

Lasiurus blossevillii (Red Bat)

Family: Vespertilionidae (Vesper or Evening Bats)

Order: Chiroptera (Bats)

Class: Mammalia (Mammals)



Fig. 1. Red bat, *Lasiurus blossevillii*.

[<http://www.inaturalist.org/taxa/40520-Lasiurus-blossevillii>, downloaded 3 May 2016]

TRAITS. The red bat is a medium sized bat with brown, reddish fur covering most of its body, including the uropatagium (the membrane between the legs and tail) (Fig. 1). The fur is soft, dense and tipped with white. It has small eyes and therefore uses echolocation and its good sense of hearing to catch prey. The frequency of its echolocation is 35-50 kHz. Its ears are low, broad and rounded with a triangular tragus. Each limb has five digits and each digit has a claw. This allows the bat to grip and hang on to objects. Its wings are thin, membranous and black in colour. Its tail is long and extends straight behind the body; a feature which distinguishes it from other species (Wilson and Ruff, 1999). Adults are 95-126mm in length from snout to tail. The length of the tail is 45-62mm and the length of the forearm is 37.5-42mm (Wilson and Ruff, 1999). An adult red bat weighs 7-16g (Kunz and Fenton, 2003). The red bat displays sexual dimorphism with the males being brighter and deeper red in colouration than the females (Hill and Smith, 1984). The females are also slightly larger than the males. [This account was originally prepared on the eastern red bat *Lasiurus borealis*, but it is now thought that records in Tobago are for the similar *L. blossevillii*, the western or desert red bat. Where the species differ in significant ways, the account has been revised and the specific name *L. blossevillii* is used.]

DISTRIBUTION. *L. blossevillii* is a migratory bat, mainly found in western North America, Central America and northern South America (Fig. 2) (Wikipedia, 2016). They migrate to the southern parts of the range in the northern hemisphere winter. The red bat has been sighted in Tobago but not Trinidad.

HABITAT AND ACTIVITY. Like most bats, the red bat is nocturnal; roosting in the day and foraging in the night (Fig. 3). Red bats are tree-roosting bats (Fig. 4), found among the leaves of trees with dense canopies at heights of 1-12m above the ground. The red bat displays roost site selectiveness over habitat type, making it adaptive to various environments (Elmore et al., 2005). It seems to prefer the south side of trees when roosting. Family groups of these bats especially those with young, are usually found higher in the canopy than individual bats. This is a precautionary measure against any possible predators and provides a safe environment for the young bats to grow (Constantine, 1966). While roosting, they conceal themselves with their wings and lie extremely still to appear as dead leaves; a camouflage mechanism to avoid detection.

FOOD AND FEEDING. Foraging usually begins in the evening, 1 or 2 hours after sunset. The red bat forages over both aquatic and terrestrial habitats, at altitudes up to 100-200m (Chapman and Feldhamer, 1982). Red bats are insectivores, feeding mainly on beetles, flies and moths and sometimes even crickets or cicadas on the forest floor (Kunz and Fenton, 2003). A water source e.g. a stream or river, is usually present in the foraging areas of red bats, used for drinking and catching insects. When foraging, the red bat often listens to the echolocation calls of conspecifics to identify sites where food is available. Chases between red bat conspecifics do not occur due to territoriality, but when hunting the same prey (Kunz and Fenton, 2003). However, for elusive prey such as moths, these bats often hunt in pairs or groups. The red bat seems to prefer areas of open or thinned canopy, as it provides more foraging opportunities. In urbanized areas, the red bat can be seen foraging at streetlights where insects tend to congregate.

POPULATION ECOLOGY. Solitary except when rearing young. The red bat hunts and forages by itself and roosts either individually or in small groups. Roosts have been found in a range of conifers and hardwood trees, but it was found that the red bat preferred hardwoods. Observations of this species showed an 80% roosting preference for large trees with trunks >30cm in diameter (Kunz and Fenton, 2003). These mature trees are thought to offer considerable protection for bats roosting in foliage (Constantine, 1966). The red bat exhibits low roost fidelity; it does not have a permanent roost, but flies around from roost to roost. A group of red bats were recorded spending 28.8-40.8 hours on average at a particular roosting site before shifting to another location that was usually within 100m of the previous one (Kunz and Fenton, 2003). The average home range of a red bat is 2.3 hectares. The red bat is an edge species (Amelon et al., 2014). It thrives on the edge of forests where there is enough canopy cover to roost as well as enough open space to forage and commute. In a study of red bats in Missouri, resource utilization was negatively related to distance from edge for 70% of individuals, showing that red bats performed poorly the further away from, or in the absence of an edge habitat (Amelon et al., 2014).

Non reproductive individuals displayed different preferences than reproductive individuals for roosts and habitats. The ease of commute seems to be a high priority for non reproductive bats travelling from one site to another (Amelon et al., 2014). They were observed roosting at the edge of canopies where it would be easiest to initiate flight, although this would

make them easy targets for predators. These bats therefore try to minimize energy expenditure. Reproductive red bats seem to prioritize thermoregulation, protective canopies and habitats with suitable resources. Since these bats are to give birth, they spend energy to ensure the survival of the next generation.

REPRODUCTION. Among all the bat species, the red bat has the largest litter, with the female producing up to five offspring. Breeding usually occurs between August and September, but fertilization does not occur until spring (Wilson and Ruff, 1999). Females are able to control their pregnancy by storing sperm from the male and allowing fertilization when conditions are optimal. This usually depends on the availability of resources. Gestation is 80-90 days after which the female gives birth to 1-5 young. Newborn bats are hairless, their eyes are closed and they weigh an average of 0.5g. After birth, the young bats cling to their mother's fur for most of the time (Fig. 5), except during foraging, when the female leaves them at the roost. By the fourth week after birth, the young's eyes are open and they are covered with fur. They are able to fly by weeks 3-6 and it is during this time that they are weaned (Wilson and Ruff, 1999).

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Fig. 2. Western red bat *Lasiurus blossevillii* geographic distribution.

[https://en.wikipedia.org/wiki/Desert_red_bat, downloaded 3 May 2016]



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Fig. 3. Red bat displaying nocturnal activity.

[<http://animal-kid.com/eastern-red-bat-flying.html>, downloaded 2 April 2015]



Fig. 4. Red bat displaying diurnal roosting in a tree.

[<http://zoopicture.ru>, downloaded 2 April 2015]



Fig. 5. Female red bat with three young pups that are clinging to her fur.

[<http://arkive.org>, downloaded 2 April 2015]

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