closely approach or disturb the houses. With all our help, bats will continue to be an essential link in the Madera Canyon's web of life!



Lesser Long-nosed Bat drinking from hummingbird feeder



Mexican Free-tailed Bats leaving their roost at dusk



California Leaf-nosed Bat in hand



Big Brown Bat roosting in an old shack