

Emerita portoricensis (Mole Crab)

Order: Decapoda (Crabs, Lobsters and Shrimps)

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

Phylum: Arthropoda (Arthropods)



Fig. 1. Mole crab, *Emerita portoricensis*.

[<https://www.inaturalist.org/observations/1217573>, downloaded 18 November 2016]

TRAITS. The mole crab *Emerita portoricensis* is also known as sea armadillo, sea cockroach, sea tattoo, and sand crab in Trinidad and Tobago (Quesnel, 1975). This species of burrowing crab is generally sandy or yellowish brown in colour and can grow up to 19mm and 11mm carapace length in females and males, respectively (Sastre, 1990). The carapace shape is oval and covered with numerous striations on the surface which gradually decrease towards the end of the crab (Fig. 1). The carapace edges are smooth with the exception of the anterior region which is covered with fine teeth-like projections at the sides (Stonley, 1971). *Emerita portoricensis* have long feathery antennae, which appear to be made of up of numerous fine filaments (Trueman, 1970).

DISTRIBUTION. This species of crustacean is found in the western Atlantic region, from Florida to Brazil (Fig. 2), including Belize, Venezuela, Trinidad, and Puerto Rico.

HABITAT AND ECOLOGY. *Emerita portoricensis* are usually found in the benthic zone of the oceanfront, where they bury themselves in the sand with their heads facing upwards towards the ocean in the sloping wet sand of the beach (Trueman, 1970). They possess long feathery antennae, which are extended above the sand, in which they collect food particles from the swash of the waves (Fig. 3).

BURROWING BEHAVIOUR. Burrowing in *E. portoricensis* is very rapid, occurring at a rate of 1cm/second, and is accomplished through coordinated power and recovery strokes of its fore limbs and uropods (abdominal limbs) (Trueman, 1970). When the telson (tail) of the species is stimulated by the touch of the sand it triggers these limbs to move back and forth in unison at a high frequency in an oar-like motion. During the power stroke of the back limbs the uropods and forelimbs extend in a lateral direction towards the posterior part of the body allowing these limbs to thrust back into the sand and facilitating an extension of the burrow (Fig. 4). This ability to burrow and emerge rapidly from sand is essential to the survival of the animal. This ability to rapidly burrow is however restricted to sand that has been saturated with water. The animal therefore exhibits tidal migratory movement as a response to its environment (Trueman, 1970).

REPRODUCTION. *Emerita portoricensis* is known to spawn throughout the year, however there is variation with respect to the frequency with which it is done (Sastre, 1990). Mature females have their eggs attached to their pleopods (bristle-like abdominal appendages) or abdomen (Sastre, 1991). Females on average produce about 2500 eggs which hatch to planktonic larvae, developing into juvenile crabs in approximately 2 months (Fig. 5). The survival of the larvae to juvenile was found to be within the range of 0.0353 to 11.3% (Sastre, 1991).

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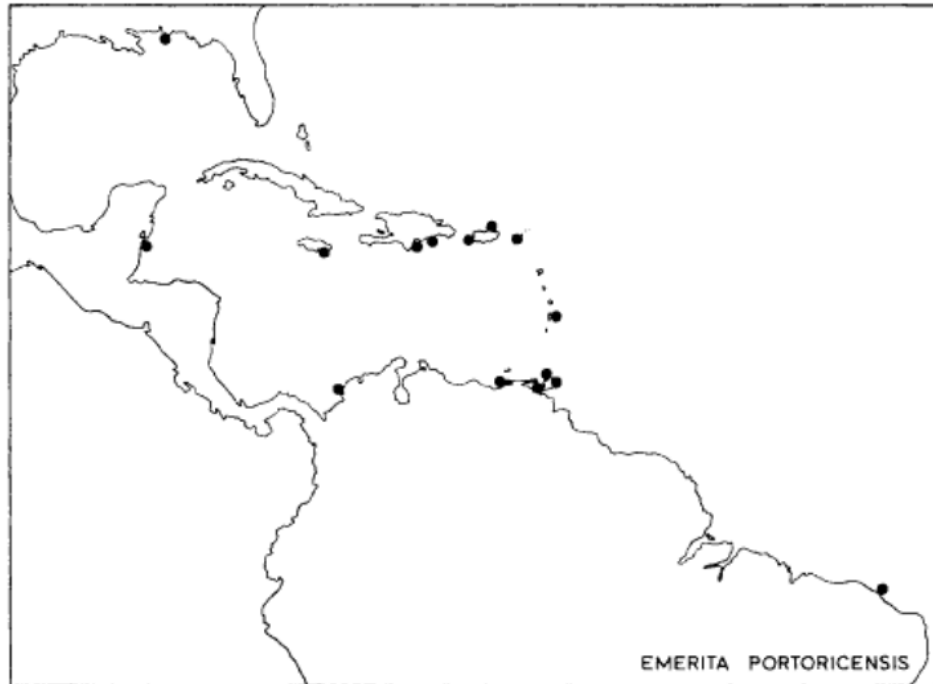


Fig. 2. Geographic distribution of *Emerita portoricensis*.

[From Efford, 1976]

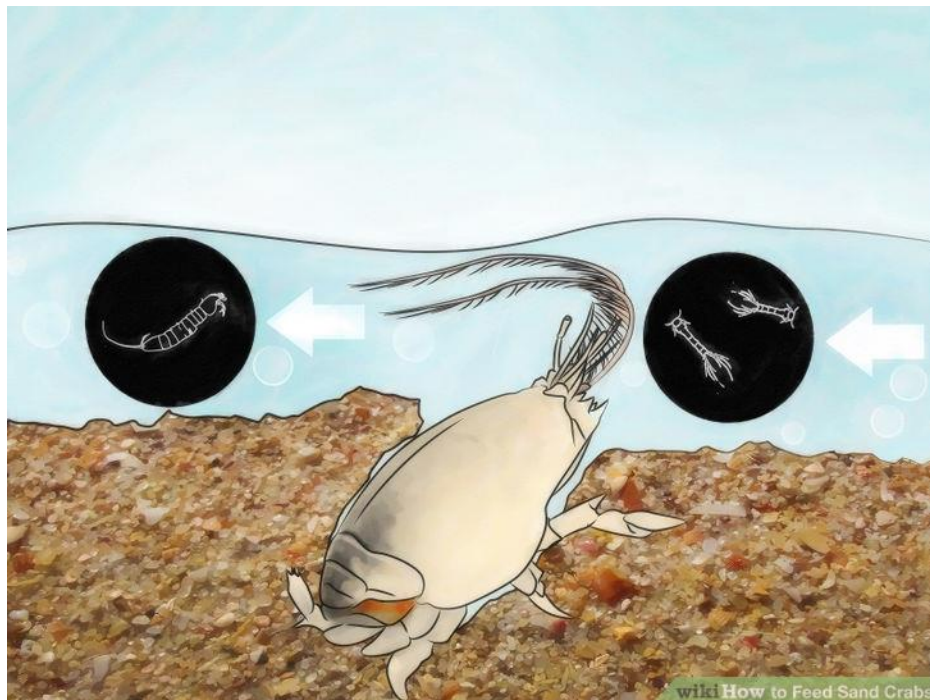


Fig. 3. The feeding mechanism of *E. portoricensis*.

[<http://www.wikihow.com/Feed-Sand-Crabs>, downloaded 31 October 2016]

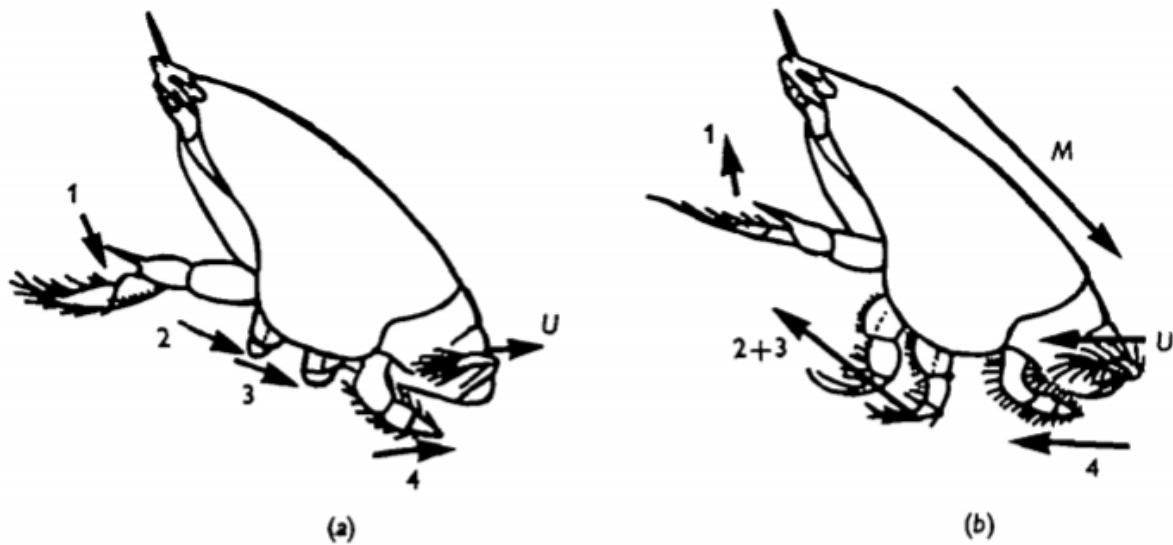


Fig. 1. Diagram of *Emerita* from the lateral aspect showing the position during burrowing with the limbs in (a), the recovery stroke and (b) the power stroke. The arrows indicate movement. 1-4, Thoracic legs; M, motion of animal; U, uropod.

Fig. 4. Movements of the appendages during burrowing.

[From Trueman, 1970]

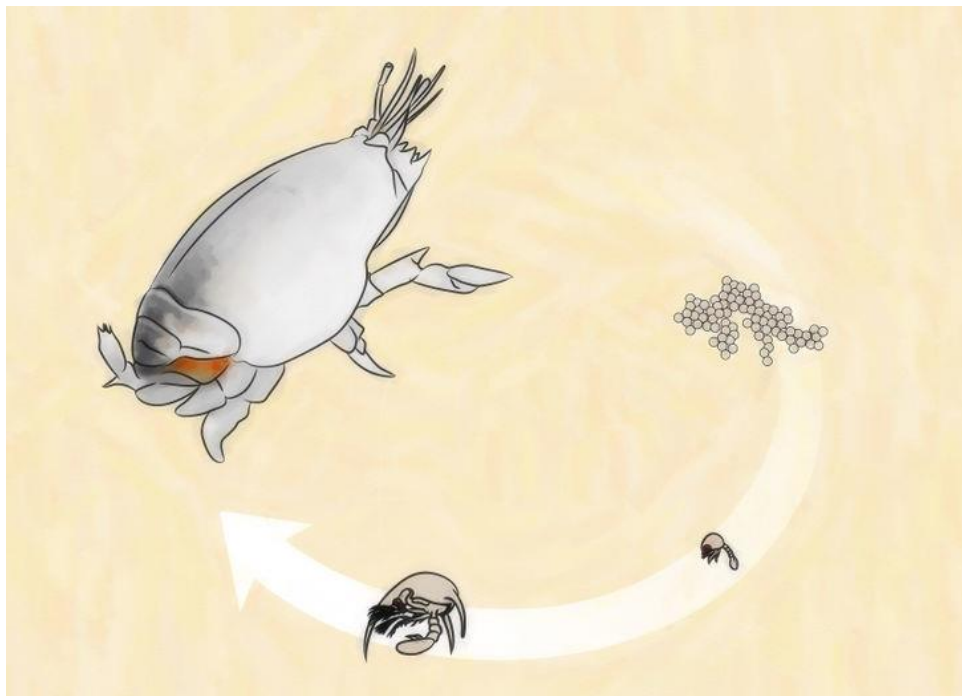


Fig. 5. The life cycle of *E. portoricensis*.

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