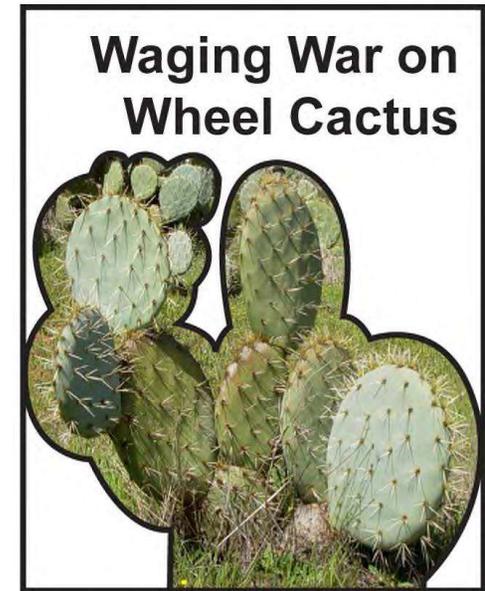


Using a Multi-pronged Strategy for Wheel Cactus Control in Central Victoria



Tarrangower Cactus Control Group

Lee Mead (President)

*Overview: Background Wheel Cactus problem
Background TCCG & Objectives
Project methods and results
Evaluation & Conclusions
Summary & Future*

Wheel Cactus (*Opuntia robusta*)

- Extremely invasive and difficult to control
- Grows particularly well in our local granitic soils
- Locals alarmed at increased infestations 1990s



Typical Wheel Cactus infestation near Maldon



Tarrangower Cactus Control Group (TCCG)

Grassroots Community Action 2005

Initial Partnership & Funding:

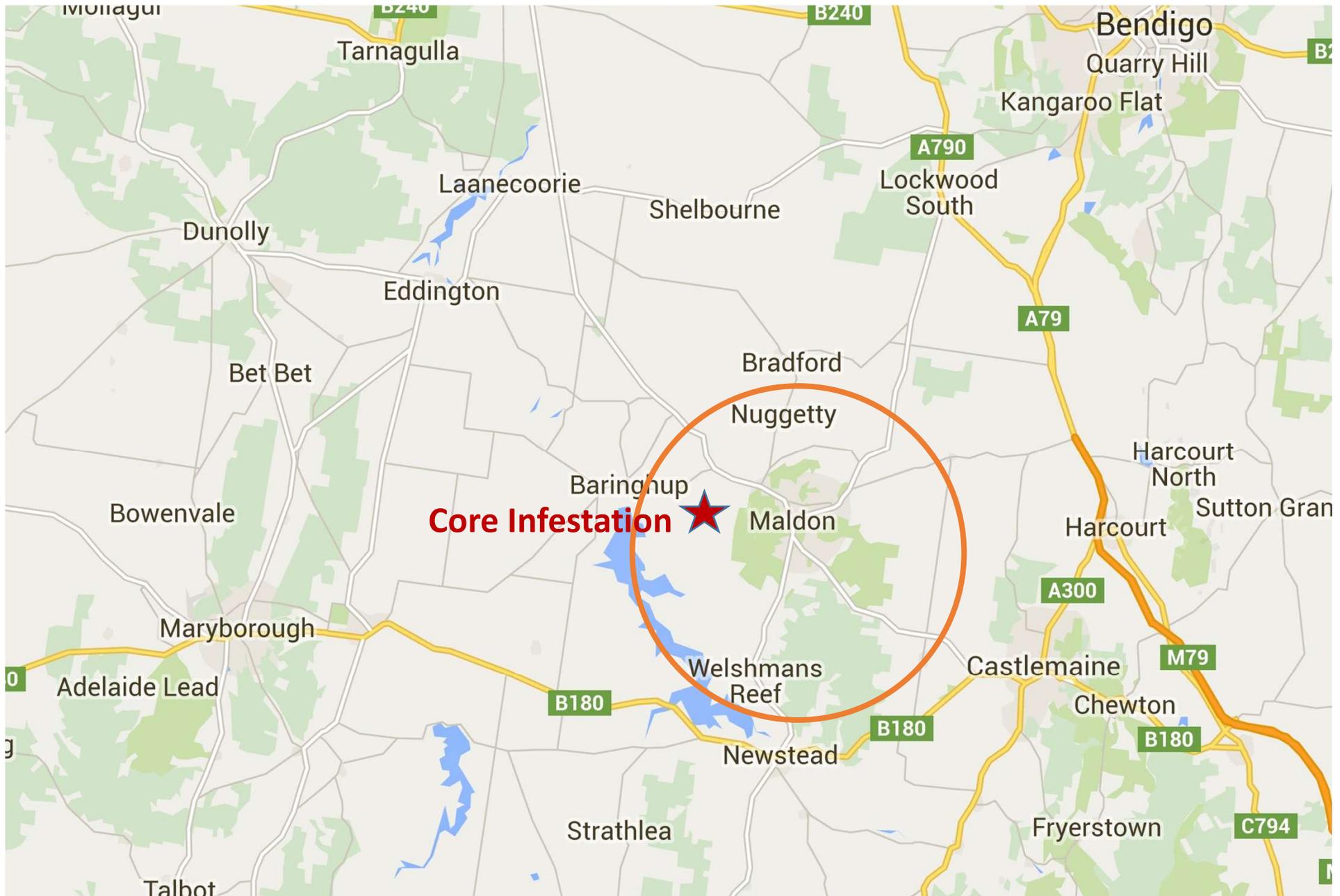
- Parks Victoria & 3 local Landcare groups
- control Wheel Cactus in Maldon Historic Reserve & adjacent private properties

TCCG Initial Objectives

1. Assist **Parks Victoria** to control infestations in MHR
2. Increase **community awareness** of Wheel Cactus
3. Engage landowners & motivate **participation** in control activities
4. Determine most effective **control techniques**



Initial Area Concern: Pigeon Hill & Maldon Historic Reserve



Objective: to Assist Parks Victoria in MHR

- Successful partnership with PV to control infestations in MHR
- Community field days attracted volunteer “cactus warriors”



Objective: to Increase Community Awareness

- Annual community events and information stalls
- Information brochures, Farm Fence Signs, T-shirts, Pens
- Website, Facebook and regular multi-media releases



Objective: to Increase Participation - **Community Field Days**

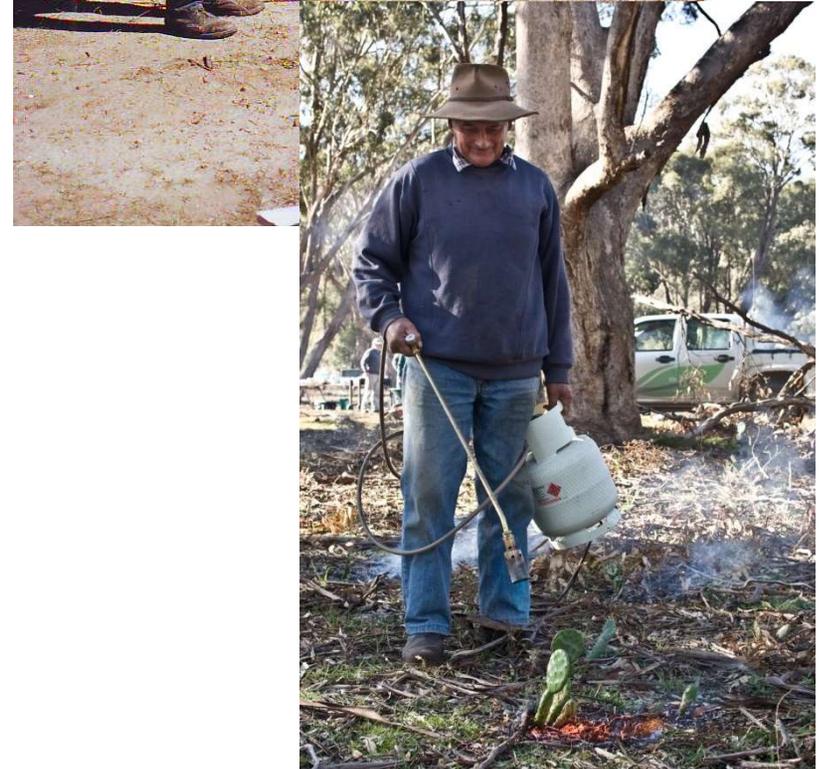
- On-ground assistance & promote neighbour networking
- Incentives such as free equipment & herbicide



Objective: to Investigate most effective Control Techniques

Trialled many different techniques:

- **Surface spraying**
- **Burning**
- **Mechanical removal**
- **Manual digging**
- **Herbicides**
 - **Delivery techniques**
 - **Direct Injection**
 - **pad and stem**



**Example Case Study:
Private property
using
Glyphosate injection**

2008



2014



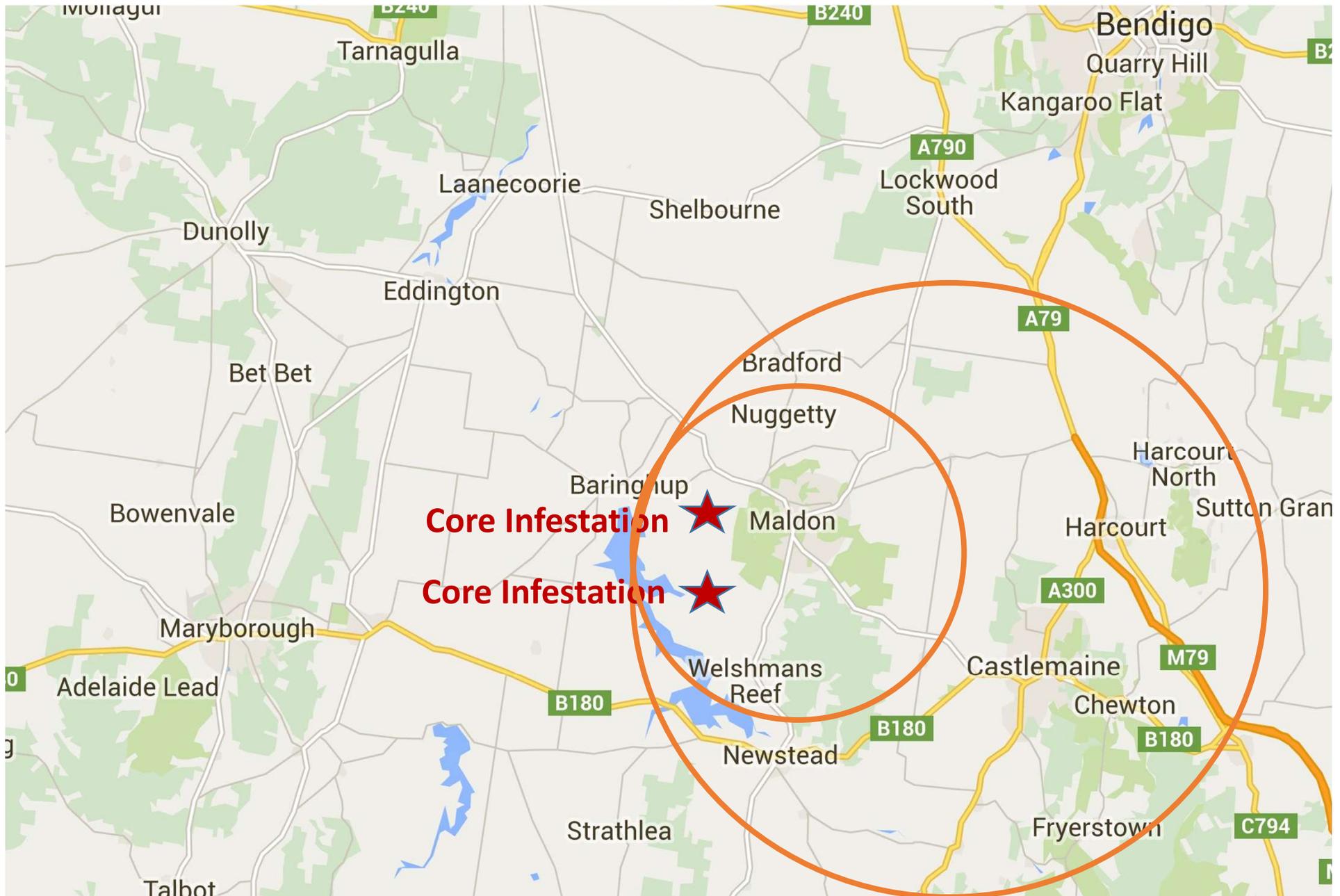
On-going Challenges:

Non-compliant Landowners

- Continual re-infestation to neighbouring private and public property
- Enormous seed bank



Current Area Concern: Now 2 Core Infestations & Mt. Alex Shire



Long-term, Integrated, Sustainable Management:

Continue with **Chemical** – Injection **Glyphosate** into pads

Injection **MSMA (Daconate)** into stems

Manual Removal – Dig and Bury/Burn

Introduce

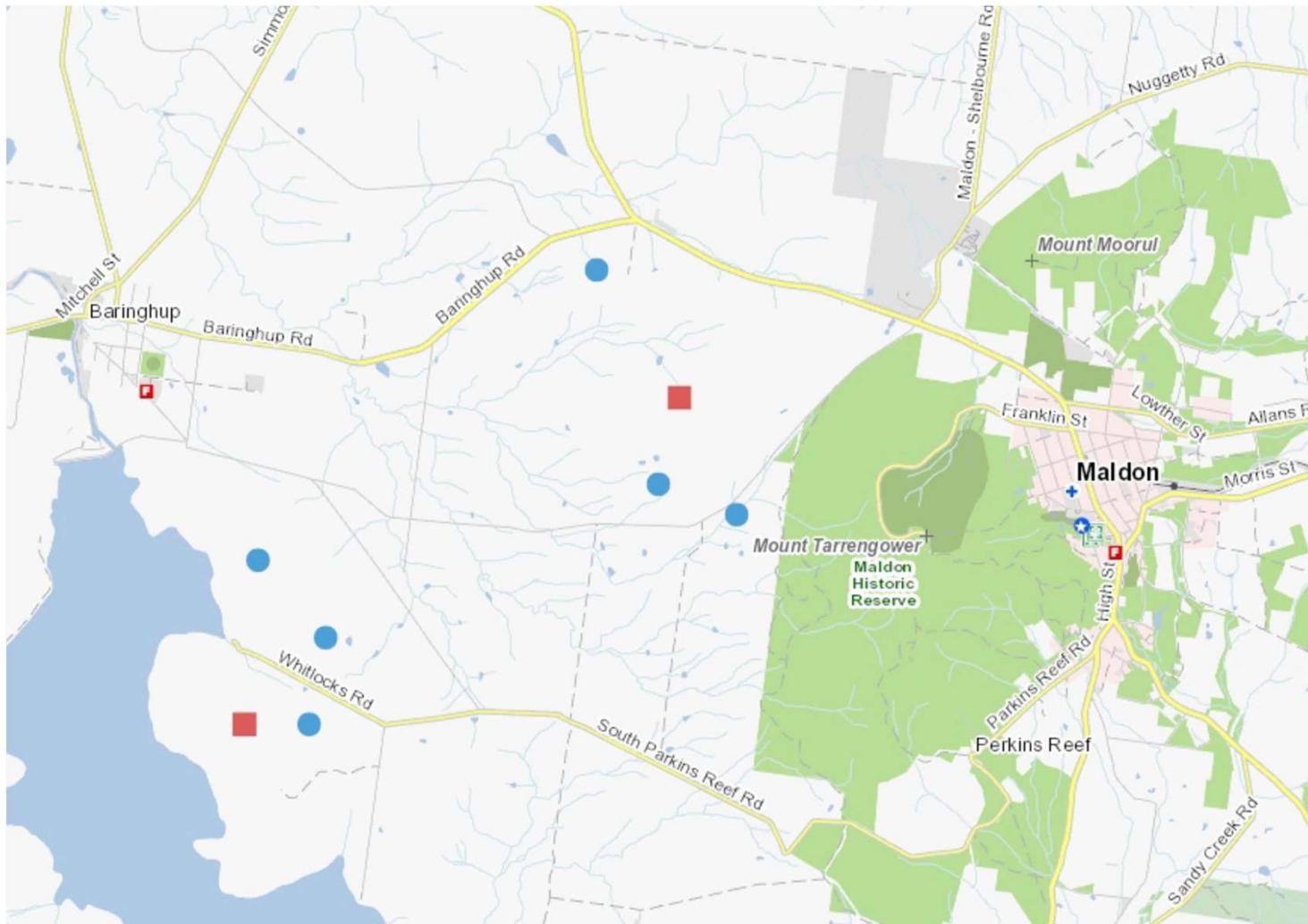
Biological Control – Cochineal insects (*Dactylopius opuntiae*)



Project - *Multi-pronged Strategy for Wheel Cactus Control*

Funded by Landcare Victoria 2019 with objectives:

- 1) Develop individual multi-pronged Management Plans for 6 properties
- 2) Establish use and knowledge of Cochineal Biological Control as additional tool
- 3) Establish Cochineal Nursery for reliable supply of insects



Project - *Multi-pronged Strategy for Wheel Cactus Control*

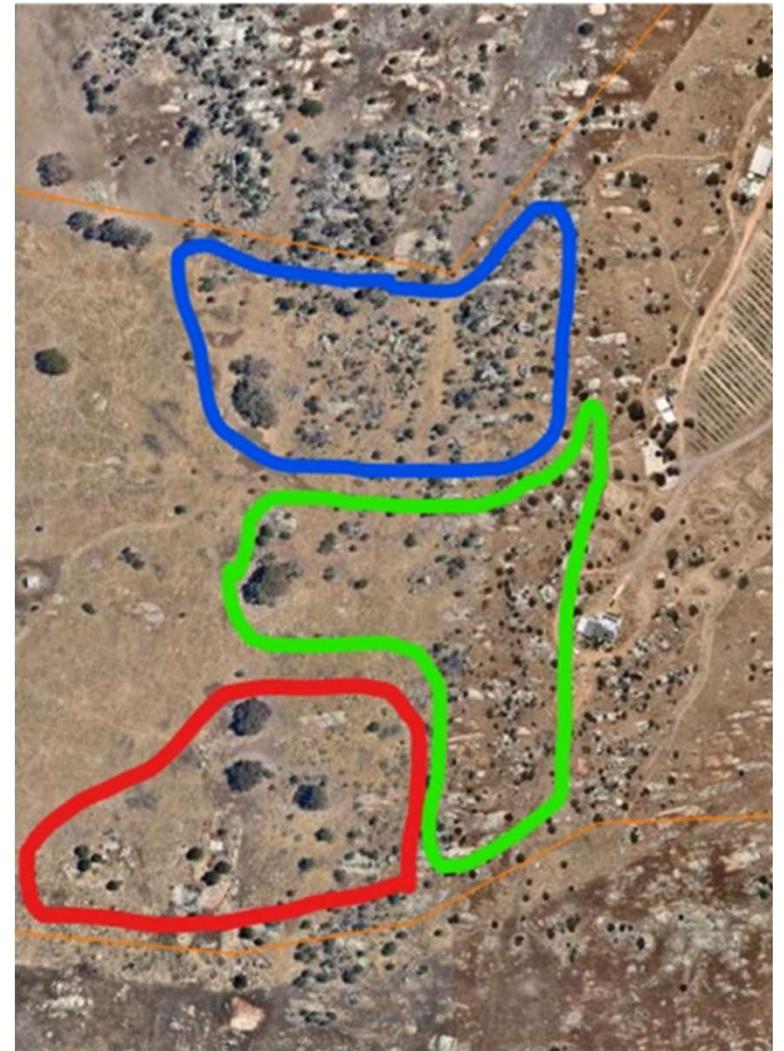
Employed project officer for 12 months to

- Engage and liaise with landowners
- Design and implement personalised Management Plans
- Demonstrate use of Cochineal biological control



Individual Management Plans

- Establish plans with 6 landowners (all heavily infested properties)
 - Using combination chemical & manual & biological controls
- Practical sequence of control actions over 3 years
- Map for each property divided up into manageable parcels



Introduce Cochineal Biological Control Tool – TCCG role

- Community field day held on each of 6 properties
 - demonstrate how to seed & distribute insects
 - widespread population of insects to neighbouring inaccessible sites
- New Info brochure to increase awareness in local community



Established Cochineal Nursery - TCCG

- Built 2m x 3.2m green house
- Cochineal species (*Dactylopius opuntiae*) originally sourced S.A.



Review - 3 years

- Determine uptake of Management Plans
- Determine survival and distribution of Cochineal insect populations

Property	Did you find the Management Plan useful?	Did you manually spread the Cochineal insects between plants?
1	Yes Small amount of injecting Glyphosate.	No
2	Provided goals but unable to achieve objectives due to competing priorities.	Very little.
3	Yes, very useful guide	Yes, mainly in new growth in lower paddocks.
4	Yes, good advice but problem is too overwhelming	Very little
5	Yes, but very slow progress	Yes, some in the rocky hills
6	Yes	No, they have spread on their own over property.

Results: Property 2

- No less wheel cactus
- Very little cochineal

2019

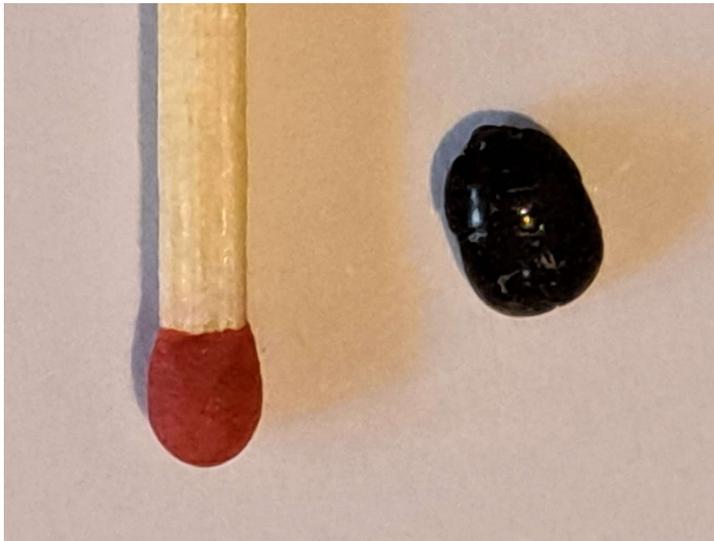


2022



Results: Property 2

- Found small beetles and ants on wheel cactus plants
- Do they have cochineal predator?



Results: Property 3

- No less wheel cactus on hills
- Some cochineal

2019



2022



Results: Property 3

- Cochineal Insects spreading to new small plants
- Maybe unfavorable weather has reduced population increase?



Results: Property 4

- No less wheel cactus
- Very little cochineal

2019



2022



Results - Property 4

- Cochineal survived where seeded but very minimal spread



Results: Property 5

- Less wheel cactus - bulldozing plants and covering with plastic
- Cochineal present on granite hills



2019



2022

Results: Cochineal Nursery

- Insects reproducing well
- Population used by
 - Parks Victoria
 - other volunteer groups



Conclusions:

Individual Management Plans

- all landowners agreed useful advice
- but not actioned
 - due to various reasons such as health issues, other priorities



Conclusions:

Introduction Cochineal Biocontrol

- insects survived on most properties but not widespread
 - possibly due to unfavourable weather, not manually assisted, predators?
 - may improve in future if warmer and drier climate
- welcome any suggestions or comments from others



Conclusions:

Ongoing problem with Non-compliant & Absentee Landowners

- advice from volunteers will never change attitudes of some landowners
 - hence need enforcement from government authority
- we believe State and Local Governments need to be more active partners



TCCG thanks Partners and Supporters

- Cactus Warrior volunteers
- Parks Victoria
- Landcare Victoria
- Mt. Alexander Shire Council
- Nth. Central Catchment Management Authority

