

Goniopsis cruentata (Mangrove Root Crab)

Order: Decapoda (Crabs, Lobsters and Shrimps)

Class: Malacostraca (Crustaceans: Crabs, Sand-hoppers and Woodlice)

Phylum: Arthropoda (Arthropods)



Fig. 1. Mangrove root crab, *Goniopsis cruentata*.

[<http://www.fotofauna.org/Insecto/1213/Insecto.html>, downloaded 17 February 2016]

TRAITS. *Goniopsis cruentata*, commonly known as the mangrove root crab, is about 6.3cm in length at maturity, with a square dark brown carapace that varies in colour, short red-stalked eyes on the anterior corners, and equal-sized chelipeds (claws) with no hairs and shallow teeth (Fig. 1). The legs are red and hairy with yellow and white spots laterally arranged and have larger white spots along the edges of the carapace (Kaplan, 1988). The males and females at full maturity are generally the same size (de Lira and Calado, 2013). The female abdomen is wider than the males (Coulombe, 1984). Their overall colour varies from reddish, purplish and dark brown carapace and the immature crabs are often mistaken for other species.

DISTRIBUTION. Widely spread over the western Atlantic, from south Florida (USA) to southern Brazil. Also ranges in the eastern Atlantic, from Senegal to Angola (Fig. 2). It is found throughout the Caribbean Sea and the West Indies.

HABITAT AND ACTIVITY. Versatile, occupies almost all the mangrove microhabitats from muddy banks, marshes and sandy soil between the roots and trunks of mangrove trees and is considered semi-arboreal. They do not build dens; they raid the homes of other crabs in the soil.

They are very active during the day and the night. During the day, along with burrowing in the ground, they climb onto the tree trunks (Fig. 3). At low tides, *G. cruentata* move near the mangrove roots and on the mud flat some distance away from the mangrove roots. At high tide, when there is no mud flat and the mangrove roots are partially submerged, the crabs move to the structures above the water line; including roots, cement blocks, wooden planks, and piles of emergent mud.

FOOD AND FEEDING. The food chain relationship among mangrove root crabs is important as they display both predator and prey qualities. Mangrove root crabs provide food for other species and by eating leaf litter and organic material around the mangrove roots, they contribute to the recycling of nutrients. They are detritivores, their diet consists of dead mangrove leaves and crustacean corpses, including those of their own species. *G. cruentata* have one of the most important functions in the mangrove; they utilize particulate organic matter from microbial biodegradation, taking advantage of the food substances that are available to them (De Lima-Gomes et al., 2011). They eat seedlings of various species of mangrove trees, influencing their distribution. *G. cruentata* is a large mangrove predator actively hunting smaller crab species, especially the various species of *Uca*, and *Aratus pisonii*.

POPULATION ECOLOGY. *G. cruentata* like other crabs, are typically solitary because they are belligerent and challenge each other for food and burrowing holes. They are generally found alone or at least 30cm away from any other crab, very seldom they can be seen in groups of two or three.

REPRODUCTION. Like almost all crabs, the female's abdomen is wider than the male for egg storage; in males, the abdomen is narrow. Adult males also have larger and stronger claws and mature at smaller sizes than females (de Lira and Calado, 2013). The gonopod (an appendage to serve as a copulatory organ) length in males together with the abdomen width and length in both males and females is related to their specific sex roles, i.e., incubating eggs in females and maximizing the number of mates in males (de Lira and Calado, 2013). During the mating season, when copulation happens, the male uses its gonopod to deposit sperm in the female where it is stored until she releases her eggs. The eggs are kept in a spongy mass within the abdomen of the female. When their eggs are mature, the female discharges the eggs simultaneously with the stored sperm, which flows over and fertilizes the eggs where they hatch and undergo various stages of development. The zygotes develop through four phases: fertilized egg, zoea larvae, megalops larvae, and the adult stage (Coulombe, 1984). Fertility increases with the female's size and the number of eggs incubating at an early-stage are higher than those incubating at a late-stage (loss of eggs during embryogenesis). Females breeding occur mostly in the dry season rather than in the rainy season (de Lira and Calado, 2013).

BEHAVIOUR. These crabs remain motionless for a short period of time before moving quickly into a nearby burrow when the mangrove roots are disrupted. Along with burrowing in the ground, these crustaceans can climb trees to protect themselves (Wikipedia, 2016) (Fig. 4). These mangrove root crabs are very belligerent and they prey on smaller crabs which are a part of their diet. To deter predators *Goniopsis cruentata* brings out its front claws outright in a defensive manner (Fig. 1). They are quick and agile making them very difficult to capture (Bucholz and Wise, 2009).

APPLIED ECOLOGY. *G. cruentata* is not on the IUCN red list of threatened species. In Trinidad it is seen as an attraction in the Caroni swamp river on tours (Fig. 5). However, in the other native countries and Tobago there is no data to support if their population is declining.

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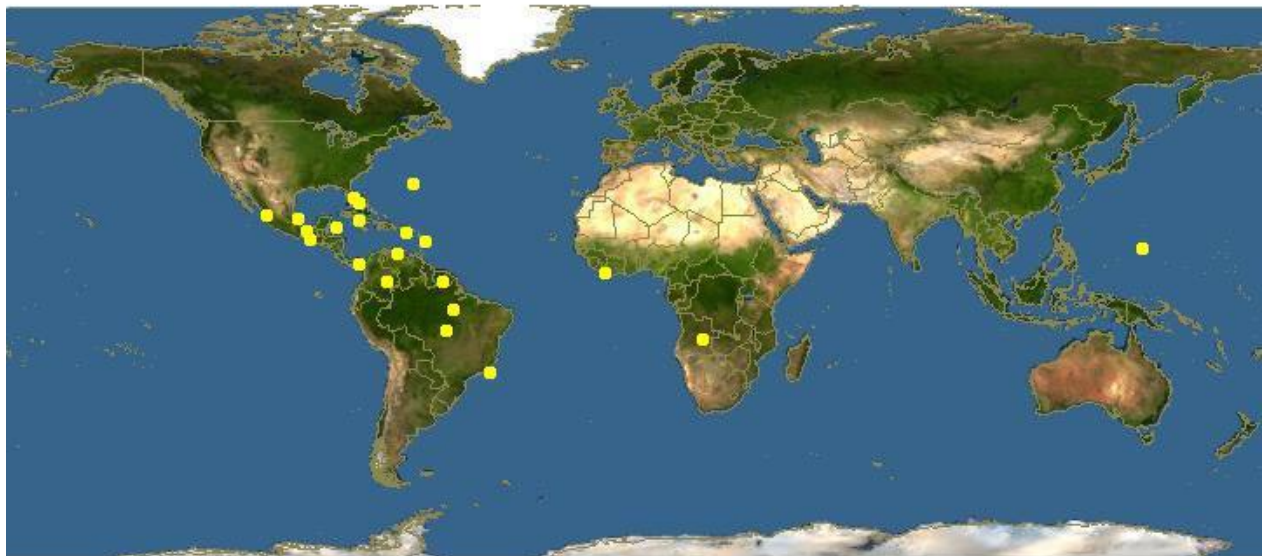


Fig. 2. Mangrove root crab geographic distribution.

[<http://www.discoverlife.org/mp/20q?search=Goniopsis+cruentata&b=EOL/pages/344168>, downloaded 23 February 2016]



Fig. 3. Mangrove root crab in a tree during the day.

[<https://www.flickr.com/photos/24580998@N08/3331527594>, downloaded 2 March 2016]



Fig. 4. Mangrove root crab climbing mangrove roots.

[<https://www.inaturalist.org/observations/2508119>, downloaded 2 March 2016]



Fig. 5. Mangrove root crab spotted from a boat at Caroni swamp, Trinidad.

[<http://www.projectnoah.org/spottings/19484206>, downloaded 2 March 2016]