Eumops auripendulus (Black Bonneted Bat)

Family: Molossidae (Free-tailed Bats)
Order: Chiroptera (Bats)
Class: Mammalia (Mammals)

Fig. 1. Black bonneted bat, *Eumops auripendulus.*

[https://inpn.mnhn.fr/espece/cd_nom/443646, downloaded 9 February 2016]

TRAITS. The black bonneted bat *E. auripendulus*, also known as Shaw's mastiff bat, is a medium sized free-tailed bat with adult weight of 26-38g (Goodwin, 1946). The back of this species may be blackish brown (Fig. 1) or reddish brown in colour with the dorsal hairs being buffy white; sides are pale grey (Best et al., 2002) and the wing membrane is dark (Allen 1990). It has a relatively large skull (Best et al., 2002) with broad and heavy teeth (Fig. 2). Ears are 27.5mm in breath, moderately large, rounded, joined and dark in colour. The tragus (outgrowth in the ear) is small and pointed (Best et al., 2002). The fur is nearly or fully absent along the margins of the forearm; the face is entirely hairless and ends in a blunt muzzle (Best et al., 2002). Adult males possess a sacular organ on the throat releasing secretions to mark their territory; it is undeveloped in females and absent in juveniles.

DISTRIBUTION. Found widespread over southern Mexico, all regions from Jamaica to Paraguay and northern Argentina (Fig. 3). In Venezuela it may occur at elevations of 25-100m and in Peru from lowlands to 1800m (Best et al., 2002). It is a native species in Trinidad and Tobago.

HABITAT AND ACTIVITY. *E. auripendulus* is found in a range of dense forested areas, coastal lowlands, slopes and in disturbed areas (Best et al., 2002). This bat is nocturnal in activity and crawls into cracks and small crevices during the day forming roosts, usually at least 6m

above the ground. Although this species is strictly nocturnal it may be observed at dusk or at dawn. *E. auripendulus* is commonly found at the same site as *Molossus molossus* and *Molossus ater* in central and northern Trinidad and is exposed to the same fauna of insects (Genoways et al., 1973). This bat is an intermediate between two extremes, selective and generalist, and may be described as opportunistic based on the abundance of prey (Esberard and Bergllo, 2008). Large bats like *E. auripendulus* forage at night for insect species such as moths and beetles.

FOOD AND FEEDING. Black bonneted bats are insectivorous and on average consume 303 prey each of 0.058g each night to acquire the ideal amount of food (Esberard and Bergllo, 2008). *E. auripendulus* relies on echolocation to visualize and track quick, night moving insects (Chui, 2008).

POPULATION ECOLOGY. *E. auripendulus* are found in related groups. In large spaces such as roofs and the inner housing of bells each colony may have more than 15 individuals (Best et al., 2002). Like other bats *E. auripendulus* has a relatively long life span; after achieving full maturity the bat can live for up to 20 years.

REPRODUCTION. Black bonneted bats are polyestrous in nature; until interrupted by pregnancy, illness or season the estrous cycle is repeated. Fluctuations in local conditions and the seasonal availability of food subject the individual to reproduce during restricted times in a year (Fenton and Cotterill, 2015). Females are viviparous and achieve oestrous several times a year resulting in the production of a single pup after the gestational period (Anderson, 1997). Evidence suggests that the black bonneted bat reproduces during the early spring (Best et al., 2002). This season tends to differ based on the positioning of the region in the northern and southern hemisphere. In Mexico, female bats were not reproductively active in May but in Bolivia in the month of August 12 pregnant females were present. Juveniles of the black bonneted bat are deep black in colour (Best et al., 2002). The wings of the pup are small and cannot be used for flight which is a necessary tool used during foraging. The female bats nurse their young until the wings are fully developed at which point the bat weans from the mother.

BEHAVIOUR. Young are born in the roosts sites amongst related colonies and fully dependent on the mother during the first stages of life. Like other bats, the black bonneted bat is prey to; owls, hawks and other predatory mammals that enter the roost site during the day and kill the bats (Admin, 2016). Black bonneted bats communicate using echolocation where echoes are produced by the ultrasonic sounds emitted by the bat. The bat uses its brain to compare both returning and outgoing pulses and is able to make a mental image of the surroundings and prey location. Dolan (1989) suggest that, insects, the primary food of the bat release sounds and vibrations from its wings that travel to bat making it easier to locate. Male and female bats also communicate with each other using echolocation at specific frequencies during reproductive seasons.

APPLIED ECOLOGY. Barquez et al. (2015) suggest that these bats are found in protected areas; this species it not used in harvesting or hunting. The rabies virus was isolated from the brain tissue of 5 *E. auripendulus* in Argentina. Other diseases such as *Schizotrypanum* and *Trypanosoma* have also been detected (Best et al., 2002). The International Union for Conservation of Nature and Natural Resources (IUCN) in a recent assessment of the species found that this bat has a presumably large population and wide geographic distribution and therefore it is unlikely to be qualified as a threatened or rare species.

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Author: Onecia S. Alexander
Posted online: 2016

Fig. 2. Thick teeth of black bonneted bat.

[http://battime.tumblr.com/page/4, downloaded 10 March 2016]

Fig. 3. Black bonneted bat geographic distribution.

[https://en.wikipedia.org/wiki/Black_bonneted_bat#/media/File:Distribution_of_Eumops_auripendulus.png, downloaded 15 February 2016]

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