Weed Eradication Program - Happy Valley

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I commenced work as the FIDO voluntary supervisor of the Happy Valley weed eradication program in March 2014. I had previously spent a week as a volunteer on a FIDO weeding trip in 2005 at Happy Valley, under the leadership of Andrew Sinclair.

Despite the long term efforts of FIDO weeders and others, the Happy Valley township and surrounds were heavily weed infested with a cocktail of weeds when I commenced as team leader. Most of these weeds were either garden escapees or accidental introductions arising from human settlement and visitation to the village.

Three and a half years and 14 weeding trips later the situation is much better, but it is an everlasting ongoing task.

The aim of the program is to destroy the invasive exotic species to prevent their spread into the park.

Considerable effort has been put into removing the usual culprits, Easter Cassia, Lantana, broad leafed pepper, basket asparagus, mother in law's tongue, mile a minute, corky passion fruit, mother of millions, North Queensland umbrella trees and several others.

These are all common and well known weed species that land care workers have been battling with throughout South East Queensland for many years.

A new invasive weed has arrived in Happy Valley and has been the focus of our efforts since I started in 2014.

It is a creeper, Abrus precarious subspecies africanus, commonly known as Crabs Eye. As the subspecies name indicates, it is out of Africa.

The plant has attractive bright green compound leaves, relatively insignificant mauve flowers and spectacular persistent bright red seeds with a black spot.

It was probably brought to the village as an ornamental.

The Genus Abrus has about 20 species, spread throughout tropical Africa, Asia and through to Australia. Australia has only one native species, Abrus precatorius subspecies precatorius. It's range is from Rockhampton North, across Northern Australia to New Guinea.

The introduced subspecies africanus that has turned up in Happy Valley, has a recorded range from Shoalwater Bay South. My own observation as a dedicated bush walker is that the infestation is spreading throughout South East Queensland.

The two subspecies are all but identical in appearance. The distinguishing feature is the seed pod which when immature is smooth in the Australian subspecies and hairy in the African subspecies.

The first Fraser Island record of the species held by the Queensland Herbarium was collected by a volunteer weeder Trevor Armstrong in Happy Valley in 2007. In the early days of the infestation at Happy Valley it was thought to be to the Australian subspecies and did not cause much concern. The Australian subspecies is not highly invasive.

However by 2014 it had been identified as subspecies africanus and had infested at least 40ha around Happy Valley, and was seen to be extending into the canopy of vegetation with resultant smothering effect. Clearly we had a problem.

Since the infestation was restricted to Happy Valley, FIDO prioritised its destruction in an endeavour to contain it and hopefully eliminate it. Three and a half years and 14 week long trips later, with volunteer teams ranging from 5 to 10 people, we have the population down to less than 1% of that at March 2014. There are still some areas that have not yet been thoroughly searched and while we believe we have been working to the extremities of the infestation, further verification is needed.

Early trials indicated that hand removal was not effective. The plant is very deep rooted and regrows vigorously when hand weeded/dug out. Given the magnitude of the problem, the only option was foliage spray. We have been using 1.5% roundup. It is extremely effective.

Where the plants have extended into the canopy, as much as possible we pull them down and spray them on the ground. Where this is not possible, we cut the stems off to prevent future flowering and seed set in the canopy, and spray what can be reached from the ground.

The spectacular bright red seeds have a hard seed coat, and like many plants of the Fabaceae Family can be expected to persist in the ground for some time.

We established a germination trial under field conditions in March 2016. 1000 seeds were planted. 14.6% germinated in the first month. This slowly increased to 19.8% by September 2016 and none have germinated since. It remains to be seen if the remainder are no longer viable or are lying dormant in the soil waiting for the required conditions.

We have evidence that seeds stored in dry condition remain viable for several years.

Seeds persist on the plant for long periods, often in excess of a year. Seed collection has been an important element of the control program, in order to prevent the build up of the seed bank in the soil.

Follow up spraying of emergent seedlings is now very important to prevent all regenerating plants reaching maturity, flowering and setting seed.

In most of the infested areas there are now no mature plants, and hence no seed set.

This is a program that must continue for some years to be effective. It requires extensive site examination and follow up.

Elimination of Abrus will remain the main focus of the Happy Valley Weed Eradication team, while also dealing with all the other afore mentioned species.

We seek to play our part in the maintenance of the natural integrity of the magnificent island K'Gari