Mormoops megalophylla (Ghost-faced Bat)

Family: Mormopidae (Ghost-faced Bats)
Order: Chiroptera (Bats)
Class: Mammalia (Mammals)

Fig. 1. Ghost-faced bat, *Mormoops megalophylla*.

[http://www.inaturalist.org/observations/1389902, downloaded 13 February 2016]

TRAITS. The ghost-faced bat *Mormoops megalophylla*, also known as Peters's ghost-faced bat, is the larger of the two living species within its genus, the other being *M. blainivilli*. *M. megalophylla*'s reddish brown fur colour (Fig. 1) becomes more prominent as it gets older, and it is slightly darker dorsally (Harvey et al., 1964). They tend to moult in patches on their shoulders and the sides, expanding over their back, from June to September. There is no sexual dimorphism in this species, therefore the average head and body length is 50-73mm for both male and females. Their forearm length is 50-61mm, tail length is 18-31mm, wingspan is 360-380mm (Fig. 2) and they weigh 13-19 grams (Nowak, 1999; Harvey et al., 1964). Their faces appear "smashed in" because the eyes are located within their round ears which are curved

across the forehead. The forehead rises sharply from the ridged, upturned nose. Their lower lip has a fleshy peg-like projection hence the alternative family name leaf-chinned bats. The juvenile's thumbs and feet are about the same size of an adult's (Wheeler, 1964).

DISTRIBUTION. *M. megalophylla* are mainly distributed in warm regions below 3000m elevation above sea level. They are native to Trinidad and Tobago, Guatemala, El Salvador, Mexico, Ecuador, Colombia, Belize, Peru, Venezuela and Texas (Fig. 3) (Dávalos et al., 2008). In Trinidad and Tobago for example they can be found abundantly in Grande Riviere's Crapaud Cave and also at the Asa Wright Nature Centre (Hargreaves, 2014).

HABITAT AND ACTIVITY. These bats are found in diverse habitats ranging from desert scrub to tropical rainforest. *M. megalophylla* are nocturnal in activity as they only forage at night. Nursing females' precise sense of smell enables them to find their pups after returning from foraging. They roosts in caves, mine shafts, tunnels and sometimes even in old buildings, in spatially isolated populations, alongside other species of bats (Nowak and Paradiso, 1999). To maintain the cave temperature, a minimum population of bats is crucial. This is significant as a temperature decrease will result in the death of juveniles (Dávalos et al., 2008).

FOOD AND FEEDING. Ghost-faced bats are strong fliers that can also fly quickly. They display this speed as they fly in formation, out of roost soon after dark at relatively high altitudes. Individuals fly to and then from foraging sites, consisting mainly of canyons and arroyos (a ditch carved by water), approximately 7 hours after first leaving roost (Rezsutek and Cameron, 1993). They often forage above stagnant water, on forest edges, gaps, or simply in exposed spaces. Although they fly to foraging sites together, they usually separate at feeding grounds (Steinway, 2000). The diet of these bats consist mainly of large-bodied moths and other insects that would usually have a body lengths of 5-6 mm, which they have captured during flight. At their hunting site, they dive down and pick insects out of the air (Wheeler, 1964). To identify their food at night they use echolocation (the location of objects by reflected sound). Hence they are able to catch insects in complete darkness. To drink water, an action that resembles chewing is done. They protrude their tongue and suck in their lips, while their head is raised allowing the water to enter their mouth (Nowak and Paradiso, 1999). The diet of the juvenile consists of milk produced by the mother. Their large thumbs and feet help them cling on to their mother while feeding (Wheeler, 1964).

POPULATION ECOLOGY. Ghost-faced bats have a preference for climates that are warm. Though they may roost in very large colonies, for example 500,000 individuals, they do not form tight clusters (Rezsutek and Cameron, 1993). They roost about 150mm apart from conspecific individuals (members of the same species) and are usually isolated from other bats such as *C. perspicillata, P. parnellii,* and *G. soricina* that roost in the same cave (Rezsutek and Cameron, 1993; Hargreaves, 2014). These bats have an estimated maximum lifespan of approximately 20 years (Rezsutek and Cameron, 1993).

REPRODUCTION. Annually females produce one furless (Fig. 4) pup between the months of April to June. The embryos are about 23mm (one-quarter the size of the mother) long (Rezsutek and Cameron, 1993). Non-reproductive females and males roost separately from nursing females because the nursing females and their pups are sensitive to changes in temperature

(Dávalos et al., 2008). Mothers roost in relatively warmer areas (36°C) to maximize retention of heat generated by their metabolism.

BEHAVIOUR. In the caves where they roost, males, reproducing females and non-reproducing females roost in separate areas. The males form colonies in areas with ambient temperatures of 30.6-34.2 °C. The non-reproductive females roost in deeper areas within the caves with ambient temperatures of 33.4-34.2 °C (Harvey et al., 1964). In the process of roosting, their backs are arched and their heads are tucked into their chest. Unfortunately snakes and hawks are the predators of ghost-faced bats (Wheeler, 1964).

APPLIED ECOLOGY. According to the IUCN Red List of Threatened Species, since ghost-faced bats are sensitive to disturbances their populations can be easily affected. In Belize for example there are frequent tourist cave visits and in Guatemala there are cave fires which are major threats to the ghost-faced bats. Additionally if a cave collapses localised extinction can be the result. Therefore to prevent further population decrease, species protection and cave conservation would be necessary. However since they are widely distributed geographically they are listed as of Least Concern (Dávalos et al., 2008).

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Author: Tekesha J.C. Watson

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Fig. 2. Ghost-faced bat in flight.

[From Wheeler, 1964]

Fig. 3. Ghost-faced bat geographic distribution.

[http://maps.iucnredlist.org/map.html?id=13878 downloaded 13 February 2016]

Fig. 4. Ghost-faced bat with one young pup that is clinging to her fur.

[http://www.pbase.com/brucetaubert/arizona_bats&page=2 downloaded 13 February 2016]