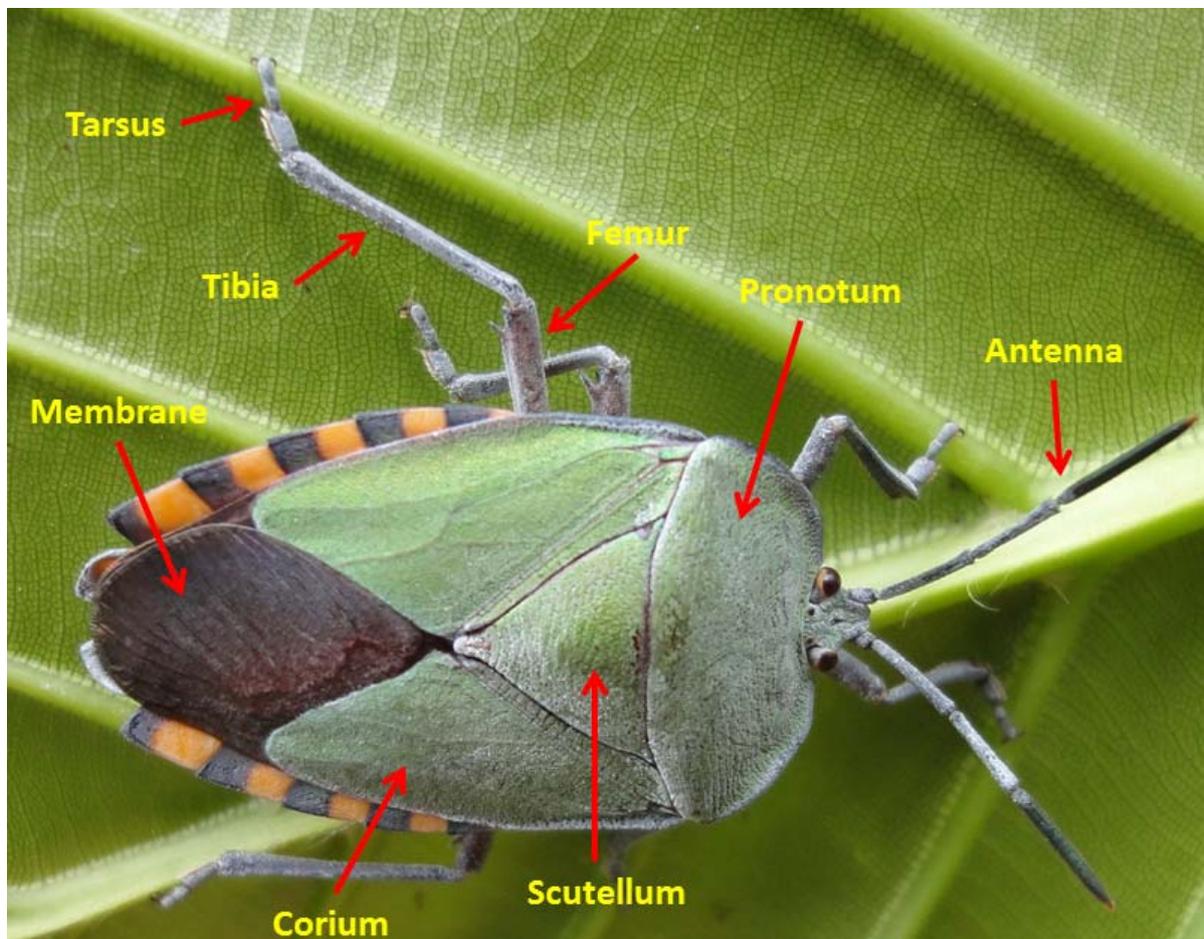


Field Observation of the Giant Shield Bug in Singapore

In a small urban city like Singapore, there are relatively few chances to observe live specimen of shield bug in the wild. Fortunately, there is one particular shield bug that is both large in size and relatively common in Singapore. The Giant Shield Bug is scientifically named *Pycanum rubens* by most people, experts and layperson. It belongs to the family Tessaratomidae under the superfamily Pentatomoidea.

Despite its common status and numerous sighting, there is only one publication that links its scientific name with its picture as of this writing [1].

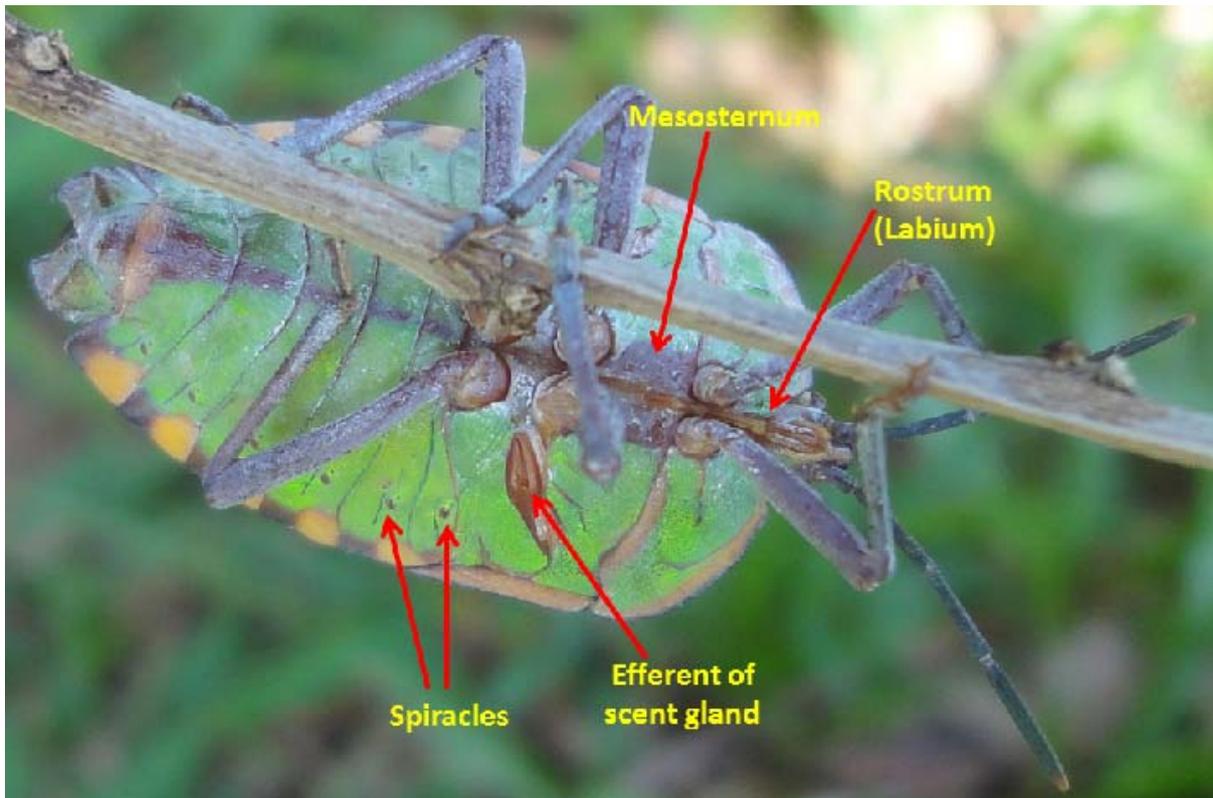
The bug is about 3 centimetres in length and 1.5 centimetres in width. It is a rather calm insect that normally does not fly off when the surrounding is disturbed. The large size and mild nature of the bug makes it a good model to study the features of a typical shield bug.



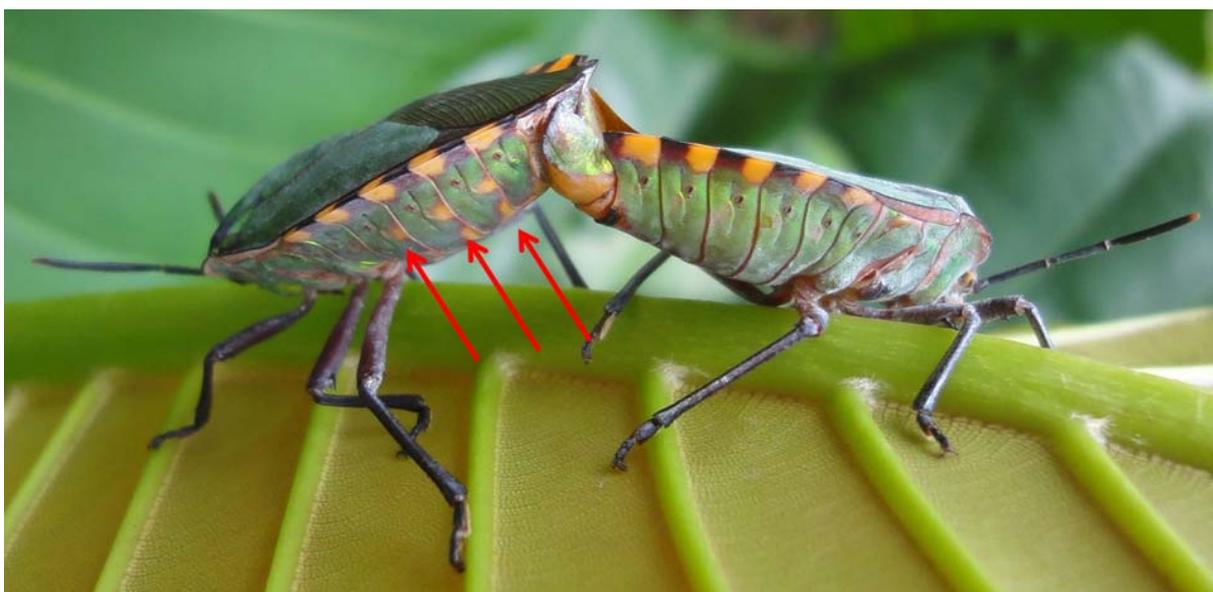
The body of a bug can be divided into 3 parts, namely head, thorax and abdomen. Except for the head region, it may not be possible to differentiate the thorax and the abdomen by taking a top view of the bug as the body is shield by its wings.

When view from its underside, the 3 pairs of legs are located in the thorax region. The thorax is divided into 3 sub-regions. A pair of legs is housed in each of the sub-region. The sub-region closest to the head is the prothorax, the one furthest is the metathorax and the one in

the middle is the mesothorax. The abdomen houses 6 pairs of breathing holes (spiracles) located along the sides.



By observing the mating pairs, it may be possible to differentiate the male and female bugs by the pattern on their underside of the abdomen. In the mating pair below, one bug has some orange patches on its underside while the other bug has none. The bug with the orange patches should be the female. It is not possible to determine their sexes from observing the topside of the body since they look very similar.



Based on the orange patches on the underside of the bugs, the picture on the left below is a male bug while the one on the right is a female bug.



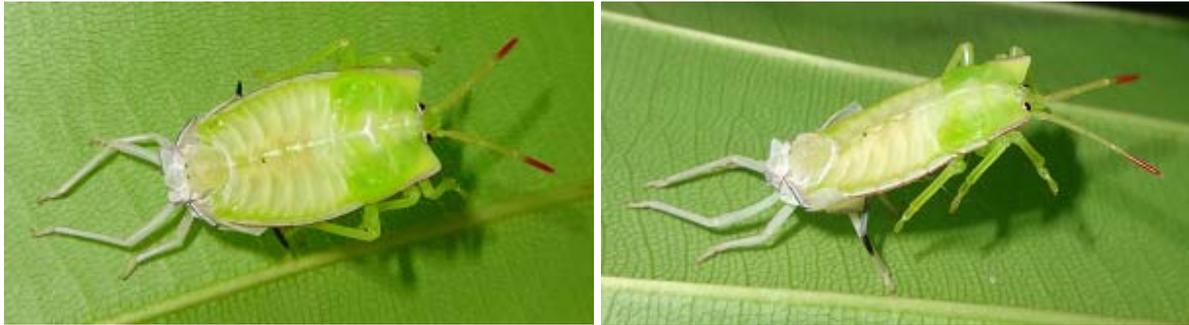
On 4th June 2011, a newly molted adult bug was spotted with its molted cast. The bug was presented with a light orange appearance. The most recent sighting of a newly molted bug in the same vicinity was on 9th December 2012 but without the molted cast around. This bug appeared to be in a more advance stage of molting judging from its darker colour.



The nymphs undergo several stages of transformation that display different colours before reaching the adult stage. They are flat and near rectangular in shape having colours from red, orange to greenish-white.



The molting nymphs are equally difficult to spot as the molting adults. This is probably a rather vulnerable stage of the bug and hence, careful concealment is required to protect itself from predators. The pictures below showed a molting nymph spotted on 30th September 2012.



The nymph stage starts with the tiny red coloured body and gradually transforms to larger orange and greenish-white bodies. As the adult bugs do stay close to the nymph in many occasions, their relative size can be compared.



Although the bug was in abundance in the locality where it was first discovered, their eggs have not been seen. On 4th December 2011, a bundle of 10 eggs were spotted on the underside of its host plant. When they were again observed on 21st December 2011, only the empty shells were left. Since the development of the eggs was not followed through till it hatched, their true identity remained unknown.



Worldwide, there are about 235 species in the family Tessaratomidae [2]. Members in the Tessaratomidae family are known as giant shield bugs. They are part of the superfamily Pentatomoidea. To date, there is no publication on the family Tessaratomidae in Singapore. A recent publication of Tessaratomidae in Taiwan indicates 10 species on the island [3] which

is about 52 times the size of Singapore. In India, 41 species were recorded [4]. This particular shield bug observed may be the only species in the family Tessaratomidae found in Singapore. Indeed, it would be a great privilege for Singapore to house one of the species in the Tessaratomidae family.

In one report [5], the host plants of *P. rubens* was indicated as *Cyrtosiphonia* sp. (family: Apocynaceae), *Macropanax* sp. (family: Araliaceae) and *Parkia* sp. (family: Fabaceae). *Cyrtosiphonia* is now the synonym of *Rauvolfia*. Interestingly, the host plant *Dillenia suffruticosa* (Family: Dilleniaceae) was not in their list.

This article document the field observation of the Giant Shield Bug found in Singapore. It is likely to be the only Tessaratomidae bug present in this country. The unique behavior of the bug is that it is very tame and usually does not fly away with slight disturbance of its surrounding. This behavior provides a unique opportunity to study them in close proximity without the need to tamper with them physically. The abundance of the bug as well as its host plant in Singapore are advantages to its continual survival despite the continuous urbanization of the country.

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