MAPPING WHEEL CACTUS IN VICTORIA

Final report

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Project Aims

1. Map the distribution of Wheel Cactus (*Opuntia robusta*) in the state of Victoria.
2. Raise community awareness of the threat that Wheel Cactus poses to agricultural production and biodiversity in the state.
3. Increase community skills in Wheel Cactus identification and control methods.
4. Create a platform to begin lobbying for a Wheel Cactus Taskforce to be established by the Victorian Government.

Mapping the Cactus

Wheel Cactus was mapped using historical records and new observations.

Historical Records

Historical records of wheel cactus were sourced from:

- The Atlas of Living Australia (ALA) website (https://www.ala.org.au/). These records have been submitted from multiple sources including government agencies, professional ecologists and citizen scientists.
- The Department of Economic Development, Jobs, Transport and Resources (DEDJTR). These were supplied by Lead Biosecurity Officer Martin Deering.
- The Victorian Biodiversity Atlas (VBA). The VBA is managed by the Department of Environment, Land, Water and Planning (DELWP). It includes the data submitted to DELWP from external sources as well as the Department's own data collections from systematic surveys and general observations. These records are publicly available.

Records from before 1992 were discarded so that the map is a record of the last 25 years.

Where records from different sources appeared to overlap they were reduced to a single record.

Although all records were recorded or supplied with a precise geographical coordinate (0.000001), the output map is intended to be used at a 'locality' scale. This was because we did not want to put people off reporting a noxious weed on their property, and also because of the state-wide scale of the map. Two maps have been produced. One showing localities with a record of wheel cactus and another showing individual points.

Figure 1. Photograph of wheel cactus infestation Kamarooka East Bushland Reserve, submitted by a Landcare member in response to our request.

New Observations:

A search for unrecorded wheel cactus plants was conducted by sending out requests for information to:

- Regional Landcare Facilitators and Coordinators
- Local Landcare Facilitators
- Landcare Networks
- Local government staff
- Landcare magazines
- Facebook post

Positive identification of wheel cactus plants was a problem, particularly when information was supplied by observers who were not well educated in cactus plant identification. Many respondents sent the location of other *Opuntia* species, particular Prickly Pear (*Opuntia stricta*). New records were not included in the data if there was any doubt about the correct identification of the species. Local government staff and other environmental professionals were the best source of new records and contributed the majority of new records.

The project officer also conducted some field visits to areas where wheel cactus had been reported but not confirmed.

Results

- A total of 345 locations were mapped during the project. These were distributed across 29 Local Government Areas (LGA's) and 105 Localities.
- Of these, 237 were new records that did not previously exist in the VBA, ALA or DEDJTR records. Figure 2 shows the percentage of unique records that came from each source.
- Just over half of the new records were also new Localities. Wheel cactus was identified in 7 LGA's that did not have any previous records of the plant.
- Many of the new records came from council officers who had already undertaken mapping of wheel cactus in their area. These were City of Greater Bendigo, Central Goldfields Shire, Moorabool Shire, Mitchel Shire & Wangaratta Rural City. The remainder came from first-person observations made during the mapping period. All new, first-person observations were uploaded on to the Atlas of Living Australia using Darwin Core terminology.
- The majority of wheel cactus mapped occurred in a band extending approximately northwest from Melbourne to Mildura (see maps). Central Victoria, between approximately Yandoit and Charlton, was the most densely populated part of the band.
- There were some notable outliers in the northeast of the state around Eldorado and Rutherglen. These populations are locally naturalised.

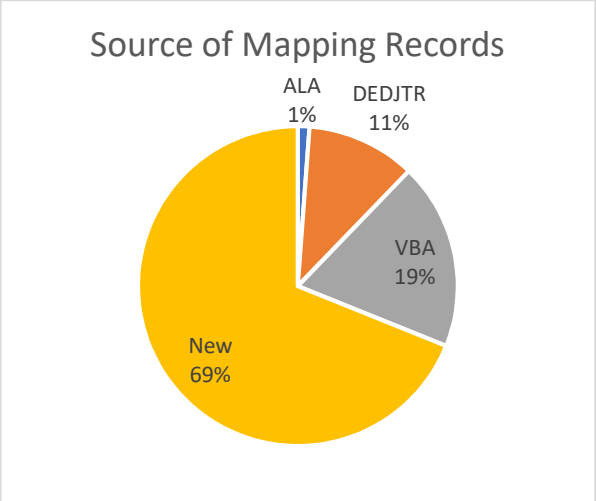

Figure 2. Chart shows the percentage of records that were historical records obtained from the ALA, DEDJTR, VBA and new records obtained during the project.

- A well-established, naturalised population in the Rowsley valley near Bacchus Marsh is isolated and may be because of a dry microclimate.
- A single record in East Gippsland is most likely a garden plant and not a naturalised population, although this hasn't been confirmed.
- Many locations that had wheel cactus also had prickly pear. Because prickly pear is more widespread than wheel cactus it was often of greater concern to people. Education about the difference in control options for these two species was important.
- Digital, A1 size versions of the final maps can be accessed on the TCCG's website: http://www.cactuswarriors.org/research/statewide-wheel-cactus-mapping/

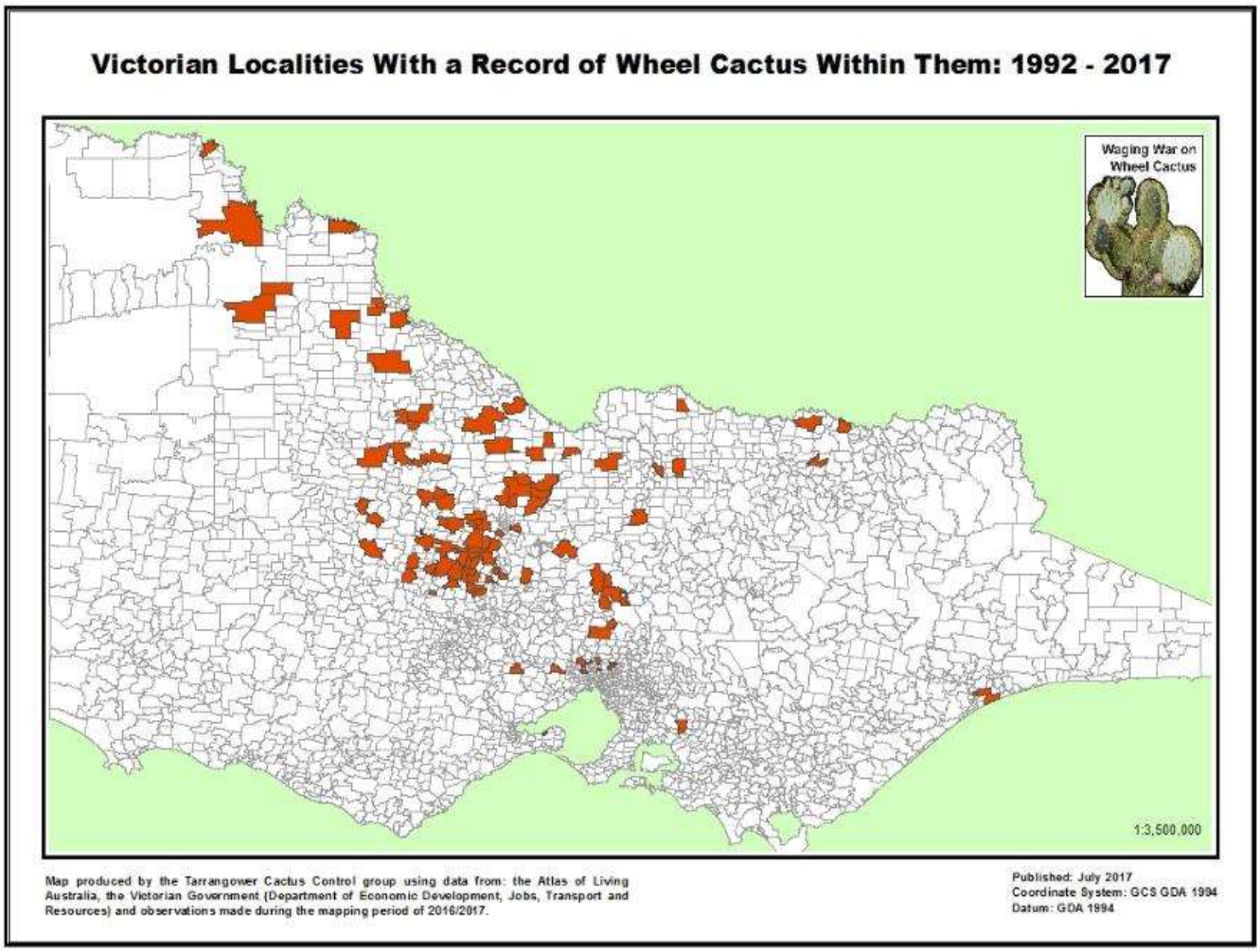

Figure 3. Map shows localities in Victoria that contain a record of Wheel Cactus in the last 25 years. This is a simplified version of the larger maps produced by the project, which include the names of Localities and LGA areas.

Increasing Awareness - Communicating Cactus

The project undertook the following community events and communication activities:

Community Demonstrations:

- A talk and field day was held in Eldorado on 26th March 2017. It was attended by 12 landholders from the Ovens Landcare Network's region. The day included a demonstration of how to inject wheel cactus plants that was filmed by Gayle South (Ovens Landcare Network Facilitator) and posted on the network's Facebook page. At the end of June 2017, it had been viewed 790 times and shared by 8 environmental/Landcare organisations on their own pages. The video is available at https://www.facebook.com/ovenslandcarenetwork/ .
- A talk was given to about 20 members of the Moorabool Landcare Network on 5th June 2017. The network has an outlier population of naturalised wheel cactus in the Rowsely area. The talk focused on highlighting the differences between wheel cactus and Prickly Pear, and control methods.
- A field day near Wedderburn (Mt Egbert) was organised with the North Central CMA but was cancelled shortly beforehand due to a lack of interest from landholders in the area.
- Attempts to hold field days in the Mitchell Shire and Birchip areas were unsuccessful due to lack of interest.

Figure 4. Project Officer Max Schlachter demonstrates the injection method to participants in the Eldorado workshop.

Information Distribution:

- Twenty farm fence signs were designed, printed and distributed to the five Landcare groups in the Tarrangower Ward, Mt. Alexander Shire (the district with the most known dense infestations of wheel cactus). The signs have been hung on fences at strategic locations on properties of Landcare members.
- An unaddressed mail-out of 1200 copies of the TCCG's information brochure was distributed to 7 localities where the mapping work revealed a significant wheel cactus population. The double-sided A4 brochure has information on how to identify wheel cactus, property owner's responsibility, how to control it and the threat it poses to the environment.

- A media release was sent to the Weekly Times detailing the results of the mapping project and reminding people to control wheel cactus on their property. This was accompanied by an advertisement which was a picture of the gate sign. It includes the group's website so that that can access information on cactus control.

Creating a Wheel Cactus Taskforce

The results of the project have suggested that the establishment of a wheel cactus taskforce in Victoria would be difficult. This is mainly due to a lack of widespread community concern about its spread.

Although it is a major community issue around Maldon, in other areas where wheel cactus plants have established naturalised populations, there is little community interest in controlling it. Not many landholders have seen a paddock covered with wheel cactus and they probably don't see their locality as 'cactus country'.

It is also apparent that a taskforce should include other Opuntia species, especially prickly pear (*Opuntia stricta*). Despite the fact that prickly pear cannot produce large infestations due to a the biological control agent, it is still a serious problem in the northeast part of the state.

Rather than forming a platform to create a wheel cactus taskforce, the mapping results could find their best use in assisting the Tarrangower Cactus Control Group with its upcoming project to distribute of a biological control agent for wheel cactus.

Acknowledgements

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The Project Officer would like to thank Cactus Warriors Lee Mead and Ian Grenda for their oversight and assistance and good humour throughout the project.

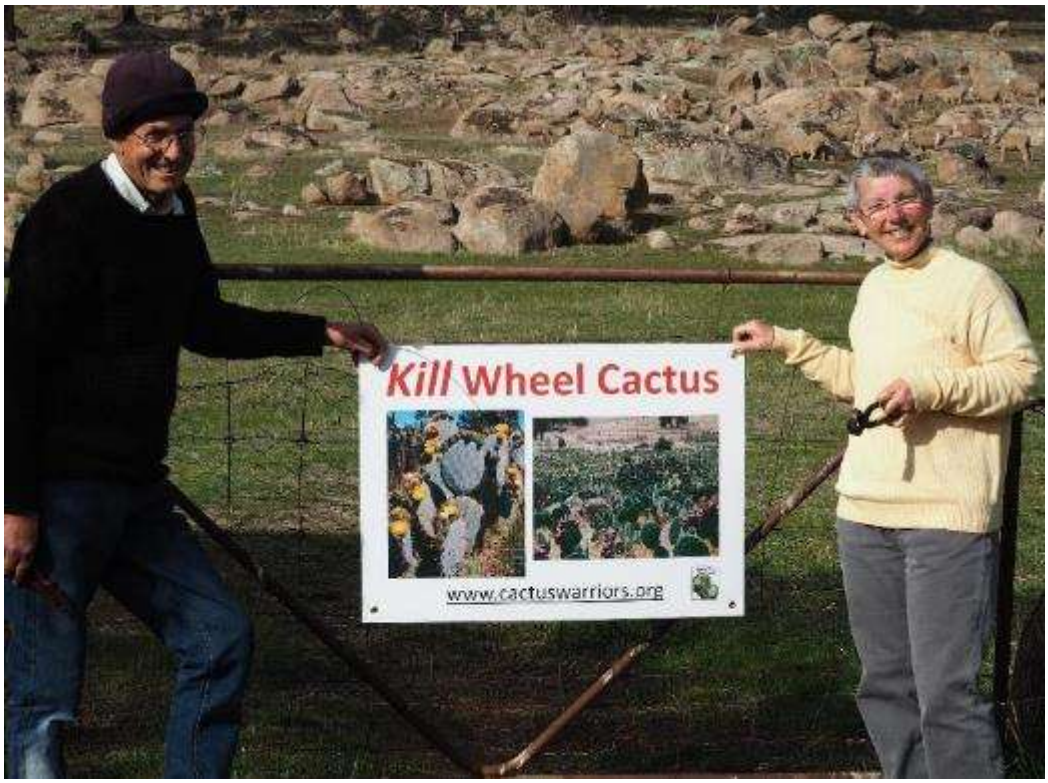

Figure 5. Ian Grenda and Lee Mead with one of the new fence signs.