

Acrocinus longimanus (Harlequin Beetle)

Order: Coleoptera (Beetles)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)

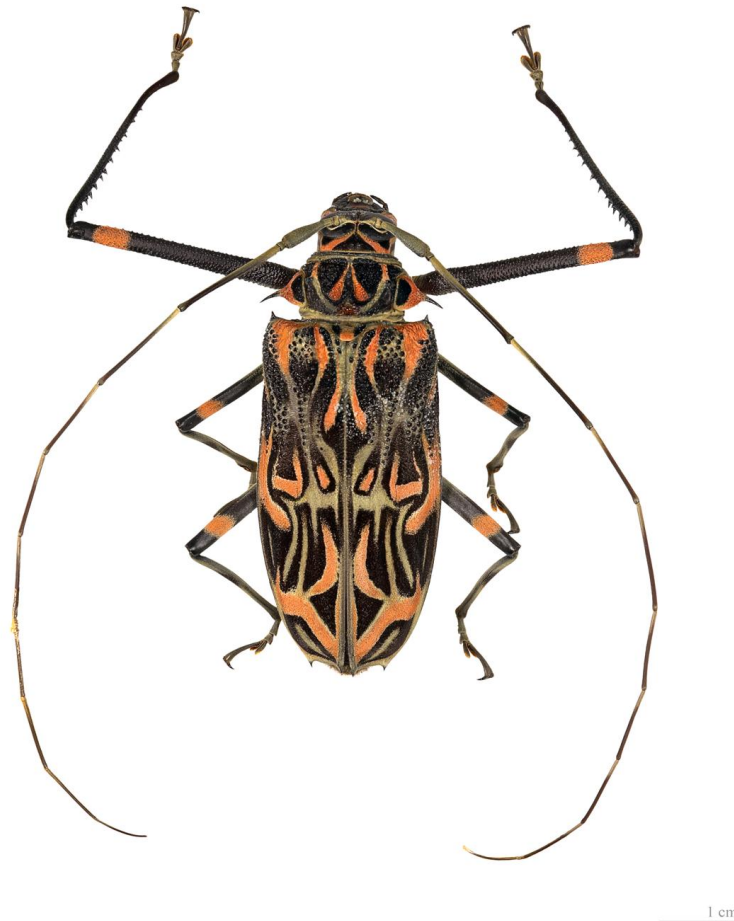


Fig. 1. Harlequin beetle, *Acrocinus longimanus*.

[http://upload.wikimedia.org/wikipedia/commons/0/0f/Acrocinus_longimanus_MHNT_femelle.jpg, downloaded 10 March 2015]

TRAITS. A large tropical American beetle with detailed polychromatic patterns of black, orange-red and yellow markings on its wing covers (Encyclopedia Britannica, 2014). The species name *longimanus* denotes its extremely long forelimbs, which extend longer than the insect's entire body. The males may have foreleg lengths up to 150mm, approximately twice those of females of similar body size. The shape of the foreleg tibia is relatively straight in females but curved in the males (Zeh and Zeh, 1992). The harlequin beetle also has extremely long antennae, as do other beetles in this family (Cerambycidae; longhorn beetles).

DISTRIBUTION. Widespread from southern Mexico to Brazil in South America (in most Amazonian rain forests), and may also be found in many Caribbean territories such as French Guiana as well as in Trinidad and Tobago (What's that bug, 2007).

HABITAT AND ACTIVITY. Usually can be found hiding amongst the lichen and fungus covered (often rotting) trunks of tropical trees such as fig trees (Encyclopedia Britannica, 2014) (Fig. 2). These beetles typically live in undisturbed habitats such as forested areas (What's that bug, 2007). The Harlequin beetle may be described as being diurnal, that is being awake during the day time and at rest in the night. However, these beetles tend to gravitate towards artificial light sources at night (Bugfacts, 2015).

FOOD AND FEEDING. The harlequin beetle has a diet primarily consisting of wood, bark and fungi, particularly the sap from the bark of dead or decaying trees (Encyclopedia Britannica, 2014). Behaviourally, it has been shown that the beetles are able to locate and fly towards fallen trees (decaying trees) mere hours after impact due to the beetle's keen ability to recognize the pungent sap that is released prior to the tree falling (Zeh and Zeh, 1992). Harlequin beetles have also been shown to be able to survive solely on excremental from other animals (Rainforest Alliance, 2015). Harlequin beetles are mainly herbivorous, that is, they feed on plant material although they may also be considered as detritivores, due to their ability to feed on decomposing organic matter (excrement).

POPULATION ECOLOGY. In terms of social organization, the harlequin beetle is usually solitary (does not travel as a part of a group). However, these beetles do exhibit phoresy meaning that other organisms, namely the pseudoscorpion *Cordylochernes scorpioides* (Fig. 3), use the beetle as a transport medium to get to other locations. Harlequin beetles are almost always found carrying these 'hitch-hiking' arthropods, which pose no actual threat to the beetle itself. The harlequin beetle is a typically rare species in nature, and mostly the female beetles are found, clustering around any decaying tree to feed and to lay eggs. Some males may be found at these tree locations as well, for the purposes of feeding, mating or protecting the female beetle and her eggs from predation (What's that bug, 2007). The harlequin beetle is the largest species of the longhorn beetle family, and has a lifespan of up to 10 years; most of its life span however is spent in the larval stage (Sinac, 2013).

REPRODUCTION. The harlequin beetle goes through four stages of development (complete metamorphosis); egg, larva, pupa and adult. Typically during spring or autumn (in temperate countries) and the rainy season (in tropical countries), the female harlequin beetles lay their eggs on fungus-covered trunks of trees as these provide an excellent camouflage to the eggs, protecting them from predators. The female lays her eggs on decaying bark and trees that are rich in sap to provide nourishment for the larvae (Zeh and Zeh, 1992). Before laying, the female beetle nibbles a 20 x 8mm incision deep into the bark of the tree to lay her eggs in. The female harlequin beetle can lay from 15-20 eggs over a span of 2-3 days (Encyclopedia Britannica, 2014). When the eggs hatch into larvae, they bore into the bark or wood that they were initially laid on. It takes about 7-8 months for them to reach maturity at which time the larva is buried as a pupa in the tunnel it bored, which can reach a depth of up to 13cm. The adult beetle then emerges from this tunnel four months later by gnawing its way out of the bark or wood. The harlequin beetle's life cycle is therefore annual in nature (Bugfacts, 2015).

BEHAVIOUR. Male harlequin beetles use their long arms to not only communicate (attract females) but also to fight predators, guarding both the female and the site where she laid their offspring (eggs) (Animals-PawNation, 2015). Harlequin beetles have powerful mandibles that are capable of severing antennae and incapacitating forelegs (Zeh and Zeh, 1992). This is especially advantageous when it comes to defeating predators. Birds, lizards and frogs are the primary natural predators to the Harlequin beetle (Animals-PawNation, 2015). The harlequin beetle also mainly protects itself from predation via its body being encased by a hard exoskeleton, and it also utilizes its antennae to sense foreign objects or movement within its surrounding environment (Rainforest Alliance, 2015).

APPLIED ECOLOGY. The harlequin beetle is listed as a vulnerable species by the IUCN. This is due to the species being at risk due to the large extent of deforestation practices (caused by humans) in its natural rainforest habitat which thereby reduces reproduction time and also interrupts the long larval stage of these beetles from reaching completion. Deforestation is also the main cause of death amongst these tree-dependent insects (Sinasc, 2013). Many persons and collectors also removed these beetles from their natural habitats to be kept as pets or to be mounted and preserved in taxonomic display galleries. Campaigns to stop these harmful practices in forested areas have therefore been initiated to protect and hence conserve these unique animals (Animals-PawNation, 2015). Harlequin beetles are not dangerous insects as they are non-poisonous, non-carnivorous and do not cause disease amongst other organisms (non-pathogenic). However, they may use their piercing mandibles to clip onto the skin or external surface of other organisms if threatened (What's that bug, 2007).

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Fig. 2. Harlequin beetle in its natural habitat.

[http://en.wikipedia.org/wiki/Harlequin_beetle#/media/File:Acrocinus_longimanus.jpg, downloaded 13 March 2015]



Fig. 3. *Cordylochernes scorpioides* (pseudoscorpion) on harlequin beetle.

[<https://sixlegsphoto.files.wordpress.com/2013/06/pseudoscorpion.jpg>, downloaded 1 April 2015]

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