

Artibeus jamaicensis (Jamaican Fruit Bat)

Family: Phyllostomidae (Leaf-nosed Bats)

Order: Chiroptera (Bats)

Class: Mammalia (Mammals)



Fig. 1. Jamaican fruit bat, *Artibeus jamaicensis*.

[<http://www.aquablog.ca/2014/08/featured-animal-the-jamaican-fruit-bat/> downloaded 4 March 2015]

TRAITS. These are medium sized species of bats, which weigh between 40-60g and grow to a length of 75-85mm with a wing span that varies between 48-67mm. The back of their body is covered with an ashy shade of brown, greyish or black, short, soft, pleasant smelling fur with white hair roots that gives the bat a faintly hoary (frosted) appearance (Fig. 1). Their ventral underfur is usually paler in colour than its dorsal underfur and back fur (Rafferty 2011). Their genus is recognized by their four pale white facial stripes above and below their eyes (Fleming et al. 1972). Their wings are broad and displays a dark grey or black colour. They have an interfemoral membrane that is thin, hairless and has a short calcar. They have a protruding nose leaf and lacks an external tail. Their ears are small, pointed and rigid with a jagged tragus. Their bottom lip is covered in warts and has a large one in the middle (Ortega and Castro-Arellano 2001). Both the bottom and top lips of the Jamaican fruit bat has sebaceous glands (Dalquest et al. 1952). Both males and females are alike (Morrison 2011).

DISTRIBUTION. Located in South and Central America. They are widespread across the Greater and Lesser Antilles and range from southern Mexico to north-western Argentina (Redford and Eisenberg 1992; Rafferty 2011). They are also native to the Caribbean islands (Fig. 2), and have been recorded in Tobago.

HABITAT AND ACTIVITY. Roosts in protected habitats that are wide-structured which includes hollowed trees, caves, dense foliage, rock overhangs, rock fissures and even old buildings (Miller et al. 2008). They are mainly located in developed rainforests that are found on lowland and reside in a range of habitats which includes cloud, seasonal dry and deciduous forests, and human plantations (Brown 1997). They prefer to reside at altitudes between sea level and 2000m in tropical regions (Morrison 2011). They also alter large, broad leaves to form its own “leaf tent” in which it may temporarily roost. They are nocturnal, meaning that they are active and forage for food at night. They are greatly important for seed dispersal, as dispersal allows for growth to be restored in disturbed areas due to natural disasters and furthermore the redevelopment of New World tropical forests. They also aid in pollination of Neotropical plants since they sometimes feed on nectar and pollen (Rafferty 2011).

FOOD AND FEEDING. These bats are frugivores (fruit-eaters) meaning that they are classified primarily as herbivores. They mainly feed on figs and also on fruits like avocados, mangoes, guava, papaya and bananas. In the dry season, depending on food availability their diet can consist of leaves of some plants containing large amounts of protein, nectar pollen, parts of flowers and even few insects (Rafferty 2011). They can use echolocation but mainly rely on sense of sight and smell to obtain their food. They are able to locate fruit bearing trees by honing on the ripe fruit scent. At night, dozens of them travel up to 8km to a single tree to forage. When they choose a fruit they carry it in their mouths and fly between 25-200m to a feeding roost away from their food source (Fig. 4). They then bite, chew and then crush the fruit pulp using their robust molars and pressing their tongue beside their firm palate, sucking and swallowing the juice (Morrison 2011). They then spit out the dry pellet with large seeds at the feeding roost. During flight, small seeds are consumed and excreted whole. Their digestive system digests their food quickly. Their food is excreted in about 15-20 minutes after ingestion (Rafferty 2011).

POPULATION ECOLOGY. Their social organisation exists as harems which consists of between 4-18 females, their offspring and a single male or sometimes two males (Morrison 2011). Males form stable hierarchies. These polygynous males defend their harems against neighbouring bachelors. Males of greater size and weight defend greater sized harems whereas the dominant males stay with a harem for a long period of time, and sometimes all their adult life. On many occasions females interchange amongst the harems (Rafferty 2011). The solitary female sometimes is integrated into harems that already exist. The dominant males has no issues when finding a mate for copulation whereas males that are bachelors may sometime copulate with the solitary females (Ortega and Castro-Arellano 2001). At night the dominant males that roost in caves or hollow trees defend their harems during the breeding season against neighbouring bachelors and rival males. This is called ‘female defence polygyny’. These dominant males will only allow another male to copulate with females from their harem if that other male already roosts with same harem. This species of bats can live up to 9 years old in the wild and if captive up to 10 years old (Rafferty 2011). They are widespread, in abundance, very protected and their population trend is stable (Miller et al. 2008).

REPRODUCTION. Females are viviparous and their reproductive cycle exhibits seasonal polyoestry since it varies between normal and delayed development. Females' birth one pup in late March or beginning of April. They are able to reproduce again soon after giving birth. This is called postpartum oestrous, where females can be both pregnant and lactating simultaneously (Rafferty 2011). At this stage males' testes enlarge and copulation can occur. After a gestation period, which can vary between four weeks to four months, the females would birth one pup again in late July or beginning of August. However, following this period they are unable to birth any offspring for two and a half months due to the blastocyst implants in their uterus becoming dormant. Following this period, around mid-November they are able to continue development and their reproductive cycle. The delayed development coincides with the birth of an offspring when the dry season ends. This allows for weaning to occur as fruits are highly available at this time (Morrison 2011). It is very rare for females of this species to birth twins. The reproductive cycle of these bats are altered due to the availability and abundance of food along with the seasonal changes (Fleming et al. 1972). Not much is known about their parental care. While in the womb, females provide and protect their offspring. After birth, they continue to nurture their pup until weaning. Pups are able to fly between 31-50 days after birth and at approximately 80 days of age they achieve the size of an adult. Before this the mothers carry their young while in flight to search for food (Fig. 3). Maturity for females take approximately 8 months and for males 12 months (Morrison 2011)

BEHAVIOUR. Juvenile behaviour: Little is known about mothers and their offspring. The pup is birthed in the roost. They suckle on their mother's breast for milk for approximately 15 days and then the mother weans them off. The mother protects and carries the pup in flight after birth. After a few days, the mother leaves the pup in the roost when foraging for food for them. The juvenile pup is unable to attain food by itself until they are able to fly. In caves that are densely populated, pup emits sounds that are of low intensity with long and short notes that are repeated to help to reunite with the mother (Morrison 2011).

Anti-predator behaviour: They stop any feeding activity at one week prior and later to a full moon and return to their roost even if cloud cover is present when the moon is at its highest. Otherwise the forage throughout the night. They have lunar phobia, so they remain in their roost to avoid nocturnal predators that detects prey by sight (Rafferty 2011). They are nocturnal and their habitats are dark, so their dark-shaded fur aids as a camouflage against potential predators.

Communication: They use echolocation mainly for orientation. They use smell and site for food detection. They use their nose-leaf to emit very low intensity sound pulses when mouth is closed to indicate food location. They also emit warning calls if captured that signals conspecifics as well as some other species. They produce distress calls when predators are approaching to warn conspecifics (Ortega and Castro-Arellano 2001).

APPLIED ECOLOGY. According to the ICUN, the Jamaican Fruit Bat is listed as least concern which means that they does not qualified for being critically endangered, endangered or in any way threatened (Miller et al. 2008).

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Fig. 2. Jamaican fruit bat geographic distribution.

[<http://maps.iucnredlist.org/map.html?id=2135> downloaded 25 February 2015]



Fig. 3. Jamaican fruit bat in flight carrying young.

[<http://www.arkive.org/jamaican-fruit-eating-bat/artibeus-jamaicensis> downloaded 3 February 2015]



Fig. 4. Jamaican fruit bat feeding on a fruit.

[<http://www.aquablog.ca/2014/08/featured-animal-the-jamaican-fruit-bat/> downloaded 4 March 2015]