

Triatoma sanguisuga (Bloodsucking Conenose)

Order: Hemiptera (True Bugs)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)



Fig. 1. Bloodsucking conenose, *Triatoma sanguisuga*.

[<https://monstersandmolecules.files.wordpress.com/2014/01/kissingbug.jpg>, downloaded 4 April 2012]

TRAITS. *Triatoma sanguisuga* is often called the bloodsucking conenose or the Mexican bed bug and in Trinidad is sometimes referred to as the “bloodsucker.” It has an oval shape with fourteen or more coloured horizontal lines which may be an orange-reddish or yellowish (Fig. 1). These lines are present on abdominal segments as well as the wings and apart from these colours the body of the insect is usually a black to brownish colour (Kjos, 2010). The pronotum is black with side and top margins that are the same colour as the horizontal lines. The tip of the scutellum is long and narrow and its mouth part has little to no hair present. The insect’s six legs and two antennae can be seen when it moves and it has two large black eyes (Maurer, 2013). There is no large size difference between the male and female however females have a triangular tip at the end of the abdomen (Fig. 2). The antennae of males have a different pattern and also contain more sensillae (sense organs) (Maurer, 2013). It is neither the largest nor the smallest of the bugs in this genus and is usually approximately 22mm in size, ranging from 12-36 mm. The nymphal instars are similar morphologically to adults but lack wings, the distinct colour pattern and have slightly smaller eyes. The eggs are white ovals 1-2mm in diameter.

DISTRIBUTION. Found mainly in the southeastern region of the USA and throughout Latin America (Maurer, 2013). The insect is also present in Trinidad and Tobago (Fiona, 2009).

HABITAT AND ACTIVITY. *Triatoma sanguisuga* is a nocturnal insect that is present in temperate and tropical environments. They are usually found in dark, secluded corners in houses, under loose wooden floorboards and older building structures (Maurer, 2013). In nature they are usually located in forest hidden under leaf litter, inside crevices of trees or under rocks (Conn and Capinera, 2013). They also hide in nests or burrows of animals so that they can easily feed at night and also lay eggs under large flat rocks or wood piles in these areas. They are also seen in farms where they usually feed on the animals that live there (Maurer, 2013). Dispersal is usually through flying or crawling in the cases of adults and nymphs. The eggs and nymphs can be dispersed passively if attached to a host (Koltz et al., 2014).

FOOD AND FEEDING. The insect is a sanguivore (blood-feeder) which feeds on sleeping animals at night. The insect releases an enzyme which numbs the area where it inserts its proboscis to feed so that the initial bite is painless (Maurer, 2013). It usually feeds for 3-8 minutes without detection and its most common host is the wood rat, however it also feeds on humans and other mammals. The organism sometimes releases faeces on the host while feeding which helps with the transfer of Chagas disease. It is unable to fly after feeding for long periods. It locates its host using chemoreceptors on the antenna and is able to detect levels of carbon dioxide, moisture alterations, heat, air flow changes, infrared radiation and specific host smells (Maurer, 2013). It is able to live for several months without food (Koltz et al., 2014).

POPULATION ECOLOGY. In nature *Triatoma sanguisuga* is sometimes found in colonies of related individuals involving the mother and her newest brood of eggs (Maurer, 2013). The insect usually moves to a new environment after fertilization and as such colonies do not grow to large size and there is dispersal of the insects so they are usually found alone (Koltz et al., 2014). They usually have a lifespan of about three years in nature and 450 days in captivity since they do not hibernate (Maurer, 2013). It has a shorter lifespan in tropical environments and there is more than one generation produced in a year.

REPRODUCTION. *Triatoma sanguisuga* is hemimetabolous and its life stages include a fertilized egg, nymph and adult (Fig. 3). The length of time it takes for the egg to develop depends on external temperature where higher temperatures result in a faster rate of development. Two to three days after hatching the nymph needs a blood meal. For the insect to move from one nymphal stage to another it must undergo ecdysis (shedding) which is stimulated by a moulting hormone that is released after sufficient feeding. There are usually eight nymphal stages before the insect becomes adult, each of which is separated by a moult (Maurer, 2013). Both sexes are polygynandrous (mating with several others), and reach sexual maturity 1.5-2 years after hatching. The female attracts the male by releasing a pheromone secreted during the early periods of the night by the metasternal glands. Mating usually takes about 10 minutes after which the female migrates to a different territory to form a new community. They do not provide any parental care but lay their eggs where they have digested their last blood meal (Maurer, 2013). Females carry developed eggs in their ovarioles and if unfertilized they remain in its body. They can lay hundreds of eggs during their life time depending on environmental conditions (Maurer, 2013). The female is also able to store sperm for several months (Koltz et al., 2014). Higher temperatures result in more offspring being produced and the amount of eggs laid at any one time is from 5-17. In the northern hemisphere eggs are repeatedly laid between May and September (Maurer, 2013).

BEHAVIOUR. The adult is able to both crawl and fly, however juveniles are unable to fly because they lack wings (Maurer, 2014). It is also able to produce a light chirping sound by rubbing the rostrum on the stidulitrum. The exact purpose of this sound however is not known (Koltz et al., 2014). It is preyed upon by several amphibians and birds and as such need some level of defence. This is provided by the defensive glands called Brindley's glands which release volatile alcohols and short chain fatty acids which produce a potent smell. These glands are active in both male and female *Triatoma sanguisuga* but not juveniles. They however react to the odours produced by the adults and as such the chemicals released from these glands have both a defence and alarm function (Koltz et al., 2014).

APPLIED ECOLOGY. This species not in danger of extinction and is of importance to humans because of its ability to act as one of the vectors for the parasite *Trypanosoma cruzi*, which is responsible for Chagas disease (CDC, 2012; Maurer, 2013). In order for this insect to transfer this parasite into a human host it must first feed upon another animal containing the parasite then feed upon a human. There are a limited number of cases of this disease because of improvements in household structures that limit the insect's ability to live in homes unnoticed, air conditioning of homes and also because of pest control such as insecticides that kill the insect.

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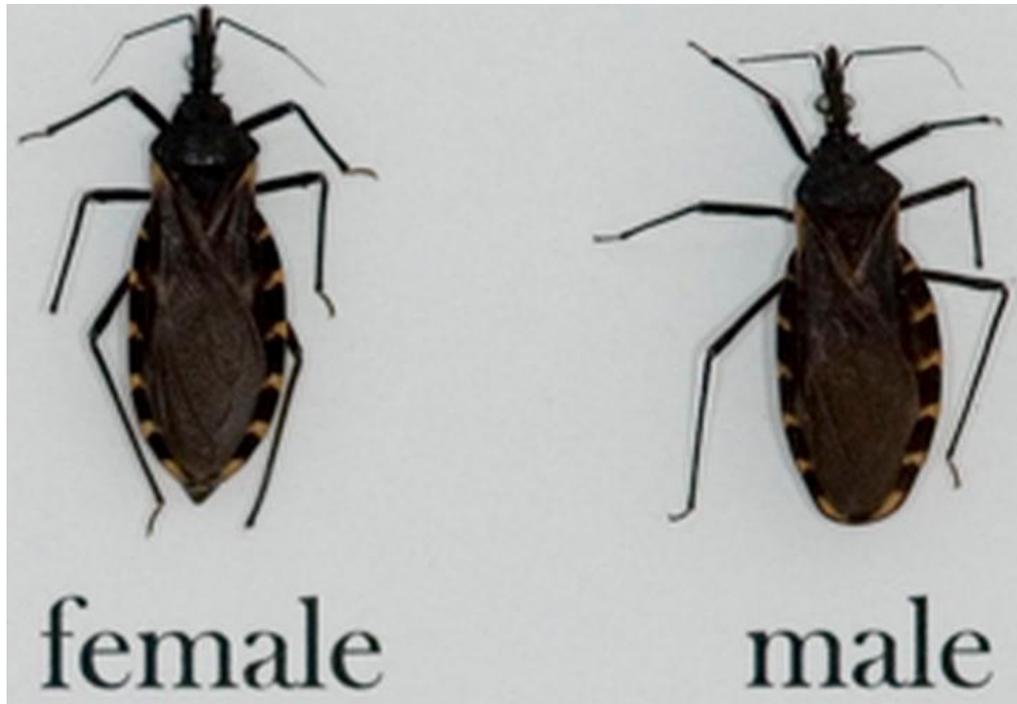


Fig. 2. Female and male triatomine bugs.

[http://www.cdc.gov/parasites/chagas/gen_info/vectors/triatomine_stages_lg.html, downloaded 6 April 2015]

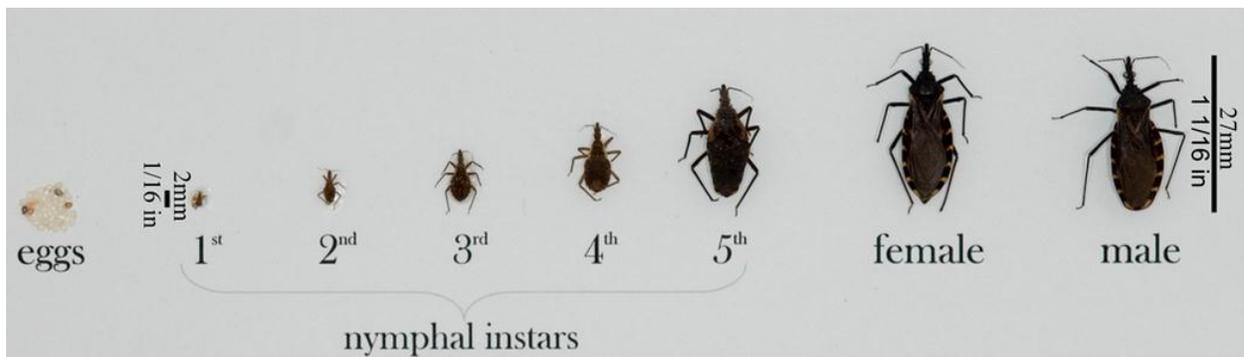


Fig. 3. Life stages of triatomine bugs.

[http://www.cdc.gov/parasites/chagas/gen_info/vectors/triatomine_stages_lg.html, downloaded 6 April 2015]

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