

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Animal Abstract**

**Element Code:** AMACC04010

**Data Sensitivity:** Yes

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Eptesicus fuscus*

**COMMON NAME:** Big Brown Bat

**SYNONYMS:**

**FAMILY:** Vespertilionidae

**AUTHOR, PLACE OF PUBLICATION:** Beauvois, Cat. Raisonne Mus. Peale, Philadelphia, PA. Pp: 18. 1796.

**TYPE LOCALITY:** Philadelphia, Pennsylvania.

**TYPE SPECIMEN:**

**TAXONOMIC UNIQUENESS:** Worldwide, 33 species of *Eptesicus* are recognized, although Nowak (1994) recognizes 17 species. There are 10-11 recognized subspecies of *E. fuscus*, eight occurring in North America. Taxonomic revision of the species is in progress.

**DESCRIPTION:** *E. fuscus* has a body length of 107-117 mm, forearm length of 42-51 mm, with a wingspread of 325-350 mm and weight of 13-23 g. Females are significantly larger than males; both have the same morphological characteristics of keeled calcars, broad noses, broad rounded tragi, and broad wings. Ears are short, rounded and furred on the medial side at the base. The naked parts of the face, ears, wings and tail membrane are all black. The glossy, long lax fur of the dorsum is usually snuff brown and oily in texture; and the fur of the venter is buffy. Occasionally, this species has been found with white blotches on the wings, and some albino specimens are known as well.

**AIDS TO IDENTIFICATION:** It is difficult to confuse *E. fuscus* with most other bats by this combination of characters: overall brown color, naked membranes, tail vertebrae mostly enclosed by tail membrane, ear height less than 21 mm, keeled calcar, forearm length longer than 40 mm, and two incisors and a single premolar on each side of the upper jaw. (Wilson and Ruff 1999).

**ILLUSTRATIONS:** B&W photos (Hoffmeister 1986: Pp. 95, 96; Figs. 5.36, 5.37)

B&W drawing (Ingles 1954: P. 70. plate IV)

Color photo (Wilson 1999)

Color photo (Harvey et al. 1999)

Color photo (In <http://www.batcon.org/discover/species/efuscus.html>)

Color photo (In

[http://animaldiversity.ummz.umich.edu/site/resources/phil\\_myers/classic/eptesicus](http://animaldiversity.ummz.umich.edu/site/resources/phil_myers/classic/eptesicus))

Black and White (Nowak 1994: P. 198, Pl. A-F)

**TOTAL RANGE:** *E. fuscus* occurs widely over southern Canada, the United States, and western and central Mexico. It also has colonized many Caribbean islands, including Cuba, Puerto Rico, Jamaica, and Hispaniola. It is abundant in the Midwest and rare in the southeastern states, central Texas and the northernmost part of its range. Summer and winter ranges are very similar.

**RANGE WITHIN ARIZONA:** Found throughout the state in summer. In winter, they are found mainly in southern Arizona and along the southern slopes of the Mogollon Plateau.

### **SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** *Eptesicus fuscus* have been known to live for at least 19 years in the wild. They have the ability to enter torpor for extended periods of time provided the temperature does not fall below freezing for a long length of time. Failure to accumulate enough fat sufficient for hibernation is a major mortality factor, especially for youngsters. In hibernating colonies, apparently there are usually more males than females. In the spring, females of *E. fuscus* form maternity colonies to rear young, and at this time the males roost alone or in small groups. Later during the summer, both sexes are found roosting together. (Nowak 1994).

**REPRODUCTION:** Breeding occurs in the fall, probably throughout winter. Sperm stored over winter with ovulation occurring in April when small nursery colonies begin to form. Roosts mostly in man-made structures such as attics of houses, barns, and churches, but also in hollow trees. There is a single young born in June after a gestation period of about two months. According to Humphrey (1982), the litter size varies regionally. *E. fuscus* west of the Great Plains typically gives birth to one young per litter. For those of the east, two young per litter are average. During the day, the young cling to the female's teat and are covered by her wing membrane. Females care only for their own young and have been observed retrieving fallen young from the floor of the nursery colony. Young bats begin to fly at three weeks of age and are able to negotiate turns at four weeks. At ten weeks of age, the young have attained adult size.

**FOOD HABITS:** This bat is an early flying species, emerging from its roost about 40-60 minutes after sunset. After an initial flurry of activity, the male forages irregularly throughout the night, while the females, which lag behind the males in the initial foraging bout, show great activity about two hours after the first period. This bat prefers to forage on dry nights when the air is warmer than 10-12°C. On rainy or cold evenings, it often remains in the roost, lowers its body temperature, and subsists on fat reserves until conditions improve. Coleoptera is the most important food item while Lepidoptera is of little importance in its diet. Under good conditions, a big brown bat attacks an insect every three seconds and consumes 2.7 grams per hour. During the summer, females will ingest food amounts equal to her body weight to be able to feed their young.

**HABITAT:** This species can be found in Ponderosa pine forests, pinyon-juniper woodlands, the lower edge of the spruce-fir forests, and in the Lower Sonoran habitats. It has been

recorded as roosting in a variety of sites including attics, barns, bridge joints, hollow trees, mines, rock crevices, caves, and other similar locations. This species does not favor a hot roost and generally moves when the air temperature exceeds 32-35°C. Females are quite loyal to their roosts and often return year after year.

**ELEVATION:** Highly variable. Based on unpublished records in the Heritage Data Management System (AGFD, accessed 2004), elevation ranges from 550 to 8,800 ft. (168 – 2,682 m).

**PLANT COMMUNITY:** Ponderosa pine forests, pinyon-juniper woodlands, the lower edge of the spruce-fir forests, and in the Lower Sonoran habitats. Commonly with pine, creosote bush, mesquite, bursage, palo verde, and various cacti.

**POPULATION TRENDS:** Appears to be stable.

### **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None  
**STATE STATUS:** None  
**OTHER STATUS:** None

**MANAGEMENT FACTORS:** Pesticides and human conflict are two factors that affect this species.

**PROTECTIVE MEASURES TAKEN:** Unknown

**SUGGESTED PROJECTS:** Clarification of species taxonomy and observation of behavior, maternal colonies, winter roosts, and seasonal movements.

**LAND MANAGEMENT/OWNERSHIP:** BIA - San Carlos Reservation; BLM - Arizona Strip, Kingman, Tucson and Phoenix Field Offices; DOD - Fort Huachuca Military Reservation; FWS - Havasu National Wildlife Refuge; NPS - Montezuma Castle National Monument; USFS - Apache-Sitgreaves, Coconino, Kaibab, and Tonto National Forests; AGFD Chevelon Canyon Ranches; State Land Department; City of Tucson; Private.

### **SOURCES OF FURTHER INFORMATION**

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#### MAJOR KNOWLEDGEABLE INDIVIDUALS:

#### ADDITIONAL INFORMATION:

The generic name *Eptesicus* is derived from the Greek, meaning, "house flyer".

**Revised:** 1992-02-13 (JSP)  
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