

Armases roberti (River Crab)

Order: Decapoda (Shrimps, Lobsters and Crabs)

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

Phylum: Arthropoda (Arthropods)



Fig. 1. River crab, *Armases roberti*.

[<https://chipie33.wordpress.com/2010/02/25/une-histoire-de-crabes/>, downloaded 26 March 2015]

TRAITS. Adult river crabs are distinguished by a mostly brown colour in the dorsal region of the carapace with the front region slightly orange with remnants of chromatophores (pigment cells) from the juvenile stage along the body. Adult female river crabs are slightly larger than the males. Juvenile river crabs may be characterized by several bright yellow chromatophores on the dorsal regions of the carapace and on the eye stalks (Fig. 3F). Four large brown, highly branched chromatophores are spread throughout the centre of the dorsal region (Anger et al., 2006).

DISTRIBUTION. Widespread exclusively throughout coastal regions of Caribbean islands, ranging between Cuba and Trinidad and Tobago (Guerao et al., 2007).

HABITAT AND ACTIVITY. River crabs may be found in moist environment, ideally on the banks of freshwater rivers (Diesel and Schuh, 1998). Most adults and juveniles can be seen among the rocks during the day seeking protection in the crevices, on the surface of the rock under the shade of vegetation or among tree roots as depicted in Fig. 2. Favourable habitat

conditions involve lush vegetation near the river bank so as to produce cover from possible terrestrial predators.

FOOD AND FEEDING. Algae is the main source of food, usually found on the rock surface, just above the water. Ovigerous females (with eggs) must feed frequently preceding mating to increase the larvae's chances of survival as the females must endure migration to the river to release the eggs.

POPULATION ECOLOGY. While ovigerous females may be found nearer to the river bank, it is common for some to venture further inland. Their distribution is highly dependent on their ability to facilitate the transport of their larvae to the sea. Both adults and juveniles can be seen together in large groups throughout the day. However, in hotter conditions members may separate to seek shelter in the nearby vegetation.

REPRODUCTION. Although adult river crabs are mostly terrestrial, reproduction is marine in nature, producing eggs and planktonic larvae which develop in the water before returning to land. After mating, the eggs are laid within a few hours. Females with eggs are usually found nearer to the mouth of the river in preparation for release. During the intermoult stage, a female may lay up to two clutches. Some females may even produce fertilized eggs without a mate for approximately one year, having stored sperm from a previous encounter. Once clutch may produce many eggs. Larvae are released into the water where they can survive for 2 days and must be transported via the river current to marine waters to facilitate development which takes place in approximately 17 days (Diesel and Schuh, 1998).

Development occurs in four zoeal stages as seen in Fig. 3, in waters of higher salinity than its usual habitat (Torres et al., 2006). It also involves one megalopal stage which later on becomes the juvenile crab. If feeding does not occur during development then the larvae do not progress into the subsequent stages, surviving for less than one week before death. Zoea I (Fig. 3A) is characterized by a smooth carapace lacking setae (hairs), a well-developed mandible and underdeveloped first, second and third maxillipeds (limbs). Early formation of the anterodorsal setae occurs in Zoea II (Fig. 3B) along with undifferentiated pereopods with majority of developing features remaining unchanged. In Zoea III (Fig. 3C), the carapace progresses further into four anterodorsal setae, the emergence of an antennae as well as segmentation of the first and second millipeds. Zoea IV (Fig. 3D) marks the ends of all development in the zoeal stages with a fifth anterodorsal setae in the carapace and further segmentation of the antenna, mandible, pereopod and first, second and third maxillipeds. Through the megalopa (Fig. 3E) and juvenile crab (Fig 3F) stages, the structures experience no further direct changes as the crab continues to feed and grow.

BEHAVIOUR. It is common for river crabs to jump into the water when there is a disturbance in or near the resting place, however they resurface when signs of the disturbance are no longer apparent as they are semi-terrestrial, spending most of their adult life on land. In the marine environment, the larvae may be fed upon by planktivorous fish. As the nature of this type of development shown by river crabs is still primitive, the larvae do not possess any mechanisms which may prevent them from being preyed upon. However, in Caribbean islands such as Jamaica, the threat of planktivorous fish is rare (Diesel and Schuh 1998). Little research has been performed on social interactions among crabs of the *Armases* genus as sesarmid crabs (Family

Sesarmidae) typically possess intricate and complex methods of communication. The possibility exists that, like many other sesarmid crabs, communication in *Armases roberti* is facilitated through visual and aural cues. During the early juvenile stage, the crab returns to its adult habitat after it has acquired a tolerance for hypo-osmotic conditions (more dilute than the body fluids), but still remains mostly semi-freshwater dwelling.

REFERENCES

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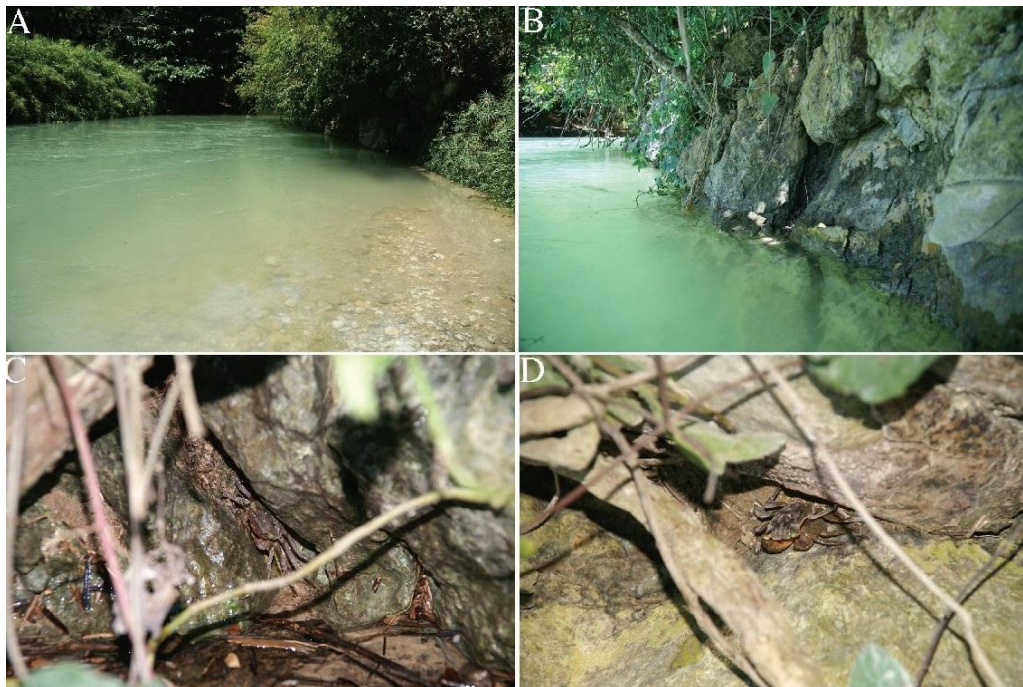


Fig. 2. (A) and (B) Habitat occupied by *Armases roberti* in Jamaica; (C) male river crab; (D) female river crab.

[From Anger et al., 2006]

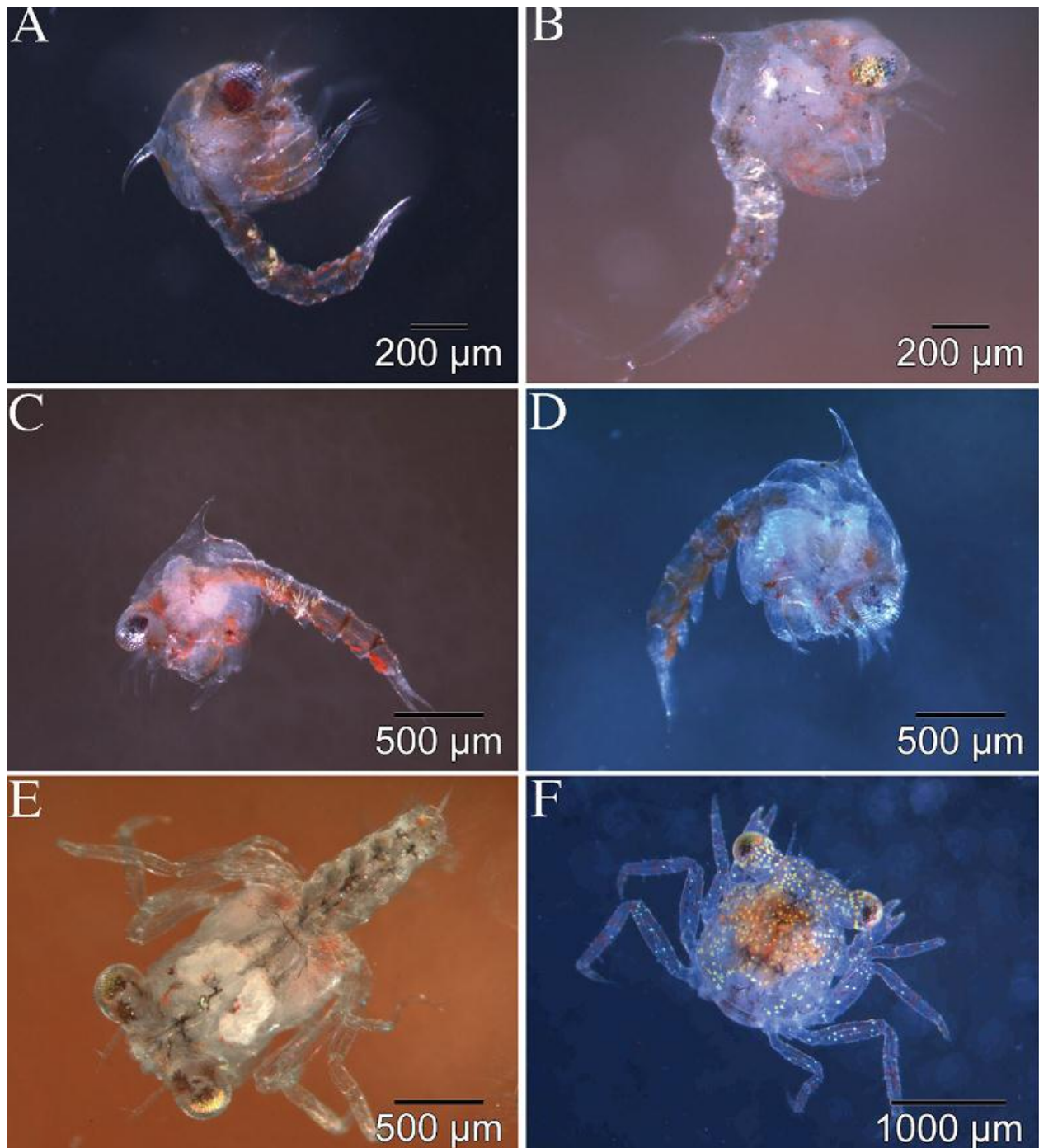


Fig. 3. Development through the four zoeal stages (A)-(D); the megalopal stage (E); early juvenile crab (F).

[From Anger et al., 2006]