

Modeina Estate  
Precinct 2  
(EPBC 2011/6063)

Compliance Report –  
Year 4

Prepared for DFC (Project  
Management) Pty Ltd

January 2022  
Report No. 7045.65 (4.4)



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## 1. Introduction

This Compliance Report addresses the conditions of approval 2011/6063 under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) held by the approval holder – DFC (Project Management) Pty Ltd (**'DFC'**) – for the Modeina Precinct 2 residential development. The Approval was dated 25<sup>th</sup> July 2015; a Consolidated Variation Notice was issued by the Department of the Environment and Energy on 9<sup>th</sup> November 2018. This **Compliance Report refers to this current Notice and is referred to herein as the 'Approval'**.

Construction activities commenced within Precinct 2 as defined in Appendix 4 of the approval on 9<sup>th</sup> October 2017. To date construction activities have commenced in Project Areas A1, B and C2. This report provides evidence of compliance with the conditions of the approval relevant to these two project areas, in particular:

- Condition 1 – construction activities contained to the overall project area;
- Condition 2 – the implementation of sediment and erosion control measures during construction activities;
- Conditions 3 & 4 – Growling Grass Frog Management Plan;
- Condition 5 – no more than eleven (11) Spiny Rice-flower impacted in Project Areas A1 and A2;
- Condition 6 – offsets secured and offset management implemented for Project Area A1;
- Condition 6A – offsets for impacts associated with Project Area A2;
- Conditions 7 & 8 – offsets secured and offset management implemented for Project Area B;
- Conditions 13, 14, 16 & 17 – construction activities not undertaken in Project Areas C1, C2 & D and the Grassland Reserve;
- Condition 14A – Grassland Reserve Management Plan;
- Condition 18 – offset shapefiles and attributes provided to the Department;
- Condition 19 – advising the Minister within 30 days of commencement of construction;
- Condition 21 – preparation of this Compliance Report; and
- Condition 26 – **approved management plans published on the approval holder's website** within 1 month of approval.

This Compliance reports draws together information from the following sources:

- Reporting, correspondence and mapping files compiled by Nature Advisory (formerly Brett Lane and Associates (BL&A)) on behalf of DFC (Project Management) Pty Ltd;
- Onsite monitoring undertaken by botanists from Nature Advisory on 2<sup>nd</sup> November 2020;
- Weed management reporting provided by Australian Ecosystems; and
- Offset landowner monitoring reports.

This report was prepared by a team from Nature Advisory comprising Annette Cavanagh (Botanist), Chris Armstrong (Botanist), Dean Karopoulos (Botanist), Brett Macdonald (Senior Ecologist & Project Manager), and Chris Dunk (Senior Ecologist and Project Manager) with additional information supplied by the approval holder. Sources of information and observations are indicated throughout.

## 2. Onsite monitoring

### 2.1. Compliance monitoring – October 2021

An onsite compliance monitoring inspections was conducted on the 21<sup>st</sup> October 2021. During this assessment, all areas of Precinct 2 were inspected on foot, including the interfaces of areas currently undergoing construction works with surrounding land currently protected as **'No Go' areas, the Growling Grass Frog Management Buffer and the Grassland Reserve.**

Information relevant to the conditions of the approval was gathered throughout Precinct 2 to supplement information provided by the approval holder. This included information on the following:

- Precinct 2 development area:
  - **The presence of 'No Go' fencing and sediment/erosion control** measures on the **boundaries between construction areas and 'No Go' areas;**
  - The extent of noxious and high threat weeds and evidence of weed control;
- Grassland Reserve:
  - Weed cover estimates for each weed species;
  - Overall weed cover estimate;
  - Information on the status and health of Spiny Rice-flower plants;
  - Assessment of biomass;
  - Monitoring of evidence of pest animals; and
  - Assessment of the integrity of fencing around the perimeter of the reserve;
- Growling Grass Frog Management Buffer:
  - Evidence of personnel briefing;
  - Overall weed cover estimate and evidence of weed control;
  - Evidence of the removal of pest animal harbour; and
  - Status of any seeding/revegetation works.

### 2.2. Growling Grass Frog monitoring

Pre-construction Growling Grass Frog population and habitat monitoring commenced in January 2017 during the November 2016–February 2017 breeding season. A further five annual breeding season population and habitat monitoring events were undertaken in November 2017 (one month following commencement of construction (Year 1), December 2018/January 2019 (Year 2), November 2019 (Year 3), November 2020 (Year 4) and December 2021 (Year 5).

A summary of the monitoring methods and outcomes is provided in Section 3.2.

### 3. Compliance with approval conditions

The Approval conditions relate to the protection of the following Matters of National Environmental Significance (MNES) listed under the EPBC Act and located across six project areas within the precinct – Project Areas A1, A2, B, C1, C2 & D:

- The grassland ecological community *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) – located in discreet patches across the precinct;
- Striped Legless Lizard (*Delma impar*) habitat – coinciding with all areas of mapped NTGVVP; and
- Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*) plants.

The definitions from the Approval that apply to the terms shown in bold throughout this document are listed in Appendix 1 of this report.

#### 3.1. Conditions 1 and 2 – construction activities

Conditions 1 and 2 of the Approval read as follows:

1. The approval holder must ensure that construction activities do not occur outside of the project area as illustrated at [Appendix 1](#).
2. The approval holder must implement sediment and erosion control measures consistent with best practice pollution, sediment and erosion control guideline(s) for the duration of construction activities.

##### *Condition 1 compliance*

Construction activities were underway at the time of the October 2021 assessment, with a combination of temporary construction fencing and post-and-wire fencing installed around areas of Project Area A1, A2 and C2 where works were occurring.

At the time of this current report (January 2022) appropriate construction and post-and-wire fencing were in place to prevent activities occurring outside the Project Area.

##### *Condition 2 compliance*

Prior to continued construction, sediment fencing is required to be installed between construction zones and the Kororoit Creek environs and retained native vegetation.

At the time of this current report (January 2022) suitable sediment fencing was in place to protect the Grassland Reserve and wherever construction was occurring.

Sediment fencing and trapped sediment remaining in place since earlier construction works should be removed before it deteriorates to the point where the trapped sediment breaches the fabric barrier and washes into Kororoit Creek, as well as it being plastic litter.

No stockpiles, machinery/equipment laydown or washdown areas were observed within the Growling Grass Frog Management Buffer – i.e. within 35 metres of Kororoit Creek.

### 3.2. Conditions 3 and 4 – Growling Grass Frog Management Plan

Conditions 3 and 4 of the Approval read as follows:

3. The approval holder must prepare a site-specific Growling Grass Frog Management Plan; which is required to be consistent with best practice Growling Grass Frog management guidelines. The plan must outline how significant impacts to Growling Grass Frogs will be avoided or mitigated and as a minimum must include:
  - a. Management measures demonstrating how the Growling Grass Frog buffer zone will be demarcated to minimise vehicle access;
  - b. Details of revegetation, environmental weed control measures and other management activities within the Growling Grass Frog buffer zone;
  - c. Details of any construction activities and management measures to avoid significant impacts during construction; and
  - d. Measures to ensure any on-site personnel will be informed of their obligations under the Growling Grass Frog Management Plan.
  
4. Construction activities must not commence in Project Areas A1, A2, C1, C2 and D until the site specific Growling Grass Frog Management Plan has been approved by the Minister in writing. Construction in Project Area B can proceed prior to approval of the site-specific Growling Grass Frog Management Plan. The site specific Growling Grass Frog Management Plan must be implemented.

#### *Conditions 3 and 4 compliance*

BL&A Report 7045 (29.7) *Growling Grass Frog Management Plan* (GGFMP) was approved by the Minister in writing on 20<sup>th</sup> September **2017 and is available for viewing on the proponent's website** at <https://www.denniscorp.com.au/about-dennis-family/initiatives-and-awards/sustainability/>. Of the project areas listed above, construction commenced in Project Area A1 (only) on 9<sup>th</sup> October 2017.

This compliance reporting is made against the construction phase management and monitoring actions for the Growling Grass Frog Management Buffer (GGFMB) outlined in Tables 6 and 7 of the GGFMP. These actions and the relevant section of the GGFMP are listed below under the four core requirements of the Plan outlined in Condition 3:

- Demarcation of GGFMB – Condition 3a:
  - Staged construction and temporary access restrictions (GGFMP Section 5.2.2)
- Weed control measures and revegetation – Condition 3b:
  - Weed management (GGFMP Sections 5.2.3 and 6.2)
  - Revegetation (GGFMP Section 6.4)
- Construction management measures to avoid significant impacts – Condition 3c:
  - Temporary access restrictions (GGFMP Section 5.2.2)
  - Sediment control (GGFMP Section 5.2.4)
  - Works within the GGFMB (GGFMP Section 5.2.5)

- On-site personnel informed of their obligations – Condition 3d:
  - Personnel briefing (GGFMP Section 5.2.1)

A summary of the outcomes of Growling Grass Frog habitat quality monitoring and population monitoring (Section 6.6.2 and Table 7 of the GGFMP) is also provided.

#### [Personnel briefing](#)

A briefing was provided by BL&A on 26<sup>th</sup> September 2017 to all key personnel on the presence of occurrence of Growling Grass Frog (GGF) in the Kororoit Creek environs and the emergency protocols in the event that the species is encountered during construction. Key personnel present included DFC (Project Management) Pty Ltd project managers, as well as all construction site managers.

Information brochures on this species were provided for display in all site offices, providing a physical description of the species, their population distribution, habitat and similar species. Construction site managers have included this briefing in the environmental briefing for all construction personnel.

#### [Staged construction and temporary access restrictions](#)

**As outlined in the compliance reporting against Condition 1, 'No Go' construction fencing was inspected by BL&A in November 2018 and found to restrict the construction of lots and roads associated with residential stages to land comprising Project Areas A1 and B. These project area boundaries fall on the development side of the boundary of the GGFMB in all cases.**

During the Nature Advisory November 2020 inspection, a combination of temporary construction fencing and post-and-wire fencing was installed around Project Area A1 to restrict construction to this area. Wire mesh farm fencing was appropriately installed around all areas of retained native vegetation.

At the time of this current report (January 2022), a combination of temporary construction fencing and post-and-wire fencing was installed around Project Areas A1, A2, C2 and small areas of C1 to restrict construction to these areas and protect areas of retained native vegetation including the Grassland Reserve.

#### [Weed management](#)

##### [2017/2018: Greening Australia weed management actions](#)

Weeds across Precinct 2 were mapped by Greening Australia in August 2017 as part of their Weed Management Strategy. Weed management across Precinct 2 and including the GGFMB was then undertaken by Greening Australia between September 2017 and October 2018.

Within the GGFMB this included:

- Removal, consolidation and burning of woody weeds (African Boxthorn and Sweet Briar)
- Brush cutting of dead biomass
- Herbicide treatment of grassy and herbaceous weeds – up to eight (8) visits
- Biomass reduction burns – up to six (6) burns

In particular, the following three high-threat weeds that were found to be of greatest threat to environmental values were targeted:

- African Boxthorn (a woody weed);
- Artichoke Thistle (a herbaceous weed); and
- Serrated Tussock (a herbaceous/grassy weed).

During herbaceous weed control visits, the following additional high-threat weeds were also targeted (all but one herbaceous weeds):

- Chilean Needle Grass;
- Fennel;
- **Paterson's Curse;**
- Scotch Thistle;
- Spear Thistle; and
- Sweet Briar (a woody weed).

#### *2017/2018: Greening Australia weed management outcomes*

Weed survey reports from Greening Australia have been prepared for August 2017, February 2018 and June 2018. They document an overall reduction in extent and cover of the three highest threat weed species.

The monitoring inspection undertaken by BL&A in November 2018 of the GGFMB generally concur with the survey results provided by Greening Australia (with minor exceptions), as follows:

- African Boxthorn – in August 2017 found in extremely high numbers within the GGFMB; now observed to be largely eradicated – i.e. less than 1% cover;
- Artichoke Thistle – in August 2017 found in large swathes in and adjacent to the GGFMB in its northern section and at the top of the escarpment near the eastern section at up to 30% cover, including pocket outbreaks with up to 70% cover; now reduced to an overall cover of approximately 20%, with an area in the southeast section exhibiting approximately 30% cover and smaller pocket outbreaks of up to 60% cover; and
- Serrated Tussock – in August 2017 occurring within the GGFMB at cover levels of between 60–100% in all sections except for the southeast corner; now largely controlled to less than 10% cover in the northwest and reduced to 20% cover on the eastern flank of the GGFMB, it still exhibits very high cover (up to 100%) in a narrow band at the bend in the GGFMB **previously described as 'the Point'**.

An infestation of Fennel previously recorded in the eastern flank of the GGFMB has also been eradicated.

It is understood that ongoing weed control focused on these remaining outbreaks of Artichoke Thistle and Serrated Tussock within the GGFMB (along with the broader precinct), as well as the remaining target weeds listed above.

### *2019: Australian Ecosystems weed management outcomes*

A weed survey report from Australian Ecosystems has been prepared in October 2019. It documents an overall reduction in extent and cover of the high threat weed species, with the exception of Artichoke Thistle which is germinating readily in areas of exposed soil due to the control of other weeds, namely Serrated Tussock and Twiggy Turnip.

### *2020: Australian Ecosystems weed management outcomes*

Weed survey reports from Australian Ecosystems were prepared in April 2020, June 2020, October 2020 and December 2020. They document an overall reduction in extent and cover of the high threat weed species, mainly due to the targeted and effective control of Artichoke Thistle. However, it states that ongoing management is required, as weed species such as Twiggy Turnip and Artichoke Thistle will take advantage of bare ground areas where previous weed control has taken place.

### *2021: Australian Ecosystems weed management outcomes*

Weed survey reports from Australian Ecosystems were prepared in April, August, October, and December 2021 and are provided in Appendix 7. The reports document low prevalence of some high threat herbaceous weed **species (Spear Thistle, Fennel, Cape weed and Paterson's Curse)**. However, the resulting increase in space has led to increases in high threat weedy grass species (Toowoomba Canary Grass, Chilean Needle Grass and Serrated Tussock) as well as lower threat species such as Wild Oat. The reports state that many Toowoomba Canary Grass plants along the creek have remained untreated so as to reduce erosion concerns. Going forward, the future treatment regime will aim to reduce widespread herbicide treatment where individuals are close to high-value vegetation. Instead, slashing regimes interspersed with selective treatments may be preferred.

### *Revegetation*

In 2018, large-scale revegetation of the GGFMB had not yet commenced, with the exception of landscaping works associated with a drainage swale constructed within the GGFMB in its northern section. Typical sedge and rush plantings were in good health in this area, and weed cover was negligible due to effective weed-matting.

As of November 2020, revegetation and landscaping works have occurred in the GGFMB in areas adjacent to the recent development in the north-west and the south-east of the precinct. Native grasses, sedges, prostrate shrubs and eucalypts have been planted, and jute mat has been used for weed suppression and erosion control (Photo 1). Supplementary planting has also occurred within retained native vegetation areas that were adjacent to these recently developed areas.



Photo 1: Revegetation works in the south-east portion of the GGFMB

As of October 2021, no further revegetation has occurred. The majority of planted species have survived, grown and began to colonise areas of the jute matting that have degraded (Photo 2). Scattered weeds such as Sow Thistle, Giant Mustard, Wild Oat and Toowoomba Canary-grass are dispersed throughout the revegetation areas at low cover, but are being controlled as evidenced by a number of sprayed and dead individuals.



Photo 2: Revegetation and scattered weeds in north-west GGFMB

### Sediment control

As outlined in the compliance reporting against Condition 2 of the Approval, appropriate sediment and erosion control fencing was observed in 2018 in conjunction with construction fencing on sections of the boundaries of construction areas that occurred on an uninterrupted upslope from Kororoit Creek.

At the three locations where one or more of the fencing panels had fallen, sediment fencing was affected and was not providing an effective barrier. These were brought to the attention of the approval holder for immediate rectification.

No stockpiles, machinery/equipment laydown or washdown areas were observed within the Growling Grass Frog Management Buffer – i.e. within 35 metres of the Kororoit Creek.

The proponent had advised that sediment/erosion control fencing installation was completed by a civil contractor by 6<sup>th</sup> October 2017. Construction commenced within Project Area A1 on 9<sup>th</sup> October 2017. (Note: Project Area B construction has now been completed and is addressed in Section 3.6).

At the time of monitoring in November 2020, sediment fencing was not evident outside of completed construction areas. Sediment fencing must be installed to protect areas abutting future construction works prior to their commencement, and must be constructed according to the requirements of Construction Environmental Management Plans approved by Melton City Council – the Responsible Authority for State approvals.

At the time of this current report (January 2022) appropriate sediment fencing was in place where construction activities are occurring. As noted in 2020, such fencing must be installed to protect areas abutting future construction works prior to their commencement.

#### [Works in the GGFMB](#)

The November 2018 BL&A inspection noted the recent construction of a sewer connection and drainage outfall within the GGFMB in the northwest of the Precinct 2 project area. It was further observed that temporary construction fencing and sediment/erosion control fencing had been erected around the perimeter of these works, providing a continuous barrier between the works and the Kororoit Creek.

An area of land in the far western section of the GGFMB was observed in November 2018 to be clear of vegetation in preparation for landscaping works. It was understood that silt fencing would be installed along the margin of Kororoit Creek in this area prior to any earthworks, if required.

It was also understood that direct seeding of this area and revegetation works would commence in this area in early 2019.

As of November 2020, revegetation and landscaping works have occurred in the GGFMB in areas adjacent to the recent development in the north-west and the south-east of the precinct. Native grasses, sedges, prostrate shrubs and Eucalypts have been planted, and jute mat has been used for weed suppression and erosion control. A bioswale and drainage outlet into the Kororoit Creek has also been constructed in the south-east portion of the GGFMB.

As of October 2021, no new works have taken place within the GGFMB since the previous monitoring in November 2020. It was evident that weed control had been undertaken across broad sections of the GGFMB area. This weed control had targeted high threat weeds, namely Serrated Tussock and Artichoke Thistle. Wild Oat and Toowoomba Canary-grass were in abundance in the GGFMB. It is understood that these weeds are being retained for the time being to maintain bank stability and avoid erosion. However, these weeds should be slashed as vegetation fringing the creek is currently too dense and tall to be suitable for GGF (Photo 3), as well as to prevent further spread of seed.



Photo 3: High density weed cover adjacent to Kororoit Creek in GGFMB

#### *Habitat and population monitoring*

Pre-construction Growling Grass Frog population and habitat monitoring commenced in January 2017 during the November 2016–February 2017 breeding season. A further four annual breeding season population and habitat monitoring events were undertaken in November 2017 (one month following commencement of construction (Year 1), December 2018/January 2019 (Year 2), November 2019 (Year 3), November 2020 (Year 4), and December 2021 (Year 5). The reporting for the Year 5 monitoring event is provided in Appendix 2 and a summary provided below.

During each monitoring event, the following was undertaken:

- A habitat assessment was conducted with photographs and habitat notes taken at three survey sites. Particular attention was paid to the presence of in-stream and fringing creek-edge vegetation; and

Call playback and visual search surveys were conducted over two nights during appropriate weather conditions at each of the three survey sites after dusk for each monitoring event.

Due to unfavourable weather conditions, GGF activity has been disrupted in the end of the 2021 breeding season, with night-time temperatures rarely exceeding 15 degrees Celsius. Two surveys have been completed with no GGF recorded. Some degradation of habitat including increased sedimentation of waterways and reduction in submerged vegetation can be contributed to heavy rainfall and flooding events affecting Kororoit Creek in November 2021.

This could have resulted in dispersal of the GGF population present. It is likely though, that GGF, if currently absent, will repopulate the area.

### 3.3. Condition 5 – Spiny Rice-flower impacts in Project Area A1

Condition 5 of the Approval reads:

5. The approval holder must ensure that the action does not impact more than eleven (11) individual Spiny Rice-flower plants within the combined area of Project Areas A1 and A2.

As of November 2020, construction has commenced in Project Area A1 only.

A survey of Spiny Rice-flower in Project Areas A1 and A2 was undertaken by BL&A on 8<sup>th</sup> August 2016. This survey recorded a total of eleven (11) Spiny Rice-flower plants compared to the seven (7) Spiny Rice-flower previously approved for removal in these project areas. Of these previously identified plants, some were found to be still present whilst others had since died.

An application for a variation to the Approval was made by the proponent and the Approval was varied by the Department in January 2017 to allow for the removal of these eleven plants.

The eleven plants recorded in 2016 were separated spatially across the combined area of Project Areas A1 and A2 (approximately 35 hectares in area), with most occurring as isolated individuals. Given the large combined area of Project Areas A1 and A2 and the isolated nature of many of the records from August 2016 leading to a reduced likelihood of recruitment and an increased likelihood of plant attrition, it is considered unlikely that this number will have increased prior to the commencement of construction in October 2017.

No additional surveys were conducted into the status of these plants in 2020 or 2021.

### 3.4. Condition 6 – Project Area A1 offsets secured and implemented

Condition 6 of the Approval reads:

6. The approval holder must not commence construction activities in Project Area A1 until the following are met:
  - a. A direct offset, consistent with the EPBC Act Environmental Offsets Policy, has been secured to compensate for the impacts to 6.053 hectares of NTGVVP and 6.053 hectares of Striped Legless Lizard habitat;
    - i. An offset management plan has been prepared and submitted to the Minister for approval, and the approval holder has received written confirmation that the offset management plan has been approved. The approved offset management plan must be implemented by the approval holder; and
    - ii. The Department has been provided with written confirmation and supporting evidence demonstrating that the offset has been secured.

BL&A Report 7045 (46.2) *Modeina Estate Project Area A1 EPBC Act Offset Management Plan* was approved by the Minister on 20<sup>th</sup> September 2017. Written evidence of the securing of the Karabeal offset site by way of a Section 69 Agreement under the *Conservation, Forests and Lands Act 1987* (Vic.) had been provided to the Department via email on 12<sup>th</sup> May 2017. Construction activities commenced in Project Area A1 on 9<sup>th</sup> October 2017.

The EPBC Act offsets for impacts to 6.053 hectares of *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) and 6.053 hectares of Striped Legless Lizard habitat were **secured across part of a property in Karabeal in Victoria's west.**

Implementation of the offset had commenced immediately following the execution of the Section 69 Agreement on 3<sup>rd</sup> April 2017. The first annual monitoring report was provided to the Victorian Department of Environment, Land, Water and Planning (DELWP) on 21<sup>st</sup> April 2018.

Work undertaken in the first year (2018) included the following actions:

- Ongoing monitoring of boundary fencing – continued to be in stock-proof condition
- Ongoing monitoring for woody weeds – little or no cover of woody weeds identified
- Quarterly monitoring for pest animals – little to no activity identified.

Works undertaken by the landholder in the second year (2019) included the actions outlined below.

- Ongoing monitoring of woody weeds and eradication where identified
- Control of herbaceous weeds including Toowoomba Canary-grass, Yorkshire Fog, Paspalum, Spear Thistle and South African Orchid
- Fox shooting as required
- Monitoring for rabbit warrens and removal as required
- Ecological burning as required
- Strategic grazing as required (following formal approval from DELWP for this activity – not currently included in the Management Plan for the site).

A site inspection by DELWP on 13 August 2019 determined that deeming of compliance was reliant on the meeting the following obligations:

- Woody weeds – ensure all woody weeds are cut and painted as per the Management Plan.
- Herbaceous weed control – ensure high threat weeds are controlled.
- Fencing – realign the northern boundary fence to match the site area.
- Rubbish – remove old internal fencing wire and any rubbish from the sites.

The following were also noted:

- Ecological burning was recommended as an additional weed control measure.
- Burrows are to be monitored to determine the species responsible and eradication action taken if resulting from pest presence.
- No evidence of Red Fox was found.

Works undertaken by the landholder in the third year (2020) included the actions outlined below.

- Firebreaks prepared and cool burning of areas 2 and 3

- Lopping and chemical treatment of Cypress and Ash trees
- Removal of corrugated iron and posts in the creek areas

The 2021 management practices within the Karabeal offset site are provided in Appendix 7.

### 3.5. Condition 6A – Project Area A2 offsets secured

Condition 6A of the Approval reads:

6A. The approval holder must not commence construction activities in Project Area A2 until either 6A(a) or 6A(b) are met:

- a. A direct offset, consistent with the EPBC Act Environmental Offsets Policy, has been secured to compensate for the impacts to 4.277 hectares of NTGVVP and 4.277 hectares of Striped Legless Lizard habitat;
  - i. An offset management plan has been prepared and submitted to the Minister for approval, and the approval holder has received written confirmation that the offset management plan has been approved. The approved offset management plan must be implemented by the approval holder; and
  - ii. The Department has been provided with written confirmation and supporting evidence demonstrating that the offset has been secured;

OR

- b. In a manner consistent with the Melbourne Urban Development Policy, secure an offset for impacts to 4.277 hectares of NTGVVP and 4.277 hectares of Striped Legless Lizard habitat associated with Project Area A2. Documentary evidence that the offset has been secured must be provided to the Department with 14 days of being secured.

#### *Condition 6A compliance*

#### *MUD Policy payment*

The proponent has made payment under the Melbourne Urban Development Policy for offsets under the MUD Policy to compensate for the impacts to 4.277 hectares of NTGVVP and 4.277 hectares of Striped Legless Lizard habitat. Proof of this payment has been provided to the Department.

Therefore, the required offsets for Condition 6A have been secured, the condition met, and works may commence in Project Area A2.

### 3.6. Conditions 7 & 8 – Project Area B offsets secured and implemented

Conditions 7 and 8 of the Approval read:

7. The approval holder must not commence construction activities in Project Area B until either 7(a) or 7(b) are met:
  - a. A direct offset containing a minimum of 100 Spiny Rice-flower plants has been secured;
    - i. An offset management plan has been prepared and submitted to the Minister for approval, and the approval holder has received written confirmation that the offset management plan has been

- approved. The approved offset management plan must be implemented by the approval holder; and
- ii. The Department has been provided with written confirmation and supporting evidence that demonstrate the offset has been secured.
- b. The Minister agrees in writing that condition 15 (a–e) has been satisfied.
8. The approval holder must not commence construction activities in Project Area B until the following are met:
- c. A direct offset, consistent with the EPBC Act Environmental Offsets Policy, has been secured to compensate for the impacts to 1.824 hectares of NTGVVP and 1.824 hectares of Striped Legless Lizard habitat;
    - i. An offset management plan has been prepared and submitted to the Minister for approval, and the approval holder has received written confirmation that the offset management plan has been approved. The approved offset management plan must be implemented by the approval holder; and
    - ii. The Department has been provided with written confirmation and supporting evidence that demonstrate the offset has been secured.

#### *Conditions 7 & 8 compliance*

BL&A Report 7045 (35.4) *Modeina Estate Precinct 2 – Project Area B (School Site) EPBC Act Offset Management Plan* was approved by the Minister on 7<sup>th</sup> March 2017 and written evidence of the securing of two offset sites (Campbelltown and Karabeal) by way of a Section 69 Agreement under the *Conservation, Forests and Lands Act 1987* (Vic.) provided to the Department via email on 12<sup>th</sup> May 2017. Native vegetation removal and construction of the school site within Project Area B was undertaken in January 2018.

The EPBC Act direct offset of 100 Spiny Rice-flower was secured on the Campbelltown offset **site in Victoria’s west; the direct offset** for impacts to 1.824 hectares of *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) and 1.824 hectares of Striped Legless Lizard habitat were secured across part of the Karabeal property.

Implementation of the offset across both sites had commenced immediately following the execution of the Section 69 Agreements on 3<sup>rd</sup> April 2017. The first annual monitoring report was provided to the Victorian Department of Environment, Land, Water and Planning (DELWP) on 21<sup>st</sup> April 2018.

Work undertaken by the landholder in the first year included the actions outlined below.

#### *Campbelltown*

- Fencing of individual offset sites within the broader property by July 2017
- Limited eradication of woody weeds in Spring and Autumn 2017
- Fox shooting undertaken

#### *Karabeal*

- Ongoing monitoring of boundary fencing – continued to be in stock-proof condition

- Ongoing monitoring for woody weeds – little or no cover of woody weeds identified
- Quarterly monitoring for pest animals – little to no activity identified

Work to be undertaken by the landholder in the second year included the actions outlined below.

#### [Campbelltown](#)

- Ongoing eradication of woody weeds
- Control of herbaceous weeds including Toowoomba Canary Grass, Spear Thistle and **St John's Wort**
- Fox shooting as required
- Monitoring for rabbit warrens and removal as required
- Strategic grazing as required
- Ecological burning as required

#### [Karabeal](#)

- Ongoing monitoring of woody weeds and eradication where identified
- Control of herbaceous weeds including Toowoomba Canary Grass, Yorkshire Fog, Paspalum, Spear Thistle and South African Orchid
- Fox shooting as required
- Monitoring for rabbit warrens and removal as required
- Ecological burning as required
- Strategic grazing as required (following formal approval from DELWP for this activity – not currently included in the Management Plan for the site).

Work undertaken by the landholder in the third year included the actions outlined below.

#### [Campbelltown](#)

- Fumigation and collapsing of burrow of European Rabbit recorded **just outside the site's** southern boundary.
- Control of all woody weeds including Sweet Briar regrowth and Plum and remove all fruits and cut branches.
- Control of herbaceous weeds including Toowoomba Canary Grass, **St John's Wort**, Bulbous Meadow-grass, **Cat's Ear**, Cocksfoot, Spear Thistle, Ribwort, Dock and Brown-top Bent.
- Remove wire from internal fencing.
- Monitoring for any impacts to growth of seeding of native grasses by kangaroos and control if required.
- Strategic grazing as required.
- Ecological burning as required.

Karabeal

- Re-align fencing to the east to match site area.
- Remove unused fencing, wire and old iron.
- Remove internal fencing unless pulse grazing is to be implemented.
- Monitor small burrows to determine species responsible and control if required.
- Control of all woody weeds including Boxthorn and non-indigenous species including Blue Gum, Spotted Gum, Cypress and Ash.
- Introduce higher level of weed control than originally prescribed in the Management Plan, incorporating spot spraying and burning and consider addition of strategic pulse grazing to reduce weed cover.
- Liaise with local CMA to control erosion along drainage line and continue to monitor for any increase.
- Assign names to paddocks to allow for greater clarity of management action requirements and accuracy of specific practices.

Work undertaken by the landholder in the fourth year included the actions outlined below.

Campbelltown

- Fumigation of European Rabbit burrows.
- Cutting and pasting of Sweet Briar plants, burning of Blackberry bushes and control of Artichoke Thistle and non-native Dock.
- Monitoring for any other weeds and vermin.

Karabeal

- Firebreaks prepared and cool burning of areas 2 and 3
- Lopping and chemical treatment of Cypress and Ash trees
- Removal of corrugated iron and posts in the creek areas

Annual monitoring reports conducted by the landowner are provided for Karabeal and Campbelltown in Appendix 7 and 8 respectively.

### 3.7. Conditions 13, 14, 16 & 17 – no construction activities in Project Areas C1, C2 & D

Conditions 13, 14, 16 and 17 of the Approval read (in part, paraphrased):

13. The approval holder must not commence construction activities in Project Area C2 until... **[direct offsets are secured for impacts to NTGVVP, Striped Legless Lizard habitat and Spiny Rice-flower]**.
14. The approval holder must not undertake construction activities within the Grassland Reserve, to be located in Project Area B as per Appendix 1.

16. The approval holder must not commence construction activities in Project Area D until... [ a direct offset is secured for impacts to NTGVVP, Striped Legless Lizard habitat].
17. If condition 15 (a–d) cannot be met in full:
- a. the approval holder must not commence construction activities within Project Area D; until the following are met:
    - i. Adequately compensate for impacts to Spiny Rice-flower plants located within Project Area D with an alternative offset. This offset strategy must be prepared following consultation with the Department; and
    - ii. The Minister has provided written notification to the approval holder that conditions 14 and 15 no longer apply.

#### *Conditions 13, 14 & 16 compliance*

##### *Offsets secured for Project Areas C1, C2 & D*

The Nature Advisory November 2021 site inspection determined that no construction had commenced in Project Area D (including the Grassland Reserve), but that construction had commenced in Project Area C1 and C2.

Evidence that an appropriate offset has been secured has been provided (Cressy Offset Site).

The perimeter of the Grassland Reserve was fenced with a wire mesh fence in February 2017 and remains in place and is of suitable design. The previous annual monitoring report recommended that the gate in the south-eastern corner be made rabbit-proof, and appropriate modifications have since been made.

#### *Condition 17 compliance*

##### *Alternative offset*

BL&A Report 7045 (51.4) *Modeina Precinct 2 – Spiny Rice-Flower Alternative Offset Strategy* was approved by the Minister on 9<sup>th</sup> November 2018.

##### *Project Areas C1, C2 & D Offset Management Plan*

BL&A Report 7045 (55.2) *Modeina Precinct 2, Project Areas C1, C2 & D – Cressy Offset Management Plan* was approved by the Minister on 9<sup>th</sup> November 2018.

Implementation of the offset had commenced immediately following the execution of the TFN Covenant on 20<sup>th</sup> March 2019. The second annual monitoring report is provided as Appendix 6.

Construction may now commence in Project Areas C1, C2 & D.

##### *Evidence that Condition 15 no longer applies*

Written notification that Condition 15 no longer applies was provided by the Department by email on 28<sup>th</sup> November 2018 (Appendix 33).

### 3.8. Condition 14A – Grassland Reserve Management Plan

Condition 14A of the Approval reads:

14A. The approval holder must, in consultation with a suitably qualified ecologist, develop a Grassland Reserve Management Plan for the protection and management of protected matters within the Grassland Reserve. The Grassland Reserve Management Plan must be submitted to the Minister for approval 6 months prior to the commencement of construction activities within 100 metres of Project Area D. The approved Grassland Reserve Management Plan must be implemented.

The Grassland Reserve Management Plan must:

- a. include existing baseline data and other supporting evidence that documents the baseline conditions of protected matters within the Grassland Reserve;
- b. outline specific management actions to protect and maintain protected matters within the Grassland Reserve; and
- c. outline annual monitoring and reporting on the condition of protected matters within the Grassland Reserve for a period of 10 years from the commencement of the Plan.

#### *Condition 14A compliance*

BL&A Report 7045 (43.4) *Modeina Estate, Burnside – Grassland Reserve Management Plan* was submitted to the Minister for approval on 8<sup>th</sup> May 2018 and was approved by the Minister on 9<sup>th</sup> **November 2018 and is available for viewing on the proponent's website at <https://www.denniscorp.com.au/about-dennis-family/initiatives-and-awards/sustainability/>.**

Construction activities were found not to have occurred within 100 metres of either Project Area D or the Grassland Reserve during the November 2020 Nature Advisory inspection.

This compliance reporting is made against the construction phase management and monitoring actions outlined in Appendix 4 of the GRMP. These actions and the relevant section of the GRMP are listed below under the three core requirements of the Plan outlined in Condition 14A:

- Baseline data – Condition 14A (a) (GRMP Section 3.4.1)
- Construction and 10-year management actions – Condition 14A (b) (GRMP Sections 3.3 & 3.4)
- Monitoring and reporting – Condition 14A (c) (GRMP Section 3.5)

#### *Vegetation overview*

##### *Baseline data*

Baseline data on the condition, overall weed cover and individual high-threat weed covers was collected during the November 2018 BL&A site inspection.

As of November 2018, the Grassland Reserve was considered to comprise the following:

- 65% cover of native flora;
- 20% cover of introduced flora (weeds); and
- 15% cover of organic matter (leaf litter) and inter-tussock spaces.

### *Monitoring and reporting – Year 2*

Year 2 assessment on the condition, overall weed cover and individual high-threat weed covers was collected during the December 2019 Nature Advisory site inspection.

As of December 2019, the Grassland Reserve was considered to comprise the following:

- 70% cover of native flora;
- 15% cover of introduced flora (weeds); and
- 15% cover of organic matter (leaf litter) and inter-tussock spaces.

A 5% increase in cover of native flora and consequently a 5% reduction in introduced species cover has been recorded since the previous monitoring report in November 2018.

Kangaroo Grass was the dominant grass species in the reserve. While grassy cover was high, a suitable amount of inter-tussock space was present allowing for a diversity of other native flora to occur including Spiny Rice-flower (*Pimelea spinescens subsp. spinescens*), Pink Bindweed (*Convolvulus sp.*), Common Fireweed (*Senecio quadridentatus*), Black Cottonbush (*Maireana decalvans*), Kidney Weed (*Dichondra repens*), Black-anther Flax-lily (*Dianella revoluta*) and Narrow Plantain (*Plantago gaudichaudii*).

Arching Flax-lily (*Dianella longifolia var. grandis*), listed as vulnerable on the DELWP Advisory List of Threatened Plants in Victoria (DELWP Advisory list) was known to occur in the reserve, and was still present during the December 2019 monitoring.

Fragrant Saltbush (*Rhagodia parabolica*), listed as rare on the DELWP Advisory List, was also re-recorded in the reserve during the December 2019 monitoring.

A reduction in cover of Wild Oat from 12% to 6% is likely attributed to well-timed and managed environmental burns, reducing the biomass before the grass sets seed, creating inter-tussock space for a suite of native species to recruit. This is also likely the reason for the emergence of new weeds such as Galenia, Onion Grass and Delicate Hair-grass, and the increase in cover of other weed species such as Squirrel-tail Fescue and Large Quaking Grass.

Selective herbicide control has seen the reduction and potential eradication of a range of exotic species, namely; Serrated Tussock, Artichoke Thistle, Ox-tongue and Big Heron's-bill.

### *Monitoring and reporting – Year 3*

Year 3 assessment on the condition, overall weed cover and individual high-threat weed covers was collected during the November 2020 Nature Advisory site inspection.

As of November 2020, the Grassland Reserve was considered to comprise the following:

- 80% cover of native flora;
- 10% cover of introduced flora (weeds); and
- 17% cover of organic matter (leaf litter) and inter-tussock spaces.

A 10% increase in cover of native flora and consequently a 5% reduction in introduced species cover has been recorded since the previous monitoring report in December 2019, continuing the trend of an increase in quality since the baseline report in 2018.

Kangaroo Grass continues to be the dominant grass species in the reserve. While grass cover was high, a suitable amount of inter-tussock space was present in the most recently burnt area, allowing for a diversity of other native flora to occur, including Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*), Pink Bindweed (*Convolvulus angustissimus*), Common Fireweed (*Senecio quadridentatus*), Blue Grass-lily (*Caesia calliantha*), Kidney Weed (*Dichondra repens*), Black-anther Flax-lily (*Dianella revoluta*) and Yellow Rush-lily (*Tricoryne elatior*). In areas which were not recently burnt, inter tussock spacing was low, subsequently resulting in less native flora diversity.

Arching Flax-lily (*Dianella longifolia* var. *grandis*), listed as vulnerable on the DELWP Advisory List of Threatened Plants in Victoria (DELWP Advisory list) was known to occur in the reserve, and was still present during the November 2020 monitoring.

Fragrant Saltbush (*Rhagodia parabolica*), listed as rare on the DELWP Advisory List, was also re-recorded in the reserve during the most recent visit.

A reduction in overall weed cover is likely attributed to well-timed and managed environmental burns and selective weed control, reducing the biomass before the grass sets seed, enabling native grasses to dominate. However, this is also likely the reason for the emergence of new weeds such as Sow Thistle, Prickly Lettuce and Cocksfoot; the re-emergence of Artichoke Thistle, Red Brome and Serrated Tussock; and the increase in cover of other weed species such as Pimpernal and Rye Grass (Table 1). These species have all readily recruited on exposed ground from weed control. It is recommended that indigenous grass species such as Kangaroo Grass or Spear Grasses are planted into areas which have been subject to weed control, primarily along the eastern edge of the reserve.

**Concerningly, the following high threat weeds have emerged within the reserve; Paterson's Curse, South African Orchid and Gazania.** These species are currently at a negligible cover, but are required to be controlled immediately. During the assessment, individual plants were hand removed.

Additionally, Drooping Cassinia, previously considered native, is now considered an invasive weed. Five individual plants were recorded within the grassland reserve. This species can rapidly colonise an area and is therefore required to be eradicated.

An estimate of cover for weed species in the grassland reserve against estimates in 2018 and 2019 are presented in Table 1. Plants highlighted in grey are considered to be weeds which must be a priority in future weed management of the reserve. Green indicated a reduction in cover, while orange indicates an increase.

#### *Monitoring and reporting – Year 4*

Year 4 assessment on the condition, overall weed cover and individual high-threat weed covers was collected during the October 2021 Nature Advisory site inspection.

As of October 2021, the Grassland Reserve was considered to comprise the following:

- 75% cover of native flora;
- 15% cover of introduced flora (weeds); and

- 16% cover of organic matter (leaf litter) and inter-tussock spaces.

The cover of native and introduced flora has remained relatively stable since the last monitoring survey in December 2020. Native flora cover decreased by 5% and weed cover increased by 5%.

The combined cover of organic matter and inter-tussock spaces has remained relatively stable with a slight (1%) decline. The changes in covers observed are within normal limits.

Kangaroo Grass continues to be the dominant grass species in the reserve. A diverse range of indigenous species occurred in inter-tussock spaces including Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*), Black-anther Flax-lily (*Dianella revoluta*), **Sheep's Burr** (*Acaena echinata*), Blue Grass-lily (*Caesia calliantha*), Grassland Wood-sorrel (*Oxalis perennans*), Common Woodruff (*Asperula conferta*) and Kidney Weed (*Dichondra repens*) amongst others. These species were largely confined to parts of the reserve which had been burnt in 2019.

The presence of Spiny Rice-flower, listed as Critically Endangered under both the EPBC Act and the FFG Act, is discussed in greater detail in Section 3.2.

Three Arching Flax-lily (*Dianella longifolia* var. *grandis*) were found within the reserve. This species is listed as Critically Endangered under the FFG Act.

One Fragrant Saltbush (*Rhagodia parabolica*), listed as Vulnerable under the FFG Act, was also detected in the reserve.

High-threat weeds detected and removed during the monitoring survey in 2020, namely **Paterson's Curse, South African Orchid and Gazania, were not observed during the recent site assessment**. Five additional weed species were detected since the previous monitoring survey including one Horehound plant.

The increase in weed cover observed is largely due to an increase in the cover of Serrated Tussock, Wild Oat, Drooping Cassinia and Ribwort. Of these species, Drooping Cassinia and Serrated Tussock are considered to be of most concern, with the capacity to outcompete even perennial native species. Weed cover remains high towards the northern and eastern boundaries of the reserve and control efforts should focus on these areas (Photo 4).



Photo 4: Weed cover is high near the eastern boundary

Table 1: Weed cover estimates – Grassland Reserve

Common name	Species name	Cover estimate (2018)	Cover estimate (2019)	Cover estimate (2020)	Cover estimate (2021)	Notes
African Box-thorn	<i>Lycium ferocissimum</i>	<1%	<1%	<1%	<1%	Medium-sized emergent plants detected
Artichoke Thistle	<i>Cynara cardunculus</i> subsp. <i>flavescens</i>	<1%	0%	<1%	<1%	Small plants observed, most of which had been recently sprayed
Big Heron's-bill	<i>Erodium botrys</i>	<1%	0%	<1%	<1%	Scattered occurrence, mostly in disturbed areas
Black Medic	<i>Medicago lupulina</i>	0%	0%	<1%	<1%	Several plants recorded
Burr Medic <sup>#</sup>	<i>Medicago polymorpha</i>	0%	0%	0%	<1%	Several plants recorded
Chilean Needle-grass	<i>Nassella neesiana</i>	<1%	0%	0%	<1%	Several plants recorded
Cleavers	<i>Galium aparine</i>	0%	0%	<1%	0%	Not observed
Cocksfoot	<i>Dactylis glomerata</i>	0%	0%	<1%	<1%	Several plants recorded
Common Centaury <sup>#</sup>	<i>Centaureum erythraea</i>	0%	0%	0%	<1%	Several plants recorded
Delicate Hair-grass	<i>Aira elegantissima</i>	0%	<1%	1%	1%	Scattered throughout
Drooping Cassinia	<i>Cassinia sifton</i>	*	*	<1%	1%	Eight scattered plants throughout
Flatweed	<i>Hypochaeris radicata</i>	0%	0%	<1%	<1%	Several plants detected in disturbed areas
Galenia	<i>Galenia pubescens</i> var. <i>pubescens</i>	0%	<1%	0%	0%	Not observed

Common name	Species name	Cover estimate (2018)	Cover estimate (2019)	Cover estimate (2020)	Cover estimate (2021)	Notes
Gazania	<i>Gazania linearis</i>	0%	0%	<1%	0%	Not observed
Horehound <sup>#</sup>	<i>Marrubium vulgare</i>	0%	0%	0%	<1%	One plant detected
Large Quaking-grass	<i>Briza maxima</i>	2%	3%	<1%	<1%	Sporadic throughout
Lesser Quaking-grass <sup>#</sup>	<i>Briza minor</i>	0%	0%	0%	<1%	Several plants recorded
Narrow-leaved Clover	<i>Trifolium angustifolium</i>	<1%	<1%	<1%	0%	Not observed
Onion Grass	<i>Romulea rosea</i>	0%	2%	<1%	<1%	Scattered throughout, more common near boundaries
Ox-tongue	<i>Helminthotheca echioides</i>	<1%	0%	0%	<1%	Several plants recorded
<b>Paterson’s Curse</b>	<i>Echium plantagineum</i>	0%	0%	<1%	0%	Not observed
Perennial Veldt-grass <sup>#</sup>	<i>Ehrharta calycina</i>	0%	0%	0%	<1%	Several plants recorded
Pimpernel	<i>Lysimachia arvensis</i>	<1%	<1%	1%	1%	Commonly recorded throughout
Prickly Lettuce	<i>Lactuca serriola</i>	0%	0%	<1%	<1%	Several plants detected in disturbed areas
Red Brome	<i>Bromus rubens</i>	<1%	0%	<1%	<1%	Scattered occurrence
Ribwort	<i>Plantago lanceolata</i>	3%	1%	<1%	1%	Sporadic throughout

Common name	Species name	Cover estimate (2018)	Cover estimate (2019)	Cover estimate (2020)	Cover estimate (2021)	Notes
Rye Grass	<i>Lolium</i> sp.	1%	<1%	<1%	0%	Not observed
Serrated Tussock	<i>Nassella trichotoma</i>	<1%	0%	1%	3%	Many plants observed near eastern and northern boundary
South African Orchid	<i>Disa bracteata</i>	0%	0%	<1%	0%	Not observed
Sow Thistle	<i>Sonchus</i> spp.	0%	0%	1%	<1%	Scattered throughout
Squirrel-tail Fescue	<i>Vulpia bromoides</i>	1%	2%	1%	1%	Observed throughout
Twiggy Turnip	<i>Brassica fruticulosa</i>	<1%	<1%	<1%	<1%	Few recruiting individuals
Wild Oat	<i>Avena</i> sp.	12%	6%	5%	6%	Dominant in disturbed sections of the reserve, particularly near boundaries
Total weed cover in Grassland Reserve		~ 20%	~ 15%	~ 10%	~ 15%	

Notes: Grey = Weeds in the Grassland Reserve that are considered to be a priority for weed control. Green = Weeds which have reduced in cover. Orange = New emergent weeds and weeds that have maintained or increased in cover. \* = Plant not considered a weed at time of assessment.

## *Spiny Rice-flower*

### *Baseline data*

Several Spiny Rice-flower (SRF) plants occur within the Grassland Reserve. As per the ongoing research being undertaken in this area by Debbie Reynolds, some plants are in cages. All SRF plants recorded during an updated targeted survey of the reserve in 2016 were tagged with metal tags/rings and have unique identification numbers.

During the November 2018 monitoring, 29 SRF plants were selected at random and notes were recorded on their status and health. Of the 29 SRF plants assessed, 25 were in good health, while two were reduced to a mass of woody stems, and the remaining two were reduced to dead material above ground.

In addition to the 29 tagged plants assessed, six SRF recruits (small plants without tags) were recorded in the north west of the reserve. These six plants are expected to be new plants that have recruited following recent biomass control burns in the reserve.

### *Monitoring and reporting – Year 2*

179 Spiny Rice-flowers (SRF) have been recorded within the Grassland Reserve during a detailed targeted survey in 2016. All SRFs were tagged with metal tags/rings and have unique identification numbers.

During the December 2019 monitoring, all SRF plants were attempted to be located and notes were recorded on their status and health. Of the 179 SRFs assessed, 162 were re-recorded in good health, while seven were not found, and the remaining ten, only the tags were found with no plants observed. It can be assumed that these plants are either dormant or dead.

In addition to the tagged plants, 35 new SRF plants were recorded (plants without tags) throughout the reserve. Of these 35 plants, seven of them may be the remaining tagged plants which were not found, while the remaining 28 plants are small and likely to be new recruits that have emerged following management of biomass through ecological burns and weed control.

### *Monitoring and reporting – Year 3*

Of the total of 197 plants recorded in November 2019, 106 (53.8%) were re-recorded during November 2020. The low number of re-detection has been attributed to the high cover of biomass making visual detection of the plants difficult. The majority of the recorded plants were large individuals which grew above the dense cover of grasses. When smaller plants were **located, they were typically hidden beneath a dense cover of vegetation. In contrast, last year's** survey was conducted after a recent prescribed burn, reducing biomass and enabling plants to be readily detected, particularly smaller individuals which were difficult to detect during the recent survey.

The low number of individuals recorded creates difficulty in accurately assessing the health of the population. In subsequent years, monitoring must be undertaken only after prescribed burns to enable optimal conditions for SRF detection, which in turn will provide a greater insight into the stability of the SRF population within the reserve. It was noted that the individuals

which were found were in good health, with no dead plants observed, suggesting that the overall population of SRF is likely stable.

#### *Monitoring and reporting – Year 4*

Prior to the survey, DFC informed of an especially high biomass accumulation in the reserve. This was primarily due to excessive growth of introduced grass species in response to unusually long-term, favourable growing conditions for these threats. In order ensure visibility of Spiny Rice-flower and therefore detection during the survey, it was recommended that slashing to above 15cm be conducted beforehand. This management action was undertaken approximately one week before the survey and resulted in a potentially more accurate assessment of the occurrence of Spiny Rice-flower in the reserve, which were in full flower at the time.

A total of 222 Spiny Rice-flower plants were recorded within the reserve during the June 2021 targeted survey (Figure 2). This was an increase of 25 (13%) and 116 (109%) on that found in 2020 and 2019 respectively, and included numerous young plants indicating that the species was successfully recruiting. Most of the individuals observed were in good health, except for three dead specimens located in the translocation area, however, it is likely that these were identified as failed translocations as indicated in previous surveys, as each had a marker and only rotted main stems remained suggesting that the loss was not recent.

Due to the density of plants, unstable GPS accuracy during the survey (as a result of heavily overcast, rainy conditions), and the problems with identifying individual records evident from previous survey efforts (partly from the loss of tags), no attempt was made to match observations with existing datapoints. The general distribution, however, remained similar but with clear expansion of the population into previously unestablished areas of the reserve. There was also a notable increase in the number of plants recorded in the translocation site, indicating stabilisation of the transplants and successful recruitment of this sub-population. Eighteen plants were found at this location, which is a 100% increase on then number recorded in 2020.

#### *Biomass*

##### *Baseline data*

Biomass levels in the Grassland Reserve differed based on recent burning in particular sections of the reserve. In areas of the reserve that had been recently burned, biomass was low, with large inter-tussock spaces between the dominant Kangaroo Grass. In the areas not subject to recent burning, biomass levels were high, with limited space between tussocks.

#### *Monitoring and reporting – Year 2*

Biomass levels in the Grassland Reserve differed based on recent burning in particular sections of the reserve. In the eastern half of the reserve that had been recently burnt, biomass was low, with large inter-tussock spaces between the dominant Kangaroo Grass. In areas where grass had been slashed, biomass was high. In the areas not subject to recent burning or slashing, biomass levels were moderate, with more limited space between tussocks. An overall assessment of the organic litter cover was estimated at 20%.

#### *Monitoring and reporting – Year 3*

Biomass levels in the Grassland Reserve differed across the site. In areas that had been burnt in the previous year, biomass was moderate, however in areas which had not been burnt, biomass was high. The majority of these burnt areas had moderate inter-tussock spaces between the dominant Kangaroo Grass, enabling the growth of forbs such as Spiny Rice-flower, Blue Grass-lily and Yellow Rush-lily. In the areas not subject to recent burning, biomass levels were high, with more limited space between tussocks. An overall estimate of leaf litter was 10% cover, with bare ground estimated at approximately 7% overall, and absent in some areas.

#### *Monitoring and reporting – Year 4*

Biomass levels in the Grassland Reserve were moderate and within the normal range expected of Plains Grassland vegetation. On average, biomass was higher in parts of the reserve which had not been burnt in 2019 (Photo 5 & 6). Slashing undertaken in June 2021 had resulted in a moderate cover of leaf litter (15%) across the reserve. This, combined with the very low cover of bare ground (1%) may limit forb recruitment in the short term until litter decomposition and/or a controlled burn occurs. This slashing was undertaken at the recommendation of Nature Advisory in lieu of a controlled burn in autumn 2021 to improve accuracy of Spiny Rice-flower population data. Controlled burns must therefore be undertaken in autumn 2022, particularly in the south-eastern corner of the reserve which was not burnt in 2019 and along the eastern boundary where weed cover is high.



Photo 5: Grass biomass was higher in areas which had not been burnt in 2019



Photo 6: Grass biomass was significantly lower in areas burnt in 2019

Evidence of pest animals

*Baseline data*

No evidence of pest animals was recorded in the grassland reserve.

*Monitoring and reporting – Year 2*

No evidence of pest animals was recorded in the grassland reserve. As such, no pest animal control is currently required.

*Monitoring and reporting – Year 3*

No evidence of pest animals was recorded in the grassland reserve. As such, no pest animal control is currently required.

*Monitoring and reporting – Year 4*

During the site assessment, one inactive rabbit burrow was found within the reserve. No rabbit scats were detected within the reserve. Evidence of warren ripping and the presence of rabbit scats in land adjacent to the eastern boundary of the reserve suggest that rabbits have been frequenting the locality.

The gate in the south-eastern corner is now of rabbit-proof construction.

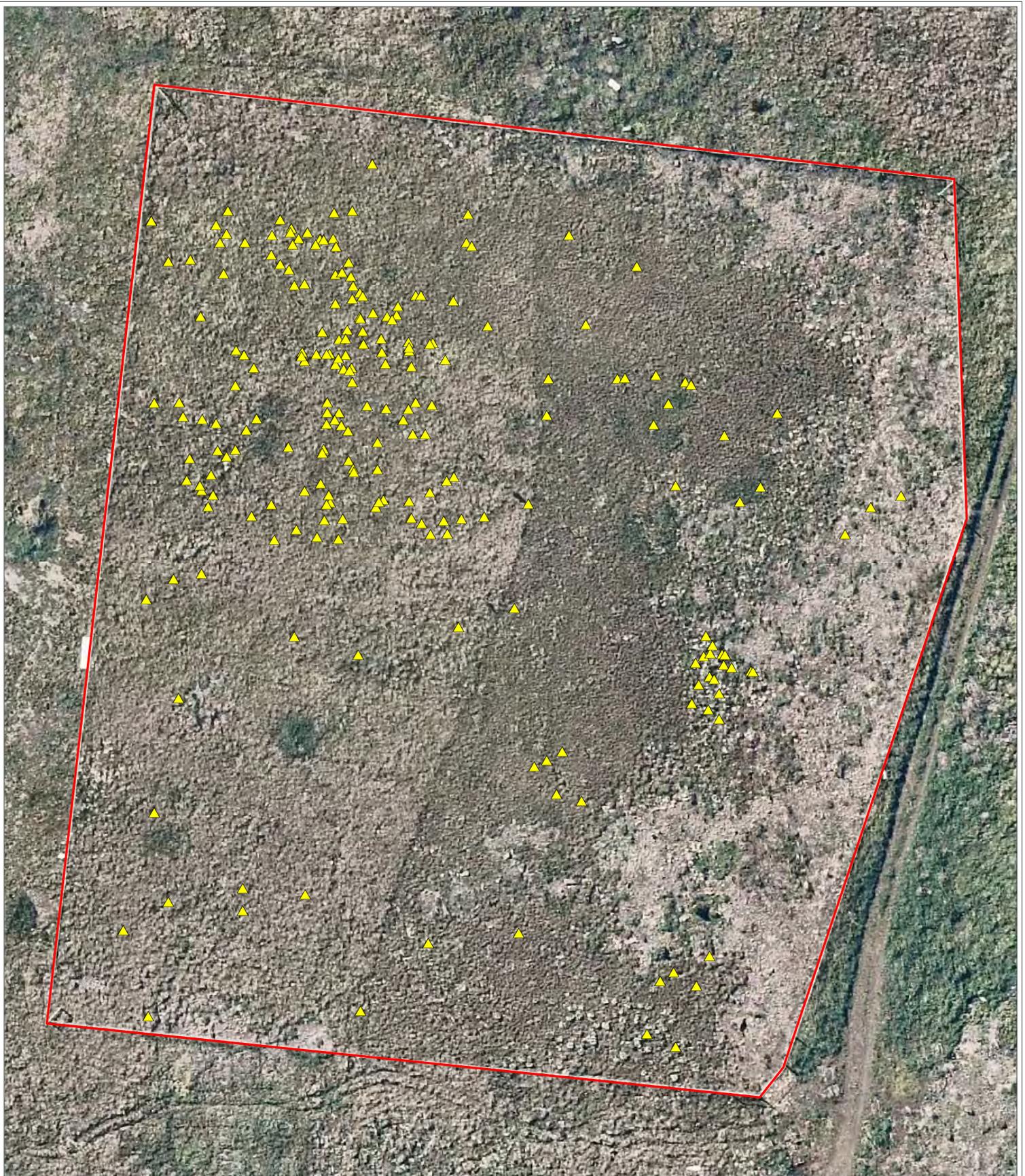


Figure 1: Spiny Rice-flower Monitoring 2021

Project: Grassland Reserve Monitoring Client: DFC (Project Management) Pty Ltd Date: 22/10/2021

▭ Grassland Reserve

**SRF locations**

▲ SRF found



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## [Construction and 10-year management actions](#)

### *Integrity of fencing*

The previous annual monitoring report recommended that the gate in the south-eastern corner be made rabbit-proof, and appropriate modifications to this gate have been made. At the time of this report (January 2021) fencing integrity around the reserve was sound and 'No-Go Zone' signage was in place at 30 metre intervals.

### *Sediment and surface water control*

At the time of this report (2021) sediment fencing in Stage 21 upslope of the Grassland Reserve was appropriately installed.

### *Weed control*

Weed control actions in 2021 have been undertaken in the Grassland Reserve by Australian Ecosystems, the results of which are summarised here and presented in the report in Appendix 45.

In particular, the three most prolific high-threat weeds identified in the GRMP have been drastically reduced in cover from the data collected in January 2017, as described below and detailed in Table 1. Serrated Tussock, however, has increased in cover since November 2020.

- African Boxthorn:
  - January 2017 (GRMP) – a number of large individuals near the eastern boundary
  - November 2018 – no mature individuals observed
  - December 2019 – no mature individuals observed, small emergent plants recorded
  - November 2020 – no large individuals observed, small emergent plants recorded
  - October 2021 – no large individuals observed, medium-sized emergent plants recorded
- Artichoke Thistle:
  - January 2017 (GRMP) – an infestation recorded in northern section
  - November 2018 – less than 1% cover with only a small number of recruits
  - December 2019 – no individuals observed
  - November 2020 – immature plants observed in disturbed ground
  - October 2021 - small plants observed, most of which had been recently sprayed
- Serrated Tussock:
  - January 2017 (GRMP) – large infestations and spreading
  - November 2018 – less than 1% cover with only a small number of individuals
  - December 2019 – no individuals observed
  - November 2020 – many immature plants observed along the southern edge (1% cover)
  - October 2021 - many plants observed near eastern and northern boundary (3% cover)

Weed outbreaks previously recorded adjacent to the grassland reserve were controlled as follows:

- Fennel:
  - January 2017 (GRMP) – a large infestation of Fennel occurred immediately to the east of the reserve boundary, on the eastern side of the existing dirt track
  - November 2018 – infestation eradicated
  - December 2019 – evidence of individuals recently sprayed
  - November 2020 – no individuals observed
  - October 2021 – no individuals observed

### Revegetation

Revegetation works are not required to occur in the Grassland Reserve.

### Landscape planting

Adjacent landscape plantings have not yet commenced. These will be reported on in future compliance reports.

## 3.9. Conditions 18, 19, 21 & 26

Conditions 18, 19, 21 & 26 read as follows:

18. The approval holder must ensure that offset attributes and shapefiles for all offset sites are provided to the Department at the timing of submitting their corresponding offset management plan.
19. Within 30 days after the commencement of construction activities, the approval holder must advise the Minister in writing of the actual date of commencement of construction activities.
21. Within three months of every 12-month anniversary of the commencement of construction activities, the approval holder must publish a report on its website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. **Compliance reports must remain on the approval holder's website for 12 months from the date of publishing.** The requirement to submit compliance reports will cease following written agreement with the Minister.
26. Unless otherwise agreed to in writing by the Minister, the approval holder must publish **all management plans referred to in these conditions of approval on the approval holder's website.** Each management plan must be published on the website within 1 month of being approved. The approval holder must notify the Department within 5 days of publishing the plan on the website. The management plans must remain on the website for the period this approval has effect.

### Condition 18 compliance

Shapefiles and offset attributes of the following have been provided to the Department corresponding with the submission of each offset plan:

- Karabeal offset site – corresponding to the Project Area B Offset Management Plan (OMP) and the Project Area A1 OMP;
- Campbelltown offset site – corresponding to the Project Area B OMP; and
- Cressy offset site – corresponding to the Project Areas C1, C2 & D OMP.

#### *Condition 19 compliance*

The proponent advised the Minister in writing within 30 days of the commencement of construction, commencing 9<sup>th</sup> October 2017. Evidence of this is provided in Appendix 4.

#### *Condition 21 compliance*

As required in the written advice from the Department (Appendix 4) this Compliance Report is to be **published on the approval holder's website before 9<sup>th</sup> January 2022.**

#### *Condition 26 compliance*

All management plans relating to construction activities that have commenced are published on the **approval holder's website** at <https://www.denniscorp.com.au/about-dennis-family/initiatives-and-awards/sustainability>.

*End of Year 4 Compliance Report*

[Appendix 1: Approval 2011/6063 – Consolidated Variation Notice dated 9/11/2018](#)



## VARIATION OF CONDITIONS ATTACHED TO APPROVAL Burnside Development – The Point, Victoria (EPBC 2011/6063)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

### Approved action

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<b>Person to whom the approval is granted</b>	DFC (Project Management) Pty Ltd ABN: 83 161 448 139
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<b>Approved action</b>	To develop Modeina Estate Precinct 2, a residential housing development in the Melbourne suburb of Burnside, Victoria [see EPBC Act referral 2011/6063 and variation to proposal dated 26 March 2015].
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### Variation

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<b>Variation of conditions attached to approval</b>	The variations are:  Revoke conditions 9, 10, 11 and 12.  Delete conditions 13, 14, 15, 16,17 and Appendix A attached to the approval dated 20 July 2015 and substitute with the conditions specified below.  Add Appendix B, condition 14A and definitions for 'Grassland Reserve' and 'Grassland Reserve Management Plan' as specified below.
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<b>Date of effect</b>	This variation has effect on the date the instrument is signed
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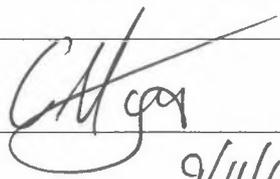
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### Person authorised to make decision

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<b>Name and position</b>	Greg Manning Assistant Secretary Assessments (WA, SA, NT) & Post Approvals Branch
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<b>Signature</b>	
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<b>Date of decision</b>	9/11/18
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Date of decision	Conditions attached to approval
Original approval dated 20/07/2015	To minimise impacts of the action on listed threatened species and ecological communities:  1. The <b>approval holder</b> must ensure that <b>construction activities</b> do not occur outside of the <b>project area</b> as illustrated at <u>Appendix A</u> .
Original approval dated 20/07/2015	2. The <b>approval holder</b> must implement sediment and erosion control measures consistent with <b>best practice pollution, sediment and erosion control guideline(s)</b> for the duration of <b>construction activities</b> .
Original approval dated 20/07/2015	3. The <b>approval holder</b> must prepare a site specific <b>Growling Grass Frog Management Plan</b> ; which is required to be consistent with <b>best practice Growling Grass Frog management guidelines</b> . The plan must outline how significant impacts to <b>Growling Grass Frogs</b> will be avoided or mitigated and as a minimum must include:
	<ul style="list-style-type: none"> <li>a. Management measures demonstrating how the <b>Growling Grass Frog buffer zone</b> will be demarcated to minimise vehicle access;</li> <li>b. Details of revegetation, <b>environmental weed</b> control measures and other management activities within the <b>Growling Grass Frog buffer zone</b>;</li> <li>c. Details of any <b>construction activities</b> and management measures to avoid <b>significant impacts</b> during construction; and</li> <li>d. Measures to ensure any on-site personnel will be informed of their obligations under the <b>Growling Grass Frog Management Plan</b>.</li> </ul>
Variation dated 04/08/2017	4. <b>Construction activities</b> must not commence in <b>Project Areas A1, A2, C1, C2 and D</b> until the site specific <b>Growling Grass Frog Management Plan</b> has been approved by the <b>Minister</b> in writing. Construction in <b>Project Area B</b> can proceed prior to approval of the site-specific <b>Growling Grass Frog Management Plan</b> must be implemented.
Variation dated 04/08/2017	<i>Project Area A1 and A2</i> 5. The <b>approval holder</b> must ensure that the action does not impact more than eleven (11) individual <b>Spiny Rice-flower</b> plants within the combined area of <b>Project Areas A1 and A2</b> .
Variation dated 04/08/2017	6. The approval holder must not commence <b>construction activities</b> in <b>Project Area A1</b> until the following are met: <ul style="list-style-type: none"> <li>a. A direct offset, consistent with the <b>EPBC Act Environmental Offsets Policy</b>, has been secured to compensate for the impacts to 6.053 hectares of <b>NTGVVP</b> and 6.053 hectares of <b>Striped Legless Lizard habitat</b>;  <ul style="list-style-type: none"> <li>i. An <b>offset management plan</b> has been prepared and submitted to the <b>Minister</b> for approval, and the <b>approval holder</b> has received written confirmation that the <b>offset management plan</b> has been approved. The approved <b>offset management plan</b> must be implemented by the <b>approval holder</b>; and</li> <li>ii. The <b>Department</b> has been provided with written confirmation and supporting evidence demonstrating that the offset has been secured.</li> </ul> </li> </ul>
Variation dated 04/08/2017	6A. The approval holder must not commence <b>construction activities</b> in <b>Project Area A2</b> until either 6A(a) or 6A(b) are met: <ul style="list-style-type: none"> <li>a. A direct offset, consistent with the <b>EPBC Act Environmental Offsets Policy</b>, has been secured to compensate for the impacts to</li> </ul>

Date of decision	Conditions attached to approval
	<p>4.277 hectares of <b>NTGVVP</b> and 4.277 hectares of <b>Striped Legless Lizard habitat</b>;</p> <ul style="list-style-type: none"> <li>i. An <b>offset management plan</b> has been prepared and submitted to the <b>Minister</b> for approval, and the <b>approval holder</b> has received written confirmation that the <b>offset management plan</b> has been approved. The approved <b>offset management plan</b> must be implemented by the <b>approval holder</b>; and</li> <li>ii. The <b>Department</b> has been provided with written confirmation and supporting evidence demonstrating that the offset has been secured;</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>b. In a manner consistent with the <b>Melbourne Urban Development Policy</b>, secure an offset for impacts to 4.277 hectares of <b>NTGVVP</b> and 4.277 hectares of <b>Striped Legless Lizard habitat</b> associated with <b>Project Area A2</b>. Documentary evidence that the offset has been secured must be provided to the <b>Department</b> with 14 days of being secured.</li> </ul>
Variation dated 04/08/2017	<p><i>Project Area B</i></p> <ul style="list-style-type: none"> <li>7. The <b>approval holder</b> must not commence <b>construction activities</b> in <b>Project Area B</b> until either 7(a) or 7(b) are met: <ul style="list-style-type: none"> <li>a. A direct offset containing a minimum of 100 <b>Spiny Rice-flower</b> plants has been secured; <ul style="list-style-type: none"> <li>i. An <b>offset management plan</b> has been prepared and submitted to the <b>Minister</b> for approval, and the <b>approval holder</b> has received written confirmation that the <b>offset management plan</b> has been approved. The approved <b>offset management plan</b> must be implemented by the <b>approval holder</b>; and</li> <li>ii. The <b>Department</b> has been provided with written confirmation and supporting evidence that demonstrate the offset has been secured;</li> </ul> </li> </ul> </li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>b. The <b>Minister</b> agrees in writing that condition 15 (a–e) has been satisfied.</li> </ul>
Variation dated 04/08/2017	<ul style="list-style-type: none"> <li>8. The <b>approval holder</b> must not commence <b>construction activities</b> in <b>Project Area B</b> until the following are met: <ul style="list-style-type: none"> <li>a. A direct offset, consistent with the <b>EPBC Act Environmental Offsets Policy</b>, has been secured to compensate for the impacts to 1.824 hectares of <b>NTGVVP</b> and 1.824 hectares of <b>Striped Legless Lizard habitat</b>; <ul style="list-style-type: none"> <li>i. An <b>offset management plan</b> has been prepared and submitted to the <b>Minister</b> for approval, and the <b>approval holder</b> has received written confirmation that the <b>offset management plan</b> has been approved. The approved <b>offset management plan</b> must be implemented by the <b>approval holder</b>; and</li> <li>ii. The <b>Department</b> has been provided with written confirmation and supporting evidence that demonstrate the offset has been secured.</li> </ul> </li> </ul> </li> </ul>
As varied on the date this instrument was signed	9. Revoked
As varied on the date this instrument was signed	10. Revoked

Date of decision	Conditions attached to approval
As varied on the date this instrument was signed	11. Revoked
As varied on the date this instrument was signed	12. Revoked
As varied on the date this instrument was signed	<p><i>Project Area C1, C2 and D</i></p> <p>13. The <b>approval holder</b> must not commence <b>construction activities</b> in <b>Project Area C2</b> until the following are met.</p> <p>a. A direct offset, consistent with the <b>EPBC Act Environmental Offsets Policy</b>, has been secured to compensate for the impacts to 3.283 hectares of <b>NTGVVP</b> and 3.283 hectares of <b>Striped Legless Lizard habitat</b>;</p> <p>i. An <b>offset management plan</b> has been prepared and submitted to the <b>Minister</b> for approval, and the <b>approval holder</b> has received written confirmation that the <b>offset management plan</b> has been approved. The approved <b>offset management plan</b> must be implemented by the <b>approval holder</b>; and</p> <p>ii. The <b>Department</b> has been provided with written confirmation and supporting evidence that demonstrate the offset has been secured.</p> <p>b. A direct offset is secured containing a minimum of 60 <b>Spiny Rice-flower</b> plants. An <b>offset management plan</b> must be prepared and submitted to the <b>Minister</b> for approval. The approved <b>offset management plan</b> must then be implemented by the <b>approval holder</b>.</p>
As varied on the date this instrument was signed	14. The <b>approval holder</b> must not undertake construction activities within the <b>Grassland Reserve</b> , to be located in <b>Project Area D</b> as per <u>Appendix B</u> .
As added on the date this instrument was signed	<p>14A. The <b>approval holder</b> must, in consultation with a <b>suitably qualified ecologist</b>, develop a <b>Grassland Reserve Management Plan</b> for the protection and management of <b>protected matters</b> within the <b>Grassland Reserve</b>. The <b>Grassland Reserve Management Plan</b> must be submitted to the <b>Minister</b> for approval 6 months prior to the commencement of <b>construction activities</b> within 100 metres of <b>Project Area D</b>. The approved <b>Grassland Reserve Management Plan</b> must be implemented. The <b>Grassland Reserve Management Plan</b> must:</p> <p>a. include existing baseline data and other supporting evidence that documents the baseline conditions of <b>protected matters</b> within the <b>Grassland Reserve</b>;</p> <p>b. outline specific management actions to protect and maintain <b>protected matters</b> within the <b>Grassland Reserve</b> ; and</p> <p>c. outline annual monitoring and reporting on the condition of <b>protected matters</b> within the <b>Grassland Reserve</b> for a period of 10 years from commencement of the Plan.</p>
As varied on the date this instrument was signed	<p>15. The <b>approval holder</b> must not commence <b>construction activities</b> within <b>Project Area D and Project Area C1</b> until the <b>Minister</b> agrees in writing that the following are met:</p> <p>a. A <b>suitably qualified ecologist</b> has confirmed in writing that each transplant site is demonstrating recruitment by propagated plants;</p>

Date of decision	Conditions attached to approval
	<ul style="list-style-type: none"> <li>b. A <b>suitably qualified ecologist</b> has prepared a report to peer review the results of the <b>Spiny Rice-flower Propagation Project</b>;</li> <li>c. The <b>approval holder</b> has submitted the peer review report to the <b>Minister</b> for review; and</li> <li>d. The <b>Minister</b> has reviewed the report and determined it demonstrates the <b>Spiny Rice-flower Propagation Project</b> has resulted in a <b>viable and self sustaining Spiny Rice-flower</b> population at each transplant recipient site, and supports the <b>target number of established Spiny Rice-flower</b> plants across the sites;</li> </ul> <p>Note: Condition 15e was revoked on the date this instrument was signed.</p>
As varied on the date this instrument was signed	<p>16. The <b>approval holder</b> must not commence <b>construction activities</b> in <b>Project Area D</b> until the following are met.</p> <ul style="list-style-type: none"> <li>a. A direct offset, consistent with the <b>EPBC Act Environmental Offsets Policy</b>, has been secured to compensate for the impacts to 3.963 hectares of <b>NTGVVP</b> and 3.963 hectares of Striped Legless Lizard habitat; <ul style="list-style-type: none"> <li>i. An <b>offset management plan</b> has been prepared and submitted to the <b>Minister</b> for approval, and the <b>approval holder</b> has received written confirmation that the <b>offset management plan</b> has been approved. The approved <b>offset management plan</b> must be implemented by the <b>approval holder</b>; and</li> <li>ii. The <b>Department</b> has been provided with written confirmation and supporting evidence that demonstrate the offset has been secured.</li> </ul> </li> <li>b. Condition 15 has been satisfied.</li> </ul>
As varied on the date this instrument was signed	<p>17. If condition 15 (a–d) cannot be met in full:</p> <ul style="list-style-type: none"> <li>a. the <b>approval holder</b> must not commence <b>construction activities</b> within <b>Project Area D</b> and <b>Project Area C1</b>; until the following are met: <ul style="list-style-type: none"> <li>i. Adequately compensate for impacts to <b>Spiny Rice-flower</b> plants located within <b>Project Area D</b> and <b>Project Area C1</b> with an alternative offset. This offset strategy must be prepared following consultation with the <b>Department</b>; and</li> <li>ii. The <b>Minister</b> has provided written notification to the <b>approval holder</b> that condition 15 no longer applies</li> </ul> </li> </ul> <p>Note: Condition 17b was revoked on the date this instrument was signed.</p>
Original approval dated 20/07/2015	<p><i>Administrative Conditions</i></p> <p>18. The <b>approval holder</b> must ensure that <b>offset attributes</b> and <b>shapefiles</b> for all offset sites are provided to the <b>Department</b> at the timing of submitting their corresponding <b>offset management plan</b>.</p>
Original approval dated 20/07/2015	<p>19. Within 30 days after the commencement of <b>construction activities</b>, the <b>approval holder</b> must advise the <b>Minister</b> in writing of the actual date of commencement of <b>construction activities</b>.</p>
Original approval	<p>20. The <b>approval holder</b> must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval,</p>

Date of decision	Conditions attached to approval
dated 20/07/2015	including measures taken to implement the management plans, and make them available upon request to the <b>Department</b> . Such records may be subject to audit by the <b>Department</b> or an independent auditor in accordance with section 458 of the <b>EPBC Act</b> , or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the <b>Department's</b> website. The results of audits may also be publicised through the general media.
Original approval dated 20/07/2015	21. Within three months of every 12 month anniversary of the commencement of <b>construction activities</b> , the <b>approval holder</b> must publish a report on its website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the <b>Department</b> at the same time as the compliance report is published. Compliance reports must remain on the approval holder's website for 12 months from the date of publishing. The requirement to submit compliance reports will cease following written agreement with the <b>Minister</b> .
Original approval dated 20/07/2015	22. Upon the direction of the <b>Minister</b> , the <b>approval holder</b> must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the <b>Minister</b> . The independent auditor must be approved by the <b>Minister</b> prior to the commencement of the audit. Audit criteria must be agreed to by the <b>Minister</b> and the audit report must address the criteria to the satisfaction of the <b>Minister</b> .
Variation dated 04/08/2017	23. If the <b>approval holder</b> wishes to carry out any activity otherwise than in accordance with management plans as specified in the conditions, the <b>approval holder</b> must submit to the <b>Department</b> for the <b>Minister's</b> written approval a revised version of that management plan. The varied activity shall not commence until the <b>Minister</b> has approved the revised management plan in writing. The <b>Minister</b> will not approve a revised management plan unless the revised management plan will result in an equivalent or improved environmental outcome over time. If the <b>Minister</b> approves the revised management plan, then it must be implemented in place of the management plan originally approved.
Original approval dated 20/07/2015	24. If the <b>Minister</b> believes that it is necessary or convenient for the better protection of listed threatened species and ecological communities to do so, the <b>Minister</b> may request that the <b>approval holder</b> make specified revisions to the management plans specified in the conditions and submit the revised management plan for the <b>Minister's</b> written approval. The <b>approval holder</b> must comply with any such request. The revised approved management plans must be implemented. Unless the <b>Minister</b> has approved the revised management plans then the <b>approval holder</b> must continue to implement the management plan originally approved, as specified in the conditions.
Original approval dated 20/07/2015	25. If, at any time after 5 years from the date of this approval, the <b>approval holder</b> has not <b>substantially commenced</b> the action, then the <b>approval holder</b> must not <b>substantially commence</b> the action without the written agreement of the <b>Minister</b> .
Original approval	26. Unless otherwise agreed to in writing by the <b>Minister</b> , the <b>approval holder</b> must publish all management plans referred to in these conditions of approval on the approval holder's website. Each management plan

Date of decision	Conditions attached to approval
dated 20/07/2015	must be published on the website within 1 month of being approved. The <b>approval holder</b> must notify the <b>Department</b> within 5 days of publishing the plan on the website. The management plans must remain on the website for the period this approval has effect.

Date of decision	Definitions attached to approval
Original approval dated 20/07/2015	<b>Approval holder</b> - the person undertaking the action who holds the project approval.
Original approval dated 20/07/2015	<b>Best practice Growling Grass Frog management guidelines</b> - these include the most recent versions of <i>Guidelines for managing the endangered Growling Grass Frog in urbanising landscapes (Victorian Department of Sustainability and Environment, 2010)</i> , <i>Procedure statement for translocation of threatened native vertebrate fauna in Victoria (Victorian Department of Sustainability and Environment, 2013)</i> , <i>Bellarine Peninsula Ramsar Site Strategic Management Plan (DEPI, 2003)</i> , <i>Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO, 1999)</i> , <i>Constructed Wetlands Guidelines (Victorian Government and Melbourne Water Corporation, 2010)</i> and <i>Water Sensitive Urban Design Guidelines (Victorian Government and Melbourne Water Corporation, 2013)</i> .
Original approval dated 20/07/2015	<b>Best practice pollution, sediment and erosion control guidelines</b> - the most recent version of relevant guidelines on pollution, sediment and erosion control, such as the <i>Construction Techniques for Sediment Pollution Control (EPA Publication No. 275, 1991)</i> ; and <i>Environmental Guidelines for Major Construction Sites (EPA Publication No. 480, 1996)</i> .
Original approval dated 20/07/2015	<b>Construction activities</b> - includes but is not limited to clearing of vegetation, the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for infrastructure or earthworks. This does not include maintenance or use of existing access tracks, erection or construction of <b>security fencing</b> and signage, or investigative activities such as accessing the site for surveying or planning purposes.
Original approval dated 20/07/2015	<b>Department</b> - the Australian Government Department administering the <b>EPBC Act</b> .
Original approval dated 20/07/2015	<b>Environmental Management Plan</b> - the document developed by a <b>suitably qualified ecologist</b> to the satisfaction of the <b>Department</b> , detailing the long-term management of <b>protected matters</b> within <b>Project Area D</b> and <b>Project Area C1</b> .
Original approval dated 20/07/2015	<b>Environmental weeds</b> - invasive native and non-native plants including: <ul style="list-style-type: none"> <li>i. listed Victorian Declared Noxious Weeds, including Artichoke Thistle (<i>Cynara cardunculus</i>), Fennel (<i>Foeniculum vulgare</i>) and Spiny Rush (<i>Juncus acutus</i>);</li> <li>ii. listed Victorian Invasive Plants, including Mirror Bush (<i>Coprosma repens</i>), Pampas grass (<i>Cortaderia sp.</i>), Italian buckthorn (<i>Rhamnus alaternus</i>) and Spartina/Cord Grass (<i>Spartina anglica</i> and <i>Spartina x townsendii</i>); and</li> </ul>

Date of decision	Definitions attached to approval
	<p>iii. listed Weeds of National Significance, including Madeira vine (<i>Anredera cordifolia</i>), Asparagus weeds / Bridal Creeper (<i>Asparagus aethiopicus</i>, <i>A. africanus</i>, <i>A. asparagoides</i>, <i>A. asparagoides</i> Western Cape form, <i>A. declinatus</i>, <i>A. plumosus</i>, <i>A. scandens</i> [excluding <i>A. officinalis</i> and <i>A. racemosus</i>]), Brooms including Flax-leaf Broom (<i>Cytisus scoparius</i>, <i>Genista monspessulana</i> and <i>G. linifolia</i>), African boxthorn (<i>Lycium ferocissimum</i>), Chilean needle grass (<i>Nassella neesiana</i>), Serrated tussock (<i>Nassella trichotoma</i>), Blackberry (<i>Rubus fruticosus</i> agg.), Silverleaf nightshade (<i>Solanum elaeagnifolium</i>), Willows (<i>Salix</i> spp. [excluding <i>S. Babylonica</i>, <i>S. Calodendron</i> and <i>S. reichardtii</i>]), Gorse (<i>Ulex europaeus</i>).</p>
Original approval dated 20/07/2015	<b>EPBC Act</b> - the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
Original approval dated 20/07/2015	<b>EPBC Act Environmental Offsets Policy</b> - the Australian Government policy document titled: <i>EPBC Act environmental offsets policy, Department of the Environment, 2013 Policy guiding the use of offsets under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i> .
Original approval dated 20/07/2015	<p><b>Established Spiny Rice-flower</b> – A Spiny-Rice flower plant that meets the following:</p> <p>i. was introduced into the area through the <b>Spiny Rice-flower Propagation Project</b>; and</p> <p>ii. is at least 2 years old.</p>
As added on the date this instrument was signed	<b>Grassland Reserve</b> – the area of <b>NTGVVP</b> within <b>Project Area D</b> set aside as a permanent reserve, identified in <u>Appendix B</u> .
As added on the date this instrument was signed	<b>Grassland Reserve Management Plan</b> - specific management plan for the Grassland Reserve.
Original approval dated 20/07/2015	<b>Growling Grass Frog</b> – the frog species <i>Litoria raniformis</i> , protected under the <b>EPBC Act</b> .
Original approval dated 20/07/2015	<b>Growling Grass Frog buffer zone</b> - the area identified as Growling Grass Frog Buffer in <u>Appendix A</u> .
Original approval dated 20/07/2015	<p><b>Melbourne Urban Development Policy</b> - the document <i>Policy Statement for Melbourne urban development proposals needing consideration under Parts 7, 8 and 9 of the EPBC Act</i>, Department of the Environment, February 2014, online: <a href="http://www.environment.gov.au/system/files/resources/dc154fd1-d526-4e7d-9a8e-bd17f8ceac15/files/melbourne-urban-development_1.pdf">http://www.environment.gov.au/system/files/resources/dc154fd1-d526-4e7d-9a8e-bd17f8ceac15/files/melbourne-urban-development_1.pdf</a></p>
Original approval dated 20/07/2015	<b>Minister</b> - the Australian Government Minister administering the <i>EPBC Act</i> and includes a delegate of the Minister.
Original approval dated 20/07/2015	<b>NTGVVP</b> – is the threatened ecological community <i>Natural Temperate Grassland of the Victorian Volcanic Plain</i> , protected under the <b>EPBC Act</b> .

Date of decision	Definitions attached to approval
Original approval dated 20/07/2015	<b>Offset attributes</b> – an '.xls' file capturing relevant attributes of the offset site, including the EPBC reference ID number, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the EPBC Act protected matters that the offset compensates for, any additional EPBC Act protected matters that are benefiting from the offset, and the size of the offset in hectares.
Original approval dated 20/07/2015	<p><b>Offset management plan</b> - an offset management plan must:</p> <ul style="list-style-type: none"> <li>• include baseline information for the offset site(s);</li> <li>• include details of how the offset(s) are consistent with the <b>EPBC Act Environmental Offsets Policy</b>;</li> <li>• demonstrates how the offset site(s) will be protected for long term conservation purposes;</li> <li>• include details of short and long term management measures, include timeframes for management measures for the site(s);</li> <li>• and identify the short and long term arrangements and responsibilities of parties in the management of the site(s).</li> </ul>
Variation dated 04/08/2017	<b>Project Area A1</b> - the area identified as Project Area A1 in <a href="#">Appendix A</a> .
Variation dated 04/08/2017	<b>Project Area A2</b> - the area identified as Project Area A2 in <a href="#">Appendix A</a> .
Original approval dated 20/07/2015	<b>Project Area B</b> – the area identified as Project Area B in <a href="#">Appendix A</a> .
Original approval dated 20/07/2015	<b>Project Area C1</b> – the area identified as Project Area C1 in <a href="#">Appendix A</a> .
Original approval dated 20/07/2015	<b>Project Area C2</b> – the area identified as Project Area C2 in <a href="#">Appendix A</a> .
Original approval dated 20/07/2015	<b>Project Area D</b> – the area identified as Project Area D in <a href="#">Appendix A</a> .
Original approval dated 20/07/2015	<b>Project area</b> – the area contained within the Proposed Residential Stage Boundaries, identified by a dashed red line in <a href="#">Appendix A</a> .
Original approval dated 20/07/2015	<b>Protected matters</b> – NTGVVP, Spiny Rice-flower, Striped Legless Lizard and Growling Grass Frog.
Original approval dated 20/07/2015	<b>Security fencing</b> - a fence with locked gated access that prevents access by the public, while allowing dispersal of <b>Striped Legless Lizard</b> .
Original approval dated 20/07/2015	<b>Shapefile</b> - an ESRI Shapefile containing '.shp', '.shx' and '.dbf' files and other files capturing attributes including at least the EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format.
Original approval dated 20/07/2015	<b>Significant impact</b> - as described in Significant Impact Guidelines 1.1 – Matter of National Environmental Significance (Department of the Environment, 2013) and any specific significant impact guidelines.
Original approval dated 20/07/2015	<b>Spiny Rice-flower</b> - the plant species <i>Pimelea spinescens subsp. spinescens</i> , protected under the <b>EPBC Act</b> .

Date of decision	Definitions attached to approval
Original approval dated 20/07/2015	<b>Spiny Rice-flower Propagation Project</b> - refers to the Spiny Rice-flower Propagation Project prepared by BL&A 2013.
Original approval dated 20/07/2015	<b>Striped Legless Lizard</b> - the lizard species <i>Delma impar</i> , protected under the EPBC Act
Original approval dated 20/07/2015	<b>Striped Legless Lizard habitat</b> - is any grassland (exotic and native) that may be utilised by the <b>Striped Legless Lizard</b> for breeding, sheltering, foraging or ranging.
Original approval dated 20/07/2015	<b>Substantially commenced</b> - means the installation of any permanent infrastructure associated with the action.
Original approval dated 20/07/2015	<b>Suitably qualified ecologist</b> - a person with relevant tertiary qualifications in ecology, botany or environmental science and at least 5 years of experience in surveying and field work relevant to the relevant <b>Protected Matter</b> , or any other person agreed to in writing by the <b>Department</b> .
Original approval dated 20/07/2015	<b>Target number</b> - refers to the target total of 800 individual plants as set out in the <b>Spiny Rice Flower Propagation Project</b> . In the event the person taking the action secures direct offsets for <b>Spiny Rice-flower</b> to compensate for impacts in the <b>project area</b> , the target number will be reduced on a 1:1 basis following written confirmation from the <b>Minister</b> .
Original approval dated 20/07/2015	<b>Trust for Nature</b> - meaning the organisation Trust for Nature ( <a href="http://www.trustfornature.org.au/">http://www.trustfornature.org.au/</a> ).
Original approval dated 20/07/2015	<b>Viable and self-sustaining</b> - means that the specified <b>Spiny Rice-flower</b> population demonstrates: <ul style="list-style-type: none"> <li data-bbox="325 1088 1260 1151">i. Numbers of annually flowering male and female plants in proportions similar to that in natural populations;</li> <li data-bbox="325 1182 1197 1245">ii. That new germinants are recruiting in numbers similar to that in natural populations; and</li> <li data-bbox="325 1276 1270 1339">iii. A growing population where recruitment exceeds mortality to a similar extent as other managed populations</li> </ul>

<b>Date of decision</b>	<b><u>Appendix A</u></b>
As varied on the date this instrument was signed	Modeina Estate Stage Development Plan, showing boundaries of <b>Project Areas A1, A2, B, C1, C2 and D</b>

<b>Date of decision</b>	<b><u>Appendix B</u></b>
As added on the date this instrument was signed	Grassland Reserve, located within <b>Project Area D</b>

# APPENDIX A



## Stage Comparison Plan Concept Plan Precinct 2

### LEGEND:

- Precinct 2  
65.49ha
- Growing Grass Frog Habitat  
35m from centreline of Kororoit Creek
- Existing Sewerage and/or Drainage Easements
- Retained Native Vegetation
- Spiny Rice Flowers
- Spiny Rice Flowers to be Retained
- Growing Grass Frog Buffer
- Reserve
- Project Areas
- Grassland Reserve
- Project Area A1
- Project Area A2
- Project Area B
- Project Area C1
- Project Area C2
- Project Area D

0 100 200  
scale 1:2500 @ A1

DATE: 28 June 2018  
REF: 29743 001  
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CREEK

KOROROIT  
CREEK

- i. Numbers of annually flowering male and female plants in proportions similar to that in natural populations;
  - ii. That new germinants are recruiting in numbers similar to that in natural populations;  
and
  - iii. A growing population where recruitment exceeds mortality to a similar extent as other managed populations.
-



**Legend**

- Precinct 2
- Grassland Reserve
- NTGVVP
- Spiny Rice-flower



<b>Modeina Precinct 2 - Grassland Reserve</b>		
<b>Project: Modeina Estate</b>		
<b>Client: DFC (Project Management) Pty Ltd</b>		
Project No.: 7045	Date: 14/06/2018	Created By: N. May / M. Wright
<b>BL&amp;A</b>	Brett Lane & Associates Pty. Ltd. <small>Ecological Research &amp; Management</small>	
<ul style="list-style-type: none"> <li><span style="color: yellow;">●</span> Experience</li> <li><span style="color: yellow;">●</span> Knowledge</li> <li><span style="color: yellow;">●</span> Solutions</li> </ul>	Suite 5, 41 - 63 Camberwell Road Hawthorn East, VIC 3123 PO Box 337, Camberwell, VIC 3164, Australia	Ph (03) 9815 2111 / Fax (03) 9815 2665 enquiries@ecologicalresearch.com.au www.ecologicalresearch.com.au

APPENDIX B

[Appendix 2: Growling Grass Frog monitoring report – Year 5](#)



## Modeina Estate Precinct 2

### Growling Grass Frog Monitoring – Year 5

Prepared for DFC (Project  
Management) Pty Ltd

January 2022  
Report No. 7045.65 (5.1)



**Nature  
Advisory**

(Formerly Brett Lane & Associates Pty Ltd)  
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(03) 9815 2111  
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## 1. Introduction

DFC (Project Management) Pty Ltd engaged Nature Advisory to undertake annual monitoring for Growling Grass Frog (*Litoria raniformis*) in the environs of Kororoit Creek adjacent to the Modeina Precinct 2 development, Burnside. In the Modeina Precinct 2 Growling Grass Frog Management Plan (GGFMP)—prepared by Nature Advisory to address Condition 3 of EPBC Act approval 2011/6063 — DFC has committed to undertaking this annual monitoring during the construction of Modeina Precinct 2 and for two years post-construction.

The scope of the monitoring program includes:

- A targeted survey for Growling Grass Frog conducted over a minimum of two evenings during optimal weather conditions (i.e. warm and windless nights) during the breeding season (November to February) at three locations along Kororoit Creek adjacent to Precinct 2, including:
  - Visual encounter surveys involving spotlighting in areas of suitable habitat such as along vegetated margins; and
  - Call playback at three locations – each location within close proximity of existing wetlands along the creek;
- Characterisation and photographing of habitats at each location in daylight hours and evening weather conditions recorded.

This report is divided into the following sections:

Section 2 describes the methods used and sources of information for the investigation, including any limitations, where applicable.

Section 3 provides the results of each survey, documenting the location and abundance of Growling Grass Frog along this section of the creek.

The Year 4 monitoring and reporting was undertaken by Liz Browne (Zoologist), Andrew Mcvinish (Zoologist), Peter Lansley (Senior Zoologist) and Chris Dunk (Senior Ecologist & Project Manager).

## 2. Existing Information and Methods

### 2.1. Existing information

Growling Grass Frog is known to be present in this reach of Kororoit Creek based on historic survey data, including Victorian Biodiversity Atlas records from six separate occasions between 1998–2007 (DELWP 2017). The Kororoit Creek corridor is also identified as important for the conservation of GGF within the Melbourne Growth Area (Biosis Research 2012).

Kororoit Creek has been identified as supporting an important population under the federal *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* (EHP 2011).

### 2.2. Methods

#### 2.2.1. Survey site selection

Three sites were selected in the original pre-construction surveys in January 2017 along the Kororoit Creek adjacent to Modeina Precinct 2 (Figure 1) and will be used for subsequent surveying. These are located in suitable breeding habitat for GGF (larger pools of deep water with instream and fringing vegetation) and in some cases coinciding with previous records (Sites 1 & 2). Due to the lack of detection and incompatible habitat characteristics, a fourth monitoring site was established on 3<sup>rd</sup> January 2019 to replace Site 1. Because GGF was recorded in the reconstructed wetland which is now fully revegetated and provides quality habitat, this area was added as a fifth site for the 2021 monitoring.

#### 2.2.2. Habitat assessment

The habitat assessment was conducted by two ecologists during the afternoon on 1<sup>st</sup> December 2021, with photographs and habitat notes taken at each survey site. Particular attention was paid to the presence of in-stream and fringing creek-edge vegetation.

#### 2.2.3. Call playback and visual searches

Call playback and visual search surveys were conducted by two ecologists at three sites on 1<sup>st</sup> and 14<sup>th</sup> December 2021 after dusk. Each survey site was surveyed over these two nights when weather conditions were considered appropriate to detect Growling Grass Frog – i.e. warm evenings with an air temperature of **15°C or more, and moderate** to no wind. Under these conditions frogs are more likely to be calling and active.

At each survey site 45 minutes was spent searching for frogs on each of the two nights. Field surveys took place between 19:54 (after sunset, almost dark) and 23:00, Australian Eastern Daylight time (AEDT). At the beginning of each survey, a period of 5 **minutes was spent at the water's edge** listening and recording frog species and the abundance of frogs calling. This was immediately followed by playback of a recorded male GGF advertisement call to encourage any frogs that were present to respond. A further 5 minutes was then spent listening for a response before active searching began.

Following call playback and listening time, each site was systematically searched for frogs with a spotlight and visual inspection for 30 minutes. Call recognition and limited active searching (turning

surface debris) was also conducted. The number of all frog species seen and/or heard at each survey site and notes on the nature and quality of habitat were also recorded.



**Figure 1: Survey site locations**

**Project:** GGF monitoring program

**Client:** DFC (Project Management) Pty Ltd

**Date:** 6/01/2022

**Legend**

- GGF Management buffer
- Rock platforms
- Monitoring sites
- ▲ 2018 Growling Grass-frog observation
- ▲ 2019 Growling Grass-frog observation
- ▲ 2020 Growling Grass-frog observation

N



Metres



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## 3. Results

### 3.1. Habitat assessment

Habitat was found to be mostly consistent with previous years, so the following is taken from the 2020 descriptions with differences amended. Sedimentation levels were high throughout the sites.

#### 3.1.1. Site 3

Site 3 was located toward the eastern end of the study area at a natural basalt rock bridge platform. Vegetation was dominated by Broadleaf Cumbungi (*Typha orientalis*), which was present as fringing vegetation (see image below). Other common fringing species included native rushes (*Juncus* sp.) and Slender Knotweed (*Persicaria decipiens*). Notably, instream vegetation—comprising Water Ribbons (*Cycnogeton procerum*)—previously observed was no longer present. Many instream rocks were present.



Site 3 - a high cover of Common Reed present on the southern creek bank

### 3.1.2. Site 2

Site 2 was located in the central part of the study area, where there is a distinct bend in the creek. The main section of the creek comprised fringing Cumbungi and Common Reed (*Phragmites australis*) and submerged Knotweed. Some Black Wattle (*Acacia mearnsii*) and River Red-gum (*Eucalyptus camaldulensis*) were also present on the banks, their branches hanging over the water.



Site 2 – Broadleaf Cumbungi, Common Reed and a high cover of in-stream Knotweed

This site included a tributary of standing water which was located on the northern side of the creek. This tributary contained a high cover of fringing vegetation and a moderate cover of emergent vegetation. Slender Knotweed (*Persicaria decipiens*) was present as in-stream and fringing vegetation. Other fringing plants included the introduced species Toowoomba Canary-grass (*Phalaris aquatica*), Drain Flat Sedge (*Cyperus eragrostis*) and Curled Dock (*Rumex crispus*). A high level of rubbish littered the surrounding vegetation and waterway, likely carried downstream during recent flooding of the creek.



Site 2 – Billabong in north

### 3.1.3. Site 4

Site 4 was located toward the north-western region of the study area, near an existing rock escarpment. Vegetation was dominated by Common Reed, which was present as fringing vegetation (see image below). Other common fringing species included native rushes with Toowoomba Canary-grass dominant along the northerly banks of the creek. Submerged vegetation was present in the form of Water Ribbons but sparsely distributed. Litter was also common.



Site 4 – Fringing Broadleaf Cumbungi, rushes and Toowoomba Canary-grass, with in-stream Water Ribbons in the background

### 3.1.4. Site 5

Site 5 comprised the newly rehabilitated wetland associated with the recreation area of the adjacent housing estate. This site comprised an open waterbody with dense fringing vegetation consisting mainly of native rushes (*Juncus* spp., *Eleocharis* spp.), Tall Sedge (*Carex appressa*) and Common Tussock-grass (*Poa labillardierei*).



Site 5 – Dense fringing of rushes and sedges

## 3.2. Habitat management and recommendations

The Year 5 habitat assessment revealed moderate quality, structural habitat at each of the sites, but which was slightly degraded from previous findings. Water quality was also reduced with increased sedimentation. These factors are likely primarily a consequence of recent severe flooding of the creek with strong water flows disturbing submerged vegetation and litter deposited from upstream.

It is considered that this degradation is outside the control of the Modeina Estate development beyond additional litter removal, and the submerged vegetation will likely re-establish without any action required. Therefore, the construction mitigation measures outlined in the associate Environmental Management Plan (EMP) and Construction Environmental Management Plan (CEMP) do not currently require amendment and should continue to be implemented as designed.

## 3.3. Call playback and visual search assessment

During the first survey conducted on 1<sup>st</sup> December 2021, frogs were detected at sites 2, 4 and 5. No GGF were detected either calling or visually. Common frog species were present (Table 1).

The second survey was conducted on 14<sup>th</sup> December 2021. Again, only common frog species were recorded, with no GGF seen or heard (Table 2).

Table 1: Call playback and visual search survey results for 1<sup>st</sup> December 2021

Date	Site	Time - start	Temp (°C)	Humidity (%)	Call Playback	Spotlighting
1/12/2021	2	20:49	21	65	Pobblebonk Frog (1 heard)	Pobblebonk Frog (3 heard)
	3	22:30	21	71	None	None
	4	21:45	21	69	Pobblebonk Frog (3 heard) Common Froglet (1 heard)	Pobblebonk Frog (2 seen)
	5	19:54	21	65	Pobblebonk Frog (multiple heard) Spotted Marsh Frog (multiple heard)	None

Table 2: Call playback and visual search survey results for 14<sup>th</sup> December 2021

Date	Site #	Time - start	Temp (°C)	Humidity (%)	Call Playback	Spotlighting
14/12/2021	2	20:45	18	55	None	Pobblebonk Frog (5 seen)
	3	22:03	18	66	None	Eastern Banjo Frog (1 heard)
	4	23:00	18	60	None	Eastern Banjo Frog (2-3 heard)
	5	22:40	19	59	None	Pobblebonk Frog (2 heard) Common Froglet (4-5 heard)

### 3.4. Growling Grass Frog survey results comparison and recommendations

The Year 5 monitoring survey did not detect the presence of GGF within the study area, despite the species consistently recorded in previous years.

The breeding season for GGF in 2021 has been disrupted by a delay in onset of and scarcity of warm nights through late spring and early summer, with evening temperatures rarely reaching the minimum required for surveying as per the Federal guidelines. Throughout the breeding season, GGF have been heard calling regularly on warm days (Nature Advisory obs.), indicating that the species has been active but not at night. The guidelines do not allow for daytime surveys. Additionally, extreme weather events in November 2021 saw the mean monthly rainfall for Melbourne exceeded in less than 48 hours. This resulted in flooding of waterways and strong

currents, including with respect to Kororoit Creek. Any GGF present may have been displaced or moved, as they are known to be a relatively mobile species.

Given suitable weather, additional surveys will be conducted in the study area while the breeding season persists, and results of these will be included in the 2022 monitoring report.

## 4. References

- Biosis Research 2012, *Review of habitat corridors for Growling Grass Frog Litoria raniformis within Melbourne's Urban Growth Areas*, Report for the Department of Sustainability and Environment.
- Brett Lane & Associates (BL&A) Pty Ltd 2003, *Modeina Estate, Burnside – Flora and Fauna Assessment, Report No. 7045 (3.1)*, Prepared for The Dennis Family Corporation, c/o Tract Consultants Pty Ltd.
- Department of Environment, Land, Water and Planning (DELWP) 2017, *Victorian Biodiversity Atlas 3.1.0*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, viewed 7<sup>th</sup> July 2017, < <https://vba.dse.vic.gov.au> >.
- Ecology and Heritage Partners (EHP) Pty. Ltd. 2011, *Sub-regional Growling Grass Frog Litoria raniformis Conservation Strategy within the revised Urban Growth Boundary and Associated 28 Precincts: Technical Background and Guidelines*, Prepared for the Department of Sustainability and Environment.

### Appendix 3: Written notification that Condition 15 no longer applies

From: Ruth Crabb <email address redacted >  
Sent: Wednesday, 28 November 2018 11:11 AM  
To: Tess Trewin < email address redacted >  
Cc: Hagen Ganahl < email address redacted >  
Subject: RE: EPBC 2011/6063 Burnside Development Modeina [SEC=UNCLASSIFIED]

Hi Tess,

Thank you for your email, and apologies for the delay in responding.

Condition 17 of EPBC approval 2011/6063 is intended to apply if condition 15 cannot be met in full. The Alternative Offset Strategy approved on 9 November 2018 sets out adequate compensation for impacts to Spiny Rice-Flower plants within Project Areas C1 and D, through the provision of direct offsets within the Cressy offset property. The Offset Management Plan for the Cressy property was also approved on 9 November 2018, and contains the necessary direct environmental offsets for impacts within Project Areas C1, C2 and D.

It is the Department's view that condition 17 is satisfied by the attached approval letter, as the Alternative Offset Strategy and Cressy Offset Management Plan for Project Areas C1, C2 and D would not have been approved against this condition had DFC not tabled the inability to meet the requirements of condition 15 in terms of the Spiny Rice-Flower Propagation Project.

I have also spoken with the Office of Compliance regarding this matter, and they have recommended that you retain and attach this email to your annual compliance report so that documentation is obvious.

Kind regards,

Ruth Crabb  
Senior Project Officer  
Post Approvals Section  
Assessments (WA, SA, NT) and Post Approvals Branch  
Environment Standards Division  
Department of the Environment and Energy

## Appendix 4: Acknowledgement of commencement of action



Contact Officer: Keith Horwood  
Telephone: (02) 6274 1933  
Email: [epbcmonitoring@environment.gov.au](mailto:epbcmonitoring@environment.gov.au)

Mr Mal Wright  
Senior Ecologist  
Brett Lane & Associates Pty Ltd  
PO Box 337  
CAMBERWELL VIC 3124

Dear Mr Wright

**Commencement of the Action, Burnside Development – The Point, VIC, EPBC 2011/6063**

I am writing to you about the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval 2011/6063.

In accordance with the condition 19, you were required to notify the Department of the action's commencement date. Thank you for notifying the Department that the action commenced on 9 October 2017. Because the action commenced on this date, please complete the following tasks in accordance with the approval conditions by the mentioned due dates.

**Condition 21 - Annual Compliance Report**

The Annual Compliance Report for the period 9 October 2017 to 8 October 2018 must be published and submitted to the Department before 9 January 2019. The Annual Compliance Report must continue to be published and submitted to the Department until the expiry of the project 31 February 2035.

Please email the Annual Compliance Report, and the details of its publication, to [epbcmonitoring@environment.gov.au](mailto:epbcmonitoring@environment.gov.au)

Please maintain accurate records of all activities associated with, or relevant to, the approval conditions so that they can be made available to the Department on request. These documents may be subject to audit and be used to verify compliance. Summaries of audits may be published by the Department.

For information about the Monitoring and Audit program, see the Department's website at <http://www.environment.gov.au/topics/about-us/legislation/environment-protection-and-biodiversity-conservation-act-1999/complian-2>

If you would like to discuss this matter further, please contact Keith Horwood on (02) 6274 1933.

Yours sincerely

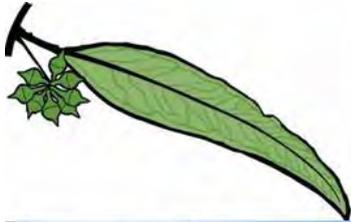
Shonelle Meagher  
Assistant Director  
Environmental Audit Section  
Office of Compliance

13 October 2017

[Appendix 5: 2021 Australian Ecosystems weed survey reports](#)

# Weed Survey Report

## Modeina Estate - Phase 2 -



**AUSTRALIAN ECOSYSTEMS**  
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April 2021

Submitted by Charles Pinnuck

Australian Ecosystems Pty Ltd

Phone: 0448 204 022

Email: [charlesp@australianecosystems.com.au](mailto:charlesp@australianecosystems.com.au)

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## 1.0 Introduction

Australian Ecosystems (AE) has prepared this report for Dennis Family Corporation (Project Management) Pty Ltd. This report details the results of weed surveys conducted in April 2021 within the area described as 'Stage 2 Modeina'. This report should be read in conjunction with, 'Modeina Weed Management Strategy' that Greening Australia prepared in 2017.

## 2.0 Weeds Surveyed

This survey has captured these weed species listed below:

- African Boxthorn (*Lycium ferocissimum*)
- Artichoke Thistle (*Cynara cardunculus*)
- Spear Thistle (*Cirsium vulgare*)
- Bridal Creeper (*Asparagus asparagodies*)
- Cape weed (*Arctotheca calendula*)
- Century Plant (*Agave Americana*)
- Fennel (*Foeniculum vulgare*)
- Galenia (*Galenia pubescens*)
- Horehound (*Marrubim vulgare*)
- Paterson's Curse (*Echium plantagineum*)
- Prickly Pear (*Opuntia spp.*)
- Sweet Briar (*Rosa rubiginosa*)
- Chilean Needle Grass *Nassella neesiana*)
- Toowoomba canary grass (*Phalaris aquatica*)
- Serrated Tussock (*Nassella trichotoma*)

Determined by:

The weeds detailed within this report have been taken from the Modeina Weed Management Strategy that Greening Australia prepared in 2017. Only species that are widespread and/or have a high level of risk have been chosen to be controlled within these areas.

## 3.0 Survey Methodology

### 3.1 Woody weeds

Woody weeds are classified as African Boxthorn (*Lycium ferocissimum*), Century Plant (*Agave Americana*), Fennel (*Foeniculum vulgare*), Prickly Pear (*Opuntia spp.*) and Sweet Briar (*Rosa rubiginosa*).

All species had an extremely low abundance. These species' were individually counted. Hence, the data shows 0% or 1% coverage across all zones.

### 3.2 Herbs and Grass weeds

Herb and grass weeds are present across all zone. These weeds include Artichoke Thistle (*Cynara cardunculus*), Scotch Thistle (*Onopordum acanthium*), Spear Thistle (*Cirsium vulgare*), Bridal Creeper (*Asparagus asparagoides*), Cape weed (*Arctotheca calendula*), Galenia (*Galenia pubescens*), Horehound (*Marrubim vulgare*), Paterson's Curse (*Echium plantagineum*), Chilean Needle Grass (*Nassella neesiana*), Toowoomba canary grass (*Phalaris aquatica*) and Serrated Tussock (*Nassella trichotoma*)

The above mentioned, species were surveyed using the Random Quadrant Sampling Method. Within each zone, Four (4) 5 meter X 5 meter quadrants were used to measure the current number of weed species present and then converted to a percentage cover. The results from these quadrants were then extrapolated to obtain a percentage cover across each of the zones. The results of these surveys are displayed over the following pages of the report.

### 3.3 Changes

Since our last survey, civil construction has started in the development zone. This has reduced the area surveyed by approximately 50%. These planned work does not affect the survey result of this or any previous survey.

## 4.0 Details of Surveyed Weeds

### 4.1 African Boxthorn - *Lycium ferocissimum*

Regionally Controlled & Weed of National Significance

Target coverage <1%

Current coverage

MgtZone	2	4	5	3	DZ
April 2021	1%	1%	1%	1%	1%
Dec 2020	0%	1%	1%	0%	1%
Oct 2020	0%	1%	1%	0%	1%
June 2020	0%	1%	1%	0%	1%
April 2020	0%	1%	1%	0%	1%
Dec 2019	0%	1%	1%	0%	1%
Oct 2019	0%	1%	1%	0%	1%
July 2019	1%	1%	1%	1%	1%

African boxthorn is a rounded, woody, densely branched and very thorny large shrub up to 5 metres high. African boxthorn reproduces exclusively by seed which is commonly eaten by birds, seed is viable when excreted. These plants are often found near places where birds have perched such as trees, poles and powerlines. It was widely planted as a hedge plant before its weedy potential was realised. Spread also occurs from contaminated produce and materials. African boxthorn is a fast-growing invasive species that, if untreated, spreads quickly. Seeds may germinate year-round and early root growth is rapid, ensuring young plants are competitive. Plants take at least two years to flower, producing flowers and fruit mostly in summer. Some flowering and fruit production occurs at other times of year. Sometimes deciduous in winter, with new leaves and active growth in spring. Broken roots and cut stumps can sprout regrowth.



## 4.2 Artichoke Thistle - *Cynara cardunculus*

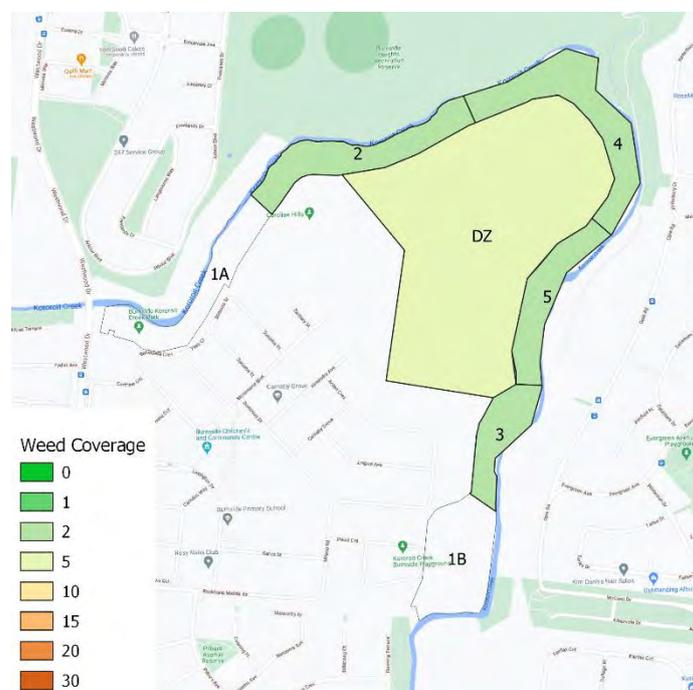
Regionally Controlled

Target coverage < 5%

### Current coverage

MgtZone	2	4	5	3	DZ
Apr 2021	2%	2%	2%	2%	5%
Dec 2020	5%	2%	5%	2%	5%
Oct 2020	5%	5%	2%	2%	10%
June 2020	2%	10%	5%	5%	10%
April 2020	25%	20%	15%	20%	20%
Dec 2019	10%	15%	15%	5%	15%
Oct 2019	15%	20%	10%	10%	25%
July 2019	15%	20%	5%	15%	15%

A perennial or biennial spiny thistle with annual tops and a cluster of large bright purple flowers that are 5-8 cm in diameter during summer. The mature plant is erect, with stems 1- 2 m tall arising from a bushy rosette up to 2 m wide and tall. The stem is strongly ribbed and covered with downy grey hairs and usually single at the base and branched towards the top. The large, grey green leaves are deeply lobed and spiny with woolly hairs underneath.



#### 4.4 Spear Thistle - *Cirsium vulgare*

##### Regionally Controlled Weeds

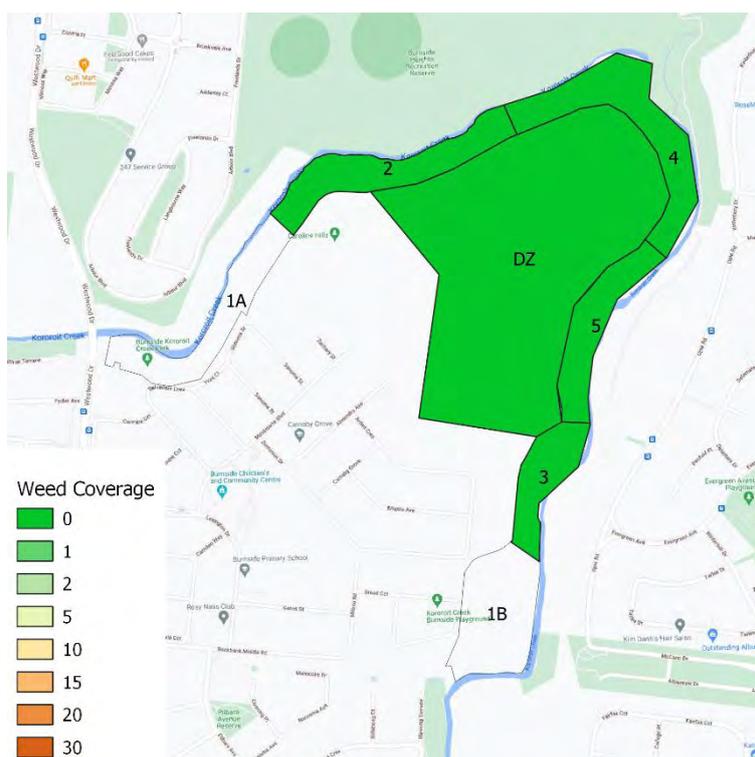
Target coverage <5%

##### Current coverage

MgtZone	2	4	5	3	DZ
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	1%
Oct 2020	1%	0%	0%	0%	1%
June 2020	1%	0%	0%	0%	1%
April 2020	1%	0%	0%	0%	1%
Dec 2019	2%	5%	1%	1%	1%
Oct 2019	2%	5%	1%	1%	1%
July 2019	2%	5%	1%	1%	2%

An annual or short-term perennial herb with erect growth to 1.5 m tall. Stems have spiny wings and are cobwebby. Upper leaf surface is dark green and rough while the lower surface is white with short matted hairs.

A common species of wet or summer-moist land, including swamps, depressions, drains, waste-land, pastures and cultivated soils. Prefers open, non-shaded environments, heavy textured soils and good fertility.



## 4.5 Bridal Creeper - *Asparagus asparagoides*

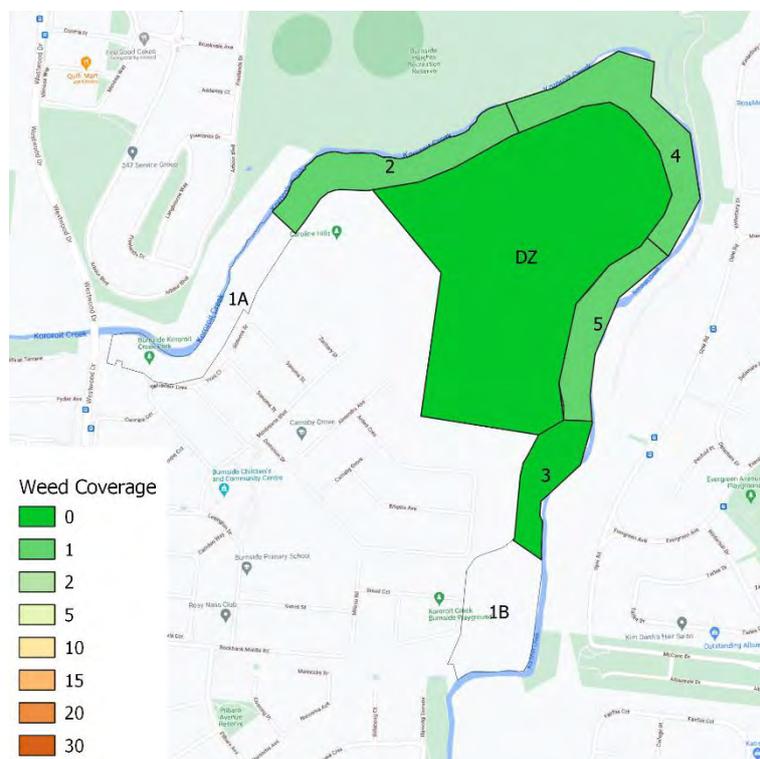
Regionally Controlled - Weed of National Significance

Target coverage < 1%

### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	1%	1%	1%	0%	0%
Dec 2020	0%	1%	1%	0%	0%
Oct 2020	0%	0%	1%	0%	0%
June 2020	0%	0%	1%	0%	0%
April 2020	0%	0%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	2%	1%	2%	0%

It is regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts. Bridal creeper entered the country as a garden plant and is now a major weed of bushland in southern Australia, where its climbing stems and foliage smother native plants. It forms a thick mat of underground tubers which impedes the root growth of other plants and often prevents seedling establishment. Rare native plants, such as the rice flower *Pimelea spicata*, are threatened with extinction by Bridal Creeper.



## 4.6 Cape weed - *Arctotheca calendula*

Not declared or considered noxious

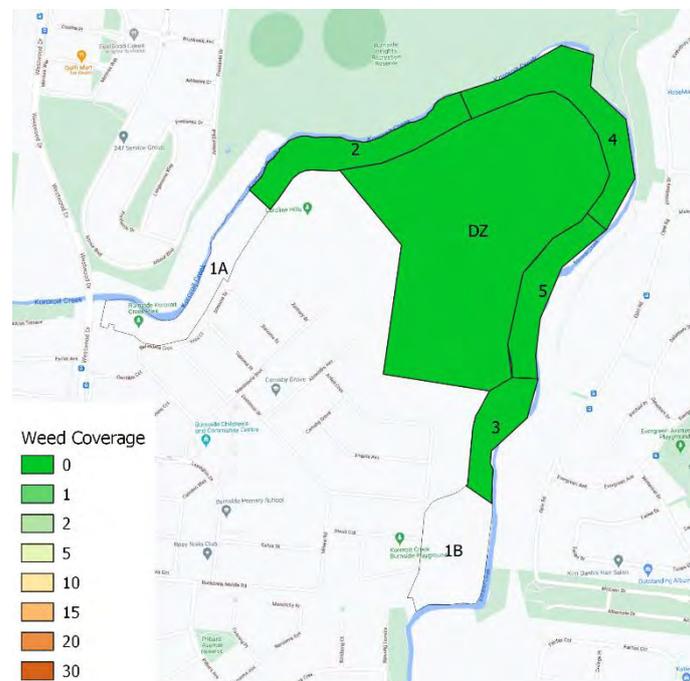
Target coverage < 5%

### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	0%	0%	0%	0%	0%
Oct 2020	0%	1%	1%	1%	0%
June 2020	2%	2%	0%	2%	0%
April 2020	2%	2%	1%	2%	0%
Dec 2020	2%	2%	1%	2%	0%
Oct 2019	2%	2%	2%	1%	0%
July 2019	2%	2%	2%	1%	0%

This plant is widespread and common weed in pastures, lawns, cultivation and waste areas across Victoria. Typically a plant of fresh-water habitats but may occur on the fringes of saline swamps and flats during wetter periods.

It is stemless or shortly stemmed, herb, 80 cm wide and 30 cm high, with a taproot and a basal rosette of leaves. Leaves are 5-25 cm long and 2-6 cm wide.



## 4.7 Century Plant - *Agave Americana*

Not declared or considered noxious

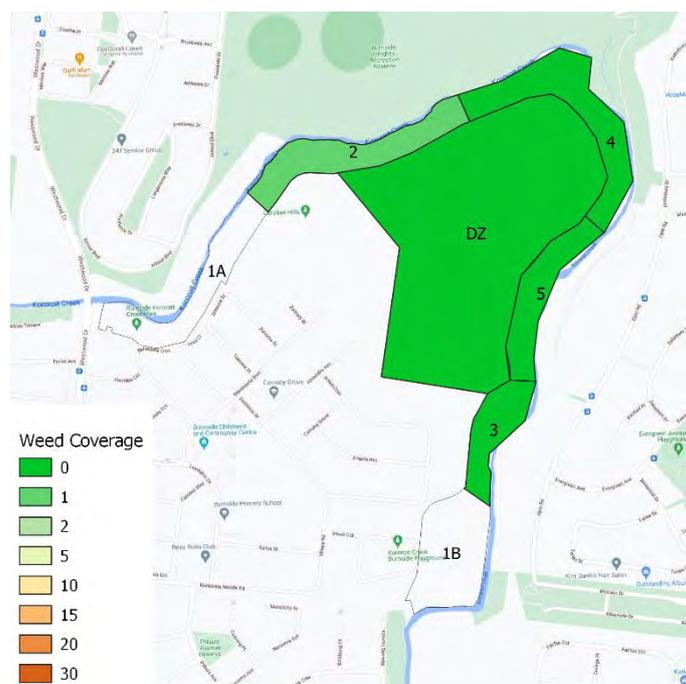
Target coverage < 1%

### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	1%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	0%
Oct 2020	1%	0%	0%	0%	0%
June 2020	1%	0%	0%	0%	0%
April 2020	1%	0%	0%	0%	0%
Dec 2019	1%	0%	0%	0%	0%
Oct 2019	1%	0%	0%	0%	0%
July 2019	1%	0%	0%	0%	0%

A very large and long-lived rosette-forming plant, growing 1-2 m high and 2-4 m across.

Older individuals may sometimes develop a short woody stem at the base of the plant and commonly produces numerous suckers which form a large clump or colony. When fully mature this plant will develop a massive flower cluster on a robust flowering stem 6-12 m tall.



## 4.8 Fennel - *Foeniculum vulgare*

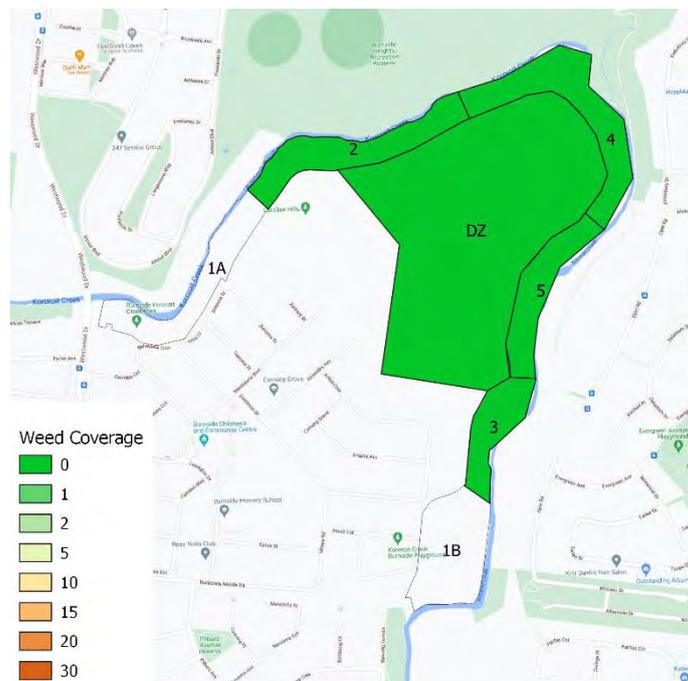
**Restricted Weeds noxious**

**Target coverage < 1%**

### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	1%	0%
Oct 2020	0%	0%	0%	0%	0%
June 2020	0%	0%	0%	0%	0%
April 2020	0%	0%	0%	0%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	0%

An erect multi-stemmed perennial herb commonly 1.5 to 2.0 metres high. It is found along waterways, drainage lines and in seasonally moist locations within grasslands and woodlands. Dense infestations may restrict access to waterways. A soft, herbaceous plant the high growth of the plant may be a nuisance to people.



## 4.9 Galenia - *Galenia pubescens*

**Not declared or considered noxious**

**Target coverage < 5%**

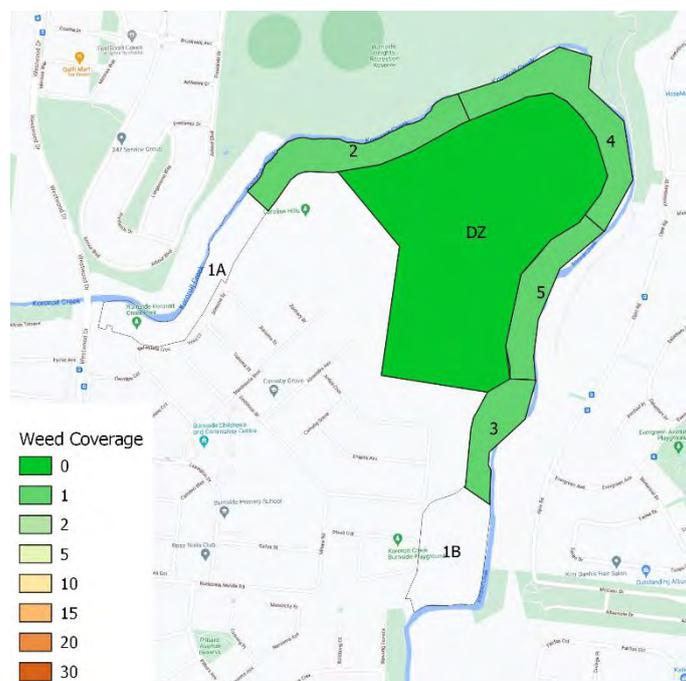
### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	1%	1%	1%	1%	0%
Dec 2020	1%	1%	0%	1%	0%
Oct 2020	0%	0%	0%	1%	0%
June 2020	1%	0%	1%	0%	0%
April 2020	1%	0%	0%	1%	0%
Dec 2019	2%	1%	1%	1%	1%
Oct 2019	5%	1%	1%	1%	1%
July 2019	2%	2%	2%	1%	1%

This perennial creeping, herbaceous plant growing to about 60 cm high and 1–2 m wide.

It is deep rooted and flowers from late spring to early autumn. *Galenia* reproduces by seed. Most dispersal of seed occurs by wind, water, birds and livestock. Movement of contaminated soil by vehicles and equipment can also contribute to its spread.

Drought and salt tolerant, *galenia* grows over and smothers existing vegetation by forming a thick dense mat. It invades coastal dunes, pastures, disturbed areas, lawns, roadsides and rocky outcrop vegetation. *Galenia* is known to produce nitrates that can be toxic to stock.



#### 4.10 Horehound - *Marrubim vulgare*

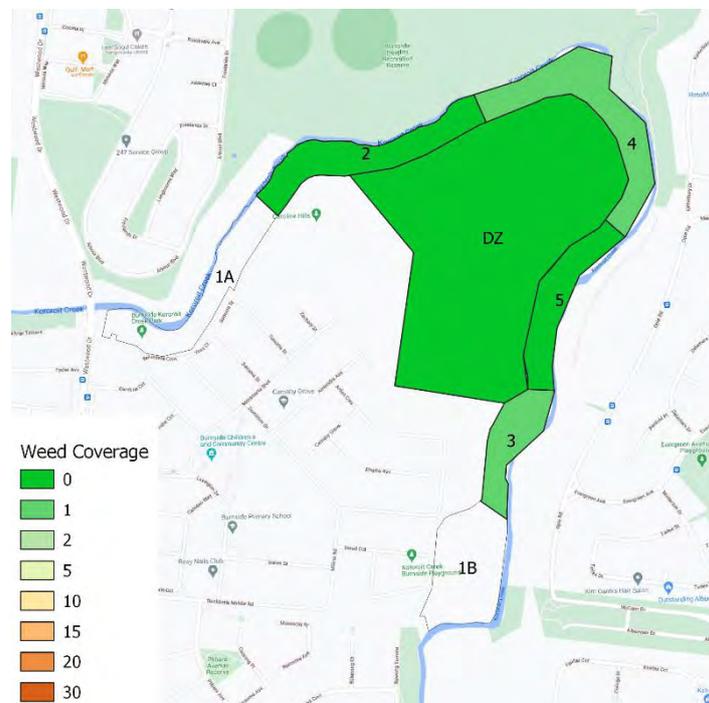
Not declared or considered noxious

Target coverage <5%

#### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	1%	1%	0%
Oct 2020	1%	0%	1%	0%	0%
June 2020	0%	1%	0%	1%	0%
April 2020	0%	1%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	1%

A bushy perennial plant, 30 to 80 cm high, sharply aromatic when crushed, covered with dense whitish hairs. Horehound thrives on poor soil and in waste places. It invades poor pastures which provide little competition. Horehound contains a bitter alkaloid which makes it unpalatable for grazing livestock. As well as being an agricultural weed of pastures horehound has become an important environmental weed because of its ability to invade disturbed native vegetation



#### 4.11 Paterson's Curse - *Echium plantagineum*

Regionally controlled

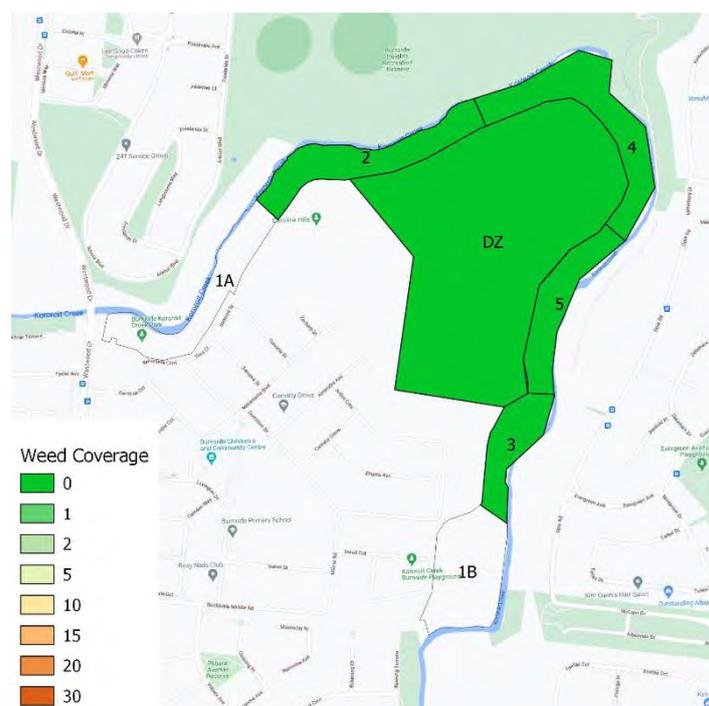
Target coverage < 5%

#### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	1%	1%	1%	2%
Oct 2020	2%	1%	1%	2%	2%
June 2020	2%	2%	5%	5%	5%
April 2020	5%	10%	5%	5%	10%
Dec 2019	5%	1%	2%	2%	2%
Oct 2019	5%	2%	2%	1%	2%
July 2019	5%	2%	2%	1%	1%

Paterson's curse is an annual, occasionally biennial, herb that grows as a rosette in autumn and winter and produces flowering stalks in spring and early summer. The rosette usually grows parallel to the ground, however the leaves may be erect in dense vegetation.

Plants begin to produce flowering stalks in late winter, commence flowering in early spring and die in summer. The flowers are usually purple but may be blue or pink. The first mature seeds are produced four to six weeks after flowering commences.



## 4.12 Prickly Pear - *Opuntia* spp.

Regionally controlled

Target coverage <5%

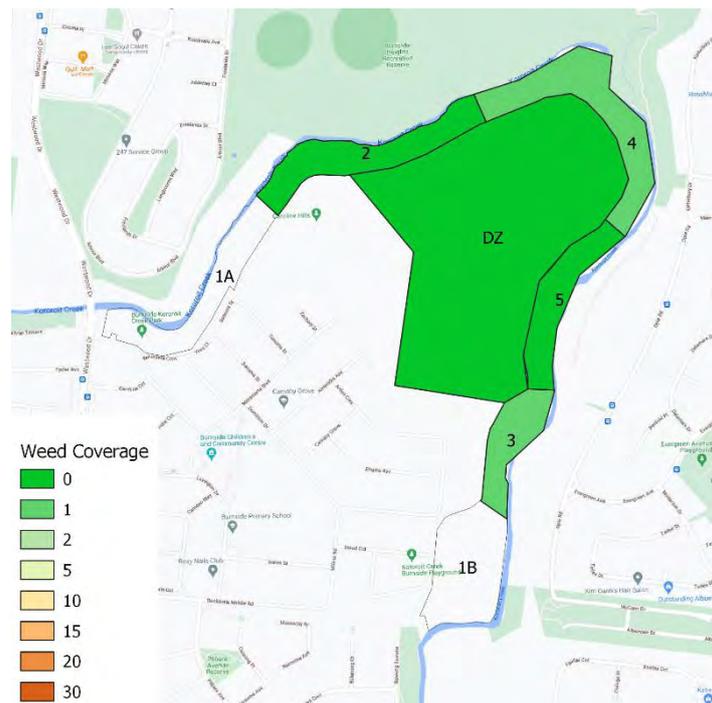
### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	0%	1%	0%
Oct 2020	0%	1%	0%	1%	0%
June 2020	0%	1%	0%	0%	0%
April 2020	0%	1%	0%	1%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	1%	1%	2%	2%	1%

Prickly pear is an erect succulent shrub which can grow to a height of 5 m. The stems of prickly pear are commonly grey-green to light green. The plant usually has one main woody stem with dense prickles, which gives way to a number of side branches made up of fleshy segments. The segments are approximately 45 cm long, 15 cm wide and 1-2 cm thick, with the upper segments appearing to droop.



Each plant segment has areoles, which are growing points where new segments, flowers or roots can be produced. Each areole has short tufts of finely barbed bristles and sometimes one to five sharp, 5 cm long spines. Spines are more common on segments that are older and lower on the plant.



### 4.13 Sweet Briar - *Rosa rubiginosa*

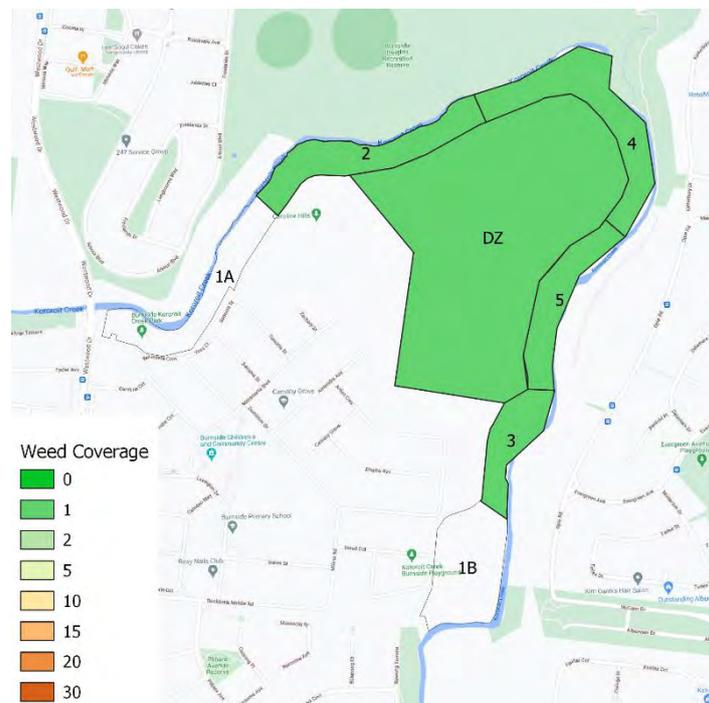
Regionally Controlled

Target coverage <1%

#### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	1%	1%	1%	1%	1%
Dec 2020	1%	1%	0%	0%	0%
Oct 2020	1%	1%	0%	0%	0%
June 2020	1%	1%	1%	0%	0%
April 2020	1%	1%	0%	1%	0%
Dec 2019	1%	1%	0%	1%	0%
Oct 2019	1%	1%	1%	1%	0%
July 2019	1%	1%	1%	1%	1%

Sweet briar is a perennial woody shrub up to 3m tall. The stem is usually many (and can be up to several hundred) stems arising from the rootstock; erect or scrambling, up to 3 metres high, green and smooth to brown and somewhat roughened, woody, branched, spreading and sometimes trailing, heavily covered with down-curved prickles up to 1.5 cm long.



#### 4. 14 Chilean Needle Grass - *Nassella neesiana*

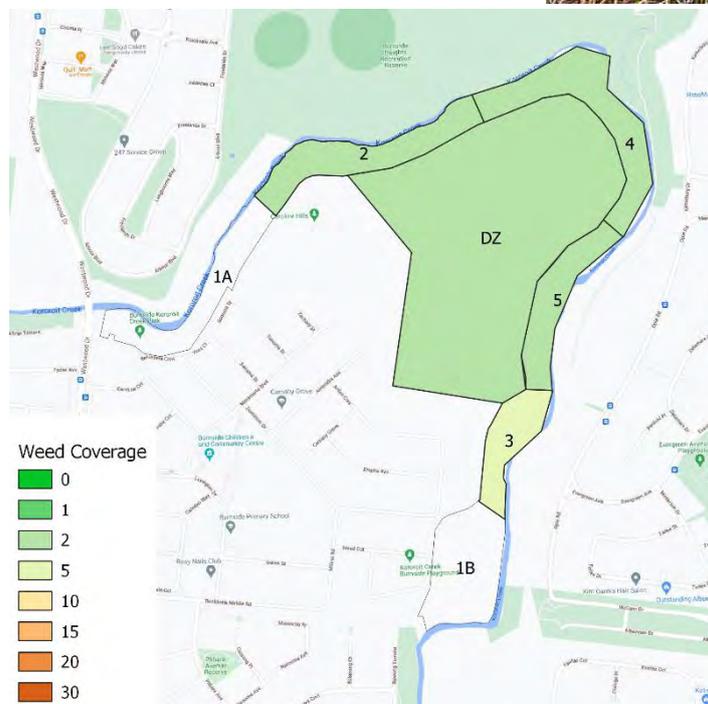
Regional restricted

Target coverage < 5%

#### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	2%	2%	5%	5%	2%
Dec 2020	0%	0%	2%	2%	2%
Oct 2020	0%	0%	2%	5%	2%
June 2020	0%	0%	2%	1%	2%
April 2020	0%	0%	1%	5%	2%
Dec 2019	0%	0%	1%	5%	2%
Oct 2019	0%	0%	1%	2%	5%
July 2019	1%	1%	1%	5%	10%

Chilean needle grass is a tussocky perennial in the Speargrass group of grasses growing to about 1 m high. It leaves are hairless and are normally grow to 30 cm long and 5 mm wide. With the flowering head being to 40 cm long.



#### 4.15 Toowoomba canary grass - *Phalaris aquatica*

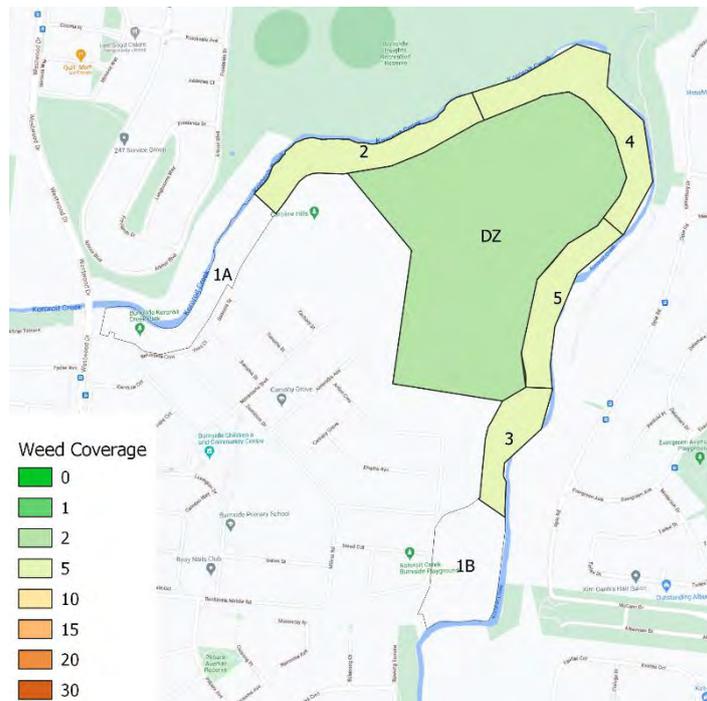
Not declared and considered noxious

Target coverage < 5%

#### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	5%	5%	5%	5%	2%
Dec 2020	2%	2%	2%	2%	0%
Oct 2020	5%	5%	5%	5%	0%
June 2020	2%	2%	2%	2%	0%
April 2020	2%	2%	2%	2%	0%
Dec 2019	1%	2%	5%	5%	5%
Oct 2019	1%	2%	5%	5%	5%
July 2019	1%	5%	15%	20%	20%

Widely used as a pasture species where annual rainfall exceeds 450 mm. It prefers fertile, seasonally moist sites. Commonly spreads from pastures, road verges and drainage ditches to adjacent indigenous vegetation. Toowoomba canary grass invades dry coastal vegetation, heathland and heathy woodland, lowland grassland and grassy woodland, dry sclerophyll forest and woodland, damp sclerophyll forest, riparian vegetation and freshwater wetlands.



#### 4.16 Serrated Tussock - *Nassella trichotoma*

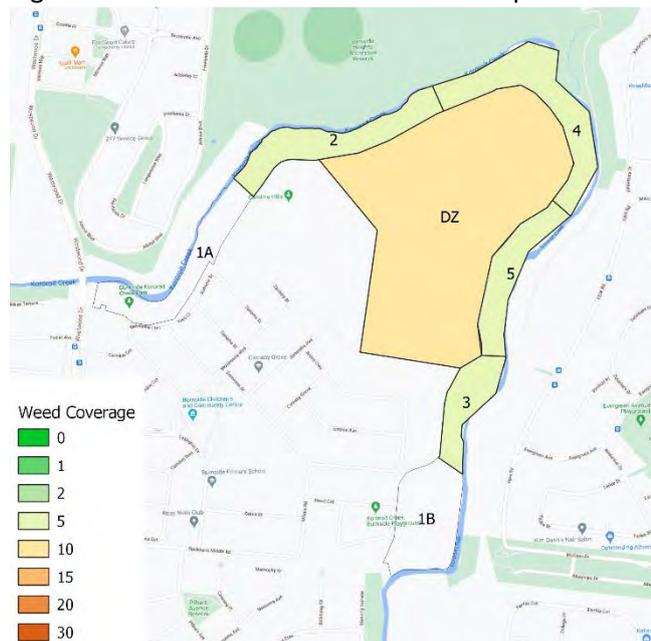
Regionally Controlled - *Weed of National Significance*

Target coverage < 5%

#### Current Coverage

MgtZone	2	4	5	3	DZ
Apr 2021	5%	5%	5%	5%	10%
Dec 2020	2%	2%	2%	2%	2%
Oct 2020	5%	5%	5%	2%	5%
June 2020	5%	5%	5%	2%	5%
April 2020	5%	5%	5%	2%	5%
Dec 2019	5%	5%	5%	5%	10%
Oct 2019	5%	5%	0%	5%	5%
July 2019	10%	20%	5%	20%	15%

Serrated tussock is a long lived perennial grass growing up to 60cm in height with a base of 25cm in diameter. Plant size varies with soil fertility and location. In infertile conditions plants may only reach a height of 15cm. Serrated tussock is shallow rooted with an extensive network of fibrous roots occurring predominantly in the top 20cm of soil. The roots are dense, wiry and fibrous making serrated tussock very difficult to pull out, even when small. Flowering stems emerge from the base of the plant. They are multi-branched and up to 35cm long. The purple colour of the small seeds produces an overall purplish haze to the serrated tussock seed head. Once the seeds have formed, the entire seed head will 'droop' over the tussock towards the ground. Flowering takes place as early as late winter (August) and will continue throughout the spring (September – November). Autumn flowering has been known to occur. Seeds take 8 – 10 weeks to mature, normally occurring throughout the spring and summer months. Once seeds are ripe, the whole flowering stem detaches from the base of the plant and is dispersed by the wind. Seed is dormant and will not germinate for about 6 months.



## 6.0 Summary

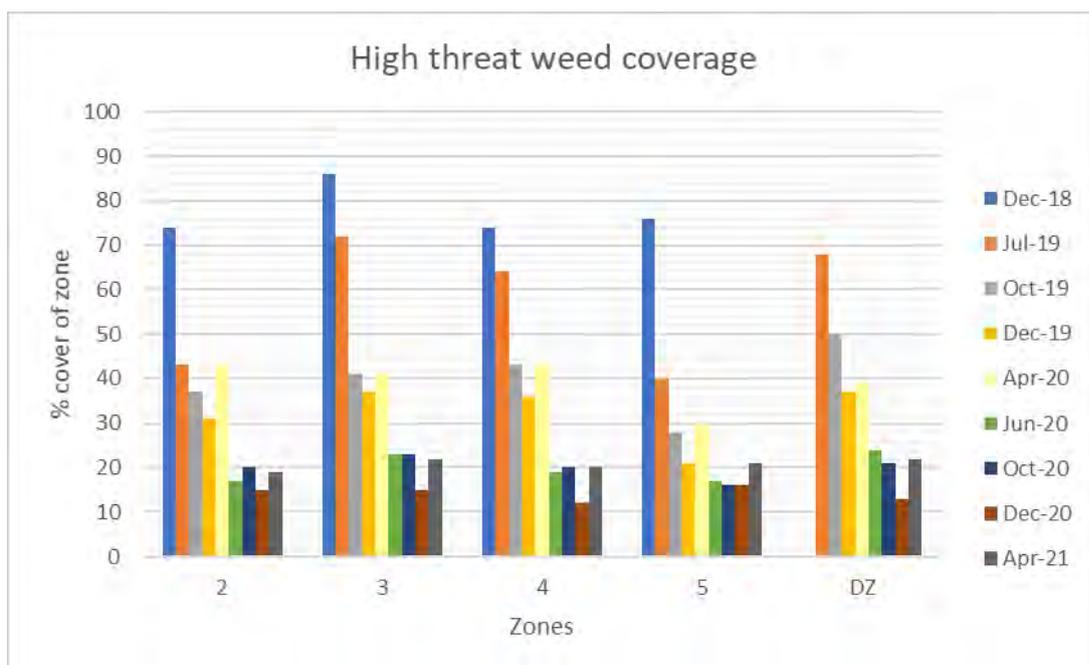
### 6.1 Overview

The below table displays the total percentage coverage in each zone of high threat weeds. There has been an increase in the total weed loads in all zones between December 2020 and Apr 2021. This was mainly due to the increased densities of the grasses weeds. Toowoomba canary grass, Chilean Needle Grass & Serrated Tussock have all increased their total coverage to around 5% per species. This needs to be actively controlled over the coming treatments.

During the survey no Spear Thistle, Fennel, Cape weed or Paterson's Curse were noted. It is thought that this is due to the time of year and being out compete by brassica and other grasses. These species have been

For the last several survey's weedy herbs have been seen germinating in zones that in past surveys have recorded no specimens. This highlights the high level of weed seed in the soil and the need for continued weed control activities. An example of this is Bridal creeper and Horehound during this survey period

Approximately 50% of the development zone is now under construction. The area is fenced off and all vegetation has been removed or is in the process of being removed.



### 6.2 Zone 2

This zone was difficult to access due to the installation of a construction temp fence. 50% of this zone was controlled with a knapsack. *Phalaris aquatica* dominated vegetation near the creek line. The majority of the vegetation has been left due to erosion concerns.

The native vegetation areas within this zone are surrounded by and interspersed with Serrated Tussock and Artichoke Thistle. These exotic plants have been controlled, but weed pressures are on all sides will be an ongoing management issue. Knapsacks were used to keep the weeds under control in this area.

All woody weeds had been controlled, with a limited number of specimens counted across the site. One cluster of Century Plants still surviving and showing no signs of ill health. We may need to look into mechanical removal. Also, three large surviving boxthorns need to be cut and painted.

### 6.3 Zone 4

It was suggested in the last report that the native vegetation area within this zone is in poor health and that slashing the vegetation could be an idea to improve the vegetation. After the Phalaris aquatica was controlled last treatment, no improvement in the native vegetation was seen. In areas where the Phalaris aquatica was killed young Phalaris aquatica or Serrated Tussock have taken up space. Meaning follow up treatments are needed to control this plant. Outside of the native vegetation area, Phalaris aquatica dominated vegetation near the creek line. The majority of the vegetation has been left due to erosion concerns.

All woody weeds had been controlled, with a limited number of specimens counted across the site.

### 6.4 Zone 5

It was suggested in the last report that the native vegetation area within this zone are in poor health and that slashing the vegetation could be an idea to improve the vegetation. After the Phalaris aquatica was controlled last treatment, no improvement was seen. In areas where the Phalaris aquatica was killed, young Phalaris aquatica or Serrated Tussock have taken up space. Meaning follow up treatments are needed to control this plant. Outside of the native vegetation area, Phalaris aquatica dominates vegetation near the creek line. The majority of the vegetation has been left due to erosion concerns.

All woody weeds have been controlled, with a limited number of specimens counted across the site.

### 6.5 Zone 3

Phalaris aquatica was controlled last treatment. No improvement in the coverage was noted in the data during this survey. In areas where the Phalaris aquatica was killed, young Phalaris aquatica or Serrated Tussock have taken up space. Meaning follow up treatments are needed to control this plant. This species is still dominated vegetation near the creekline. The majority of the vegetation in this area has been left due to erosion concerns.

The death of all Brassica and Artichoke thistle from our last run was still evident. The native vegetation areas within this zone is surrounded by and interspersed with Serrated Tussock and Artichoke Thistle. These exotic plants have been controlled, but weed pressures will be an ongoing management issue on all sides. Knapsacks were used to keep the weeds under control in this area

All woody weeds had been controlled, with a limited number of specimens counted across the site.

### 6.7 Development zone

This area varies significantly, with patches dominated by Themeda and others dominated by Serrated Tussock. Weed loads in this zone have stabilised between 10%-20%. Serrated Tussock & Artichoke Thistles are the leading high threat weeds that need to be controlled.

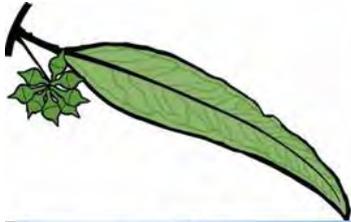
## 7.0 Conclusion

A low prevalence of herbaceous high threat weeds (Spear Thistle, Fennel, Cape weed or Paterson's Curse) has led to more space for other high weeds and other colonizing species to grow. This is shown in the data with a significant increase in the coverage of all high threat weedy grasses (Phalaris aquatica, Chilean Needle Grass & Serrated Tussock). Many Phalaris aquatica plants along the creekline have remained untreated for the last several visits. They have been left to reduce the risk of erosion concerns. However, if the coverage of this species continues to increase, this methodology may need to be revisited.

During planned June 2021 weed control works, all Brassica species will be controlled. This plant is taking advantage of the bare earth created by the previous weed control works. The treatment of the plant will require ongoing management as large patches have gone to seed.

# Weed Survey Report

## Modeina Estate - Phase 2 -



**AUSTRALIAN ECOSYSTEMS**  
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August 2021

Submitted by Geraint Forbes

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## 1.0 Introduction

Australian Ecosystems (AE) has prepared this report for Dennis Family Corporation (Project Management) Pty Ltd. This report details the results of weed surveys conducted in July/August 2021 within the area described as 'Stage 2 Modeina'. This report should be read in conjunction with, 'Modeina Weed Management Strategy' that Greening Australia prepared in 2017.

## 2.0 Weeds Surveyed

This survey has captured these weed species listed below:

- African Boxthorn (*Lycium ferocissimum*)
- Artichoke Thistle (*Cynara cardunculus*)
- Spear Thistle (*Cirsium vulgare*)
- Bridal Creeper (*Asparagus asparagodies*)
- Cape weed (*Arctotheca calendula*)
- Century Plant (*Agave Americana*)
- Fennel (*Foeniculum vulgare*)
- Galenia (*Galenia pubescens*)
- Horehound (*Marrubim vulgare*)
- Paterson's Curse (*Echium plantagineum*)
- Prickly Pear (*Opuntia spp.*)
- Sweet Briar (*Rosa rubiginosa*)
- Chilean Needle Grass *Nassella neesiana*)
- Toowoomba canary grass (*Phalaris aquatica*)
- Serrated Tussock (*Nassella trichotoma*)

Determined by:

The weeds detailed within this report have been taken from the Modeina Weed Management Strategy that Greening Australia prepared in 2017. Only species that are widespread and/or have a high level of risk have been chosen to be controlled within these areas.

## 3.0 Survey Methodology

The above-mentioned species were surveyed using the Random Quadrant Sampling Method. Within each zone, Four quadrants 5 meter X 5 meter were used to measure the current number of weed species present and then converted to a percentage cover. The results from these quadrants were then extrapolated to obtain a percentage cover across each of the zones. The results of these surveys are displayed over the following pages of the report.

### 3.1 Woody weeds

For this survey woody weeds are classified as African Boxthorn (*Lycium ferocissimum*), Century Plant (*Agave Americana*), Fennel (*Foeniculum vulgare*), Prickly Pear (*Opuntia spp.*) and Sweet Briar (*Rosa rubiginosa*).

All species had an extremely low abundance across all zones, hence these species were individually counted, each individual was given a percentage cover value of 2%, to allow for the maximum projected canopy that they can reach once mature. It should be noted that those observed were generally still in their juvenile stage, with a projected canopy cover much less than 2% of 25m<sup>2</sup>.

### 3.2 Herbs and Grass weeds

Herb and grass weeds are present across all zone. These weeds include Artichoke Thistle (*Cynara cardunculus*), Scotch Thistle (*Onopordum acanthium*), Spear Thistle (*Cirsium vulgare*), Bridal Creeper (*Asparagus asparagoides*), Cape weed (*Arctotheca calendula*), Galenia (*Galenia pubescens*), Horehound (*Marrubium vulgare*), Paterson's Curse (*Echium plantagineum*), Chilean Needle Grass (*Nassella neesiana*), Toowoomba canary grass (*Phalaris aquatica*) and Serrated Tussock (*Nassella trichotoma*)

### 3.3 Changes

Civil construction has continued with in the development zone. As previously mentioned, this has reduced the area surveyed by approximately 50%. These planned work does not affect the survey result of this or any previous survey.

## 4.0 Details of Surveyed Weeds

### 4.1 African Boxthorn - *Lycium ferocissimum*

Regionally Controlled & Weed of National Significance

Target coverage <1%

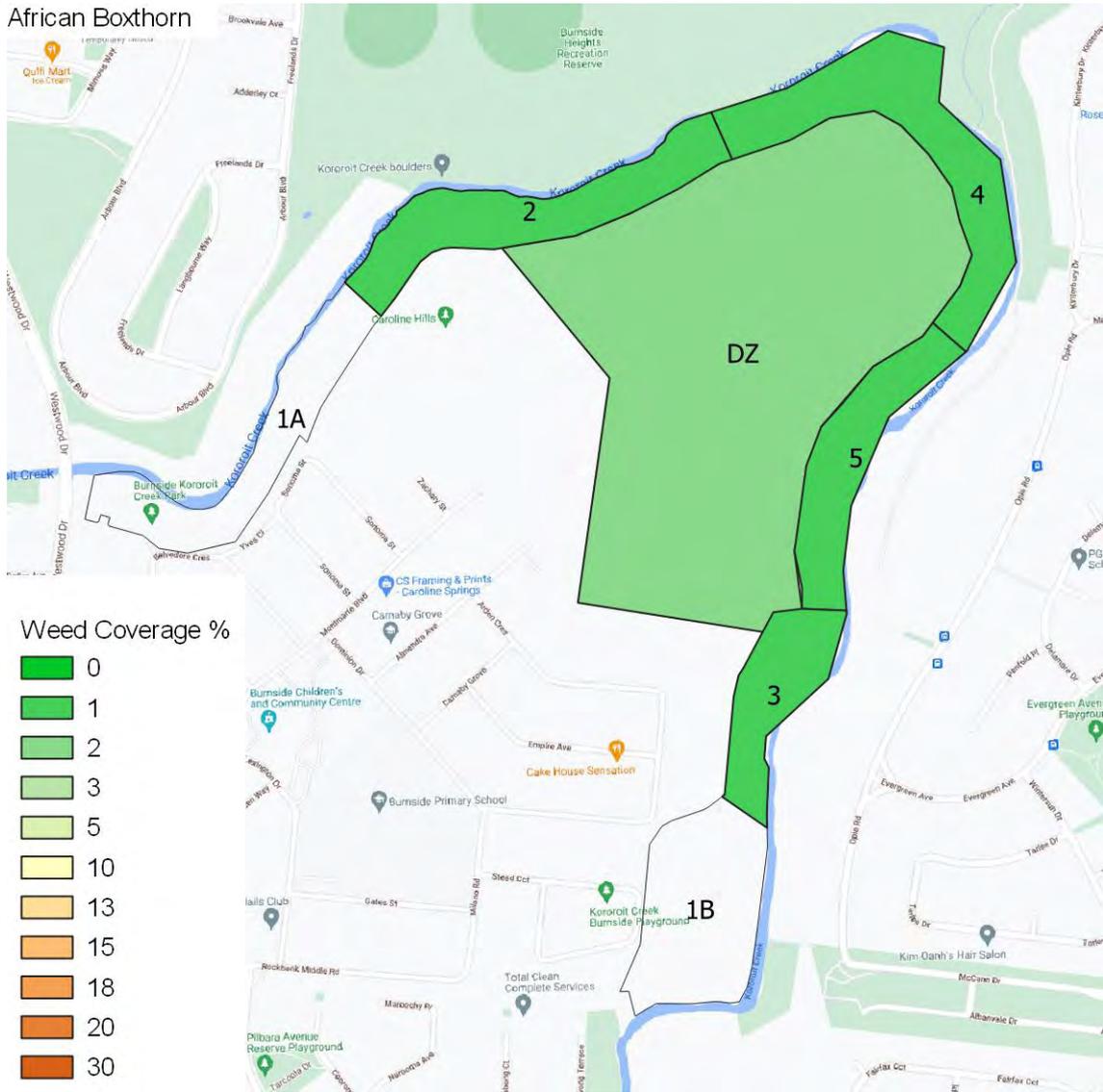
#### Current coverage

MgtZone	2	4	5	3	DZ
August 2021	1%	1%	1%	1%	2%
April 2021	1%	1%	1%	1%	1%
Dec 2020	0%	1%	1%	0%	1%
Oct 2020	0%	1%	1%	0%	1%
June 2020	0%	1%	1%	0%	1%
April 2020	0%	1%	1%	0%	1%
Dec 2019	0%	1%	1%	0%	1%
Oct 2019	0%	1%	1%	0%	1%
July 2019	1%	1%	1%	1%	1%

African boxthorn is a rounded, woody, densely branched and very thorny large shrub up to 5 metres high. African boxthorn reproduces exclusively by seed which is commonly eaten by birds, seed is viable when excreted. These plants are often found near places where birds have perched such as trees, poles and powerlines. It was widely planted as a hedge plant before its weedy potential was realised. Spread also occurs from contaminated produce and materials. African boxthorn is a fast-growing invasive species that, if untreated, spreads quickly. Seeds may germinate year-round and early root growth is rapid, ensuring young plants are competitive. Plants take at least two years to flower, producing flowers and fruit mostly in summer. Some flowering and fruit production occurs at other times of year. Sometimes deciduous in winter, with new leaves and active growth in spring. Broken roots and cut stumps can sprout regrowth.



# African Boxthorn



## 4.2 Artichoke Thistle - *Cynara cardunculus*

**Regionally Controlled**

**Target coverage < 5%**

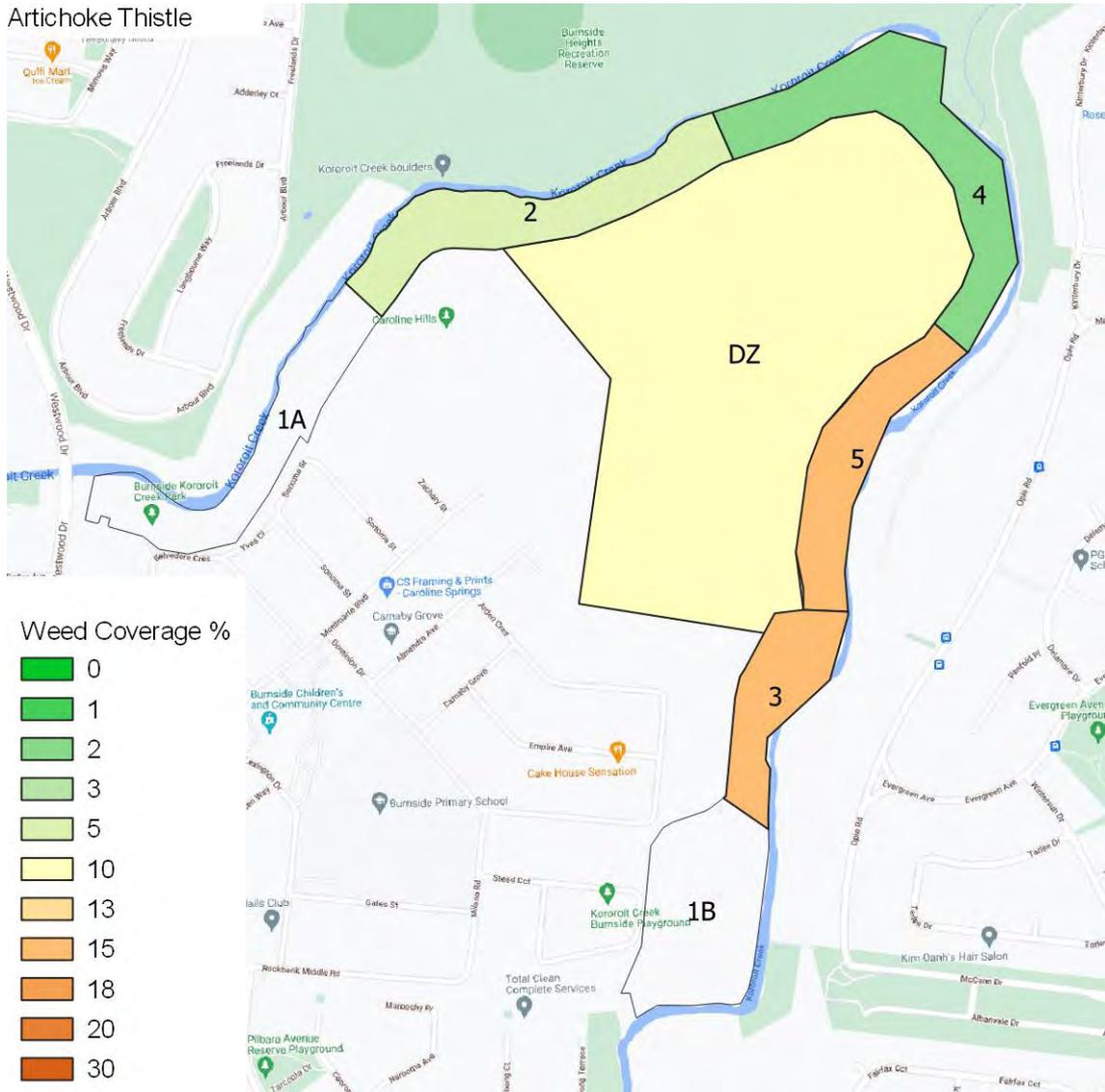
### Current coverage

MgtZone	2	4	5	3	DZ
August 2021	5%	2%	15%	15%	10%
Apr 2021	15%	2%	2%	2%	5%
Dec 2020	5%	2%	5%	2%	5%
Oct 2020	5%	5%	2%	2%	10%
June 2020	2%	10%	5%	5%	10%
April 2020	25%	20%	15%	20%	20%
Dec 2019	10%	15%	15%	5%	15%
Oct 2019	15%	20%	10%	10%	25%
July 2019	15%	20%	5%	15%	15%

A perennial or biennial spiny thistle with annual tops and a cluster of large bright purple flowers that are 5-8 cm in diameter during summer. The mature plant is erect, with stems 1- 2 m tall arising from a bushy rosette up to 2 m wide and tall. The stem is strongly ribbed and covered with downy grey hairs and usually single at the base and branched towards the top. The large, grey green leaves are deeply lobed and spiny with woolly hairs underneath.



# Artichoke Thistle



#### 4.4 Spear Thistle - *Cirsium vulgare*

##### **Regionally Controlled Weeds**

**Target coverage <5%**

##### **Current coverage**

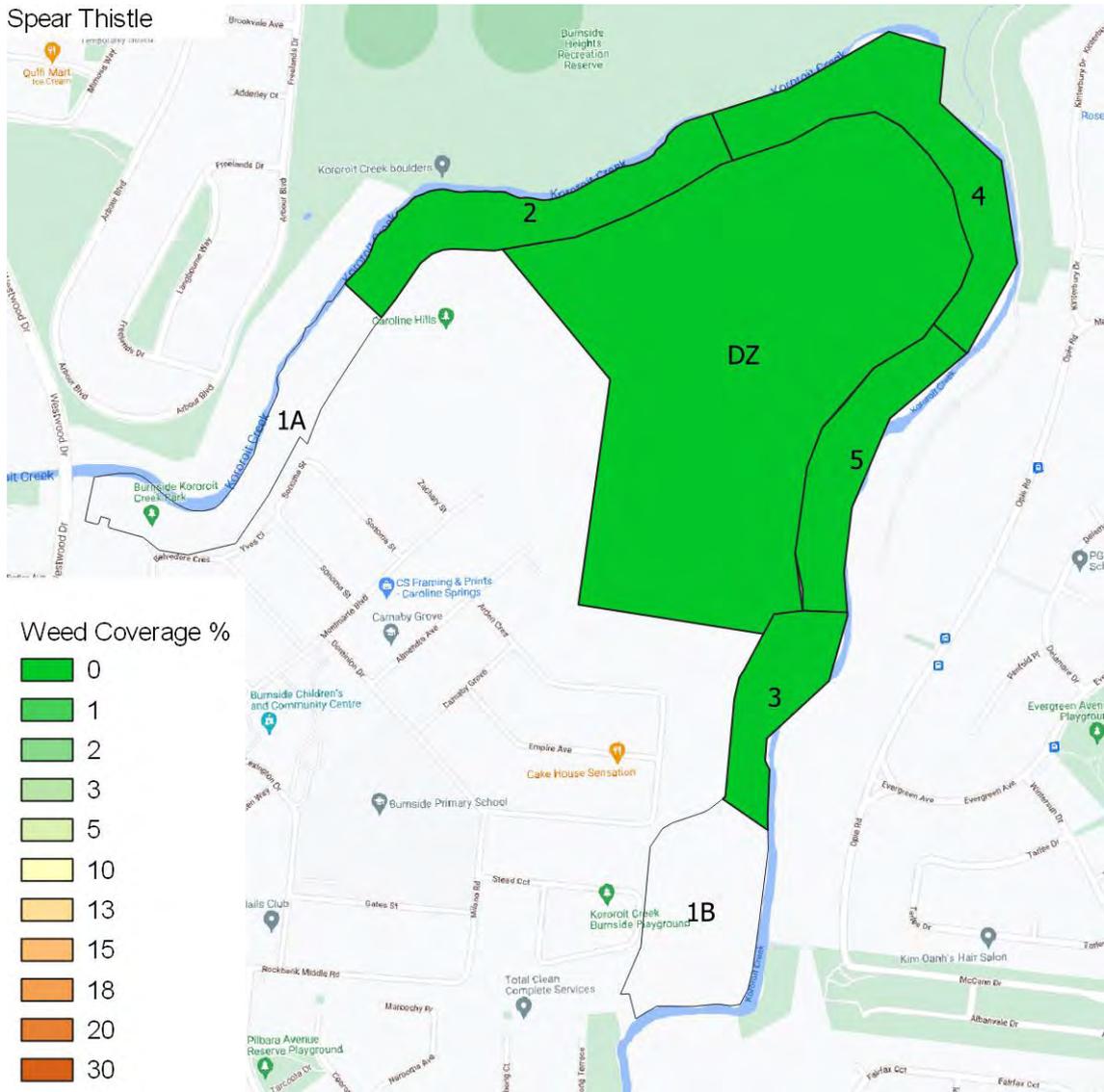
<b>MgtZone</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>DZ</b>
August 2021	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	1%
Oct 2020	1%	0%	0%	0%	1%
June 2020	1%	0%	0%	0%	1%
April 2020	1%	0%	0%	0%	1%
Dec 2019	2%	5%	1%	1%	1%
Oct 2019	2%	5%	1%	1%	1%
July 2019	2%	5%	1%	1%	2%

An annual or short-term perennial herb with erect growth to 1.5 m tall. Stems have spiny wings and are cobwebby. Upper leaf surface is dark green and rough while the lower surface is white with short matted hairs.

A common species of wet or summer-moist land, including swamps, depressions, drains, waste-land, pastures and cultivated soils. Prefers open, non-shaded environments, heavy textured soils and good fertility.



# Spear Thistle



## 4.5 Bridal Creeper - *Asparagus asparagoides*

Regionally Controlled - Weed of National Significance

Target coverage < 1%

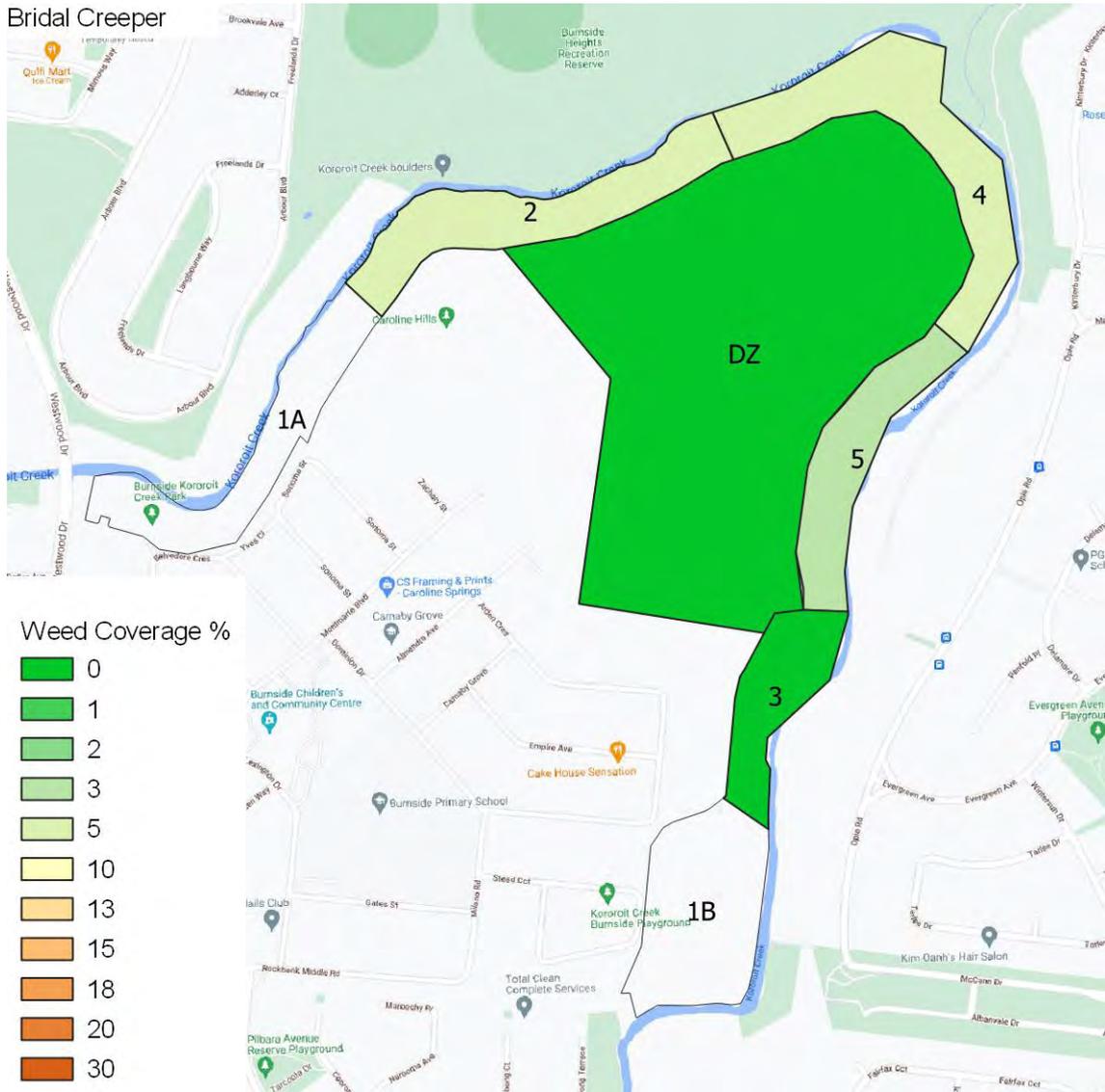
### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	5%	4%	3%	0%	0%
Apr 2021	1%	1%	1%	0%	0%
Dec 2020	0%	1%	1%	0%	0%
Oct 2020	0%	0%	1%	0%	0%
June 2020	0%	0%	1%	0%	0%
April 2020	0%	0%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	2%	1%	2%	0%

It is regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts. Bridal creeper entered the country as a garden plant and is now a major weed of bushland in southern Australia, where its climbing stems and foliage smother native plants. It forms a thick mat of underground tubers which impedes the root growth of other plants and often prevents seedling establishment. Rare native plants, such as the rice flower *Pimelea spicata*, are threatened with extinction by Bridal Creeper.



# Bridal Creeper



## 4.6 Cape weed - *Arctotheca calendula*

Not declared or considered noxious

Target coverage < 5%

### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	0%	0%	0%	0%	0%
Oct 2020	0%	1%	1%	1%	0%
June 2020	2%	2%	0%	2%	0%
April 2020	2%	2%	1%	2%	0%
Dec 2020	2%	2%	1%	2%	0%
Oct 2019	2%	2%	2%	1%	0%
July 2019	2%	2%	2%	1%	0%

This plant is widespread and common weed in pastures, lawns, cultivation and waste areas across Victoria. Typically a plant of fresh-water habitats but may occur on the fringes of saline swamps and flats during wetter periods.

It is stemless or shortly stemmed, herb, 80 cm wide and 30 cm high, with a taproot and a basal rosette of leaves. Leaves are 5-25 cm long and 2-6 cm wide.





#### 4.7 Century Plant - *Agave americana*

Not declared or considered noxious

Target coverage < 1%

##### Current Coverage

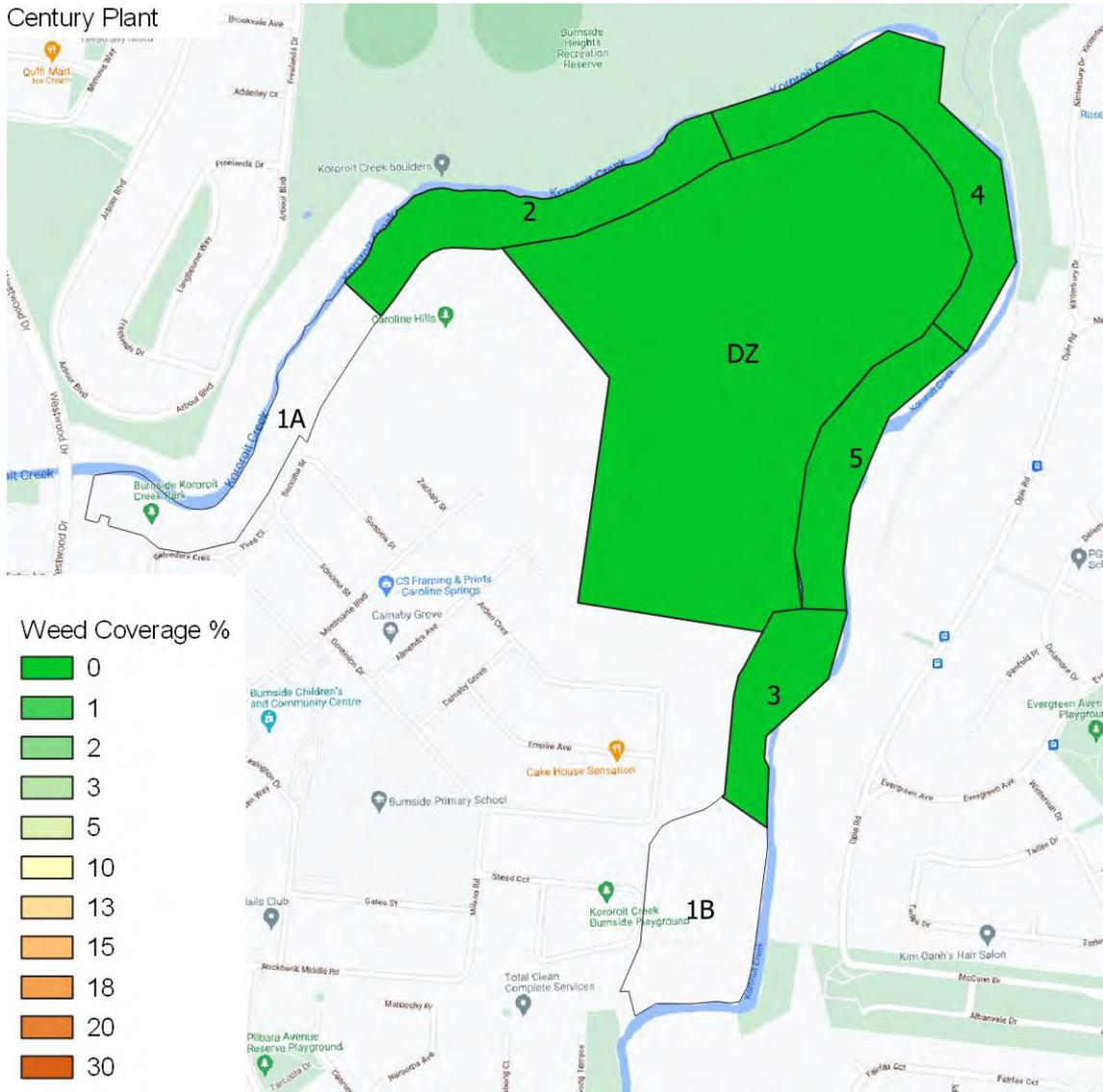
MgtZone	2	4	5	3	DZ
August 2021	0%	0%	0%	0%	0%
Apr 2021	1%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	0%
Oct 2020	1%	0%	0%	0%	0%
June 2020	1%	0%	0%	0%	0%
April 2020	1%	0%	0%	0%	0%
Dec 2019	1%	0%	0%	0%	0%
Oct 2019	1%	0%	0%	0%	0%
July 2019	1%	0%	0%	0%	0%

A very large and long-lived rosette-forming plant, growing 1-2 m high and 2-4 m across.

Older individuals may sometimes develop a short woody stem at the base of the plant and commonly produces numerous suckers which form a large clump or colony. When fully mature this plant will develop a massive flower cluster on a robust flowering stem 6-12 m tall.



# Century Plant



## 4.8 Fennel - *Foeniculum vulgare*

**Restricted Weeds noxious**

**Target coverage < 1%**

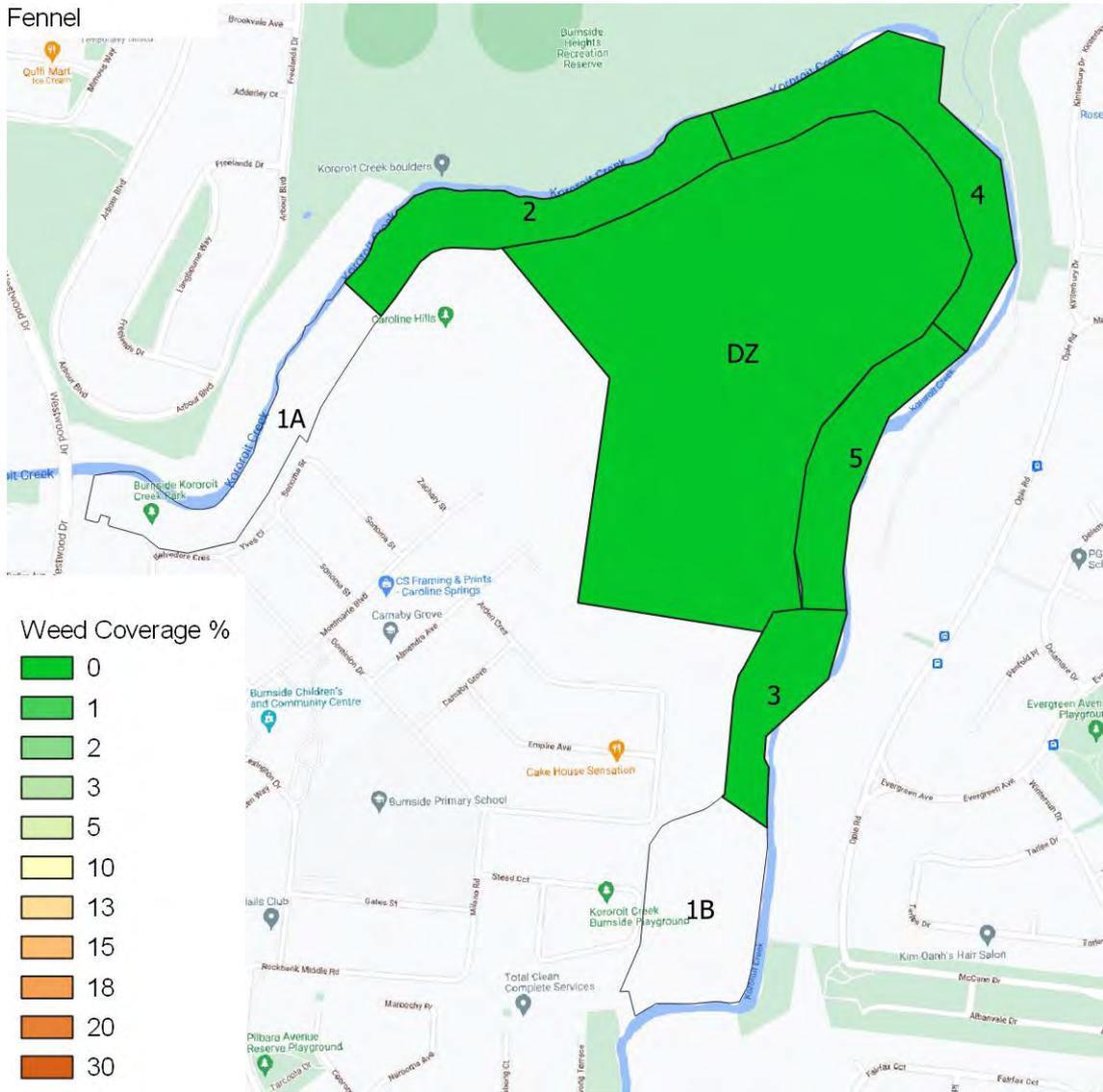
### Current Coverage

MgtZone	2	4	5	3	DZ
August	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	1%	0%
Oct 2020	0%	0%	0%	0%	0%
June 2020	0%	0%	0%	0%	0%
April 2020	0%	0%	0%	0%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	0%

An erect multi-stemmed perennial herb commonly 1.5 to 2.0 metres high. It is found along waterways, drainage lines and in seasonally moist locations within grasslands and woodlands. Dense infestations may restrict access to waterways. A soft, herbaceous plant the high growth of the plant may be a nuisance to people.



Fennel



#### 4.9 Galenia - Galenia pubescens

**Not declared or considered noxious**

**Target coverage < 5%**

##### Current Coverage

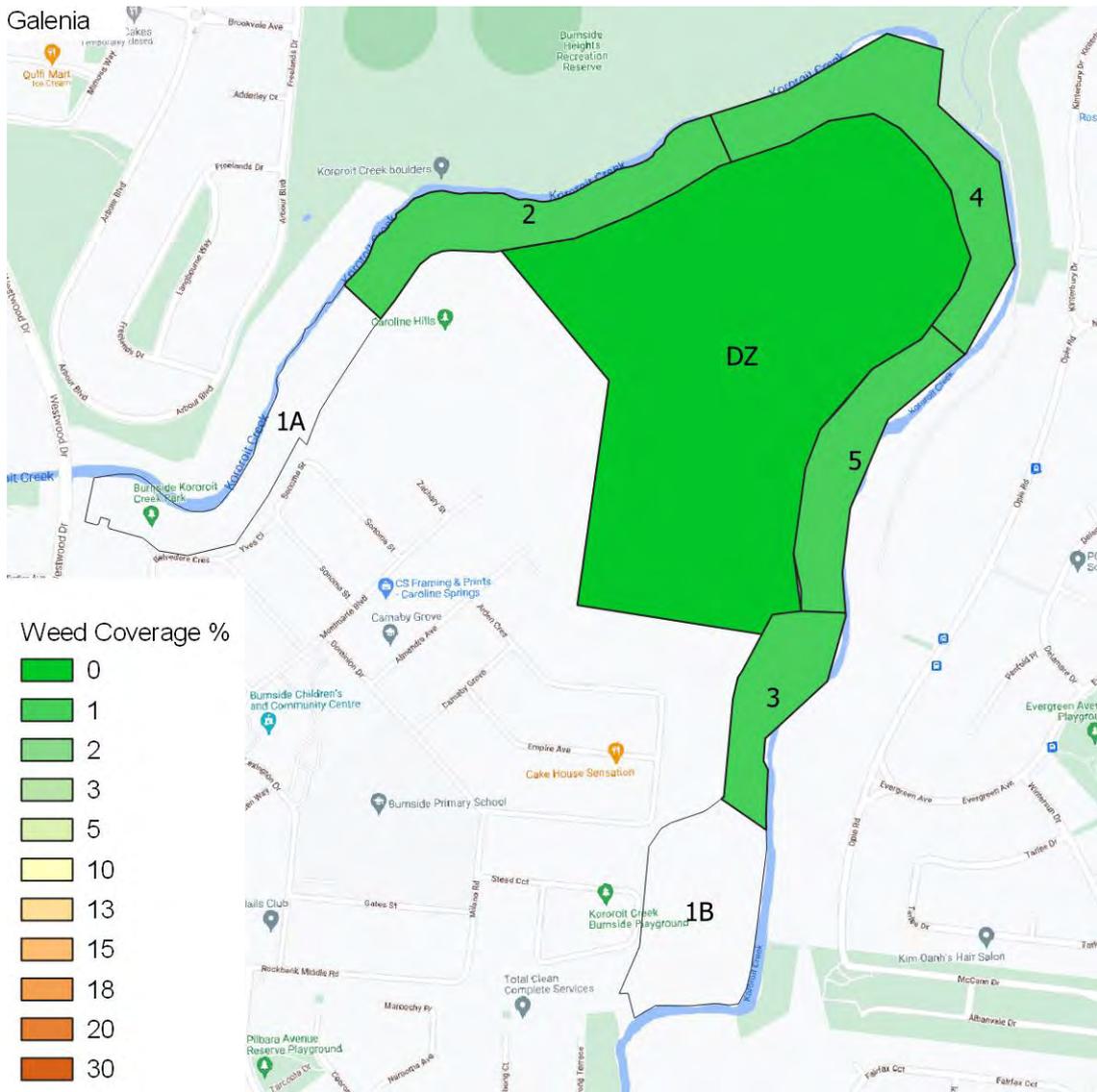
MgtZone	2	4	5	3	DZ
August 2021	1%	1%	1%	1%	0%
Apr 2021	1%	1%	1%	1%	0%
Dec 2020	1%	1%	0%	1%	0%
Oct 2020	0%	0%	0%	1%	0%
June 2020	1%	0%	1%	0%	0%
April 2020	1%	0%	0%	1%	0%
Dec 2019	2%	1%	1%	1%	1%
Oct 2019	5%	1%	1%	1%	1%
July 2019	2%	2%	2%	1%	1%

This perennial creeping, herbaceous plant growing to about 60 cm high and 1–2 m wide.

It is deep rooted and flowers from late spring to early autumn. Galenia reproduces by seed. Most dispersal of seed occurs by wind, water, birds and livestock. Movement of contaminated soil by vehicles and equipment can also contribute to its spread.

Drought and salt tolerant, galenia grows over and smothers existing vegetation by forming a thick dense mat. It invades coastal dunes, pastures, disturbed areas, lawns, roadsides and rocky outcrop vegetation. Galenia is known to produce nitrates that can be toxic to stock.





#### 4.10 Horehound - *Marrubim vulgare*

Not declared or considered noxious

Target coverage <5%

##### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	0%	1%	0%	1%	0
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	1%	1%	0%
Oct 2020	1%	0%	1%	0%	0%
June 2020	0%	1%	0%	1%	0%
April 2020	0%	1%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	1%

A bushy perennial plant, 30 to 80 cm high, sharply aromatic when crushed, covered with dense whitish hairs. Horehound thrives on poor soil and in waste places. It invades poor pastures which provide little competition. Horehound contains a bitter alkaloid which makes it unpalatable for grazing livestock. As well as being an agricultural weed of pastures horehound has become an important environmental weed because of its ability to invade disturbed native vegetation





## 4.11 Paterson's Curse - *Echium plantagineum*

Regionally controlled

Target coverage < 5%

### Current Coverage

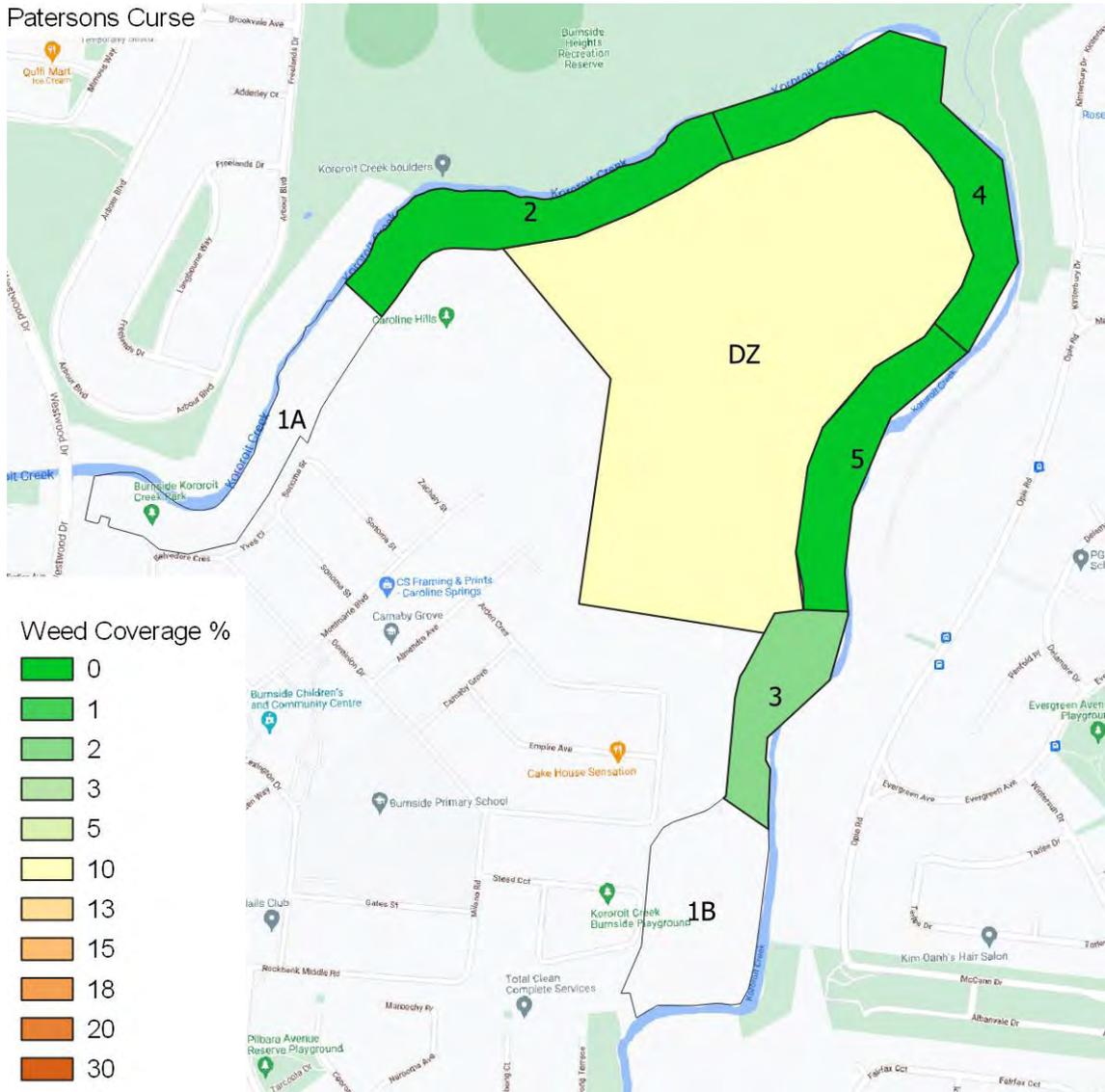
MgtZone	2	4	5	3	DZ
August 2021	0%	0%	0%	2%	10%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	1%	1%	1%	2%
Oct 2020	2%	1%	1%	2%	2%
June 2020	2%	2%	5%	5%	5%
April 2020	5%	10%	5%	5%	10%
Dec 2019	5%	1%	2%	2%	2%
Oct 2019	5%	2%	2%	1%	2%
July 2019	5%	2%	2%	1%	1%

Paterson's curse is an annual, occasionally biennial, herb that grows as a rosette in autumn and winter and produces flowering stalks in spring and early summer. The rosette usually grows parallel to the ground, however the leaves may be erect in dense vegetation.

Plants begin to produce flowering stalks in late winter, commence flowering in early spring and die in summer. The flowers are usually purple but may be blue or pink. The first mature seeds are produced four to six weeks after flowering commences.



Patersons Curse



## 4.12 Prickly Pear - *Opuntia* spp.

Regionally controlled

Target coverage <5%

### Current Coverage

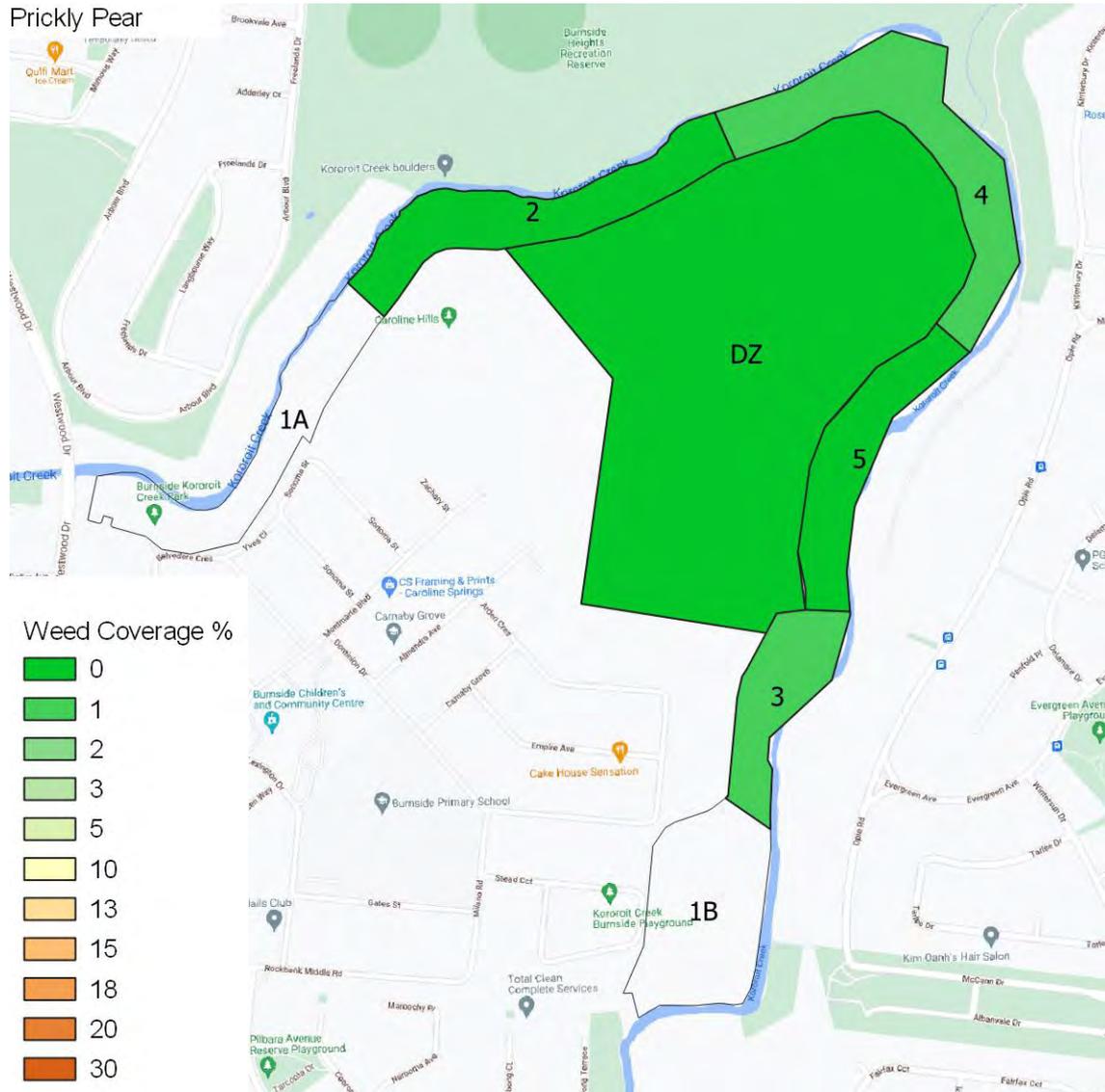
MgtZone	2	4	5	3	DZ
August 2021	0%	1%	0%	1%	0%
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	0%	1%	0%
Oct 2020	0%	1%	0%	1%	0%
June 2020	0%	1%	0%	0%	0%
April 2020	0%	1%	0%	1%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	1%	1%	2%	2%	1%

Prickly pear is an erect succulent shrub which can grow to a height of 5 m. The stems of prickly pear are commonly grey-green to light green. The plant usually has one main woody stem with dense prickles, which gives way to a number of side branches made up of fleshy segments. The segments are approximately 45 cm long, 15 cm wide and 1-2 cm thick, with the upper segments appearing to droop.



Each plant segment has areoles, which are growing points where new segments, flowers or roots can be produced. Each areole has short tufts of finely barbed bristles and sometimes one to five sharp, 5 cm long spines. Spines are more common on segments that are older and lower on the plant.

# Prickly Pear



#### 4.13 Sweet Briar - *Rosa rubiginosa*

Regionally Controlled

Target coverage <1%

##### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	1%	1%	1%	1%	1%
Apr 2021	1%	1%	1%	1%	1%
Dec 2020	1%	1%	0%	0%	0%
Oct 2020	1%	1%	0%	0%	0%
June 2020	1%	1%	1%	0%	0%
April 2020	1%	1%	0%	1%	0%
Dec 2019	1%	1%	0%	1%	0%
Oct 2019	1%	1%	1%	1%	0%
July 2019	1%	1%	1%	1%	1%

Sweet briar is a perennial woody shrub up to 3m tall. The stem is usually many (and can be up to several hundred) stems arising from the rootstock; erect or scrambling, up to 3 metres high, green and smooth to brown and somewhat roughened, woody, branched, spreading and sometimes trailing, heavily covered with down-curved prickles up to 1.5 cm long.





#### 4. 14 Chilean Needle Grass - *Nassella neesiana*

Regional restricted

Target coverage < 5%

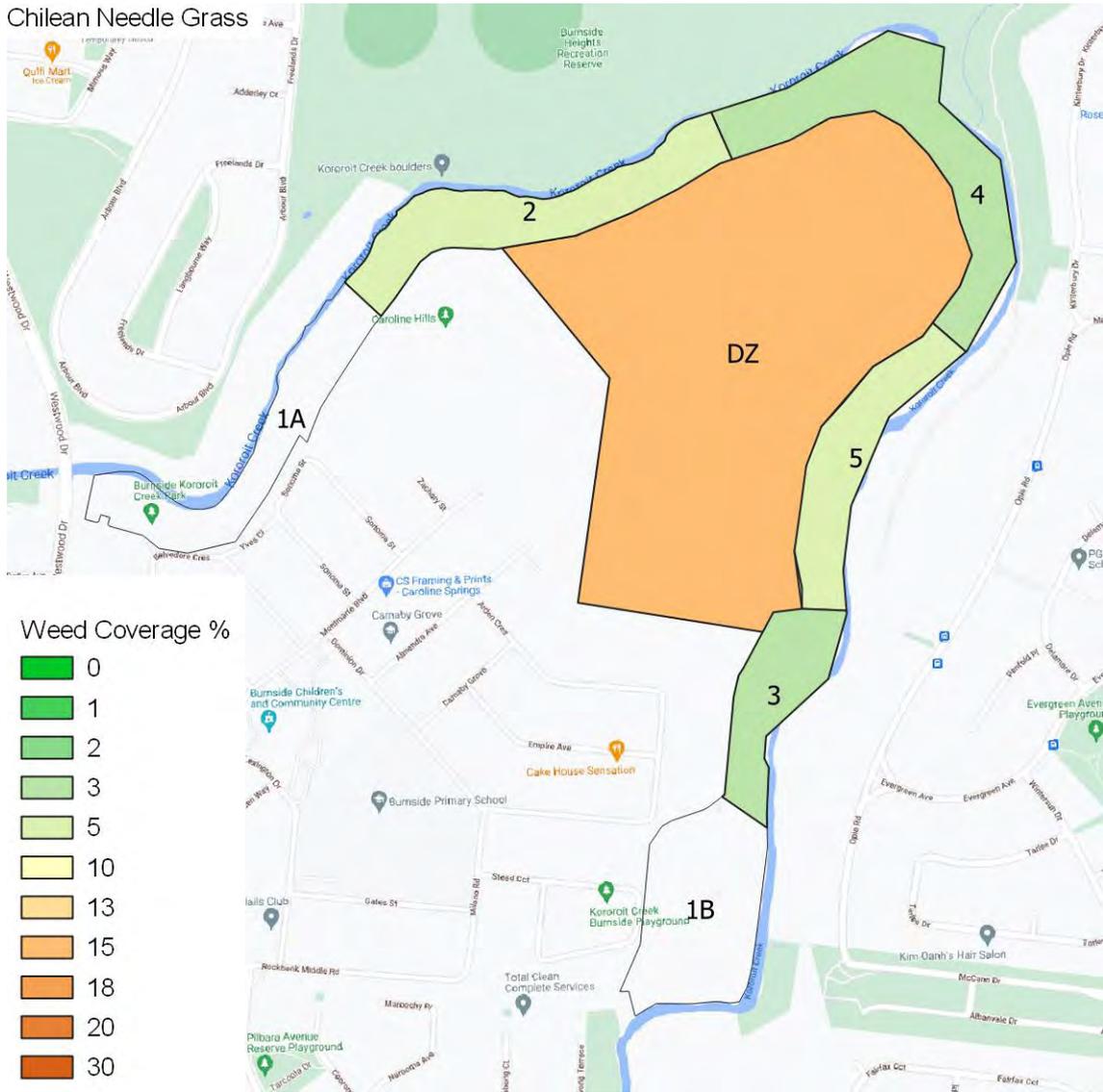
##### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	5%	3%	5%	5%	15%
Apr 2021	2%	2%	5%	5%	2%
Dec 2020	0%	0%	2%	2%	2%
Oct 2020	0%	0%	2%	5%	2%
June 2020	0%	0%	2%	1%	2%
April 2020	0%	0%	1%	5%	2%
Dec 2019	0%	0%	1%	5%	2%
Oct 2019	0%	0%	1%	2%	5%
July 2019	1%	1%	1%	5%	10%

Chilean needle grass is a tussocky perennial in the Speargrass group of grasses growing to about 1 m high. It leaves are hairless and are normally grow to 30 cm long and 5 mm wide. With the flowering head being to 40 cm long.



Chilean Needle Grass



#### 4.15 Toowoomba canary grass - *Phalaris aquatica*

Not declared and considered noxious

Target coverage < 5%

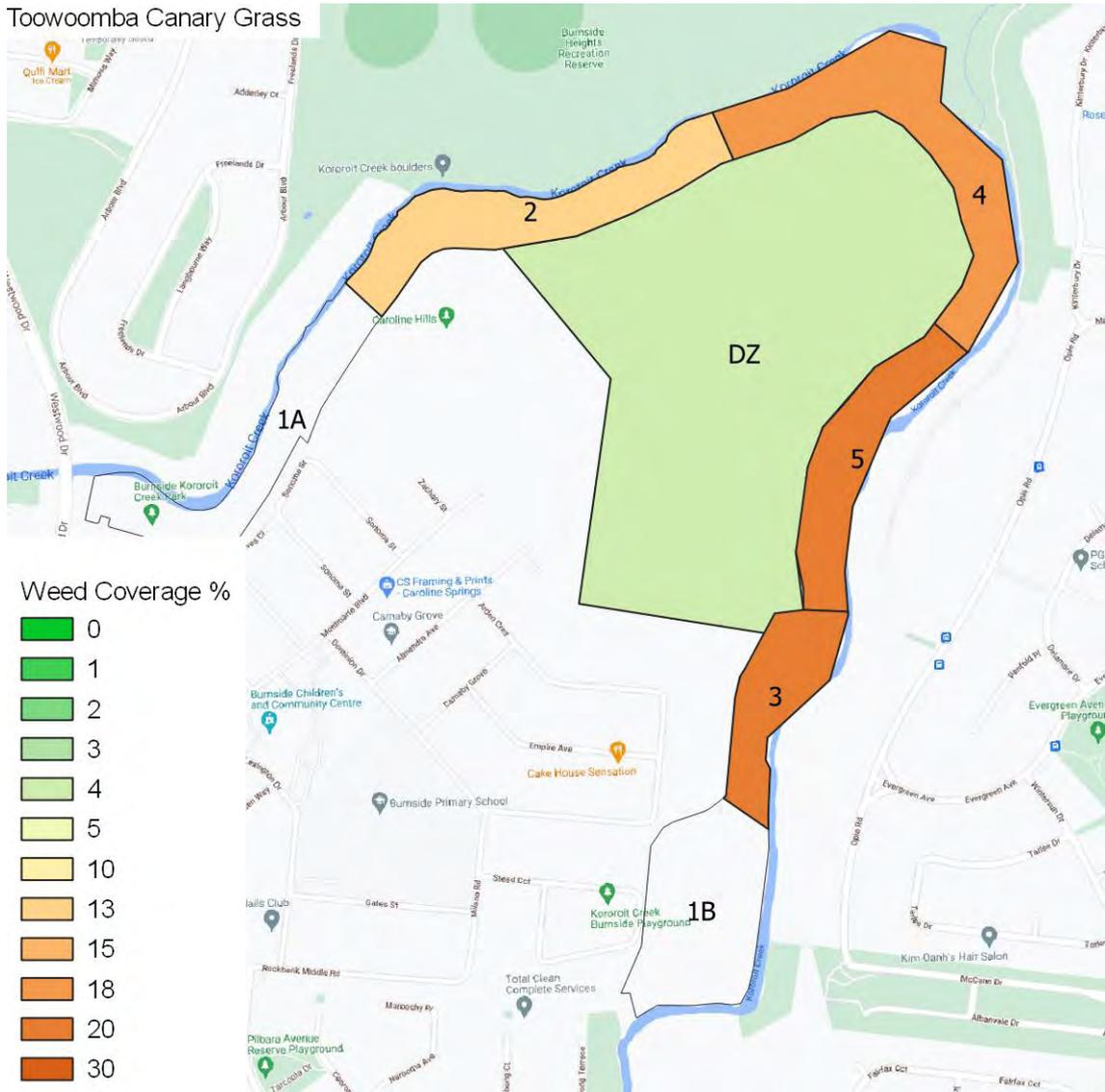
##### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	13%	18%	20%	20%	4%
Apr 2021	5%	5%	5%	5%	2%
Dec 2020	2%	2%	2%	2%	0%
Oct 2020	5%	5%	5%	5%	0%
June 2020	2%	2%	2%	2%	0%
April 2020	2%	2%	2%	2%	0%
Dec 2019	1%	2%	5%	5%	5%
Oct 2019	1%	2%	5%	5%	5%
July 2019	1%	5%	15%	20%	20%

Widely used as a pasture species where annual rainfall exceeds 450 mm. It prefers fertile, seasonally moist sites. Commonly spreads from pastures, road verges and drainage ditches to adjacent indigenous vegetation. Toowoomba canary grass invades dry coastal vegetation, heathland and heathy woodland, lowland grassland and grassy woodland, dry sclerophyll forest and woodland, damp sclerophyll forest, riparian vegetation and freshwater wetlands.



# Toowoomba Canary Grass



#### 4.16 Serrated Tussock - *Nassella trichotoma*

Regionally Controlled - *Weed of National Significance*

Target coverage < 5%

##### Current Coverage

MgtZone	2	4	5	3	DZ
August 2021	5%	15%	5%	10%	13%
Apr 2021	5%	5%	5%	5%	10%
Dec 2020	2%	2%	2%	2%	2%
Oct 2020	5%	5%	5%	2%	5%
June 2020	5%	5%	5%	2%	5%
April 2020	5%	5%	5%	2%	5%
Dec 2019	5%	5%	5%	5%	10%
Oct 2019	5%	5%	0%	5%	5%
July 2019	10%	20%	5%	20%	15%

Serrated tussock is a long lived perennial grass growing up to 60cm in height with a base of 25cm in diameter. Plant size varies with soil fertility and location. In infertile conditions plants may only reach a height of 15cm. Serrated tussock is shallow rooted with an extensive network of fibrous roots occurring predominantly in the top 20cm of soil. The roots are dense, wiry and fibrous making serrated tussock very difficult to pull out, even when small. Flowering stems emerge from the base of the plant. They are multi-branched



and up to 35cm long. The purple colour of the small seeds produces an overall purplish haze to the serrated tussock seed head. Once the seeds have formed, the entire seed head will 'droop' over the tussock towards the ground. Flowering takes place as early as late winter (August) and will continue throughout the spring (September – November). Autumn flowering has been known to occur. Seeds take 8 – 10 weeks to mature, normally occurring throughout the spring and summer months. Once seeds are ripe, the whole flowering stem detaches from the base of the plant and is dispersed by the wind. Seed is dormant and will not germinate for about 6 months.



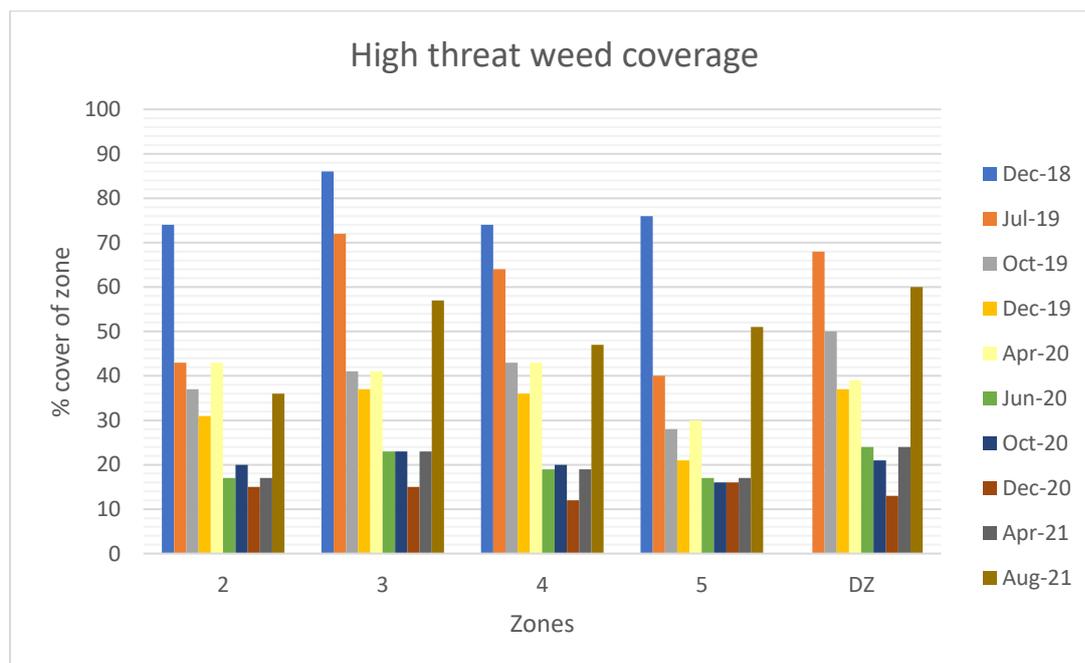
## 6.0 Summary

### 6.1 Overview

The below table displays the total percentage coverage in each zone of high threat weeds. As previously noted in the last report there has been an overall increase in the total weeds across the site. This has been driven by the increase in grass weeds overall, as they fill the niche left by a previously treated weed species. Such occurrences are common across grassland environments as much larger woody weeds are removed opening up available space for the highly invasive grass species. As the focus shifts from the active control of the woody weed species to the grass species this should decrease, although there may be a natural fluctuation in some of the grass species when viewed on a quarterly basis.

The increased number of some of the more herbaceous species, in particular the Artichoke Thistle (*Cynara sp.*), were also responsible in driving the overall percentage cover up during this survey period. It is worth noting that of those Artichoke Thistles observed more than 75% were displaying signs of die back from herbicide treatment.

Approximately 50% of the development zone is now under construction. The area is fenced off and all vegetation has been removed or is in the process of being removed.



### 6.2 Zone 2

The zone continues to be dominated by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of erosion.

The native vegetation areas within this zone are surrounded by and interspersed with Serrated Tussock and Artichoke Thistle. These exotic plants have been controlled, but weed pressures are on

all sides will be an ongoing management issue. Knapsacks were used to keep the weeds under control in this area.

As previously noted, all woody weeds have been controlled, with a limited number of specimens counted across the site. One cluster of Century Plants still surviving and showing no signs of ill health, this shall be treated in the coming months. Also, three large surviving boxthorns need to be re-treated.

### 6.3 Zone 4

As with above zone this zone continues to be dominated by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

All woody weeds had been controlled, with a limited number of specimens counted across the site.

### 6.4 Zone 5

This too continues to be heavily dominated by the by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

All woody weeds have been controlled, with a limited number of specimens counted across the site.

### 6.5 Zone 3

This too continues to be heavily dominated by the by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

### 6.7 Development zone

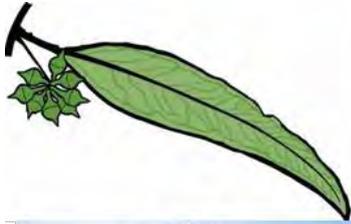
This area varies significantly, with patches dominated by Themeda and others dominated by Serrated Tussock. Weed loads in this zone have increased since the last visit, however as previously noted the majority of the Artichoke Thistle data captured was for individuals that had been treated and were slowly dyeing back, as such this would be expected to level back out during the next survey. Serrated Tussock & Artichoke Thistles are the leading high threat weeds that need to be controlled.

## 7.0 Conclusion

A low prevalence of herbaceous high threat weeds (Spear Thistle, Fennel, Cape weed or Paterson's Curse) has led to more space for other high weeds and other colonizing species to grow. This is shown in the data with a significant increase in the coverage of all high threat weedy grasses. Many *Phalaris aquatica* plants along the creekline have remained untreated for the last several visits. They have been left to reduce the risk of erosion concerns. Rather than a widespread herbicide treatment, future slashing regimes, interspersed with selective treatments were individuals and or small stands are in close proximity to higher vegetation values may be a better path moving forward. This shall be incorporated into the future treatment regime.

# Weed Survey Report

## Modeina Estate - Phase 2 -



**AUSTRALIAN ECOSYSTEMS**  
*Building sustainable landscapes for the future*



Landscape Construction • Nursery • Revegetation • Maintenance • Consultancy

October 2021

Submitted by Geraint Forbes

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## 1.0 Introduction

Australian Ecosystems (AE) has prepared this report for Dennis Family Corporation (Project Management) Pty Ltd. This report details the results of weed surveys conducted in July/August 2021 within the area described as 'Stage 2 Modeina'. This report should be read in conjunction with, 'Modeina Weed Management Strategy' that Greening Australia prepared in 2017.

## 2.0 Weeds Surveyed

This survey has captured these weed species listed below:

- African Boxthorn (*Lycium ferocissimum*)
- Artichoke Thistle (*Cynara cardunculus*)
- Spear Thistle (*Cirsium vulgare*)
- Bridal Creeper (*Asparagus asparagodies*)
- Cape weed (*Arctotheca calendula*)
- Century Plant (*Agave Americana*)
- Fennel (*Foeniculum vulgare*)
- Galenia (*Galenia pubescens*)
- Horehound (*Marrubim vulgare*)
- Paterson's Curse (*Echium plantagineum*)
- Prickly Pear (*Opuntia spp.*)
- Sweet Briar (*Rosa rubiginosa*)
- Chilean Needle Grass (*Nassella neesiana*)
- Toowoomba canary grass (*Phalaris aquatica*)
- Serrated Tussock (*Nassella trichotoma*)

Determined by:

The weeds detailed within this report have been taken from the Modeina Weed Management Strategy that Greening Australia prepared in 2017. Only species that are widespread and/or have a high level of risk have been chosen to be controlled within these areas.

## 3.0 Survey Methodology

The above-mentioned species were surveyed using the Random Quadrant Sampling Method. Within each zone, four quadrants 5-meter X 5-meter were used to measure the current number of weed species present and then converted to a percentage cover. The results from these quadrants were then extrapolated to obtain a percentage cover across each of the zones. The results of these surveys are displayed over the following pages of the report.

### 3.1 Woody weeds

For this survey woody weeds are classified as African Boxthorn (*Lycium ferocissimum*), Century Plant (*Agave Americana*), Fennel (*Foeniculum vulgare*), Prickly Pear (*Opuntia spp.*) and Sweet Briar (*Rosa rubiginosa*).

All species had an extremely low abundance across all zones, hence these species were individually counted, each individual was given a percentage cover value of 2%, to allow for the maximum projected canopy that they can reach once mature. It should be noted that those observed were generally still in their juvenile stage, with a projected canopy cover much less than 2% of 25m<sup>2</sup>.

### 3.2 Herbs and Grass weeds

Herb and grass weeds are present across all zone. These weeds include Artichoke Thistle (*Cynara cardunculus*), Scotch Thistle (*Onopordum acanthium*), Spear Thistle (*Cirsium vulgare*), Bridal Creeper (*Asparagus asparagodies*), Cape weed (*Arctotheca calendula*), Galenia (*Galenia pubescens*), Horehound (*Marrubim vulgare*), Paterson's Curse (*Echium plantagineum*), Chilean Needle Grass (*Nassella neesiana*), Toowoomba canary grass (*Phalaris aquatica*) and Serrated Tussock (*Nassella trichotoma*)

### 3.3 Changes

Civil construction has continued with in the development zone. As previously mentioned, this has reduced the area surveyed by approximately 50%. These planned work does not affect the survey result of this or any previous survey.

## 4.0 Details of Surveyed Weeds

### 4.1 African Boxthorn - *Lycium ferocissimum*

Regionally Controlled & Weed of National Significance

Target coverage <1%

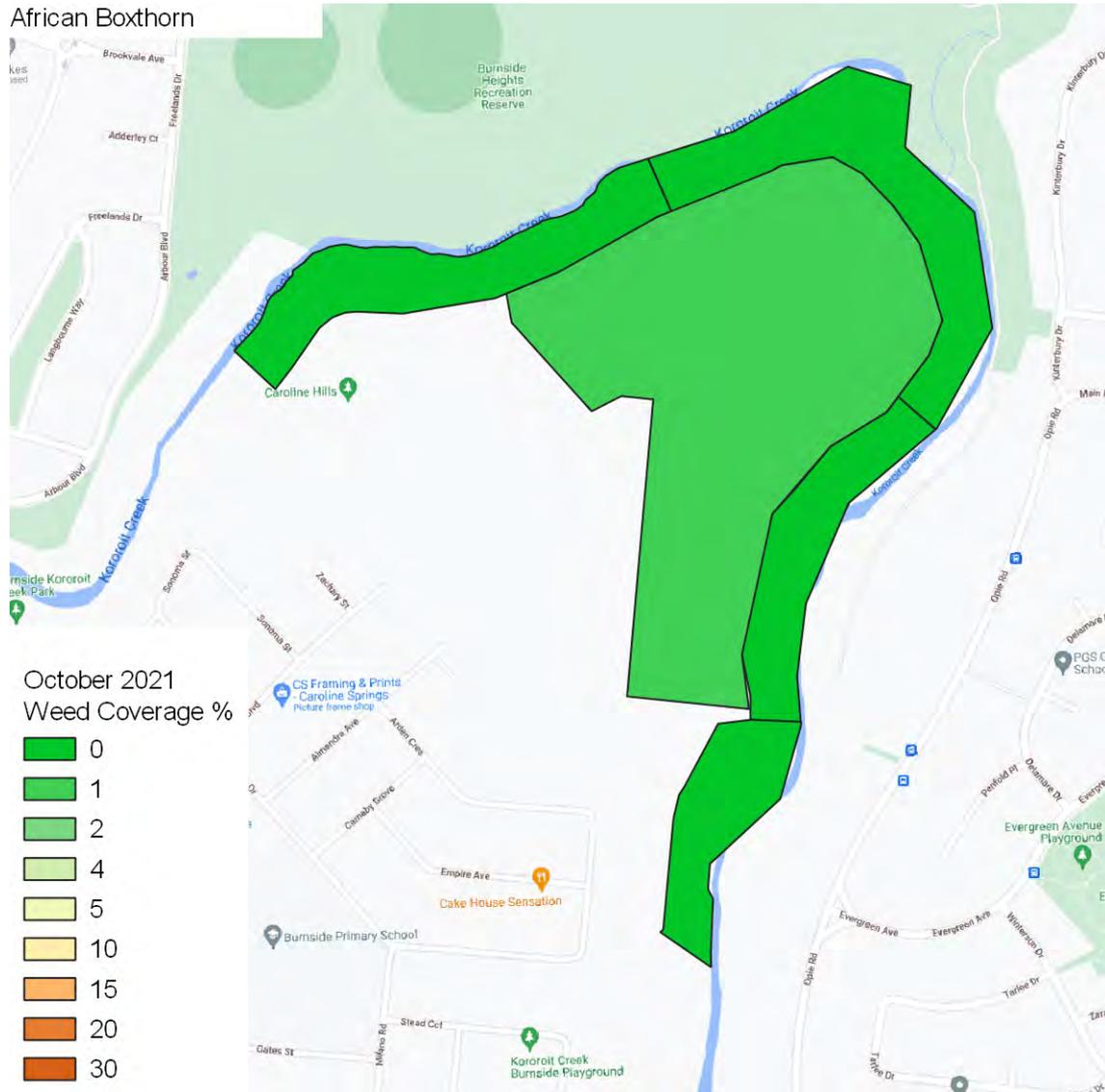
#### Current coverage

Mgt Zone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	1%
August 2021	1%	1%	1%	1%	2%
April 2021	1%	1%	1%	1%	1%
Dec 2020	0%	1%	1%	0%	1%
Oct 2020	0%	1%	1%	0%	1%
June 2020	0%	1%	1%	0%	1%
April 2020	0%	1%	1%	0%	1%
Dec 2019	0%	1%	1%	0%	1%
Oct 2019	0%	1%	1%	0%	1%
July 2019	1%	1%	1%	1%	1%

African boxthorn is a rounded, woody, densely branched and very thorny large shrub up to 5 metres high. African boxthorn reproduces exclusively by seed which is commonly eaten by birds, seed is viable when excreted. These plants are often found near places where birds have perched such as trees, poles and powerlines. It was widely planted as a hedge plant before its weedy potential was realised. Spread also occurs from contaminated produce and materials. African boxthorn is a fast-growing invasive species that, if untreated, spreads quickly. Seeds may germinate year-round and early root growth is rapid, ensuring young plants are competitive. Plants take at least two years to flower, producing flowers and fruit mostly in summer. Some flowering and fruit production occurs at other times of year. Sometimes deciduous in winter, with new leaves and active growth in spring. Broken roots and cut stumps can sprout regrowth.



# African Boxthorn



## 4.2 Artichoke Thistle - *Cynara cardunculus*

Regionally Controlled

Target coverage < 5%

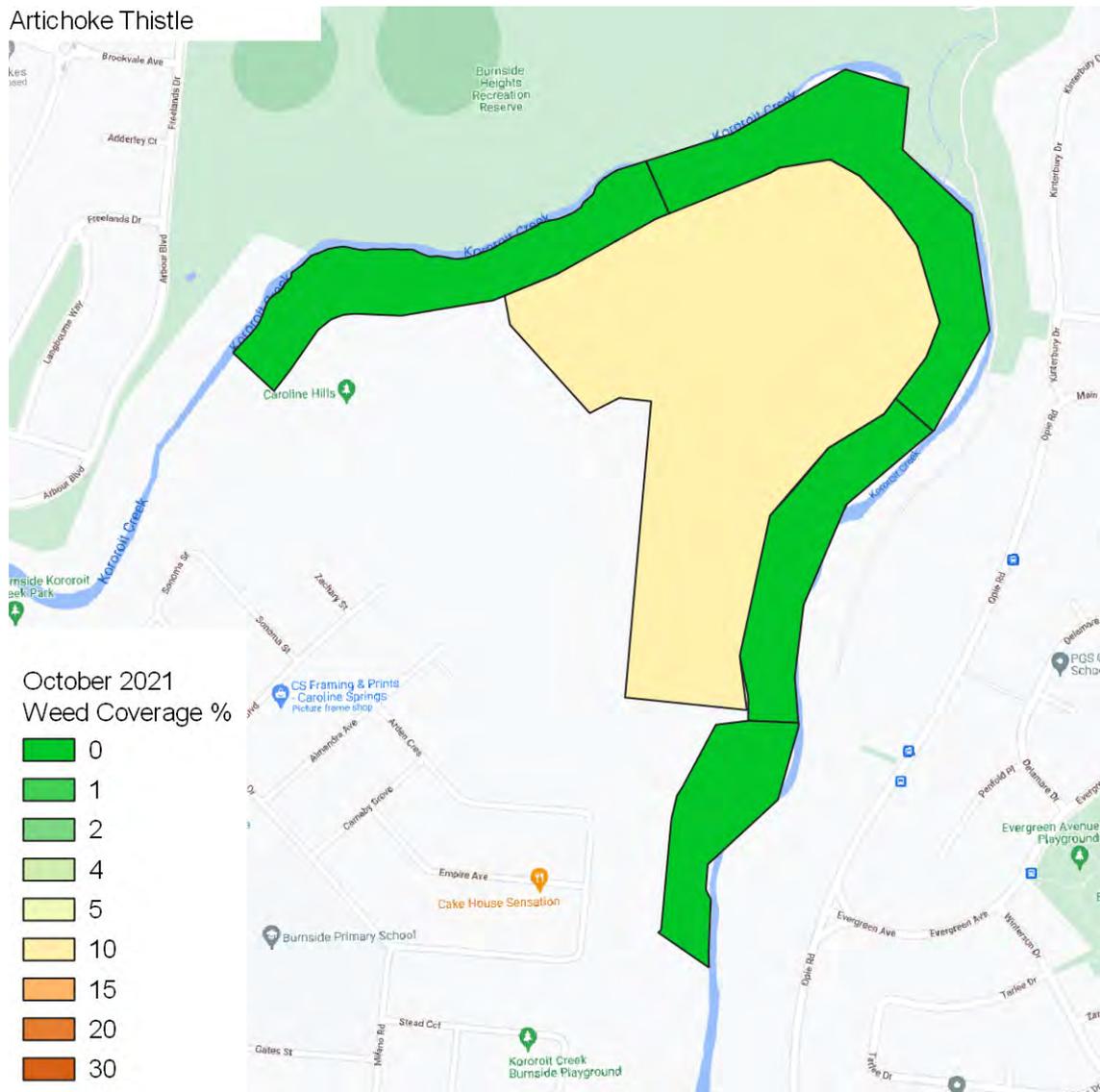
### Current coverage

Mgt Zone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	10%
August 2021	5%	2%	15%	15%	10%
Apr 2021	15%	2%	2%	2%	5%
Dec 2020	5%	2%	5%	2%	5%
Oct 2020	5%	5%	2%	2%	10%
June 2020	2%	10%	5%	5%	10%
April 2020	25%	20%	15%	20%	20%
Dec 2019	10%	15%	15%	5%	15%
Oct 2019	15%	20%	10%	10%	25%
July 2019	15%	20%	5%	15%	15%

A perennial or biennial spiny thistle with annual tops and a cluster of large bright purple flowers that are 5-8 cm in diameter during summer. The mature plant is erect, with stems 1- 2 m tall arising from a bushy rosette up to 2 m wide and tall. The stem is strongly ribbed and covered with downy grey hairs and usually single at the base and branched towards the top. The large, grey green leaves are deeply lobed and spiny with woolly hairs underneath.



# Artichoke Thistle



#### 4.4 Spear Thistle - *Cirsium vulgare*

##### Regionally Controlled Weeds

Target coverage <5%

##### Current coverage

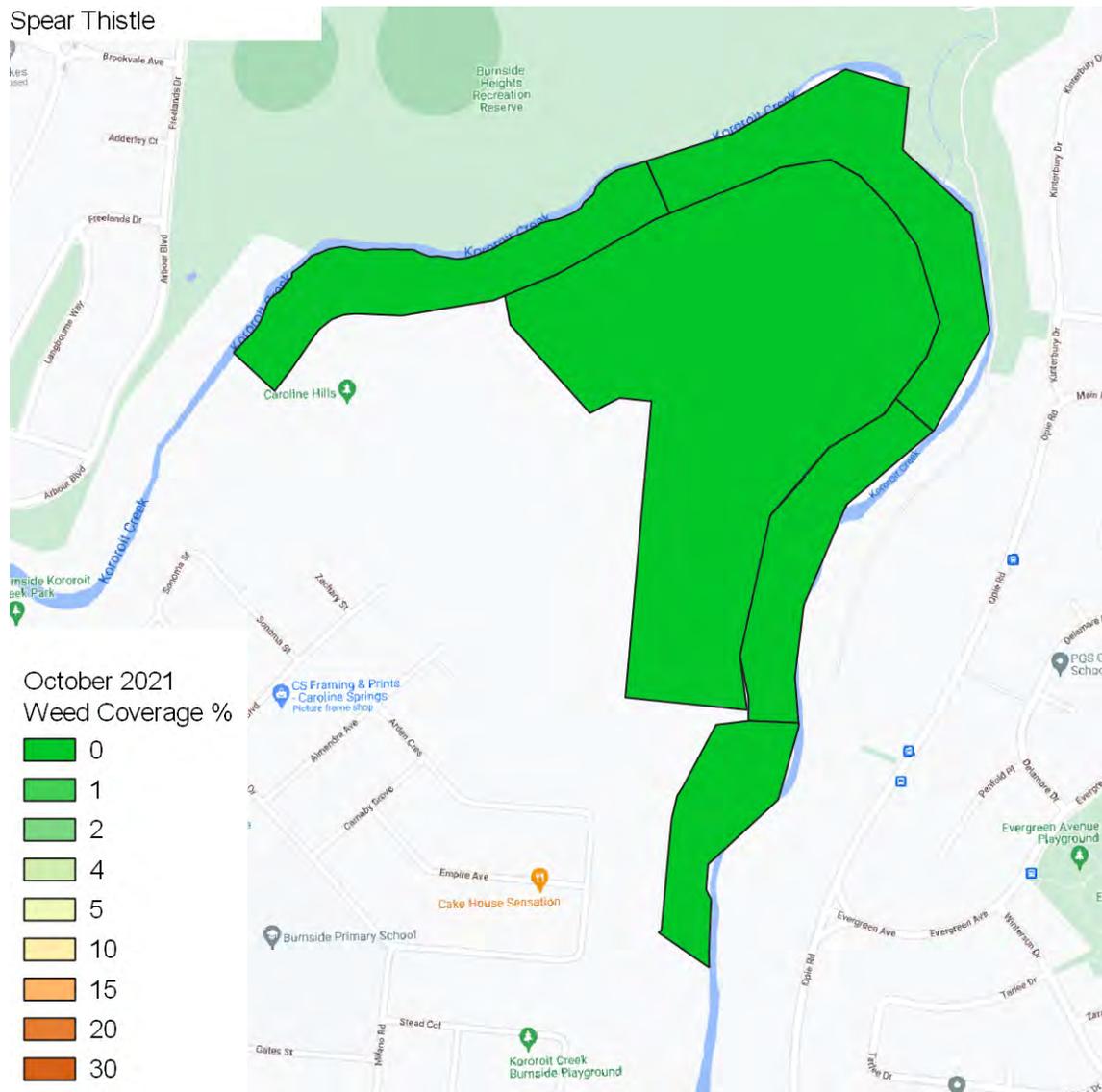
Mgt Zone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	0%
August 2021	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	1%
Oct 2020	1%	0%	0%	0%	1%
June 2020	1%	0%	0%	0%	1%
April 2020	1%	0%	0%	0%	1%
Dec 2019	2%	5%	1%	1%	1%
Oct 2019	2%	5%	1%	1%	1%
July 2019	2%	5%	1%	1%	2%

An annual or short-term perennial herb with erect growth to 1.5 m tall. Stems have spiny wings and are cobwebby. Upper leaf surface is dark green and rough while the lower surface is white with short matted hairs.

A common species of wet or summer-moist land, including swamps, depressions, drains, waste-land, pastures and cultivated soils. Prefers open, non-shaded environments, heavy textured soils and good fertility.



# Spear Thistle



## 4.5 Bridal Creeper - *Asparagus asparagoides*

Regionally Controlled - Weed of National Significance

Target coverage < 1%

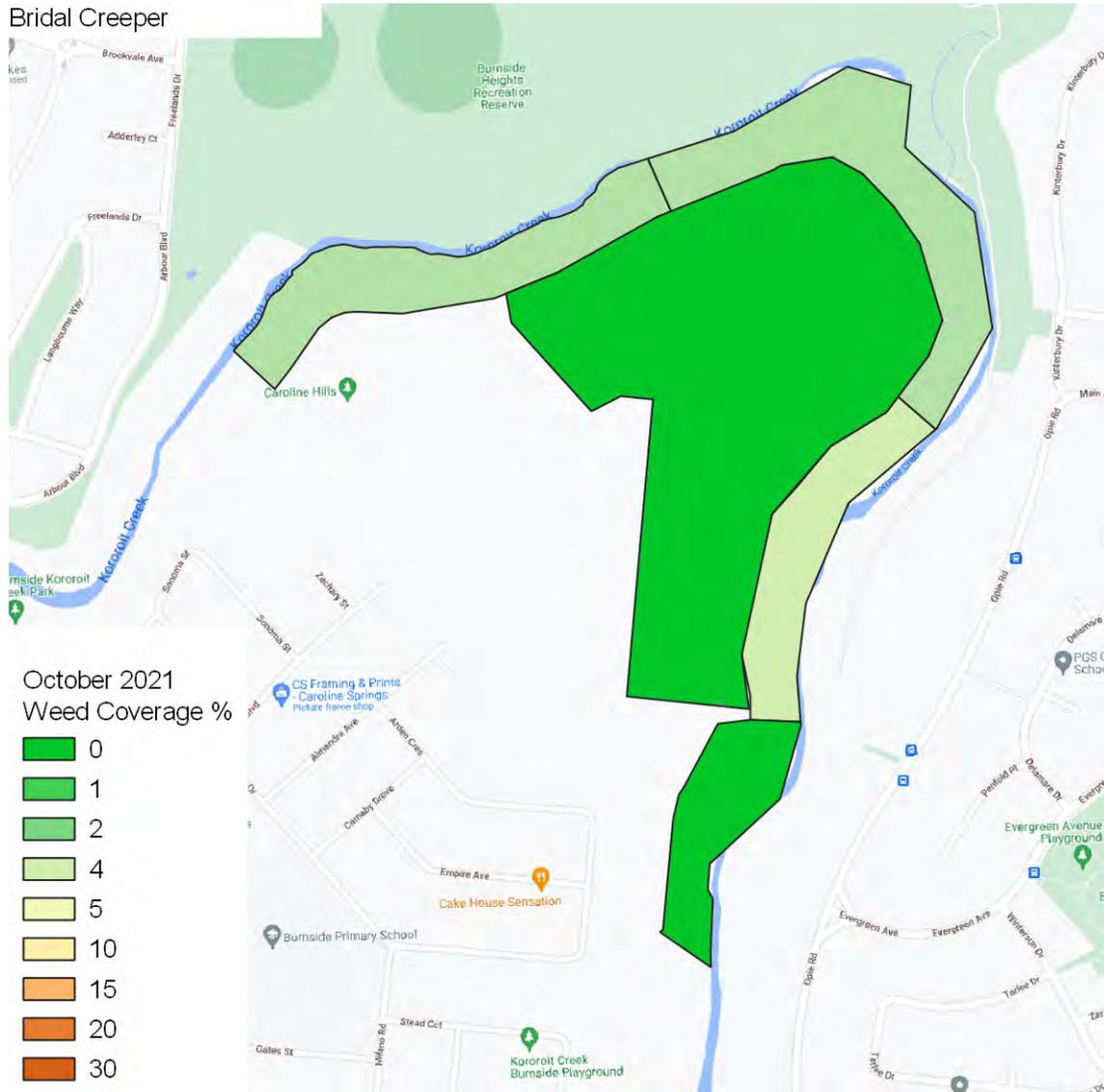
### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	3%	3%	2%	0%	0%
August 2021	5%	4%	3%	0%	0%
Apr 2021	1%	1%	1%	0%	0%
Dec 2020	0%	1%	1%	0%	0%
Oct 2020	0%	0%	1%	0%	0%
June 2020	0%	0%	1%	0%	0%
April 2020	0%	0%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	2%	1%	2%	0%

It is regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts. Bridal creeper entered the country as a garden plant and is now a major weed of bushland in southern Australia, where its climbing stems and foliage smother native plants. It forms a thick mat of underground tubers which impedes the root growth of other plants and often prevents seedling establishment. Rare native plants, such as the rice flower *Pimelea spinescens*, are threatened with extinction by Bridal Creeper.



# Bridal Creeper



## 4.6 Cape weed - *Arctotheca calendula*

Not declared or considered noxious

Target coverage < 5%

### Current Coverage

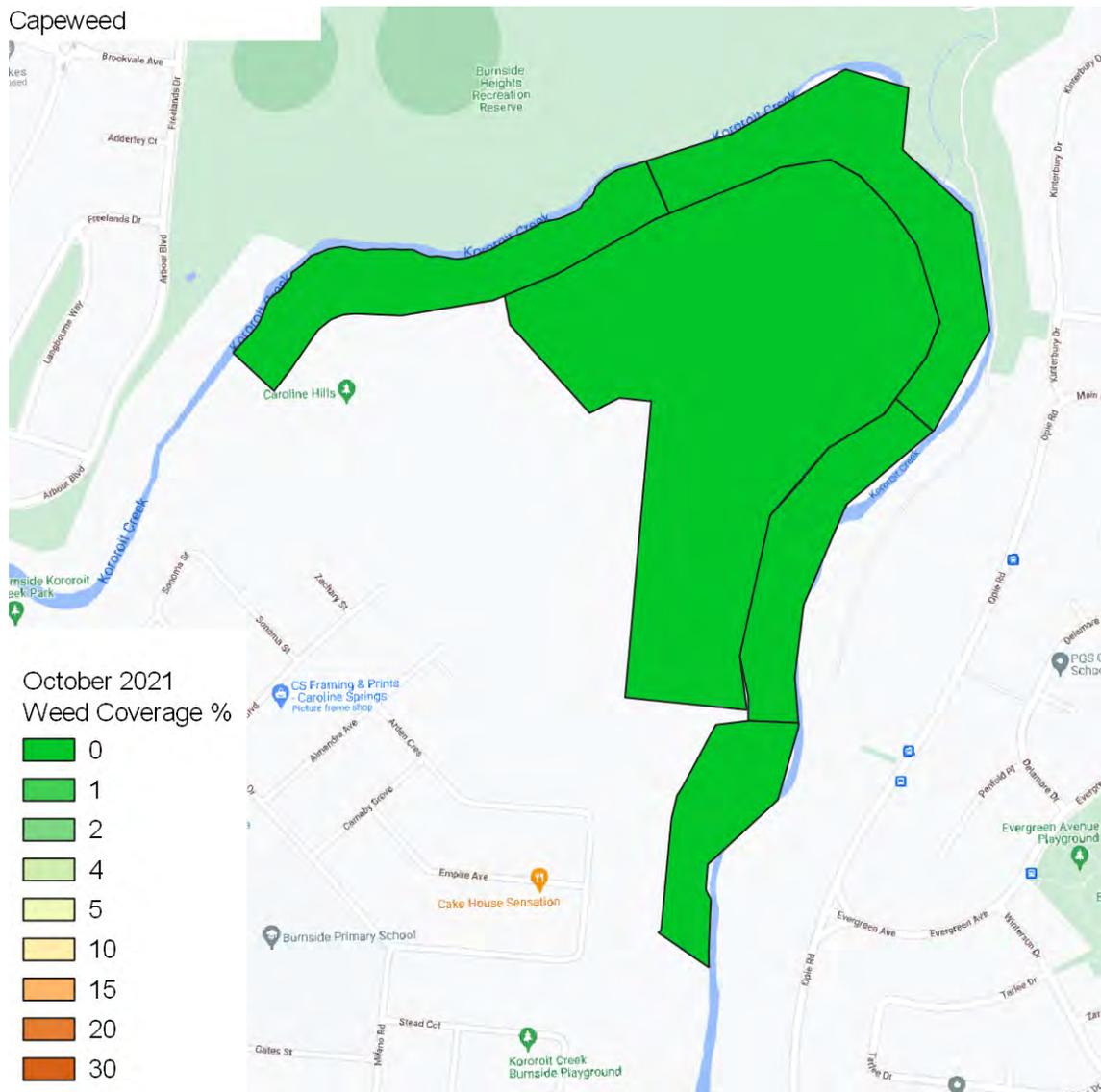
Mgt Zone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	0%
August 2021	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	0%	0%	0%	0%	0%
Oct 2020	0%	1%	1%	1%	0%
June 2020	2%	2%	0%	2%	0%
April 2020	2%	2%	1%	2%	0%
Dec 2020	2%	2%	1%	2%	0%
Oct 2019	2%	2%	2%	1%	0%
July 2019	2%	2%	2%	1%	0%

This plant is widespread and common weed in pastures, lawns, cultivation and waste areas across Victoria. Typically, a plant of fresh-water habitats but may occur on the fringes of saline swamps and flats during wetter periods.

It is stemless or shortly stemmed, herb, 80 cm wide and 30 cm high, with a taproot and a basal rosette of leaves. Leaves are 5-25 cm long and 2-6 cm wide.



# Capeweed



## 4.7 Century Plant - *Agave americana*

Not declared or considered noxious

Target coverage < 1%

### Current Coverage

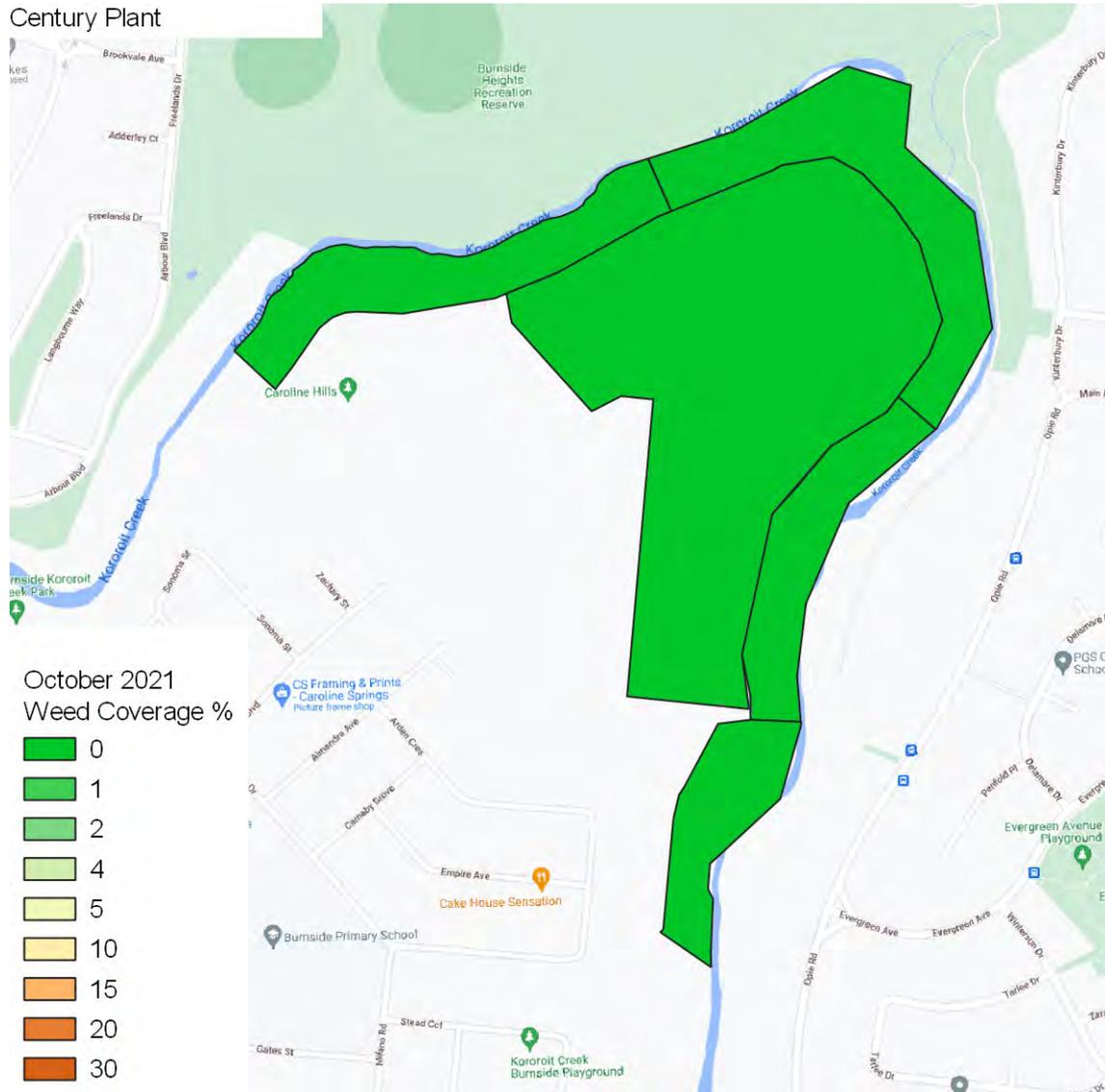
MgtZone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	0%
August 2021	0%	0%	0%	0%	0%
Apr 2021	1%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	0%
Oct 2020	1%	0%	0%	0%	0%
June 2020	1%	0%	0%	0%	0%
April 2020	1%	0%	0%	0%	0%
Dec 2019	1%	0%	0%	0%	0%
Oct 2019	1%	0%	0%	0%	0%
July 2019	1%	0%	0%	0%	0%

A very large and long-lived rosette-forming plant, growing 1-2 m high and 2-4 m across.

Older individuals may sometimes develop a short woody stem at the base of the plant and commonly produces numerous suckers which form a large clump or colony. When fully mature this plant will develop a massive flower cluster on a robust flowering stem 6-12 m tall.



# Century Plant



## 4.8 Fennel - *Foeniculum vulgare*

**Restricted Weeds noxious**

**Target coverage < 1%**

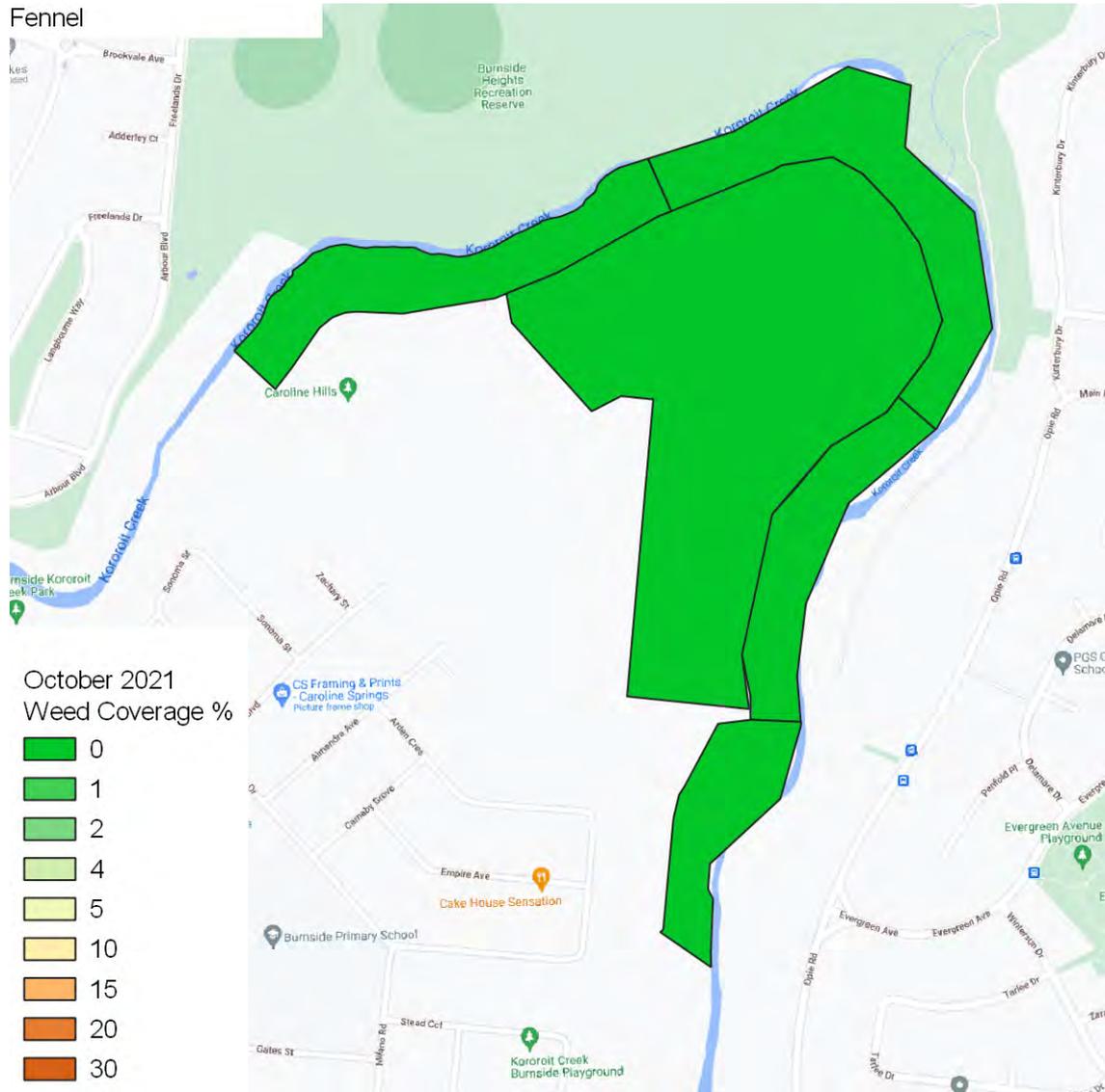
### Current Coverage

MgtZone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	0%
August	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	1%	0%
Oct 2020	0%	0%	0%	0%	0%
June 2020	0%	0%	0%	0%	0%
April 2020	0%	0%	0%	0%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	0%

An erect multi-stemmed perennial herb commonly 1.5 to 2.0 metres high. It is found along waterways, drainage lines and in seasonally moist locations within grasslands and woodlands. Dense infestations may restrict access to waterways. A soft, herbaceous plant the high growth of the plant may be a nuisance to people.



# Fennel



## 4.9 Galenia - Galenia pubescens

Not declared or considered noxious

Target coverage < 5%

### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	1%	1%	1%	1%	10%
August 2021	1%	1%	1%	1%	0%
Apr 2021	1%	1%	1%	1%	0%
Dec 2020	1%	1%	0%	1%	0%
Oct 2020	0%	0%	0%	1%	0%
June 2020	1%	0%	1%	0%	0%
April 2020	1%	0%	0%	1%	0%
Dec 2019	2%	1%	1%	1%	1%
Oct 2019	5%	1%	1%	1%	1%
July 2019	2%	2%	2%	1%	1%

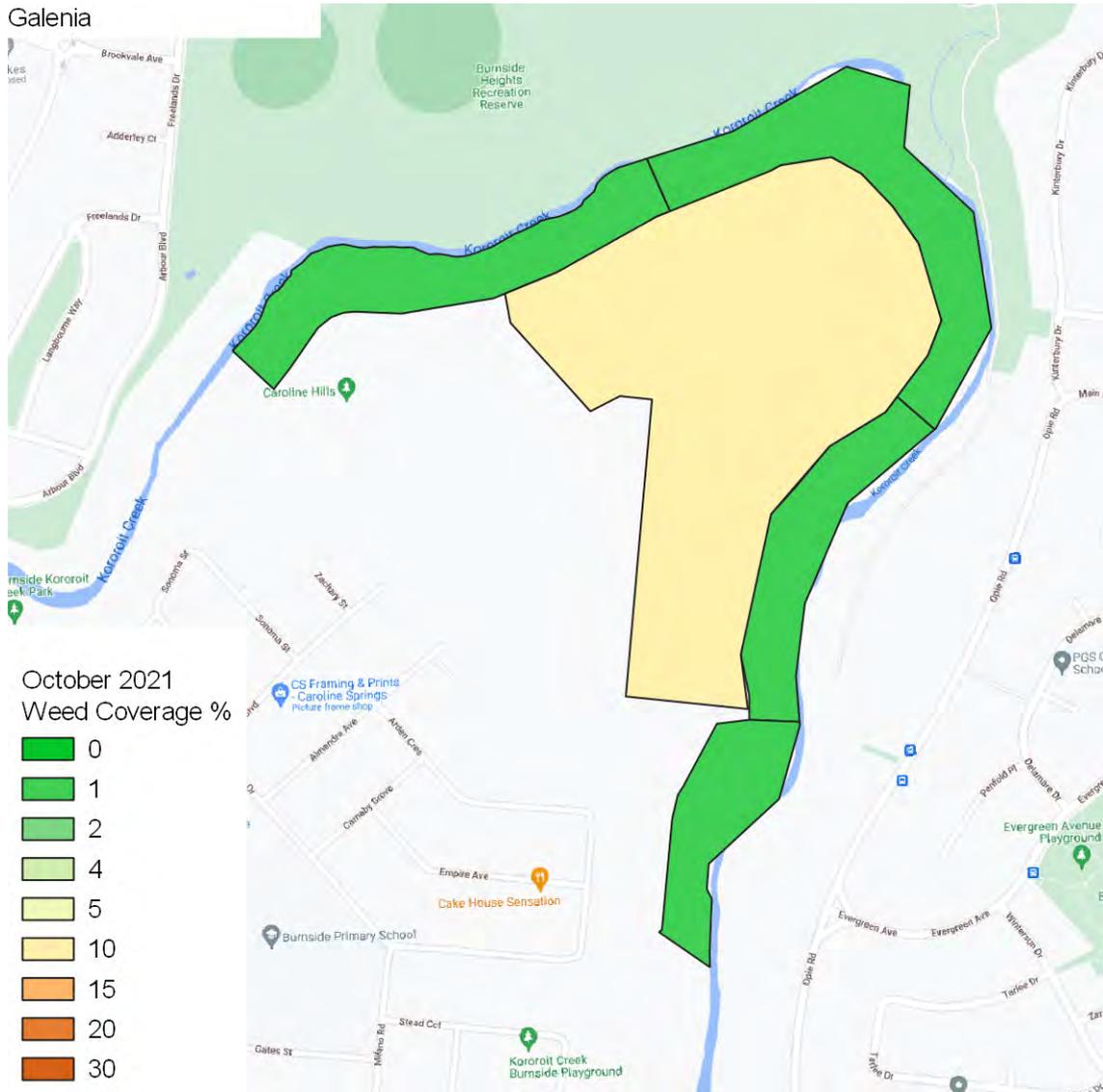
This perennial creeping, herbaceous plant growing to about 60 cm high and 1–2 m wide.

It is deep rooted and flowers from late spring to early autumn. Galenia reproduces by seed. Most dispersal of seed occurs by wind, water, birds and livestock. Movement of contaminated soil by vehicles and equipment can also contribute to its spread.

Drought and salt tolerant, galenia grows over and smothers existing vegetation by forming a thick dense mat. It invades coastal dunes, pastures, disturbed areas, lawns, roadsides and rocky outcrop vegetation. Galenia is known to produce nitrates that can be toxic to stock.



Galenia



#### 4.10 Horehound - *Marrubim vulgare*

Not declared or considered noxious

Target coverage <5%

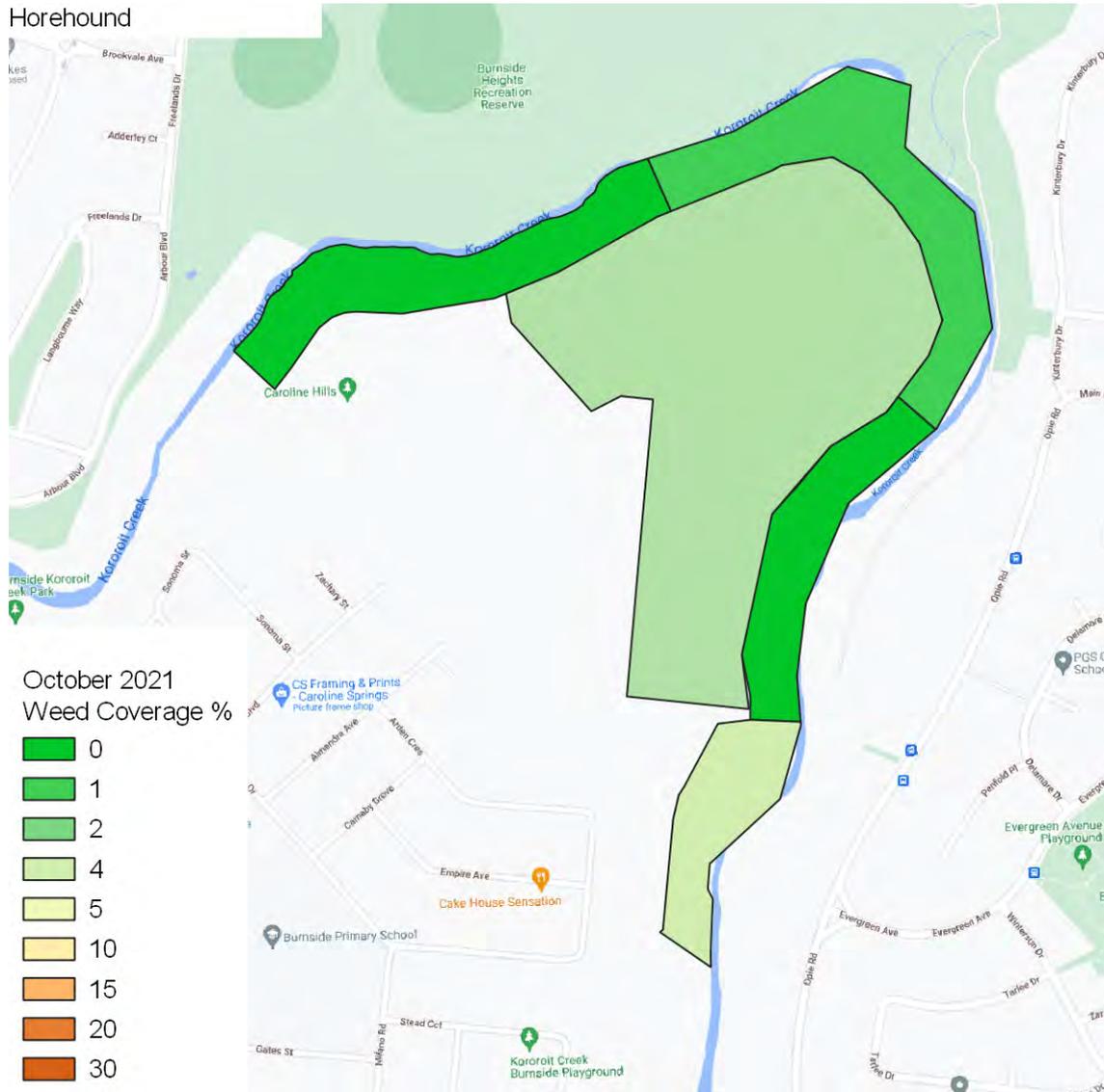
##### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	0%	1%	0%	4%	3%
August 2021	0%	1%	0%	1%	0%
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	1%	1%	0%
Oct 2020	1%	0%	1%	0%	0%
June 2020	0%	1%	0%	1%	0%
April 2020	0%	1%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	1%

A bushy perennial plant, 30 to 80 cm high, sharply aromatic when crushed, covered with dense whitish hairs. Horehound thrives on poor soil and in waste places. It invades poor pastures which provide little competition. Horehound contains a bitter alkaloid which makes it unpalatable for grazing livestock. As well as being an agricultural weed of pastures horehound has become an important environmental weed because of its ability to invade disturbed native vegetation



# Horehound



## 4.11 Paterson's Curse - *Echium plantagineum*

Regionally controlled

Target coverage < 5%

### Current Coverage

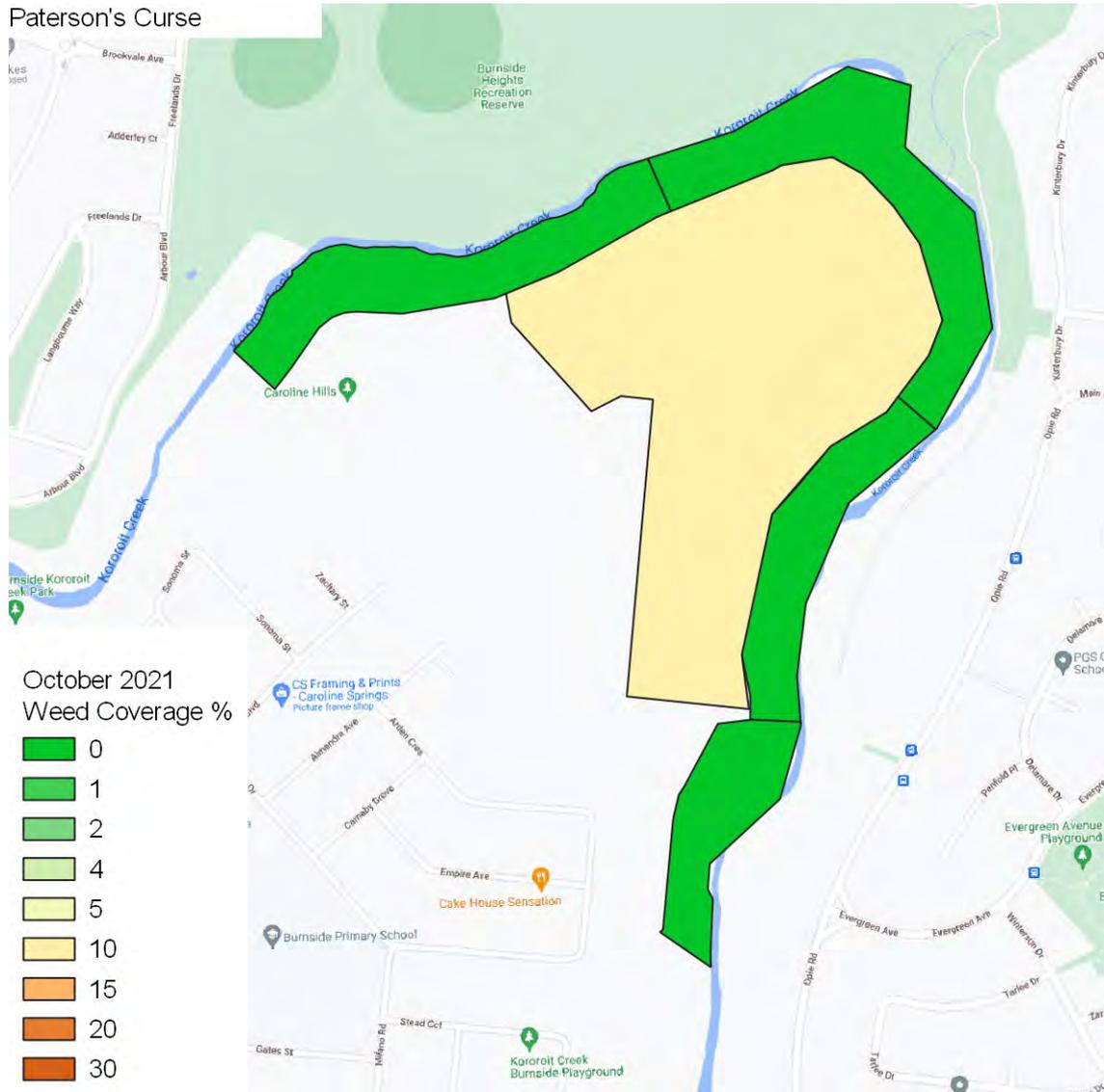
Mgt Zone	2	4	5	3	DZ
October 2021	0%	0%	0%	0%	10%
August 2021	0%	0%	0%	2%	10%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	1%	1%	1%	2%
Oct 2020	2%	1%	1%	2%	2%
June 2020	2%	2%	5%	5%	5%
April 2020	5%	10%	5%	5%	10%
Dec 2019	5%	1%	2%	2%	2%
Oct 2019	5%	2%	2%	1%	2%
July 2019	5%	2%	2%	1%	1%

Paterson's curse is an annual, occasionally biennial, herb that grows as a rosette in autumn and winter and produces flowering stalks in spring and early summer. The rosette usually grows parallel to the ground, however the leaves may be erect in dense vegetation.

Plants begin to produce flowering stalks in late winter, commence flowering in early spring and die in summer. The flowers are usually purple but may be blue or pink. The first mature seeds are produced four to six weeks after flowering commences.



Paterson's Curse



## 4.12 Prickly Pear - *Opuntia* spp.

Regionally controlled

Target coverage <5%

### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	0%	0%	0%	1%	0%
August 2021	0%	1%	0%	1%	0%
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	0%	1%	0%
Oct 2020	0%	1%	0%	1%	0%
June 2020	0%	1%	0%	0%	0%
April 2020	0%	1%	0%	1%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	1%	1%	2%	2%	1%

Prickly pear is an erect succulent shrub which can grow to a height of 5 m. The stems of prickly pear are commonly grey-green to light green. The plant usually has one main woody stem with dense prickles, which gives way to a number of side branches made up of fleshy segments. The segments are approximately 45 cm long, 15 cm wide and 1-2 cm thick, with the upper segments appearing to droop.



Each plant segment has areoles, which are growing points where new segments, flowers or roots can be produced. Each areole has short tufts of finely barbed bristles and sometimes one to five sharp, 5 cm long spines. Spines are more common on segments that are older and lower on the plant.



### 4.13 Sweet Briar - *Rosa rubiginosa*

Regionally Controlled

Target coverage <1%

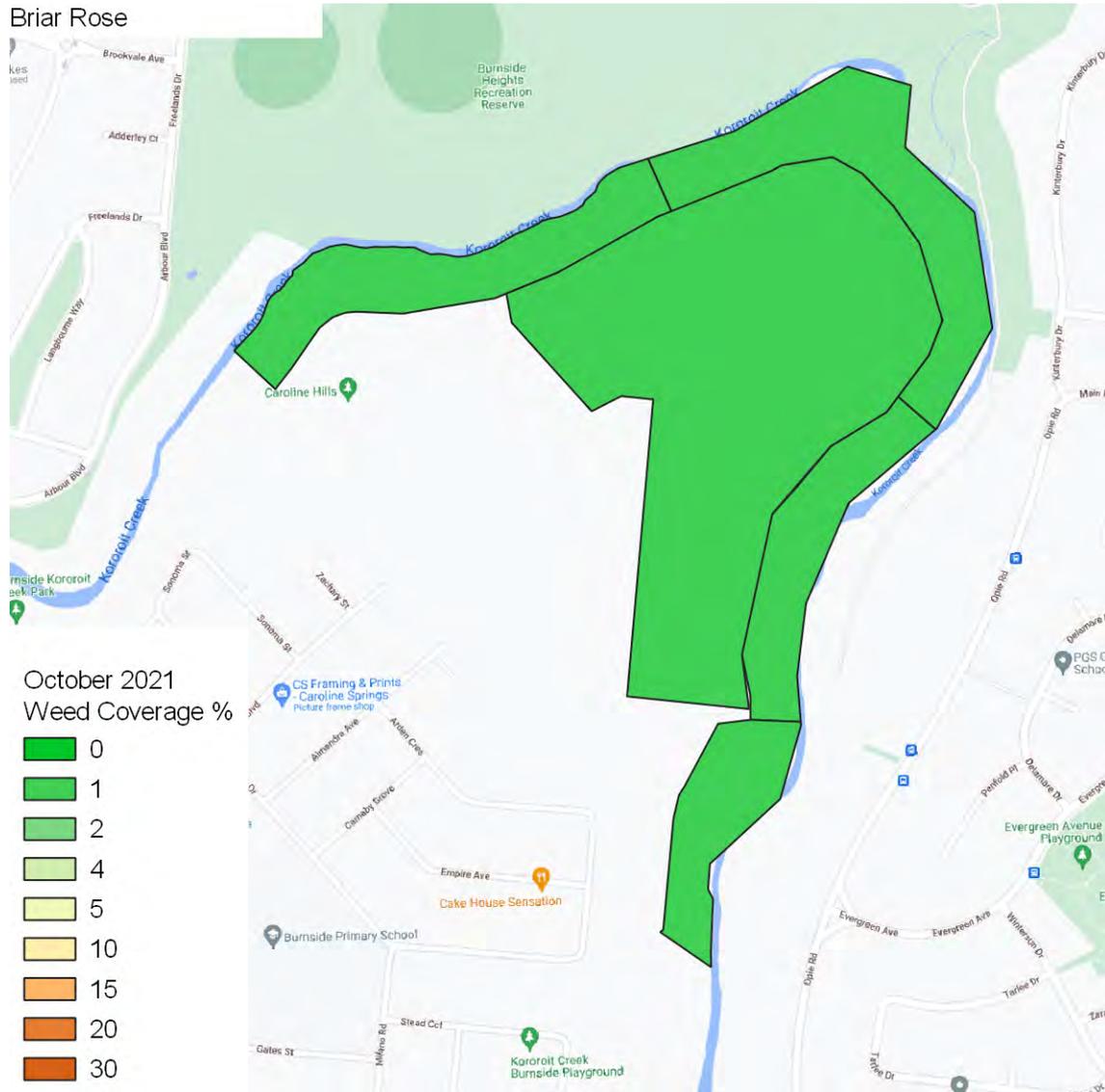
#### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	1%	1%	1%	1%	1%
August 2021	1%	1%	1%	1%	1%
Apr 2021	1%	1%	1%	1%	1%
Dec 2020	1%	1%	0%	0%	0%
Oct 2020	1%	1%	0%	0%	0%
June 2020	1%	1%	1%	0%	0%
April 2020	1%	1%	0%	1%	0%
Dec 2019	1%	1%	0%	1%	0%
Oct 2019	1%	1%	1%	1%	0%
July 2019	1%	1%	1%	1%	1%

Sweet briar is a perennial woody shrub up to 3m tall. The stem is usually many (and can be up to several hundred) stems arising from the rootstock; erect or scrambling, up to 3 metres high, green and smooth to brown and somewhat roughened, woody, branched, spreading and sometimes trailing, heavily covered with down-curved prickles up to 1.5 cm long.



# Briar Rose



#### 4. 14 Chilean Needle Grass - *Nassella neesiana*

Regional restricted

Target coverage < 5%

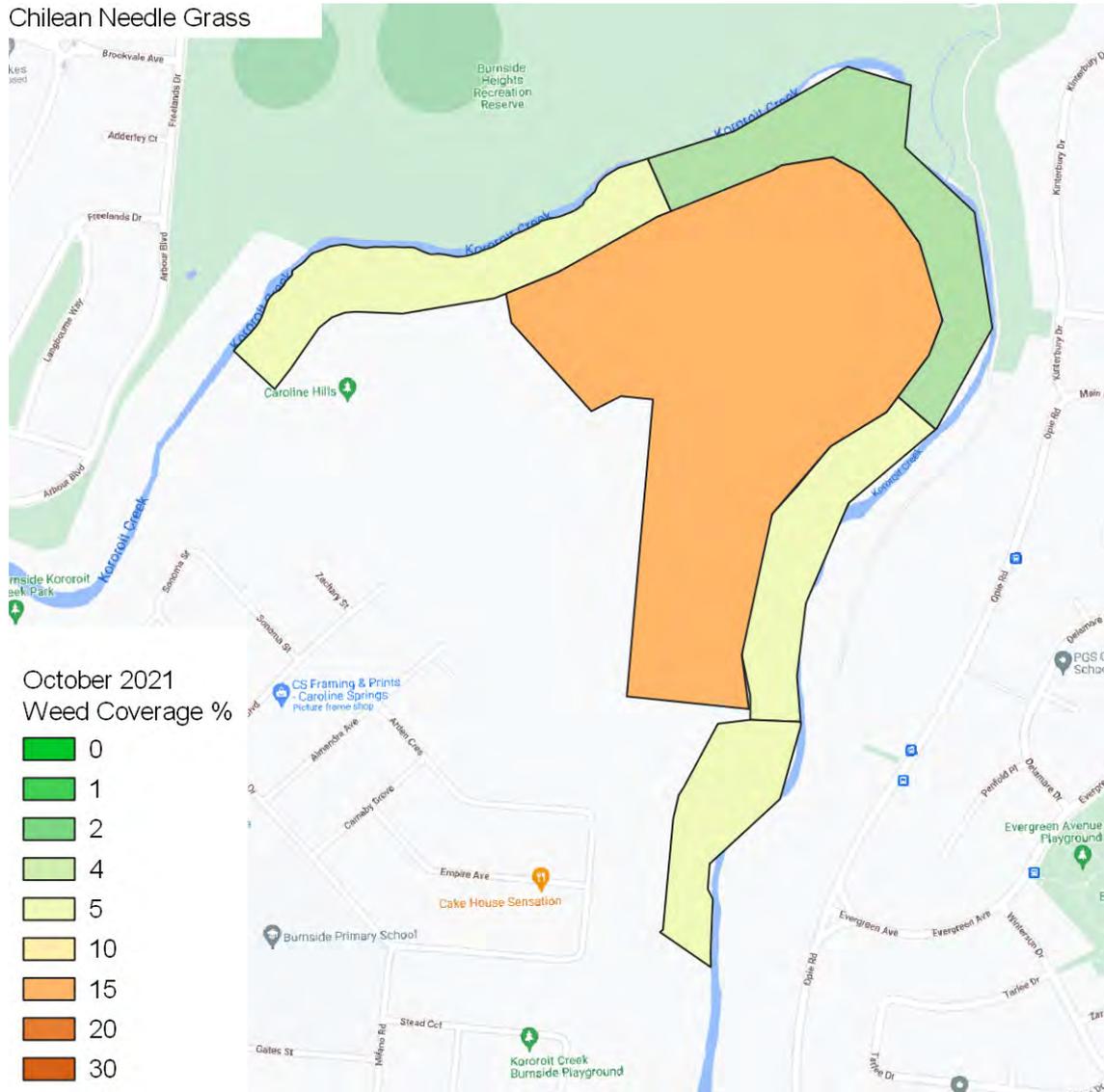
##### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	5%	3%	5%	5%	15%
August 2021	5%	3%	5%	5%	15%
Apr 2021	2%	2%	5%	5%	2%
Dec 2020	0%	0%	2%	2%	2%
Oct 2020	0%	0%	2%	5%	2%
June 2020	0%	0%	2%	1%	2%
April 2020	0%	0%	1%	5%	2%
Dec 2019	0%	0%	1%	5%	2%
Oct 2019	0%	0%	1%	2%	5%
July 2019	1%	1%	1%	5%	10%

Chilean needle grass is a tussocky perennial in the Speargrass group of grasses growing to about 1 m high. It leaves are hairless and are normally grow to 30 cm long and 5 mm wide. With the flowering head being to 40 cm long.



# Chilean Needle Grass



#### 4.15 Toowoomba canary grass - *Phalaris aquatica*

Not declared and considered noxious

Target coverage < 5%

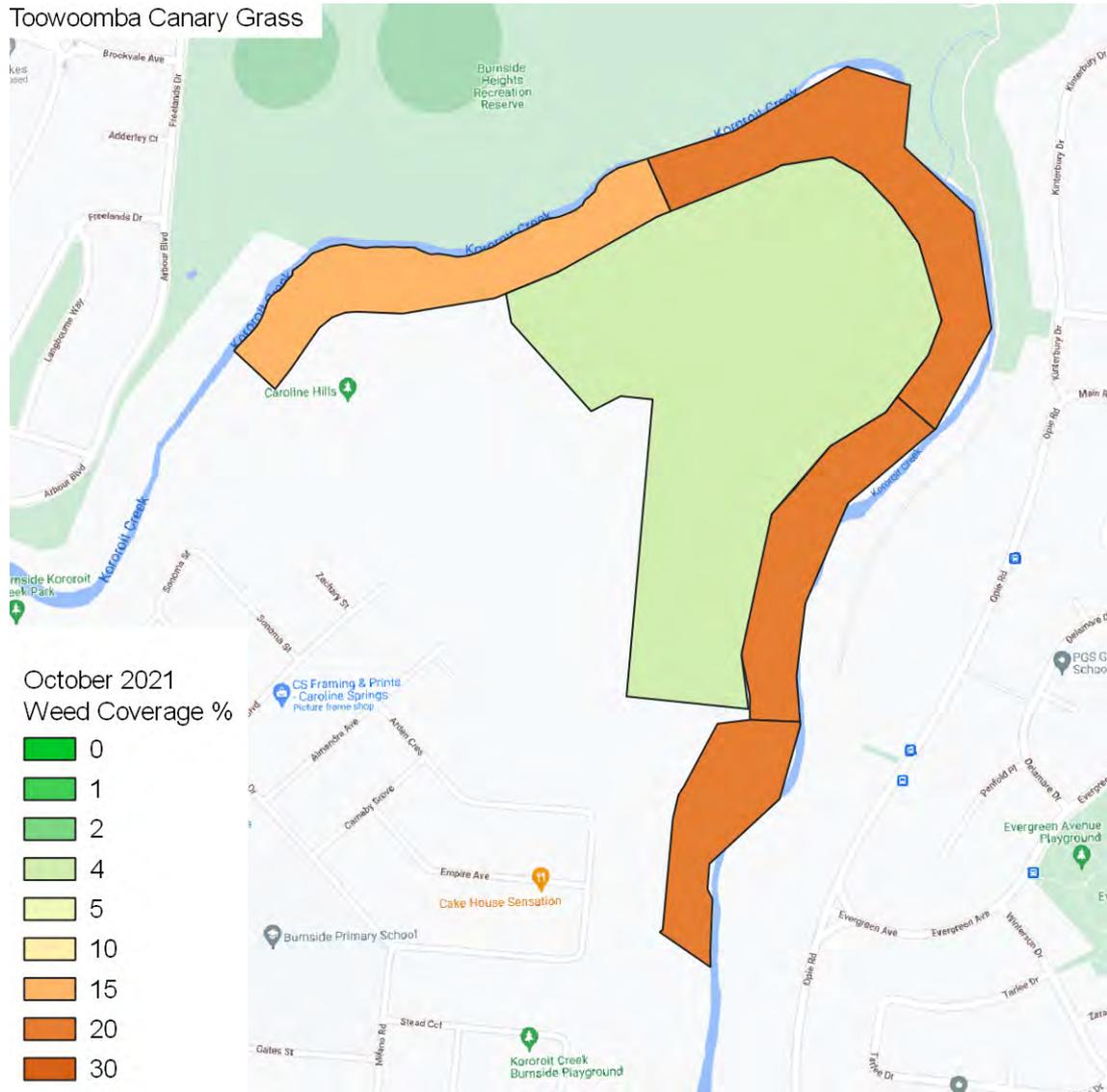
##### Current Coverage

Mgt Zone	2	4	5	3	DZ
October 2021	15%	20%	20%	20%	4%
August 2021	13%	18%	20%	20%	4%
Apr 2021	5%	5%	5%	5%	2%
Dec 2020	2%	2%	2%	2%	0%
Oct 2020	5%	5%	5%	5%	0%
June 2020	2%	2%	2%	2%	0%
April 2020	2%	2%	2%	2%	0%
Dec 2019	1%	2%	5%	5%	5%
Oct 2019	1%	2%	5%	5%	5%
July 2019	1%	5%	15%	20%	20%

Widely used as a pasture species where annual rainfall exceeds 450 mm. It prefers fertile, seasonally moist sites. Commonly spreads from pastures, road verges and drainage ditches to adjacent indigenous vegetation. Toowoomba canary grass invades dry coastal vegetation, heathland and heathy woodland, lowland grassland and grassy woodland, dry sclerophyll forest and woodland, damp sclerophyll forest, riparian vegetation and freshwater wetlands.



# Toowoomba Canary Grass



## 4.16 Serrated Tussock - *Nassella trichotoma*

Regionally Controlled - *Weed of National Significance*

Target coverage < 5%

### Current Coverage

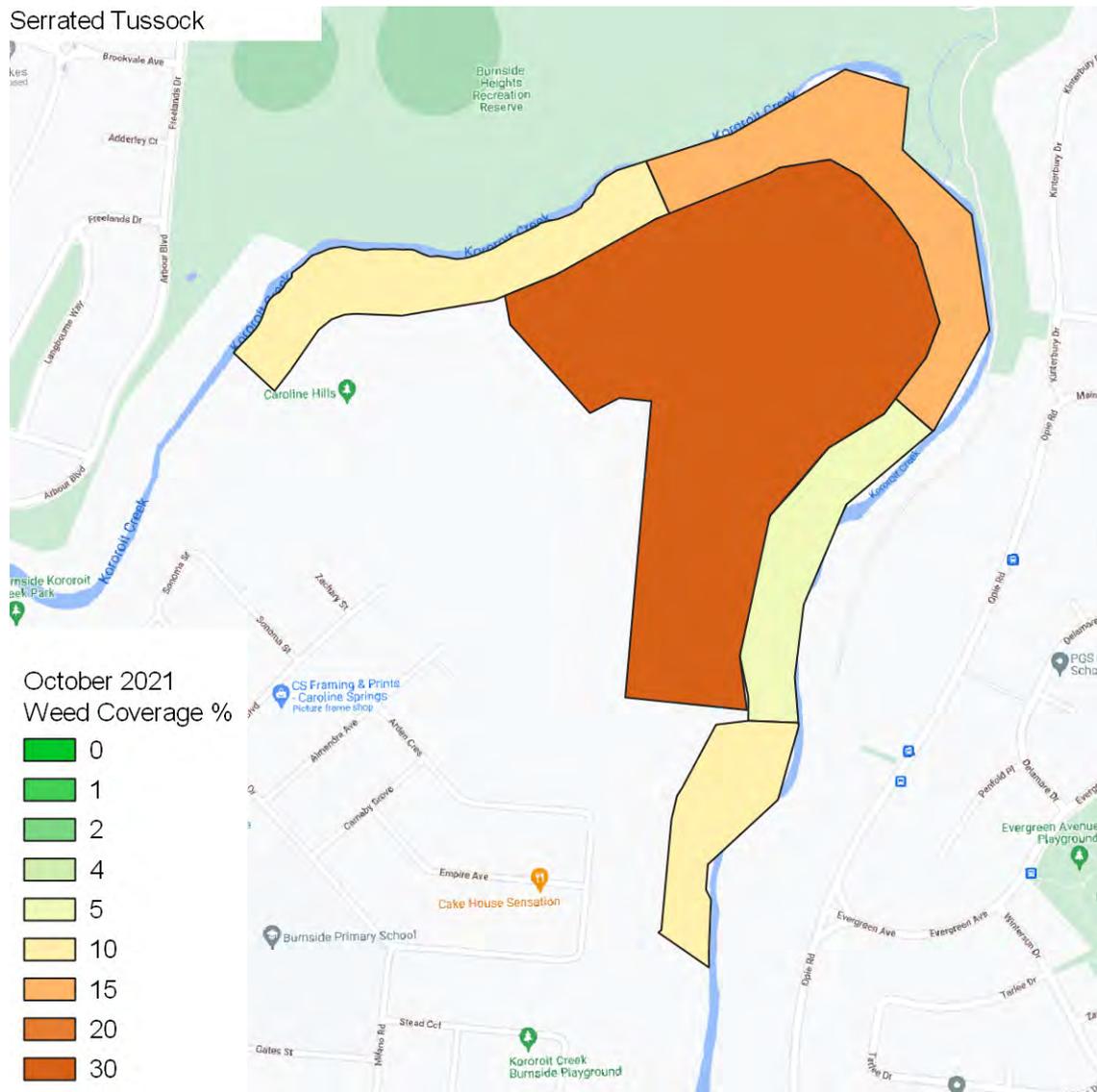
Mgt Zone	2	4	5	3	DZ
October 2021	10%	15%	5%	10%	30%
August 2021	5%	15%	5%	10%	13%
Apr 2021	5%	5%	5%	5%	10%
Dec 2020	2%	2%	2%	2%	2%
Oct 2020	5%	5%	5%	2%	5%
June 2020	5%	5%	5%	2%	5%
April 2020	5%	5%	5%	2%	5%
Dec 2019	5%	5%	5%	5%	10%
Oct 2019	5%	5%	0%	5%	5%
July 2019	10%	20%	5%	20%	15%

Serrated tussock is a long-lived perennial grass growing up to 60cm in height with a base of 25cm in diameter. Plant size varies with soil fertility and location. In infertile conditions plants may only reach a height of 15cm. Serrated tussock is shallow rooted with an extensive network of fibrous roots occurring predominantly in the top 20cm of soil. The roots are dense, wiry and fibrous making serrated tussock very difficult to pull out, even when small. Flowering stems emerge from the base of the plant. They are multi-branched



and up to 35cm long. The purple colour of the small seeds produces an overall purplish haze to the serrated tussock seed head. Once the seeds have formed, the entire seed head will 'droop' over the tussock towards the ground. Flowering takes place as early as late winter (August) and will continue throughout the spring (September – November). Autumn flowering has been known to occur. Seeds take 8 – 10 weeks to mature, normally occurring throughout the spring and summer months. Once seeds are ripe, the whole flowering stem detaches from the base of the plant and is dispersed by the wind. Seed is dormant and will not germinate for about 6 months.

# Serrated Tussock

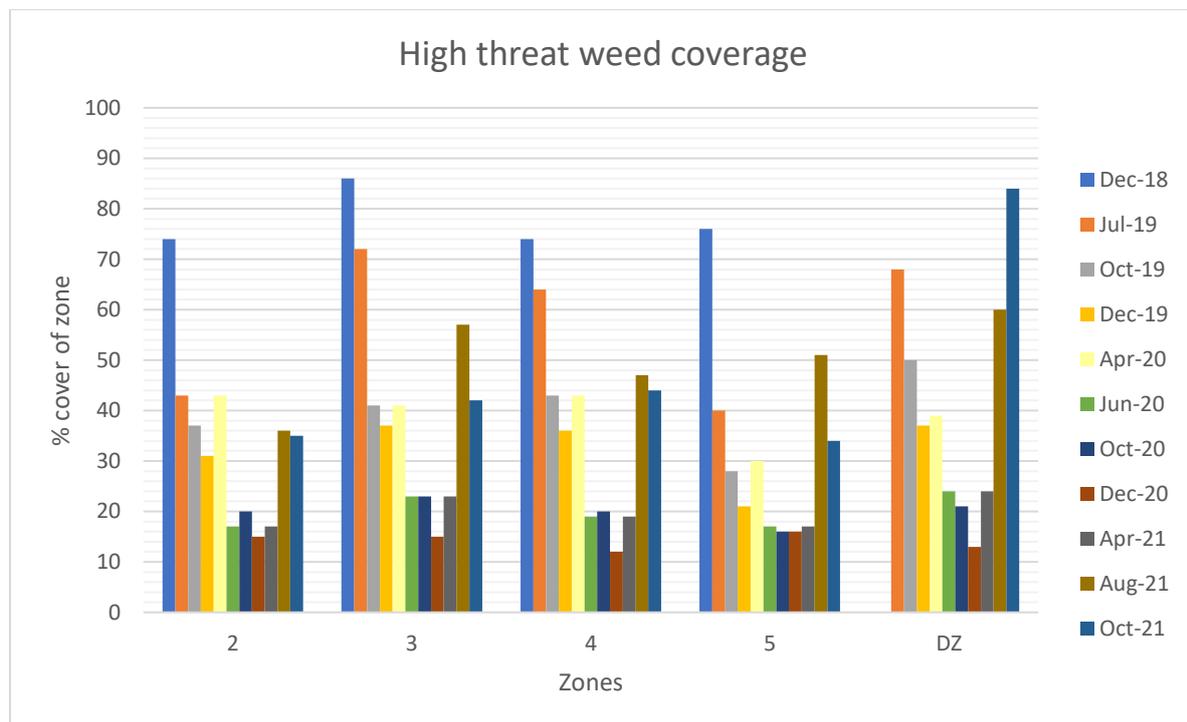


## 6.0 Summary

### 6.1 Overview

The below table displays the total percentage coverage in each zone of high threat weeds. Since the previous report there has been a slight downturn in the overall coverage of high threat weeds, due to the targeted treatment of these weeds between the reporting periods. Its worth noting that there has been an overall increase in annual grass weeds across the site such as *Avena sp.*, a non high threat weed which is now occupying the space left by the previously high threat grass weeds.

Approximately 50% of the development zone is now under construction. The area is fenced off and all vegetation has been removed or is in the process of being removed.



### 6.2 Zone 2

The zone continues to be dominated by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of erosion.

As previously noted, all woody weeds have been controlled, with a limited number of specimens counted across the site. One cluster of Century Plants still surviving and showing no signs of ill health, this shall be treated in the coming months. Also, three large surviving boxthorns need to be re-treated.

### 6.3 Zone 4

As with above zone this zone continues to be dominated by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

All woody weeds had been controlled, with a limited number of specimens counted across the site.

### 6.4 Zone 5

This too continues to be heavily dominated by the by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

All woody weeds have been controlled, with a limited number of specimens counted across the site.

### 6.5 Zone 3

This too continues to be heavily dominated by the by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

### 6.7 Development zone

This area varies significantly, with patches dominated by the native Kangaroo and Wallaby grass. and others dominated by Serrated Tussock. The increase in percentage cover within this zone as seen in the graph above was due to one random quadrant landing within one of these large patches of Serrated Tussock grass, skewing the results.

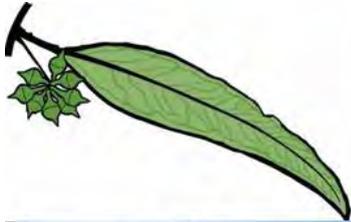
## 7.0 Conclusion

A low prevalence of herbaceous high threat weeds (Spear Thistle, Fennel, Cape weed or Paterson's Curse) has led to more space for other high weeds and other colonizing species to grow such as the *Avena sp.* mentioned above. Many *Phalaris aquatica* plants along the creekline have remained untreated for the last several visits. They have been left to reduce the risk of erosion concerns.

Rather than a widespread herbicide treatment, future slashing regimes, interspersed with selective treatments were individuals and or small stands are in close proximity to higher vegetation values may be a better path moving forward. This has and shall continue to be incorporated into the future treatment regime.

# Weed Survey Report

## Modeina Estate - Phase 2 -



**AUSTRALIAN ECOSYSTEMS**  
*Building sustainable landscapes for the future*



Landscape Construction • Nursery • Revegetation • Maintenance • Consultancy

December 2021

Submitted by Geraint Forbes

Australian Ecosystems Pty Ltd

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## 1.0 Introduction

Australian Ecosystems (AE) has prepared this report for Dennis Family Corporation (Project Management) Pty Ltd. This report details the results of weed surveys conducted in December 2021 within the area described as 'Stage 2 Modeina'. This report should be read in conjunction with, 'Modeina Weed Management Strategy' that Greening Australia prepared in 2017.

## 2.0 Weeds Surveyed

This survey has captured these weed species listed below:

- African Boxthorn (*Lycium ferocissimum*)
- Artichoke Thistle (*Cynara cardunculus*)
- Spear Thistle (*Cirsium vulgare*)
- Bridal Creeper (*Asparagus asparagodies*)
- Cape weed (*Arctotheca calendula*)
- Century Plant (*Agave Americana*)
- Fennel (*Foeniculum vulgare*)
- Galenia (*Galenia pubescens*)
- Horehound (*Marrubim vulgare*)
- Paterson's Curse (*Echium plantagineum*)
- Prickly Pear (*Opuntia spp.*)
- Sweet Briar (*Rosa rubiginosa*)
- Chilean Needle Grass *Nassella neesiana*)
- Toowoomba canary grass (*Phalaris aquatica*)
- Serrated Tussock (*Nassella trichotoma*)

Determined by:

The weeds detailed within this report have been taken from the Modeina Weed Management Strategy that Greening Australia prepared in 2017. Only species that are widespread and/or have a high level of risk have been chosen to be controlled within these areas.

## 3.0 Survey Methodology

The above-mentioned species were surveyed using the Random Quadrant Sampling Method. Within each zone, four quadrants 5-meter X 5-meter were used to measure the current number of weed species present and then converted to a percentage cover. The results from these quadrants were then extrapolated to obtain a percentage cover across each of the zones. The results of these surveys are displayed over the following pages of the report.

### 3.1 Woody weeds

For this survey woody weeds are classified as African Boxthorn (*Lycium ferocissimum*), Century Plant (*Agave Americana*), Fennel (*Foeniculum vulgare*), Prickly Pear (*Opuntia spp.*) and Sweet Briar (*Rosa rubiginosa*).

All species had an extremely low abundance across all zones, hence these species were individually counted, each individual was given a percentage cover value of 2%, to allow for the maximum projected canopy that they can reach once mature. It should be noted that those observed were generally still in their juvenile stage, with a projected canopy cover much less than 2% of 25m<sup>2</sup>.

### 3.2 Herbs and Grass weeds

Herb and grass weeds are present across all zone. These weeds include Artichoke Thistle (*Cynara cardunculus*), Scotch Thistle (*Onopordum acanthium*), Spear Thistle (*Cirsium vulgare*), Bridal Creeper (*Asparagus asparagoides*), Cape weed (*Arctotheca calendula*), Galenia (*Galenia pubescens*), Horehound (*Marrubium vulgare*), Paterson's Curse (*Echium plantagineum*), Chilean Needle Grass (*Nassella neesiana*), Toowoomba canary grass (*Phalaris aquatica*) and Serrated Tussock (*Nassella trichotoma*)

### 3.3 Changes

Civil construction has continued with in the development zone. As previously mentioned, this has reduced the area surveyed by approximately 50%. These planned work does not affect the survey result of this or any previous survey.

## 4.0 Details of Surveyed Weeds

### 4.1 African Boxthorn - *Lycium ferocissimum*

Regionally Controlled & Weed of National Significance

Target coverage <1%

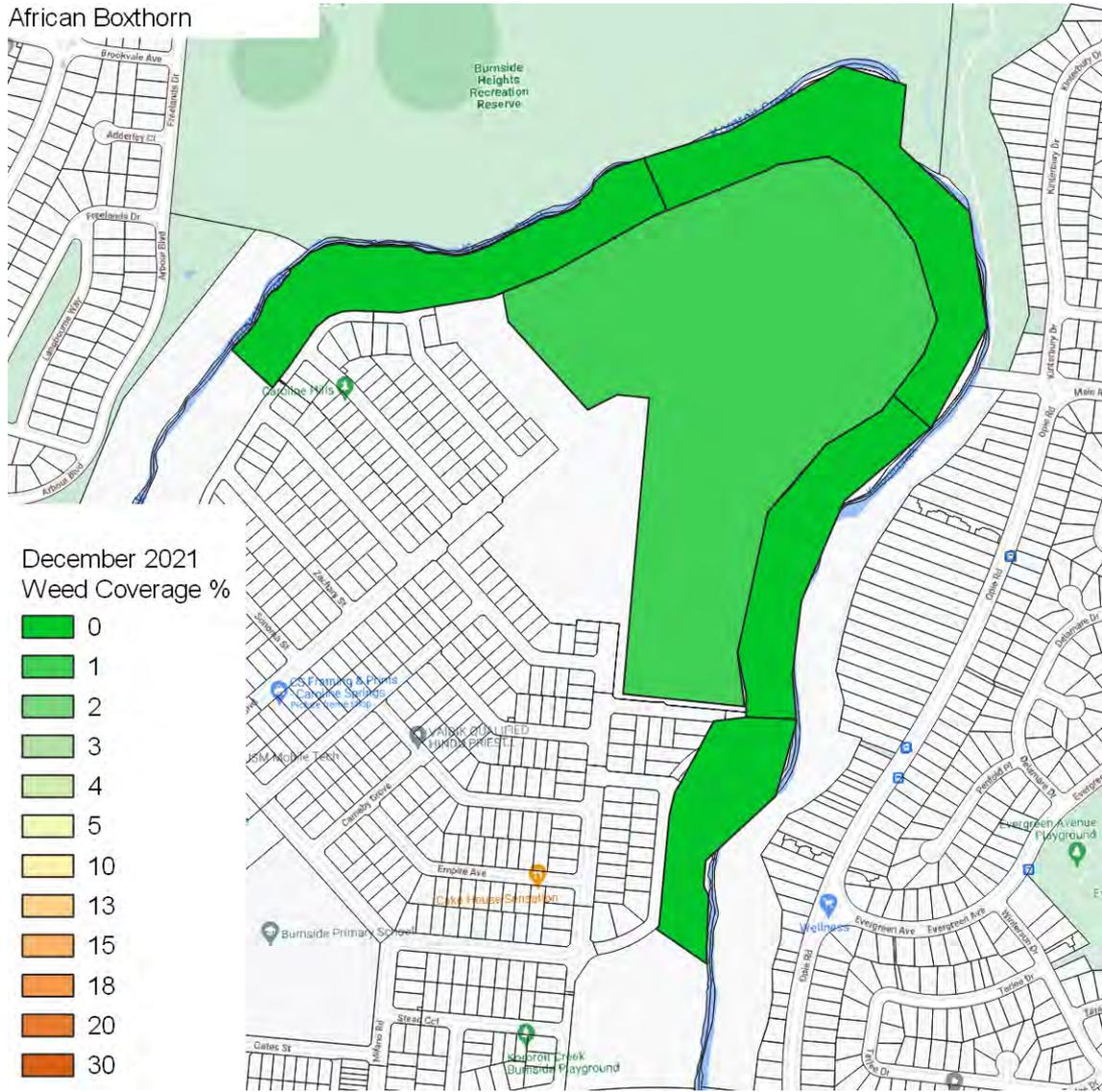
#### Current coverage

Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	1%
October 2021	0%	0%	0%	0%	1%
August 2021	1%	1%	1%	1%	2%
April 2021	1%	1%	1%	1%	1%
Dec 2020	0%	1%	1%	0%	1%
Oct 2020	0%	1%	1%	0%	1%
June 2020	0%	1%	1%	0%	1%
April 2020	0%	1%	1%	0%	1%
Dec 2019	0%	1%	1%	0%	1%
Oct 2019	0%	1%	1%	0%	1%
July 2019	1%	1%	1%	1%	1%

African boxthorn is a rounded, woody, densely branched and very thorny large shrub up to 5 metres high. African boxthorn reproduces exclusively by seed which is commonly eaten by birds, seed is viable when excreted. These plants are often found near places where birds have perched such as trees, poles and powerlines. It was widely planted as a hedge plant before its weedy potential was realised. Spread also occurs from contaminated produce and materials. African boxthorn is a fast-growing invasive species that, if untreated, spreads quickly. Seeds may germinate year-round and early root growth is rapid, ensuring young plants are competitive. Plants take at least two years to flower, producing flowers and fruit mostly in summer. Some flowering and fruit production occurs at other times of year. Sometimes deciduous in winter, with new leaves and active growth in spring. Broken roots and cut stumps can sprout regrowth.



# African Boxthorn



## 4.2 Artichoke Thistle - *Cynara cardunculus*

**Regionally Controlled**

**Target coverage < 5%**

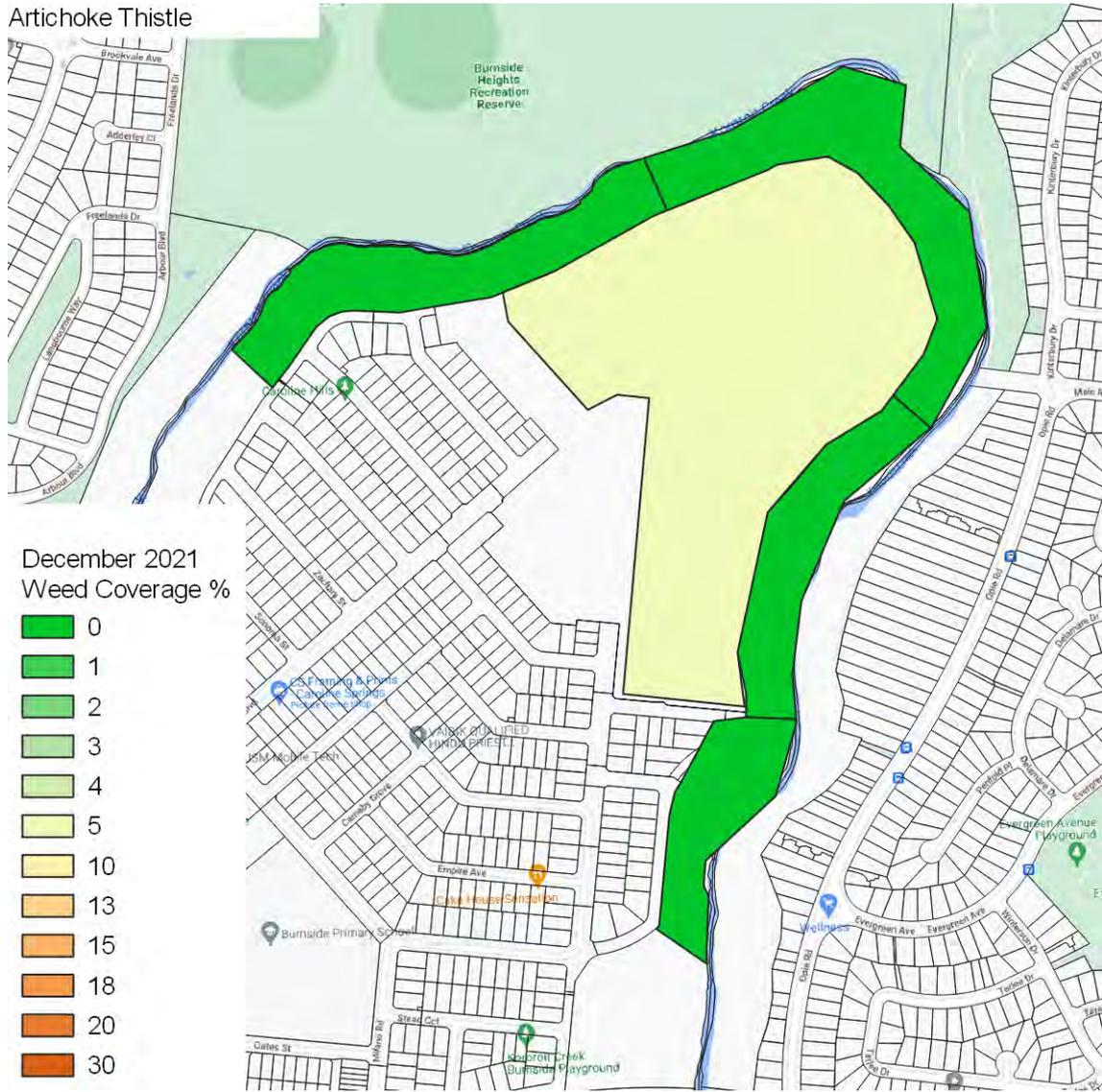
### Current coverage

Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	5%
October 2021	0%	0%	0%	0%	10%
August 2021	5%	2%	15%	15%	10%
Apr 2021	15%	2%	2%	2%	5%
Dec 2020	5%	2%	5%	2%	5%
Oct 2020	5%	5%	2%	2%	10%
June 2020	2%	10%	5%	5%	10%
April 2020	25%	20%	15%	20%	20%
Dec 2019	10%	15%	15%	5%	15%
Oct 2019	15%	20%	10%	10%	25%
July 2019	15%	20%	5%	15%	15%

A perennial or biennial spiny thistle with annual tops and a cluster of large bright purple flowers that are 5-8 cm in diameter during summer. The mature plant is erect, with stems 1- 2 m tall arising from a bushy rosette up to 2 m wide and tall. The stem is strongly ribbed and covered with downy grey hairs and usually single at the base and branched towards the top. The large, grey green leaves are deeply lobed and spiny with woolly hairs underneath.



# Artichoke Thistle



#### 4.4 Spear Thistle - *Cirsium vulgare*

##### **Regionally Controlled Weeds**

**Target coverage <5%**

##### **Current coverage**

<b>Mgt Zone</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>DZ</b>
December 2021	0%	0%	0%	0%	0%
October 2021	0%	0%	0%	0%	0%
August 2021	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	1%
Oct 2020	1%	0%	0%	0%	1%
June 2020	1%	0%	0%	0%	1%
April 2020	1%	0%	0%	0%	1%
Dec 2019	2%	5%	1%	1%	1%
Oct 2019	2%	5%	1%	1%	1%
July 2019	2%	5%	1%	1%	2%

An annual or short-term perennial herb with erect growth to 1.5 m tall. Stems have spiny wings and are cobwebby. Upper leaf surface is dark green and rough while the lower surface is white with short matted hairs.

A common species of wet or summer-moist land, including swamps, depressions, drains, waste-land, pastures and cultivated soils. Prefers open, non-shaded environments, heavy textured soils and good fertility.





## 4.5 Bridal Creeper - *Asparagus asparagoides*

Regionally Controlled - Weed of National Significance

Target coverage < 1%

### Current Coverage

Mgt Zone	2	4	5	3	DZ
December 2021	2%	2%	2%	0%	0%
October 2021	3%	3%	2%	0%	0%
August 2021	5%	4%	3%	0%	0%
Apr 2021	1%	1%	1%	0%	0%
Dec 2020	0%	1%	1%	0%	0%
Oct 2020	0%	0%	1%	0%	0%
June 2020	0%	0%	1%	0%	0%
April 2020	0%	0%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	2%	1%	2%	0%

It is regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts. Bridal creeper entered the country as a garden plant and is now a major weed of bushland in southern Australia, where its climbing stems and foliage smother native plants. It forms a thick mat of underground tubers which impedes the root growth of other plants and often prevents seedling establishment. Rare native plants, such as the rice flower *Pimelea spinescens*, are threatened with extinction by Bridal Creeper.





## 4.6 Cape weed - *Arctotheca calendula*

Not declared or considered noxious

Target coverage < 5%

### Current Coverage

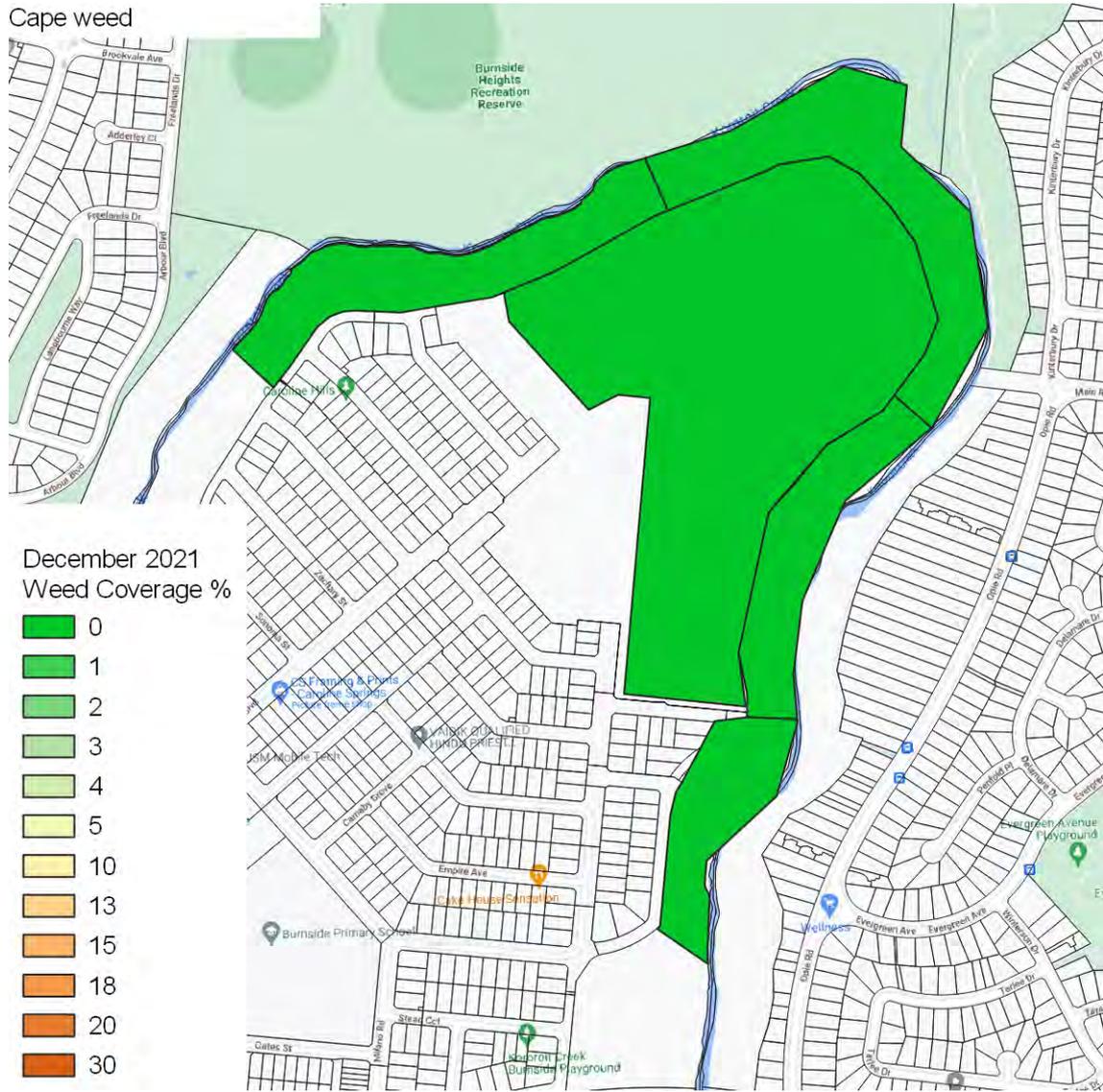
Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	0%
October 2021	0%	0%	0%	0%	0%
August 2021	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	0%	0%	0%	0%	0%
Oct 2020	0%	1%	1%	1%	0%
June 2020	2%	2%	0%	2%	0%
April 2020	2%	2%	1%	2%	0%
Dec 2020	2%	2%	1%	2%	0%
Oct 2019	2%	2%	2%	1%	0%
July 2019	2%	2%	2%	1%	0%

This plant is widespread and common weed in pastures, lawns, cultivation and waste areas across Victoria. Typically, a plant of fresh-water habitats but may occur on the fringes of saline swamps and flats during wetter periods.

It is stemless or shortly stemmed, herb, 80 cm wide and 30 cm high, with a taproot and a basal rosette of leaves. Leaves are 5-25 cm long and 2-6 cm wide.



Cape weed



#### 4.7 Century Plant - *Agave americana*

Not declared or considered noxious

Target coverage < 1%

##### Current Coverage

MgtZone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	0%
October 2021	0%	0%	0%	0%	0%
August 2021	0%	0%	0%	0%	0%
Apr 2021	1%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	0%	0%
Oct 2020	1%	0%	0%	0%	0%
June 2020	1%	0%	0%	0%	0%
April 2020	1%	0%	0%	0%	0%
Dec 2019	1%	0%	0%	0%	0%
Oct 2019	1%	0%	0%	0%	0%
July 2019	1%	0%	0%	0%	0%

A very large and long-lived rosette-forming plant, growing 1-2 m high and 2-4 m across.

Older individuals may sometimes develop a short woody stem at the base of the plant and commonly produces numerous suckers which form a large clump or colony. When fully mature this plant will develop a massive flower cluster on a robust flowering stem 6-12 m tall.





## 4.8 Fennel - *Foeniculum vulgare*

**Restricted Weeds noxious**

**Target coverage < 1%**

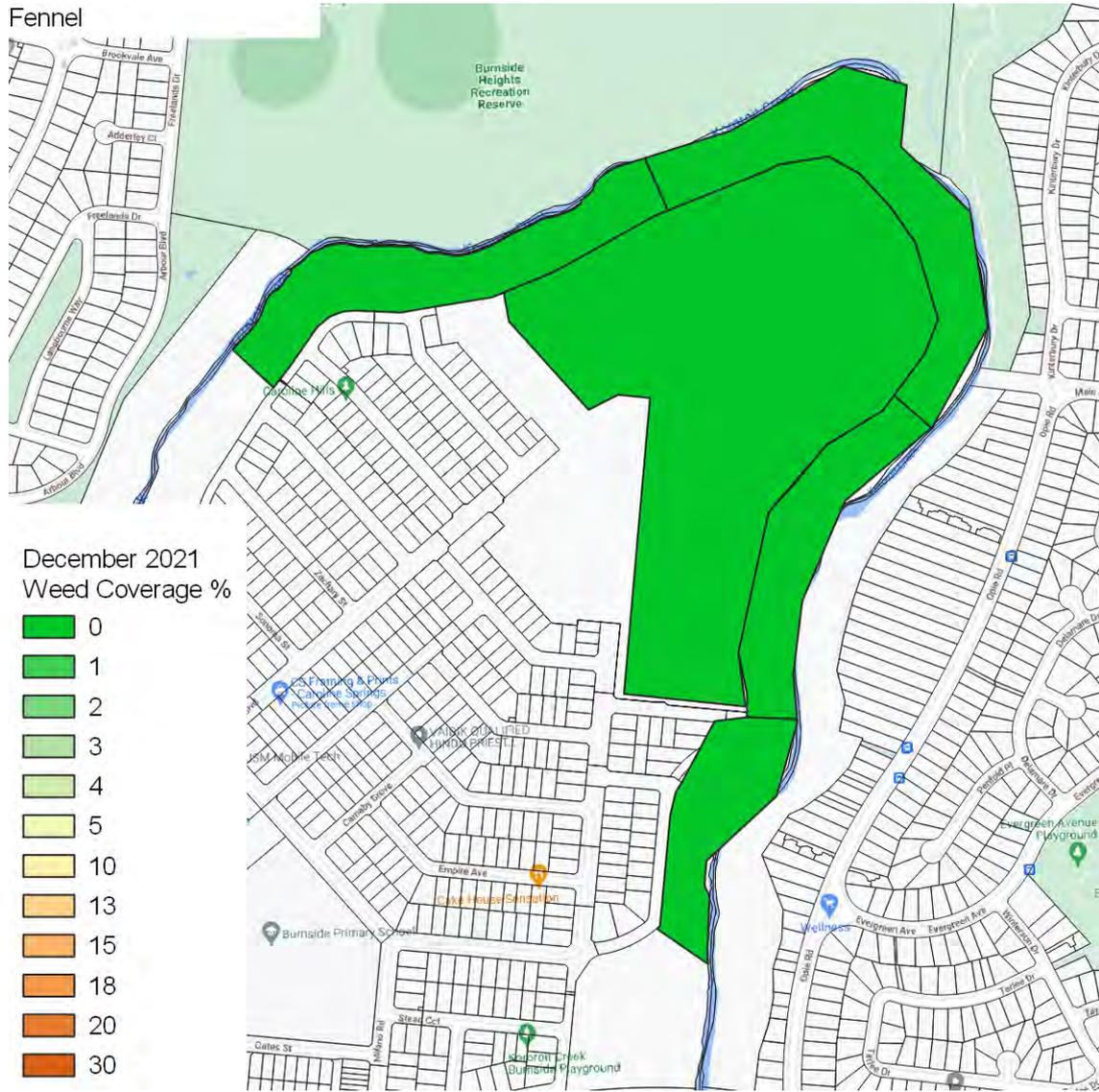
### Current Coverage

MgtZone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	0%
October 2021	0%	0%	0%	0%	0%
August	0%	0%	0%	0%	0%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	0%	0%	1%	0%
Oct 2020	0%	0%	0%	0%	0%
June 2020	0%	0%	0%	0%	0%
April 2020	0%	0%	0%	0%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	0%

An erect multi-stemmed perennial herb commonly 1.5 to 2.0 metres high. It is found along waterways, drainage lines and in seasonally moist locations within grasslands and woodlands. Dense infestations may restrict access to waterways. A soft, herbaceous plant the high growth of the plant may be a nuisance to people.



Fennel



## 4.9 Galenia - Galenia pubescens

**Not declared or considered noxious**

**Target coverage < 5%**

### Current Coverage

Mgt Zone	2	4	5	3	DZ
December 2021	1%	1%	1%	1%	5%
October 2021	1%	1%	1%	1%	10%
August 2021	1%	1%	1%	1%	0%
Apr 2021	1%	1%	1%	1%	0%
Dec 2020	1%	1%	0%	1%	0%
Oct 2020	0%	0%	0%	1%	0%
June 2020	1%	0%	1%	0%	0%
April 2020	1%	0%	0%	1%	0%
Dec 2019	2%	1%	1%	1%	1%
Oct 2019	5%	1%	1%	1%	1%
July 2019	2%	2%	2%	1%	1%

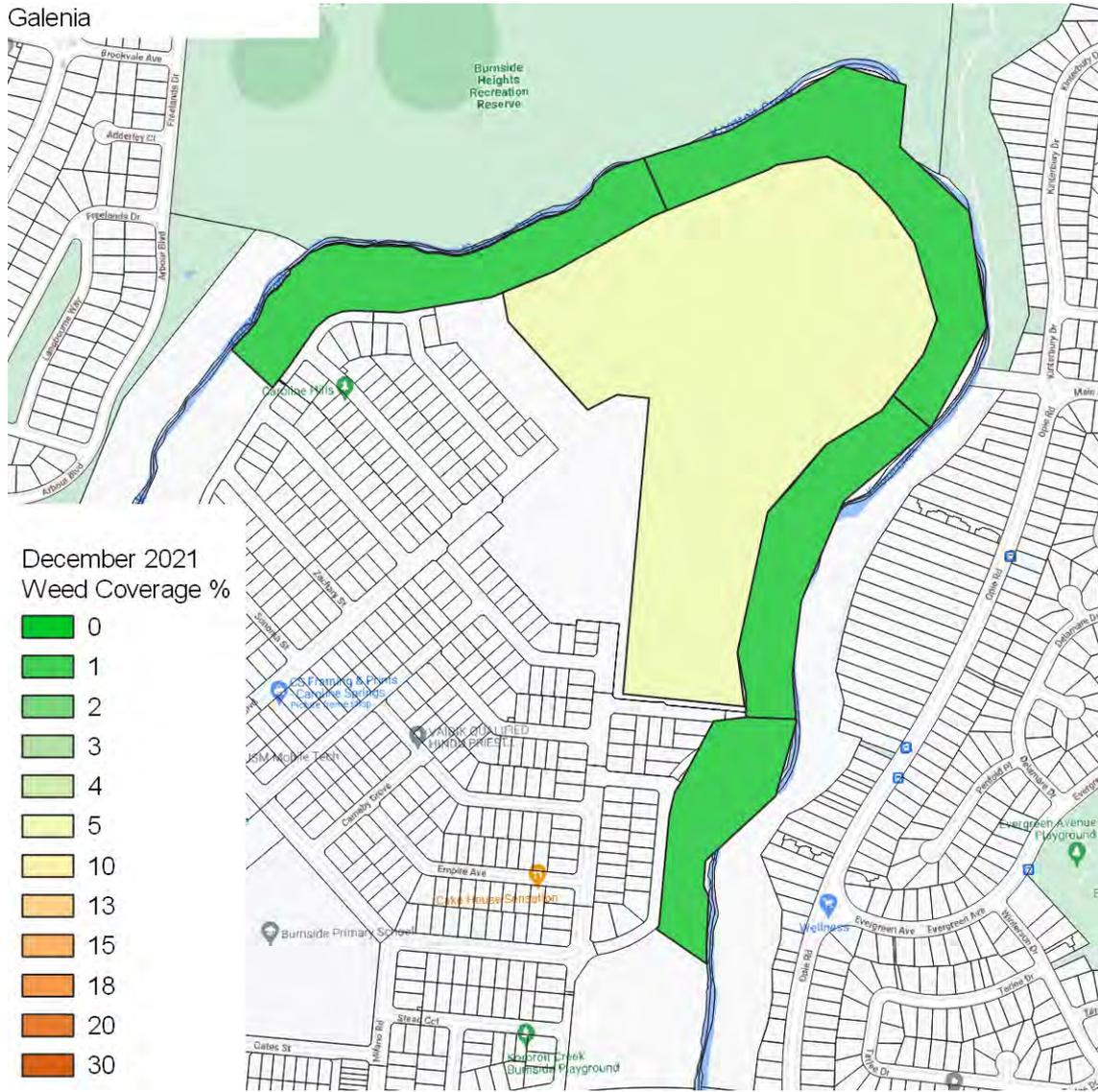
This perennial creeping, herbaceous plant growing to about 60 cm high and 1–2 m wide.

It is deep rooted and flowers from late spring to early autumn. Galenia reproduces by seed. Most dispersal of seed occurs by wind, water, birds and livestock. Movement of contaminated soil by vehicles and equipment can also contribute to its spread.

Drought and salt tolerant, galenia grows over and smothers existing vegetation by forming a thick dense mat. It invades coastal dunes, pastures, disturbed areas, lawns, roadsides and rocky outcrop vegetation. Galenia is known to produce nitrates that can be toxic to stock.



Galenia



#### 4.10 Horehound - Marrubim vulgare

Not declared or considered noxious

Target coverage <5%

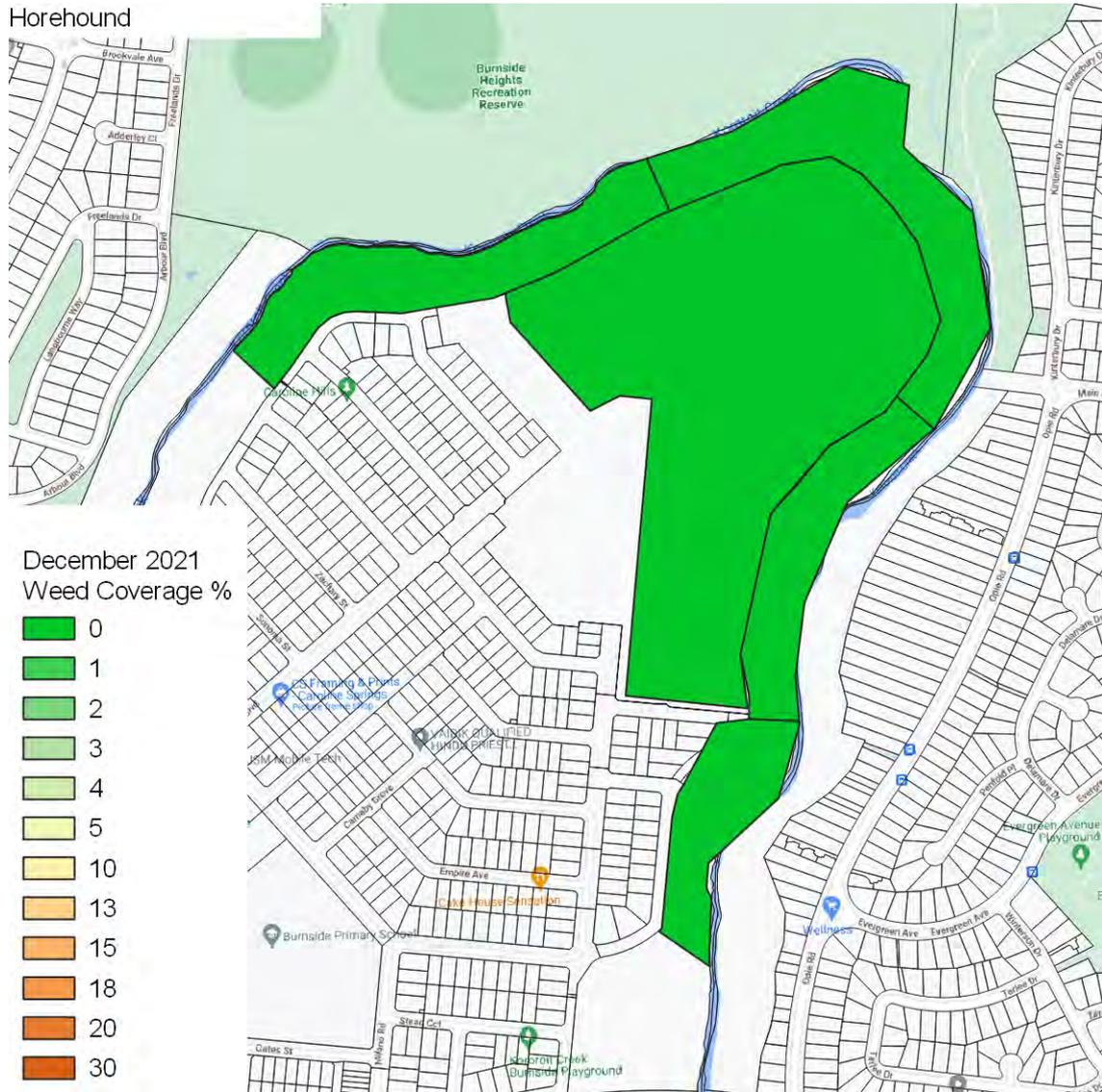
##### Current Coverage

Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	0%
October 2021	0%	1%	0%	4%	3%
August 2021	0%	1%	0%	1%	0%
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	1%	1%	0%
Oct 2020	1%	0%	1%	0%	0%
June 2020	0%	1%	0%	1%	0%
April 2020	0%	1%	1%	0%	0%
Dec 2019	0%	0%	0%	0%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	0%	1%	1%	1%	1%

A bushy perennial plant, 30 to 80 cm high, sharply aromatic when crushed, covered with dense whitish hairs. Horehound thrives on poor soil and in waste places. It invades poor pastures which provide little competition. Horehound contains a bitter alkaloid which makes it unpalatable for grazing livestock. As well as being an agricultural weed of pastures horehound has become an important environmental weed because of its ability to invade disturbed native vegetation



# Horehound



## 4.11 Paterson's Curse - *Echium plantagineum*

Regionally controlled

Target coverage < 5%

### Current Coverage

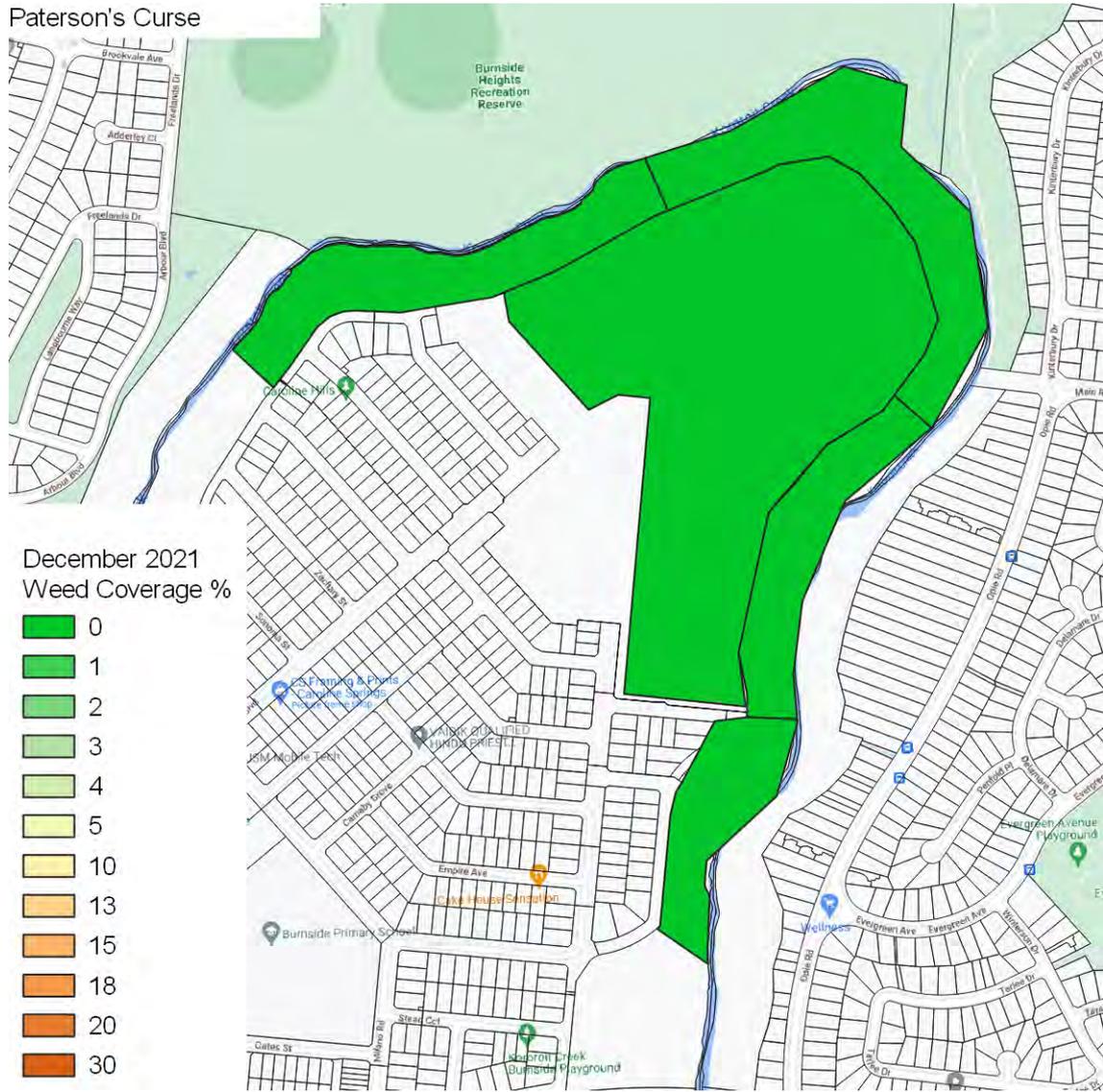
Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	0%
October 2021	0%	0%	0%	0%	10%
August 2021	0%	0%	0%	2%	10%
Apr 2021	0%	0%	0%	0%	0%
Dec 2020	1%	1%	1%	1%	2%
Oct 2020	2%	1%	1%	2%	2%
June 2020	2%	2%	5%	5%	5%
April 2020	5%	10%	5%	5%	10%
Dec 2019	5%	1%	2%	2%	2%
Oct 2019	5%	2%	2%	1%	2%
July 2019	5%	2%	2%	1%	1%

Paterson's curse is an annual, occasionally biennial, herb that grows as a rosette in autumn and winter and produces flowering stalks in spring and early summer. The rosette usually grows parallel to the ground, however the leaves may be erect in dense vegetation.

Plants begin to produce flowering stalks in late winter, commence flowering in early spring and die in summer. The flowers are usually purple but may be blue or pink. The first mature seeds are produced four to six weeks after flowering commences.



Paterson's Curse



## 4.12 Prickly Pear - *Opuntia* spp.

Regionally controlled

Target coverage <5%

### Current Coverage

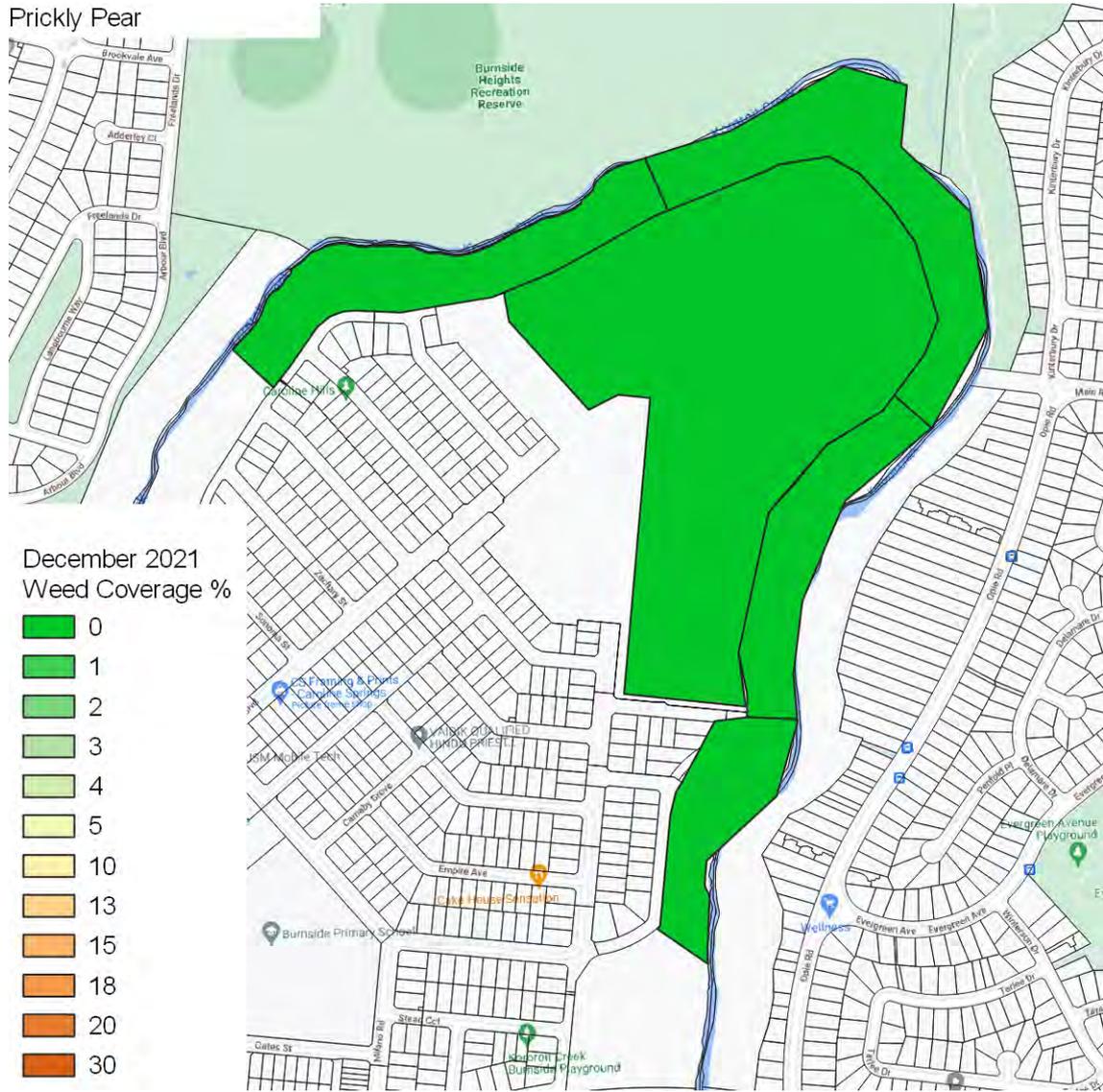
Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	0%
October 2021	0%	0%	0%	1%	0%
August 2021	0%	1%	0%	1%	0%
Apr 2021	0%	1%	0%	1%	0%
Dec 2020	0%	1%	0%	1%	0%
Oct 2020	0%	1%	0%	1%	0%
June 2020	0%	1%	0%	0%	0%
April 2020	0%	1%	0%	1%	0%
Dec 2019	0%	1%	1%	1%	0%
Oct 2019	0%	1%	1%	1%	0%
July 2019	1%	1%	2%	2%	1%

Prickly pear is an erect succulent shrub which can grow to a height of 5 m. The stems of prickly pear are commonly grey-green to light green. The plant usually has one main woody stem with dense prickles, which gives way to a number of side branches made up of fleshy segments. The segments are approximately 45 cm long, 15 cm wide and 1-2 cm thick, with the upper segments appearing to droop.



Each plant segment has areoles, which are growing points where new segments, flowers or roots can be produced. Each areole has short tufts of finely barbed bristles and sometimes one to five sharp, 5 cm long spines. Spines are more common on segments that are older and lower on the plant.

# Prickly Pear



#### 4.13 Sweet Briar - *Rosa rubiginosa*

Regionally Controlled

Target coverage <1%

##### Current Coverage

Mgt Zone	2	4	5	3	DZ
December 2021	0%	0%	0%	0%	1%
October 2021	1%	1%	1%	1%	1%
August 2021	1%	1%	1%	1%	1%
Apr 2021	1%	1%	1%	1%	1%
Dec 2020	1%	1%	0%	0%	0%
Oct 2020	1%	1%	0%	0%	0%
June 2020	1%	1%	1%	0%	0%
April 2020	1%	1%	0%	1%	0%
Dec 2019	1%	1%	0%	1%	0%
Oct 2019	1%	1%	1%	1%	0%
July 2019	1%	1%	1%	1%	1%

Sweet briar is a perennial woody shrub up to 3m tall. The stem is usually many (and can be up to several hundred) stems arising from the rootstock; erect or scrambling, up to 3 metres high, green and smooth to brown and somewhat roughened, woody, branched, spreading and sometimes trailing, heavily covered with down-curved prickles up to 1.5 cm long.





#### 4. 14 Chilean Needle Grass - *Nassella neesiana*

Regional restricted

Target coverage < 5%

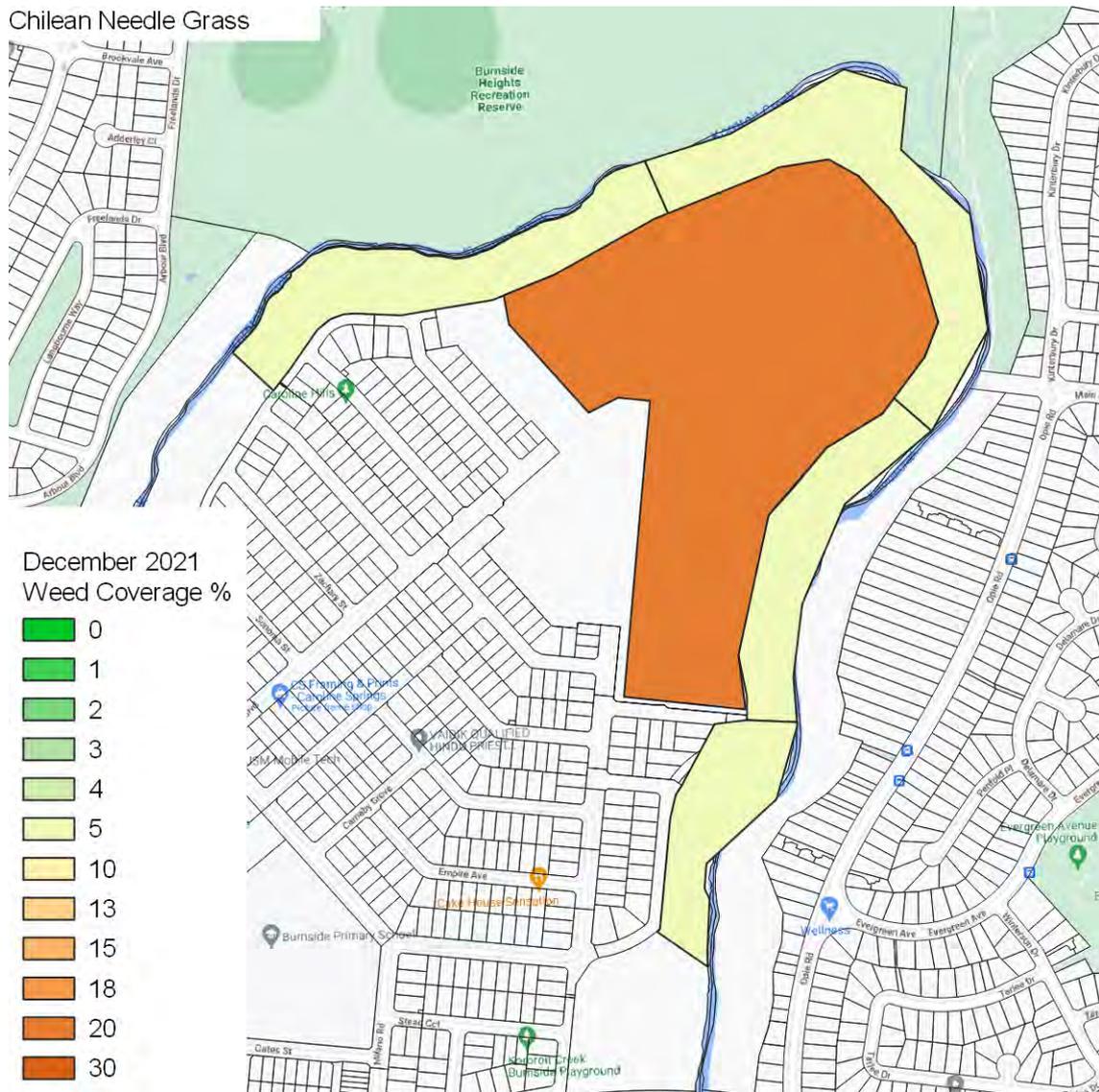
##### Current Coverage

Mgt Zone	2	4	5	3	DZ
December 201	5%	5%	5%	5%	20%
October 2021	5%	3%	5%	5%	15%
August 2021	5%	3%	5%	5%	15%
Apr 2021	2%	2%	5%	5%	2%
Dec 2020	0%	0%	2%	2%	2%
Oct 2020	0%	0%	2%	5%	2%
June 2020	0%	0%	2%	1%	2%
April 2020	0%	0%	1%	5%	2%
Dec 2019	0%	0%	1%	5%	2%
Oct 2019	0%	0%	1%	2%	5%
July 2019	1%	1%	1%	5%	10%

Chilean needle grass is a tussocky perennial in the Speargrass group of grasses growing to about 1 m high. It leaves are hairless and are normally grow to 30 cm long and 5 mm wide. With the flowering head being to 40 cm long.



# Chilean Needle Grass



#### 4.15 Toowoomba canary grass - *Phalaris aquatica*

Not declared and considered noxious

Target coverage < 5%

##### Current Coverage

Mgt Zone	2	4	5	3	DZ
December 2021	25%	25%	20%	25%	30%
October 2021	15%	20%	20%	20%	4%
August 2021	13%	18%	20%	20%	4%
Apr 2021	5%	5%	5%	5%	2%
Dec 2020	2%	2%	2%	2%	0%
Oct 2020	5%	5%	5%	5%	0%
June 2020	2%	2%	2%	2%	0%
April 2020	2%	2%	2%	2%	0%
Dec 2019	1%	2%	5%	5%	5%
Oct 2019	1%	2%	5%	5%	5%
July 2019	1%	5%	15%	20%	20%

Widely used as a pasture species where annual rainfall exceeds 450 mm. It prefers fertile, seasonally moist sites. Commonly spreads from pastures, road verges and drainage ditches to adjacent indigenous vegetation. Toowoomba canary grass invades dry coastal vegetation, heathland and heathy woodland, lowland grassland and grassy woodland, dry sclerophyll forest and woodland, damp sclerophyll forest, riparian vegetation and freshwater wetlands.





#### 4.16 Serrated Tussock - *Nassella trichotoma*

Regionally Controlled - *Weed of National Significance*

Target coverage < 5%

##### Current Coverage

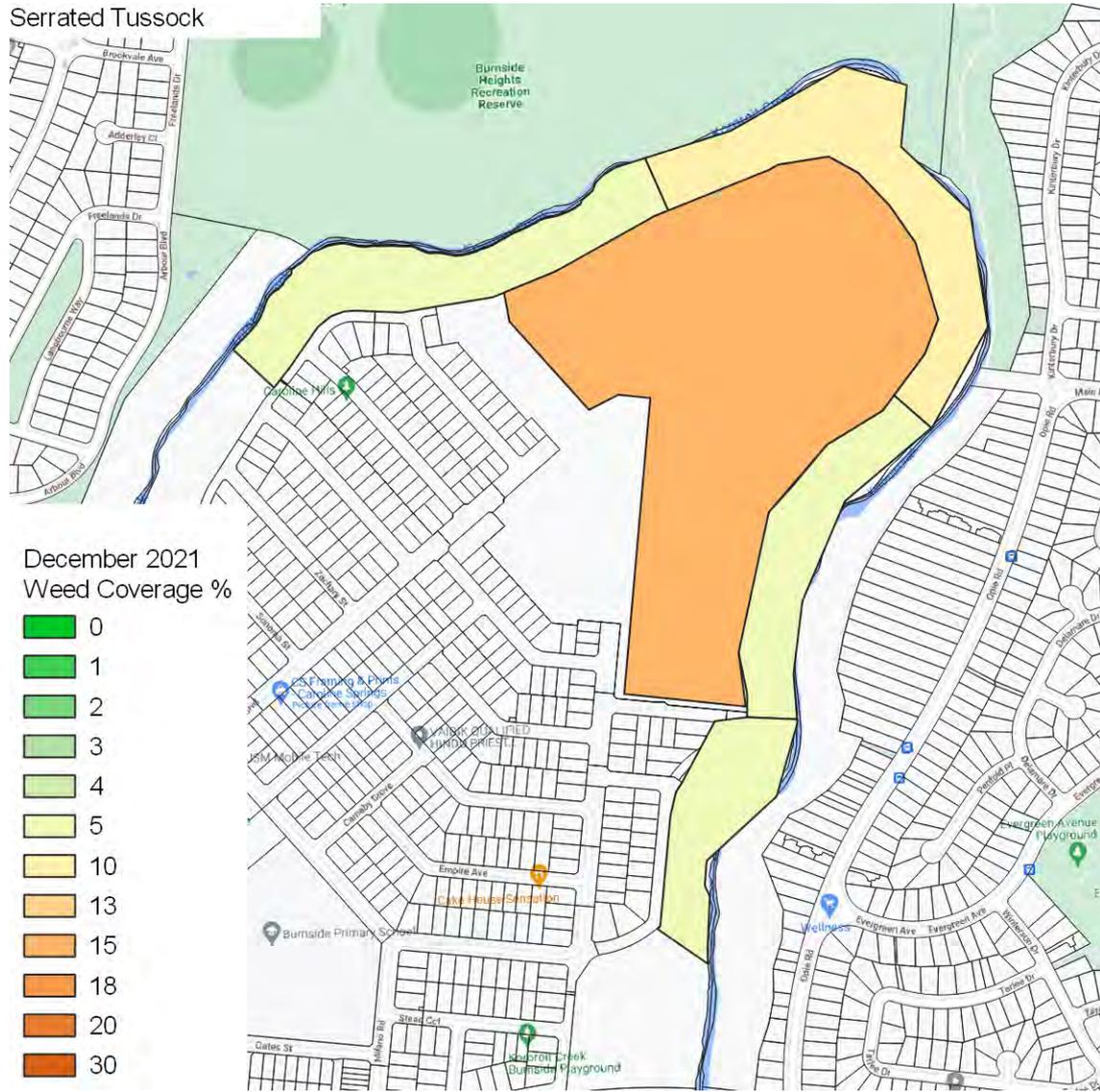
Mgt Zone	2	4	5	3	DZ
December 2021	5%	10%	5%	5%	15%
October 2021	10%	15%	5%	10%	30%
August 2021	5%	15%	5%	10%	13%
Apr 2021	5%	5%	5%	5%	10%
Dec 2020	2%	2%	2%	2%	2%
Oct 2020	5%	5%	5%	2%	5%
June 2020	5%	5%	5%	2%	5%
April 2020	5%	5%	5%	2%	5%
Dec 2019	5%	5%	5%	5%	10%
Oct 2019	5%	5%	0%	5%	5%
July 2019	10%	20%	5%	20%	15%

Serrated tussock is a long lived perennial grass growing up to 60cm in height with a base of 25cm in diameter. Plant size varies with soil fertility and location. In infertile conditions plants may only reach a height of 15cm. Serrated tussock is shallow rooted with an extensive network of fibrous roots occurring predominantly in the top 20cm of soil. The roots are dense, wiry and fibrous making serrated tussock very difficult to pull out, even when small. Flowering stems emerge from the base of the plant. They are multi-branched



and up to 35cm long. The purple colour of the small seeds produces an overall purplish haze to the serrated tussock seed head. Once the seeds have formed, the entire seed head will 'droop' over the tussock towards the ground. Flowering takes place as early as late winter (August) and will continue throughout the spring (September – November). Autumn flowering has been known to occur. Seeds take 8 – 10 weeks to mature, normally occurring throughout the spring and summer months. Once seeds are ripe, the whole flowering stem detaches from the base of the plant and is dispersed by the wind. Seed is dormant and will not germinate for about 6 months.

Serrated Tussock

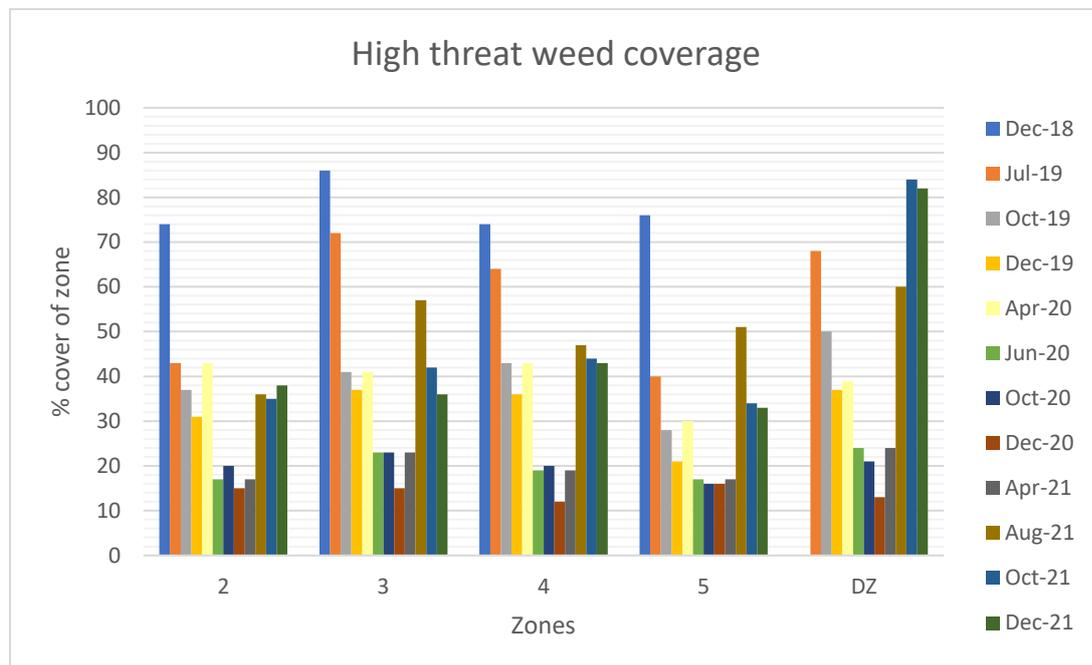


## 6.0 Summary

### 6.1 Overview

The below table displays the total percentage coverage in each zone of high threat weeds. Since the previous report there has been a further downturn in the overall coverage of high threat weeds across most zones, due to the targeted treatment of these weeds between the reporting periods. As with previous months the recent high rainfall has favored many of the grass species present. During this visit it was noted that *Phalaris aquatica* (Toowoomba Canary Grass) had taken over the niche previously occupied by the lesser invasive *Avena sp.*

Approximately 50% of the development zone is now under construction. The area is fenced off and all vegetation has been removed or is in the process of being removed.



### 6.2 Zone 2

The zone continues to be dominated by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of erosion.

As previously noted, all woody weeds have been controlled, with a limited number of specimens counted across the site. One cluster of Century Plants still surviving and showing no signs of ill health, this shall be treated in the coming months. Also, three large surviving boxthorns need to be re-treated, these were unable to be treated during the recent visit due to excessively wet conditions.

### 6.3 Zone 4

As with above zone this zone continues to be dominated by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

All woody weeds had been controlled, with a limited number of specimens counted across the site.

### 6.4 Zone 5

This too continues to be heavily dominated by the by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

All woody weeds have been controlled, with a limited number of specimens counted across the site.

### 6.5 Zone 3

This too continues to be heavily dominated by the by the highly invasive large grass *Phalaris aquatica*. Future removal of the species should be done slowly, concentrating from the areas of higher vegetation value outwards to allow the natural regeneration of the newly opened areas without significantly increasing the chances of invasion by other unfavourable species such as one of the *Nasella sp.* on site, as was observed and recorded in the last report.

### 6.7 Development zone

This area varies significantly, with patches dominated by the native Kangaroo and Wallaby grass and others previously dominated by Serrated Tussock, now dominated by *Phalaris aquatica* .

## 7.0 Conclusion

A low prevalence of herbaceous high threat weeds (Spear Thistle, Fennel, Cape weed or Paterson's Curse) and higher than usual rainfall has allowed the *Phalaris aquatica* to move into areas that had previously been too dry, as the weather dries out with summer these should die back. Many *Phalaris aquatica* plants along the creek line have remained untreated for the last several visits. They have been left to reduce the risk of erosion concerns.

Rather than a widespread herbicide treatment, future slashing regimes, interspersed with selective treatments were individuals and or small stands are in close proximity to higher vegetation values may be a better path moving forward. This has and shall continue to be incorporated into the future treatment regime.

[Appendix 6: Cressy offset site, Year 2 \(2021\) annual report](#)

# Annual Management and Monitoring Report

Year 2: Feb 2020 – Feb 2021

Central Eastern Grassland (EPBC 2011/6063)

6165 Hamilton Highway, Cressy



June 2021

## Annual Management and Monitoring Report

Year 2: April 2020– Feb 2021

Central Eastern Grassland (EPBC 2011/6063)

6165 Hamilton Highway, Cressy

Report by Emma Wilkin

Cover images: "Long Paddock" Offset Site, 6165 Hamilton Highway, Cressy, 2017

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### Acknowledgments:

Practical Ecology acknowledge the Traditional Custodians of the land, the Wurundjeri Woi Wurrung people of the Kulin Nation, on which our office is located. We pay our respects to their Elders, past and present.

We also acknowledge the Traditional Custodians of the Lands on which we conduct our business throughout Australia.

We pay our respects to their Elders, past and present, and the Aboriginal Elders of other communities who may be present on those lands.

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Version	Date	Version notes
0.1	16/5/21	Version 1 for client review

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# 1. INTRODUCTION

Practical Ecology Pty Ltd was commissioned by Deep Lead Pty Ltd to undertake monitoring and associated annual reporting for biodiversity offsets located at Long Paddock Offset Site, 6165 Hamilton Highway, Cressy.

The offset was created as part of infrastructure works undertaken by **Dennis Family Corporation** requiring removal of vegetation, as prescribed by the Department of Environment and Energy (DoEE) under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) in relation to **referral 2011/6063**.

This report presents information of the monitoring and works of the site for Year 2 of a 10-year management plan for **Offset Management Zone 5 (OMZ-05)**, named the **Central Eastern Grassland**, centred within the 75ha offset property at Cressy.

The date of legal execution for the Offset Management Plan (OMP) for this site in **17<sup>th</sup> April 2019**. (Brett Lane and Associates, 2018)

The requirements of annual reports state that submission to relevant authorities and stakeholders is required at least two months prior to the anniversary date of the execution of the OMP. As such, the reporting period for this site for Year 2 is **February 2020 – February 2021**

**Table 1.** Overview of current offset agreements located on-site

	Zone Name	Offset Management Zone	Size	Date of Legal Execution
Tier 1	Northwest Grassland (NWG)	OMZ-01	5 ha	4th October 2018
Tier 2A	Central East Grassland (CEG)	OMZ -05	29.1 ha	17 <sup>th</sup> April 2019
Tier 2B	Seasonal Herbaceous Wetland Two (SHW2)	OMZ -04	11.86	17 <sup>th</sup> April 2019
Tier 2C	Seasonal Herbaceous Wetland One (SHW1)	OMZ -03	2.52 ha	17 <sup>th</sup> April 2019
Tier 3	Far East Grassland (FEG)	OMZ -06	16 ha	TBC 2020
	Southwest Grassland (SWG)	OMZ -02		

## **2. METHODS – SITE MANAGEMENT**

The following methods for monitoring and works have been implemented in response directions stated in the OMP (Brett Lane and Associates 2018) for the site Offset Management Zone 5 (OMZ-05) located within the Long Paddock Offset Site at Cressy, Victoria. Actions stated within the OMP are required to be completed annually, with methodology and monitoring to be applied within an adaptive management framework.

### **2.1 Fencing**

The fence along the Hamilton Highway denoting the northern boundary of the site is partially stone wall; while the rest of the boundaries are constructed of wire with sheep netting.

Sturdy stock and vehicle proof fencing was in place for the perimeter of the entire 75 ha property at the time of property purchase and remains strong and functional.

#### **2.1.1 Offset Management Zone Demarcation**

On-site demarcation of OMZs is necessary to define the areas of the site to which varying OMPs apply, as shown in Appendix 2: Map 2

Given the susceptibility of Striped Legless Lizard and Golden Sun Moth to predation by birds, the amount of on-site marking of OMZs has aimed to minimise bird perching opportunities. The OMZs across the site have not been fenced. Instead, the intersections of the OMZs with boundary fencing has been marked with short (approx. 30 cm high) star pickets in the locations shown on Map 2. A yellow plastic cap has been placed on the top of each star picket to allow for easier visual observation; the purpose of each has also been labelled with a cattle tag. The demarcation points also serve as permanent photo point locations.

Posts marking the intersect of the boundary for the extent of the site was completed, installed along the existing property fence line to identify the area of OMZs for monitoring and management

Site Photo points are established at the boundary intersects of the OMZ across the extent of the site (refer Appendix 2– Map 3).

### **2.2 Weed Control**

Weed management is required to be conducted by a suitably qualified contractor. The nominated contractor for the Long Paddock Offset Site is Seed2Leaves Pty Ltd.

The weed control program for the site is comprised of one grazing event in Autumn, and one treatment event in late Winter/early Spring, or during other times as required or appropriate.

Basic principles for weed management at the site are as follows;

- Careful spot-spraying is the default method for treatment within the site in order to minimise off target damage
- All weed control is conducted under appropriate conditions, in line with best practice protocols
- No off-label use of herbicide is permitted
- All contractors are required to complete a daily work record, identifying species targeted, herbicide type, rate and amount, and works areas, as well as diary/logbook entries as standard

### 2.2.1 Woody Weeds

- Woody weeds are treated as soon as possible, after identification, to reduce opportunity for maturity/flowering
- Cut and paint method may be implemented any time of year, as appropriate of size/life cycle of species
- Where spot spraying is required for woody weeds, this occurs in Spring

A focus on thistle control was prioritised in early 2019, and featured a sweep of the entire site, with all visible thistles targeted through spot spraying.

### 2.2.2 Herbaceous and Grassy Weeds

Where possible, main methods of control should be a combination of grazing and ecological burns as best practice, to limit the requirement of herbicide use within the site.

If herbicide is required, spot spraying is permitted, and can occur in late Winter/early Spring.

## 2.1 Biomass Management

Biomass reduction practices are focused on sheep grazing between end of January and end of September each year. The entire property is currently split in two, creating the option for grazing to be focused on one section of the property as required.

Sheep are brought from a local property, and regular monitoring of the site is conducted when sheep are present, to determine

- Determine the overall progress or success in reducing biomass,
- Identify any areas that indicate selective or over-grazing,

- Identify status of target weed species,
- Assess areas of waterlogged soils, or inundated areas for signs of pugging, or damage to sensitive vegetation,
- Assess fence condition

Ecological burning has not yet been implemented as a biomass management method, due the logistical requirements that limit opportunity. A burn plan is in development for ecological burns to be conducted in future years,

### **3. METHODS – SITE MONITORING**

#### **3.1 Site Log Book**

The site log book is an online record of times and dates that landowners, contractor, consultants or other relevant parties that have visited the site for the purposes of implementing management or monitoring actions within the property boundary.

This logbook may be maintained by the landowners, through correspondence with contractors, or may be accessed directly through a Dropbox account by approved personnel to record important information relating to site management.

Typical entries include date, name of personnel on site, activities being completed, general observations of flora or fauna, weather, presence of standing water, comment on biomass etc.

This logbook plays an important role in identifying the presence and extent of any management threats or observations, and is especially useful to present observations over extended periods of time that can be investigated further as required.

#### **3.2 Quarterly site visits**

The site and offset are required to be visited quarterly for formal inspections, and can be combined with visiting the site to conduct other monitoring or management actions. The following activities must be undertaken at each quarterly visit;

- walk of boundary fencing, to assess any signs of damage or unauthorised entry.
- general observations are to be recorded during site boundary walk. This includes locations and notes as appropriate regarding;
  - woody or herbaceous weed infestations– species and location
  - estimates of percentage cover of inter-tussock space
  - signs of pest animals, or other tracks scats, or signs of predation
  - signs of erosion, damage to vegetation,

#### **3.3 Weed Monitoring**

Weed monitoring is conducted by a suitably qualified bushland contractor or ecologist in Spring each year, in conjunction with biomass monitoring. Weed monitoring involves;

- Inspection of the entire offset site for woody weeds, by walking through the area, to visually inspect the presence of any woody weed. All infestations or individual woody weeds are mapped with a GPS or tablet, and location are recorded for subsequent treatment
- While conducting the woody weed survey, notes are taken regarding the cover of herbaceous weed species, and cover is estimated to the nearest 5%, (if >5% cover is observed) or the nearest 1% (where <5% cover is observed). Species are areas suitable are mapped to inform subsequent treatment

### 3.4 Photopoints

Permanent photopoints are located at intervals along the external boundary fence of the property, the junction of separate offset site areas.

Photos at each junction are taken in east, west and north/south directions (back to the boundary, facing into the site) to visually compare the site long—term.

### 3.5 Grazing Progress Monitoring

To date biomass management has been implemented through grazing sheep. Deep Lead Property Ltd has made an agreement with the farmer who formerly owned the site to provide a mob of sheep, with mob size varying between 400–1000, to graze the site through summer and autumn. Sheep have to be trucked to the site and their management is limited by the availability of only one water source on the property; a fence on one side of the dam in the centre of the block is used to limit the sheep to half the block for some of the time they are grazing on the site.

Site is checked regularly at times during stock grazing. Notes are taken regarding general site condition, grazing and biomass reduction progress, signs of trampling, overgrazing, pugging etc. and recorded in the site log book.

### 3.6 Biomass and Inter-tussock space

There has been additional biomass assessment methodology included in the Year 2 monitoring period within OMZ-05. This methodology utilises a total of 90 2x2 meter quadrats that are placed at 50m intervals along entire length the 75ha property across all Offset Management Zones (refer Long Paddock Manual– Practical Ecology 2020 for full methodology).

There are two systems in place to measure biomass at each quadrat. Using both systems results in a greater depth to the data collected and a clearer picture of how the landscape is changing and if management goals are fulfilling their objectives. This allows for more effective management and opportunities for adaptive management

**Indicator Species (Lunt 2003)**

Lunt's system (Lunt 2003) has been written specifically for the degraded grasslands in the western basalt plains of Melbourne. The three species chosen from this area as indicator species are Lemon Beauty-head *Calocephalus citreus*, Common Everlasting *Chrysocephalum apiculatum*, and Scaly Buttons *Leptorhynchus squamatus*, all of which occur on the offset sites. By measuring the abundance of these species over the quadrats, it will show where native and exotic grasses have not out-competed native herbs. This serves as an indicator of sufficient inter-tussock space for biodiversity and species abundance. The goal is to attain a score of 3 on the Braun-Blanquet scale or 25–50% cover of indicator species.

#### **Inter-tussock space.**

The percentage of bare ground present is separated into five cover categories: 1–20%, 20–40%, 40–60%, 60–80%, and 80–100%. The objective range that must be maintained across the grassland over time is 20–40% bare ground with closer to 40% being the desirable goal. If the amount of bare ground reaches 50% pulse grazing should halt. This measurement of bare ground provides a clearer assessment of what areas should be targeted for biomass reduction and when mapped can show areas where controlled burns are a higher priority.

## 4. RESULTS

### 4.1 Site Log Books

Refer Appendix 3 for all log book entries in the Year 2 management period.

It is worth noting that Year 2 corresponds with the 2020 global Coronavirus pandemic. Varying levels of restrictions on movement of people in and out of Metropolitan Melbourne, as well as regional restrictions throughout Victoria resulted in

### 4.2 Quarterly Site Visits

#### 4.2.1 Fence condition

Surveys of the property boundary and existing fence were conducted at each site visit and observations and have recorded no signs of damage or requirement for repair. There has been no evidence of any trespassing by vehicles or people on foot, and no signs of unpermitted stock access outside of the grazing period within the Year 2 period.

#### 4.2.2 General Observations

The key general observations that relate to OMZ-05 during Year 2 are summarised in the following table. Refer Appendix 3 for full logbook entries for Year 2.

**Table 2.** Key observations Year 2– OMZ-05

6-Jan-2020	Site all green and lush from lots of rain and warmth.
15-Mar-2020	Lack of rain has caused grass to dry out and stop growing fortunately but biomass still high.
16-Mar-2020	Sheep arrived on site– 708 sheep in total–
19-Mar-2021	Sheep checked– already some reduction in biomass since assessment Dec 2019, due to both sheep and lack of rain in last few months
30-May-2021	Sheep checked and level of biomass. Biomass reduction is substantial but there is still room for more eating to get the biomass. The site still doesn't have standing water anywhere and the sheep are not causing pugging anywhere.
7-June-2021	Sheep removed –losing weight. Biomass, esp. Phalaris reduced
15-Nov-20	Biomass levels high due to high rainfall, despite grazing of sheep earlier in the Year

## 4.1 Pest animals

Observations of pest animals are generally recorded in the property log book for any observations of pest animals occurring on site.

There were no recorded sightings of pest animals at OMZ-05 within the Year 2 management period. There were no signs of active or inactive rabbit warrens, or areas that could be seen an intensely browsed. There are also no areas of rubbish, or harbour within the site.

Foxes are likely to occur within the area, but none have been observed within the property boundary.

Individual hares are sometimes sighted, but are not found to be creating disturbance, or any other impact to site values.

## 4.2 Photo points

Refer Appendix 2– Map 3: Boundary Photo point locations, and Appendix 4– Boundary Photopoints

## 4.3 Biomass Quadrats

Biomass quadrats were assessed on 26th November 2020 by Emma Wilkin of Practical Ecology.

A total of 47 quadrats are located within or on the boundaries of OMZ-05.

A visual representation of results of this survey are presented in Appendix 2– Map 2 and 4: Inter-tussock space.

**Table 3.** Biomass monitoring results

	High Biomass (1–20% inter-tussock space)	Acceptable Biomass (21–40% inter-tussock space)
Year 1	62% (29 grids)	38% (18 grids)
Year 2	62% (29 grids)	38% (18 grids)

## 5. DISCUSSION

### 5.1 Biomass reduction

There are ongoing issues that relate to biomass management at the site. Historically, prior to the purchase of the property for conservation, sheep grazed continually throughout the year and were based at the site permanently. It may be the case that this site has adapted well to the presence of sheep on a permanent basis, and that removal of sheep at certain times of the year where there is high rainfall has potential to dramatically increase biomass over a very short period.

Biomass management has therefore been noted as potentially problematic at this site, given that the use of ecological burns as management tool has also been difficult to implement thus far because of difficulty getting an insured service provider. The combination of generally high biomass levels, narrowing burn windows, proximity to agricultural land, as well as additional considerations of wetland areas and key fauna species Golden Sun Moth and Striped Legless Lizard, all result in the requirement of an intricate and carefully considered burn plan. Such a burn plan has not yet been developed for the site and has been highlighted for completion in 2021. Similarly, a infrastructure to support cell grazing is also being planned, including additional water points at the east and west ends, and permanent fencing to concentrate sheep grazing and allow for protection of establishing vegetation for future planned burns.

Biomass monitoring was conducted throughout the extent of the property, to inform required changes to the current grazing schedule and provide evidence for adaptive management. Biomass is high overall, with over half of the assessed area having high biomass (1–20% inter-tussock space). Locations within the Zone that experience inundation tend to have lower overall biomass, due to intermittent waterlogging and drying periods, resulting in a die off of grassland flora that are intolerant to inundation. The results of this year show no change in average biomass levels across the zone, despite grazing of the site for approximately 3 months. Seasonal factors are important to acknowledge, as this period was one of higher-than-average rainfall and warm weather consistent with a La Nina event.

Discussions with Trust for Nature are planned for the implementation of adaptive management through changes to permitted grazing periods for the extent of the property. Restriction of grazing periods are stated within each of the OMPs for the site, are generally for mitigation of the potential for damage from the presence of sheep, through pugging, trampling or over-grazing. Grazing restrictions for OMZ-5 require pulse-grazing only, from end of January to end of September. No pugging has been identified within inundated or waterlogged areas of the reserve, with the exception being around the dam, as a high-use area. Sheep are seen to purposely avoid walking through inundated areas, and are anecdotally known to avoid having wet feet. Some trampling is caused to the vegetation where sheep trails occur, through this is also a contribution of years of continuous use of sheep moving across the site using the same established trails and is unavoidable. The purpose of discussions with Trust for Nature will be to extend grazing periods within the property, under the proper supervision, monitoring and assessment of conditions, in order to decrease biomass through extended grazing and improve overall site condition.

## 6. REFERENCES

Brett Lane and Associates (2018). *Modeina Precinct 2 Project Areas C1, C2 and D – Cressy Offset Management Plan*. Hawthorn.

Commonwealth of Australia (2012). *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Commonwealth of Australia,.

Lunt, I. D. (2003). A Protocol for Integrated Management, Monitoring, and Enhancement of Degraded *Themeda triandra* Grasslands based on Plantings of Indicator Species. *Restoration Ecology*, 11, pp. 223–230.

Practical Ecology (2020). *Long Paddock Management and Monitoring Manual*. Preston.

## Appendix 1. Summary of required management actions – Year 1

Management Actions Years 2–9	Timing	Target to be achieved	Actions completed	Month completed	Comments
Landowner to Liaise with TfN and develop annual works plan	Within 3 months of (Feb) each year	Annual Works Plan is prepared	N		Not completed
Monitor weeds and implement control if required: <ul style="list-style-type: none"> <li>- Ecological grazing to reduce biomass of introduced species and prevent seed set</li> <li>- Herbicide and/or flame weeding use as required</li> </ul>	March to May or September to November  As required as per optimal time for each species (herbicide and/or flame weeding)	See section 3.4.2, Table 5.	Y	General observation recorded throughout Year  Weed monitoring conducted in Spring	Monitoring conducted and information provided to nominated contractor
Map rabbit warrens using a GPS until and implement control Monitor fox populations and implement control if required	Autumn (or at commencement)	Pest animals controlled	Y		Site visits and monitoring found no signed of established pest animals – pest animal controlled deemed unnecessary
Biomass reduction through ecological burning or ecological grazing if required	February – May (Burning)  End of January to end of September (grazing)	Grassy Biomass layer reduced  Inter-tussock spaces maintained to optimise ecological function	Y	Grazing March– June	Sheep removed early due to loss of weight High rainfall resulting in lush growth and high biomass later in 2020

Management Actions Years 2–9	Timing	Target to be achieved	Actions completed	Month completed	Comments
Weed and Biomass monitoring	September to November	Results will inform management approaches and techniques	Y	Nov 2020	Biomass results similar to Year 1 Monitoring
Site quality audit (qualified ecologist engaged by the land owner)	Late Spring to early Summer Years 1, 4, 7, 10	Results will inform management approaches and techniques	na		Not required this year
Monitoring to determine fencing integrity and timeliness of management actions	Boundary fencing formally inspected every three months each management action monitored	Boundary fencing effective and management actions undertaken on time	Y	Fencing monitored at quarterly site inspections	Fences adequate, Rock wall required maintenance in 2021
Report to be prepared documenting management actions undertaken and monitoring results	No later than three months after the anniversary of commencement	Report delivered to DFC, TfN and DoEE no later than three months after the anniversary of commencement	N		Report not submitted by due date
<b>(TfN)</b> -Monitoring of the offset site to determine whether the prescribed management actions are resulting in the desired outcomes outlined in this plan	Three times over the life of the (OMP)	Feedback delivered to Landowner and DFC	Y		

## Appendix 2. Maps

Map 1: Tier 2A– Central Eastern Grassland (OMZ–05)

Map 2: Offset Management Zones– All

Map 3: Boundary Photo points

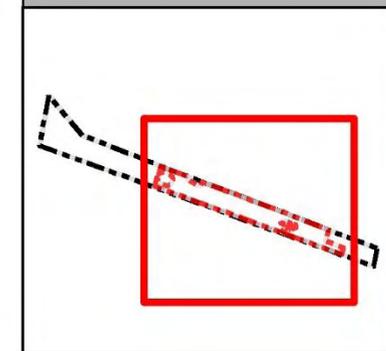
Map 4: Biomass Monitoring– 2x2m Quadrats



**Tier 2A – Central Eastern  
Grassland**  
6165 Hamilton Highway, Cressy

**Legend**

-  6165 Hamilton Hwy, Cressy
-  Tier 2A - Central Eastern Grassland
-  Parcels
-  Contours (10m)
-  Watercourse

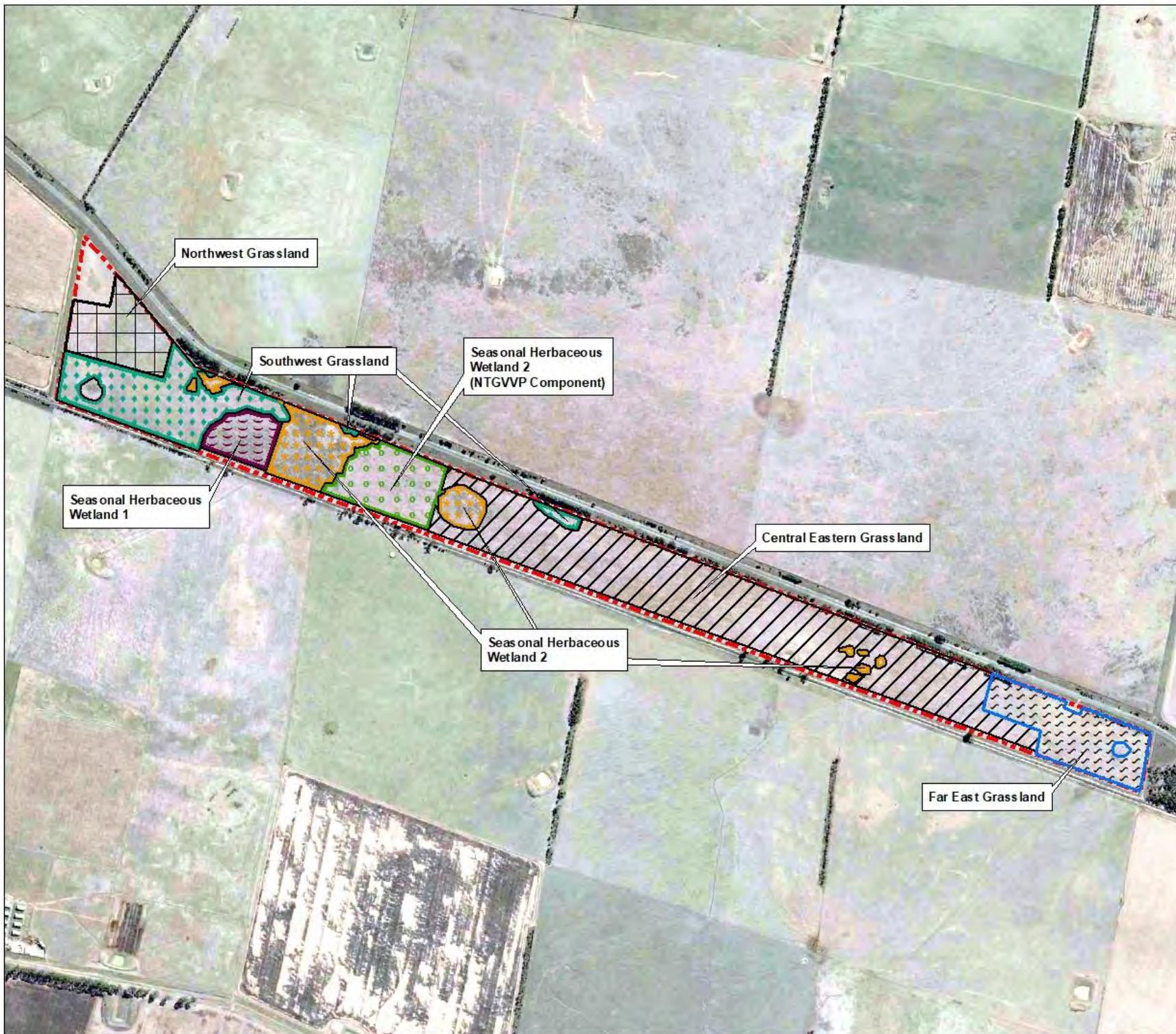


**Details**  
 Date: 4/11/2020  
 Aerial photography from Google Earth Pro (April 2015).  
 Base map data Copyright © The State of Victoria.

 N



Scale 1:6,000 (Page size A3)



## Map 2. Offset Management Zones

6165 Hamilton Highway, Cressy

### Legend

- Subject site
- Central Eastern Grassland
- Far East Grassland
- Northwest Grassland
- Seasonal Herbaceous Wetland 1
- Seasonal Herbaceous Wetland 2
- Seasonal Herbaceous Wetland 2 (NTGVVP Component)
- Seasonal Herbaceous Wetland 2 (NTGVVP Component)
- Southwest Grassland

### Details

Date: 30/01/2020  
 Aerial photography from Google Earth Pro (April 2015).  
 Base map data Copyright © The State of Victoria.



Scale 1:10,374 (Page size A3)

### Disclaimer

Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.



ecological restoration & consulting

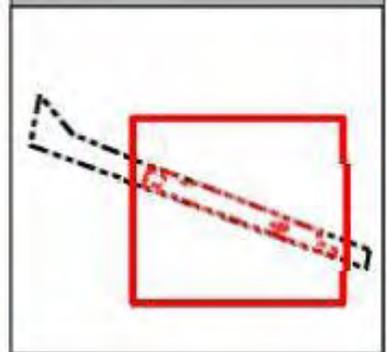
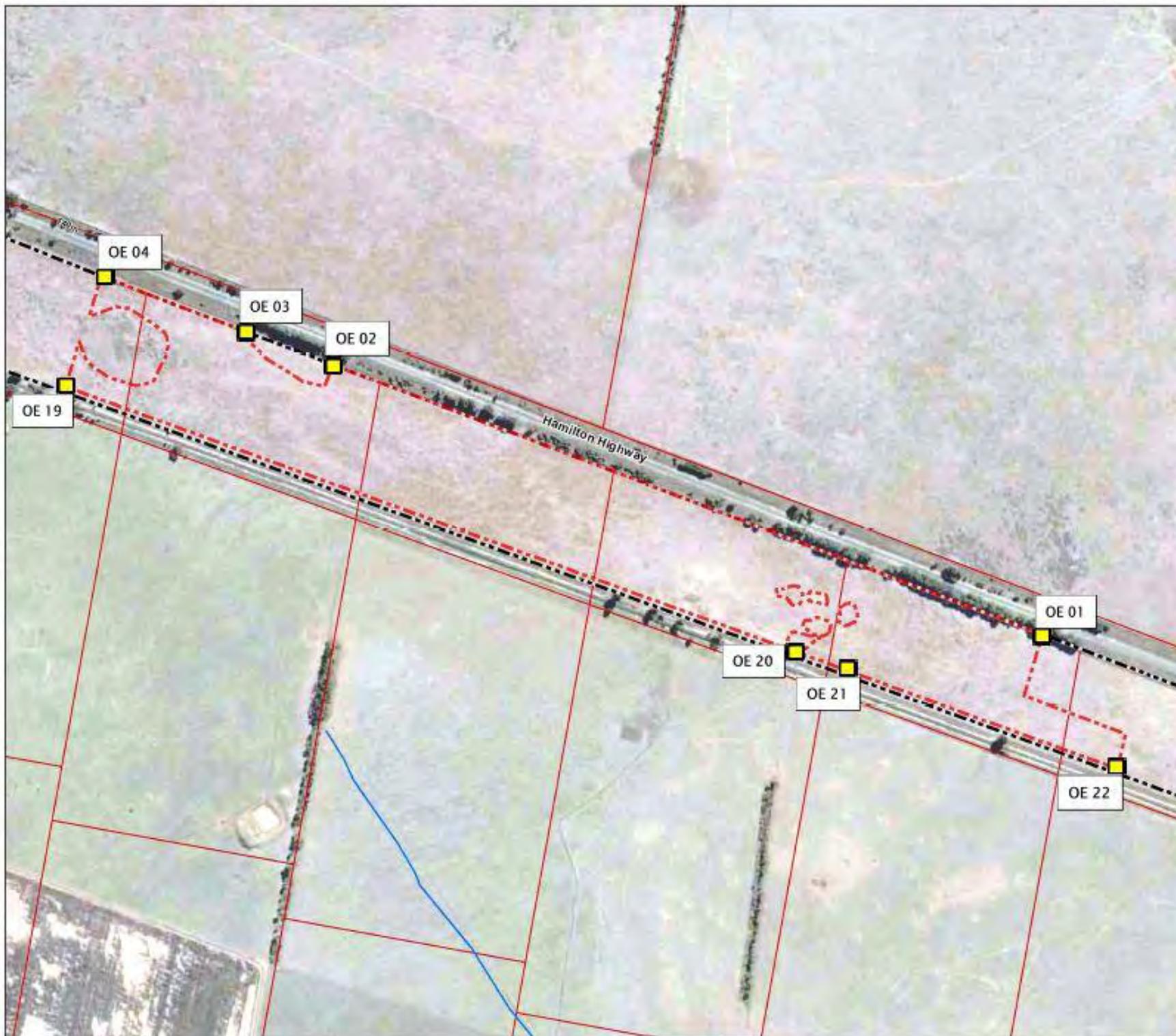
ph: (03) 9484 1555 e: enquiries@practical-ecology.com.au

## Tier 2A – Central Eastern Grassland

6165 Hamilton Highway, Cressy

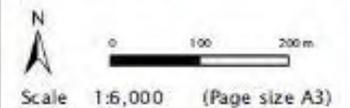
### Legend

- 6165 Hamilton Hwy, Cressy
- Tier 2A - Central Eastern Grassland
- Parcels
- Contours (10m)
- Watercourse
- Photopoints

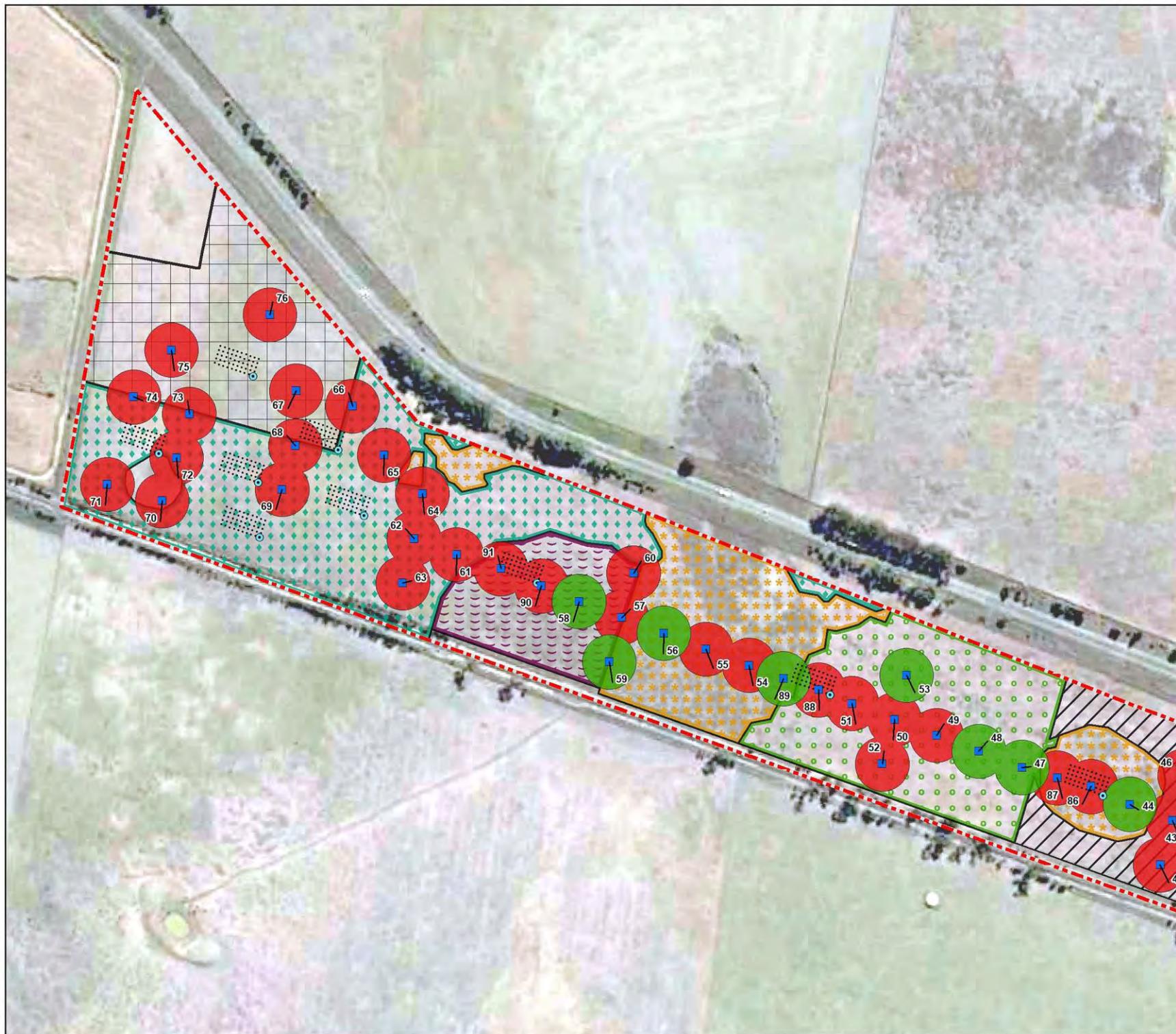


### Details

Date: 4/11/2020  
Aerial photography from Google Earth Pro  
(April 2015).  
Base map data Copyright © The State of Victoria.



**Map 4. Monitoring Results:  
Intertussock Space**  
6165 Hamilton Highway, Cressy  
Map 1 of 3



**Legend**

- Subject site

**Tiles**

- Tile
- SE corner tile (recorded on GPS)
- 4x4m quadrat -Biomass

**Inter-tussock Space**

- 1-20%
- 21-40%

**Management Zone**

- Central Eastern Grassland
- Far East Grassland
- Northwest Grassland
- Seasonal Herbaceous Wetland 1
- Seasonal Herbaceous Wetland 2
- Seasonal Herbaceous Wetland 2 (NTGVVP Component)
- Southwest Grassland

**Details**

Date: 4/11/2020  
Aerial photography from Google Earth Pro (April 2015).  
Base map data Copyright © The State of Victoria.

N  
0 100 200 m

Scale 1:4,050 (Page size A3)

**Map 4. Monitoring Results:  
Intertussock Space**  
6165 Hamilton Highway, Cressy  
Map 2 of 3



**Legend**

- Subject site

**Tiles**

- Tile
- SE corner tile (recorded on GPS)
- Quadrat biomass

**Biomass cover**

- 1-20%
- 21-40%

**Management Zone**

- Central Eastern Grassland
- Far East Grassland
- Northwest Grassland
- Seasonal Herbaceous Wetland 1
- Seasonal Herbaceous Wetland 2
- Seasonal Herbaceous Wetland 2 (NTGVVP Component)
- Southwest Grassland

**Details**

Date: 4/11/2020  
Aerial photography from Google Earth Pro (April 2015).  
Base map data Copyright © The State of Victoria.

N  
0 100 200 m  
Scale 1:4,050 (Page size A3)

**Map 4. Monitoring Results:  
Intertussock Space**  
6165 Hamilton Highway, Cressy  
Map 3 of 3



**Legend**

Subject site

**Tiles**

- Tile
- SE corner tile (recorded on GPS)
- Quadrat biomass

**Biomass cover**

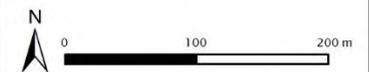
- 1-20%
- 21-40%

**Management Zone**

- Central Eastern Grassland
- Far East Grassland
- Northwest Grassland
- Seasonal Herbaceous Wetland 1
- Seasonal Herbaceous Wetland 2
- Seasonal Herbaceous Wetland 2 (NTGVVP Component)
- Southwest Grassland

**Details**

Date: 4/11/2020  
Aerial photography from Google Earth Pro (April 2015).  
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Scale 1:4,050 (Page size A3)

## Appendix 3. Property Log Book– Year 2

6 January 2020	Lincoln Kern	General surveillance visit. All fences still intact. Site all green and lush from lots of rain and warmth.		
15 March 2020	Lincoln Kern	General surveillance visit. All fences still intact. Lack of rain has caused grass to dry out and stop growing fortunately but biomass still high.		
16th March 2020	-	Sheep arrived on site- Paul Bath - 708 sheep in total- biomass to be checked for the duration by LK, EW, PG		
19 March	Emma Wilkin	Sheep checked- already some reduction in biomass since assessment Dec 2019, due to both sheep and lack of rain in last few months	very dry	
30 May 2020	Lincoln Kern	Sheep checked and level of biomass. Biomass reduction is substantial but there is still room for more eating to get the biomass. The site still doesn't have standing water anywhere and the sheep are not causing pugging anywhere. The Seasonal Herbaceous Wetlands are still dry and can tolerate and even need more grazing; the management plan indicates that grazing should only continue in the SHW if it won't negative impacts and I don't believe it will. The plastic tags marking Offset boundaries and photo points are already deteriorating; good metal tags would be good improvement for longer term use. Also, boundary fences are all intact and in good condition.		
7 June 2020	Paul Guest	Sheep removed by Goodman Transport. Supplements were used to encourage sheep to continue grazing but they were losing weight for the past 10 days according to Paul Bath. Short period this year but substantial reduction in Phalaris and biomass due to a larger sheep number. 708 this year vs. 300+ last year.		
1-Oct-2020	Seed2Leaves	Phalaris - Spot Spraying		
12-Oct-2020	Seed2Leaves	Phalaris - Spot Spraying		
13-Oct-2020	Seed2Leaves	Phalaris - Spot Spraying		
13 October 2020	Lincoln Kern, Megan O'Shea, Emma Wilkin, Amy Tipton Alice Ewing	Biometric Assessment - 1 of 6 for Striped Legless Lizards Training by Megan O'Shea. Checked all of grids in west end in Northwest and Southwest Grasslands (10 and 11s) plus grids 1, 2 and 3 in Far East Grassland	? Brachycome basaltica flowering	3 SLLs caught
29-Oct-2020	Alice Ewing Amy Tipton Megan O'Shea	SLL 2/6		6 SLL seen, 4 caught
3-Nov-2020	Seed2Leaves	Phalaris - Spot Spraying		
9-Nov-2020	Seed2Leaves	Phalaris - Spot Spraying		
10-Nov-2020	Alice Ewing Amy Tipton	SLL 3/6		4 SSL seen, 1 caught
9-Nov-2020	Alice Ewing Emma Wilkin	GSM1/4 - biomass high through middle, more dry and open on edges closer to boundaries - good conditions for GSM		

15-Nov-2020	Lincoln Kern	Inspected through most of the site. Could see lots of evidence of Phalaris spraying on either end. Biomass levels are quite high despite months of sheep grazing as you would expect with the high rainfall year.		
16-Nov-2020	Emma Wilkin Paul Guest	GSM 2/4 – biomass high		No GSM
17-Nov-2020	Seed2Leaves	Phalaris - Spot Spraying		
18-Nov-2020	Alice Ewing Amy Tipton	SLL 4/6		1 SLL seen, none caught
26-Nov-2020	Seed2Leaves	Phalaris - Spot Spraying		
26-Nov-2020 27-Nov-2020	Emma Wilkin	Biomass, Weed monitoring and monitoring quadrats – full site –		Lowland copperhead in western end of the site
26-Nov-2020	Noemie Sek Amy Tipton	SLL 5/6		3 SLL seen, 1 caught
30-11-2020	Seed2Leaves	Phalaris - Spot Spraying		
3-Dec-2020	Alice Ewing Amy Tipton	SLL - 6/6		2 seen, 1 caught
14-Dec-2020	Emma Wilkin Julian Drummond	GSM ¾ - 3 males identified thorough centre of site in CEG- very windy and cold, conditions poor overall – a surprising find		3 male GSM identified
17-Dec-2020	Seed2Leaves	Phalaris - Spot Spraying, slashed eastern gate entrance and parking		
23-Dec-2020	Seed2leaves	Spot-spray thistles		
31-Dec-2020	Emma Wilkin Amy Tipton	GSM 4/4		No GSM
12-1-2021	Seed2leaves	Spot-spray thistles		
18-1-2021	Seed2leaves	Spot-spray thistles		

## Appendix 4. OMZ Photopoints

Year 1



Year 2



OE1 – W



OE2 – S



OE2 – E



OE3-S



OE3-W



OE4-E



Date & Time: Tue, 17 Dec 2019, 11:54:02 AEST  
Position: -038.051335° S; 143.706667° E  
Altitude: 137m  
Datum: WGS-84  
Azimuth/Bearing: 162° 518E 230mils (true)  
Elevation Angle: -05.6°  
Horizon Angle: +03.1°  
Zoom: 1X



OE19- W



Date & Time: Tue, 17 Dec 2019, 11:54:17 AEST  
Position: -038.051335° S; 143.706667° E  
Altitude: 137m  
Datum: WGS-84  
Azimuth/Bearing: 148° 551E 230mils (true)  
Elevation Angle: -12.2°  
Horizon Angle: +21.1°  
Zoom: 1X



OE19- E



Date & Time: Tue, 17 Dec 2019, 12:00:08 AEST  
Position: -038.024889° S; 143.730667° E  
Altitude: 144m  
Datum: WGS-84  
Azimuth/Bearing: 158° 235E 230mils (true)  
Elevation Angle: -10.8°  
Horizon Angle: +00.0°  
Zoom: 1X



OE20- W





OE20-E



OE21-W



OE21-E



Date & Time: Tue, 17 Dec 2019, 09:21:47 AEST  
Position: -038.65644° S +145.62897° E  
Altitude: 139m  
Datum: WGS-84  
Azimuth Bearing: 157° 22' 00" 222mils (True)  
Elevation Angle: -0.6°  
Horizon Angle: +01.8°  
Zoom: 1X



OE22 – W



Date & Time: Tue, 17 Dec 2019, 09:21:59 AEST  
Position: -038.65644° S +145.62897° E  
Altitude: 138m  
Datum: WGS-84  
Azimuth Bearing: 122° 54' 00" 222mils (True)  
Elevation Angle: -11.2°  
Horizon Angle: +10.7°  
Zoom: 1X



OE22 – N



Appendix 7: Karabeal offset site, Year 4 (2021) annual report and additions to Year 3 (2020) reporting

*Photographs of site condition and management actions*





Gate entrance upgraded



Woody weed treatment



Thick patches of Toowoomba Canary-grass



Treated isolated Toowoomba Canary-grass



Another thick patch of Toowoomba Canary-grass



Sprayed Toowoomba Canary-grass



Toowoomba Canary-grass removal



Flatweed pre-treatment



Showing dying broadleaf weeds after light boom spraying of property. The next-door property covered in Flatweed – effectively absent from Karabeal.

## **Compliance with the Obligations of the Landowner (as contained in the Landowner Agreement)**

### **Management of the site**

In relation to the Site, the Landowner covenants and agrees:

5.4 to complete the Management Actions for the purpose of achieving the Management Commitments, to the standards required by the Site Management Plan and to the satisfaction of the Secretary, regardless of whether all Native Vegetation Credits have been sold to other people. Where the Landowner has completed the Management Actions specified in the Site Management Plan to the satisfaction of the Secretary, but a Management Commitment is not achieved for reasons out of the control of the Landowner, the Secretary will not withhold any payment to the Landowner;

5.5 to allow the Secretary and the Secretary's officers, employees, agents, contractors, invitees and licensees access to, and entry onto the Site in accordance with this Agreement or the Conservation Forests and Land Act 1987; and

5.6 to undertake the works required to implement the Site Management Plan in compliance with all relevant laws, regulations and statutes, including subordinate instruments and authorisation.

### **Protection of Native Vegetation**

5.7 The Landowner must:

5.7.1 not cause or consent to the removal, destruction, lopping or any other interference with any Native Vegetation on the Site;

5.7.2 take all reasonable steps to ensure that no Native Vegetation on the Site is removed, destroyed, lopped or otherwise interfered with; and

5.7.3 subject to clause 6.4, not apply for, or consent to an application for, a permit under the Planning and Environment Act 1987 (Vic) to remove, destroy or lop Native Vegetation on the Site.

### **Protection of other habitat**

5.8 Subject to clauses 2.13 and 6.4, the Landowner must:

5.8.1 not cause or consent to the removal or interference with any rocks or fallen vegetation on the Site; and

5.8.2 take all reasonable steps to ensure that no rock or fallen vegetation on the Site is removed or interfered with.

### **Exclusion of livestock**

5.9 Subject to clauses 2.13 and 6.4, and except as provided for in any Management Notice under clause 7, the Landowner must:

5.9.1 not cause or consent to the introduction of any livestock on the Site; and

5.9.2 take all reasonable steps to ensure that no livestock enter or remain on the Site.

### **Introduction of animals other than livestock**

5.10 Subject to clauses 2.13, 5.11 and 6.4, the Landowner must:

5.10.1 not bring, or consent to the bringing of, any Domestic Animal onto the Site; and

5.10.2 take all reasonable steps to exclude any Domestic Animal that enters onto the Site.

5.11 The Landowner may bring domestic dogs on to the Site provided that any dogs so brought are under the immediate control of the Landowner or another person authorised by the Landowner at all times.

#### **Installation or upgrade of fencing**

5.12 This clause applies if the Site is adjacent to any land from which any stock or person (whether or not the person is in a vehicle):

5.12.1 has ready access to the Site;

5.12.2 is reasonably likely to have ready access to the Site; or

5.12.3 becomes reasonably likely to have ready access to the Site.

5.13 If clause 5.12 applies, the Landowner must, subject to clause 6.4, ensure that there is adequate fencing and gates between the land and the Site so as to protect the Site from being readily accessible by stock or persons.

5.14 Subject to clause 6.4, any works required under clause 5.13 must be carried out:  
5.14.1 in the case of a site to which clauses 5.12.1 or 5.12.2 apply at the Commencement of this Agreement, within three months of the Commencement Date of this Agreement or at any earlier time specified in the Site Management Plan; or  
5.14.2 in any other case, within three months of any change in circumstance that creates a reasonable likelihood of any stock or person having ready access to the Site for the purposes of clause 5.12.3, or at any earlier time specified by the Secretary by written notice to the Landowner.

#### **Maintenance of fencing**

5.15 Subject to clause 6.4, the Landowner must maintain any fencing required by clause 5.10.2 or clause 5.13 in good repair and condition at all times.

#### **Statutory pest management obligations**

5.16 From the Commencement Date of this Agreement and on an ongoing basis, the Landowner must, in relation to the Site, ensure compliance with:

5.16.1 the requirement to prevent the growth and spread of Regionally Controlled Weeds under section 20(1)(e) of the Catchment and Land Protection Act 1994 (Vic);

5.16.2 the requirement to prevent the spread of, and as far as possible, eliminate established pest animals under section 20(1)(f) of the Catchment and Land Protection Act 1994 (Vic); and

5.16.3 the requirement to eradicate Regionally Prohibited Weeds under section 20(1)(d) of the Catchment and Land Protection Act 1994 (Vic).

#### **Weeds identified in Site Management Plan**

5.17 The Landowner must, to the extent specified in the Site Management Plan, eradicate or prevent the growth and spread of any Weed or other plant as specified in the Site Management Plan.

#### **Application of fertiliser**

5.18 The Landowner must:

5.18.1 not apply any fertiliser to any part of the Site;

5.18.2 not consent to the application of any fertiliser to any part of the Site; and

5.18.3 take all reasonable steps to ensure that fertiliser is not applied to any part of the Site.

### **Buildings and structures**

5.19 Subject to clauses 2.13, 6.4 and 5.20, the Landowner must:

5.19.1 not erect or place any building or structure on the Site; and

5.19.2 take all reasonable steps to ensure that no building or structure is placed on the Site by any other person.

5.20 The Landowner may erect temporary structures on the Site as part of any grazing of livestock authorised under the Site Management Plan, consent under clause 6.4 or Management Notice under clause 7.

### **Alterations to the natural state of water bodies**

5.21 Subject to clauses 2.13 and 6.4, the Landowner must not cause or consent to, and must take all reasonable steps to avoid any occurrence of, any act which alters the natural state of, or the flow, supply, quantity or quality of, any body of water on to or from the Site.

### **Rubbish and other materials**

5.22 The Landowner must not cause or consent to, and must take all reasonable steps to avoid, the dumping of any rubbish or the storage of any materials on the Site.

### **Further restrictions on using the land**

5.23 Subject to clause 6.4, the Landowner must not cause or consent to any of the following, and must take all reasonable steps to ensure that the following do not occur on the Site:

5.23.1 the removal, introduction or disturbance of any soil, rocks or other minerals or the construction of dams or modification of existing dams;

5.23.2 subdivision;

5.23.3 the operation of any trade, industry or business;

5.23.4 the recreational use of trail bikes or four wheel drive vehicles;

5.23.5 the carrying out of any works on the Site other than those required by this Agreement or by law; and

5.23.6 the carrying out of any other activities not consistent with the purposes of this Agreement.

### **Extractive industry and utility installations**

5.24 The Landowner must not permit, unless required by law:

5.24.1 the issue of any licence or approval for exploration, mining, extraction or production of gas, petroleum, minerals or other substances on the Site; or

5.24.2 the installation of any transmission lines or other services or works on the Site.

5.25 The Landowner must bring this Agreement to the attention of any person who notifies the Landowner that they have applied for or will be applying for a licence, approval or proposal to take an action of the kind described in clauses 5.24.1 and 5.24.2, and to any other person or body whose approval is required to take that action.

5.26 The landowner must notify the Secretary of any notification of an application for a licence, approval or proposal to take an action of the kind described in clauses 5.24.1 and 5.24.2.



**D.E.L.W. & P.**

**BB-3005 / LA 01**

**M.G. Pastoral Co. Pty. Ltd.**

**Year 4 - April 2020 – April 2021**

**Ann. Report**

Generally, activity and management actions were somewhat restricted due to the unfolding Covid 19 pandemic that gripped the State of Victoria for many months.

The representative of MG Pastoral (Marshall Dennis) was unable to visit the site first-hand, and was reliant on contractors to undertake the works listed below.

- Inspection of perimeter fencing and make repairs where necessary.
  - Inspection of pest animals including foxes and rabbits and eradicate where present; none to be seen.
  - Inspection of bush rat infestation and soil disturbance; none to be seen.
  - Preparation of firebreaks (approx. 6m's wide) around the perimeter of the site utilising a grass slasher.
  - Undertook a 'cold burn' of areas 2 & 3 (see attached map).
  - Lopping and removal of Cypress Pine trees and European Ash trees as recommended by G. Waddell.
- Removal of remaining rubbish, corrugated iron, old fence posts in and adjacent to the creek line.

M. G. Pastoral Co. P/L.

29/4/21

A handwritten signature in blue ink, appearing to be 'Marshall Dennis', written in a cursive style.

G. R. Hewitt trading as

# Small Farm Contracting Pty Ltd

A.B.N.: 30 608 262 942

**POSTAL ADDRESS:**  
P.O. BOX 61, LEOPOLD 3224

**TRADING ADDRESS:**  
30 Como Road, LEOPOLD 3224

Tax Invoice

Ph: (03) 5250 1693  
Mob: 0417 044 464  
Fax: (03) 5250 2743

Online: www.smallfarms.com.au  
Email: grahamhewitt@gmail.com

Bill To:

MG Pastoral Pty Ltd

Invoice #: 00002596  
Date: 13/05/2020

Page: 1

**COMMERCIAL OPERATORS REGISTERED LICENCE NO. 126**

DATE	DESCRIPTION	AMOUNT	CODE
18/02/2020	Commencement of February and April MG Pastoral "Karabeal" project undertaken by Small Farm Contracting of preparing firebreaks, cold burning of designated areas 2 & 3, and lopping and chemical treatment of Cypress and Ash trees as recommended in 2019 report, and removal of all corrugated iron and posts in the creek /redgum tree areas.		
23/04/2020	Completion of program  Always committed to best practice and optimal outcomes, Small Farm Contracting has continued to work tirelessly on your important programs providing our tailor-made services for your property development and maintenance programs at "Karabeal".  Kind regards, Graham Hewitt Manager	\$5,679.85	GST
<p>Payment by Cheque to Postal Address or Electronic Funds Transfer (EFT) ***PLEASE NOTE: NEW BANK DETAILS BELOW***</p> <p>EFT DETAILS: Account Name: Small Farm Contracting Bank: Bendigo Bank BSB: 633-108 ACCOUNT NUMBER 1559 - 95590</p>		GST:	\$516.35
		Total Inc GST:	\$5,679.85
		Amount Applied:	\$0.00
		Balance Due:	\$5,679.85

*OK to pay  
16/7/20.*

# BushBroker Zone plan BB-3005 Sites 01, 02

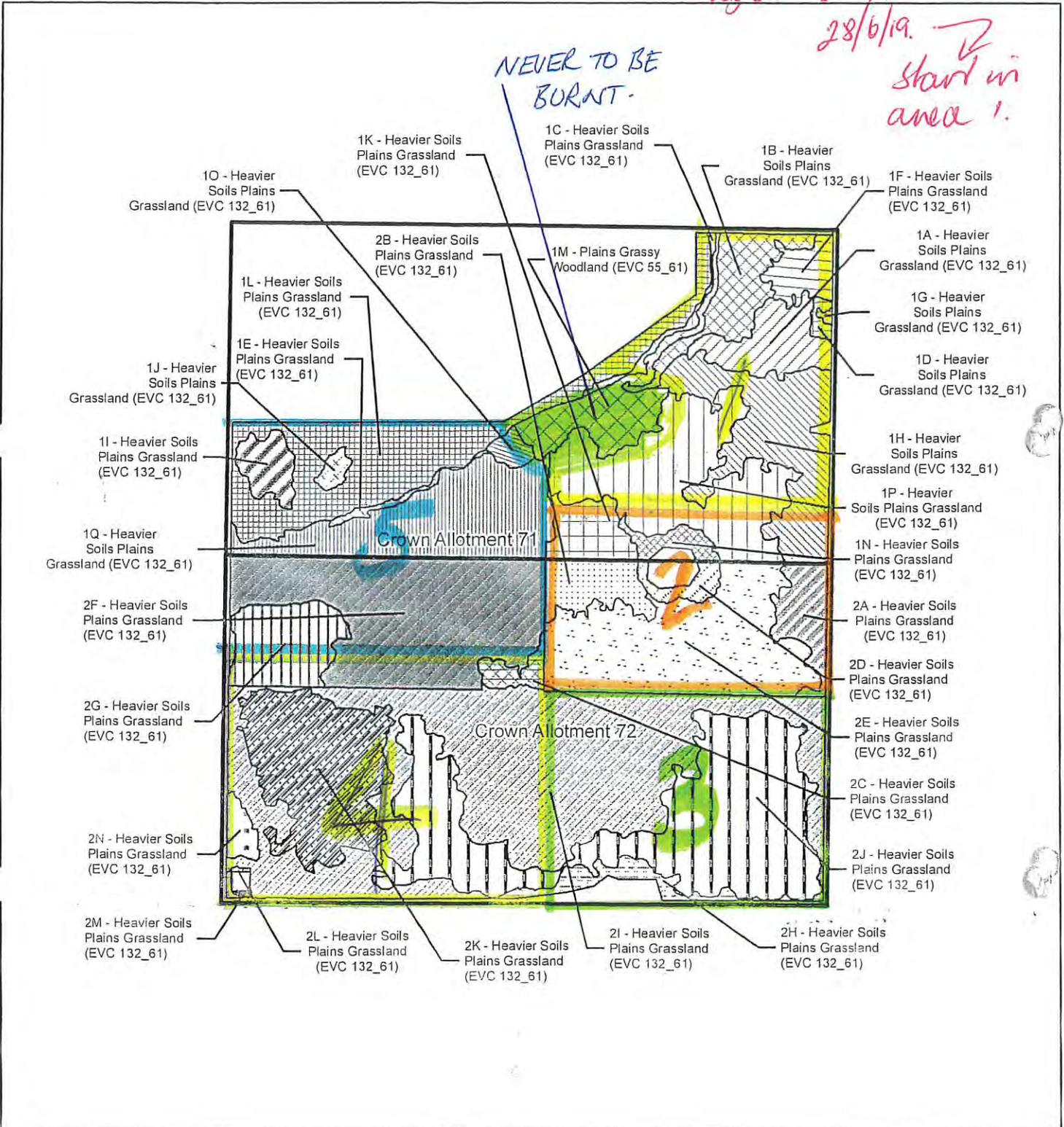
*to Graham Hewitt*

*27/6/19*

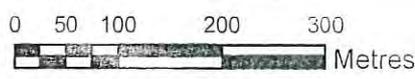
*Programmed burn*

*28/6/19. Start in area 1.*

*NEVER TO BE BURNT.*



**Legend**

Prepared by Brett Lane and Associates Pty Ltd  
Date: 8/02/2017



G. R. Hewitt trading as

# Small Farm Contracting Pty Ltd

A.B.N.: 30 608 262 942

**POSTAL ADDRESS:**  
**P.O. BOX 61, LEOPOLD 3224**

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www.smallfarmcontracting.com.au  
Email: grahamhewitt@gmail.com

Bill To:

MG Pastoral Pty Ltd

Invoice #: 00002694

Date: 5/07/2021

Page: 1

## COMMERCIAL OPERATORS REGISTERED LICENCE NO. 126

DATE	DESCRIPTION	AMOUNT	CODE
23/02/2021	" Karabeal " works and inspection undertaken by the Small Farm Contracting team. Inspection of "Karabeal" and repair of fence along McIntyres Road and recommendations regarding sheep removal. Works by the Small Farm Contracting team.		
22/06/2021	Bush Broker site 4 in south -west corner of property. Cold burn in site 4. Works by the Small Farm Contracting team.		
	Always committed to best practice and optimal outcomes, Small Farm Contracting is working tirelessly on your important and significant project of property management.	\$6,268.90	GST
	Kind regards, Graham Hewitt. Manager		
<b>Payment by Cheque to Postal Address or Electronic Funds Transfer (EFT)</b> <b>***PLEASE NOTE: NEW BANK DETAILS BELOW***</b>		<b>GST:</b>	\$569.90
EFT DETAILS:		<b>Total Inc GST:</b>	\$6,268.90
Account Name: Small Farm Contracting		<b>Amount Applied:</b>	\$0.00
Bank: Bendigo Bank		<b>Balance Due:</b>	\$6,268.90
BSB: 633-108			
ACCOUNT NUMBER 1559 - 95590			

# Small Farm Contracting Pty Ltd

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Bill To:

MG Pastoral Pty Ltd

Invoice #: 00002734  
 Date: 10/10/2021

Page: 1

**COMMERCIAL OPERATORS REGISTERED LICENCE NO. 126**

DATE	DESCRIPTION	AMOUNT	CODE
21/09/2021	<p>Commencement of intensive multi-day property management on BBA-3005 LAO1 Karabeal, Victoria.                      Services supplied by the Small Farm Contracting team.                      Inspection and works.</p> <p>1.                      Site 2C:                      a. Burning piles of dead Cypress trees.                      b. Cut to base and chemical pasting of Blackwood (young) and Wattle trees.                      c. Spraying of fence line in corner for Phalaris Grass weeds in order for the fence and gate in that area to be repaired.</p> <p>Site 2L:                      a. Cut to ground level and chemically pasted of 2x Blue Gums (seeded).                      b. Cut to ground level and chemically pasted 2x Melaleuca trees.                      c. Cut to ground level and chemically pasted 5 very large Sticky Wattles.                      All branches were removed from the site and relocated north of the creek and stacked for burning in 2022.                      Due to difficult terrain and wet ground this had to be done manually.                      d. Commenced removal of old fence in creek area -approximately 75% removal.</p> <p>2.                      Plans were to undertake required spraying for flat weeds and spot spraying of Phalaris grass areas.                      Excessive rain over the winter period has made the ground unsuitable for carrying the Small Farm Contracting equipment-as discovered with the bogging of our 2 x Ford Ranger 4x4s and 2x Polaris Spray Rigs!                      Will monitor soil moisture with neighbours and as soon as suitable will return to undertake this spraying program.</p> <p>Always committed to best practice and positive outcomes, the Small Farm Contracting team values these opportunities to assist in the development the property according to the Bushbroker's requirements.</p>	\$11,088.00	GST
<b>Payment by Cheque to Postal Address or Electronic Funds Transfer (EFT)</b> <b>***PLEASE NOTE: NEW BANK DETAILS BELOW***</b>		GST:	
EFT DETAILS:		Total Inc GST:	
Account Name:	Small Farm Contracting	Amount Applied:	
Bank:	Bendigo Bank	Balance Due:	
BSB:	633-108		
ACCOUNT NUMBER	1559 - 95590		

G. R. Hewitt trading as

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Bill To:

MG Pastoral Pty Ltd

Invoice #: 00002734  
Date: 10/10/2021

Page: 2

**COMMERCIAL OPERATORS REGISTERED LICENCE NO. 126**

DATE	DESCRIPTION	AMOUNT	CODE
	Kind regards, Graham Hewitt Manager.		
<b>Payment by Cheque to Postal Address or Electronic Funds Transfer (EFT)</b> <b>***PLEASE NOTE: NEW BANK DETAILS BELOW***</b>		GST:	\$1,008.00
EFT DETAILS:		Total Inc GST:	\$11,088.00
Account Name: Small Farm Contracting		Amount Applied:	\$0.00
Bank: Bendigo Bank		Balance Due:	\$11,088.00
BSB: 633-108			
ACCOUNT NUMBER 1559 - 95590			

Appendix 8: Campbelltown offset site, Year 4 (2021) annual report and additions to Year 3 (2020) reporting

*Photographs of site condition and management actions*



Cut-and-paste of all Sweet Briar in Site 4



Commenced biomass reduction (cold burn) in Site 2



Successful burn



All **St John's Wort** located in Sites 1, 3 and 4 spot sprayed. Follow-up for missed juvenile plants scheduled for January 2022.

## **Compliance with the Obligations of the Landowner (as contained in the Landowner Agreement)**

### **Management of the site**

In relation to the Site, the Landowner covenants and agrees:

5.4 to complete the Management Actions for the purpose of achieving the Management Commitments, to the standards required by the Site Management Plan and to the satisfaction of the Secretary, regardless of whether all Native Vegetation Credits have been sold to other people. Where the Landowner has completed the Management Actions specified in the Site Management Plan to the satisfaction of the Secretary, but a Management Commitment is not achieved for reasons out of the control of the Landowner, the Secretary will not withhold any payment to the Landowner;

5.5 to allow the Secretary and the Secretary's officers, employees, agents, contractors, invitees and licensees access to, and entry onto the Site in accordance with this Agreement or the Conservation Forests and Land Act 1987; and

5.6 to undertake the works required to implement the Site Management Plan in compliance with all relevant laws, regulations and statutes, including subordinate instruments and authorisation.

### **Protection of Native Vegetation**

5.7 The Landowner must:

5.7.1 not cause or consent to the removal, destruction, lopping or any other interference with any Native Vegetation on the Site;

5.7.2 take all reasonable steps to ensure that no Native Vegetation on the Site is removed, destroyed, lopped or otherwise interfered with; and

5.7.3 subject to clause 6.4, not apply for, or consent to an application for, a permit under the Planning and Environment Act 1987 (Vic) to remove, destroy or lop Native Vegetation on the Site.

### **Protection of other habitat**

5.8 Subject to clauses 2.13 and 6.4, the Landowner must:

5.8.1 not cause or consent to the removal or interference with any rocks or fallen vegetation on the Site; and

5.8.2 take all reasonable steps to ensure that no rock or fallen vegetation on the Site is removed or interfered with.

### **Exclusion of livestock**

5.9 Subject to clauses 2.13 and 6.4, and except as provided for in any Management Notice under clause 7, the Landowner must:

5.9.1 not cause or consent to the introduction of any livestock on the Site; and

5.9.2 take all reasonable steps to ensure that no livestock enter or remain on the Site.

### **Introduction of animals other than livestock**

5.10 Subject to clauses 2.13, 5.11 and 6.4, the Landowner must:

5.10.1 not bring, or consent to the bringing of, any Domestic Animal onto the Site; and

5.10.2 take all reasonable steps to exclude any Domestic Animal that enters onto the Site.

5.11 The Landowner may bring domestic dogs on to the Site provided that any dogs so brought are under the immediate control of the Landowner or another person authorised by the Landowner at all times.

#### **Installation or upgrade of fencing**

5.12 This clause applies if the Site is adjacent to any land from which any stock or person (whether or not the person is in a vehicle):

5.12.1 has ready access to the Site;

5.12.2 is reasonably likely to have ready access to the Site; or

5.12.3 becomes reasonably likely to have ready access to the Site.

5.13 If clause 5.12 applies, the Landowner must, subject to clause 6.4, ensure that there is adequate fencing and gates between the land and the Site so as to protect the Site from being readily accessible by stock or persons.

5.14 Subject to clause 6.4, any works required under clause 5.13 must be carried out:

5.14.1 in the case of a site to which clauses 5.12.1 or 5.12.2 apply at the Commencement of this Agreement, within three months of the Commencement Date of this Agreement or at any earlier time specified in the Site Management Plan; or

5.14.2 in any other case, within three months of any change in circumstance that creates a reasonable likelihood of any stock or person having ready access to the Site for the purposes of clause 5.12.3, or at any earlier time specified by the Secretary by written notice to the Landowner.

#### **Maintenance of fencing**

5.15 Subject to clause 6.4, the Landowner must maintain any fencing required by clause 5.10.2 or clause 5.13 in good repair and condition at all times.

#### **Statutory pest management obligations**

5.16 From the Commencement Date of this Agreement and on an ongoing basis, the Landowner must, in relation to the Site, ensure compliance with:

5.16.1 the requirement to prevent the growth and spread of Regionally Controlled Weeds under section 20(1)(e) of the Catchment and Land Protection Act 1994 (Vic);

5.16.2 the requirement to prevent the spread of, and as far as possible, eliminate established pest animals under section 20(1)(f) of the Catchment and Land Protection Act 1994 (Vic); and

5.16.3 the requirement to eradicate Regionally Prohibited Weeds under section 20(1)(d) of the Catchment and Land Protection Act 1994 (Vic).

#### **Weeds identified in Site Management Plan**

5.17 The Landowner must, to the extent specified in the Site Management Plan, eradicate or prevent the growth and spread of any Weed or other plant as specified in the Site Management Plan.

#### **Application of fertiliser**

5.18 The Landowner must:

5.18.1 not apply any fertiliser to any part of the Site;

5.18.2 not consent to the application of any fertiliser to any part of the Site; and

5.18.3 take all reasonable steps to ensure that fertiliser is not applied to any part of the Site.

### **Buildings and structures**

5.19 Subject to clauses 2.13, 6.4 and 5.20, the Landowner must:

5.19.1 not erect or place any building or structure on the Site; and

5.19.2 take all reasonable steps to ensure that no building or structure is placed on the Site by any other person.

5.20 The Landowner may erect temporary structures on the Site as part of any grazing of livestock authorised under the Site Management Plan, consent under clause 6.4 or Management Notice under clause 7.

### **Alterations to the natural state of water bodies**

5.21 Subject to clauses 2.13 and 6.4, the Landowner must not cause or consent to, and must take all reasonable steps to avoid any occurrence of, any act which alters the natural state of, or the flow, supply, quantity or quality of, any body of water on to or from the Site.

### **Rubbish and other materials**

5.22 The Landowner must not cause or consent to, and must take all reasonable steps to avoid, the dumping of any rubbish or the storage of any materials on the Site.

### **Further restrictions on using the land**

5.23 Subject to clause 6.4, the Landowner must not cause or consent to any of the following, and must take all reasonable steps to ensure that the following do not occur on the Site:

5.23.1 the removal, introduction or disturbance of any soil, rocks or other minerals or the construction of dams or modification of existing dams;

5.23.2 subdivision;

5.23.3 the operation of any trade, industry or business;

5.23.4 the recreational use of trail bikes or four wheel drive vehicles;

5.23.5 the carrying out of any works on the Site other than those required by this Agreement or by law; and

5.23.6 the carrying out of any other activities not consistent with the purposes of this Agreement.

### **Extractive industry and utility installations**

5.24 The Landowner must not permit, unless required by law:

5.24.1 the issue of any licence or approval for exploration, mining, extraction or production of gas, petroleum, minerals or other substances on the Site; or

5.24.2 the installation of any transmission lines or other services or works on the Site.

5.25 The Landowner must bring this Agreement to the attention of any person who notifies the Landowner that they have applied for or will be applying for a licence, approval or proposal to take an action of the kind described in clauses 5.24.1 and 5.24.2, and to any other person or body whose approval is required to take that action.

5.26 The landowner must notify the Secretary of any notification of an application for a licence, approval or proposal to take an action of the kind described in clauses 5.24.1 and 5.24.2.



**D.E.L.W. & P.**

**BB-3004 / LA 01**

**M.G. Pastoral Co. Pty. Ltd.**

**Year 3 - April 2019 – April 2020**

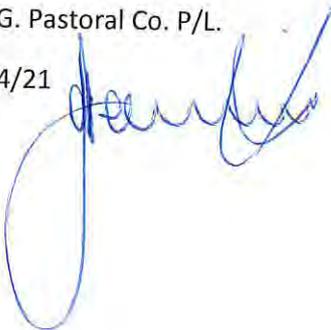
**Ann. Report**

The following actions were undertaken at the property during the reporting year

- Completion of the perimeter fencing of each of the sites, in accordance the BB info. sheet regarding fencing styles and materials.
- Continued inspection of perimeter fencing to each of the sites and make repairs where necessary; none required.
- Installation of clearly visible BB site signs on each of the access gates.
- Inspection of pest animals including foxes and rabbits and eradicate where present; ongoing.
- Inspection of Kangaroo presence and potential damage to the various sites from over grazing. There is quite a large number of Eastern Grey Kangeroos ever present on the wider property.
- Continue to monitor and remove where needed Sweetbriar Rose and Hawthorn Bush from all sites, but specifically site 1 using the 'cut & paste' method of control.
- Monitor the presence of herbaceous weeds an control where necessary.
- All inspections and labour were undertaken by MGP staff. Materials & herbicides were within existing stocks and on hand; no invoices available.

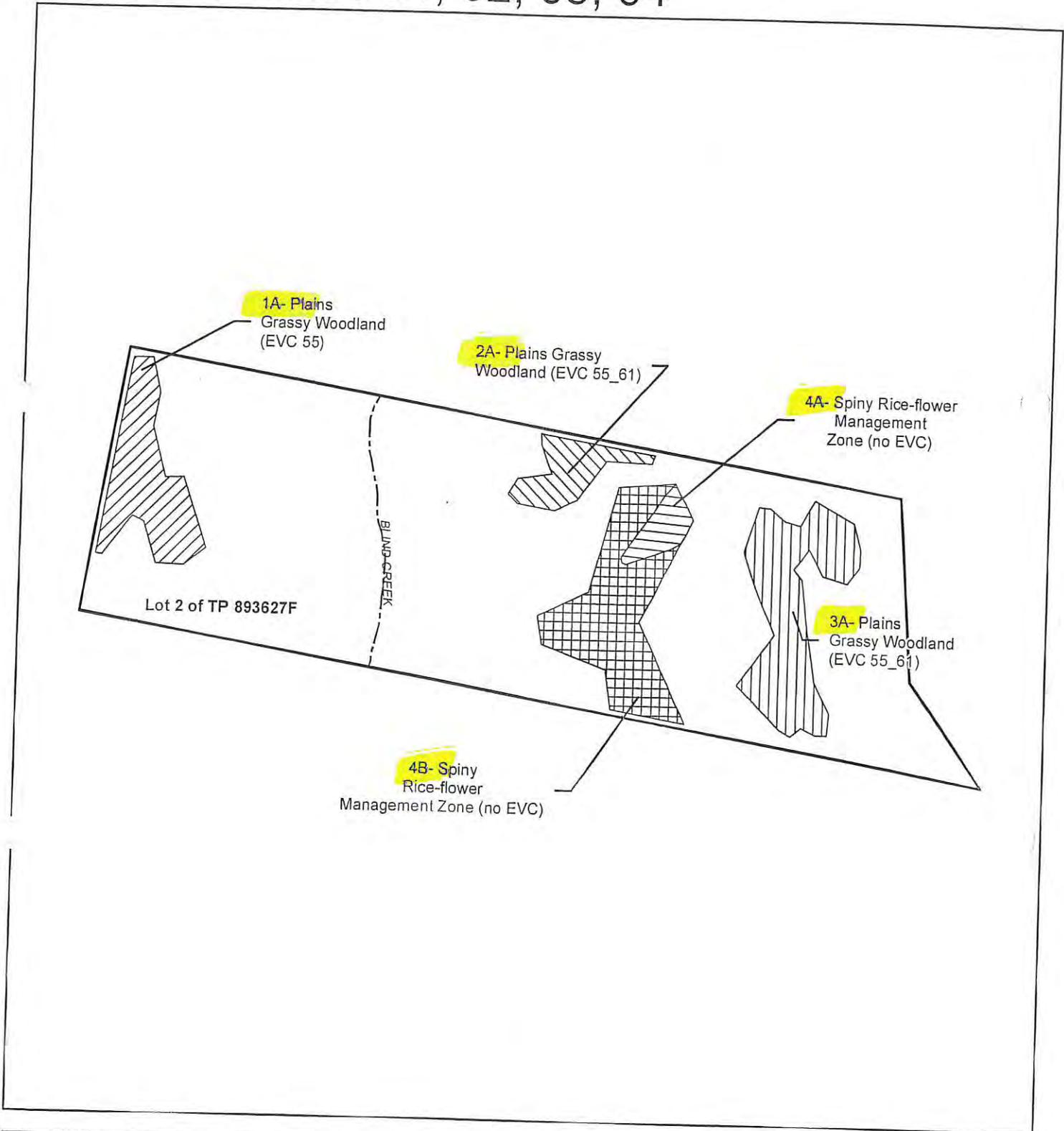
M. G. Pastoral Co. P/L.

29/4/21



# BushBroker Zone plan

## BB-3004 Sites 01, 02, 03, 04



### Habitat Zones

-  1A
-  2A
-  3A
-  4A
-  4B



Prepared by Brett Lane and Associates Pty Ltd  
Date: 5/01/2017



G. R. Hewitt trading as

# Small Farm Contracting Pty Ltd

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Bill To:

MG Pastoral Pty Ltd

Invoice #: 00002687  
Date: 26/05/2021

Page: 1

### COMMERCIAL OPERATORS REGISTERED LICENCE NO. 126

DATE	DESCRIPTION	AMOUNT	CODE
24/02/2021	<p>Commencement of appraisal and following intensive weed-control program of Small Farm Contracting team in Campbelltown in May. Cut and pasting of Sweet Briar Rose and Hawthorn bushes on 4 sites. The most dense infestation found on site 4. Successful Cold burn on site 2 following alert to Vic Fire for safety. Burning was a manual-intensive rake-burning program due to the very rocky terrain. 2 water spray tankers on site, 2 utes and 1 Polaris. Previous photographs sent of the cutting and pasting program and the cold burn.</p> <p>Always committed to best practice and optimal outcomes, Small Farm Contracting worked on your tailor-made requirements of property maintenance and weed-control program.</p> <p>Kind regards, Graham Hewitt Manager</p>	\$6,138.00	GST
<b>Payment by Cheque to Postal Address or Electronic Funds Transfer (EFT)</b> <b>***PLEASE NOTE: NEW BANK DETAILS BELOW***</b>		GST:	\$558.00
EFT DETAILS:		Total Inc GST:	\$6,138.00
Account Name: Small Farm Contracting		Amount Applied:	\$0.00
Bank: Bendigo Bank		Balance Due:	\$6,138.00
BSB: 633-108			
ACCOUNT NUMBER 1559 - 95590			

G. R. Hewitt trading as

# Small Farm Contracting Pty Ltd

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Bill To:

MG Pastoral Pty Ltd

Invoice #: 00002750

Date: 7/11/2021

Page: 1

## COMMERCIAL OPERATORS REGISTERED LICENCE NO. 126

DATE	DESCRIPTION	AMOUNT	CODE
2/11/2021	<p>Commencement of intensive weed-spraying program at the Campbelltown property-Bush Broker Works, services supplied by the Small Farm Contracting team. Work involved: Low pressure boom-spraying targeting broadleaf weeds in Site #2; High pressure spot-spraying targeting Gorse weeds in the centre of the property; Spot-spraying of St.John's Wort in Site #2; Cut and pasting process of newly-emerged Hawthorn plants and Sweet Briar in Site #4. S.F.C. will return in approximately 3 weeks to finalise weed control program to spot-spray St.John's Wort in Sites #3 &amp; #4, not yet big enough for effective control by spraying.</p> <p>Always committed to best practice and optimal outcomes, Small Farm Contracting was committed to your important and significant project of crucial weed elimination.</p> <p>Kind regards, Graham Hewitt Manager</p>	\$5,868.50	GST
<b>Payment by Cheque to Postal Address or Electronic Funds Transfer (EFT)</b> <b>***PLEASE NOTE: NEW BANK DETAILS BELOW***</b>		GST:	\$533.50
EFT DETAILS: Account Name: Small Farm Contracting Bank: Bendigo Bank BSB: 633-108 ACCOUNT NUMBER 1559 - 95590		Total Inc GST:	\$5,868.50
		Amount Applied:	\$0.00
		Balance Due:	\$5,868.50