

Foliar herbicide efficacy for young and emergent Wheel Cactus (*Opuntia* spp.) control in the Wychitella area. 11 January 2026

Trial undertaken and report prepared and by Annette Robertson

1. Background

Wheel cactus (*Opuntia robusta* and related species) continues to expand within the district. High densities of juvenile plants are emerging following rainfall events and flooding in 2022/2023. In 2022 all plants along a 2.5km stretch of Bremner Road were successfully treated using injection of Glyphosate technique.

By February 2025 it was noted that this site, so successfully treated, now had “millions of little ones” present along the entire 2.5km. Loddon Shire roadside spraying had diminished the numbers of larger plants, but large-scale manual removal is not feasible for the countless numbers of juvenile plants now present along Bremner Road.

A solution was sought to improve treatment efficiency and identify practical options for early-stage infestation control using a foliar spray. The trial has been designed to test two commonly referenced herbicide mixes under local field conditions.

2. Trial Objectives

1. **Evaluate the effectiveness** of two foliar herbicide treatments on small wheel cactus plants (<15 cm diameter).
2. **Compare plant mortality, regrowth, and visible herbicide impact** between treatments.
3. **Assess practical considerations**, including ease of application, drift risk, cost effectiveness and suitability for broader landscape control.

3. Trial Design Rationale

The trial design and treatment approach were guided by considerable practical experience managing wheel cactus, with a strong understanding of its growth patterns, regeneration behaviour and effective control methods gained through ongoing field management. The trial has a focus on early detection and targeted control of juvenile plants. Dense patches of regeneration were selected to allow clear comparison of treatment effectiveness, with adjacent untreated areas retained as controls. Treatments were applied using low-volume, targeted methods to reflect realistic and practical field conditions commonly encountered during landscape inspections and routine land management activities. This design enabled assessment of both treatment efficacy and practical applicability for broader reserve management.

4. Site Description

- **Location:** Bremner Road, Woolshed Flat. Site is approximately 17 m wide, bordered on south by railway line and on north by Bremner Road. Two particularly dense areas of juvenile regrowth were selected for treatment with control site adjacent.

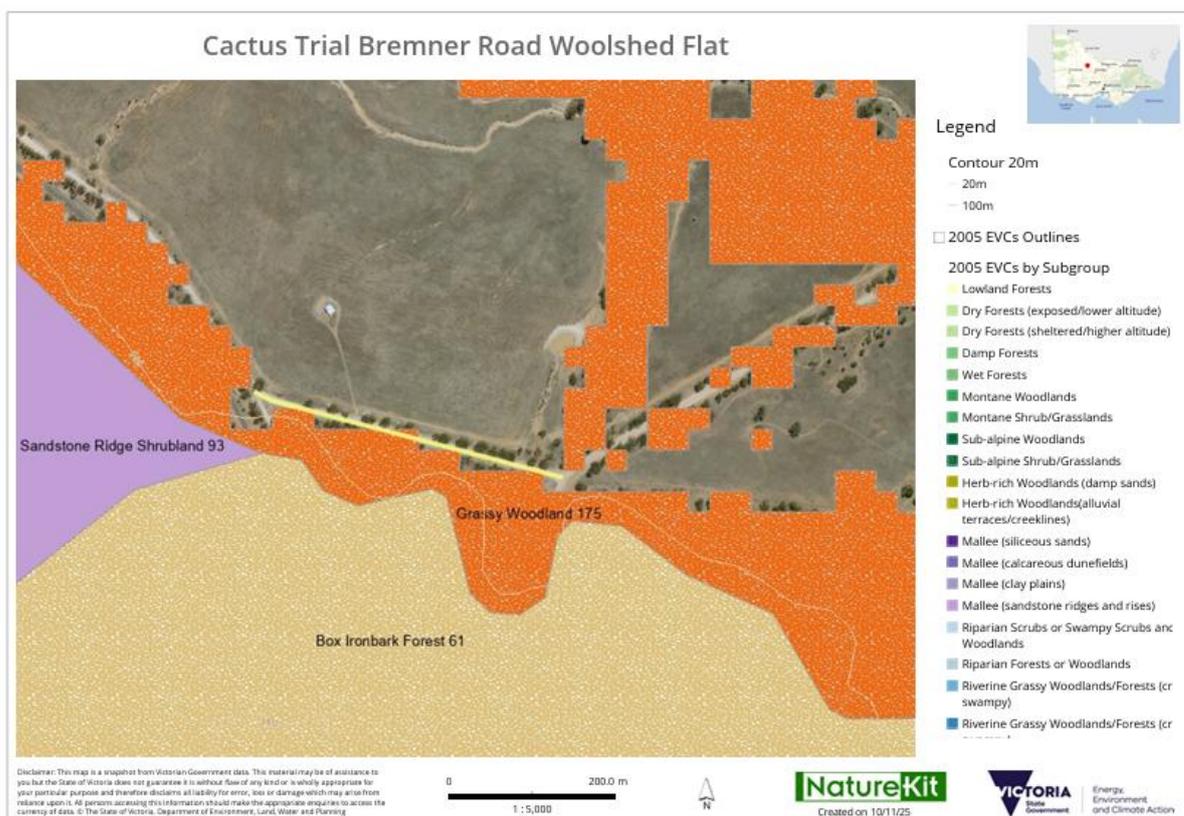
Vegetation Description:

Grassy Woodland is a vulnerable EVC with a variable open eucalypt woodland, typically reaching up to 15 metres in height, with a diverse ground layer dominated by grasses and herbs. The shrub layer is generally diverse but sparse in cover.

Within the Goldfields bioregion, this EVC commonly occurs on sedimentary soils on the lower slopes,



forming a transitional zone between the plains and the infertile woodlands of the sedimentary hills.



- **Site Conditions:**
 - High-density juvenile cactus (“masses of little ones”).
 - Shallow sandy-loam soils with scattered indigenous shrubs.
 - Recent rainfall contributing to vigorous seed sprouting cactus growth?
- **Trial Marking:** Both plots were pegged out on **28 October 2025**, with a control plot adjacent to the trial sites pegged out on 5 December 2025

5. Treatments/Methods

Two herbicide treatments applied on 29 October 2025

Treatment 1: Access® + BioSafe Wetting Agent

- **Active ingredients:** Triclopyr 240 g/L + Picloram 120 g/L.
- **Mix ratio:** 1:60 (Access®: BioSafe).
- **Target plants:** Small cactus plants <15 cm.
- **Purpose:** Evaluate whether Access, typically used as a basal bark/cut-stump herbicide, has efficacy when applied as a foliar spray on juvenile cactus.

Treatment 2: Daconate (MSMA 50%)

- **Active ingredient:** Monosodium methylarsonate (MSMA) 50%.
- **Purpose:** Assess the effectiveness of MSMA foliar application on young wheel cactus plants.

6. Experimental Design

Plot Layout

- **Two trial sites**, in close proximity, each representing one herbicide treatment.
- **One control site** of same dimension and similar plant density
- Plots are similar in:
 - Plant density
 - Plant size classes
 - Soil type and sunlight exposure

Application Method

- Foliar spray applied using a handheld sprayer.



- Plants sprayed to full but not dripping coverage.

7. Data Collection and Monitoring

Baseline Data (Pre-spray)

- Average plant height less than 10cm. Occasional plants over 30cm
- Density estimate Site 1 = 201 plants, Site 2 = 219 plants, Control = 197 plants
- Photographs of sites

Monitoring Schedule

- **Week 2:** Initial visual assessment—yellowing, desiccation, wilt.
- **Week 3:** Mortality assessments (% of plants showing full kill).
- **Week 7:** Regrowth or new pad development recorded.
- **Week 11:** Final mortality assessment and recommendations.
- **Week 52:** Revisit site for assessment of resprouting of seeds and growth in control plot

Measurements

- % mortality per plot.
- Severity score (0–5 scale) for herbicide damage.
- Evidence of re-sprouting.
- Notes on off-target impacts.

8. Safety & Environmental Considerations

- Compliance with herbicide label directions and applicable Victorian regulations.
- Avoid spraying during high wind or when rain is expected within 4 hours.
- Care taken to minimise drift onto native flora adjacent to the infestation.
- PPE used: gloves, goggles, protective clothing.

9. Expected Outcomes

- Identification of the most suitable herbicide mix for early juvenile cactus control.
- Identification of effective application apparatus that is portable and safe
- Improved recommendations for rapid response on high-density post-rainfall emergencies.
- Baseline results to inform proposed weed workshop and community engagement activities.

Photographic Record

Plot 1- Access® + BioSafe Wetting Agent

Photographs taken on 11 November (14 days after application) show onset of wilting and desiccation, indicating that treatment effects had commenced. By 9 December, plants exhibited advanced yellowing, desiccation and mortality with substantial tissue breakdown evident. Along with evidence that some small plants had been missed with initial treatment. Images captured on 12 January confirm complete plant mortality, with no signs of recovery or regrowth observed.

Photographic Record - Plot 2 -Daconate (MSMA 50%) –

Plants demonstrated a parallel level of wilting and desiccation. By 12 January complete plant mortality was observed.

On 12 January 2026, on both sites, 1-5 newly sprouted plants, less than 2cm high were observed.

Plot 1
Access® +
BioSafe
Wetting Agent

28 October
2025



Facing South West



Facing West

Plot 1

11 November
2025



Plot 1

9 December
2025
Evidence that
some small
plants had
been missed
with
treatment



Plot 1

12 January
2026



Plot 2

28 October
2025



Plot 2

11 November
2025



Plot 2

9 December
2025
Evidence that
some small
plants had
been missed
with
treatment



Plot 2

12 January
2026



Control

9 December
2025

Partial
successful
treatment by
Loddon Shire
Roadside
management,
many small
plants evident
away from
proximity of
road



Control

12 January
2026



Summary:

Treatment effectiveness – both treatments quickly affected plants with equal effectiveness. After 14 days all treated plants showed considerable levels of decomposition. At 11 weeks treated plants showed complete mortality.

Observed issues – Due to the small size of the plants 1-2 squirts with a hand held spray bottle was all the treatment required. Carrying a small container when in the field makes this method an effective way to deal with randomly encountered regeneration or seed sprouting of small plants. There was no evidence of off target effect.

Cost Effectiveness: Access + Biosafe – estimated cost for treatment of trial site (201 plants) \$69.40. MSMA cost for treatment of similar number of plants (219) considerably less expensive at \$4.80. However, MSMA is a Class 7 chemical, far more toxic, and requires ACUP to use.

Labour Estimated time to treat plants per plot 15 minutes, calculated at volunteer labour at \$30.00 an hour in addition to travel time and fuel used to travel to trial site. PPE as required, and cost of chemical users training for ACUP should all be taken into consideration.

Overall findings:

Early intervention to control small, juvenile plants at the time of detection is strongly supported by this trial. Treating plants as they are encountered reduces the need for repeated follow-up as plants mature and significantly contributes to breaking the regeneration cycle. The trial demonstrates that low-volume, targeted application using a portable handheld spray unit is an effective and practical approach for managing scattered cactus regeneration.

Concluding Recommendation:

Based on the outcomes of this trial, it is recommended that early, opportunistic treatment of juvenile cactus plants be adopted as standard practice along roadsides and other linear reserves. The use of low-volume, targeted application with a portable handheld spray unit has proven to be both **highly effective** and **practical** in the field, with no observed off-target impacts.

While Access® + Biosafe is more expensive than MSMA, its lower toxicity, reduced regulatory burden, and ease of use make it a more suitable option for use by land managers and trained volunteers, particularly in sensitive roadside environments. Incorporating this approach into routine inspections and maintenance programs will help interrupt ongoing regeneration, reduce long-term control costs, and minimise the need for repeat treatments as plants mature.

Acknowledgement: I wish to acknowledge the support of resources and expertise provided by Bush Heritage Australia (Dan Nugent Reserve Manager). Also, Wedderburn Conservation Management Network Trudy and James Nellson who assisted with technical expertise provided in preparation of this report.