

Blaberus giganteus (Giant Cave Cockroach)

Order: Blattodea (Cockroaches)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)



Fig. 1. Giant cave cockroach, *Blaberus giganteus*.

[http://en.wikipedia.org/wiki/Blaberus_giganteus, downloaded 6 April 2015]

TRAITS. With lengths of 7.5-10cm *Blaberus giganteus* is considered to be one of the largest cockroaches, and is commonly known as the giant cave cockroach. They have flat, oval bodies and adults have two pairs of wings (Fig. 1). The forewings are leathery and light brown in colour and the hindwings are thin and expansive. They have three pairs of long legs and a pair of tail appendages or cerci. Between the cerci are hair-like appendages called styli. These cockroaches display sexual dimorphism as males are slightly shorter than the females and the females lack styli. The male also has an additional segment on its abdomen.

DISTRIBUTION. This species of cockroach is widely distributed in Central America and the northern parts of South America, and can also be found on some Caribbean islands. *Blaberus giganteus* can specifically be located in Trinidad and Tobago, French Guiana, Guyana, Colombia, Mexico, Panama, Guatemala and Suriname (Fig. 2).

HABITAT AND ACTIVITY. *Blaberus giganteus* inhabit areas that are humid, moist, dark, and poorly ventilated (Bell and Nalepa, 2007). These habitats include mainly caves, decomposing logs, hollow trees and in the cracks of rocks. Populations of the *Blaberus giganteus* live in their cavernous and hollow tree habitats with arthropods, bats and opossums. This is very important to take note of since bats play an important role in the female oviposition (egg-laying) (Reynolds, 2009). These cockroaches are nocturnal; they are generally inactive during the day and seek protected locations. During the night or when light intensity falls, they emerge from their shelters and become active. There is a region of the brain that controls the activity rhythms of cockroaches called the circadian master clock. Activity rhythms can also be controlled by micrometeorological events including increase in temperature caused by bat activity or wind disturbances (Bell and Nalepa, 2007).

FOOD AND FEEDING. *Blaberus giganteus* is an omnivore, specifically a scavenger. They feed on dead insects and other animals, decaying matter, fruits, guano (bird and bat droppings). They mostly feed at night as they are nocturnal, when they come out of their hiding areas and feed.

POPULATION ECOLOGY. Social and territorial behaviour is exhibited in *Blaberus giganteus*. This can be seen in those populations that reside in hollow trees. Due to the structure of a hollow tree a hierarchy is exhibited, based on different perching sites. The more dominant of the males can be found at higher perching sites than those that are less dominant (Reynolds, 2009). Since female oviposition usually takes place on the ground, it is not known if those cockroaches in higher perch sites are more successful with attaining receptive females. When females become receptive they move upwards from the base of the tree therefore males are more likely to find a mate closer to the ground (Reynolds, 2009). Perch height is also thought to be a strategy to find mates. The males perched above the ground are able to detect the rising pheromones released by the females below and are able to locate receptive females (Bell and Nalepa, 2007). *Blaberus giganteus* is a very abundant species, a total of 984 were found in five sites in a study conducted in Mexico. They were more present in areas where there was a great amount of bat guano present. These insects are long lived and can survive an average of 20 months to 2 years.

REPRODUCTION. A sex hormone is released by the female *Blaberus giganteus* prior to mating. This sent is picked up by the males which cause them to engage in a mating ritual. They begin trembling their abdomen and raises its wings at right angles to their abdomen. The females are attracted to these actions and the males and females align themselves at their posterior ends and stay in this position for long hours. When mating is over the female produces an egg sac called the ootheca in which the eggs are stored for about 60 days. The ootheca is then expelled and the nymphs are hatched from their eggs. The first meal of the nymphs is the ootheca, they would then crawl into the soil, rotting wood or guano for 8 months (8 moults) until they reach sexual maturity. The litter size is usually around 20-34. Cockroaches have the distinct life cycle stages of egg, nymph and adult. They grow by a process called hemimetabolous, incomplete, or gradual metamorphosis, meaning that there are several nymph stages which become more like the adult with each moult. The cockroach nymphs are similar to adults, but lack wings. Immediately after moulting both nymphs and adults are white and have a soft exoskeleton (Fig. 3). *Blaberus giganteus* can, because of their habitat, go through extra moults compared to other cockroaches, this prolongs their development to maturity. Parents do not care for their young.

BEHAVIOUR. Nymphs usually live in guano, rotting wood or soil after they are hatched. They feed and undergo several moults until they reach maturity. The nymphs stay away from light and usually come out at night. They are very alert when foraging on the surface their antennae move persistently. They then emerge and those living in caves or hollow trees join the adults on perches. The giant cockroach has many adaptations that allow them to escape predators. They have cerci which allow them to sense minute air movements so they can detect and flee from potential danger. They are also able to produce a foul smell when they are threatened so that they are able to ward off danger. To avoid attack by ants the nymphs are able to bury themselves in guano and under loose soil. The adults are also able to burrow in response to predator attack. Its flat body also allows them to squeeze into small places to escape predators.

APPLIED ECOLOGY. These cockroaches are important ecologically as they aid in the decomposition of forest litter and faecal matter. This is important as it provides nutrients for plants and food for other animals. They are also commonly used in research labs as they are used for entomology studies.

REFERENCES

- Bell, W. & Nalepa, C. 2007. Cockroaches: Ecology, Behaviour and Natural History. JHU Press.
Reynolds R. 2009. *Blaberus giganteus*. <http://www.edulifedesks.org/class/8631/taxon-page/8809>. 30th March, 2015.
Toronto Zoo. Brailian Giant. <http://www.torontozoo.com/Explorethezoo/AnimalDetails.asp?pg=445>. 30th March, 2015.

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Fig. 2. Point map of *Blaberus giganteus* distribution.

[http://eol.org/data_objects/21129907, downloaded 6 April 2015]



Fig. 3. Recently moulted nymph of *Blaberus giganteus*.

[http://users.usachoice.net/~swb/pet_arthropod/RCH.htm, downloaded 15 May 2015]

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