

Western Bat Working Group

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Species Accounts

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Eptesicus fuscus

BIG BROWN BAT

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I. **DISTRIBUTION:** *Eptesicus fuscus*, a member of the Family Vespertilionidae, has an extremely broad distribution reaching from Alaska and northern Alberta to northern South America. It occurs in all western States and Provinces associated with the Western Bat Working Group. Two subspecies are recognized in the western U.S. : *E. f. bernardinus* and *E. f. pallidus*. *E. fuscus* occurs in a wide variety of habitats from desert scrub and moist coastal forests to high elevation conifer forests, and is one of the few species that persists in relatively urbanized environments.

II. **STATUS:** Global Rank - G5. State Ranks: AZ - S4; CA - S5; CO - S5; ID - S5; MT - S4; NM - S5; NV - S?; OR - S4; TX - S5; UT - S4; WA - S?; WY - S5; AL - S4S5; BC - S4S5. Not listed by any State or Province. Perceived as relatively common in many localities. It is the second most common bat found in urban areas in Washington and Oregon.

III. **IDENTIFYING CHARACTERISTICS AND LIFE HISTORY:** *E. fuscus* is a medium to large sized North American vespertilionid. It can be distinguished from all other large vespertilionids by the combination of relatively dark color, a keeled calcar, and a blunt tragus. The tip of its tail usually extends 3 mm beyond the uropatagium. *E. fuscus* is a colonial species, with the size of maternity colonies varying from about a dozen to several hundred. This species is well known for its propensity to roost in anthropomorphic structures, including buildings, mines, and bridges, but it has also been found in caves, crevices in cliff faces, and a hole in a giant saguaro. More recently extensive tree roosting (particularly in large diameter snags) has been documented in forested, preferably uncluttered, landscapes. Bridges are commonly used as night roosts by males and pre-parturition and post-lactating females. In the west, *E. fuscus* is known to hibernate in relatively small numbers per site in caves, buildings and mines. *E. fuscus* forages within a few kilometers of its roost, generally pursuing prey in tree canopies, over meadows, or along water courses. It feeds primarily on heavy-bodied insects, and is an important predator on certain agricultural pests (e.g. *Diabrotica*, the spotted cucumber beetle). Although primarily beetle (coleopteran) specialists, their diet also includes hemipterans, dipterans, lepidopterans, trichopterans and hymenopterans. *E. fuscus* mate in the fall and winter, but ovulation does not occur until the spring. Each female produces producing one young (the eastern subspecies produce twins) in early summer, after a gestation of about 60 days. The young are volant in three to four weeks. *E. fuscus* appears to be a relatively sedentary species and is not known to migrate large distances (although males may migrate elevationally in the Cascade Mountains). Females roost separately from males in the spring and summer, and roost with males at hibernating sites. This species hibernates for most of the winter in the northern portion of its range, but is active on warm nights in the winter in the southwest.

IV. **THREATS:** Potential threats to this species include roost disturbance and destruction, particularly eradication of building dwelling colonies by pest control operations, and removal of important roost trees in timber harvest operations. Grazing practices and loss of riparian could affect foraging habitat. Mine closures and renewed mining in historic districts could also impact this species.

V. **GAPS IN KNOWLEDGE:** More information is needed on roosting requirements, particularly in forested landscapes. The effects of timber harvest need to be investigated. Studies are needed to further

investigate the role of this species in controlling insect pests. Information is generally lacking on seasonal movements, and hibernation sites.

VI. RELEVANT LITERATURE:

Betts, B. 1995. Roosting behavior of silver-haired and big brown bats in Northeast Oregon. Pp. 55-61, in Bats and Forests Symposium, October 19-21, 1995, Victoria, British Columbia, Canada. Research Branch, Ministry of Forests, Victoria, British Columbia, Working Paper 23/1996.

Brigham, R. M. 1991. Flexibility in foraging and roosting behaviour by the big brown bat (*Eptesicus fuscus*). Canadian Journal of Zoology, 69(1):117-121.

Kurta, A. and R. H. Baker. 1990. *Eptesicus fuscus*. American Society of Mammalogists, Mammalian Species, 356:1-10.

Kalcounis, M. 1994. [ABS]. Selection of tree roost sites by big brown (*Eptesicus fuscus*), little brown (*Myotis lucifugus*) and hoary (*Lasiurus cinereus*) bats in Cypress Hills, Saskatchewan. Bat Research News, 35(4):103.

Perkins, J. M. 1996. Bat distribution within a managed forest. Bats and Forests Symposium, Victoria, B. C. Canada. Brigham and Barclay, eds. Pp. 164-174, in Bats and Forests Symposium, October 19-21, 1995, Victoria, British Columbia, Canada. Research Branch, Ministry of Forests, Victoria, British Columbia, Working Paper 23/1996.

Vonhof, M. 1995. Roosting ecology and roost-site preferences of reproductive *Eptesicus fuscus* and *Lasionycteris noctivagans* in the Pend D'Oreille Valley in southern British Columbia. Pp. 62-80, in Bats and Forests Symposium, October 19-21, 1995, Victoria, British Columbia, Canada. Research Branch, Ministry of Forests, Victoria, British Columbia, Working Paper 23/1996.

Whitaker, J. O., Jr. 1995. Food of the big brown bat *Eptesicus fuscus* from maternity colonies in Indiana and Illinois. American Midland Naturalist, 134(2):346-360.

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