**Scarlet-fruited Gourd -** *Coccinia grandis (L) –* **Amazing Invasive Plant**

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**Abstract**

In recent years Scarlet-fruited Gourd has invaded our wooded areas and adversely affects local vegetation. Presentation gives brief description of its biogeography, explains why this plant is so successful and difficult to eradicate while emphasizing the positive aspects of the plant, such as additional food for our bird population and potential medical properties.

The conclusion is that the plant need not be eradicated, but with modest involvement of the community can be controlled and brought to the manageable level.

**Introduction**

Scarlet Gourd, also known as Ivy Gourd, is an attractive tropical vine which is cultivated in Southeast Asia and Indian subcontinent for its edible young shoots, fruits and medicinal properties attributed to it under most Asian indigenous systems of medicine.

It is native to tropical Africa, Asia and Australia and it was first recorded from the Pacific Islands in 1940 (Fiji). Now, its documented introduced range includes Hawaii, FSM, Northern Marianas, Samoa, Tonga, Vanuatu and several southern states in the U.S.A. (PIER, 2005).

It tends to grow in dense blankets that shade other plants from sunlight forming dense canopy the smothers vegetation underneath. It is regarded as a very invasive plant and can grow up to 10cm (4”) per day. It was first noted in Hawaii in 1985 (Linney, G.) and is now considered as a serious problem and is listed as a noxious weed.

**Observations**

In Saipan, according to CREES, it was introduced by a farmer in the area of Capital Hill in 1980’s and by 1996 it was identified as a problematic invasive weed, followed by an unsuccessful campaign to have it eradicated.

Several species of birds eat the fruit of this plant and seeds readily germinate after passing through birds’ digestive tract and are being dispersed wherever the bird leaves its droppings.

Scarlet Gourd plant has several amazing adaptations for survival. The seeds spout flexible runners that trail along the ground in search of a support that would give it better exposure to the sunlight energy. It grows quickly and stores water and nutrients in its rootstock. If it does not find a support to clime, it will spread to a distance of 2-3 meters, with runners remaining flexible, developing adventitious roots and all the while contributing to the nutrient rootstock storage. Some of the rootstocks, in the disturbed areas, can reach the weight of 300g. Also , if an attempt is made to pull out the plant, the vine has weak nodes which break easily along the upper section of the vine or in some cases at the rootstock connection and the plant continues to grow.

 If the plant does reach the support, it climes rapidly until it reaches the apex, which can be several meters up and in case of trees, it completely covers the canopy. When that happens, the primary storage of nutrients changes from the rootstock to the stem, which thickens, remains succulent, acquires woody appearance and can be several meters long and up to 3cm thick. These large nutrient reserves enable the plant to prevail during the periods of drought and, even if the stem is cut, allow the fertilized flowers to mature to the fruit. Additionally, Scarlet Gourd had no known predators on the Pacific islands, so it thrived.

**Positive Aspects**

That is the scary part, but is there anything positive to be said for the *Coccinia grandis.* It is an attractive horticultural vine that looks good on trellis or a fence. It rapidly produces large quantity of green fodder which should be attractive to the ruminants. It produces fruits, which are a good source of micronutrients, including vitamins A and C, that are attractive to the several species of birds and some humans.

In South Asian countries, the young shoots and leaves are consumed as salads or pot greens and immature fruits, which are quire bitter to taste, are fried or boiled and used in curries and sambars. My own experience with trying Scarlet Gourd recipes can be described as, at best, nondescript. I have found the ripe fruit, which is recommended for its high nutritional content and low glycemic index, pleasant, but very bland; green fruits too bitter for extended use and definitely an acquired taste; and young leaves and shoots which have a mild, cucumber-like flavor to be quite acceptable in salads or as a stir-fried side dish, but unremarkable. All this, however, disregards the possible medicinal benefits, which according to the indigenous Asian systems of medicine are various and extensive.

**Potential medicinal benefits**

There are at least twenty recent scientific papers listed on the internet dealing with the medicinal properties of Scarlet Gourd, mostly from India, Pakistan and Sri Lanka. Time constraints do not allow me to review their findings, but the general conclusion is that *Coccinia grandis* is nontoxic and, among other things, can be effectively used to treat certain cases of diabetes disorders. Even Western herbalists, who until recently ignored any mention of it, are now offering alcoholic extract of the plant as a treatment option. Considering the prevalence of diabetes problem in our own community, I hope that our medical professionals will take a closer look at its potential.

**Controls**

Since in many places around the world *Coccinia grandis* is considered a noxious invasive plant, several attempts have been made to control its proliferation. Earlier efforts using chemicals proved largely ineffective. Close to home, the procedure promoted by CREES in late 1990’s focusing on use of herbicides Roundup and Garlon was awkward and had a very limited success. Meanwhile, in Hawaii several species of insect have been evaluated for the purpose of biocontrol and two East African weevils, *Acythopeus burkahartorium and A. cocciniae* found to be effective and introduced into environment. Subsequently, these insects are being cultured at the Quarantine Laboratory in Guam and imported into CNMI. The weevils are known to eat the leaves and bore into the vines of the Scarlet Gourd plant. While there is an observable evidence of leaf damage in several areas of Saipan, the invasion of *Coccinia grandis* does not appear to be retreating.

l live in an estate on Capital Hill which has been heavily infested with Scarlet Gourd. Nearly every hedge, shrub and some of the trees have been draped with the vines. Few years ago, I decided to see if anything can be done about it and went around puling out the vines with the roots. Within few months the area of more than two acres was almost completely clear and remain so until now, with occasional every two to three months intervention to remove any new infestation.

*Coccinia grandis* is a dioecious plant having male and female organs on separate flowers and on separate vines, so manual removal of vines with female flowers will considerably slow down its dispersal ability. There are reports from Guam indicating that they are experiencing a much lesser problem because the majority of their Scarlet Gourd population consists of male vines, although I strongly suspect that their brown tree snake decimated bird population has a lot to do with it. Our bird population is quite healthy and increasing, in some part due to the additional food source provided by *Coccinia grandis.*

The seeds of Scarlet Gourd do not exhibit dormancy and remain viable for short period of time, so if they are bagged and fallen fruits collected into the sealed containers and disposed of, their dispersion should be curtailed.

Cutting of the mature vines, especially if done close to the base with about 50 cm segment removed, does produce, after e week or so, conspicuous dieback in the canopy cover and can effectively be used to reduce the proliferation in the wooded areas.

**Conclusion**

Based on the above, it appears that we do not need to resort to the chemical and biological means, with their inherent unintended consequences, to contain and control the spread of Scarlet Gourd on our island. It is very unlikely that it can be eradicated, nor need it be. We can determine where and how much of *Coccinia grandis* be tolerated and mobilize our environmentally aware community to help us achieve it. Meanwhile, consume as much of Scarlet Gourd as you can. Live long and prosper.

**References**

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