Alpheus floridanus (Sand Snapping Shrimp)

Order: Decapoda (Crabs, Lobsters and Shrimps)
Class: Malacostraca (Crustaceans: Crabs, Sand-hoppers and Woodlice)
Phylum: Arthropoda (Arthropods)

Fig. 1. Sand snapping shrimp, *Alpheus floridanus.*

[http://biogeodb.stri.si.edu/bioinformatics/dfm/metas/view/12858 downloaded 18 February 2016]

TRAITS. The sand snapping shrimp *Alpheus floridanus* has a narrow body, a large snapper (big claw) and a smaller pincer (small claw) (Fig. 1). The snapping claw is very large, being almost half the size of the entire shrimp, and can be on either side of the body. Snapping shrimps are about 4-5cm in length, and are mostly brown in colour, with variable red markings. They can regenerate a new snapping claw if it is cut off or missing as the limb will simply grow into a new claw (Harikrishnan and Madhusoodana, 2008). This shrimp is known for making one of the loudest noises in the ocean using its snapper, giving the alternative name, pistol shrimp.

DISTRIBUTION. The sand snapping shrimp is found mainly in marine habitats in the Gulf of Mexico and tropical western Atlantic Ocean (Fig. 2).

HABITAT AND ACTIVITY. *Alpheus floridanus* prefer areas that are sandy or muddy and they usually live in burrows which they build (Fig. 3), having a symbiotic relationship with goby fish (Fig. 4). The shrimp cleans, constructs and resides in the burrow (Randal et al., 2005). The goby is said to have better sight than the shrimp so the goby protects and alerts the shrimp of any danger nearby. The shrimp uses the goby's antenna for communication and as danger is sighted the goby moves its tail to signal the shrimp and they both retreat into the burrow for protection. The shrimp mostly stays in its burrow (Harikrishnan and Madhusoodana, 2008).

FOOD AND FEEDING. The diet of this shrimp include plankton, algae, crabs, small fish and other shrimps. The goby fish that the shrimp shares a relationship with, alerts the shrimp of any prey or predator nearby. When the prey is dead they carry the food into the burrow and share the meal (Harikrishnan and Madhusoodana, 2008). The loud noise that the shrimp makes by snapping its oversized claw is a fast and assured way to stun its prey. The shrimp with its snapping claw faces its opponent most of the time and snaps. The claw is covered with sensory hairs and produces a fast water jet by quickly closing shut. The air bubbles produced by the jet stream is tiny but expands and produces a sound wave (Schmitz, 1998).

POPULATION ECOLOGY. Both shrimp and goby take about a year or two to become adults or reach reproductive age. Shrimps may travel to other areas alongside gobies to dig burrows if the previous one is destroyed. For young shrimps the death rate is high, about 80% in a year (Yanagisawa, 1984).

REPRODUCTION. Little is known about the *Alpheus floridanus* reproduction since it is difficult to analyze them inside the burrows. The males normally roam around the territory close to the burrow and usually stay with a female for several days until the female lay eggs, then the females usually care for the eggs (Harikrishnan and Madhusoodana, 2008).

BEHAVIOUR. The snapping shrimp maintains the burrow for the goby and itself to live in. The goby in return protects the shrimp from predators (Fig. 4). The shrimp depends on the goby to be its eye sight for protection and food. When the shrimp senses danger there are a number of ways in which it shields itself. It quickly retreats into the burrow, camouflages itself or snaps its large claw. According to Schmitz (1998), the way that the shrimp snaps is by rapidly closing its claw, and there is also downward bending of the tail fan. The sound waves which this is the loud noise that stuns the prey (Harikrishnan and Madhusoodana, 2008). When the shrimp goes out of the burrow, it may push the goby aside (Randal et al., 2005).

APPLIED ECOLOGY. *Alpheus floridanus* is abundant and widespread, and is not listed by IUCN.

REFERENCES

Harikrishnan. M and Madhusoodana. B (2008) Potential of snapping shrimps as ornamentals. Chapter. 107-110.

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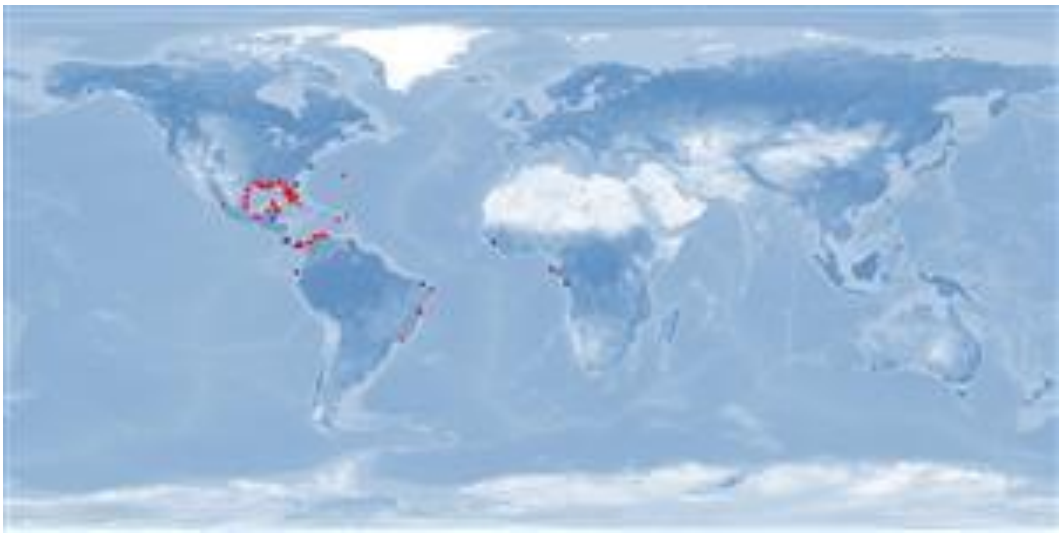

Fig. 2. Sand snapping shrimp geographical distribution.

[http://www.sealifebase.org/summary/Alpheus-floridanus.html#, downloaded 28 April 2016]

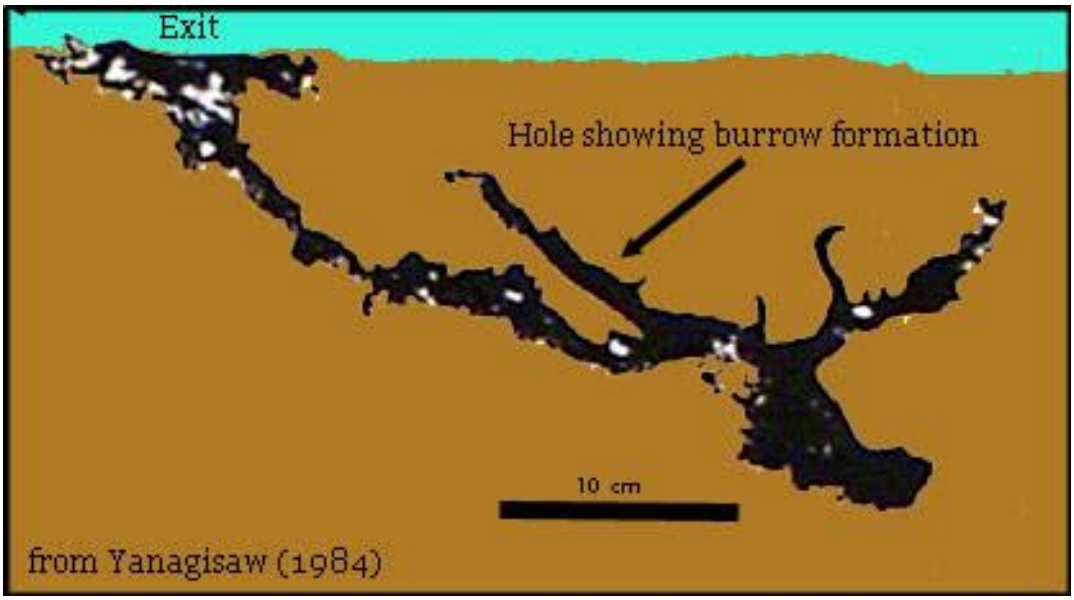

Fig. 3. Example of a burrow of the snapping shrimp.

[http://www.thewildclassroom.com/biomes/speciesprofile/coralreef.html downloaded 18 February 2016]

Fig. 4. A goby protecting a snapping shrimp.

[http://www.coralreefphotos.com/orangespotted-goby-sharing-burrow-with-snapping-shrimp/ downloaded 18 February 2016]