

## Brazilian Free-tailed Bat (*Tadarida brasiliensis*)

The Brazilian Free-tailed bat is Florida's most common native bat species and the one that is most likely to nest in a bat house placed in your back yard. A bat house constructed at the University of Florida in Gainesville in 1991 currently houses over 100,000 bats. This colony eats ten to twenty million insects each night, eliminating the need for chemical insect control. Brazilian Free-tailed bats are found in the southern half of the continental United States. Their range extends through Mexico, Central America, large sections of South America, as well as the Caribbean, Greater Antilles, and eleven of the Lesser Antilles. The largest colony of free-tailed bats is in Bracken Cave, north of San Antonio, where nearly twenty million roost.



Brazilian Free-tailed bats are about 3.5 inches long and weigh less than 0.5 ounce. They receive their name because their tail is almost half their length and about a third of it reaches beyond their uropatagium, the membrane that stretches between their hind legs and helps stabilize them during flight. Their wings are narrow and elongated



with pointed tips and a 12-14 inch span. They have short

brown to gray fur and long white bristles on their rather large feet.

Their forward leaning ears are rounded and so wide that they nearly meet. Females are slightly heavier than males because of fat storage for gestation and nursing. Males' canine teeth are larger than those of females. Both males and females have deep wrinkles in their upper lip and a Z-shaped upper molar. These feature and the fact that their tails extend beyond their uropatagium distinguish them from other bat species in North America. Brazilian Free-tailed bats also have a scent gland that emits a distinctive musky odor which permeates the area around their roost.

Brazilian Free-tailed Bats are aerial insectivores who hunt from dusk to dawn. Females forage slightly longer than males and consume 125% of their body weight each night compared to males who consume 100% of their body weight.

Free-tailed Bat's diet consists primarily of moths and beetles but also dragonflies, wasps, flies, true

bugs and other flying insects.

Although they rarely dine on mosquitoes, they have a positive impact on agriculture by eliminating vast amounts of agricultural pests. Free-tailed Bats use echolocation to find their prey. They have as many as fifteen types of calls and can adjust their calls to avoid interfering with other Free-tailed Bat calls. They also emit ultrasonic sounds that "jam" the echolocation of rival bats. Brazilian Free-tailed Bats consume their prey while flying. It is not unusual for them to travel more than 30 miles a night. Although they do most of their foraging at 20-49 foot altitudes, Brazilian Free-tailed Bats fly the highest among bat populations and have been recorded at 10,800 feet. They are also the fastest flyer in the animal kingdom. Researchers at the Max Planck Institute of Ornithology attached radio transmitters weighing 0.5 gram to the backs of Brazilian Free-tailed Bats with adhesive and followed them for 2-5 days before the

transmitters fell off. The bats were recorded at 99.42 mph in level flight. Previously the common swift held the record at 69.3 mph. Peregrine falcons achieve 240 mph when diving but only reach 40-60 mph in normal flight.

Free-tailed bats roost primarily in caves where their colony can easily number over 20,000 to millions. However, they also roost in hollow trees and manmade structures such as buildings with openings and dark recesses or under bridges. In these areas, the colony can range from 50 bats to 20 thousand bats. The few caves that exist in Florida frequently have pools of water on the floor, making them too humid for free-tailed bats; Florida caves are usually inhabited by the southeastern myotis. In Florida free-tailed bats prefer the hollows of mangrove or cypress trees or buildings and bridges. They especially enjoy roosting under barrel tile roofs or

inside concrete walls in Florida.

There are two subspecies of Brazilian Free-tailed Bats, *Tadarida brasiliensis mexicana* and *Tadarida brasiliensis cynocephala*. Florida, is home to the latter subspecies. The primary difference between the subspecies is that *T. b. cynocephala* do not migrate while *T. b. mexicana* are highly migratory. *T. b. cynocephala* also has several skull characteristics that are slightly larger than *T. b. mexicana*.

Brazilian Free-tail Bats from southeast Nevada, southwest Utah, western Arizona, and southeast California join together in their migration to southern California and Baja California for the winter. Free-tail bats in southeast Utah, southwest Colorado, western New Mexico, and eastern Arizona migrate to the Mexican states of Jalisco, Sinaloa, and Sonora while free-tail

bats in Kansas, Oklahoma, eastern New Mexico, and Texas migrate to south Texas and Mexico. Free-tail bats return to the same roosts year after year. It is believed they use the scent from their copious sebaceous glands to help them identify where their roost was.

Most free-tail bats from east Texas and eastward do not migrate. Because of its temperate climate, Florida Brazilian Free-tailed bats neither migrate nor hibernate. When temperatures drop and insects are scarce during cold spells, they go into a state of torpor, where their heart rate, breathing rate, and metabolism drop to conserve energy.

Even though they do not migrate, female Free-tail Bats do move to a maternity roost during breeding season which lasts from March through July in Florida. Both males and females are promiscuous breeders, having

multiple partners.

Females are fertile for about a five week period in spring. Gestation lasts 11-12 weeks with only one pup being born, usually in June. The mother nurses her pup daily for 4-7 weeks. Males are not involved in caring for the young. The mother imprints her scent on her pup shortly after birth. All the pups in the community roost huddled together in what is called a creche while the mothers roost in another area and use scent and vocalization to identify their own pup. Pups are able to fly at about 5 weeks and fly on nocturnal feeding flights with their mother for several weeks before becoming independent. Female young are sexually mature at about nine months; males are not sexually mature until about two years old.

Brazilian Free-tail Bats can live up to 11-12 years. Predators include red-tailed hawks, great horned owls, opossums, skunks, raccoons, and snakes. However, the greatest

threat to them is coming in conflict with humans. Nevertheless, they are both abundant and widespread; their population is considered stable and their conservation status is “of least concern.” In Florida, all bats are protected year round; it is illegal to harm or kill them. If they roost in your house, you can obtain a device that allows them to leave but not re-enter. However, between April 15 and August 15 a special permit is needed for that device or to relocate them because flightless young may be in the roost.