

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

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LITTLE BROWN BAT

*Myotis lucifugus*

Family: VESPERTILIONIDAE  
M021

Order: CHIROPTERA

Class: MAMMALIA

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#### DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Common and widespread in North America. In California, occurs from Oregon border south along coast to San Francisco Bay and probably to Monterey Co., and along the Sierra Nevada/Cascades and Great Basin from the Oregon border to Kern Co. An isolated population also exists in the San Bernardino Mts. Fairly common throughout its range and abundant in some areas. Although details of abundance not well known in California, appears to be most common in mid- to high-elevation forests. Fairly common in sagebrush, bitterbrush, alkali desert scrub, wet meadow, and montane chaparral. Least common in valley foothill woodlands, redwood, mixed chaparral, low sagebrush, alpine dwarf-shrub, coastal scrub, and grasslands.

#### SPECIFIC HABITAT REQUIREMENTS

**Feeding:** Feeds on small (3-10 mm), flying insects located by echolocation. Lactating females tend to take larger prey. Preys heavily on seasonally available aquatic insects, such as chironomid midges (Fenton and Barclay 1980). Such insects tend to have a patchy distribution, particularly mating swarms. Appears adapted for exploitation of patchily distributed prey. Its flight is maneuverable, and it has the ability to detect prey at a short distance. Several prey may be captured in rapid succession using interfemoral membranes. Masticates and digests food rapidly. Feeds low over water at margins of lakes, streams and ponds, as well as along forest edges. It returns to regularly used feeding areas (Hough 1957, Buchler 1976, Belwood and Fenton 1976, Anthony and Kunz 1977, Whitaker et al. 1977, 1981, Fenton and Bell 1979).

**Cover:** Uses separate day, night, hibernation, and nursery roosts. Populations limited by availability of roost sites. Day roosts located in buildings, trees, under rocks or wood, or occasionally in caves. Night roosts located in similar sites, or even the same sites, but usually in more confined spaces. Temperatures usually warmer, as many bats pack into night roost. Lactating females may not use a night roost, which may be related to their use of heterothermy as an energy saving strategy. Hibernation roosts in caves or mines. Temperatures usually above freezing, and humidity is high (90% or more). Quick to locate new roosting sites, particularly during autumn dispersal. Apparently establishes scent posts (Buchler 1980), which may function in location of roost sites (McManus 1974b, Burnett and August 1981, Barclay 1982).

**Reproduction:** Nursery roosts usually in buildings, but also in other locations with suitable temperatures. Nursery sites warm, correlated with high growth rates of young (Fenton and Barclay 1980).

**Water:** Requires water; has relatively poor urine-concentrating ability. Intra-specific variation in ability to produce concentrated urine (O'Farrell et al. 1971, Bassett and Wiebers 1979).

Pattern: Prefers to feed over water or open habitats.

## SPECIES LIFE HISTORY

Activity Patterns: Nocturnal; hibernates. Emerges at dusk. Activity peaks about 2.5 hr after dusk. There may be a second activity peak before dawn (Barbour and Davis 1969, Kunz 1973). Individuals may enter torpor daily in non-hibernating seasons. Hibernation lasts from September-November to March-May, depending on latitude and altitude. Young remain active later in fall to accumulate sufficient fat reserves. Hibernators may be inactive for 90 consecutive days (Stones and Wiebers 1967, Fenton and Barclay 1980).

Seasonal Movements/Migration: Makes local, or long-distance (several hundred km), migrations to hibernacula. Considerable fall movement, and large aggregations swarm at hibernacula at this time. Such swarming associated with mating. Individuals swarming at a site may hibernate elsewhere (Davis and Hitchcock 1965, Humphrey and Cope 1976, Thomas et al. 1979).

Home Range: No data found. Probably travels up to several km between day roosts and feeding sites.

Territory: There is no evidence of territoriality. Aggregations of up to 300,000 individuals have been reported (Cockrum 1956).

Reproduction: Mating occurs in fall. Fertilization is delayed to the following spring. Young born after a gestation of 50-60 days. Births occur May-August. In southern, or lower elevation populations, peak in births is May-June, and at higher elevations, peak may be in July. Generally 1 young born each yr. There are a few records of twins. The young are weaned and begin to fly at 3 wk. Early foraging attempts involve fly-catching of passing insects from a perch. Females breed in first yr, males in second yr. First winter is period of highest mortality. Average life span is 1-2 yr. The maximum recorded age is 31 yr (Gillette and Kimbrough 1970, O'Farrell and Studier 1973, Humphrey and Cope 1976, Thomas et al. 1979, Fenton and Barclay 1980).

Niche: Occurs at feeding and roosting sites with many other bat species. Predators include birds, snakes, small carnivorous mammals, and mice (Gillette and Kimbrough 1970). Can be rabid, but incidence usually less than 1% (Fenton and Barclay 1980).

Comments: Populations in many areas have suffered drastic declines. Contributory factors include pesticides (Geluso et al. 1976, Kunz et al. 1977, Clark et al. 1978), disturbance, and control efforts (Fenton and Barclay 1980). Fat-soluble pesticides dangerous in combination with migratory stress and depletion of fat reserves in hibernation and migration. Disturbance in winter destructive because of energy expense of arousal.

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