



# PHOENIX

ENVIRONMENTAL SCIENCES

## Progressive Rehabilitation Assessment for the Yilgarn Operations Project

Prepared for Mineral Resources Limited

April 2025

Final



Progressive Rehabilitation Assessment for the Yilgarn Operations Project  
Prepared for Mineral Resources Limited

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## Table of Abbreviations

|      |                                 |
|------|---------------------------------|
| BoM  | Bureau of Meteorology           |
| EMS  | Environmental Management System |
| MCP  | Mine Closure Plan               |
| RFQ  | Request for quote               |
| ROM  | Run of Mine                     |
| WRL  | Waste Rock Landform             |
| YIPL | Yilgarn Iron Pty Ltd            |

# 1 INTRODUCTION

Mineral Resources Limited (MinRes) operates the Yilgarn Operations Project (the Project), located approximately 50 km to the north-east of Southern Cross, Western Australia (

Figure 1-1). The Project encompasses mining operations being undertaken at the Koolyanobbing, Parker Range, Deception, Carina, Mt Jackson, and Windarling mine sites.

In April 2024, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by MinRes to undertake a progressive rehabilitation assessment for the Project. The survey was conducted between 30 October and 7 November 2024.

The purpose of the survey was to monitor and assess the condition of the rehabilitation waste dumps located at the Koolyanobbing, Mt Jackson and Windarling mine sites. These waste dumps would then be compared to reference sites in order to assess several completion criteria.

The study area is located in the Shire of Yilgarn and the South-Western Interzone Botanical Province as defined by EPA (2016).

## 1.1 BACKGROUND

Cliffs Asia Pacific Iron Ore Pty Ltd (Cliffs) operated the Koolyanobbing mine from 1994 to 2018, when it ceased operations and entered into an Asset Sale Agreement with MinRes on 12 June 2018. The transaction was completed in August 2018 and included the transfer of legal title in Cliffs' mining tenements to MinRes and ownership of all remaining iron ore, fixed plant, equipment, and non-process infrastructure in the Yilgarn Operations and at the Port of Esperance. All assets were transferred to the wholly owned MinRes subsidiary, Yilgarn Iron Pty Ltd (YIPL).

Since September 2018, mining has been undertaken using conventional open pit mining methods. Drill and blast techniques are used to fragment the ore and waste material, with blasted rock mined using hydraulic excavators. Ore is loaded on to road trains and transported to the Koolyanobbing and Carina Run of Mine (ROM) Pad adjacent to each processing plant for crushing. Crushed ore stockpiles are railed to the Port of Esperance for shipping to international customers. Overburden is removed, sorted, and stockpiled or disposed on a nominated Waste Rock Landform (WRL) or backfilled to nominated pits.

### 1.1.1 Relevant Conditions

The environmental aspects of the Project are managed in accordance with YIPL's Environmental Policy and Environmental Management System (EMS). While not accredited, the EMS has been developed and is implemented in accordance with Australia and New Zealand ISO Standards. The *Yilgarn Operations Mine Closure Plan* (MCP) (Mineral Resources Ltd 2021) forms part of YIPL's EMS. This plan has been prepared to:

- Document activities and describe the strategy for decommissioning mining related infrastructure, rehabilitation of areas impacted by activities occurring within the Yilgarn Operation's Disturbance Envelope and agreement on proposed post-mining land use categories.
- Encourage incorporation of mine rehabilitation in routine mining activities and promote and achieve timely and successful rehabilitation.
- Meet statutory obligations relating to Mine Closure and Rehabilitation under Ministerial Statement 982, applying to YIPL's operations at Koolyanobbing, Mt Jackson, Windarling, and Deception.

Ministerial Statement 982 Condition 11-2 guides the requirement for progressive rehabilitation of WRLs at the Project as part of the MCP. The annual monitoring and reporting component to meet these requirements include:

- Monitoring and Assessment of approximately one-third of all WRL Rehabilitation Transects (25 per year).
- Monitoring and Assessment of approximately one-third of all Reference Transects (30 per year).
- Reporting on WRL transects against reference transects to determine progress toward completion criteria.

The selection of transects to be assessed each year is based on a three-year rolling review, such that in each year the transects that were reviewed 3 years prior are reviewed, meaning no transect should go 4 years without review.

### **1.1.2 Monitoring Program and Completion Criteria**

In 2013, a monitoring program was implemented across the operations to enable collection of data from a series of monitoring sites established on rehabilitated WRLs and in undisturbed vegetation (reference sites). The reference vegetation sites have been used to develop achievable closure completion criteria relating to revegetation of rehabilitation areas. The criteria provided in the MCP are:

- Average total live foliage cover per 2 x 2 m quadrat – a measure of the percentage cover of living plants in each quadrat.
- Average number of live native perennial individuals per 2 x 2 – a count of the number of living native perennial plants in each quadrat, averaged over the 20 quadrats for each transect.
- Total native species richness per transect – the number of species of native plants present within each quadrat of a transect.

The above do not represent completion criteria, they are simply a statement of parameters measured to be compared between rehabilitated areas and reference sites. However, review of previous monitoring reports (Ecotec 2021, 2022, 2023) has determined that the following completion criteria have been applied to assess rehabilitation completion:

- Average total live foliage cover per 2 x 2 m quadrat in the rehabilitation transect is equivalent to or higher than 70% of the mean value of total live foliage cover per 2 x 2 m quadrat for the reference sites.
- Average number of live native perennial individuals per 2 x 2 (hereafter referred to as plant density in this report) – a count of the number of living native perennial plants in each quadrat, averaged over the 20 quadrats for each transect in the rehabilitation transect is equivalent to or higher than 70% of the mean value for the reference sites.
- Total native species richness per transect – the number of species of native plant present within each quadrat of a transect in the rehabilitation transect is equivalent to or higher than 70% of the mean value for the reference sites.

In addition to the above there are 2 completion criteria provided in the MCP not previously assessed:

- 'Key plant species diversity and density is within an agreed reference range' (Mineral Resources Ltd 2021).
- 'No new weed species identified in rehabilitated areas' (Mineral Resources Ltd 2021).

Additional analyses were conducted for this monitoring period to assess these criteria.

## 1.2 OBJECTIVES AND SCOPE OF WORK

The focus of the Scope of Works was the assessment of the rehabilitation monitoring program set up at locations within the Koolyanobbing, Mt Jackson, and Windarling mine sites, where progressive rehabilitation works have been undertaken.

The primary aim of the works was to complete annual monitoring and reporting to:

- Meet the existing conditions of the State and Commonwealth approvals
- Complete the monitoring actions related to Ministerial Statement 982 as described in the MCP under section 5.14 Progressive Rehabilitation Monitoring.
- Complete the reporting requirements related to the Ministerial Statement 982 as described in the MCP under section 5.14 Progressive Rehabilitation Monitoring.
- Support the preparation of Annual Compliance Reporting under the Ministerial Statement 982
- Further assess the potential for value-add opportunities.

The scope fulfills the annual progressive rehabilitation requirements for the Project. In accordance with the request for quote (RFQ) issued for these works, transects last assessed in 2021 were assessed in 2024 to maintain the 3-year rolling review (Table 1-1, Figure 1-1, Figure 1-2, Figure 1-3).

**Table 1-1 Transects monitored in 2024**

| Transect Location | Transect Name | Type     | Easting | Northing | Date Last Monitored |
|-------------------|---------------|----------|---------|----------|---------------------|
| Koolyanobbing     | N04           | K Native | 739731  | 6590805  | 2021                |
| Koolyanobbing     | N07           | K Native | 739465  | 6590909  | 2021                |
| Koolyanobbing     | FN01          | Native   | 750948  | 6581191  | 2021                |
| Koolyanobbing     | FN03          | Native   | 748435  | 6583178  | 2021                |
| Koolyanobbing     | FN05          | Native   | 745914  | 6584043  | 2021                |
| Koolyanobbing     | FN06*         | Native   | 746185  | 6583747  | 2021                |
| Koolyanobbing     | KN01          | Native   | 743727  | 6584421  | 2021                |
| Koolyanobbing     | KN06          | Native   | 743444  | 6586288  | 2021                |
| Koolyanobbing     | KN07          | Native   | 743945  | 6586368  | 2021                |
| Koolyanobbing     | KN11          | Native   | 744864  | 6584993  | 2021                |
| Koolyanobbing     | A101          | WRL      | 742527  | 6586576  | 2021                |
| Koolyanobbing     | A102          | WRL      | 743160  | 6586146  | 2021                |
| Koolyanobbing     | BC02          | WRL      | 744478  | 6585639  | 2021                |
| Koolyanobbing     | BC04          | WRL      | 743483  | 6585866  | 2021                |
| Koolyanobbing     | BC06          | WRL      | 743702  | 6585752  | 2021                |
| Koolyanobbing     | K06           | WRL      | 740382  | 6591108  | 2021                |
| Koolyanobbing     | K09           | WRL      | 740961  | 6591072  | 2021                |
| Koolyanobbing     | K10           | WRL      | 740399  | 6591279  | 2021                |
| Koolyanobbing     | K11           | WRL      | 740206  | 6590218  | 2021                |
| Koolyanobbing     | K12           | WRL      | 740288  | 6589968  | 2021                |
| Koolyanobbing     | K14           | WRL      | 740948  | 6589224  | 2021                |
| Mt Jackson        | J1N05         | Native   | 709879  | 6654404  | 2021                |
| Mt Jackson        | J1N06         | Native   | 709584  | 6654000  | 2021                |
| Mt Jackson        | J1N08         | Native   | 709240  | 6653056  | 2021                |
| Mt Jackson        | JN01          | Native   | 718544  | 6649904  | 2021                |

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| Transect Location | Transect Name | Type   | Easting | Northing | Date Last Monitored |
|-------------------|---------------|--------|---------|----------|---------------------|
| Mt Jackson        | JN06          | Native | 718540  | 6651520  | 2021                |
| Mt Jackson        | JN07          | Native | 718540  | 6650688  | 2021                |
| Mt Jackson        | JN10          | Native | 717122  | 6650758  | 2021                |
| Mt Jackson        | JN13          | Native | 716636  | 6649343  | 2021                |
| Mt Jackson        | J201          | WRL    | 716513  | 6649433  | 2021                |
| Mt Jackson        | J303          | WRL    | 718516  | 6650876  | 2021                |
| Windarling        | WN02          | Native | 722717  | 6676779  | 2021                |
| Windarling        | WN03          | Native | 722905  | 6677210  | 2021                |
| Windarling        | WN04          | Native | 722142  | 6676399  | 2021                |
| Windarling        | WN06          | Native | 717491  | 6676000  | 2021                |
| Windarling        | WN09          | Native | 719217  | 6678302  | 2021                |
| Windarling        | WN15          | Native | 721126  | 6676458  | 2021                |
| Windarling        | W201          | WRL    | 717822  | 6676119  | 2021                |
| Windarling        | W202          | WRL    | 719153  | 6676302  | 2021                |
| Windarling        | W205          | WRL    | 718877  | 6676760  | 2021                |
| Windarling        | W303          | WRL    | 721745  | 6677606  | 2021                |
| Windarling        | W305          | WRL    | 721952  | 6677369  | 2021                |

\* Site was visited but found to be partially cleared. It was not assessed in 2024.

### 1.3 STUDY AREA

Koolyanobbing is located approximately 50 km north-east of Southern Cross and contains the most transects of the 3 locations assessed (Figure 1-1). There were 21 transects to be assessed at this location.

Mt Jackson is located a further 75 km to the north-west of Koolyanobbing and it contains 10 transects which were to be assessed (Figure 1-2).

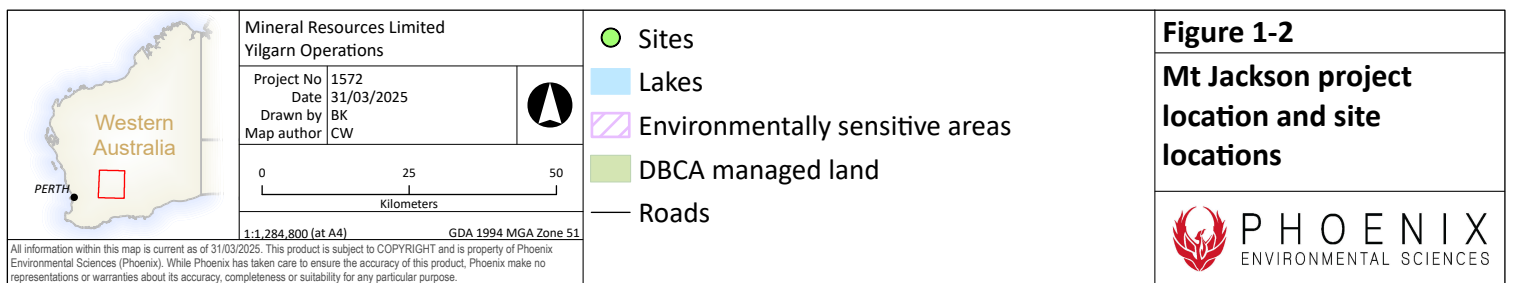
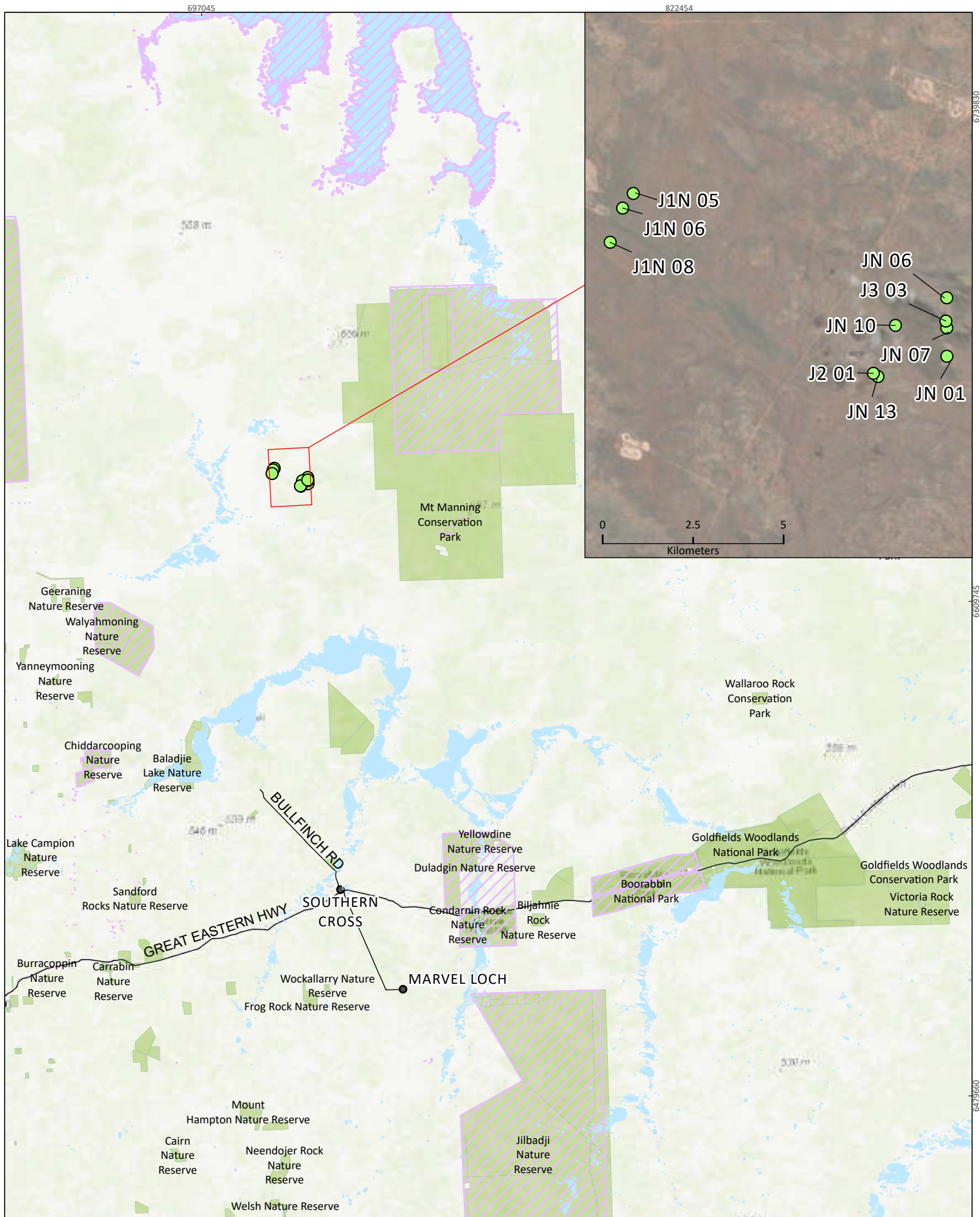
Windarling is located approximately 26 km north of Mt Jackson and contains 11 transects which were to be monitored (Figure 1-3).



**Figure 1-1      Project location and study area at Koolyanobbing**

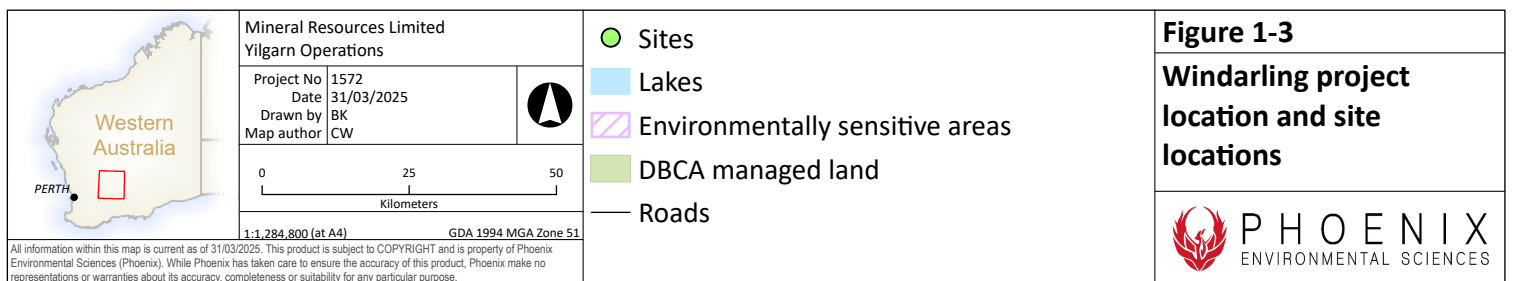
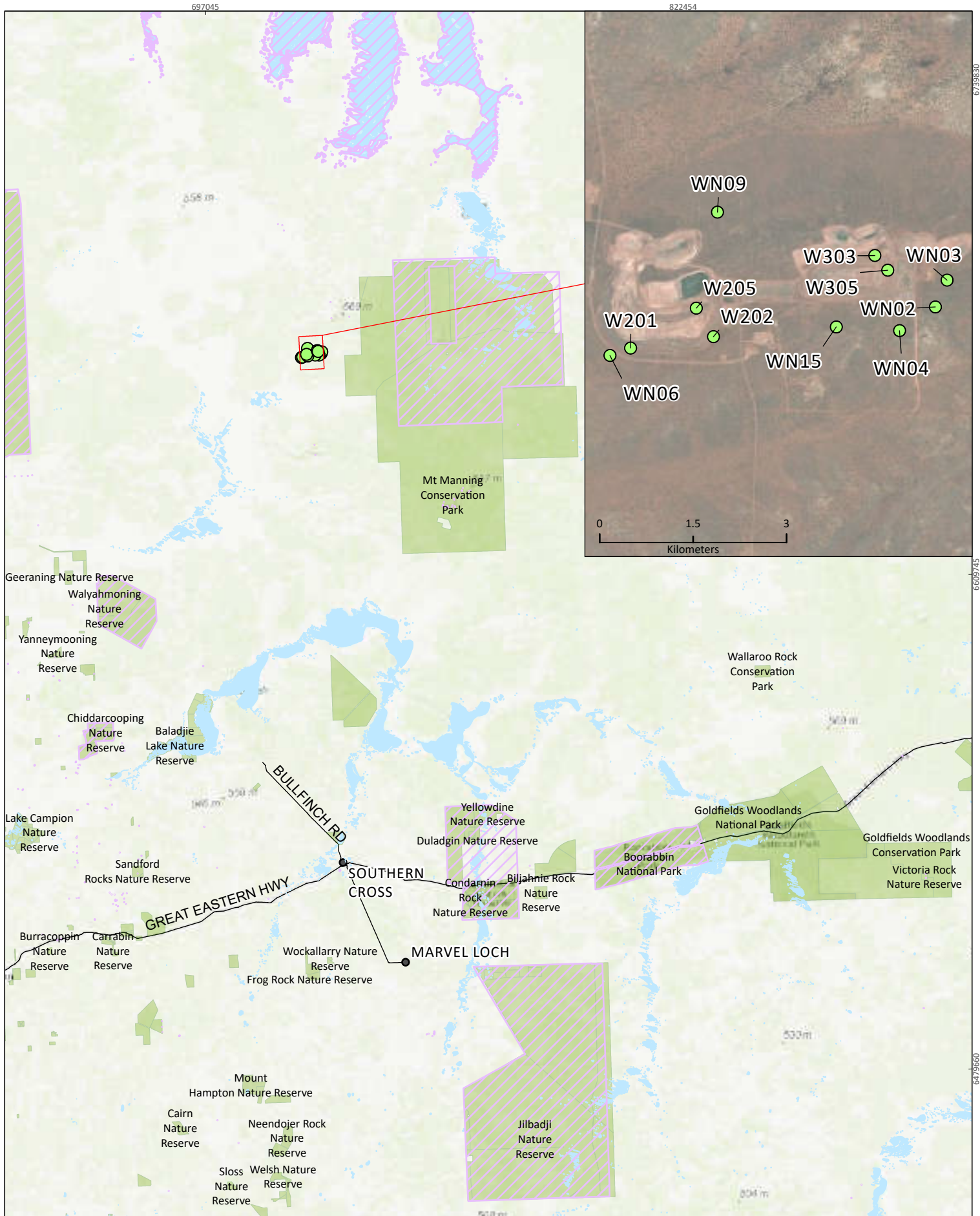


**Figure 1-2      Project location and study area at Mt Jackson**



**Figure 1-3      Project location and study area at Windarling**





## 2 METHODS

### 2.1 DESKTOP REVIEW

A desktop review was conducted prior to the field survey and include:

- a review of contextual information, including climate and rainfall data, relevant taxonomic changes
- a review of previous monitoring data, and printing of data into field books to use in the field to inform the current monitoring
- upload of transect locations onto electronic tablets and GPS to facilitate navigation to monitoring sites in the field
- review of previous analyses conducted to determine whether rehabilitated areas are attaining completion criteria.

A review of climatic conditions, rainfall and temperatures was conducted to determine whether conditions in the months leading up to the monitoring events was conducive to plant growth and establishment (e.g. average temperatures and above average rainfall), or alternatively, potentially restrictive (e.g. above average temperatures and below average rainfall or extended periods of drought).

### 2.2 FIELD SURVEY

#### 2.2.1 Survey timing

Field survey dates are provided in Table 2-1.

**Table 2-1** Survey dates

| Survey type       | Season | Dates                        |
|-------------------|--------|------------------------------|
| Annual Monitoring | Spring | 30 October – 7 November 2024 |

#### 2.2.2 Field methods

The survey was conducted in accordance with the MCP and previous assessments for consistency in results.

Vegetation monitoring was conducted using 50 m x 10 m plots, twenty 2 m x 2 m quadrats nested within each plot, arranged in 5 groups of 4 quadrats (Figure 2-1).

For each transect, the following monitoring parameters were recorded:

- photographic record of vegetation from fixed points at the start and end of the plot
- description of the vegetation unit in accordance with the Native Vegetation Information System (NVIS)
- description of vegetation condition using the condition scale of Keighery (1994)
- abundance of trees (>1.3 m in height) and seedlings (<1.3 m in height) by species (alive and dead)
- presence of bare areas greater than 10 m x 10 m in transect
- description of erosion severity, measured according to a scale that has been developed for the task (Table 2-2).

**Table 2-2 Erosion assessment criteria**

| Type of Erosion     | Rilling, Sheet, Gullying, Dusting, Piping, Other |             |             |
|---------------------|--------------------------------------------------|-------------|-------------|
|                     | Criteria                                         | Width       | Depth       |
| Severity of Erosion | 1                                                | <0.2 m      | <0.4 m      |
|                     | 2                                                | 0.2 – 0.4 m | 0.4 – 0.8 m |
|                     | 3                                                | 0.4 – 0.6 m | 0.8 – 1.2 m |
|                     | 4                                                | 0.6 – 0.8 m | 1.2 – 1.6 m |
|                     | 5                                                | 0.8 – 1.0 m | 1.6 – 2.0 m |
|                     | 6                                                | >1.0 m      | >2.0 m      |

For each quadrat, the following parameters were recorded:

- number of perennial native plant species (species richness) for each quadrat
- abundance of native perennial plants (per species) per quadrat
- abundance of weed species (per species) per quadrat
- percentage of live foliage cover of perennial native species (per species) per quadrat
- percentage of live foliage cover of weed species (per species) per quadrat
- percentage of dead foliage cover
- percentage of leaf litter cover
- percentage of exposed rock cover
- percentage of bare ground
- abundance of annual plants by species, alive and dead.

To ensure accurate taxonomic identification of flora species present within the study area, collections were made of any specimen for which the identification is in doubt. The specimens were pressed and documented for identification using the WA Herbarium resources. All plant specimens collected during the field surveys were identified using appropriate reference material or through comparisons with pressed specimens housed at the WA Herbarium, where necessary. Nomenclature of the species recorded was in accordance with DBCA's WA Flora-Fauna Names Database.

At Koolyanobbing, monitoring was conducted at the A1 waste dump (2 transects), the BC waste dump (3 transects), and the K waste dump (6 transects) in 2024. These were compared to data collected at 9 reference sites.

At Mt Jackson, monitoring was undertaken at the J2 waste dump and the J3 waste dump, with one transect assessed at each. These transects were compared to the data from 8 reference sites.

At Windarling, monitoring was conducted at the W2 waste dump (3 transects) and the W3 waste dump (2 transects). These were compared against 6 reference sites.



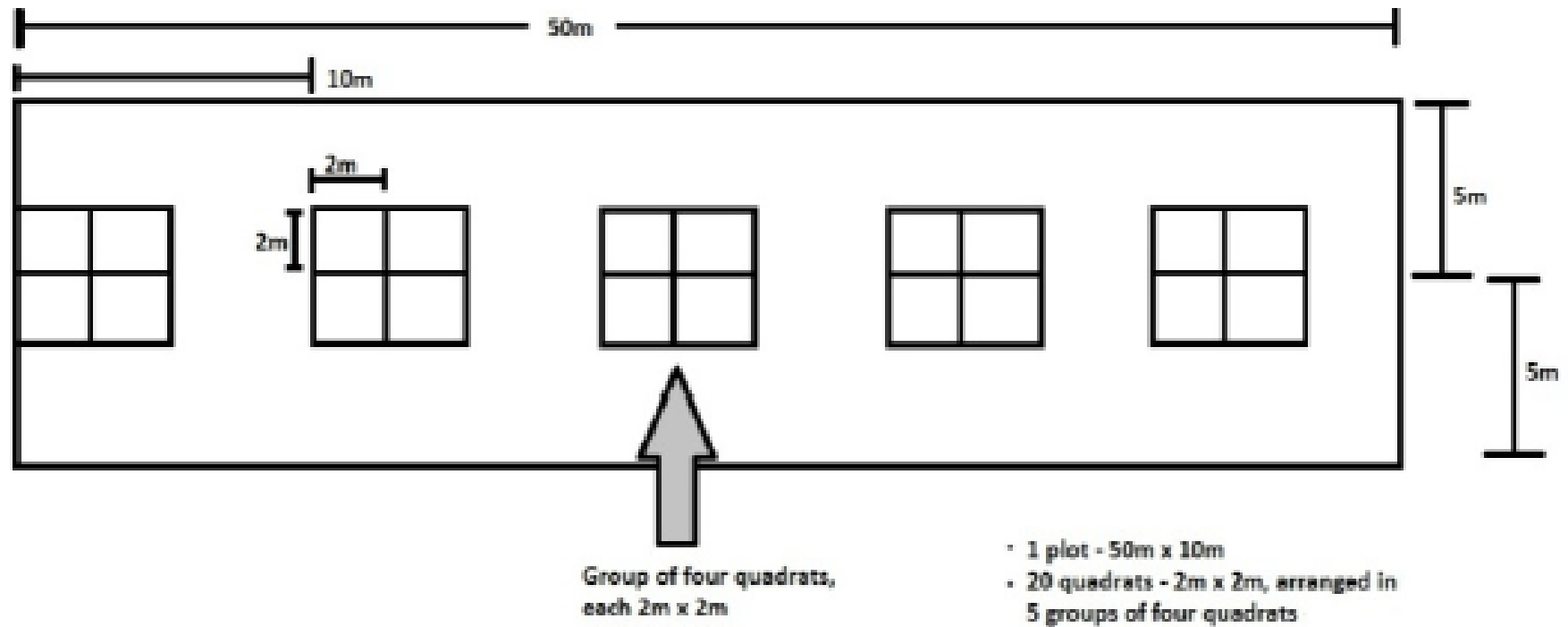


Figure 2-1 50 m x 10 m sampling plot configuration

## 2.2.3 Survey personnel

The personnel involved in the surveys are listed in Table 2-3. All survey work was carried out under relevant licences issued by DBCA under the BC Act.

**Table 2-3 Survey personnel**

| Name            | Permit                                                                        | Qualifications                                                             | Role/s                                    |
|-----------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------|
| David Leach     | FB62000045-3<br>(Expires 19/03/2026)<br>TFL 2324-0019<br>(Expires 31/07/2026) | PhD (Plant Biology);<br>BAppSciHons<br>(Conservation & Park<br>Management) | Field team leader                         |
| Luis Buchan     | FB62000514<br>(Expires 16/02/2026)<br>TFL 2324-0018<br>(Expires 31/07/2026)   | Grad Dip in Science<br>(Biodiversity Science)                              | Field work, data management               |
| Calvin Williams | FB62000525<br>(Expires 23/02/2026)<br>TFL 2324-0015<br>(Expires 31/07/2026)   | Bachelor of<br>Environmental<br>Science                                    | Field work, data management,<br>reporting |

## 2.3 ANALYSES

Analyses to determine whether rehabilitated areas had attained completion criteria followed previous assessments to provide consistency (Ecotec 2021, 2022, 2023). Additional analyses were conducted to comply with completion criteria provided in the MCP not previously assessed:

- The identification of the dominant species at each site utilising the importance value index (IVI) (Krebs 1985) has been used to determine 'key' plant species to address the completion criteria in the MCP to ensure 'Key plant species diversity and density is within an agreed reference range' (Mineral Resources Ltd 2021).
- Lists and abundance of weed species have been compared between rehabilitated areas and reference sites to determine whether any weed species occur in the rehabilitated areas that are not present in the reference communities to assess the completion criteria in the MCP to ensure 'No new weed species identified in rehabilitated areas' (Mineral Resources Ltd 2021).

The importance value index (IVI) (Krebs 1985) may be calculated as:

$$IVI = \text{Relative Frequency} + \text{Relative Cover} + \text{Relative Density}$$

Where:

*Relative Frequency* = (species frequency/total frequency of the community) x 100

*Relative Cover* = (total cover of species/total plant cover of the community) x 100

*Relative Density* = (total density of species/total plant density of the community) x 100

The IVI provides a strong indicator of the importance of a species in the community because it considers not only the number of plants present (density) and the size of the plant (cover), but also how often it occurs in the landscape (frequency). Species with the highest IVI values are dominant in the community.

Any species with a relative frequency, cover or density of 10% or greater was considered a dominant/key species.

## 3 RESULTS

### 3.1 CLIMATE AND WEATHER

The climate of the Southern Cross subregion is described as arid to semi-arid warm Mediterranean, with 250-300 mm of rainfall received mostly during the winter months (Cowan *et al.* 2001). The nearest Bureau of Meteorology (BoM) weather station with comprehensive data collection and recent historic climate data is Southern Cross Airfield (no. 012320), (Latitude: 31.24°S, Longitude: 119.36°E), located approximately 50 km south-west of the Koolyanobbing mine site, 110 km south of the Mt Jackson mine site, and 135 km south of the Windarling mine site.

Climate data gathered from between 1996 and 2024 shows that Southern Cross has historically recorded its highest mean maximum monthly temperature in January (34.8°C), and the lowest mean maximum monthly temperature has been recorded in July (16.8°C) (BoM 2024). The highest mean minimum monthly temperature has historically been recorded in January and February (17.9°C), and the lowest mean minimum monthly temperature has been recorded in July (3.7°C). Mean annual rainfall across the same period is 301.4 mm, with the highest mean monthly rainfall being recorded in July (34.7 mm), and the lowest mean monthly rainfall being recorded in December (13.9 mm).

In the 12 months preceding the survey, the highest mean daily minimum temperature recorded was in February (19.3°C), and the lowest was recorded in July (5.6°C). The highest mean daily maximum temperature was recorded in February (37°C), and the lowest was recorded in July (17.5°C). Mean monthly minimum temperatures were above the long-term average for 11 months of the year and mean maximum monthly temperatures were above the long-term average for 9 months. June received the highest total monthly rainfall (64 mm), whilst the lowest total monthly rainfall occurred in December (1 mm).

Regarding the total annual rainfall received over the 12 months prior to the survey, 6 out of the 12 months received rainfall amounts that were lower than the long-term average, whilst the other 6 were below the long-term average. Total rainfall during June, July and November was well above the long-term average. December, March and May received much lower total rainfall amounts compared to the long-term average (BoM 2024).

The 3 months leading up to the survey (August, September and October 2024) exhibited above long-term average (1996 – 2024) mean daily maximum and minimum temperatures. During the winter months, well above long-term average rainfall was observed at Southern Cross, whilst much lower than long-term average rainfall was recorded during the spring months.

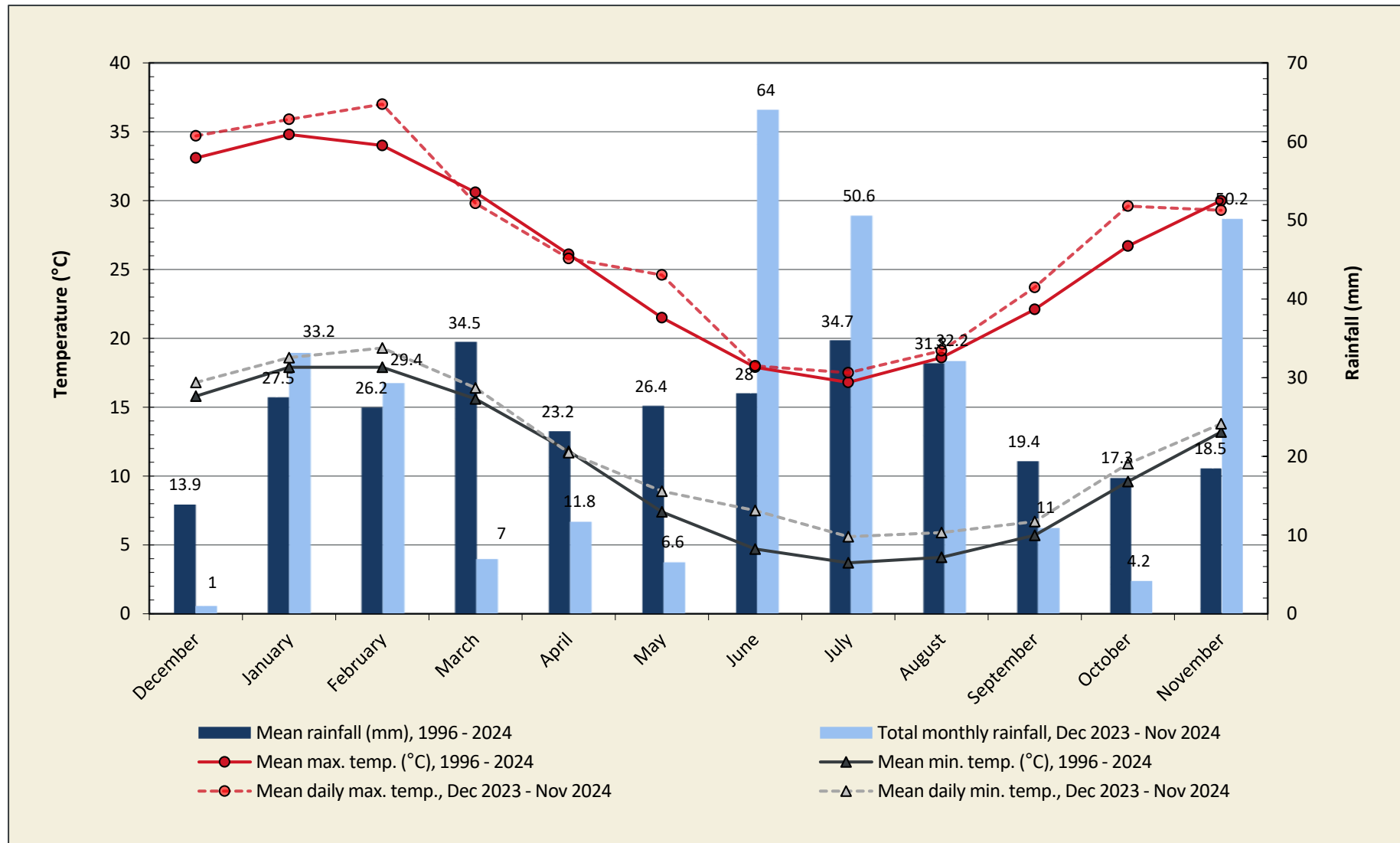


Figure 3-1 Long-term (1996 – 2024) and recent (December 2023 – November 2024) temperature and rainfall data for Southern Cross Airfield (no. 012320) (BoM 2024)

## 3.2 KOOLYANOBING

### 3.2.1 A1 Waste Dump

#### 3.2.1.1 Key Plant Species

Vegetation in the rehabilitation sites was isolated tall trees *Eucalyptus* spp. over mid mixed shrubland of *Acacia acuminata* and *Dodonaea inaequifolia* and *Eremophila ionantha* over low chenopod shrubland of *Atriplex vesicaria* and *Maireana* spp. or a low forbland of *Carrichtera annua*. over low sparse mixed shrubland with chenopod species prominent (Appendix 1). The majority of reference sites were open *Eucalyptus* woodlands over mixed shrublands of *Acacia* spp., *Allocasuarina* spp. and *Eremophila* spp. tall shrublands over mixed shrublands where chenopod species were frequently absent or represented a minor component of the flora.

Of the 8 key species in rehabilitation transect A101, 4 *Atriplex vesicaria* (shrub, mid canopy), *Dodonaea inaequifolia* (shrub, mid canopy), *Eucalyptus corrugata* (tree upper, canopy) and *Sclerolaena diacantha* (forb, lower canopy) were also key species in the reference sites. In rehabilitation transect A102, 4 of the 7 key species *Acacia acuminata* (tree, upper canopy), *Atriplex vesicaria* (shrub, mid canopy), *Maireana trichoptera* (forb, lower canopy) and *Sclerolaena diacantha* (forb, lower canopy) were also key species in the reference sites (Table 3-1). Subsequently, this criterion has not been met and given the age of the rehabilitation is unlikely to be met unless remedial activities are undertaken to increase the presence of key species from reference sites and/or reference sites representative of the established rehabilitation communities are used to assess rehabilitation success.

**Table 3-1 Relative density, relative frequency, relative cover and IVI values for dominant species at A1 waste dump and reference sites**

| Species                                            | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|----------------------------------------------------|----------------------|------------------------|--------------------|--------|
| <b>A101</b>                                        |                      |                        |                    |        |
| <i>Atriplex nummularia</i>                         | 3.43                 | 8.51                   | 20.56              | 32.50  |
| <i>Atriplex vesicaria</i>                          | 36.57                | 27.66                  | 32.78              | 97.02  |
| <i>Dodonaea inaequifolia</i>                       | 1.14                 | 4.26                   | 20.37              | 25.77  |
| <i>Eucalyptus corrugata</i>                        | 0.57                 | 2.13                   | 13.82              | 16.51  |
| <i>Maireana georgei</i>                            | 12.00                | 12.77                  | 3.05               | 27.81  |
| <i>Maireana</i> sp. juv.                           | 11.43                | 12.77                  | 0.27               | 24.46  |
| <i>Maireana triptera</i>                           | 9.71                 | 10.64                  | 2.14               | 22.50  |
| <i>Sclerolaena diacantha</i>                       | 20.00                | 6.38                   | 0.21               | 26.60  |
| <b>A102</b>                                        |                      |                        |                    |        |
| <i>Acacia acuminata</i>                            | 0.35                 | 1.67                   | 14.04              | 16.1   |
| <i>Atriplex vesicaria</i>                          | 3.51                 | 8.33                   | 12.32              | 24.2   |
| <i>Maireana georgei</i>                            | 8.77                 | 13.33                  | 1.89               | 24.0   |
| <i>Maireana tomentosa</i>                          | 21.75                | 13.33                  | 9.19               | 44.3   |
| <i>Maireana trichoptera</i>                        | 34.74                | 23.33                  | 14.49              | 72.6   |
| <i>Sclerolaena diacantha</i>                       | 13.33                | 11.67                  | 2.95               | 27.9   |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> | 1.05                 | 3.33                   | 21.05              | 25.4   |
| <b>KN01</b>                                        |                      |                        |                    |        |
| <i>Acacia acuminata</i>                            | 4.76                 | 4.88                   | 19.72              | 29.36  |
| <i>Dodonaea inaequifolia</i>                       | 7.94                 | 7.32                   | 5.00               | 20.25  |
| <i>Eremophila clarkei</i>                          | 36.51                | 29.27                  | 34.86              | 100.63 |

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**Prepared for Mineral Resources Limited**

| Species                                                    | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI   |
|------------------------------------------------------------|----------------------|------------------------|--------------------|-------|
| <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> | 12.70                | 12.20                  | 7.23               | 32.13 |
| <i>Scaevola spinescens</i>                                 | 4.76                 | 7.32                   | 12.49              | 24.57 |
| <b>KN06</b>                                                |                      |                        |                    |       |
| <i>Acacia andrewsii</i>                                    | 16.67                | 13.33                  | 0.62               | 30.62 |
| <i>Acacia erinacea</i>                                     | 11.11                | 13.33                  | 0.41               | 24.86 |
| <i>Austrostipa elegantissima</i>                           | 16.67                | 13.33                  | 0.62               | 30.62 |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i>         | 22.22                | 20.00                  | 0.83               | 43.05 |
| <b>KN07</b>                                                |                      |                        |                    |       |
| <i>Acacia erinacea</i>                                     | 0.85                 | 2.22                   | 26.82              | 29.89 |
| <i>Atriplex vesicaria</i>                                  | 9.32                 | 20.00                  | 5.90               | 35.22 |
| <i>Austrostipa nitida</i>                                  | 10.17                | 2.22                   | 6.44               | 18.83 |
| <i>Maireana trichoptera</i>                                | 19.49                | 24.44                  | 12.34              | 56.28 |
| <i>Sclerolaena cuneata</i>                                 | 32.20                | 13.33                  | 20.39              | 65.92 |
| <i>Sclerolaena diacantha</i>                               | 11.02                | 11.11                  | 6.97               | 29.10 |
| <b>KN11</b>                                                |                      |                        |                    |       |
| <i>Acacia acuminata</i>                                    | 6.12                 | 5.88                   | 33.80              | 45.80 |
| <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> | 2.04                 | 2.94                   | 21.46              | 26.44 |
| <i>Allocasuarina eriochlamys</i>                           | 6.12                 | 8.82                   | 84.23              | 99.17 |
| <i>Dodonaea inaequifolia</i>                               | 12.24                | 14.71                  | 34.87              | 61.82 |
| <i>Eremophila granitica</i>                                | 28.57                | 20.59                  | 31.65              | 80.81 |
| <i>Olearia humilis</i>                                     | 18.37                | 14.71                  | 20.98              | 54.05 |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>              | 10.20                | 8.82                   | 34.87              | 53.90 |

### 3.2.1.2 Weed Species

\**Rumex vesicarius* (Ruby Dock) and \**Carrichtera annua* (Ward's Weed) were recorded at the A101 and A102 rehabilitation transects in 2024 (Appendix 1). No weeds were recorded at any of the reference sites in 2024. \**Centaurea melitensis* (Maltese Cockspur) (A101) and \**Sonchus oleraceus* (Common Sowthistle) (A102) were recorded in 2021 but found to be dead in 2024.

The presence of weed species in the rehabilitation that are not present in the reference sites may indicate that the rehabilitated areas do not meet the completion criteria of no new weeds.



### 3.2.1.3 Total Native Foliage Cover

There was a notable decline in total native foliage cover in the rehabilitation transects between the 2021 and 2024 monitoring events, similar declines were also recorded for reference sites (

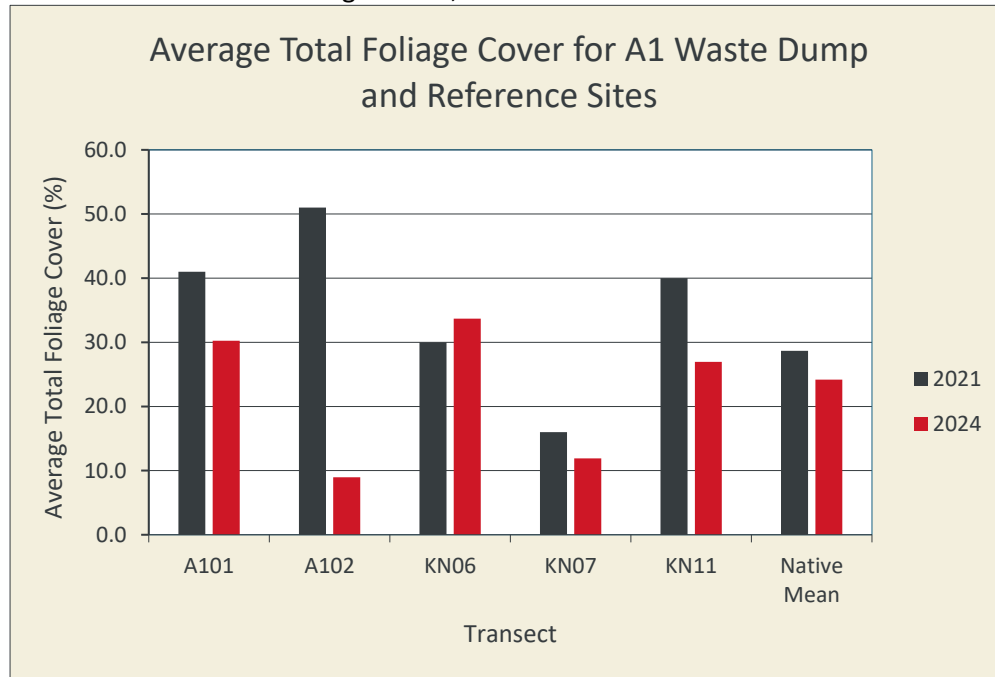
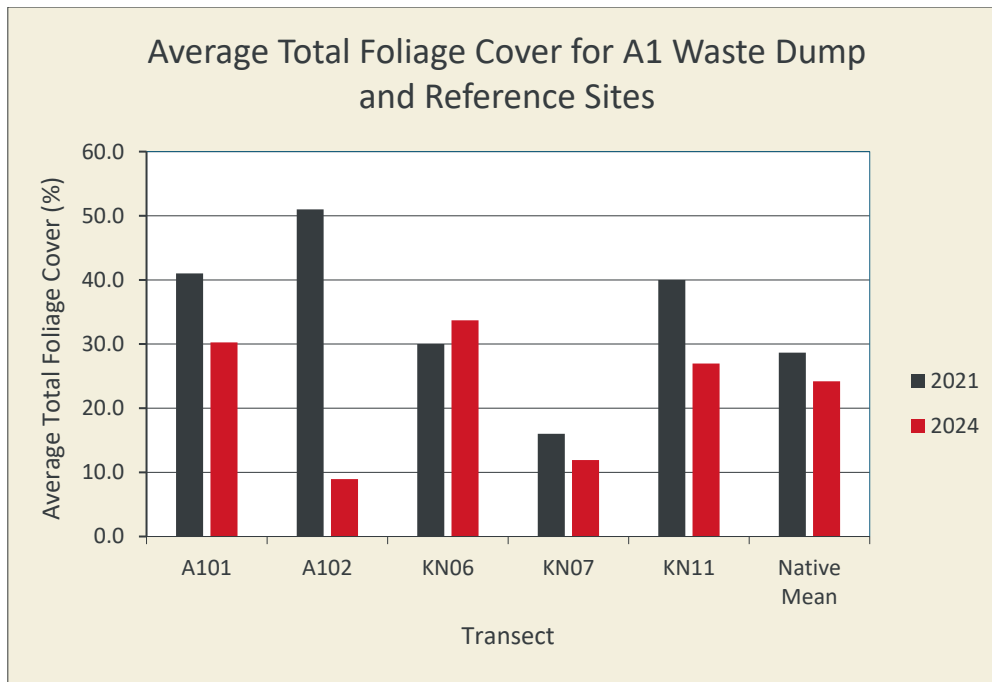


Figure 3-2). For both the rehabilitation transects and reference sites the decrease in cover was associated with a decrease in plant density (Figure 3-3).

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.

Total native foliage cover of transect A101 (30.3%) was equivalent to or higher than some reference sites (ranging from 11.9% to 33.7%) and the vegetation at A101 had attained the completion criterion for total foliage cover (Table 3-2). Transect A102 did not meet the completion criterion and total foliage cover (9.0%) was below all reference sites although approaching that of reference site KN07 (11.9%).

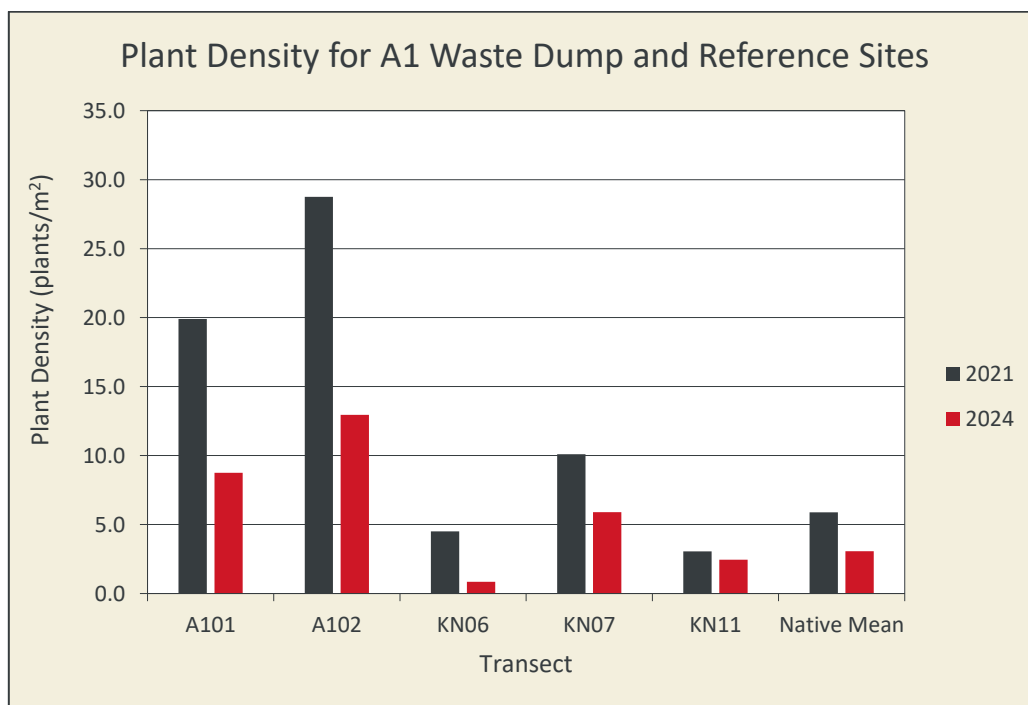


**Figure 3-2 Average Total Foliage Cover for A1 waste dump and reference sites**

### 3.2.1.4 Plant Density

Plant density decreased in rehabilitation transects A101 and A102 since the 2021 monitoring event (Figure 3-3). Similarly, plant density also decreased across all reference sites.

Plant density in transects A101 (8.8 plants/m<sup>2</sup>) and A102 (13 plants/m<sup>2</sup>) was higher than all reference sites (ranging from 0.9 plants/m<sup>2</sup> to 5.9 plants/m<sup>2</sup>) in 2024 and the vegetation in these transects had attained the completion criterion for plant density (Table 3-2).



**Figure 3-3 Plant Density for A1 waste dump and reference sites**

### 3.2.1.5 Species Richness

Species richness decreased in both the A101 and A102 rehabilitation transects (Figure 3-4). Species richness also decreased across all reference sites.

Species richness in transects A101 (17 species) and A102 (16 species) are higher than all reference sites (ranging from 13 to 15 species) and have attained the completion criterion for species richness (9.8 species) (Table 3-2).

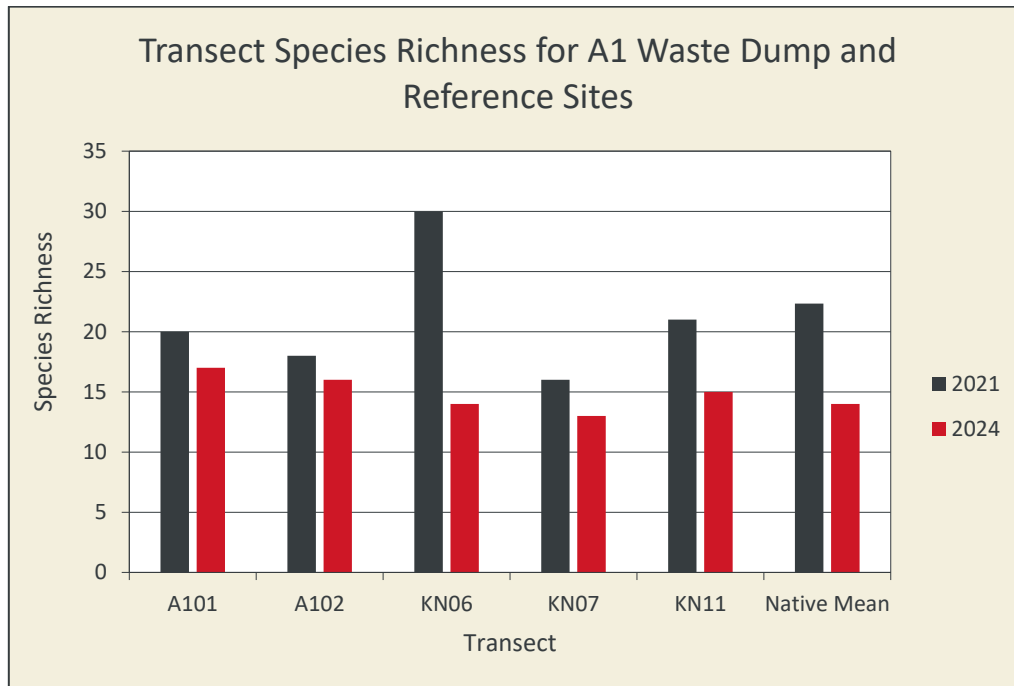


Figure 3-4 Transect Species Richness for A1 waste dump and reference sites

Table 3-2 A1 waste dump comparison with completion criteria

|                                                            | A101 | A102 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|------|------|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 30.3 | 9.0  | 16.9                                                        |
| Species Richness of transect (No. of species per transect) | 17.0 | 16.0 | 9.8                                                         |
| Plant density (plants/m <sup>2</sup> )                     | 8.8  | 13.0 | 3.1                                                         |

## 3.2.2 BC Waste Dump

### 3.2.2.1 Key Plant Species

Vegetation in the rehabilitation sites was a mid-open woodland of *Eucalyptus corrugata* over mid mixed isolated shrubland of *Eremophila ionantha*, *Atriplex* spp. over low chenopod shrubland of *Sclerolaena diacantha* and *Maireana* spp. or a low forbland of *Carrichtera annua* (Appendix 1). The majority of reference sites were open *Eucalyptus* spp. or *Banksia arborea* woodlands over mixed shrublands of *Acacia* spp., *Allocasuarina eriochlamys* and *Eremophila granitica* over low shrublands of *Philotheca brucei*, *Prostanthera* spp. and *Leucopogon* sp. Clyde Hill.

Of the 5 key species at transect BC04, 3 were key species in reference communities *Acacia collegialis* (tree, upper canopy) *Maireana trichoptera* (forb, lower canopy) and *Sclerolaena diacantha* (forb, lower canopy) (Table 3-3). At the remaining transects (BC02 and BC06) less than half of the key species were also key species at reference sites. Overall the majority of key plant species in the reference sites were not present in the rehabilitation and subsequently the rehabilitation does not attain the completion criteria for key plant species diversity and density to be within an agreed reference range. The rehabilitated areas are chenopod shrublands with occasional other native shrubs or sparse trees (Appendix 1). Chenopod shrubs were recorded in some reference sites but were frequently absent and/or were only a minor component of the flora.

**Table 3-3** Relative density, relative frequency, relative cover and IVI values for dominant species at BC waste dump and reference sites

| Species                                                   | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI   |
|-----------------------------------------------------------|----------------------|------------------------|--------------------|-------|
| <b>BC02</b>                                               |                      |                        |                    |       |
| <i>Eremophila ionantha</i>                                | 0.48                 | 4.11                   | 11.94              | 16.53 |
| <i>Maireana georgei</i>                                   | 3.72                 | 9.59                   | 15.02              | 28.33 |
| <i>Maireana</i> sp. juv                                   | 24.39                | 5.48                   | 3.02               | 32.89 |
| <i>Maireana tomentosa</i>                                 | 18.42                | 17.81                  | 18.01              | 54.23 |
| <i>Maireana trichoptera</i>                               | 33.76                | 26.03                  | 14.36              | 74.15 |
| <i>Sclerolaena diacantha</i>                              | 9.21                 | 13.70                  | 8.39               | 31.30 |
| <b>BC04</b>                                               |                      |                        |                    |       |
| <i>Acacia collegialis</i>                                 | 0.15                 | 1.16                   | 20.01              | 21.3  |
| <i>Eremophila ionantha</i>                                | 0.60                 | 3.49                   | 10.47              | 14.6  |
| <i>Maireana trichoptera</i>                               | 58.35                | 22.09                  | 20.92              | 101.4 |
| <i>Sclerolaena diacantha</i>                              | 11.13                | 11.63                  | 1.71               | 24.5  |
| <i>Grevillea zygodoba</i>                                 | 0.00                 | 0.00                   | 13.34              | 13.3  |
| <b>BC06</b>                                               |                      |                        |                    |       |
| <i>Atriplex vesicaria</i>                                 | 3.14                 | 5.80                   | 12.80              | 21.73 |
| <i>Maireana brevifolia</i>                                | 8.01                 | 14.49                  | 34.65              | 57.15 |
| <i>Maireana georgei</i>                                   | 11.15                | 18.84                  | 10.05              | 40.04 |
| <i>Maireana tomentosa</i>                                 | 35.89                | 17.39                  | 16.17              | 69.45 |
| <i>Maireana trichoptera</i>                               | 32.40                | 21.74                  | 18.25              | 72.39 |
| <b>FN01</b>                                               |                      |                        |                    |       |
| <i>Acacia acuminata</i>                                   | 15.87                | 11.43                  | 2.90               | 30.20 |
| <i>Dodonaea microzyga</i> var. <i>acrololata</i>          | 31.75                | 22.86                  | 12.53              | 67.13 |
| <i>Eremophila clarkei</i>                                 | 26.98                | 25.71                  | 9.77               | 62.47 |
| <i>Eucalyptus celestroides</i> subsp. <i>celestroides</i> | 4.76                 | 8.57                   | 62.65              | 75.98 |

| Species                                                | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI   |
|--------------------------------------------------------|----------------------|------------------------|--------------------|-------|
| <b>FN03</b>                                            |                      |                        |                    |       |
| <i>Acacia collegialis</i>                              | 2.27                 | 2.86                   | 10.66              | 15.8  |
| <i>Allocasuarina eriochlamys</i>                       | 25.00                | 22.86                  | 55.06              | 102.9 |
| <i>Eremophila clarkei</i>                              | 25.00                | 20.00                  | 7.87               | 52.9  |
| <i>Olearia humilis</i>                                 | 11.36                | 14.29                  | 6.60               | 32.2  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>          | 13.64                | 11.43                  | 9.90               | 35.0  |
| <b>FN05</b>                                            |                      |                        |                    |       |
| <i>Allocasuarina eriochlamys</i>                       | 3.52                 | 8.06                   | 24.37              | 35.95 |
| <i>Dianella revoluta</i> var. <i>divaricata</i>        | 9.86                 | 11.29                  | 8.35               | 29.50 |
| <i>Eremophila granitica</i>                            | 10.56                | 14.52                  | 11.97              | 37.05 |
| <i>Hibbertia lepidocalyx</i> subsp. <i>tuberculata</i> | 19.72                | 14.52                  | 8.49               | 42.73 |
| <i>Lepidosperma ferricola</i>                          | 30.28                | 16.13                  | 15.18              | 61.59 |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>          | 10.56                | 12.90                  | 20.05              | 43.52 |

### 3.2.2.2 Weed Species

\**Carrichtera annua* (Ward's Weed) and \**Centaurea melitensis* (Maltese Cockspur) were recorded in the rehabilitation transects but were not recorded at any reference transects at Koolyanobbing in 2024 (Appendix 1). \**Rumex vesicarius* (Ruby Dock) was recorded in the rehabilitation transect in 2021, whilst no weeds were recorded in 2021 at any reference sites.

The presence of weed species in the rehabilitation that are not present in the reference sites may indicate that the rehabilitated areas do not meet the completion criteria of no new weeds.

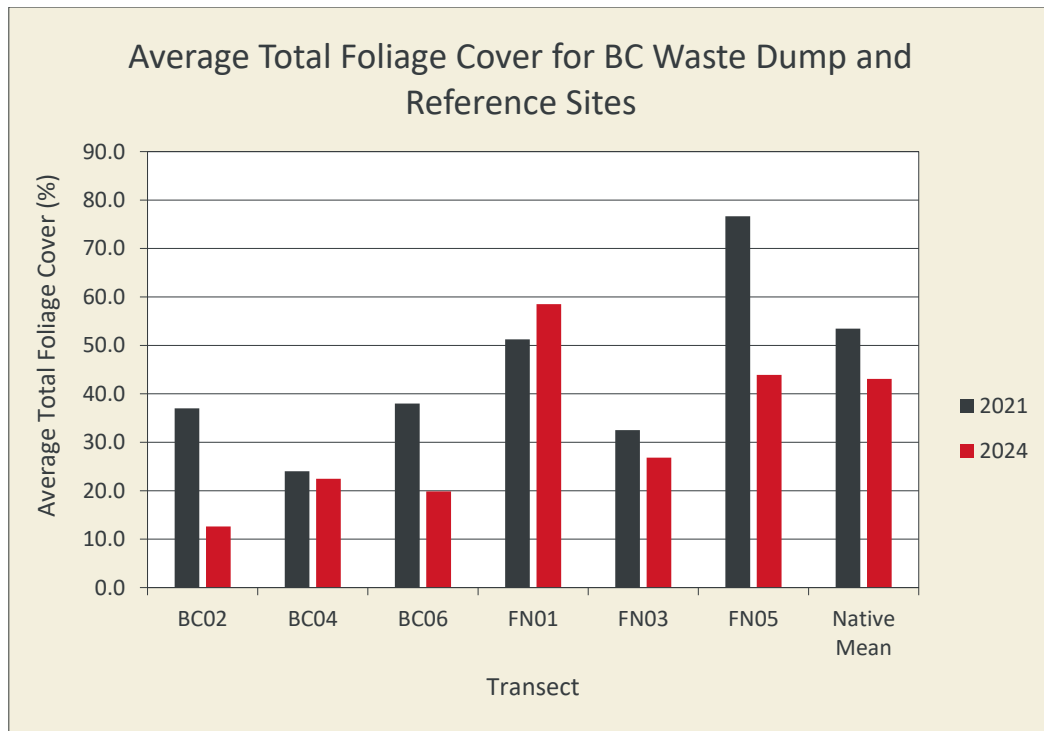
### 3.2.2.3 Total Native Foliage Cover

There was a notable decline in total native foliage cover in the rehabilitation transects between the 2021 and 2024 monitoring events, apart from BC04, which only had a small decline. One reference site saw an increase in average foliage cover (FN01), with the other reference sites having a decrease recorded (Figure 3-5). The decrease in foliage cover was associated with a decrease in plant density in all monitoring transects (Figure 3-6).

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.

Total native foliage cover in the rehabilitation transects (ranging from 12.6% to 22.5%) was lower than all of the reference sites (ranging from 26.8% to 58.5%) and the vegetation had failed to attain the completion criterion for total native foliage cover (

Table 3-4).

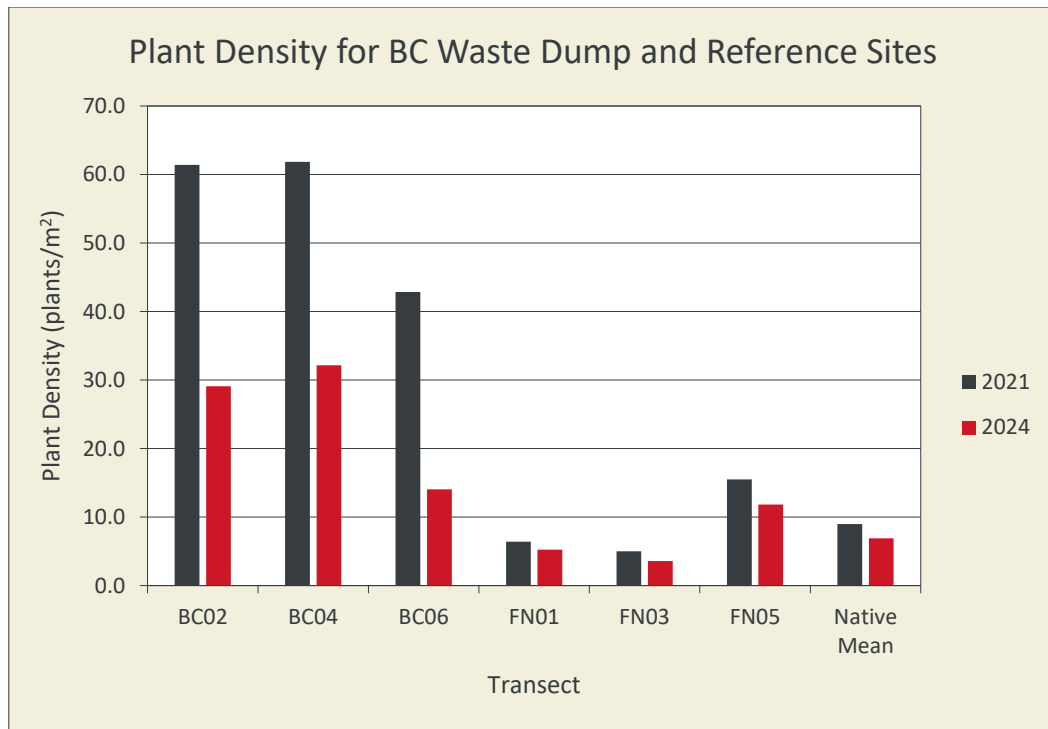


**Figure 3-5 Average Total Foliage Cover for BC waste dump and reference sites**

### 3.2.2.4 Plant Density

Despite a decrease in plant density across all rehabilitation transects since the 2021 monitoring event, density at all rehabilitation sites (ranging from 14.1 plants/m<sup>2</sup> to 32.2 plants/m<sup>2</sup>) remains higher than that recorded for any reference site (ranging from 3.6 plants/m<sup>2</sup> to 11.8 plants/m<sup>2</sup>) (Figure 3-6). Subsequently, vegetation in the rehabilitation transect has attained the completion criterion for plant density (

Table 3-4).



**Figure 3-6 Plant Density for BC waste dump and reference sites**

### 3.2.2.5 Species Richness

There has been a decrease in species richness since 2021 across all rehabilitation and reference sites (Figure 3-7). However, species richness in the rehabilitation transects (ranging from 15 species to 23 species) remained equivalent to or higher than reference sites (ranging from 10 species to 20 species). Vegetation in the rehabilitation transects had attained the completion criterion for species richness (

Table 3-4).



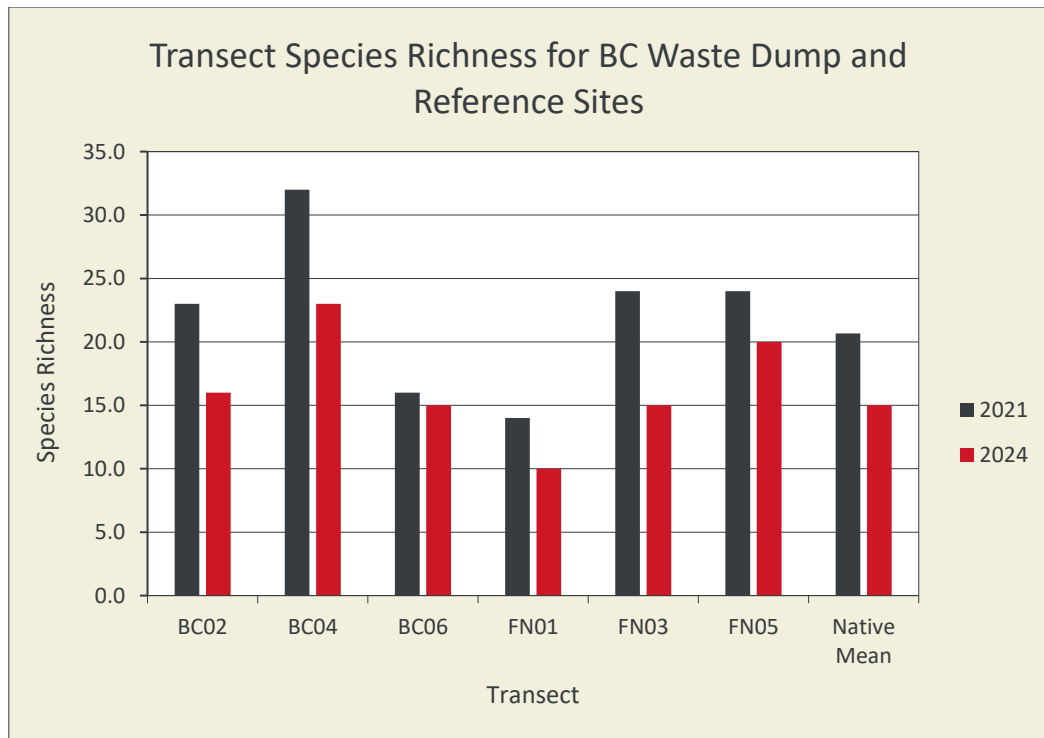


Figure 3-7 Transect Species Richness for BC waste dump and reference sites

Table 3-4 BC waste dump comparison with completion criteria

|                                                            | BC02 | BC04 | BC06 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|------|------|------|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 12.6 | 22.5 | 19.8 | 30.2                                                        |
| Species Richness of transect (No. of species per transect) | 16.0 | 23.0 | 15.0 | 10.5                                                        |
| Plant density (plants/m <sup>2</sup> )                     | 29.1 | 32.2 | 14.1 | 4.8                                                         |

### 3.2.3 K Waste Dump

#### 3.2.3.1 Key Plant Species

Vegetation present in the rehabilitated sites included mid to low isolated chenopod shrublands of *Atriplex* spp. over low chenopod shrublands of *Maireana* spp. and *Atriplex vesicaria* over low forbland of *Carrichtera annua*. Reference sites were dominated by tall open woodlands of *Eucalyptus corrugata* over mid or tall mixed shrubland of *Acacia enervia*, *Exocarpos aphyllus* and *Dodonaea viscosa* subsp. *angustifolia* over low sparse shrubland of *Atriplex vesicaria* and *Maireana* spp. or isolated tussock grassland of *Austrostipa* spp.

All key species in the rehabilitation transects were chenopods with the areas dominated by *Atriplex*, *Maireana* and *Sclerolaena* species (Table 3-5). *Atriplex vesicaria* and *Sclerolaena diacantha* were key species in rehabilitated transects and in some reference sites, but the majority of key species in rehabilitated areas were not key species at reference sites and the majority of key species from reference sites were not present in rehabilitated areas.

As key plant species in the reference sites are not present in the rehabilitation, the rehabilitation does not attain the completion criteria for key plant species diversity and density to be within an agreed reference range.

The rehabilitated areas are chenopod shrublands with occasional other native shrubs or sparse trees (Appendix 1). Chenopod shrubs were recorded in some reference sites but were frequently absent and/or were only a minor component of the flora.

**Table 3-5 Relative density, relative frequency, relative cover and IVI values for dominant species at K waste dump and reference sites**

| Species                                            | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|----------------------------------------------------|----------------------|------------------------|--------------------|--------|
| <b>K06</b>                                         |                      |                        |                    |        |
| <i>Atriplex codonocarpa</i>                        | 80.21                | 32.65                  | 6.16               | 119.03 |
| <i>Atriplex vesicaria</i>                          | 4.24                 | 20.41                  | 73.67              | 98.32  |
| <i>Maireana georgei</i>                            | 2.12                 | 10.20                  | 1.44               | 13.76  |
| <i>Maireana platycarpa</i>                         | 11.84                | 28.57                  | 9.99               | 50.40  |
| <b>K09</b>                                         |                      |                        |                    |        |
| <i>Atriplex codonocarpa</i>                        | 54.87                | 20.37                  | 3.68               | 78.9   |
| <i>Atriplex nummularia</i>                         | 0.93                 | 7.41                   | 36.23              | 44.6   |
| <i>Atriplex vesicaria</i>                          | 9.74                 | 22.22                  | 38.73              | 70.7   |
| <i>Maireana platycarpa</i>                         | 18.55                | 25.93                  | 18.31              | 62.8   |
| <b>K10</b>                                         |                      |                        |                    |        |
| <i>Atriplex nummularia</i>                         | 1.98                 | 3.64                   | 10.45              | 16.1   |
| <i>Atriplex vesicaria</i>                          | 26.06                | 15.45                  | 58.16              | 99.7   |
| <i>Maireana georgei</i>                            | 9.35                 | 11.82                  | 5.43               | 26.6   |
| <i>Maireana platycarpa</i>                         | 33.14                | 17.27                  | 15.37              | 65.8   |
| <b>K11</b>                                         |                      |                        |                    |        |
| <i>Atriplex vesicaria</i>                          | 23.80                | 27.94                  | 83.58              | 135.3  |
| <i>Maireana georgei</i>                            | 16.43                | 20.59                  | 11.94              | 49.0   |
| <i>Maireana tomentosa</i>                          | 3.97                 | 11.76                  | 2.57               | 18.3   |
| <b>K12</b>                                         |                      |                        |                    |        |
| <i>Atriplex codonocarpa</i>                        | 24.50                | 14.94                  | 7.46               | 46.9   |
| <i>Atriplex vesicaria</i>                          | 6.84                 | 12.64                  | 24.51              | 44.0   |
| <i>Maireana georgei</i>                            | 10.82                | 17.24                  | 12.80              | 40.9   |
| <i>Maireana platycarpa</i>                         | 23.84                | 17.24                  | 40.09              | 81.2   |
| <i>Sclerolaena diacantha</i>                       | 20.31                | 10.34                  | 4.51               | 35.2   |
| <b>K14</b>                                         |                      |                        |                    |        |
| <i>Atriplex vesicaria</i>                          | 42.86                | 50.00                  | 50.00              | 142.9  |
| <i>Sclerolaena diacantha</i>                       | 57.14                | 50.00                  | 50.00              | 157.1  |
| <b>N04</b>                                         |                      |                        |                    |        |
| <i>Acacia acuminata</i>                            | 0.00                 | 0.00                   | 12.04              | 12.04  |
| <i>Acacia enervia</i> subsp. <i>explicata</i>      | 1.41                 | 3.28                   | 16.86              | 21.54  |
| <i>Crassula colorata</i>                           | 14.08                | 1.64                   | 0.02               | 15.74  |
| <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> | 14.08                | 19.67                  | 30.50              | 64.26  |
| <i>Grevillea acuaria</i>                           | 2.82                 | 4.92                   | 17.02              | 24.75  |
| <i>Sclerolaena diacantha</i>                       | 26.76                | 6.56                   | 0.06               | 33.38  |
| <b>N07</b>                                         |                      |                        |                    |        |
| <i>Acacia erinacea</i>                             | 8.57                 | 10.71                  | 4.35               | 23.64  |
| <i>Austrostipa elegantissima</i>                   | 14.29                | 10.71                  | 1.16               | 26.16  |
| <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> | 8.57                 | 10.71                  | 0.73               | 20.01  |

| Species                     | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI   |
|-----------------------------|----------------------|------------------------|--------------------|-------|
| <i>Eucalyptus corrugata</i> | 2.86                 | 3.57                   | 76.86              | 83.28 |
| <i>Exocarpos aphyllus</i>   | 8.57                 | 10.71                  | 7.98               | 27.26 |
| <i>Olearia muelleri</i>     | 17.14                | 21.43                  | 1.20               | 39.78 |
| <i>Roepera aurantiacum</i>  | 11.43                | 3.57                   | 0.01               | 15.01 |

### 3.2.3.2 Weed Species

\**Rumex vesicarius* (Ruby Dock), \**Carrichtera annua* (Ward's Weed) and \**Mesembryanthemum nodiflorum* (Slender Iceplant) were recorded at rehabilitation transects in 2024. No weeds were recorded at any reference transect in 2024 (Appendix 1). \**Carrichtera annua* (Ward's Weed) and \**Sonchus oleraceus* (Common Sowthistle) were recorded at rehabilitation transects K09, K11 and K12 in 2021, whilst no weeds were recorded at reference sites in 2021.

The presence of weed species in the rehabilitation that are not present in the reference sites may indicate that the rehabilitated areas do not meet the completion criteria of no new weeds.

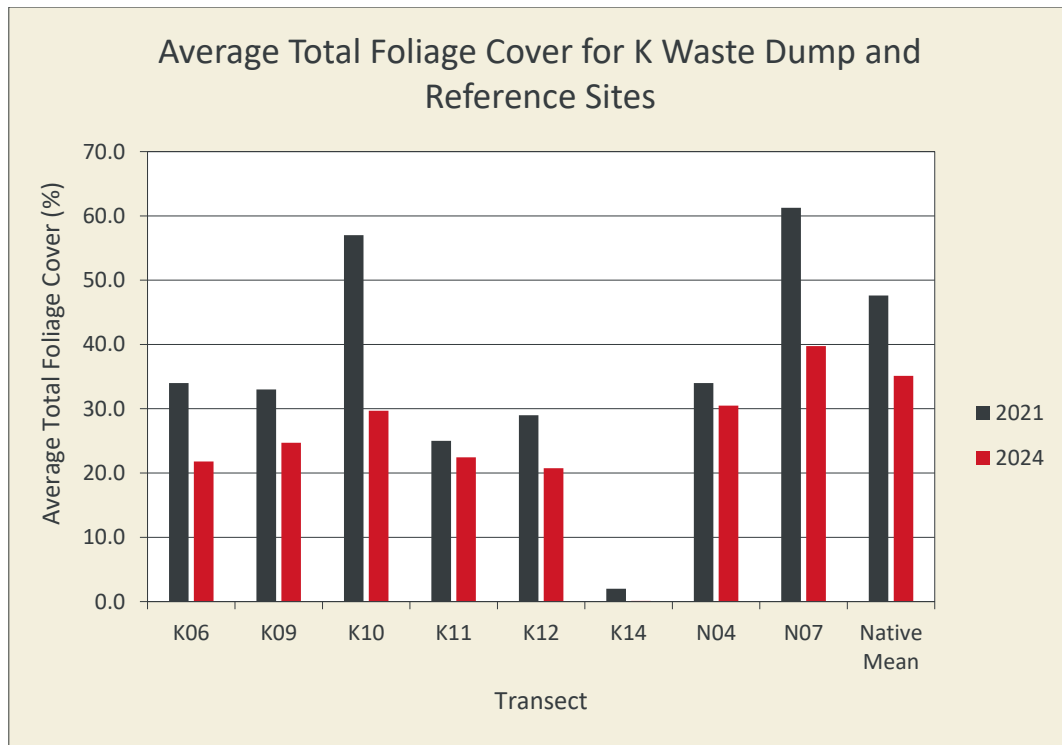
### 3.2.3.3 Total Native Foliage Cover

There was a notable decline in total native foliage cover across all rehabilitation transects between the 2021 and 2024 monitoring events, similar declines were also recorded for reference sites (Figure 3-8). For the rehabilitation transects the decrease in cover was associated with a decrease in plant density, with the exception of K06 where there was a significant increase in density (Figure 3-9). This increase seems to be largely associated with the abundance of *Atriplex codonocarpa* (annual), amongst other small, chenopod shrubs such as *Maireana* spp. (perennial). At the reference sites, the decline in foliage cover was matched by a similar decrease in plant density.

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.

Total native foliage cover of rehabilitation transects (ranging from 0.1% to 29.7%) were lower than reference sites (range 30.5% to 39.7%). However mean foliage cover at K09 (24.7%) and K10 (29.7%) was higher than 70% of the reference site mean (24.6%) and therefore the vegetation in these transects had attained the completion criterion for total foliage cover (

Table 3-6).



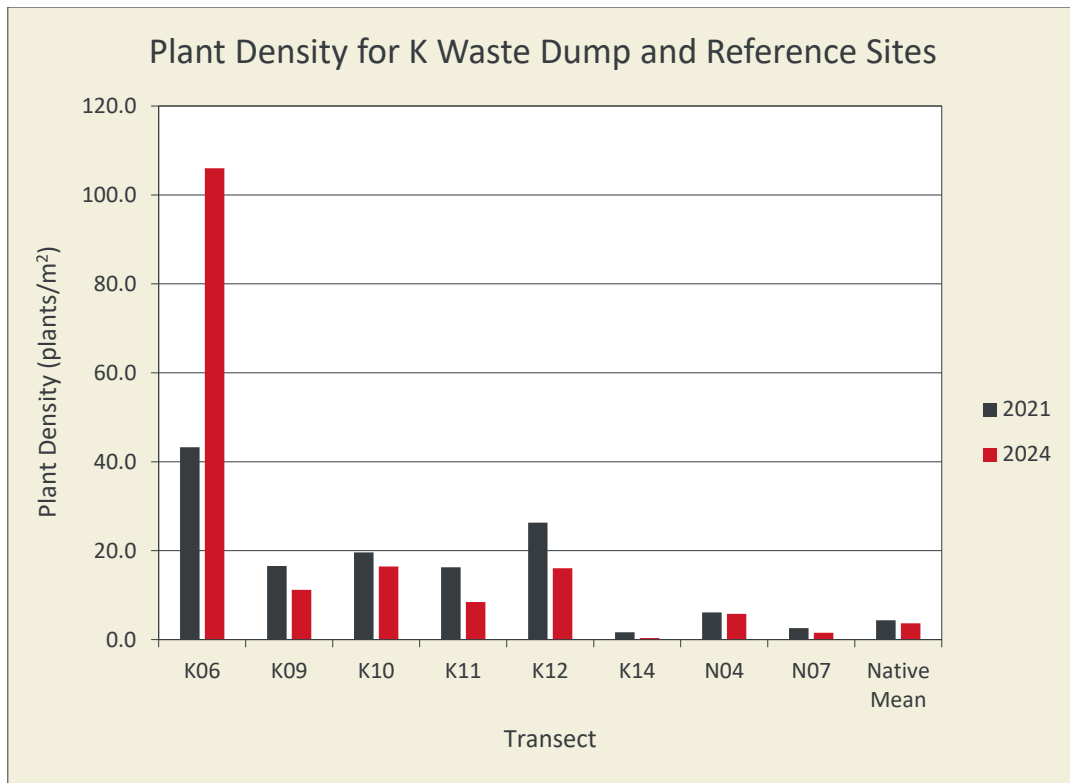
**Figure 3-8 Average Total Foliage Cover for K waste dump and reference sites**

### 3.2.3.4 Plant Density

Plant density increased in rehabilitation transect K06 but decreased for all other rehabilitation transects since the 2021 monitoring event (Figure 3-9). Similarly, plant density also decreased at both reference sites.

Plant density across all rehabilitation transects, apart from K14 (0.4 plants/m<sup>2</sup>), (ranging from 8.5 plants/m<sup>2</sup> to 106.0 plants/m<sup>2</sup>) was higher than both reference sites (ranging from 1.6 plants/m<sup>2</sup> to 5.8 plants/m<sup>2</sup>) in 2024 (Figure 3-9) and the vegetation in these transects had attained the completion criterion for plant density (

Table 3-6).



**Figure 3-9 Plant Density for K waste dump and reference sites**

### 3.2.3.5 Species Richness

Species richness decreased in all rehabilitation transects except K10 and K12 where it remained the same (Figure 3-10). Species richness also decreased at both reference sites.

Species richness across all rehabilitation transects (ranging from 3 species to 14 species) were lower than at both reference sites (ranging from 16 species to 26 species) and have failed to attain the completion criterion for species richness (

Table 3-6).

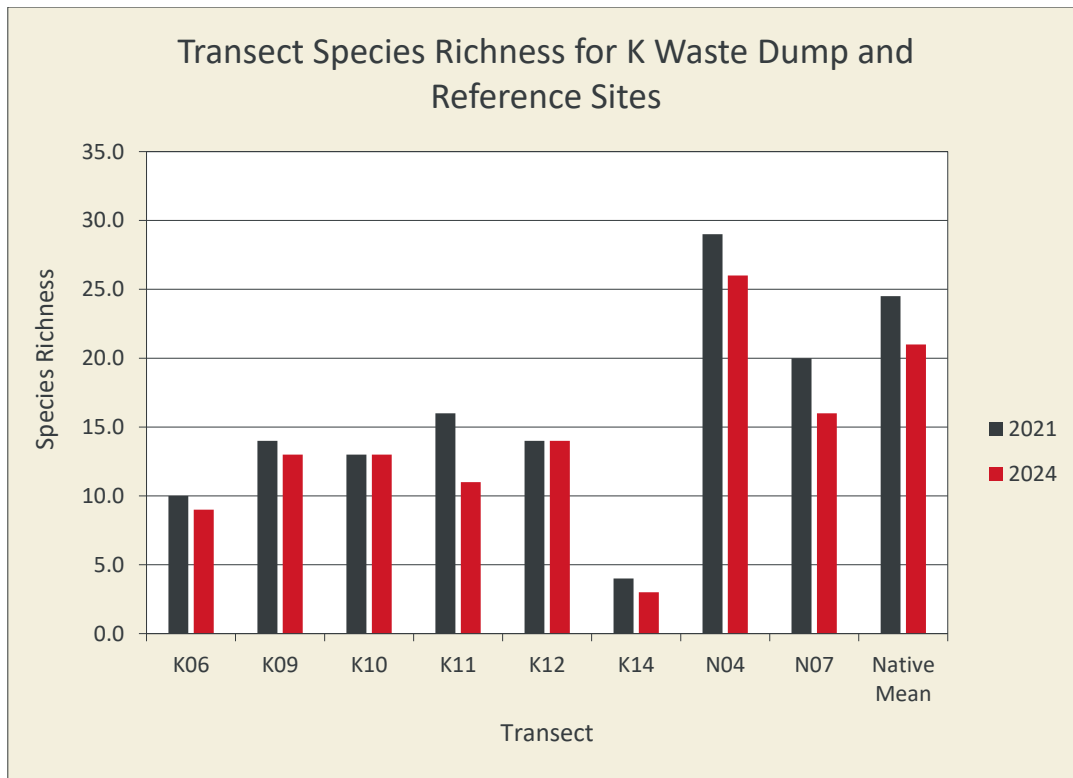


Figure 3-10 Transect Species Richness for K waste dump and reference sites

Table 3-6 K waste dump comparison with completion criteria

|                                                            | K06   | K09  | K10  | K11  | K12  | K14 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|-------|------|------|------|------|-----|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 21.8  | 24.7 | 29.7 | 22.5 | 20.8 | 0.1 | 24.6                                                        |
| Species Richness of transect (No. of species per transect) | 9.0   | 13.0 | 13.0 | 11.0 | 14.0 | 3.0 | 14.7                                                        |
| Plant density (plants/m <sup>2</sup> )                     | 106.0 | 11.2 | 16.5 | 8.5  | 16.1 | 0.4 | 2.6                                                         |

### 3.3 MT JACKSON

#### 3.3.1 J2 Waste Dump

##### 3.3.1.1 Key Plant Species

Vegetation in the rehabilitation sites was an open mid *Grevillea obliquistigma* subsp. *obliquistigma* shrubland over low sparse mixed shrubland with chenopod species prominent (Appendix 1). The majority of reference sites were open *Eucalyptus* woodlands over mixed shrublands or *Acacia* and/or *Allocasuarina* tall shrublands over mixed shrublands where chenopod species were frequently absent or represented a minor component of the flora.

The majority of key plant species for the rehabilitation transect were not key species at the reference sites (Table 3-7). As key plant species in the reference sites are not present in the rehabilitation, the rehabilitation does not attain the completion criteria for key plant species diversity and density to be within an agreed reference range.

**Table 3-7 Relative density, relative frequency, relative cover, and IVI values for species at J2 waste dump and reference sites**

| Species                                                    | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI   |
|------------------------------------------------------------|----------------------|------------------------|--------------------|-------|
| <b>J201</b>                                                |                      |                        |                    |       |
| <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> | 2.06                 | 9.62                   | 52.21              | 63.88 |
| <i>Maireana trichoptera</i>                                | 11.93                | 13.46                  | 2.17               | 27.56 |
| <i>Maireana triptera</i>                                   | 6.17                 | 13.46                  | 1.15               | 20.78 |
| <i>Ptilotus exaltatus</i>                                  | 6.17                 | 13.46                  | 0.63               | 20.26 |
| <i>Sclerolaena cuneata</i>                                 | 46.50                | 21.15                  | 1.28               | 68.93 |
| <i>Sclerolaena diacantha</i>                               | 11.52                | 15.38                  | 0.68               | 27.59 |
| <i>Westringia cephalantha</i>                              | 4.94                 | 15.38                  | 27.67              | 47.99 |
| <b>J1N05</b>                                               |                      |                        |                    |       |
| <i>Acacia aneura</i>                                       | 20.83                | 22.73                  | 46.84              | 90.40 |
| <i>Acacia ramulosa</i> var. <i>ramulosa</i>                | 4.17                 | 4.55                   | 28.75              | 37.46 |
| <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>          | 12.50                | 13.64                  | 8.77               | 34.90 |
| <i>Eremophila clarkei</i>                                  | 12.50                | 9.09                   | 1.28               | 22.87 |
| <i>Philotheca brucei</i>                                   | 16.67                | 13.64                  | 12.98              | 43.28 |
| <i>Waitzia acuminata</i>                                   | 29.17                | 31.82                  | 0.72               | 61.71 |
| <b>J1N06</b>                                               |                      |                        |                    |       |
| <i>Acacia eriochlamys</i>                                  | 0.30                 | 1.01                   | 20.33              | 21.6  |
| <i>Acacia collegialis</i>                                  | 0.91                 | 3.03                   | 16.86              | 20.8  |
| <i>Hibbertia exasperata</i>                                | 3.35                 | 7.07                   | 11.01              | 21.4  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>              | 6.40                 | 13.13                  | 18.74              | 38.3  |
| <i>Waitzia acuminata</i>                                   | 55.18                | 11.11                  | 1.61               | 67.9  |
| <b>J1N08</b>                                               |                      |                        |                    |       |
| <i>Allocasuarina eriochlamys</i>                           | 0.00                 | 0.00                   | 11.57              | 11.57 |
| <i>Amphipogon caricinus</i> var. <i>caricinus</i>          | 31.25                | 15.00                  | 0.35               | 46.60 |
| <i>Eremophila clarkei</i>                                  | 14.06                | 15.00                  | 7.39               | 36.45 |
| <i>Eucalyptus corrugata</i>                                | 0.00                 | 0.00                   | 31.08              | 31.08 |
| <i>Eucalyptus longissima</i>                               | 1.56                 | 2.50                   | 20.24              | 24.30 |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>              | 10.94                | 17.50                  | 14.76              | 43.20 |
| <i>Thryptomene kochii</i>                                  | 3.13                 | 5.00                   | 11.71              | 19.84 |
| <b>JN01</b>                                                |                      |                        |                    |       |

| Species                                       | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|-----------------------------------------------|----------------------|------------------------|--------------------|--------|
| <i>Acacia resinimarginea</i>                  | 4.79                 | 10.42                  | 22.22              | 37.43  |
| <i>Allocasuarina eriochlamys</i>              | 27.40                | 35.42                  | 64.26              | 127.07 |
| <i>Amphipogon caricinus</i>                   | 33.56                | 16.67                  | 2.14               | 52.37  |
| <i>Goodenia havilandii</i>                    | 13.70                | 2.08                   | 0.09               | 15.87  |
| <i>Phebalium filifolium</i>                   | 3.42                 | 8.33                   | 10.68              | 22.44  |
| <b>JN06</b>                                   |                      |                        |                    |        |
| <i>Acacia acuminata</i>                       | 0.85                 | 4.11                   | 18.36              | 23.32  |
| <i>Acacia effusfolia</i>                      | 0.28                 | 1.37                   | 13.03              | 14.69  |
| <i>Allocasuarina eriochlamys</i>              | 5.95                 | 9.59                   | 22.41              | 37.94  |
| <i>Hibbertia eatoniae</i>                     | 10.76                | 17.81                  | 6.99               | 35.56  |
| <i>Waitzia acuminata</i>                      | 62.04                | 13.70                  | 0.79               | 76.53  |
| <b>JN07</b>                                   |                      |                        |                    |        |
| <i>Acacia quadrimarginea</i>                  | 4.21                 | 6.06                   | 31.13              | 41.40  |
| <i>Allocasuarina eriochlamys</i>              | 8.42                 | 10.61                  | 21.42              | 40.44  |
| <i>Hibbertia exasperata</i>                   | 10.53                | 10.61                  | 3.86               | 24.99  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i> | 24.21                | 18.18                  | 19.42              | 61.82  |
| <b>JN10</b>                                   |                      |                        |                    |        |
| <i>Acacia quadrimarginea</i>                  | 0.71                 | 1.59                   | 10.91              | 13.21  |
| <i>Allocasuarina eriochlamys</i>              | 4.96                 | 9.52                   | 11.78              | 26.27  |
| <i>Eucalyptus ebbanoensis</i>                 | 3.55                 | 7.94                   | 39.49              | 50.98  |
| <i>Hibbertia eatoniae</i>                     | 20.57                | 14.29                  | 3.93               | 38.78  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i> | 7.80                 | 11.11                  | 5.13               | 24.04  |
| <i>Waitzia acuminata</i>                      | 37.59                | 12.70                  | 0.19               | 50.47  |
| <b>JN13</b>                                   |                      |                        |                    |        |
| <i>Austrostipa elegantissima</i>              | 24.64                | 14.29                  | 0.29               | 39.22  |
| <i>Eucalyptus ebbanoensis</i>                 | 8.70                 | 17.14                  | 94.09              | 119.93 |
| <i>Olearia muelleri</i>                       | 10.14                | 11.43                  | 2.41               | 23.99  |
| <i>Prostanthera grylloana</i>                 | 27.54                | 22.86                  | 2.76               | 53.16  |
| <i>Ptilotus drummondii</i>                    | 17.39                | 14.29                  | 0.20               | 31.87  |

### 3.3.1.2 Weed Species

No weed species were recorded in the rehabilitation transect or reference sites in 2024 (Appendix 1). Similarly, there were no weeds recorded in either the rehabilitation transect or reference sites in 2021. The lack of weed species in the rehabilitation over 2 monitoring events indicates that the areas have attained the completion criteria of no new weed species.

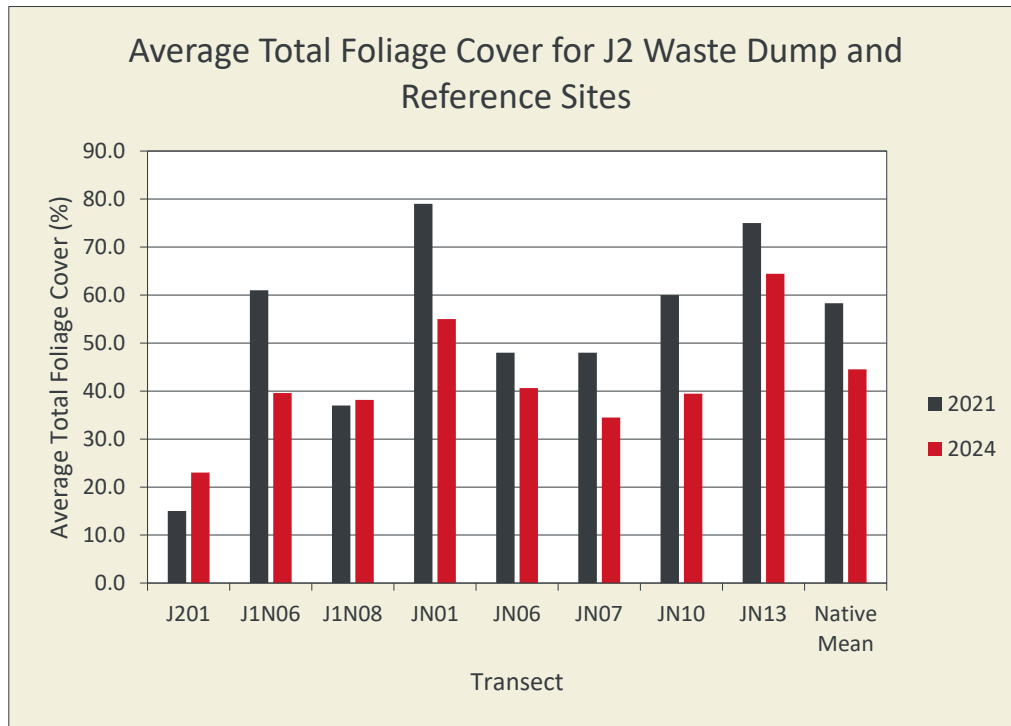
### 3.3.1.3 Total Native Foliage Cover

There was an increase in total native foliage cover in the rehabilitation transect since 2021 (Figure 3-11) which is in contrast to the decreases that occurred for all reference transects, apart from J1N08, which saw a slight increase. For the rehabilitation transect, the increase in foliage cover was associated with an increase in plant density (Figure 3-12). The decreased foliage cover at the majority of reference sites was associated with a decrease in plant density.

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.



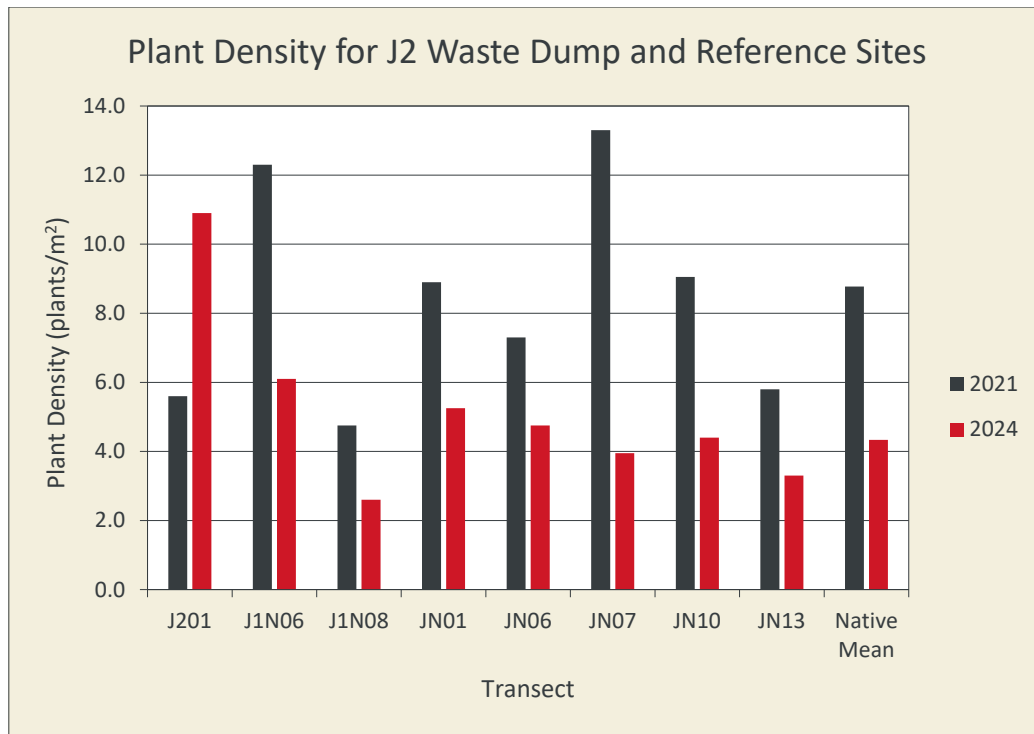
Foliage cover in the rehabilitation transect (23.0%) is lower than that of all reference sites (ranging from 34.5% to 64.4%) and did not attain the completion criterion (Table 3-8).



**Figure 3-11** Average Total Foliage Cover for J2 waste dump sites and reference sites

### 3.3.1.4 Plant Density

Plant density increased between the 2021 and 2024 monitoring events (Figure 3-12). Plant density in the rehabilitation transect (10.9 plants/m<sup>2</sup>) exceeds all reference sites (ranging from 3.3 plants/m<sup>2</sup> to 6.1 plants/m<sup>2</sup>) and is well above the completion criterion (Table 3-8).



**Figure 3-12** Plant Density for J2 waste dump and reference sites

### 3.3.1.5 Species Richness

Species richness also increased from the 2021 monitoring event to the 2024 monitoring event (Figure 3-13). Species richness in the rehabilitation transect (18 species) was less than all reference sites (ranging from 22 species to 43 species) apart from JN13 (11 species) and JN01 (16 species), and is slightly above the completion criterion (Table 3-8).

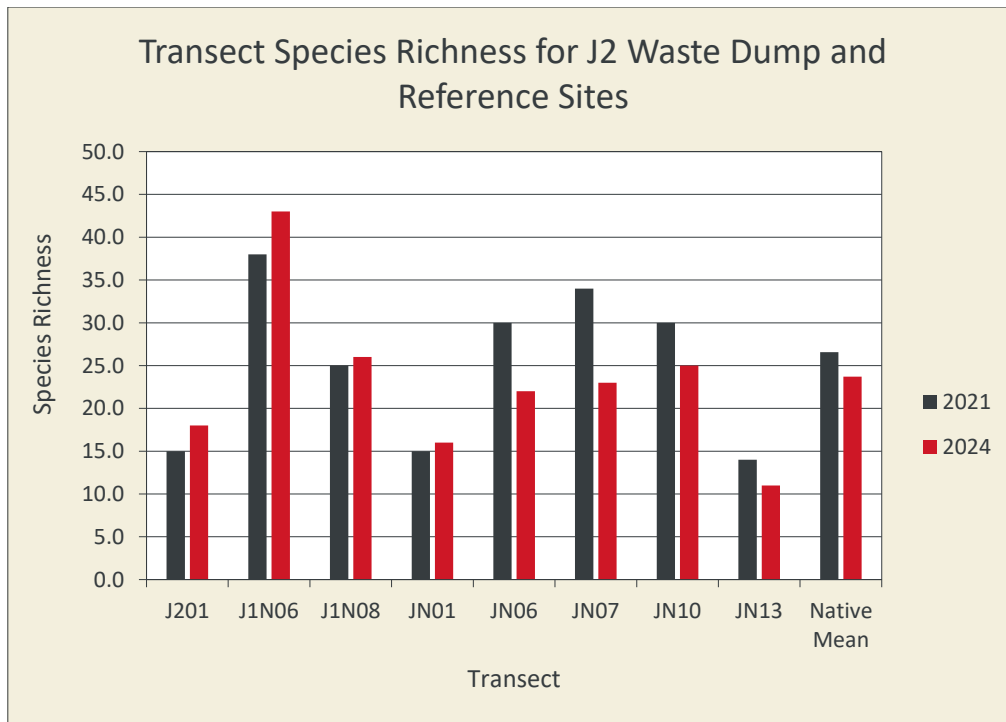


Figure 3-13 Transect Species Richness for J2 waste dump and reference sites

Table 3-8 J2 waste dump comparison with completion criteria

|                                                            | J201 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|------|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 23.0 | 31.2                                                        |
| Species Richness of transect (No. of species per transect) | 18.0 | 16.6                                                        |
| Plant density (plants/m <sup>2</sup> )                     | 10.9 | 3.0                                                         |

### 3.3.2 J3 Waste Dump

#### 3.3.2.1 Key Plant Species

The vegetation at the rehabilitation site was predominantly tall sparse shrubland of *Acacia quadrimarginea* and *Grevillea obliquistigma* over low sparse shrubland of *Westringia cephalate*, *Hibbertia exasperata* and *Maireana tomentosa*.

Reference sites were dominated by tall open woodlands of *Eucalyptus* spp. or *Banksia arborea* over tall shrublands of *Acacia* spp. and *Allocasuarina eriochlamys* over mid shrubland of *Philotheca* spp. *Grevillea paradoxa* and *Thryptomene kochii* over low shrubland of *Hibbertia* spp. over isolated tussock grasslands of *Amphipogon caricinus* var. *caricinus* or *Austrostipa elegantissima*.

Key species in the rehabilitation transect included *Acacia quadrimarginea*, *Calycopeplus paucifolius*, *Maireana tomentosa*, *Olearia exiguiifolia* and *Ptilotus obovatus* (Table 3-9). Only one of the key plant species (*Acacia quadrimarginea*) identified in the rehabilitation transect was considered a key plant species in some reference sites (Appendix 1).

As many key plant species in the reference sites are not present in the rehabilitation, the rehabilitation does not attain the completion criteria for key plant species diversity and density to be within an agreed reference range.

**Table 3-9 Relative density, relative frequency, relative cover, and IVI values for species at J3 waste dump and reference sites**

| Species                                           | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|---------------------------------------------------|----------------------|------------------------|--------------------|--------|
| <b>J303</b>                                       |                      |                        |                    |        |
| <i>Acacia quadrimarginea</i>                      | 1.10                 | 2.63                   | 56.82              | 60.55  |
| <i>Calycopeplus paucifolius</i>                   | 6.59                 | 10.53                  | 20.04              | 37.16  |
| <i>Maireana tomentosa</i>                         | 52.75                | 18.42                  | 0.84               | 72.00  |
| <i>Olearia exiguiifolia</i>                       | 7.69                 | 10.53                  | 3.17               | 21.39  |
| <i>Ptilotus obovatus</i>                          | 6.59                 | 13.16                  | 1.15               | 20.90  |
| <b>J1N05</b>                                      |                      |                        |                    |        |
| <i>Acacia aneura</i>                              | 20.83                | 22.73                  | 46.84              | 90.40  |
| <i>Acacia ramulosa</i> var. <i>ramulosa</i>       | 4.17                 | 4.55                   | 28.75              | 37.46  |
| <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> | 12.50                | 13.64                  | 8.77               | 34.90  |
| <i>Eremophila clarkei</i>                         | 12.50                | 9.09                   | 1.28               | 22.87  |
| <i>Philotheca brucei</i>                          | 16.67                | 13.64                  | 12.98              | 43.28  |
| <i>Waitzia acuminata</i>                          | 29.17                | 31.82                  | 0.72               | 61.71  |
| <b>J1N06</b>                                      |                      |                        |                    |        |
| <i>Acacia eriochlamys</i>                         | 0.30                 | 1.01                   | 20.33              | 21.6   |
| <i>Acacia collegialis</i>                         | 0.91                 | 3.03                   | 16.86              | 20.8   |
| <i>Hibbertia exasperata</i>                       | 3.35                 | 7.07                   | 11.01              | 21.4   |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>     | 6.40                 | 13.13                  | 18.74              | 38.3   |
| <i>Waitzia acuminata</i>                          | 55.18                | 11.11                  | 1.61               | 67.9   |
| <b>J1N08</b>                                      |                      |                        |                    |        |
| <i>Allocasuarina eriochlamys</i>                  | 0.00                 | 0.00                   | 11.57              | 11.57  |
| <i>Amphipogon caricinus</i> var. <i>caricinus</i> | 31.25                | 15.00                  | 0.35               | 46.60  |
| <i>Eremophila clarkei</i>                         | 14.06                | 15.00                  | 7.39               | 36.45  |
| <i>Eucalyptus corrugata</i>                       | 0.00                 | 0.00                   | 31.08              | 31.08  |
| <i>Eucalyptus longissima</i>                      | 1.56                 | 2.50                   | 20.24              | 24.30  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>     | 10.94                | 17.50                  | 14.76              | 43.20  |
| <i>Thryptomene kochii</i>                         | 3.13                 | 5.00                   | 11.71              | 19.84  |
| <b>JN01</b>                                       |                      |                        |                    |        |
| <i>Acacia resinimarginea</i>                      | 4.79                 | 10.42                  | 22.22              | 37.43  |
| <i>Allocasuarina eriochlamys</i>                  | 27.40                | 35.42                  | 64.26              | 127.07 |
| <i>Amphipogon caricinus</i>                       | 33.56                | 16.67                  | 2.14               | 52.37  |
| <i>Goodenia havilandii</i>                        | 13.70                | 2.08                   | 0.09               | 15.87  |
| <i>Phebalium filifolium</i>                       | 3.42                 | 8.33                   | 10.68              | 22.44  |
| <b>JN06</b>                                       |                      |                        |                    |        |

| Species                                       | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|-----------------------------------------------|----------------------|------------------------|--------------------|--------|
| <i>Acacia acuminata</i>                       | 0.85                 | 4.11                   | 18.36              | 23.32  |
| <i>Acacia effusfolia</i>                      | 0.28                 | 1.37                   | 13.03              | 14.69  |
| <i>Allocasuarina eriochlamys</i>              | 5.95                 | 9.59                   | 22.41              | 37.94  |
| <i>Hibbertia eatoniae</i>                     | 10.76                | 17.81                  | 6.99               | 35.56  |
| <i>Waitzia acuminata</i>                      | 62.04                | 13.70                  | 0.79               | 76.53  |
| <b>JN07</b>                                   |                      |                        |                    |        |
| <i>Acacia quadrimarginea</i>                  | 4.21                 | 6.06                   | 31.13              | 41.40  |
| <i>Allocasuarina eriochlamys</i>              | 8.42                 | 10.61                  | 21.42              | 40.44  |
| <i>Hibbertia exasperata</i>                   | 10.53                | 10.61                  | 3.86               | 24.99  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i> | 24.21                | 18.18                  | 19.42              | 61.82  |
| <b>JN10</b>                                   |                      |                        |                    |        |
| <i>Acacia quadrimarginea</i>                  | 0.71                 | 1.59                   | 10.91              | 13.21  |
| <i>Allocasuarina eriochlamys</i>              | 4.96                 | 9.52                   | 11.78              | 26.27  |
| <i>Eucalyptus ebbanoensis</i>                 | 3.55                 | 7.94                   | 39.49              | 50.98  |
| <i>Hibbertia eatoniae</i>                     | 20.57                | 14.29                  | 3.93               | 38.78  |
| <i>Philotheca brucei</i> subsp. <i>brucei</i> | 7.80                 | 11.11                  | 5.13               | 24.04  |
| <i>Waitzia acuminata</i>                      | 37.59                | 12.70                  | 0.19               | 50.47  |
| <b>JN13</b>                                   |                      |                        |                    |        |
| <i>Austrostipa elegantissima</i>              | 24.64                | 14.29                  | 0.29               | 39.22  |
| <i>Eucalyptus ebbanoensis</i>                 | 8.70                 | 17.14                  | 94.09              | 119.93 |
| <i>Olearia muelleri</i>                       | 10.14                | 11.43                  | 2.41               | 23.99  |
| <i>Prostanthera grylloana</i>                 | 27.54                | 22.86                  | 2.76               | 53.16  |
| <i>Ptilotus drummondii</i>                    | 17.39                | 14.29                  | 0.20               | 31.87  |

### 3.3.2.2 Weed Species

No weed species were recorded in the rehabilitation transect or the reference sites in 2021 or 2024 (Appendix 1).

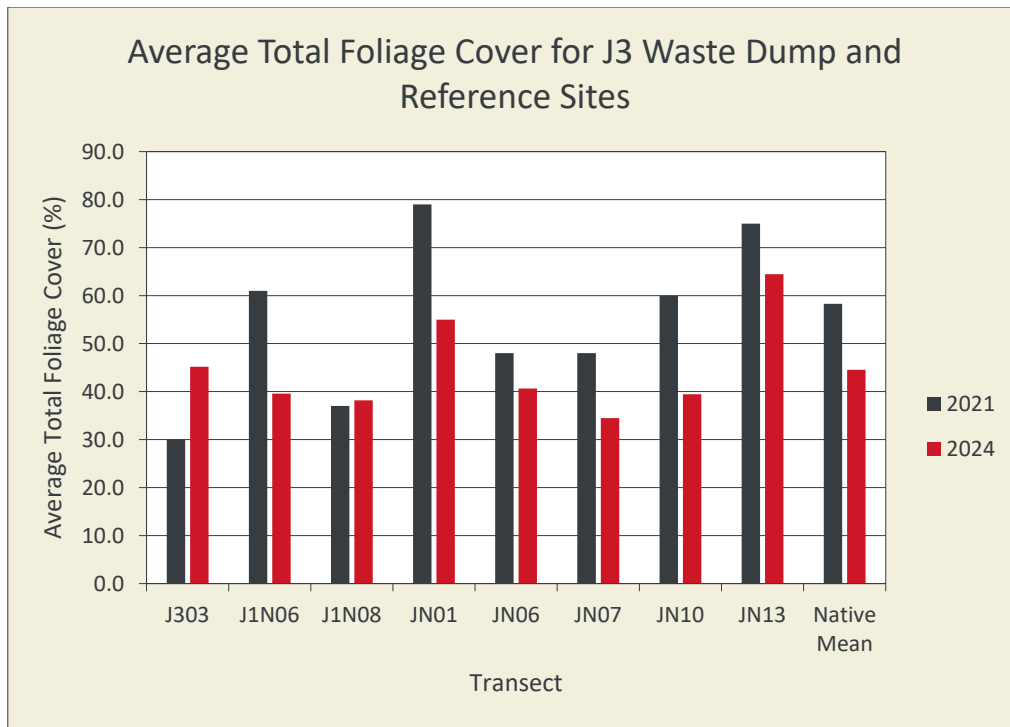
The lack of weed species in the rehabilitation over 2 monitoring events indicates that the areas have attained the completion criteria of no new weed species.

### 3.3.2.3 Total Native Foliage Cover

There was a substantial increase in foliage cover in the rehabilitation transect since the 2021 monitoring event (Figure 3-14), which contrasts with the decreases observed for all reference sites apart from J1N08, which had a small increase in average foliage cover.

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.

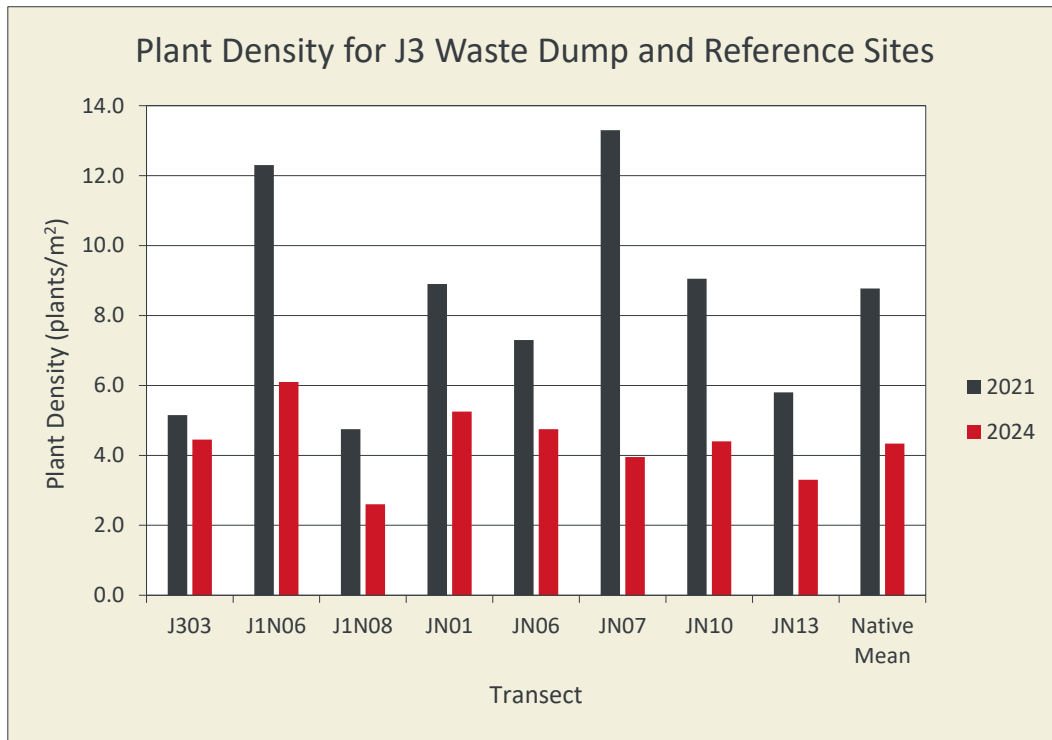
Total native foliage cover in the rehabilitation transect (45.2%) was higher than for 5 of the 7 reference sites (ranging from 34.5% to 40.6%), being lower than JN01 (55.0%) and JN13 (64.4%) and well above the completion criterion (Table 3-10).



**Figure 3-14** Average Total Foliage Cover for J3 waste dump sites and reference sites

### 3.3.2.4 Plant Density

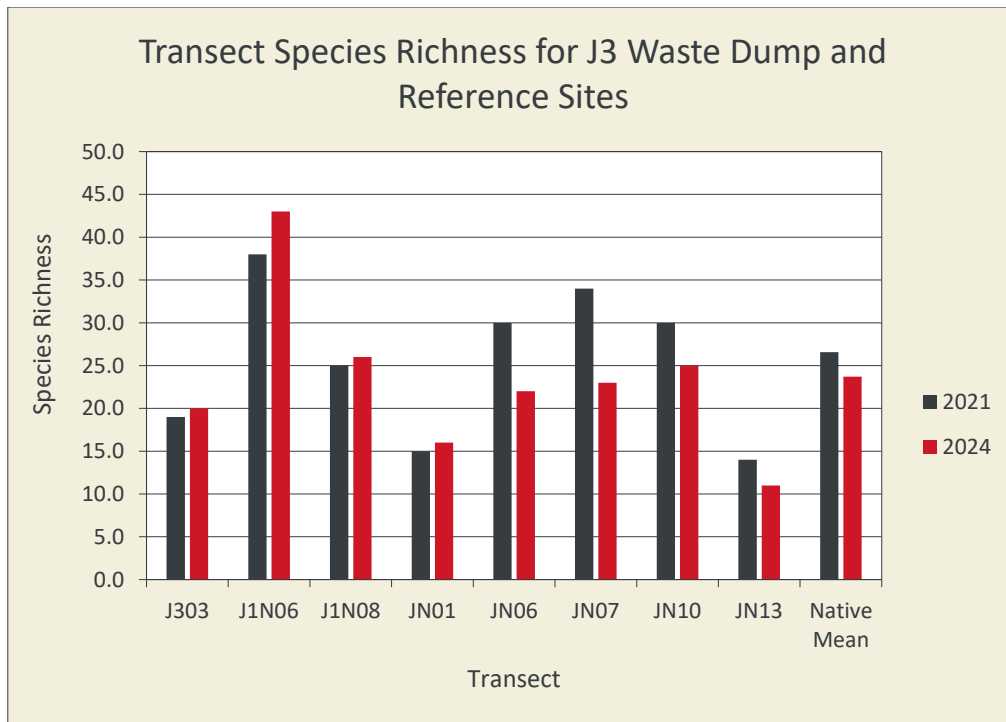
There was a slight decrease in plant density in the rehabilitation transect however at 4.5 plants/m<sup>2</sup>, it was higher than 4 of the 7 reference sites (ranging from 2.6 plants/m<sup>2</sup> to 4.4 plants/m<sup>2</sup>) (Figure 3-15). Density at J1N06 (6.1 plants/m<sup>2</sup>) and JN06 (4.8 plants/m<sup>2</sup>) were higher than the rehabilitation transect. Despite this, the rehabilitation transect successfully achieved the completion criterion (Table 3-10).



**Figure 3-15** Plant Density for J3 waste dump and reference sites

### 3.3.2.5 Species Richness

Species richness increased slightly from the 2021 monitoring event to the 2024 monitoring event (Figure 3-17). The species richness in the rehabilitation transect (20 species) exceeds that of 2 reference sites, those being JN13 (11 species) and JN01 (16 species) and is well above the completion criterion (Table 3-10).



**Figure 3-16** Transect Species Richness for J3 waste dump and reference sites

**Table 3-10** J3 waste dump comparison with completion criteria

|                                                            | J303 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|------|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 45.2 | 31.2                                                        |
| Species Richness of transect (No. of species per transect) | 20.0 | 16.6                                                        |
| Plant density (plants/m <sup>2</sup> )                     | 4.5  | 3.0                                                         |



## 3.4 WINDARLING

### 3.4.1 W2 Waste Dump

#### 3.4.1.1 Key Plant Species

Vegetation here was dominated by tall isolated trees of *Eucalyptus oleosa* over mid-open shrubland of *Acacia caesaneura* and *Acacia acuminata* over low shrubland of *Ptilotus* spp. over low open chenopod shrubland of *Maireana* spp. The reference sites were mostly tall open woodland of either *Acacia cockertoniana* or *Eucalyptus* spp. over tall mixed shrubland of *Acacia* spp. and *Allocasuarina eriochlamys* over low shrubland of *Eremophila* spp., and *Philotheca brucei* over low forbland of either *Waitzia acuminata* or *Calocephalus multiflorus*.

The majority of key plant species at the rehabilitation transects were not key plant species at the reference sites (Table 3-11). As key plant species in the reference sites are not present in the rehabilitation, the rehabilitation does not attain the completion criteria for key plant species diversity and density to be within an agreed reference range.

Vegetation in the rehabilitated areas was typically tall isolated *Eucalyptus oleosa* subsp. *oleosa* over *Acacia* shrublands over low sparse chenopod shrublands (Appendix 1). Reference sites were tall open *Eucalyptus* spp. woodland and *Acacia* shrublands over mixed low mixed shrublands of which chenopod shrubs were either absent or represented a minor component of the flora.

**Table 3-11 Relative density, relative frequency, relative cover and IVI values for species at W2 waste dump and reference sites**

| Species                                                    | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|------------------------------------------------------------|----------------------|------------------------|--------------------|--------|
| <b>W201</b>                                                |                      |                        |                    |        |
| <i>Atriplex nummularia</i>                                 | 0.17                 | 1.80                   | 13.84              | 15.81  |
| <i>Maireana tomentosa</i>                                  | 29.22                | 18.02                  | 44.11              | 91.35  |
| <i>Ptilotus exaltatus</i>                                  | 4.51                 | 12.61                  | 11.20              | 28.33  |
| <i>Roepera eremaea</i>                                     | 9.88                 | 15.32                  | 2.77               | 27.96  |
| <i>Sclerolaena cuneata</i>                                 | 33.73                | 8.11                   | 3.45               | 45.29  |
| <b>W202</b>                                                |                      |                        |                    |        |
| <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>              | 0.07                 | 0.98                   | 40.50              | 41.55  |
| <i>Maireana tomentosa</i>                                  | 6.03                 | 12.75                  | 6.92               | 25.70  |
| <i>Sclerolaena cuneata</i>                                 | 69.76                | 16.67                  | 7.66               | 94.09  |
| <b>W205</b>                                                |                      |                        |                    |        |
| <i>Acacia aneura</i>                                       | 2.12                 | 3.90                   | 24.57              | 30.59  |
| <i>Acacia caesaneura</i>                                   | 1.32                 | 5.19                   | 57.84              | 64.35  |
| <i>Maireana georgei</i>                                    | 8.73                 | 10.39                  | 3.72               | 22.84  |
| <i>Maireana tomentosa</i>                                  | 56.35                | 22.08                  | 7.94               | 86.37  |
| <i>Sclerolaena diacantha</i>                               | 13.76                | 15.58                  | 0.90               | 30.24  |
| <b>WN02</b>                                                |                      |                        |                    |        |
| <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i> | 5.86                 | 29.03                  | 82.26              | 117.15 |
| <i>Calocephalus multiflorus</i>                            | 61.54                | 20.97                  | 2.33               | 84.84  |
| <i>Waitzia acuminata</i>                                   | 20.80                | 32.26                  | 1.07               | 54.13  |
| <b>WN03</b>                                                |                      |                        |                    |        |
| <i>Acacia cockertoniana</i>                                | 6.00                 | 9.09                   | 31.79              | 46.88  |
| <i>Eremophila clarkei</i>                                  | 40.00                | 21.21                  | 8.57               | 69.78  |
| <i>Eucalyptus oleosa</i>                                   | 0.00                 | 0.00                   | 45.46              | 45.46  |

| Species                                       | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|-----------------------------------------------|----------------------|------------------------|--------------------|--------|
| <i>Olearia humilis</i>                        | 8.00                 | 12.12                  | 1.98               | 22.10  |
| <i>Sida</i> sp. dark green fruits             | 14.00                | 12.12                  | 0.07               | 26.19  |
| <i>Waitzia acuminata</i>                      | 10.00                | 15.15                  | 0.08               | 25.23  |
| <b>WN04</b>                                   |                      |                        |                    |        |
| <i>Eucalyptus longissima</i>                  | 0.00                 | 0.00                   | 63.08              | 63.08  |
| <i>Maireana tomentosa</i>                     | 7.69                 | 12.28                  | 0.93               | 20.90  |
| <i>Ptilotus obovatus</i>                      | 28.67                | 21.05                  | 8.28               | 58.00  |
| <i>Sclerolaena cuneata</i>                    | 25.87                | 8.77                   | 0.35               | 34.99  |
| <b>WN06</b>                                   |                      |                        |                    |        |
| <i>Acacia acuminata</i>                       | 0.76                 | 5.62                   | 31.04              | 37.42  |
| <i>Acacia ramulosa</i> var. <i>linophylla</i> | 0.10                 | 1.12                   | 11.50              | 12.72  |
| <i>Calandrinia translucens</i>                | 38.20                | 15.73                  | 20.19              | 74.12  |
| <i>Cephalopterum drummondii</i>               | 12.13                | 13.48                  | 4.07               | 29.68  |
| <i>Eremophila granitica</i>                   | 1.05                 | 6.74                   | 17.71              | 25.50  |
| <i>Sclerolaena cuneata</i>                    | 29.51                | 12.36                  | 2.00               | 43.87  |
| <i>Waitzia acuminata</i>                      | 3.92                 | 13.48                  | 1.54               | 18.94  |
| <b>WN09</b>                                   |                      |                        |                    |        |
| <i>Acacia cockertoniana</i>                   | 0.39                 | 6.02                   | 57.27              | 63.69  |
| <i>Eremophila clarkei</i>                     | 6.52                 | 12.05                  | 1.64               | 20.20  |
| <i>Olearia humilis</i>                        | 1.78                 | 14.46                  | 5.39               | 21.63  |
| <i>Prostanthera althoferi</i>                 | 1.39                 | 15.66                  | 3.26               | 20.31  |
| <i>Waitzia acuminata</i>                      | 79.11                | 22.89                  | 8.00               | 110.00 |
| <b>WN15</b>                                   |                      |                        |                    |        |
| <i>Acacia cockertoniana</i>                   | 6.82                 | 13.16                  | 20.85              | 40.82  |
| <i>Dodonaea lobulata</i>                      | 19.32                | 23.68                  | 10.80              | 53.80  |
| <i>Eucalyptus longissima</i>                  | 1.14                 | 2.63                   | 48.39              | 52.16  |
| <i>Schoenus nanus</i>                         | 32.95                | 2.63                   | 0.12               | 35.71  |

### 3.4.1.2 Weed Species

Only *\*Mesembryanthemum nodiflorum* (Slender Iceplant) and *\*Sonchus oleraceus* (Common Sowthistle) were recorded in the rehabilitation transects (W201) in 2024 (Appendix 1). No weeds were recorded at any of the reference sites. In 2021, the same weeds were also recorded at W201 and no weeds were recorded at any reference sites.

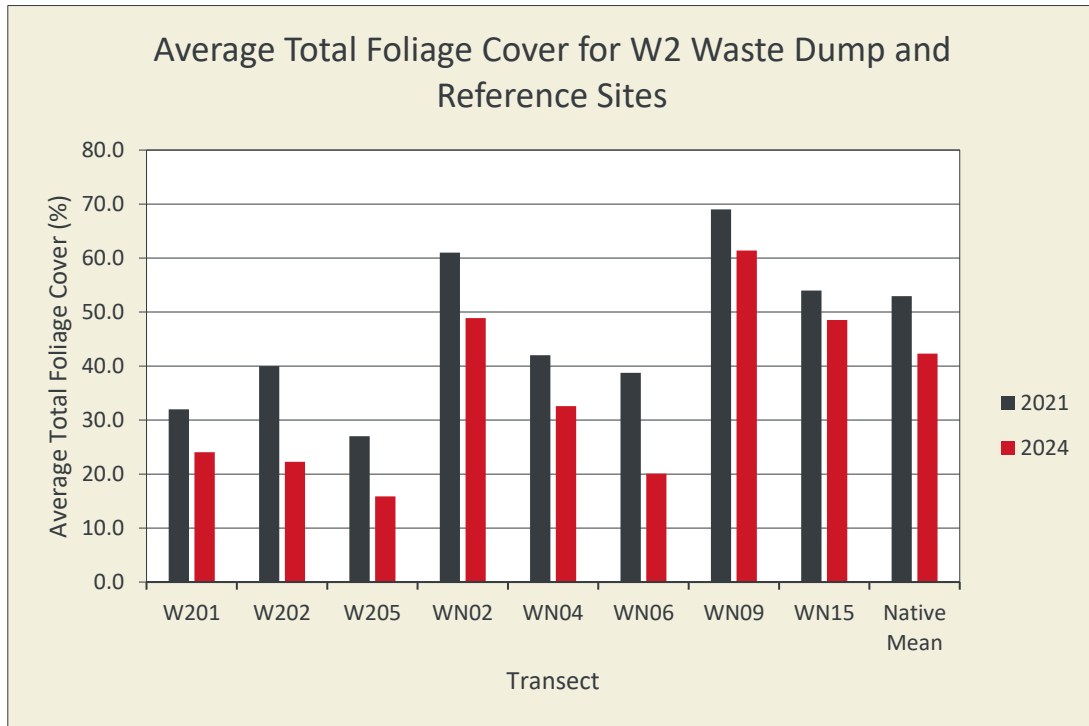
The presence of weed species in the rehabilitation that are not present in the reference sites may indicate that the rehabilitated areas do not meet the completion criteria of no new weeds.

### 3.4.1.3 Total Native Foliage Cover

Average foliage cover in all rehabilitation transects and reference sites decreased from 2021 to 2024 (Figure 3-17). Decreases in foliage cover were predominantly associated with increases in plant density except for reference sites such as WN04, WN09 and WN15 (Figure 3-18).

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.

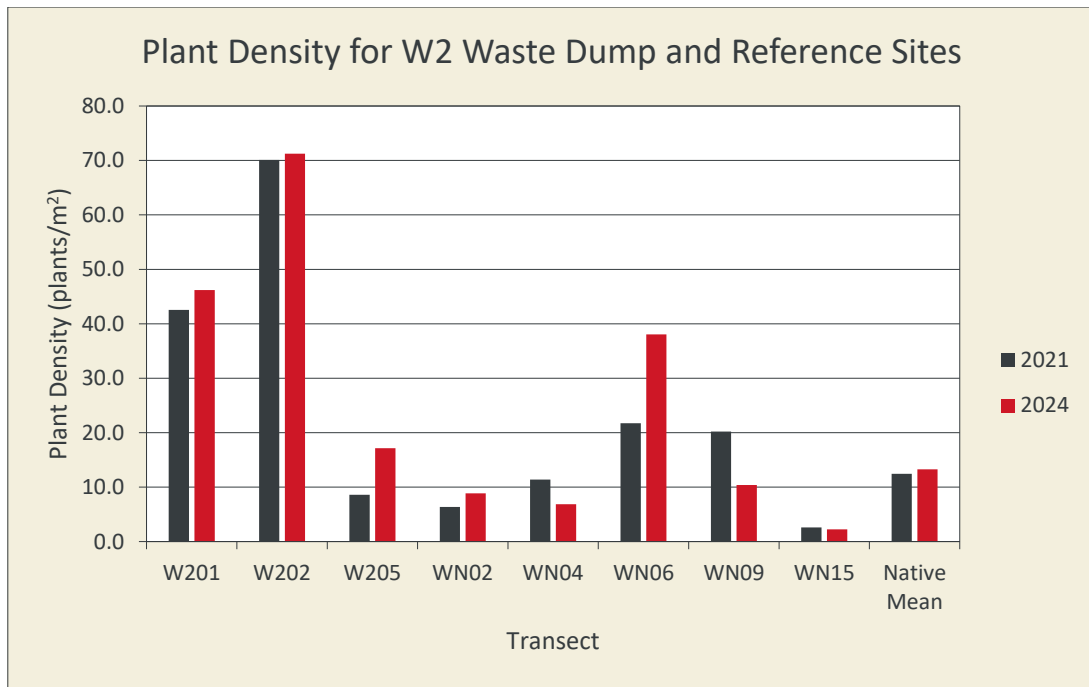
Total native foliage cover in rehabilitation transects (ranging from 22.3% to 24.1%) was lower than all but one reference site WN06 (20.1%) (Figure 3-17). All rehabilitation transects failed to attain the completion criterion (Table 3-12).



**Figure 3-17 Average Total Foliage Cover for W2 waste dump and reference sites**

### 3.4.1.4 Plant Density

Plant density in the rehabilitation transects (ranging from 17.2 plants/m<sup>2</sup> to 71.3 plants/m<sup>2</sup>) was typically higher than for all reference sites (ranging from 2.3 plants/m<sup>2</sup> to 38.1 plants/m<sup>2</sup>) (Figure 3-18), apart from W205 (17.2 plants/m<sup>2</sup>) being lower than WN06 (38.1 plants/m<sup>2</sup>). The vegetation in all rehabilitation transects has met the completion criterion for plant density (Table 3-12).



**Figure 3-18 Plant Density for W2 waste dump and reference sites**

### 3.4.1.5 Species Richness

Species richness increased in all rehabilitation transects between 2021 and 2024 (Figure 3-19). Species richness decreased at all reference sites apart from WN06, which remained the same.

Species richness in all rehabilitation transects (ranging from 16 to 23 species) was higher than WN02 (13 species), although W205 (16 species) was lower than the other reference sites (ranging from 17 species to 28 species). Vegetation in all rehabilitation transects attained the completion criterion for species richness (Table 3-12).

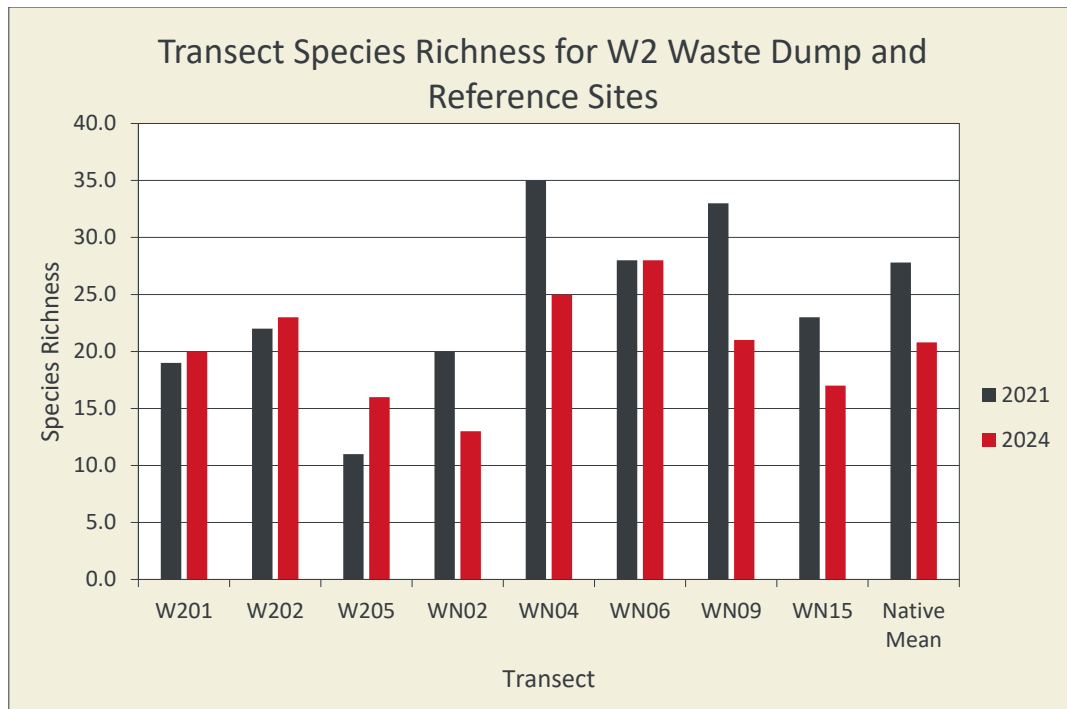


Figure 3-19 Transect Species Richness for W2 waste dump and reference sites

Table 3-12 W2 waste dump comparison with completion criteria

|                                                            | W201 | W202 | W205 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|------|------|------|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 24.1 | 22.3 | 15.9 | 29.6                                                        |
| Species Richness of transect (No. of species per transect) | 20.0 | 23.0 | 16.0 | 14.6                                                        |
| Plant density (plants/m <sup>2</sup> )                     | 46.2 | 71.3 | 17.2 | 9.3                                                         |

### 3.4.2 W3 Waste Dump

#### 3.4.2.1 Key Plant Species

Vegetation here was dominated by mid-open shrubland of *Acacia aneura* over low open shrubland of *Atriplex stipitata* subsp. *stipitata*, *Maireana* spp. and *Ptilotus exaltatus* over low forbland of *Sclerolaena cuneata* and *Roepera eremaea*. The reference sites were mostly tall open woodland of either *Acacia cockertoniana* or *Eucalyptus* spp. over tall mixed shrubland of *Acacia* spp. and *Allocasuarina eriochlamys* over low shrubland of *Eremophila* spp., and *Philotheca brucei* over low forbland of either *Waitzia acuminata* or *Calocephalus multiflorus*.

Only *Maireana tomentosa* and *Sclerolaena cuneata*, which were recorded in the rehabilitation transects, were also a key species in some reference sites (Table 3-13). Vegetation in the rehabilitation comprised a chenopod shrubland dominated by *Atriplex*, *Maireana* and *Sclerolaena* spp. (Appendix 1). Reference sites were tall open *Eucalyptus* spp. woodland and *Acacia* shrublands over mixed low mixed shrublands of which chenopod shrubs were either absent or represented a minor component of the flora. As a result, W3 waste dump sites have failed to attain the completion criteria for key plant species diversity and density to be within an agreed reference range.

**Table 3-13** Relative density, relative frequency, relative cover and IVI values for species at W3 waste dump and reference sites

| Species                                                    | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|------------------------------------------------------------|----------------------|------------------------|--------------------|--------|
| <b>W303</b>                                                |                      |                        |                    |        |
| <i>Atriplex stipitata</i> subsp. <i>stipitata</i>          | 13.09                | 10.59                  | 5.26               | 28.94  |
| <i>Maireana georgei</i>                                    | 20.32                | 17.65                  | 34.03              | 71.99  |
| <i>Maireana tomentosa</i>                                  | 7.22                 | 12.94                  | 9.77               | 29.94  |
| <i>Ptilotus exaltatus</i>                                  | 11.29                | 16.47                  | 22.51              | 50.26  |
| <i>Roepera eremaea</i>                                     | 14.00                | 14.12                  | 9.84               | 37.95  |
| <i>Sclerolaena cuneata</i>                                 | 29.12                | 14.12                  | 3.84               | 47.08  |
| <b>W305</b>                                                |                      |                        |                    |        |
| <i>Acacia aneura</i>                                       | 0.00                 | 0.00                   | 25.32              | 25.32  |
| <i>Maireana georgei</i>                                    | 44.50                | 26.47                  | 26.26              | 97.23  |
| <i>Ptilotus exaltatus</i>                                  | 7.33                 | 13.24                  | 18.04              | 38.61  |
| <i>Roepera eremaea</i>                                     | 33.01                | 13.33                  | 11.49              | 57.83  |
| <i>Salsola australis</i>                                   | 4.65                 | 16.18                  | 1.48               | 22.30  |
| <b>WN02</b>                                                |                      |                        |                    |        |
| <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i> | 5.86                 | 29.03                  | 82.26              | 117.15 |
| <i>Calocephalus multiflorus</i>                            | 61.54                | 20.97                  | 2.33               | 84.84  |
| <i>Waitzia acuminata</i>                                   | 20.80                | 32.26                  | 1.07               | 54.13  |
| <b>WN03</b>                                                |                      |                        |                    |        |
| <i>Acacia cockertoniana</i>                                | 6.00                 | 9.09                   | 31.79              | 46.88  |
| <i>Eremophila clarkei</i>                                  | 40.00                | 21.21                  | 8.57               | 69.78  |
| <i>Eucalyptus oleosa</i>                                   | 0.00                 | 0.00                   | 45.46              | 45.46  |
| <i>Olearia humilis</i>                                     | 8.00                 | 12.12                  | 1.98               | 22.10  |
| <i>Sida</i> sp. dark green fruits                          | 14.00                | 12.12                  | 0.07               | 26.19  |
| <i>Waitzia acuminata</i>                                   | 10.00                | 15.15                  | 0.08               | 25.23  |
| <b>WN04</b>                                                |                      |                        |                    |        |
| <i>Eucalyptus longissima</i>                               | 0.00                 | 0.00                   | 63.08              | 63.08  |

| Species                                       | Relative Density (%) | Relative Frequency (%) | Relative Cover (%) | IVI    |
|-----------------------------------------------|----------------------|------------------------|--------------------|--------|
| <i>Maireana tomentosa</i>                     | 7.69                 | 12.28                  | 0.93               | 20.90  |
| <i>Ptilotus obovatus</i>                      | 28.67                | 21.05                  | 8.28               | 58.00  |
| <i>Sclerolaena cuneata</i>                    | 25.87                | 8.77                   | 0.35               | 34.99  |
| <b>WN06</b>                                   |                      |                        |                    |        |
| <i>Acacia acuminata</i>                       | 0.76                 | 5.62                   | 31.04              | 37.42  |
| <i>Acacia ramulosa</i> var. <i>linophylla</i> | 0.10                 | 1.12                   | 11.50              | 12.72  |
| <i>Calandrinia translucens</i>                | 38.20                | 15.73                  | 20.19              | 74.12  |
| <i>Cephalopterum drummondii</i>               | 12.13                | 13.48                  | 4.07               | 29.68  |
| <i>Eremophila granitica</i>                   | 1.05                 | 6.74                   | 17.71              | 25.50  |
| <i>Sclerolaena cuneata</i>                    | 29.51                | 12.36                  | 2.00               | 43.87  |
| <i>Waitzia acuminata</i>                      | 3.92                 | 13.48                  | 1.54               | 18.94  |
| <b>WN09</b>                                   |                      |                        |                    |        |
| <i>Acacia cockertoniana</i>                   | 0.39                 | 6.02                   | 57.27              | 63.69  |
| <i>Eremophila clarkei</i>                     | 6.52                 | 12.05                  | 1.64               | 20.20  |
| <i>Olearia humilis</i>                        | 1.78                 | 14.46                  | 5.39               | 21.63  |
| <i>Prostanthera althoferi</i>                 | 1.39                 | 15.66                  | 3.26               | 20.31  |
| <i>Waitzia acuminata</i>                      | 79.11                | 22.89                  | 8.00               | 110.00 |
| <b>WN15</b>                                   |                      |                        |                    |        |
| <i>Acacia cockertoniana</i>                   | 6.82                 | 13.16                  | 20.85              | 40.82  |
| <i>Dodonaea lobulata</i>                      | 19.32                | 23.68                  | 10.80              | 53.80  |
| <i>Eucalyptus longissima</i>                  | 1.14                 | 2.63                   | 48.39              | 52.16  |
| <i>Schoenus nanus</i>                         | 32.95                | 2.63                   | 0.12               | 35.71  |

### 3.4.2.2 Weed Species

Only *\*Sonchus oleraceus* (Common Sowthistle) was recorded in the rehabilitation transect W305 in 2024 (Appendix 1). No weeds were recorded at any reference sites. In 2021, *\*Sonchus oleraceus* (Common Sowthistle) was recorded at both W303 and W305, whilst no weeds were recorded at any reference sites.

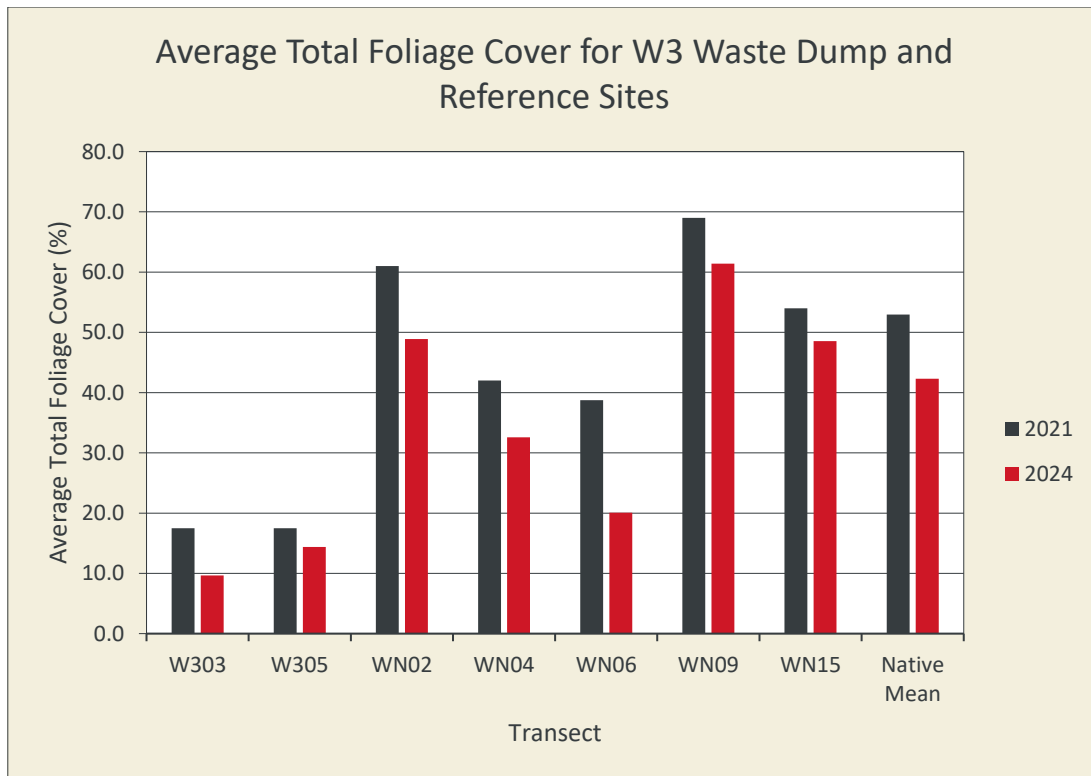
The presence of weed species in the rehabilitation that are not present in the reference sites may indicate that the rehabilitated areas do not meet the completion criteria of no new weeds.

### 3.4.2.3 Total Native Foliage Cover

Total native vegetation cover decreased at both rehabilitation transects between the 2021 and 2024 monitoring events (Figure 3-20), despite significant increases in plant density over this period (Figure 3-21).

Changes in foliage cover are not evident in most site photos (Appendix 2) indicating that differences are the result of differences in observer between monitoring periods.

Total native vegetation cover in the rehabilitation transects (ranging from 9.7% to 14.4%) was lower than all reference sites (ranging from 20.1% to 61.4%). Both rehabilitation transects failed to attain the completion criterion for average foliage cover (Table 3-14).

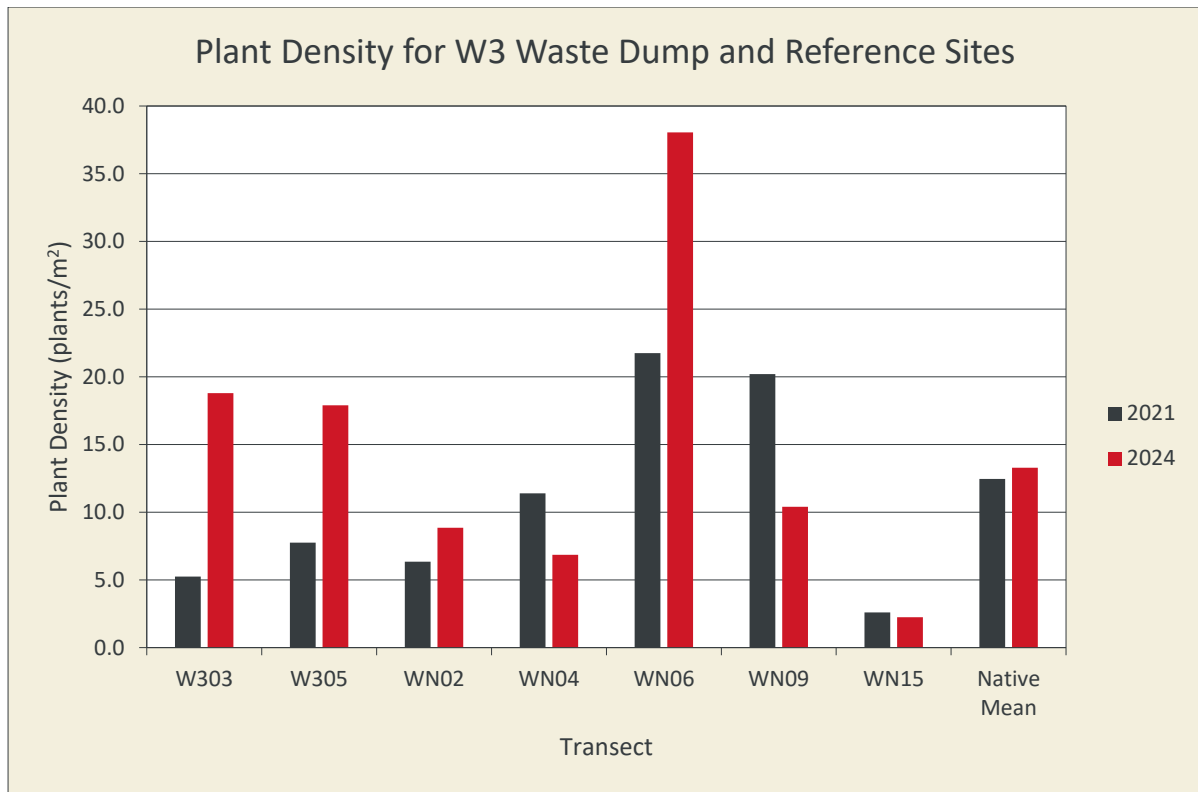


**Figure 3-20** Average Total Foliage Cover for W3 waste dump and reference sites

### 3.4.2.4 Plant Density

Plant density in the rehabilitation transects more than doubled between the 2021 and 2024 monitoring events (Figure 3-21). The plant density at reference sites increased at all but one site (WN04), which nearly halved from 11.4 plants/m<sup>2</sup> in 2021 to 6.9 plants/m<sup>2</sup> in 2024. Overall, plant density at rehabilitation sites was mostly greater than that of reference sites. The vegetation in the rehabilitation transects have successfully attained the completion criterion for plant density (Table 3-14).

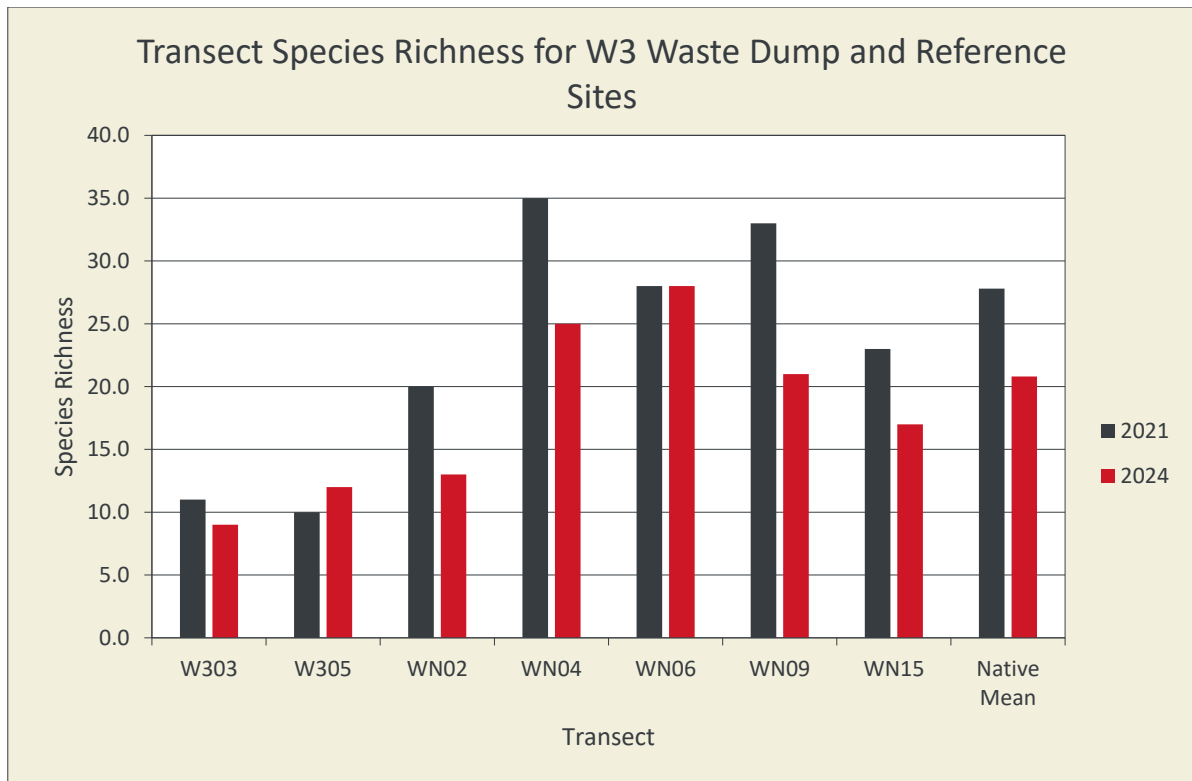




**Figure 3-21 Plant Density for W3 waste dump and reference sites**

### 3.4.2.5 Species Richness

Species richness in the rehabilitation transect W303 decreased (9 species) and increased in W305 (12 species) from 2021 to 2024 (Figure 3-22). The rehabilitation transects were lower than all reference sites (ranging from 17 species to 28 species), apart from WN02 (13 species), which was equal to W305. The vegetation in the rehabilitation transects have failed to attain the completion criterion for species richness (Table 3-14).



**Figure 3-22** Transect Species Richness for W3 waste dump and reference sites

**Table 3-14** W3 waste dump comparison with completion criteria

|                                                            | W303 | W305 | Completion Criteria (70% of mean value for reference sites) |
|------------------------------------------------------------|------|------|-------------------------------------------------------------|
| Average total foliage cover (%)                            | 9.7  | 14.4 | 29.6                                                        |
| Species Richness of transect (No. of species per transect) | 9.0  | 12.0 | 14.6                                                        |
| Plant density (plants/m <sup>2</sup> )                     | 18.8 | 17.9 | 9.3                                                         |

### 3.5 SURVEY LIMITATIONS

The limitations of the flora and vegetation survey have been considered in accordance with EPA (2016) (Table 3-15).

**Table 3-15 Consideration of potential survey limitations**

| Limitations                                                                        | Comments                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Availability of contextual information at a regional and local scale               | No limitations.                                                                                                                                                                                                                                                                                                                                                                                     |
| Competency/experience of the team carrying out the survey                          | David Leach has previous experience conducting surveys at Yilgarn and undertaking several other monitoring surveys within WA.<br>Luis Buchan has previous experience conducting surveys at Yilgarn and undertaking several other monitoring surveys within WA.<br>Calvin Williams has previous experience conducting surveys at Yilgarn and undertaking several other monitoring surveys within WA. |
| Scope and completeness                                                             | All sites were surveyed except for FN06, which could not be surveyed due to having been partially cleared.                                                                                                                                                                                                                                                                                          |
| Proportion of flora and fauna recorded and/or collected, any identification issues | No limitations.                                                                                                                                                                                                                                                                                                                                                                                     |
| Access within the study area                                                       | Bunds located around Koolyanobbing made access to some sites more difficult. Some sites could not be reached by the most direct route and a longer detour was required in order to access them. This resulted in a significant amount of time being used to travel to certain sites such as FN01.                                                                                                   |
| Timing, rainfall, season                                                           | Survey was conducted in spring, after winter rainfall. This would have facilitated identification of the majority of plants.                                                                                                                                                                                                                                                                        |
| Disturbance that may have affected the results of the survey                       | One transect (FN06) had been partially cleared and was not surveyed. The transect will need to be relocated in order for the data to be accurately represented.                                                                                                                                                                                                                                     |

## 4 DISCUSSION

### 4.1 REVIEW OF ASSESSMENT METHODS

#### 4.1.1 Reference Site Selection

Comparison of species lists and lists of key species in rehabilitated areas across all 3 mining operations, Koolyanobbing, Mt Jackson and Windarling, has determined that the species composition of rehabilitated areas typically does not reflect the species composition of reference sites. Chenopod shrubs, *Atriplex*, *Maireana* and *Sclerolaena* species are frequently a conspicuous component of the vegetation of rehabilitated areas but are far less frequently recorded in reference sites. Subsequently, none of the rehabilitated areas assessed in 2024 can meet the requirement of the MCP that Key plant species diversity and density is within an agreed reference range.

Consideration should be given to determining whether there are areas of natural vegetation that are more representative of the vegetation established in the rehabilitated areas that may be monitored as reference sites.

The disparity in species composition between rehabilitated areas and reference sites indicates that seed mixes applied in rehabilitated areas are not targeted toward returning the vegetation types utilised as reference sites. For future rehabilitation efforts it is recommended that seed mixes are comprised of species representative of reference sites used to assess rehabilitation success and progress to completion criteria.

#### 4.1.2 Rehabilitated Area Monitoring

Under the current monitoring procedure only a small proportion of rehabilitation transects on any waste dump are monitored annually which subsequently provides an assessment of the progress of rehabilitation on only a small proportion of the waste dump. It is recommended that all transects on the waste landform be monitored annually to provide an understanding of the state of rehabilitation over the entire landform and identify areas where remedial activities are required.

#### 4.1.3 Parameters Monitored

There was a large disparity in the total native foliage cover recorded between the 2021 and 2024 monitoring events and it was apparent from transect photographs that this was primarily due to observer difference as photographs showed little change in cover values particularly for reference sites.

Determining total native foliage cover is a critical component of the assessment of rehabilitation completion as in the current and previous assessments (Ecotec 2021, 2022, 2023) it is the criterion typically last attained and therefore the major determinant of rehabilitation completion. Subsequently it is recommended, as per previous assessment (Ecotec 2022), that a more accurate method of establishing foliage cover be implemented.

Ordinal cover scales such as Braun-Blanquet have been used previously to reduce differences between observers however recent research (Dengler & Dembicz 2023) indicates that this is not effective. Ecotec (2020) suggested the use of a mobile phone application such as “HabitApp”, which uses a vertically taken photo to determine the percentage of cover, could be used from a defined point (i.e. the centre), at a defined height (i.e. 0.5 m) at each 4 m x 4 m quadrat.

#### 4.1.4 Completion Criteria

##### 4.1.4.1 Reference Site Monitoring

The Environmental Protection Authority of Western Australia (EPA 2006) describes completion criteria for the rehabilitation of terrestrial ecosystems as “specific targets (defined by measured outcomes or milestones) that must be designed to allow effective reporting and auditing to define an endpoint for rehabilitation activities such that sites can be handed over to a third party”. Information from baseline studies undertaken prior to the commencement of mining operations that include suitable analogue sites is required to establish achievable closure outcomes and provide baseline data for closure monitoring programs (DMP 2015).

As noted in previous assessments (Ecotec 2021, 2022, 2023) “Due to the continued monitoring of reference sites and the subsequent comparative data being updated each year, the average values of the completion criteria will vary year to year. Changes in the achievement of completion criteria occur at some sites from year to year as a result. As such, some of the sites reported as having achieved completion criteria in previous monitoring events have not achieved those criteria this year”. This methodology does not provide specific targets or an endpoint for rehabilitation activities as required (EPA 2006) as the criteria, and subsequently the endpoints for rehabilitation, are constantly changing. In addition, monitoring of reference sites on an annual basis is not required as completion criteria should be derived from baseline surveys (DMP 2015).

Given recommendations provided previously to re-evaluate reference site selection (refer to section 4.1.1) and changes to methods of recording total native foliage cover (refer to section 4.1.3), new baseline monitoring would be required to provide the set completion criteria.

##### 4.1.4.2 Data Comparisons

As noted in section 1.1.2, the completion criteria provided in the MCP for the Yilgarn operations (Mineral Resources Ltd 2021) do not represent completion criteria. However, previous monitoring reports (Ecotec 2021, 2022, 2023) utilise 3 criteria, that total native foliage cover, species richness of the transect and plant density in the rehabilitation is equivalent to or higher than 70% of the mean for reference sites. However, there is no information provided as to why a value of 70% was chosen and it is not clear as to whether this is acceptable to government regulators.

Consideration may be given to changing the completion criteria currently used. Comparing the value in the rehabilitated area to the range of values recorded in the reference sites provides a more direct comparison to the surrounding native vegetation as individual examples of communities may be subject to varying disturbance histories and/or natural resource availability resulting in considerable variance in ecological measures (Clewett & Rieger 1997; White & Walker 1997). Therefore adopting a range of values that reflect natural, temporal and spatial variation of communities for Completion Criteria is preferred to set numerical targets (Ehrenfeld & Toth 1997; White & Walker 1997).

#### 4.1.4.3 Presence of New Weeds

The presence of weed species in some rehabilitated areas that were not recorded in reference sites may indicate that the rehabilitated areas do not comply with the completion criterion, no new weed species identified in the rehabilitated area. However, further investigation is required to determine whether the species present represent new weeds. It is recommended that weeds presence in all reference sites relevant to the Project since monitoring began and available baseline flora and vegetation surveys be determined. Should the weed species in the rehabilitated area have been previously recorded, this indicates that they do not represent new species.

## 4.2 ASSESSMENT OF REHABILITATED AREAS

The assessment of rehabilitation completion for the areas monitored in 2024 provided below utilises the completion criteria and methods previously employed (Ecotec 2021, 2022, 2023). The assessment of completion would be subject to change should the recommendations provided in section 4.1 be adopted/implemented, however, the remedial actions recommended (where required) would not change if the recommendations are adopted.

### 4.2.1 Koolyanobbing

#### 4.2.1.1 A1 Waste Dump

The vegetation in the rehabilitation transect A101 has attained all 3 previously applied completion criteria for the current assessment, whilst A102 has attained all but one completion criterion (average foliage cover). It is possible that the well below average mean annual rainfall and drought conditions observed in 2023 has contributed to the loss in foliage cover between 2021 and 2024. In 2021, both A101 and A102 achieved all completion criteria (Ecotec 2022). A general decline across all parameters can be attributed to the large numbers of deaths of small chenopod or herbaceous annuals such as *\*Carrichtera annua* and *\*Sonchus oleraceus*. The death of short-lived species and the absence of annual species previously recorded may be attributed to dry conditions.

As only some of the key species in the rehabilitated community are key species in the reference communities the criterion for key species diversity and density to be within an agreed reference range has not been met. Given the age of the rehabilitation this criterion is unlikely to be met unless remedial activities are undertaken to increase the presence of key species from reference sites and/or reference sites representative of the established rehabilitation communities are used to assess rehabilitation success.

The presence of weed species in some rehabilitated areas that were not recorded in reference sites may indicate that the rehabilitated areas do not comply with the completion criterion, no new weed species identified in the rehabilitated area. However, further investigation is required (refer to 4.1.4.3). should it be determined that the species do represent new weeds then weed control may be required for this area to attain the criterion.

There are only 3 monitoring transects located on the A1 waste dump. Subsequently, it is considered that further monitoring transects are required on this waste dump to determine the state of rehabilitation across the landform. This would include at least one additional transect in the 2013 rehabilitation and transects in the 2015 rehabilitation.

It is recommended that reference sites comprised of chenopod dominated shrublands be sought to provide a more suitable comparison to reference sites for the rehabilitation on this waste landform.

#### 4.2.1.2 BC Waste Dump

The vegetation in the rehabilitation transects BC02, BC04 and BC06 have attained all but one the 3 previously applied completion criterion (average foliage cover) for current assessments. In 2021, all 3 of these transects had achieved all 3 completion criteria (Ecotec 2022). However, key species at all rehabilitation monitoring transects are not key species in reference sites and both transects contained weeds that were not present in reference sites.

Given the age of the rehabilitation it is unlikely that the criterion regarding key species will be met unless remedial activities are undertaken to increase the presence of key species from reference sites and/or reference sites representative of the established rehabilitation communities are used to assess rehabilitation success.

The presence of weed species in rehabilitated areas that were not recorded in reference sites may indicate that the rehabilitated areas do not comply with the completion criterion, no new weed species identified in the rehabilitated area. However, further investigation is required (refer to 4.1.4.3). should it be determined that the species do represent new weeds then weed control may be required for this area to attain the criterion.

As there are 5 rehabilitation transects located on the BC waste dump, there does seem to be sufficient replication and representation of various areas of the landform, and hence, no further transects would be required here.

Remedial actions such as hand seeding may be necessary in order to ensure that the completion criterion for average foliage cover can be achieved in the future. Any remedial plantings should include species recorded in reference sites.

In terms of native foliage cover, plant density and species richness, future monitoring for the A201 transect may be reduced to comparing photographs of the transects between monitoring events to detect any deterioration in vegetation condition or foliage cover. A final quantitative monitoring of this site may be conducted once monitoring indicates all areas of the waste dump have met criteria to provide the final data to apply for the landform to be considered satisfactorily rehabilitated.

It is recommended that reference sites comprised of chenopod dominated shrublands be sought to provide a more suitable comparison to reference sites for the rehabilitation on this waste landform.

#### 4.2.1.3 K Waste Dump

The results from the current monitoring at the K waste dump show that K06, K11, K12 and K14 have only achieved one of the previously applied completion criterion each (plant density), whilst K09 and K10 have achieved 2 completion criteria each (average foliage cover and plant density). In 2021, K06, K09, K10 and K12 all achieved 2 completion criteria (average foliage cover and plant density), whilst K11 had only achieved one completion criterion (plant density) and K14 had not achieved any of the completion criteria. In addition, key species at both rehabilitation monitoring transects are not key species in reference sites and both transects contained weed that were not present in reference sites. Given the age of the rehabilitation it is unlikely that the criterion regarding key species will be met unless remedial activities are undertaken to increase the presence of key species from reference sites and/or reference sites representative of the established rehabilitation communities are used to assess rehabilitation success.

The presence of weed species in rehabilitated areas that were not recorded in reference sites may indicate that the rehabilitated areas do not comply with the completion criterion, no new weed species identified in the rehabilitated area. However, further investigation is required (refer to 4.1.4.3). should it be determined that the species do represent new weeds then weed control may be required for this area to attain the criterion.

Whilst the overall condition of K14 has slightly improved, some consideration will need to be given to K06 and K12, as these transects have fallen below the completion criterion for average foliage cover. Remedial actions such as hand seeding may be necessary in order to address this and improve the overall conditions here, and monitoring of these transects should be suspended whilst remedial activities are being undertaken.

As there are areas of the waste dump identified in the current and previous assessments (Ecotec 2021, 2022, 2023) that do not meet completion criteria further monitoring will be required to determine when these areas attain the criteria.

It is recommended that reference sites comprised of chenopod dominated shrublands be sought to provide a more suitable comparison to reference sites for the rehabilitation on this waste landform.

## **4.2.2 Mt Jackson**

### **4.2.2.1 J2 Waste Dump**

In 2024 the vegetation in the rehabilitation transect had attained all but one of the previously applied completion criterion (average foliage cover), in 2021 it had attained the same completion criteria. Key species in the rehabilitation transect were not key species in the reference sites but there were no weeds present and this reflected the reference communities.

Given the age of the rehabilitation it is unlikely that the criterion regarding key species will be met unless remedial activities are undertaken to increase the presence of key species from reference sites and/or reference sites representative of the established rehabilitation communities are used to assess rehabilitation success.

The lack of weed species across the past 2 monitoring events indicates that the rehabilitated areas are compliant with the criterion of no new weed species.

There are 3 monitoring transects on the J2 waste dump, 2 in areas rehabilitated in 2006 and one in an area rehabilitated in 2009 (Ecotec 2023). Prior assessments have determined that the foliage cover completion criteria has not been attained in the other monitoring transects on the J2 waste dump (Ecotec 2021, 2023). In addition there are areas of the landform that were rehabilitated in 2007, 2008, 2010 and 2014 that have no monitoring transects (Ecotec 2023).

It is recommended that additional transects be monitored to determine whether areas rehabilitated in different years are progressing to completion criteria.

### **4.2.2.2 J3 Waste Dump**

In 2024, vegetation in the monitoring transect successfully attained all 3 previously applied completion criterion as was the case for the previous assessment (Ecotec 2021, 2022). There were also no weeds recorded in the rehabilitation, However, the structure of the vegetation in the rehabilitation transect did not resemble the reference sites with only one key species being a key species in the reference vegetation. Subsequently, remedial plantings with species from reference sites may be required for this area to comply with the requirements of the MCP. Alternatively, new reference sites comprised of a similar suite of species to the rehabilitated area may be included in future assessments.

The lack of weed species across the past 2 monitoring events indicates that the rehabilitated areas are compliant with the criterion of no new weed species.

As for the J2 waste dump there are areas of the J3 landform rehabilitated in different years that are not monitored (Ecotec 2023) and it is recommended that transects be installed in these areas to determine whether they are approaching completion criteria.



### 4.2.3 Windarling

#### 4.2.3.1 W2 Waste Dump

In 2024 the vegetation at rehabilitation transects W201, W202 and W205 had attained all but one of the previously applied completion criteria (average foliage cover), the sites had attained all of the completion criteria in 2021, apart from W205, which only attained the criterion for plant density. Key species in the rehabilitation transect were not key species in the reference sites and subsequently did not attain the requirement in the MCP for key species. The rehabilitated area also contained weed species not recorded at reference sites.

Given the age of the rehabilitation it is unlikely that the criterion regarding key species will be met unless remedial activities are undertaken to increase the presence of key species from reference sites and/or reference sites representative of the established rehabilitation communities are used to assess rehabilitation success.

The presence of weed species in rehabilitated areas that were not recorded in reference sites may indicate that the rehabilitated areas do not comply with the completion criterion, no new weed species identified in the rehabilitated area. However, further investigation is required (refer to 4.1.4.3). should it be determined that the species do represent new weeds then weed control may be required for this area to attain the criterion.

For W205, the vegetation did not attain the total foliage cover criterion for both the current and previous assessment and foliage cover at this transects remains well below the completion criterion.

Subsequently remedial actions to increase foliage cover are required and may include hand seeding to establish more plants or amelioration of site conditions, e.g. fertilising, to promote the growth of plants present as plant density is high in comparison to reference sites at this transect. Any remedial plantings/sowing should include species present in reference sites

There are areas on the W2 landform that were rehabilitated in different years that are currently not monitored (Ecotec 2023) and it is recommended that transects be installed in these areas to determine whether they are approaching completion criteria.

#### 4.2.3.2 W3 Waste Dump

In 2024, vegetation in the rehabilitation transects W303 and W305 both attained one of the previously applied completion criteria (plant density), in 2021 they both had attained the same completion criterion (Ecotec 2022). The vegetation did not attain the criterion for average foliage cover or species richness in 2024. There was in fact a decrease in foliage cover despite an increase in plant density. This has resulted from the death of some larger shrubs of *Ptilotus* spp. and recruitment of seedlings of small chenopods such as *Sclerolaena*.

The vegetation in the rehabilitated area did not attain the criterion for key species and weeds were present in the rehabilitation in the current survey and the previous monitoring event. The presence of weed species in rehabilitated areas that were not recorded in reference sites may indicate that the rehabilitated areas do not comply with the completion criterion, no new weed species identified in the rehabilitated area. However, further investigation is required (refer to 4.1.4.3). should it be determined that the species do represent new weeds then weed control may be required for this area to attain the criterion.

Given the age of the rehabilitation, it is likely that remedial actions such as hand seeding of the area should be conducted to facilitate the rehabilitation attaining the foliage cover and species richness criteria. As the vegetation structure in the rehabilitation did not resemble the reference sites it is recommended that any remedial sowing or plantings utilise seed and/or plants of key species recorded in reference sites. In addition, should further investigation determine that the weed species represent new species then weed control may be required for this area.

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**Appendix 1 Species lists for monitoring transects during the 2021 and 2024 monitoring events**

**Koolyanobbing**

| A101                                            | A102                                               |
|-------------------------------------------------|----------------------------------------------------|
| <i>*Carrichtera annua</i> (Ward's Weed)         | <i>*Rumex vesicarius</i> (Ruby Dock)               |
| <i>*Centaurea melitensis</i> (Maltese Cockspur) | <i>*Carrichtera annua</i> (Ward's Weed)            |
| <i>Acacia acuminata</i>                         | <i>*Centaurea melitensis</i> (Maltese Cockspur)    |
| <i>Acacia collegialis</i>                       | <i>*Sonchus oleraceus</i> (Common Sowthistle)      |
| <i>Atriplex nummularia</i>                      | <i>Acacia acuminata</i>                            |
| <i>Atriplex</i> sp. juv.                        | <i>Atriplex bunburyana</i>                         |
| <i>Atriplex vesicaria</i>                       | <i>Atriplex codonocarpa</i>                        |
| <i>Austrostipa nitida</i>                       | <i>Atriplex vesicaria</i>                          |
| <i>Calotis hispidula</i>                        | <i>Oncosiphon piluliferum</i>                      |
| <i>Dodonaea inaequifolia</i>                    | <i>Maireana brevifolia</i>                         |
| <i>Eremophila ionantha</i>                      | <i>Maireana georgei</i>                            |
| <i>Erodium cygnorum</i>                         | <i>Maireana tomentosa</i>                          |
| <i>Eucalyptus corrugata</i>                     | <i>Maireana trichoptera</i>                        |
| <i>Maireana brevifolia</i>                      | <i>Maireana triptera</i>                           |
| <i>Maireana georgei</i>                         | <i>Mesembryanthemum nodiflorum</i>                 |
| <i>Maireana</i> sp. juv.                        | <i>Ptilotus exaltatus</i>                          |
| <i>Maireana tomentosa</i>                       | <i>Roepera aurantiacum</i>                         |
| <i>Maireana trichoptera</i>                     | <i>Sclerolaena cuneata</i>                         |
| <i>Maireana triptera</i>                        | <i>Sclerolaena diacantha</i>                       |
| <i>Monachather paradoxus</i>                    | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
| <i>Nicotiana</i> sp.                            |                                                    |
| <i>Ptilotus exaltatus</i>                       |                                                    |
| <i>Ptilotus</i> sp. juv.                        |                                                    |
| <i>Roepera aurantiacum</i>                      |                                                    |
| <i>Sclerolaena diacantha</i>                    |                                                    |
| <i>Senecio glossanthus</i>                      |                                                    |
| <i>Solanum cleistogamum</i>                     |                                                    |
| <i>Solanum lasiophyllum</i>                     |                                                    |

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| KN01                                                       | KN06                                               |
|------------------------------------------------------------|----------------------------------------------------|
| <i>Acacia acuminata</i>                                    | <i>Acacia acuminata</i>                            |
| <i>Acacia collegialis</i>                                  | <i>Acacia andrewsii</i>                            |
| <i>Acacia tetragonophylla</i>                              | <i>Acacia erinacea</i>                             |
| <i>Austrostipa plumigera</i>                               | <i>Acacia tetragonophylla</i>                      |
| <i>Cheilanthes sieberii</i>                                | <i>Austrostipa elegantissima</i>                   |
| <i>Cthonocephalus pseudofax</i>                            | <i>Austrostipa</i> sp.                             |
| <i>Dodonaea inaequifolia</i>                               | <i>Dodonaea inaequifolia</i>                       |
| <i>Dodonaea microzyga</i>                                  | <i>Dodonaea stenozyga</i>                          |
| <i>Eremophila clarkei</i>                                  | <i>Eucalyptus corrugata</i>                        |
| <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> | <i>Erodium cygnorum</i>                            |
| <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>              | <i>Exocarpos aphyllus</i>                          |
| <i>Lepidium</i>                                            | <i>Ptilotus obovatus</i>                           |
| <i>Maireana georgei</i>                                    | <i>Roepera</i> sp.                                 |
| <i>Olearia muelleri</i>                                    | <i>Santalum spicatum</i>                           |
| <i>Olearia pimeleoides</i>                                 | <i>Scaevola spinescens</i>                         |
| <i>Prostanthera semiteres</i> subsp. <i>semiteres</i>      | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
| <i>Scaevola spinescens</i>                                 | Unidentified sp. (dead)                            |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i>         | Unidentified sp. juv.                              |
| <i>Trachymene ornata</i>                                   |                                                    |
| Unidentified seedling                                      |                                                    |
| <i>Waitzia acuminata</i>                                   |                                                    |

| KN07                             | KN11                                                       |
|----------------------------------|------------------------------------------------------------|
| <i>Acacia erinacea</i>           | <i>Acacia acuminata</i>                                    |
| <i>Atriplex nummularia</i>       | <i>Acacia collegialis</i>                                  |
| <i>Atriplex</i> sp. juv.         | <i>Acacia tetragonophylla</i>                              |
| <i>Atriplex vesicaria</i>        | <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> |
| <i>Austrostipa elegantissima</i> | <i>Allocasuarina eriochlamys</i>                           |
| <i>Austrostipa nitida</i>        | <i>Cheilanthes sieberi</i>                                 |
| <i>Eremophila scoparia</i>       | <i>Dianella revoluta</i> var. <i>divaricata</i>            |
| <i>Eucalyptus longicornis</i>    | <i>Dodonaea adenophora</i>                                 |
| <i>Eucalyptus salmonophloia</i>  | <i>Dodonaea inaequifolia</i>                               |
| <i>Maireana georgei</i>          | <i>Eremophila clarkei</i>                                  |
| <i>Maireana tomentosa</i>        | <i>Eremophila granitica</i>                                |
| <i>Maireana trichoptera</i>      | <i>Eucalyptus oleosa</i>                                   |
| <i>Maireana triptera</i>         | ? <i>Laxmannia arida</i>                                   |
| <i>Olearia muelleri</i>          | <i>Leucopogon</i> sp. Clyde Hill                           |
| <i>Roepera</i> sp.               | <i>Olearia humilis</i>                                     |
| <i>Scaevola spinescens</i>       | <i>Philotheca brucei</i> subsp. <i>brucei</i>              |
| <i>Sclerolaena cuneata</i>       | <i>Prostanthera semiteres</i>                              |
| <i>Sclerolaena diacantha</i>     | <i>Santalum spicatum</i>                                   |
|                                  | <i>Scaevola spinescens</i>                                 |

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| KN07 | KN11                           |
|------|--------------------------------|
|      | <i>Senna</i> sp. juv.          |
|      | <i>Thysanotus manglesianus</i> |
|      | Unidentified sp. juv.          |

| BC02                                               | BC04                                               |
|----------------------------------------------------|----------------------------------------------------|
| * <i>Rumex vesicarius</i> (Ruby Dock)              | * <i>Carrichtera annua</i> (Wards Weed)            |
| * <i>Carrichtera annua</i> (Wards Weed)            | * <i>Centaurea melitensis</i> (Maltese Cockspur)   |
| * <i>Centaurea melitensis</i> (Maltese Cockspur)   | * <i>Sonchus oleraceus</i> (Common Sowthistle)     |
| <i>Acacia acuminata</i>                            | <i>Acacia acuminata</i>                            |
| <i>Atriplex codonocarpa</i>                        | <i>Acacia</i> sp. juv.                             |
| Chenopod sp. 1                                     | <i>Acacia collegialis</i>                          |
| <i>Eremophila ionantha</i>                         | <i>Atriplex bunburyana</i>                         |
| <i>Erodium cygnorum</i>                            | <i>Atriplex codonocarpa</i>                        |
| <i>Eucalyptus corrugata</i>                        | <i>Atriplex</i> sp. juv.                           |
| <i>Maireana brevifolia</i>                         | <i>Atriplex vesicaria</i>                          |
| <i>Maireana georgei</i>                            | <i>Austrostipa nitida</i>                          |
| <i>Maireana platycarpa</i>                         | Chenopod sp. juv.                                  |
| <i>Maireana</i> sp. juv.                           | <i>Dodonea inaequifolia</i>                        |
| <i>Maireana tomentosa</i>                          | <i>Dodonea microzyga</i> var. <i>acrolobata</i>    |
| <i>Maireana trichoptera</i>                        | <i>Eremophila ionantha</i>                         |
| <i>Maireana triptera</i>                           | <i>Erodium cygnorum</i>                            |
| <i>Ptilotus exaltatus</i>                          | <i>Grevillea zygodoba</i>                          |
| <i>Ptilotus holosericeus</i>                       | <i>Maireana brevifolia</i>                         |
| <i>Ptilotus polystachyus</i>                       | <i>Maireana carnosa</i>                            |
| <i>Roepera aurantiacum</i>                         | <i>Maireana georgei</i>                            |
| <i>Roepera eremaea</i>                             | <i>Maireana</i> sp. juv.                           |
| <i>Salsola australis</i>                           | <i>Maireana tomentosa</i>                          |
| <i>Sclerolaena diacantha</i>                       | <i>Maireana trichoptera</i>                        |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> | <i>Ptilotus exaltatus</i>                          |
|                                                    | <i>Ptilotus holosericeus</i>                       |
|                                                    | <i>Ptilotus obovatus</i>                           |
|                                                    | <i>Roepera aurantiacum</i>                         |
|                                                    | <i>Roepera eremaea</i>                             |
|                                                    | <i>Sclerolaena cuneata</i>                         |
|                                                    | <i>Sclerolaena diacantha</i>                       |
|                                                    | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
|                                                    | <i>Sida</i> sp. juv.                               |
|                                                    | <i>Solanum cleistogamum</i>                        |

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| BC06                                               | FN01                                               |
|----------------------------------------------------|----------------------------------------------------|
| * <i>Rumex vesicarius</i> (Ruby Dock)              | <i>Acacia acuminata</i>                            |
| * <i>Carrichtera annua</i> (Wards Weed)            | <i>Allocasuarina eriochlamys</i>                   |
| * <i>Centaurea melitensis</i> (Maltese Cockspur)   | <i>Austrostipa elegantissima</i>                   |
| <i>Atriplex bunburyana</i>                         | <i>Dodonaea microzyga</i> var. <i>acrolobata</i>   |
| <i>Atriplex codonocarpa</i>                        | <i>Eremophila clarkei</i>                          |
| <i>Atriplex nummularia</i>                         | <i>Eremophila oppositifolia</i>                    |
| <i>Atriplex vesicaria</i>                          | <i>Eucalyptus celestroides</i>                     |
| <i>Erodium cygnorum</i>                            | <i>Olearia muelleri</i>                            |
| <i>Maireana brevifolia</i>                         | <i>Prostanthera semiteres</i>                      |
| <i>Maireana georgei</i>                            | <i>Pterostylis</i> sp.                             |
| <i>Maireana platycarpa</i>                         | <i>Roepera</i> sp.                                 |
| <i>Maireana</i> sp. juv.                           | <i>Scaevola spinescens</i>                         |
| <i>Maireana tomentosa</i>                          | <i>Thysanotus manglesianus</i>                     |
| <i>Maireana trichoptera</i>                        | <i>Trymalium myrtillus</i> subsp. <i>myrtillus</i> |
| <i>Ptilotus exaltatus</i>                          |                                                    |
| <i>Roepera aurantiacum</i>                         |                                                    |
| <i>Salsola australis</i>                           |                                                    |
| <i>Sclerolaena diacantha</i>                       |                                                    |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> |                                                    |
| <i>Solanum cleistogamum</i>                        |                                                    |

| FN03                                                      | FN05                                                      |
|-----------------------------------------------------------|-----------------------------------------------------------|
| <i>Acacia collegialis</i>                                 | <i>Acacia collegialis</i>                                 |
| <i>Allocasuarina eriochlamys</i>                          | <i>Allocasuarina eriochlamys</i>                          |
| <i>Austrostipa nitida</i>                                 | <i>Banksia arborea</i>                                    |
| <i>Cheilanthes seiberi</i>                                | <i>Brachychiton georgei</i>                               |
| <i>Cyanicula amplexans</i>                                | <i>Cheilanthes seiberi</i>                                |
| <i>Dianella revoluta</i> var. <i>divaricata</i>           | <i>Cyanicula amplexans</i>                                |
| <i>Dodonaea inaequifolia</i>                              | <i>Dianella revoluta</i> var. <i>divaricata</i>           |
| <i>Drosera glanduligera</i>                               | <i>Drosera macrantha</i>                                  |
| <i>Drosera macrantha</i>                                  | <i>Eremophila granitica</i>                               |
| <i>Eremophila clarkei</i>                                 | <i>Eucalyptus celestroides</i> subsp. <i>celestroides</i> |
| <i>Eucalyptus celestroides</i> subsp. <i>celestroides</i> | <i>Grevillea zygomorpha</i>                               |
| <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>             | <i>Hibbertia lepidocalyx</i> subsp. <i>tuberculata</i>    |
| <i>Lepidosperma ferricola</i>                             | ? <i>Laxmannia arida</i>                                  |
| <i>Leucopogon</i> sp. Clyde Hill                          | <i>Lepidosperma ferricola</i>                             |
| <i>Olearia humilis</i>                                    | <i>Leucopogon</i> sp. Clyde Hill                          |
| <i>Philothea brucei</i> subsp. <i>brucei</i>              | <i>Monachather paradoxus</i>                              |
| <i>Prostanthera semiteres</i>                             | <i>Olearia humilis</i>                                    |
| <i>Pterostylis setulosa</i>                               | <i>Philothea brucei</i> subsp. <i>brucei</i>              |
| <i>Santalum spicatum</i>                                  | <i>Prostanthera althoferi</i>                             |
| <i>Sida calyxhymenia</i>                                  | <i>Santalum spicatum</i>                                  |
| ? <i>Sida</i> sp. juv.                                    | <i>Stenanthemum newbyi</i>                                |

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| FN03                           | FN05                           |
|--------------------------------|--------------------------------|
| <i>Thysanotus manglesianus</i> | <i>Thysanotus manglesianus</i> |
| <i>Trachymene pilosa</i>       | <i>Trachymene ornata</i>       |
| <i>Xerolirion divaricata</i>   | Unidentified sp. juv.          |
| <i>Waitzia acuminata</i>       | Unidentified sp. (dead)        |
|                                | <i>Waitzia acuminata</i>       |

| K06                                                     | K09                                                     |
|---------------------------------------------------------|---------------------------------------------------------|
| * <i>Mesembryanthemum nodiflorum</i> (Slender Iceplant) | * <i>Rumex vesicarius</i> (Ruby Dock)                   |
| <i>Atriplex stipitata</i> subsp. <i>stipitata</i>       | * <i>Carrichtera annua</i> (Wards Weed)                 |
| <i>Atriplex codonocarpa</i>                             | * <i>Mesembryanthemum nodiflorum</i> (Slender Iceplant) |
| <i>Atriplex nummularia</i>                              | * <i>Sonchus oleraceus</i> (Common Sowthistle)          |
| <i>Atriplex</i> sp. juv.                                | <i>Atriplex stipitata</i> subsp. <i>stipitata</i>       |
| <i>Atriplex vesicaria</i>                               | <i>Atriplex codonocarpa</i>                             |
| <i>Maireana brevifolia</i>                              | <i>Atriplex nummularia</i>                              |
| <i>Maireana georgei</i>                                 | <i>Atriplex</i> sp.                                     |
| <i>Maireana platycarpa</i>                              | <i>Atriplex vesicaria</i>                               |
| <i>Maireana pyramidata</i>                              | <i>Maireana brevifolia</i>                              |
| <i>Maireana</i> sp. juv.                                | <i>Maireana georgei</i>                                 |
| <i>Maireana tomentosa</i>                               | <i>Maireana platycarpa</i>                              |
| <i>Roepera eremaea</i>                                  | <i>Maireana pyramidata</i>                              |
|                                                         | <i>Maireana</i> sp. juv.                                |
|                                                         | <i>Maireana triptera</i>                                |
|                                                         | <i>Ptilotus exaltatus</i>                               |
|                                                         | <i>Roepera</i> sp.                                      |
|                                                         | Unidentified sp. (dead)                                 |

| K10                                                     | K11                                     |
|---------------------------------------------------------|-----------------------------------------|
| * <i>Carrichtera annua</i> (Ward's Weed)                | * <i>Rumex vesicarius</i> (Ruby Dock)   |
| * <i>Mesembryanthemum nodiflorum</i> (Slender Iceplant) | * <i>Carrichtera annua</i> (Wards Weed) |
| <i>Atriplex codonocarpa</i>                             | <i>Atriplex nummularia</i>              |
| <i>Atriplex nummularia</i>                              | <i>Atriplex vesicaria</i>               |
| <i>Atriplex</i> sp.                                     | <i>Austrostipa nitida</i>               |
| <i>Atriplex</i> sp. juv.                                | <i>Calandrinia</i> sp.                  |
| <i>Atriplex vesicaria</i>                               | <i>Crassula colorata</i>                |
| <i>Gilruthia osbornei</i>                               | <i>Dissocarpus paradoxus</i>            |
| <i>Maireana georgei</i>                                 | <i>Enchylaena lanata</i>                |
| <i>Maireana platycarpa</i>                              | <i>Maireana georgei</i>                 |
| <i>Maireana pyramidata</i>                              | <i>Maireana platycarpa</i>              |
| <i>Maireana</i> sp. juv.                                | <i>Maireana</i> sp. juv.                |
| <i>Maireana tomentosa</i>                               | <i>Maireana tomentosa</i>               |
| <i>Maireana triptera</i>                                | <i>Maireana triptera</i>                |
| <i>Sclerolaena diacantha</i>                            | <i>Ptilotus exaltatus</i>               |



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| K10                   | K11                          |
|-----------------------|------------------------------|
| Unidentified sp. juv. | <i>Roepera aurantiacum</i>   |
|                       | <i>Sclerolaena diacantha</i> |

| K12                                                     | K14                          |
|---------------------------------------------------------|------------------------------|
| * <i>Carrichtera annua</i> (Wards Weed)                 | <i>Atriplex nummularia</i>   |
| * <i>Mesembryanthemum nodiflorum</i> (Slender Iceplant) | <i>Atriplex</i> sp. juv.     |
| <i>Atriplex codonocarpa</i>                             | <i>Atriplex vesicaria</i>    |
| <i>Atriplex nummularia</i>                              | <i>Sclerolaena diacantha</i> |
| <i>Atriplex semilunaris</i>                             |                              |
| <i>Atriplex</i> sp. juv.                                |                              |
| <i>Atriplex vesicaria</i>                               |                              |
| <i>Calocephalus multiflorus</i>                         |                              |
| <i>Chenopod</i> sp. juv.                                |                              |
| <i>Maireana georgei</i>                                 |                              |
| <i>Maireana platycarpa</i>                              |                              |
| <i>Maireana pyramidata</i>                              |                              |
| <i>Maireana tomentosa</i>                               |                              |
| <i>Roepera aurantiacum</i>                              |                              |
| <i>Sclerolaena diacantha</i>                            |                              |
| Unidentified sp. (dead)                                 |                              |

| N04                                                | N07                                                |
|----------------------------------------------------|----------------------------------------------------|
| <i>Acacia acuminata</i>                            | <i>Acacia colletioides</i>                         |
| <i>Acacia enervia</i> subsp. <i>explicata</i>      | <i>Acacia erinaceae</i>                            |
| <i>Atriplex vesicaria</i>                          | <i>Austrostipa elegantissima</i>                   |
| <i>Austrostipa elegantissima</i>                   | <i>Austrostipa nitida</i>                          |
| <i>Austrostipa nitida</i>                          | <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> |
| <i>Calandrinia baccata</i>                         | <i>Eremophila ionantha</i>                         |
| <i>Calandrinia</i> sp.                             | <i>Eremophila oppositifolia</i>                    |
| <i>Cheiranthra filifolia</i>                       | <i>Eremophila scoparia</i>                         |
| <i>Crassula colorata</i>                           | <i>Eucalyptus corrugata</i>                        |
| <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> | <i>Exocarpos aphyllus</i>                          |
| <i>Enchylaena tomentosa</i>                        | <i>Olearia muelleri</i>                            |
| <i>Eragrostis dielsii</i>                          | <i>Pittosporum angustifolium</i>                   |
| <i>Eucalyptus corrugata</i>                        | <i>Roepera aurantiacum</i>                         |
| <i>Euphorbia drummondii</i>                        | <i>Roepera eremaea</i>                             |
| <i>Frankenia</i> sp.                               | <i>Scaevola spinescens</i>                         |
| <i>Grevillea acuaria</i>                           | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
| <i>Leichhardtia australis</i>                      | <i>Thysanotus manglesianus</i>                     |
| <i>Maireana georgei</i>                            | Unidentified sp. juv                               |
| <i>Maireana</i> sp. juv.                           | Unidentified sp. dead                              |
| <i>Maireana tomentosa</i>                          | <i>Westringia rigida</i>                           |
| <i>Maireana trichoptera</i>                        |                                                    |

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| N04                                                | N07 |
|----------------------------------------------------|-----|
| <i>Olearia muelleri</i>                            |     |
| <i>Pittosporum angustifolium</i>                   |     |
| <i>Ptilotus exaltatus</i>                          |     |
| <i>Rhagodia drummondii</i>                         |     |
| <i>Rhodanthe laevis</i>                            |     |
| <i>Scaevola spinescens</i>                         |     |
| <i>Sclerolaena diacantha</i>                       |     |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> |     |
| <i>Siemssenia capillaris</i>                       |     |
| <i>Thysanotus manglesianus</i>                     |     |
| Unidentified dead tree sp.                         |     |
| Unidentified sp. juv.                              |     |
| Unidentified sp. (dead)                            |     |
| <i>Waitzia acuminata</i>                           |     |

### Mt Jackson

| J201                                                       | J303                                               |
|------------------------------------------------------------|----------------------------------------------------|
| <i>Acacia acuminata</i>                                    | <i>Acacia acuminata</i>                            |
| <i>Acacia?tetragonophylla</i>                              | <i>Acacia quadrimarginea</i>                       |
| <i>Chenopod</i> sp. juv.                                   | <i>Amphipogon caricinus</i> var. <i>caricinus</i>  |
| <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> | <i>Calycopeplus paucifolius</i>                    |
| <i>Hibbertia eatoniae</i>                                  | <i>Dodonaea caespitosa</i>                         |
| <i>Hibbertia exasperata</i>                                | <i>Erodium cygnorum</i>                            |
| <i>Maireana georgei</i>                                    | <i>Hibbertia exasperata</i>                        |
| <i>Maireana tomentosa</i>                                  | <i>Jacksonia jackson</i>                           |
| <i>Maireana trichoptera</i>                                | <i>Maireana georgei</i>                            |
| <i>Maireana triptera</i>                                   | <i>Maireana tomentosa</i>                          |
| <i>Monachather paradoxus</i>                               | <i>Maireana triptera</i>                           |
| <i>Philothea brucei</i> subsp. <i>brucei</i>               | <i>Malleostemon roseus</i>                         |
| <i>Ptilotus exaltatus</i>                                  | <i>Monachather paradoxus</i>                       |
| <i>Ptilotus obovatus</i>                                   | <i>Olearia exiguiifolia</i>                        |
| <i>Ptilotus polystachyus</i>                               | <i>Ptilotus drummondii</i>                         |
| <i>Sclerolaena cuneata</i>                                 | <i>Ptilotus exaltatus</i>                          |
| <i>Sclerolaena diacantha</i>                               | <i>Ptilotus holosericeus</i>                       |
| <i>Siemssenia capillaris</i>                               | <i>Ptilotus obovatus</i>                           |
| Unidentified sp. juv.                                      | <i>Callitris</i> sp.                               |
| <i>Westringia cephalantha</i>                              | <i>Sclerolaena cuneata</i>                         |
|                                                            | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
|                                                            | <i>Siemssenia capillaris</i>                       |
|                                                            | <i>Schoenia cassiniana</i>                         |
|                                                            | Unidentified sp. juv.                              |
|                                                            | Unidentified sp. (dead)                            |
|                                                            | <i>Westringia cephalantha</i>                      |

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| J1N05                                             | J1N06                                             |
|---------------------------------------------------|---------------------------------------------------|
| <i>Acacia aneura</i>                              | <i>Acacia aneura</i>                              |
| <i>Acacia ramulosa</i> var. <i>ramulosa</i>       | <i>Acacia eriochlamys</i>                         |
| <i>Brunoniella australis</i>                      | <i>Acacia collegialis</i>                         |
| <i>Calotis hispidula</i>                          | <i>Acacia</i> sp. juv.                            |
| <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> | <i>Acacia tetragonophylla</i>                     |
| <i>Eremophila clarkei</i>                         | <i>Amphipogon caricinus</i> var. <i>caricinus</i> |
| <i>Erodium cygnorum</i>                           | <i>Austrostipa nitida</i>                         |
| <i>Eucalyptus longissima</i>                      | <i>Calandrinia eremaea</i>                        |
| <i>Monachather paradoxus</i>                      | <i>Calandrinia</i> sp.                            |
| <i>Philotheca brucei</i>                          | <i>Cheilanthes seiberi</i>                        |
| <i>Ptilotus gaudichaudii</i>                      | <i>Cheiranthra filifolia</i>                      |
| <i>Sida</i> sp. dark green fruits                 | <i>Comesperma integerrimum</i>                    |
| <i>Trachymene ornata</i>                          | <i>Crassula colorata</i>                          |
| <i>Waitzia acuminata</i>                          | <i>Dianella revoluta</i> var. <i>divaricata</i>   |
|                                                   | <i>Drosera macrantha</i>                          |
|                                                   | <i>Eremophila clarkei</i>                         |
|                                                   | <i>Eremophila latrobei</i> subsp. <i>latrobei</i> |
|                                                   | <i>Erodium cygnorum</i>                           |
|                                                   | <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> |
|                                                   | <i>Goodenia havilandii</i>                        |
|                                                   | <i>Grevillea extorris</i>                         |
|                                                   | <i>Grevillea paradoxa</i>                         |
|                                                   | <i>Hibbertia eatoniae</i>                         |
|                                                   | <i>Hibbertia exasperata</i>                       |
|                                                   | J1N06 sp. 3                                       |
|                                                   | <i>Menkea australis</i>                           |
|                                                   | <i>Mirbelia microphylla</i>                       |
|                                                   | <i>Monachather paradoxus</i>                      |
|                                                   | <i>Olearia humilis</i>                            |
|                                                   | <i>Philotheca brucei</i> subsp. <i>brucei</i>     |
|                                                   | <i>Prostanthera magnifica</i>                     |
|                                                   | <i>Prostanthera grylloana</i>                     |
|                                                   | <i>Recurved</i> juvenile                          |
|                                                   | <i>Rhodanthe laevis</i>                           |
|                                                   | <i>Santalum spicatum</i>                          |
|                                                   | <i>Siemssenia capillaris</i>                      |
|                                                   | <i>Sida calyxhymenia</i>                          |
|                                                   | <i>Stenanthemum newbyi</i>                        |
|                                                   | <i>Thysanotus manglesianus</i>                    |

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| J1N05 | J1N06                    |
|-------|--------------------------|
|       | <i>Trachymene ornata</i> |
|       | Unidentified sp. juv.    |
|       | <i>Waitzia acuminata</i> |

| J1N08                                                   | JN01                                              |
|---------------------------------------------------------|---------------------------------------------------|
| <i>Acacia acuminata</i>                                 | <i>Acacia resinimarginea</i>                      |
| <i>Acacia resinimarginea</i>                            | <i>Allocasuarina eriochlamys</i>                  |
| ? <i>Acacia</i> sp. dead                                | <i>Amphipogon caricinus</i> var. <i>caricinus</i> |
| <i>Allocasuarina eriochlamys</i>                        | <i>Calocephalus multiflorus</i>                   |
| <i>Amphipogon caricinus</i> var. <i>caricinus</i>       | <i>Cheilanthes seiberi</i>                        |
| <i>Austrostipa elegantissima</i>                        | <i>Drosera macrantha</i>                          |
| <i>Brachychiton gregorii</i>                            | <i>Eucalyptus ebbanoensis</i>                     |
| <i>Calocephalus multiflorus</i>                         | <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> |
| <i>Cheiranthra filifolia</i>                            | <i>Goodenia havilandii</i>                        |
| <i>Chthonocephalus pseudevax</i>                        | <i>Melaleuca hamata</i>                           |
| <i>Crassula colorata</i>                                | <i>Phebalium filifolium</i>                       |
| <i>Dodonaea inaequifolia</i>                            | <i>Callitris</i> sp.                              |
| <i>Eremophila clarkei</i>                               | <i>Siemssenia capillaris</i>                      |
| <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> | <i>Thysanotus manglesianus</i>                    |
| <i>Eucalyptus longissima</i>                            | <i>Trachymene ornata</i>                          |
| <i>Eucalyptus corrugata</i>                             | Unidentified sp. 1 juv.                           |
| <i>Gilruthia osbornei</i>                               | Unidentified sp. (dead)                           |
| <i>Goodenia havilandii</i>                              | Unidentified sp. 2 juv.                           |
| J1N08 sp. 3                                             | <i>Waitzia acuminata</i>                          |
| <i>Olearia humilis</i>                                  |                                                   |
| <i>Olearia pimeleoides</i>                              |                                                   |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>           |                                                   |
| <i>Rhodanthe laevis</i>                                 |                                                   |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i>      |                                                   |
| <i>Siemssenia capillaris</i>                            |                                                   |
| <i>Thryptomene kochii</i>                               |                                                   |
| <i>Trachymene ornata</i>                                |                                                   |
| Unidentified sp. juv.                                   |                                                   |
| <i>Waitzia acuminata</i>                                |                                                   |

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| JN06                                            | JN07                                            |
|-------------------------------------------------|-------------------------------------------------|
| <i>Acacia acuminata</i>                         | <i>Acacia acuminata</i>                         |
| <i>Acacia effusolia</i>                         | <i>Acacia quadrimarginea</i>                    |
| <i>Acacia quadrimarginea</i>                    | <i>Allocasuarina eriochlamys</i>                |
| <i>Allocasuarina eriochlamys</i>                | <i>Banksia arborea</i>                          |
| <i>Amphipogon caricinus</i>                     | <i>Caladenia</i> sp.                            |
| <i>Austrostipa elegantissima</i>                | <i>Calycopeplus paucifolius</i>                 |
| <i>Brachychiton gregorii</i>                    | <i>Centrolepis polygyna</i>                     |
| <i>Calandrinia eremaea</i>                      | <i>Calocephalus multiflorus</i>                 |
| <i>Centrolepis polygyna</i>                     | <i>Cheilanthes seiberi</i>                      |
| <i>Cheilanthes seiberi</i>                      | <i>Cheiranthra filifolia</i>                    |
| <i>Cheiranthra filifolia</i>                    | <i>Cyanicula amplexans</i>                      |
| <i>Cyanicula amplexans</i>                      | <i>Dianella revoluta</i> var. <i>divaricata</i> |
| <i>Dianella revoluta</i> var. <i>divaricata</i> | <i>Eremophila clarkei</i>                       |
| <i>Drosera macrantha</i>                        | <i>Eremophila latrobei</i>                      |
| <i>Eremophila clarkei</i>                       | <i>Erodium cygnorum</i>                         |
| <i>Erodium cygnorum</i>                         | <i>Goodenia havilandii</i>                      |
| <i>Eucalyptus ewartiana</i>                     | <i>Grevillea paradoxa</i>                       |
| <i>Goodenia havilandii</i>                      | <i>Hibbertia eatoniae</i>                       |
| <i>Hibbertia eatoniae</i>                       | <i>Hibbertia exasperata</i>                     |
| <i>Melaleuca leiocarpa</i>                      | <i>Jacksonia jackson</i>                        |
| <i>Monachather paradoxus</i>                    | <i>Monachather paradoxus</i>                    |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>   | <i>Olearia humillis</i>                         |
| <i>Philotheca coccinea</i>                      | <i>Philotheca brucei</i> subsp. <i>brucei</i>   |
| <i>Prostanthera grylloana</i>                   | <i>Phyllangium sulcatum</i>                     |
| <i>Pterostylis</i> sp.                          | <i>Prostanthera grylloana</i>                   |
| <i>Rhodanthe citrina</i>                        | <i>Santalum spicatum</i>                        |
| ? <i>Sida</i> sp. juv.                          | <i>Siemssenia capillaris</i>                    |
| <i>Siemssenia capillaris</i>                    | <i>Stenanthemum newbyi</i>                      |
| <i>Thryptomeme kochii</i>                       | <i>Thysanotus manglesianus</i>                  |
| <i>Thysanotus manglesianus</i>                  | <i>Trachymene ornata</i>                        |
| <i>Trachymene ornata</i>                        | ? <i>Triptilodiscus pygmaeus</i>                |
| <i>Waitzia acuminata</i>                        | Unidentified sp. 1 juv.                         |
|                                                 | Unidentified sp. 2 juv.                         |
|                                                 | Unidentified sp. 3 juv.                         |
|                                                 | Unidentified sp. (dead)                         |
|                                                 | <i>Waitzia acuminata</i>                        |
|                                                 |                                                 |

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| JN10                                               | JN13                                               |
|----------------------------------------------------|----------------------------------------------------|
| <i>Acacia acuminata</i>                            | ? <i>Actinotus</i> sp. Comet Vale                  |
| <i>Acacia caesaneura</i> narrow phyllode           | <i>Austrostipa elegantissima</i>                   |
| <i>Acacia quadrimarginea</i>                       | <i>Cheiranthra filifolia</i>                       |
| <i>Allocasuarina eriochlamys</i>                   | <i>Eucalyptus ebbanoensis</i>                      |
| ? <i>Allocasuarina</i> juv.                        | ? <i>Olearia</i> sp. juv.                          |
| <i>Amphipogon caricinus</i>                        | <i>Olearia muelleri</i>                            |
| <i>Brunonia australis</i>                          | <i>Prostanthera grylloana</i>                      |
| <i>Cheiranthra filifolia</i>                       | <i>Ptilotus drummondii</i>                         |
| <i>Comesperma integerrimum</i>                     | <i>Ptilotus holosericeus</i>                       |
| <i>Dodonaea pinifolia</i>                          | <i>Ptilotus obovatus</i>                           |
| <i>Eremophila latrobei</i>                         | <i>Sclerolaena cuneata</i>                         |
| <i>Eremophila latrobei</i> subsp. <i>latrobei</i>  | <i>Sclerolaena diacantha</i>                       |
| <i>Eucalyptus ebbanoensis</i>                      | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
| <i>Goodenia havilandii</i>                         | <i>Siemssenia capillaris</i>                       |
| <i>Hibbertia eatoniae</i>                          | Unidentified sp. juv.                              |
| <i>Hibbertia exasperata</i>                        | Unidentified sp. (dead)                            |
| <i>Malleostemon roseus</i>                         | <i>Westringia cephalantha</i>                      |
| <i>Monachather paradoxus</i>                       |                                                    |
| <i>Olearia humilis</i>                             |                                                    |
| <i>Philothea brucei</i> subsp. <i>brucei</i>       |                                                    |
| <i>Pimelea microcephala</i>                        |                                                    |
| <i>Prostanthera magnifica</i>                      |                                                    |
| <i>Prostanthera grylloana</i>                      |                                                    |
| <i>Scaevola spinescens</i>                         |                                                    |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> |                                                    |
| <i>Sida calyxhymentia</i>                          |                                                    |
| <i>Thysanotus manglesianus</i>                     |                                                    |
| <i>Trachymene ornata</i>                           |                                                    |
| Unidentified sp. juv.                              |                                                    |
| Unidentified sp. (dead)                            |                                                    |
| <i>Vincetoxicum lineare</i>                        |                                                    |
| <i>Waitzia acuminata</i>                           |                                                    |

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**Windarling**

| W201                                                      | W202                                               |
|-----------------------------------------------------------|----------------------------------------------------|
| * <i>Mesembryanthemum nodiflorum</i> (Slender Iceplant)   | <i>Acacia aneura</i>                               |
| * <i>Sonchus oleraceus</i> (Common Sowthistle)            | <i>Acacia cockertoniana</i>                        |
| <i>Atriplex vesicaria</i>                                 | <i>Acacia murrayana</i>                            |
| <i>Atriplex nummularia</i>                                | <i>Acacia tetragonophylla</i>                      |
| <i>Enchylaena tomentosa</i>                               | <i>Austrostipa nitida</i>                          |
| <i>Atriplex quadrivalvata</i> subsp. <i>quadrivalvata</i> | <i>Enchylaena tomentosa</i>                        |
| <i>Erodium cygnorum</i>                                   | <i>Eriachne mucronata</i>                          |
| <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>         | <i>Erodium cygnorum</i>                            |
| <i>Goodenia havilandii</i>                                | <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>      |
| <i>Haloragis trigonocarpa</i>                             | <i>Goodenia havilandii</i>                         |
| <i>Lepidium oxytrichum</i>                                | <i>Lepidium</i> sp.                                |
| <i>Maireana georgei</i>                                   | <i>Maireana georgei</i>                            |
| <i>Maireana tomentosa</i>                                 | <i>Maireana tomentosa</i>                          |
| <i>Maireana trichoptera</i>                               | <i>Maireana triptera</i>                           |
| <i>Maireana triptera</i>                                  | <i>Monachather paradoxus</i>                       |
| <i>Ptilotus exaltatus</i>                                 | <i>Ptilotus exaltatus</i>                          |
| <i>Ptilotus obovatus</i>                                  | <i>Ptilotus obovatus</i>                           |
| <i>Roepera eremaea</i>                                    | <i>Roepera apiculata</i>                           |
| <i>Salsola australis</i>                                  | <i>Roepera eremaea</i>                             |
| <i>Schoenia cassiniana</i>                                | <i>Salsola australis</i>                           |
| <i>Sclerolaena cuneata</i>                                | <i>Schoenia cassiniana</i>                         |
| <i>Solanum cleistogamum</i>                               | <i>Sclerolaena cuneata</i>                         |
|                                                           | <i>Sclerolaena diacantha</i>                       |
|                                                           | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
|                                                           | <i>Solanum cleistogamum</i>                        |
|                                                           | <i>Waitzia acuminata</i>                           |

| W205                                                    | W303                                              |
|---------------------------------------------------------|---------------------------------------------------|
| <i>Acacia caesaneura</i>                                | * <i>Sonchus oleraceus</i> (Common Sowthistle)    |
| <i>Acacia aneura</i>                                    | <i>Atriplex stipitata</i> subsp. <i>stipitata</i> |
| <i>Acacia ramulosa</i>                                  | <i>Atriplex nummularia</i>                        |
| <i>Atriplex nummularia</i>                              | <i>Austrostipa nitida</i>                         |
| <i>Atriplex quadrivalvata</i> var. <i>quadrivalvata</i> | <i>Euphorbia drummondii</i>                       |
| <i>Erodium cygnorum</i>                                 | <i>Euphorbia</i> sp.                              |
| <i>Maireana georgei</i>                                 | <i>Maireana georgei</i>                           |
| <i>Maireana tomentosa</i>                               | <i>Maireana tomentosa</i>                         |
| <i>Ptilotus exaltatus</i>                               | <i>Monachather paradoxus</i>                      |
| <i>Ptilotus obovatus</i>                                | <i>Ptilotus exaltatus</i>                         |
| <i>Roepera apiculata</i>                                | <i>Ptilotus obovatus</i>                          |
| <i>Roepera eremaea</i>                                  | <i>Roepera eremaea</i>                            |
| <i>Salsola australis</i>                                | <i>Salsola australis</i>                          |
| <i>Sclerolaena cuneata</i>                              | <i>Sclerolaena cuneata</i>                        |

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| W205                         | W303 |
|------------------------------|------|
| <i>Sclerolaena diacantha</i> |      |
| <i>Waitzia acuminata</i>     |      |

| W305                                           | WN02                                                       |
|------------------------------------------------|------------------------------------------------------------|
| * <i>Sonchus oleraceus</i> (Common Sowthistle) | <i>Acacia cockertoniana</i>                                |
| <i>Acacia aneura</i>                           | <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i> |
| <i>Austrostipa nitida</i>                      | <i>Amphipogon caricinus</i> var. <i>caricinus</i>          |
| <i>Euphorbia drummondii</i>                    | Asteraceae slender                                         |
| <i>Euphorbia</i> sp.                           | Asteraceae sp. (dead)                                      |
| <i>Maireana georgei</i>                        | <i>Brachychiton gregorii</i>                               |
| <i>Maireana tomentosa</i>                      | <i>Brunonia australis</i>                                  |
| <i>Maireana trichoptera</i>                    | <i>Calocephalus multiflorus</i>                            |
| <i>Ptilotus exaltatus</i>                      | <i>Cheilanthes sieberi</i>                                 |
| <i>Ptilotus obovatus</i>                       | ? <i>Euphorbia</i> sp.                                     |
| <i>Roepera eremaea</i>                         | <i>Gilbertia tenuifolia</i>                                |
| <i>Salsola australis</i>                       | <i>Goodenia havilandii</i>                                 |
| <i>Scaevola spinescens</i>                     | <i>Goodenia rosea</i>                                      |
| <i>Sclerolaena cuneata</i>                     | <i>Grevillea obliquistigma</i>                             |
| <i>Sclerolaena densiflora</i>                  | <i>Monachather paradoxus</i>                               |
| <i>Waitzia</i> sp.                             | <i>Olearia stuartii</i>                                    |
|                                                | <i>Thysanotus manglesianus</i>                             |
|                                                | <i>Trachymene ornata</i>                                   |
|                                                | Unidentified sp. juv.                                      |
|                                                | <i>Waitzia acuminata</i>                                   |

| WN03                                               | WN04                                              |
|----------------------------------------------------|---------------------------------------------------|
| <i>Acacia cockertoniana</i>                        | <i>Acacia acuminata</i>                           |
| <i>Acacia mulganeura</i>                           | <i>Acacia caesaneura</i>                          |
| <i>Acacia fuscaneura</i>                           | <i>Acacia effusifolia</i>                         |
| <i>Austrostipa elegantissima</i>                   | <i>Acacia fuscaneura</i>                          |
| <i>Austrostipa nitida</i>                          | <i>Acacia ramulosa</i> var. <i>ramulosa</i>       |
| <i>Brachychiton gregorii</i>                       | <i>Acacia tetragonophylla</i>                     |
| ? <i>Drosera</i> sp.                               | <i>Austrostipa elegantissima</i>                  |
| <i>Eremophila clarkei</i>                          | <i>Austrostipa nitida</i>                         |
| <i>Eucalyptus oleosa</i>                           | <i>Cheiranthra filifolia</i>                      |
| <i>Monachather paradoxus</i>                       | <i>Dianella revoluta</i> var. <i>divaricata</i>   |
| <i>Olearia humilis</i>                             | <i>Dodonaea rigida</i>                            |
| <i>Philothea brucei</i>                            | <i>Enchylaena?</i> <i>tomentosa</i>               |
| <i>Ptilotus obovatus</i>                           | <i>Enchylaena tomentosa</i>                       |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> | <i>Eremophila granitica</i>                       |
| <i>Sida</i> sp. dark green fruits                  | <i>Eremophila</i> sp.                             |
| <i>Waitzia acuminata</i>                           | <i>Erymophyllum ramosum</i> subsp. <i>ramosum</i> |



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| WN03 | WN04                                               |
|------|----------------------------------------------------|
|      | <i>Eucalyptus corrugata</i>                        |
|      | <i>Eucalyptus longissima</i>                       |
|      | <i>Maireana georgei</i>                            |
|      | <i>Maireana tomentosa</i>                          |
|      | <i>Maireana triptera</i>                           |
|      | <i>Leichhardtia australis</i>                      |
|      | <i>Olearia muelleri</i>                            |
|      | <i>Ptilotus exaltatus</i>                          |
|      | <i>Ptilotus gaudichaudii</i>                       |
|      | <i>Ptilotus obovatus</i>                           |
|      | <i>Rhagodia drummondii</i>                         |
|      | <i>Roepera apiculata</i>                           |
|      | <i>Roepera eremaea</i>                             |
|      | <i>Scaevola spinescens</i>                         |
|      | <i>Sclerolaena cuneata</i>                         |
|      | <i>Sclerolaena diacantha</i>                       |
|      | <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
|      | <i>Sida calyxhymenia</i>                           |
|      | <i>Solanum orbiculatum</i>                         |
|      | Unidentified sp. juv.                              |
|      | <i>Waitzia acuminata</i>                           |

| WN06                                                    | WN09                                        |
|---------------------------------------------------------|---------------------------------------------|
| <i>Acacia acuminata</i>                                 | <i>Acacia cockertoniana</i>                 |
| <i>Acacia ramulosa</i> var. <i>linophylla</i>           | <i>Acacia ramulosa</i> var. <i>ramulosa</i> |
| <i>Acacia</i> sp. juv.                                  | <i>Acacia</i> sp. juv.                      |
| <i>Acacia tetragonophylla</i>                           | <i>Brachychiton gregorii</i>                |
| <i>Atriplex quadrivalvata</i> var. <i>quadrivalvata</i> | <i>Brunonia australis</i>                   |
| <i>Austrostipa elegantissima</i>                        | <i>Calandrinia translucens</i>              |
| <i>Austrostipa nitida</i>                               | <i>Calocephalus multiflorus</i>             |
| <i>Brachychiton gregorii</i>                            | <i>Cheilanthes sieberi</i>                  |
| <i>Calandrinia translucens</i>                          | <i>Dianella revoluta</i>                    |
| <i>Calocephalus multiflorus</i>                         | <i>Eremophila clarkei</i>                   |
| <i>Cephalopterum drummondii</i>                         | <i>Erodium cygnorum</i>                     |
| <i>Chthonocephalus pseudevax</i>                        | <i>Euphorbia tannensis</i>                  |
| <i>Crassula colorata</i>                                | <i>Goodenia havilandii</i>                  |
| <i>Dianella revoluta</i> var. <i>divaricata</i>         | <i>Goodenia pusilliflora</i>                |
| <i>Enchylaena tomentosa</i>                             | <i>Grevillea obliquistigma</i>              |
| <i>Eremophila decipiens</i> subsp. <i>decipiens</i>     | <i>Isotoma hypocrateriformis</i>            |
| <i>Eremophila granitica</i>                             | <i>Leichhardtia australis</i>               |
| <i>Erodium cygnorum</i>                                 | <i>Maireana</i> sp. juv.                    |
| <i>Exocarpos</i> sp.                                    | <i>Mirbelia microphylla</i>                 |

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| WN06                                               | WN09                                          |
|----------------------------------------------------|-----------------------------------------------|
| <i>Gilruthia osbornei</i>                          | <i>Monachather paradoxus</i>                  |
| <i>Goodenia rosea</i>                              | <i>Olearia humilis</i>                        |
| <i>Leichhardtia australis</i>                      | ? <i>Olearia</i> sp. juv.                     |
| <i>Lemooria burkittii</i>                          | <i>Philotheca brucei</i> subsp. <i>brucei</i> |
| <i>Maireana georgei</i>                            | <i>Prostanthera althoferi</i>                 |
| <i>Menkea australis</i>                            | <i>Prostanthera grylloana</i>                 |
| <i>Ptilotus obovatus</i>                           | <i>Rhodanthe laevis</i>                       |
| <i>Roepera apiculata</i>                           | <i>Salsola australis</i>                      |
| <i>Roepera eremaea</i>                             | <i>Schoenia cassiniana</i>                    |
| <i>Sclerolaena cuneata</i>                         | <i>Sida</i> sp. dark green fruits             |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> | <i>Sida</i> sp. golden calyces pubescent      |
| <i>Stenopetalum lineare</i> var. <i>lineare</i>    | <i>Solanum cleistogamum</i>                   |
| Unidentified sp.                                   | <i>Thysanotus manglesianus</i>                |
| Unidentified sp. juv.                              | <i>Trachymene ceratocarpa</i>                 |
| <i>Waitzia acuminata</i>                           | <i>Trachymene ornata</i>                      |
|                                                    | Unidentified sp.                              |
|                                                    | Unidentified sp. juv.                         |
|                                                    | <i>Waitzia acuminata</i>                      |

| WN15                                               |
|----------------------------------------------------|
| <i>Acacia acuminata</i>                            |
| <i>Acacia cockertoniana</i>                        |
| <i>Acacia caesaneura</i>                           |
| <i>Acacia ramulosa</i>                             |
| <i>Acacia tetragonophylla</i>                      |
| <i>Austrostipa elegantissima</i>                   |
| <i>Calocephalus multiflorus</i>                    |
| <i>Cephalopterum drummondii</i>                    |
| <i>Cheiranthra filifolia</i>                       |
| <i>Dodonaea lobulata</i>                           |
| <i>Dodonaea rigida</i>                             |
| <i>Eremophila granitica</i>                        |
| <i>Eucalyptus longissima</i>                       |
| <i>Goodenia havilandii</i>                         |
| <i>Maireana tomentosa</i>                          |
| <i>Olearia muelleri</i>                            |
| <i>Philotheca brucei</i> subsp. <i>brucei</i>      |
| <i>Prostanthera grylloana</i>                      |
| <i>Ptilotus obovatus</i>                           |
| <i>Scaevola spinescens</i>                         |
| <i>Schoenus nanus</i>                              |
| <i>Senna artemisioides</i> subsp. <i>filifolia</i> |
| <i>Sida</i> sp. juv.                               |

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| WN15                           |
|--------------------------------|
| <i>Thysanotus manglesianus</i> |
| Unidentified sp. juv.          |
| <i>Waitzia acuminata</i>       |
| Yellow daisy                   |

**Appendix 2      Monitoring transect photographs for the 2024 and 2021 monitoring events**

**A1 waste dump 2024 (top) 2021 (bottom)**

**A101 west end**





101 east end





A102 north end





A102 south end





**A1 waste dump reference sites 2024 (top) 2021 (bottom)**

**KN01 east end**





KN01 west end



NA



KN06 north end





KN06 south end



NA



KN07 west end





KN07 east end



NA



KN11 north end





KN11 south end



NA



BC waste dump 2024 (top) 2021 (bottom)

BC02 north end





BC02 south end





BC04 south end





BC04 north end





BC06 south end





BC06 north end





BC waste dump reference sites 2024 (top) 2021 (bottom)

FN01



NA

FN01



NA

FN03





NA

FN03



NA



FN05



NA

FN05



NA



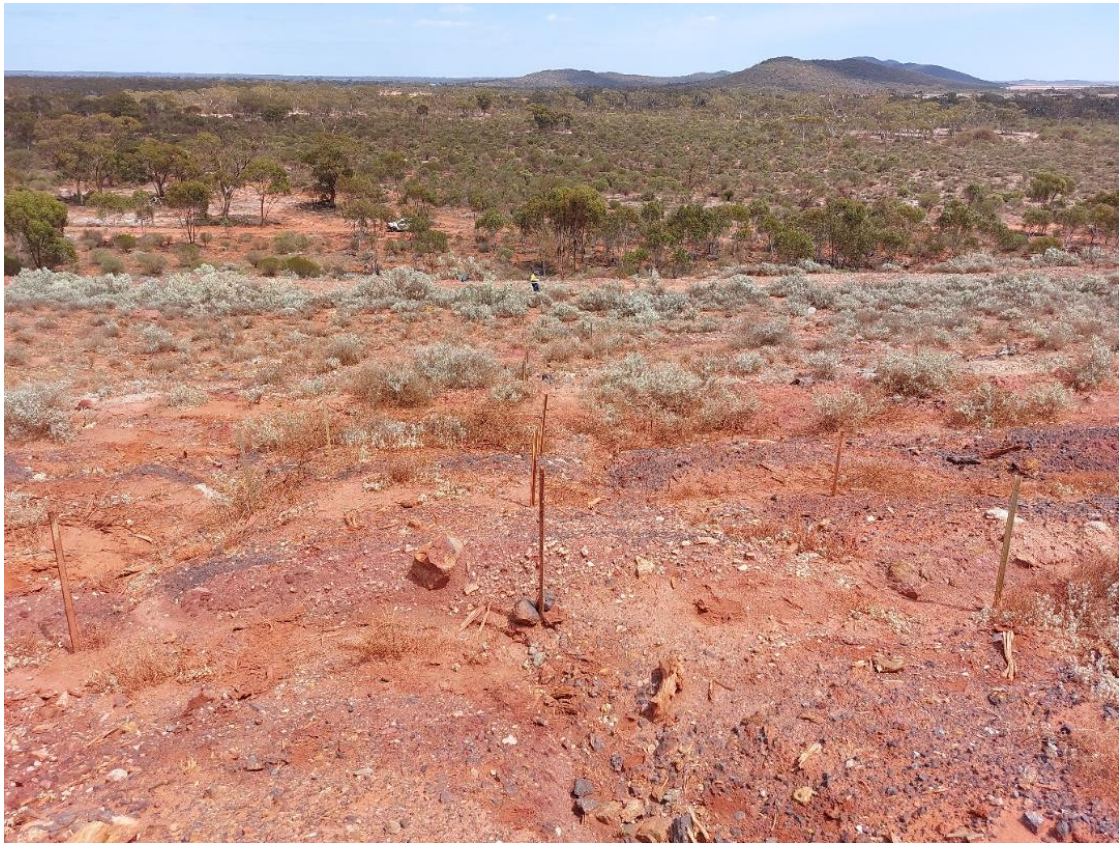
K waste dump 2024 (top) 2021 (bottom)

K06 west end





K06 east end





K09 north end





K09 north end





K10 west end





K10 east end





K11 west end





K11 east end





K12 west end





K12 east end





K14 south end





K14 north end





K waste dump reference sites 2024 (top) 2021 (bottom)

N04



NA



NA



N07



NA



NA



J2 waste dump 2024 (top) 2021 (bottom)

J201 east end





J201 west end





J3 waste dump 2024 (top) 2021 (bottom)

J303 south end





J303 south end





**J2 and J3 waste dump reference sites 2024 (top) 2021 (bottom)**

**J1N05 east end**





J1N05 east end



NA



J1N06 east end





J1N06 west end



NA



J1N08 east end





J1N08 west end



NA



JN01 west end





JN01 west end



NA



JN06 north end





JN06 north end



NA



JN07 west end





JN07 east end



NA



JN10 west end





JN10 east end



NA



JN13 east end





JN13 west end



NA



W2 waste dump 2024 (top) 2021 (bottom)  
W201 south end





W201 north end





W202 east end





W202 west end





W205 north end





W205 south end





W3 waste dump 2024 (top) 2021 (bottom)

W303 north end





W303 north end





W305 east end





W305 west end





**W2 and W3 waste dumps reference sites 2024 (top) 2021 (bottom)**

**WN02 east end**





WN02 west end



NA



WN03 west end





WN03 east end



NA



WN04



NA

WN04



NA



WN06



NA

WN06



NA



WN09 east end





WN09 west end



NA



WN15 north end





WN15 south end



NA

