

**California Wildlife Habitat Relationships System**  
**California Department of Fish and Wildlife**  
**California Interagency Wildlife Task Group**

---

BRAZILIAN FREE-TAILED BAT

*Tadarida brasiliensis*

Family: MOLOSSIDAE  
M039

Order: CHIROPTERA

Class: MAMMALIA

Written by: J. Harris

Reviewed by: P. Brown

Edited by: D. Alley, R. Duke

Updated by: CWHR Program Staff, July 2005

#### DISTRIBUTION, ABUNDANCE, AND SEASONALITY

The Brazilian free-tailed bat is found throughout California. Uncommon in high Sierra Nevada (from Tehama to Tulare cos.) and the north coastal region (from Del Norte and Siskiyou cos. to northern Sonoma Co). Overall, this species is common in California and may be locally abundant. The largest California colony (100,000+ animals) is in Lava Beds National Monument. All habitats up through mixed conifer forests are used, but open habitats such as woodlands, shrublands, and grasslands are preferred.

#### SPECIFIC HABITAT REQUIREMENTS

**Feeding:** Utilizes echolocation to hunt for small aerial insects, primarily small moths. Forages high, usually at least 30 m (100 ft) above ground level. This species is a fast flier, averaging 40 km (25 mi) per hr when travelling to and from roosting sites.

**Cover:** Requires caves, mine tunnels, crevices, or buildings for roosting and hibernation. Apparently uses mostly buildings along the coast. May use a separate night roost, particularly if foraging far from the day roost. Moves within caves to find suitable temperature.

**Reproduction:** Maternity colonies of females and young are found in caves, crevices, and buildings.

**Water:** Produces a relatively concentrated urine, but water requirements unknown (Geluso 1978).

**Pattern:** Uses caves, crevices, and buildings for cover, foraging high over surrounding habitats and water sources.

#### SPECIES LIFE HISTORY

**Activity Patterns:** Nocturnal. Emerges shortly after dusk. Returns to day roost before sunrise. Apparently hibernates in coastal and Central Valley populations.

**Seasonal Movements/Migration:** In California, makes local movements to and from hibernacula or short migrations altitudinally. Bats on east side of the Sierra Nevada migrate north in spring and south in fall.

**Home Range:** Travels sometimes 65 km (40 mi), or more, from roosting sites to foraging areas. Group sizes range from small groups of males to maternity colonies or hibernating groups of thousands. Colonies numbering in the millions have been observed outside of California.

Territory: This species is highly gregarious.

Reproduction: Copulation occurs in February-March. Gestation is about 100 days. Births are in June and July, peaking in early July. A few cases of twins are reported, but the usual litter size is 1. There is 1 litter per yr. Young nurse in July and August, fly at 5 wk, and reach full size in 2 mo. Females in a maternity colony may nurse any solicitous young. Pre-weaning mortality is very low (less than 2%). Young reach sexual maturity in their second summer. Maximum recorded longevity is 8 yr.

Niche: May be found feeding with other species, from which it differs by rapid, high flight and moth specialization. Roosts with other species. In large colonies, high ammonia concentrations may drive out other species. Some individuals have tested positive for rabies (Wilkins 1989). Human infection by inhalation has been reported from one large colony in Frio-Cave, Texas, where an aerosol of urine and saliva may be found. Owls, hawks, raccoons, skunks, snakes, and opossums are reported predators.

Comments: Drastic declines have been reported for several colonies in the southwestern U.S. Pesticides have been suggested as an important cause of these declines (Mohr 1972, Humphrey 1975, Geluso et al. 1976, Gosnell 1977). Large numbers enhance reproductive success by creating suitable microhabitat for juvenile growth; thus, reduction in numbers may stimulate further declines.

## REFERENCES

- Barbour, R. W., and W. H. Davis. 1969. *Bats of America*. Univ. of Kentucky Press, Lexington. 286pp.
- Benson, S. B. 1947. Comments on migration and hibernation in *Tadarida mexicana*. *J. Mammal.* 28:407-408.
- Cockrum, E. L. 1969. Migration in the guano bat, *Tadarida brasiliensis*. *Univ. Kans. Mus. Nat. Hist. Misc. Publ.* 51:303-336.
- Constantine, D. G. 1967. Activity patterns of the Mexican free-tailed bat. *Univ. New Mexico Publ. Biol. No. 7.* 79pp.
- Davis, R. B., C. F. Herreid II, and H. L. Short. 1962. Mexican free-tailed bats in Texas. *Ecol. Monogr.* 32:311-346.
- Geluso, K. N. 1978. Urine concentrating ability and renal structure of insectivorous bats. *J. Mammal.* 59:312-323.
- Geluso, K. N., J. S. Altenbach, and D. E. Wilson. 1976. Bat mortality: pesticide poisoning and migratory stress. *Science* 194:184-186.
- Gosnell, M. 1977. Carlsbad's famous bats are dying off. *Natl. Wildl.* 15:28-33.
- Herreid, C. F. II. 1963. Temperature regulation of Mexican free-tailed bats in cave habitats. *J. Mammal.* 44:560-573.
- Herreid, C. F. II. 1967a. Mortality statistics of young bats. *Ecology* 48:310-312.
- Herreid, C. F. II. 1967b. Temperature regulation, temperature preference and tolerance, and metabolism of young and adult free-tailed bats. *Physiol. Zool.* 40:1-22.
- Humphrey, S. R. 1975. Nursery roosts and community diversity of nearctic bats. *J. Mammal.* 56:321-346.
- Krutzsch, P. H. 1955. Observations on the California mastiff bat. *J. Mammal.* 36:40-414.
- Mohr, C.E. 1972. The status of threatened species of cave dwelling bats. *Bull. Natl. Speleol. Soc.* 34:33-47.
- Pagels, J. F. 1975. Temperature regulation, body weight and changes in total body fat of the free-tailed bat, *Tadarida brasiliensis cynocephala* (LeConte). *Comp. Biochem. Physiol.* 50A:237-246.
- Pagels, J. F., and C. Jones. 1974. Growth and development of the free-tailed bat, *Tadarida brasiliensis cynocephala* (LeConte). *Southwest. Nat.* 19:267-276.
- Ross, A. 1961. Notes on food habits of bats. *J. Mammal.* 42:66-71.
- Ross, A. 1967. Ecological aspects of the food habits of insectivorous bats. *Proc. West. Found. Vertebr. Zool.* 1:205-264.
- Sherman, H. B. 1937. Breeding habits of the free-tailed bat. *J. Mammal.* 18:176-187.

- Storer, T. I. 1926. Bats, bat towers, and mosquitoes. *J. Mammal.* 7:85-90.
- Twente, J. W. 1956. Ecological observations on a colony of *Tadarida mexicana*. *J. Mammal.* 37:42-47.
- Villa, B., and E. L. Cockrum. 1962. Migration in the guano bat, *Tadarida brasiliensis mexicana* (Saussure). *J. Mammal.* 43:43-64.
- Wilkins, K. T. 1989. *Tadarida brasiliensis*. *Mammal. Species No.* 331. 10pp.

M039

---

Life history accounts for species in the California Wildlife Habitat Relationships (CWHR) System were originally published in: Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. *California's Wildlife*. Vol. I-III. California Department of Fish and Game, Sacramento, California. Updates are noted in accounts that have been added or edited since original publication.