

# Fifty years of “wheely prickly cactus” (*Opuntia robusta*) in the Maldon Shire

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## Abstract

An article in the *Maldon Times* dated May 1963, tells us that the Vermin and Noxious Weeds Destruction Board instructed Maldon Shire inspectors to immediately carry out control measures against wheel cactus (*Opuntia robusta* J.C.Wendl. ex Pfeiff.).

Thirty years later in the 1990's, local farmers were alarmed to find wheel cactus still spreading on their properties. These concerns lead to optimistic collaborations between neighbouring landholders, local Landcare groups and Parks Victoria. In the early 2000's these community members formed a new group, the Tarrangower Cactus Control Committee, specifically to tackle the increasing problem of wheel cactus around Maldon in central Victoria.

This group gained initial funding from the Victorian State Government which helped to establish years of knowledge building, education and information sharing with local communities. Despite the past 20 years of focused, determined and untiring work by many volunteers, there are now more infestations, larger seed banks and a greater spread of wheel cactus in our district.

Fifty years on, it is heartbreaking to see wheel cactus still growing in our beautiful parklands, and devastating to see land owners overwhelmed with the infestations on their properties. Without more rigorous control measures wheel cactus may soon become a major environmental and economic disaster in our region.

This paper presents an overview of the eradication methods and the work performed by our group of 'cactus warriors' over the past 20 years, and outlines the actions that we believe need to be taken in the future 'war' against wheel cactus.

## The past

### *Wheel cactus in the Maldon Shire*

**The mid 20th century** An article in the *Maldon Times*, dated 13 May 1963, reported that the then Vermin and Noxious Weeds Destruction Board had 'directed all inspectors controlling areas within the Maldon Shire to carry out remedial measures immediately against the spread of wheel cactus'. It also

stated that these inspectors 'had been instructed that strict enforcement of the Act was necessary. Landholders who fail to comply with the provisions of the Act will be liable to prosecution'.

This article confirms that wheel cactus was a problem in the Maldon area in the 1960s, and that governments were significantly involved in solving this problem at that time, treating the weed and enforcing the associated legislation.

Anecdotal evidence from local farmers indicates that there was no significant wheel cactus problem in the district during the 1970s and 1980s, suggesting that the combination of government financial support and, possibly, more compliant and committed landholders in that era, led to the desired effect of keeping wheel cactus under control for a least a couple of decades. Farmers in the district also believe that the rabbit plague during the 1970s and 1980s contributed to keeping wheel cactus under control because they ate the very small plants.

But how did it get here? Our heaviest infestations have always been found at Pigeon Hill and the Three Sisters, rocky outcrops both within five kilometres of Cairn Curran Reservoir, near Maldon in central Victoria. Some plants within these infestations are so large we believe they must have been there for many decades. Was this plant introduced by immigrant workers employed for the construction of Cairn Curran Reservoir, who lived nearby? Was it introduced as an ornamental garden plant or as a supply of fruit, similar to the common prickly pear (*Opuntia stricta* (Haw.) Haw.)? This close cousin is frequently found within the Maldon district but in isolated locations, often at the sites of former homesteads, and has never spread or become a problem weed like wheel cactus.

**The late 20th century** During the 1990s, local farmers became anxious about the renewed spread of wheel cactus on their properties, and local Landcare groups likewise, became alarmed at the proliferation of wheel cactus in our unique, historic goldfields landscape. Several concerned neighbours in the Nuggetty area just north of Maldon joined forces to determine the best way to destroy the

weed. They tried many different control methods and techniques including mechanical removal, spraying, burning, 'shotgun' delivery and injection, and various combinations of these methods. They found that surface spraying was not effective because of the thick waxy skin of the cactus lobes, and their high moisture content prevented burning. The rugged terrain as well as both the very sticky substance of the plants and their ability to regenerate from fragments rendered removal by machinery just as ineffective.

After much trial and failure, these pioneer 'cactus warriors' developed an efficient injection tool consisting of a very long needle attached to a small backpack tank filled with herbicide (Figure 1). They concluded that injection of herbicide into the lobes of the plant was the most



Figure 1. Ian Grenda injecting wheel cactus using the current injection kit.



Figure 2. Landholders attending a wheel cactus information day in 2006.



Figure 3. Ian Grenda indicating the effect of different chemicals at our 2015 workshop.

efficient method, although extremely labour intensive and expensive. These trials highlighted how difficult wheel cactus is to eradicate and is hence, a serious threat to land, livelihoods and the environment.

**Grassroots community action** In 2005, members of three local Landcare groups, Maldon, Nuggetty and Baringhup, formed a new committee to specifically tackle the increasing problem of wheel cactus, and named themselves the Tarrangower Cactus Control Committee. Three representatives from this new group promptly applied for funding from the Victorian Government and succeeded in gaining a grant of \$30 000 to work in conjunction with Parks Victoria to control wheel cactus on private and park lands. This funding helped establish a series of field demonstrations to educate land holders on best control methods (Figure 2). These

events have developed into regular monthly community field days involving many volunteers, and the committee has since become the Tarrangower Cactus Control Group Inc.

## The Present

### *Achievements of the Tarrangower Cactus Control Group*

**Increased community awareness** Since the formation of our group in 2005, we have significantly increased local community awareness and knowledge about the threat and eradication of wheel cactus. Attendances at monthly community field days has grown from less than 10 when they began in 2005 to more than 50 in the past few years. Increases in awareness has been achieved partly by means of various brochures we have produced and, since 2013, a dedicated website ([www.cactuswarriors.org](http://www.cactuswarriors.org)).

Increasing knowledge has been a priority since we realised years ago that community members commonly believed wheel cactus was 'just prickly pear' and of no significant concern. We also regularly release media reports, notices and information using conventional media, including print, television and radio.

To increase our group's profile, we participate in annual local events, such as holding information stalls at the agricultural show and Maldon Market, and have fun dressing up for the street parade in the Maldon Easter fair.

In May 2015 we held a half day workshop and field trip, inviting participants from all surrounding shires and relevant government authorities (Figure 3). The main objectives of this workshop were to demonstrate different control methods as well as to prevent infestation spread by advising stakeholders from surrounding districts how to treat isolated infestations.

### **Increased land owner participation**

The Tarrangower Cactus Control Group has been working relentlessly over the past ten years informing, teaching and assisting the landowners of Maldon, Baringhup and Nuggetty. Beginning with an 'Open day' in collaboration with Parks Victoria in October 2005, we have held monthly community field days at both private and public locations where we demonstrated best control methods (Figure 4). At other times when requested, our volunteers also hold voluntary demonstrations and advise property owners who cannot attend field days. Our focus on education has also been greatly aided by compiling and distributing a number of different brochures explaining the threat of this weed and giving detailed advice on eradication.

In addition, we provide free loans of injection and digging equipment, sometimes even free herbicide, as incentives to land owners, as well as physical assistance to give the landowner a helping hand and moral support. We purposely endeavour to give advice in a friendly manner and with an optimistic outlook, to maintain positive relationships with the property owners.

Using these various strategies, we have successfully increased the number of local property owners who now have the equipment and knowledge to control wheel cactus, and who currently control its growth on their land.

**Improved techniques** During the past ten years, the Tarrangower Cactus Control Group has continued to investigate improvements to techniques and ways to reduce wheel cactus management costs. We have completed several pilot



Figure 4. 'Cactus warrior' volunteers injecting wheel cactus at a community field day.



Figure 5. Pasture near Cairn Curran Reservoir in central Victoria now infested with wheel cactus.



trials comparing different equipment, methods and herbicides and currently use a combination of different strategies. For example, we inject herbicide into large plants but also use physical removal and burial of smaller plants to reduce the use and cost of chemicals.

**Successful control in historic parks** In a very successful partnership with Parks Victoria we continue to control wheel cactus proliferation in our historic gold-fields parks and have prevented any new heavy infestations in these public areas. This success has been mostly due to the excellent collaboration and coordinated efforts between the community and Parks Victoria staff. This admirable work has been achieved by our 'cactus warrior' volunteers (at community field days and in their own leisure time) and 'work for the dole' (unemployment payment) participants. This has also been greatly enhanced by our volunteers organising and hosting work teams from the 'green army' and student field trips.

## Ongoing challenges

### *Increased seed bank*

Despite the impressive efforts by the Tarrangower Cactus Control Group, the community and our partnerships during the past ten years, there remains an increasing wheel cactus problem in the Maldon area. Some of the oldest, heaviest infestations on private property have been ignored by the landholders for decades and are now impenetrable, containing thousands of extremely large, mature, fruiting plants. Previously restored landscapes are becoming reinfested and the seeds are spreading rapidly, consequently more properties are becoming infested, unworkable and losing value. We have anecdotal reports from local farmers of increasing instances of dying livestock, wool contaminated with spines, and acreages no longer viable for grazing (Figure 5).

### *More extensive spread*

We believe the local seed bank is larger than ever, allowing an even more rapid dispersal of seeds by birds, animals and water, creating a more extensive distribution of this noxious weed. Wheel cactus have recently been sighted at many newly infested properties and roadsides at locations extending 30 kilometres or more in all directions from Maldon, including Marong, Harcourt, Castlemaine, Yandoit, Newstead and Carisbrook. More outlying parklands are continually becoming infested threatening the biodiversity of our natural environment.



**Figure 6. A badly infested property near Pigeon Hill, west of Maldon in central Victoria.**

### *Absentee property owners*

We consider the two main reasons why wheel cactus continues to be such a problem, despite many landholders now actively controlling it on their properties, are ignorance and indifference. We believe the main offenders are often absentee landholders who are not aware they have legal responsibilities to control weeds on their property. There is a high prevalence of 'weekend' and 'hobby' farms in central Victoria, most of which lack regular attention. There is also an increasing number of 'lifestyle' landholders who contribute to the problem because, even though they live on their property, they do not work their land or run livestock.

These issues of 'absentee' and 'lifestyle' property ownership are unlikely to go away, indeed they could potentially escalate unless action is taken to remedy this current lack of awareness and concern.

### *Overwhelmed property owners*

The cost of controlling wheel cactus is inhibitive to many of the landholders who have the worst infestations and, in some cases, the cost of control exceeds the current value of their property. Some owners appear to be both financially and emotionally unable to manage their wheel cactus infestations, hence are not actively participating in control measures (Figure 6).

### *Difficulty in controlling wheel cactus*

Wheel cactus is extremely difficult to control, partly due to its non-absorption

of surface sprays, its tenacious ability to regenerate from segments and its exceptionally hazardous spines. This weed has proved extremely costly and labour intensive to control. Because of its habit of growing in inaccessible rocky landscapes, wheel cactus plants usually need to be individually dug up or injected with herbicide; a large plant taking anywhere up to two hours to be sufficiently treated. In addition, wheel cactus is an aggressive introduced species and has no known natural biological control agent.

## The Future

Wheel cactus has already infested over 10 000 hectares in the Maldon district alone. Even though the Tarrangower Cactus Control Group has achieved significant increases in awareness and action within our local communities, more needs to be done to prevent further invasion. Wheel cactus is reproducing faster than it can be destroyed, this problem now being beyond the capabilities of our group of volunteers with limited resources. We believe wheel cactus will become a major environmental disaster in the near future unless a much greater, more critical effort is generated involving participation of other more substantial and resourceful partners.

### *Immediate future*

The Tarrangower Cactus Control Group believes that preventative actions play a crucial part in the future war on wheel cactus. We suggest prevention could be assisted by local governments taking the important role of informing all new property owners at the time of purchase





Figure 7. Before and after treatment photographs of a restored property west of Maldon in central Victoria.

that control of noxious weeds is a legal responsibility and cannot be ignored.

We also request commitment from the Victorian State Government to fully fund regulation and enforcement of the *Catchment and Land Protection Act 1994*. 'Compliance' action taken on apathetic property owners needs to have sufficient financial support and resources to enable monitoring and follow-up of these landholders and to complete the 'compliance' process. Otherwise the threat of 'compliance' is impotent and ignored.

Additional funding could also employ project officers to assist property owners with personalised management plans. These plans could include an economic analysis that demonstrates the financial benefit of outlaying money on weed control, and show how this investment will be recouped when they sell their restored land at its increased value. We have several local examples of successfully restored landscapes where the owners have been committed and invested money in eradication of wheel cactus on their properties (Figure 7).

In addition, research is immediately needed to find an effective biological

control organism, such as a suitable strain of the cochineal insect (*Dactylopius* spp.) to assist in the control of wheel cactus. We acknowledge that a large amount of funding will be required to achieve this goal, but would be very willing collaborators on such a project. This objective is made even more urgent by the current opposition in some communities to the use of particular herbicides.

### The Big Picture

Tarrangower Cactus Control Group is well aware that we are not alone, that there are other very serious infestations of wheel cactus within Victoria. To overcome this rapidly growing problem, we suggest the instigation of a Victorian Wheel Cactus Task Force. Such a unit could implement a coordinated whole landscape attack, involving all public (State and Local Governments) and private land holders and managers, working together to prevent reinfestation from neighbouring lands.

To prevent future disasters, we request the Victorian Government introduce legislation that requires a 'weed

responsibility' report be included in the required documentation for all property sales. Wheel cactus is just one of a very long list of noxious weeds invading our landscapes. Such a report would inform prospective land owners that control of weeds is a non-negotiable legal responsibility, and could advise of the particular noxious weed problems on the property that buyers are about to potentially purchase.

Wheel cactus has been classified as a Weed of National Significance because of its invasiveness and potentially devastating economic and environmental impacts. It displaces natural flora and fauna and destroys our native ecosystems and unique landscapes. As discussed at the beginning of this paper, it seems that with significant support from government bodies in the 1960s, wheel cactus infestations were controlled to suitable levels in the Maldon Shire. We suggest that, if our current governments were to significantly increase their input and financial support, we would again be able to control the invasion in our Shire by this devastating weed.