Edna May Operations

Compliance Report

EPBC 2018/8213

24 January 2023 to 23 January 2024

Edna May Operations

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Compliance Report Edna May Operations (EPBC 2018/8213)
24 Jan 2023 - 23 Jan 2024

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Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed  pp Greg Rawlinson, General Manager Edna May Operations

Full name Helen Chernoff

Position Group Environment Manager

Organisation Ramelius Resources Limited

Date 15 April 2024

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1. APPROVED ACTION

1.1 DETAILS

EPBC Number	EPBC 2018/8213
Project Name	Edna May Gold Project Expansion – Greenfinch Pit, Western Australia
Approval Holder	Edna May Operations Pty Ltd
ACN/ABN	136 365 001

1.2 THE ACTION

Clearing of vegetation for the expansion of the existing Edna May Gold Project including the establishment of an open pit (the 'Greenfinch pit'), storage of non-reactive waste rock in an expanded North-North West waste rock landform, buttressing of an existing Tailings Storage Facility, development of a noise abandonment bund and construction of a haul road, site drainage works and storage of topsoil approximately 1 km north of Westonia, Western Australia.

The Action commenced on the 24th of January 2020.

1.3 LOCATION OF PROJECT

The Edna May Gold Project is located approximately one kilometre north of the town of Westonia in the Shire of Westonia, Western Australia.

1.4 REPORT PERIOD

Edna May Operations Pty Ltd (EMO) is required to prepare an Annual Compliance Report (ACR) for each 12month period following the date of commencement. The report is to be published on the Ramelius Resources Ltd website within 60 business following the reporting period.

This ACR covers the reporting period 24th January 2023 to the 23rd of January 2024.

2. BACKGROUND INFORMATION

Edna May Operations Pty Ltd (EMO), a wholly owned subsidiary of Ramelius Resources Ltd, operates the Edna May Gold Project which is a medium-sized, gold mining operation that consists of a conventional open cut pit, underground, and a carbon-in-leach (CIL) processing plant.

This compliance report is a condition of the approval for the Edna May Gold Project expansion under the EPBC Act. The document seeks to provide a description of activities undertaken during the reporting period and document EMO's compliance with the conditions of the approval document.

The project was approved for the development of the Greenfinch pit which included the clearing of up to 16.6 hectares of native vegetation. The project was assessed under the EPBC Act due to the potential threat to EPBC Act-listed species and ecological communities. This included the Carnaby's Black Cockatoo (Endangered), the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community (Critically endangered) and *Eremophila resinosa Resinous Eremophila* (Endangered).

EMO has applied the mitigation hierarchy of controls (avoid, minimise, rehabilitate) to address impacts of the Action on these Threatened Ecological Communities (TEC) and remnant native vegetation.

Avoid

The footprint of the Greenfinch Project was designed to avoid disturbance to known records of Threatened Flora *E. resinosa* (records from 1904 to 2018), the Westonia Common (remnant vegetation/ biological diversity and fauna habitat) and TEC where possible by using existing infrastructure of the Edna May gold mine and concentrating developments in areas of existing disturbance.

Minimise

The footprint of the Greenfinch Project was minimised to only clear up to 16.6 ha of native vegetation and designed to abut existing disturbances, to prevent fragmentation by maintaining habitat corridors, minimise potential impacts to the TEC/ Westonia Common from edge effect and minimise the clearing of potential Threatened Flora habitat and fauna habitat.

Rehabilitate

Existing rehabilitation trials conducted for the EMO have shown promise for successful establishment of native TEC vegetation. Future rehabilitation proposed will be specifically conducted to reinstate Red morrel (*Eucalyptus longicornis*) Woodlands, which will provide potential *E. resinosa* habitat, increase habitat connectivity/ widen vegetation corridors and improve the condition of remnant Red morrel vegetation.

To compensate for the unavoidable impacts of removing up to 16.6ha of native vegetation, an Offset Plan was developed and approved.

The Offsets for the Action include:

- Revegetation of 75ha of ex-farmland including a 60ha area immediately north of the Edna May mine site and directly north of the Westonia Common (Lots 161 and 162) and 15ha of ex-farmland located directly south of Edna May mine site which will provide additional fauna habitat corridor for the Westonia Common (Lot 1578).
- Protection, management and improvement (interplanting, weed control) of a remnant 15ha block of Red morrel on Lot 162.
- Placement of a conservation covenant over revegetated parts of Lots 161, 162 and 1578 (subject to government approval).
- provide $10,000 per year for two years from the commencement of the action (indexed to the National Consumer Price Index value in 2019) to the Shire of Westonia for the purpose of funding activities in the Westonia Common Management Plan 2016-2020 and subsequent versions.

3. CLEARING

Native vegetation was cleared to develop the Greenfinch project at the Edna May Gold Project. The EBPC Act approval allows EMO to clear up to 16.6ha of native vegetation (Figure 1). This area includes up to 9.3ha of Eucalypt Woodlands of the Western Australian Wheatbelt TEC, up to 9.3ha of foraging habitat and no more than 38 potential breeding trees for the Carnaby's Black Cockatoo (Figure 3).

Clearing on the project was managed as per EMO Clearing and Ground Disturbance Procedure and the Greenfinch Project Implementation Compliance Procedure. These documents are in place to ensure compliance with EPBC Act Approval EPBC 2018/8213, Clearing Permit CPS8550/~~1~~3, and Mining Proposal RegID 73855. It is a requirement that all personnel working on the Greenfinch Project be trained in these procedures and sign-off on their understanding of requirements, competency and acknowledging their responsibilities.

EMO commenced clearing of the Project area on the 24th of January 2020. A total of 11.5 ha of native vegetation was cleared for the purpose of developing the Greenfinch project. The area cleared was for the diversion of the Warrachuppin road, the Greenfinch open cut pit, safety bund and access track, extension of the noise bund and for construction of the abandonment bund. No clearing was undertaken during the reporting period.

All clearing occurred within the approved areas stated in the EPBC Act Approval EPBC 2018/8213 and Clearing Permit CPS8550. EMO minimised clearing within the approved footprint where practicable.

An amendment to the project design resulted in a reduced the total project footprint from planned 16.6ha to 11.5ha. Clearing for the extension of the Corsini Flood bund to the south of the Corsini WRL has not yet been undertaken.

3.1 EUCALYPT WOODLAND

The project requires clearing of the Critically Endangered Eucalypt Woodlands of the Western Australian Wheatbelt (*E. Longicornis* and *E. salubris* woodland). Approval was granted to clear up to 9.3ha of Eucalypt Woodlands of the Western Australian Wheatbelt TEC.

No clearing was completed during the reporting period. A total of 7.556 ha of Eucalypt Woodlands of the Western Australian Wheatbelt TEC (Figure 4) has been cleared as per the approval.

3.2 CARNABY'S BLACK COCKATOO FORAGING HABITAT

The Greenfinch Project area required clearing of potential Carnaby's Black Cockatoo foraging habitat and potential breeding trees. The potential foraging habitat in this project is considered the Eucalypt Woodlands of the Western Australian Wheatbelt TEC. Although not observed during field surveys the Carnaby's Black Cockatoo has been documented to feed on Salmon gum (*Eucalyptus salmonophloia*) which is found in the Woodlands (Harewood 2018). There were no recorded sightings during the reporting period.

A fauna survey was undertaken before the project commenced to identify potential nesting trees for the Carnaby's Black Cockatoo. The survey identified trees in the project expansion area which included live and dead trees of Gimlet, Red morrel, Salmon gum that may potentially be suitable for nesting.

No clearing was undertaken during the reporting period. EMO have cleared 7.556 ha of Eucalypt woodland and 14 trees that were identified as potential nesting trees (Figure 4) as per the approval.

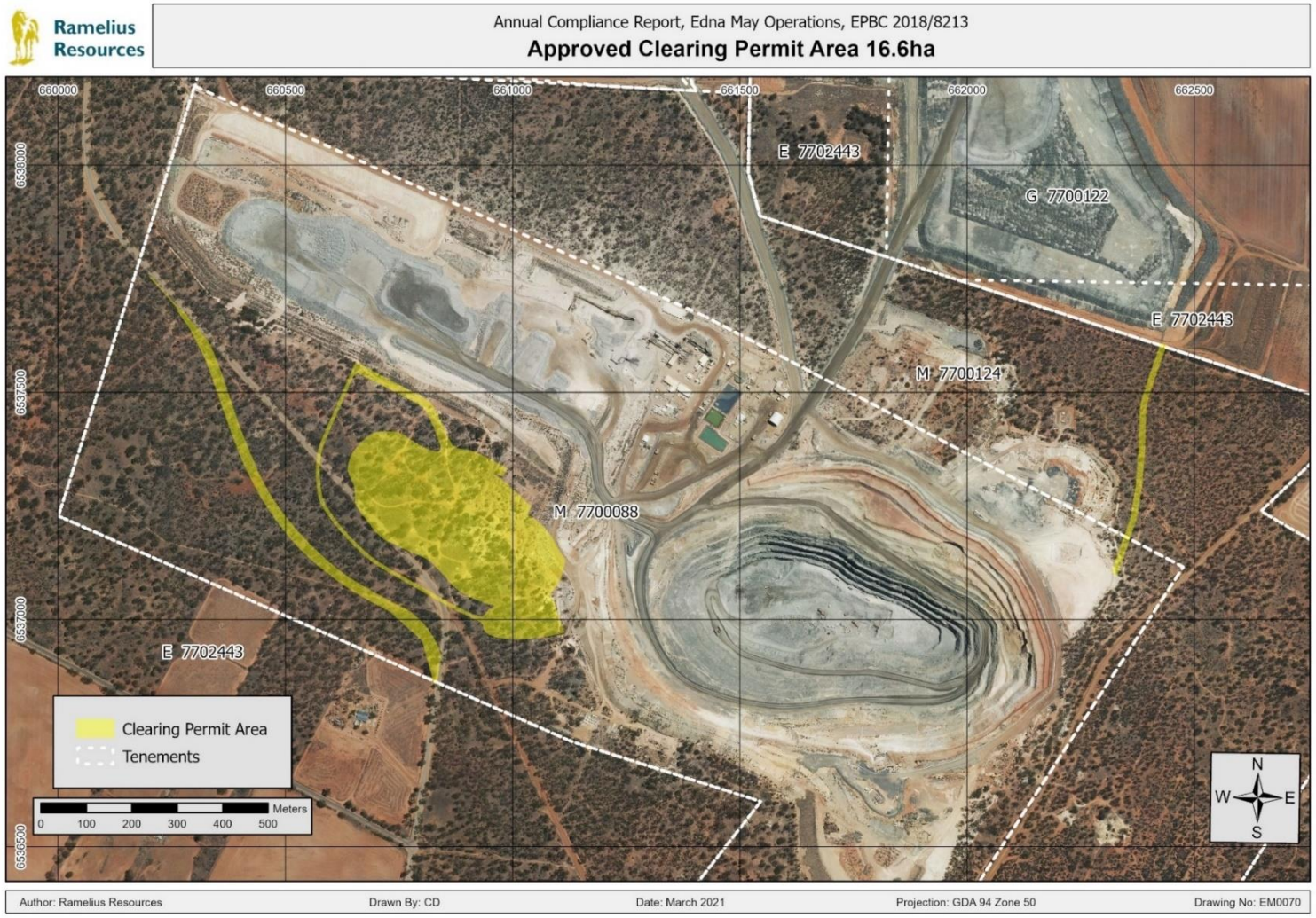


Figure 1: Approved clearing area for the expansion of the Edna May Gold Project – Greenfinch Pit

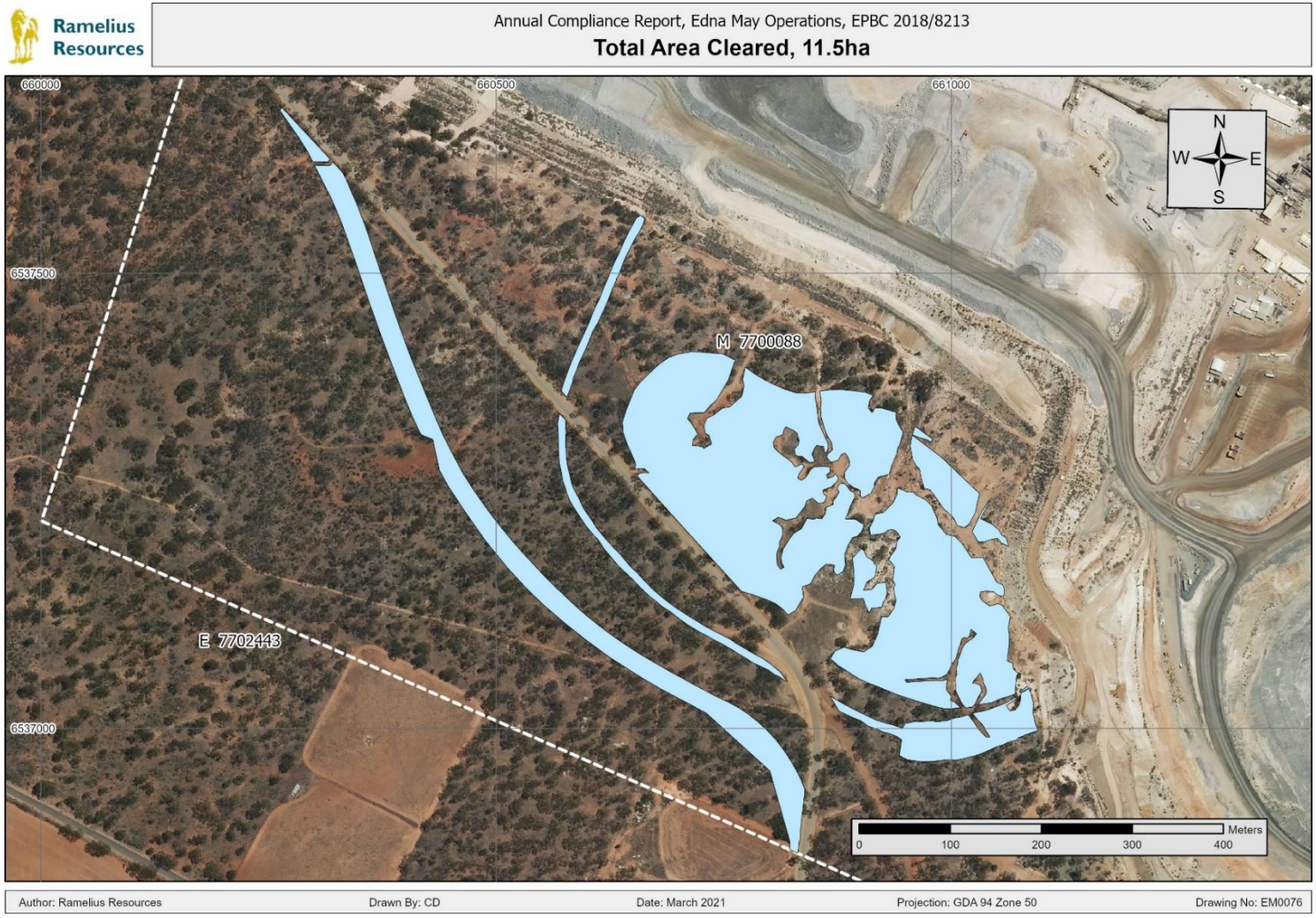


Figure 2: Native Vegetation cleared to develop the Greenfinch Project. Total Area cleared = 11.5ha

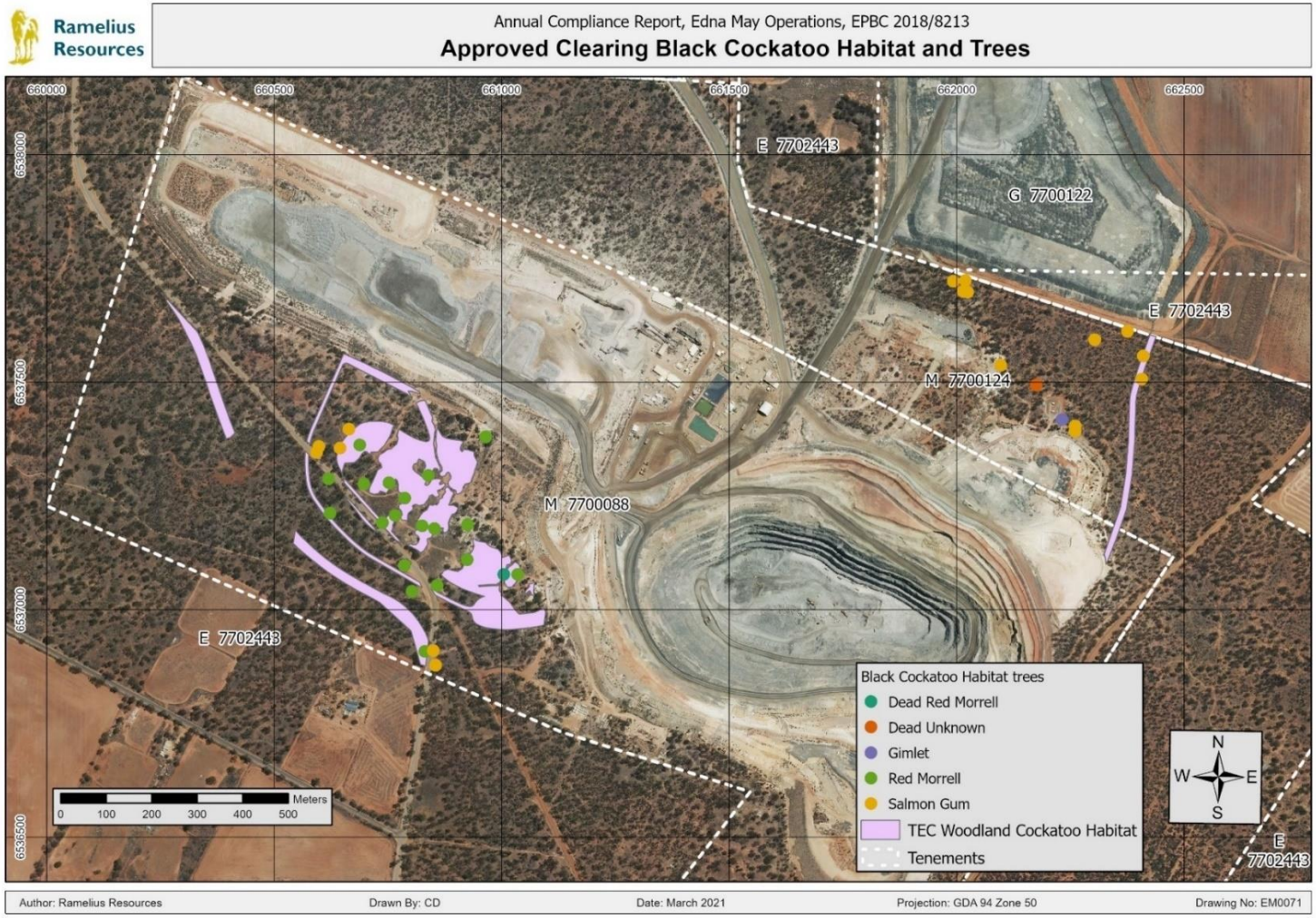


Figure 3: Approved clearing area of potential Carnaby's Black Cockatoo foraging Habitat (Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community), 9.3ha, and 38 potential breeding trees

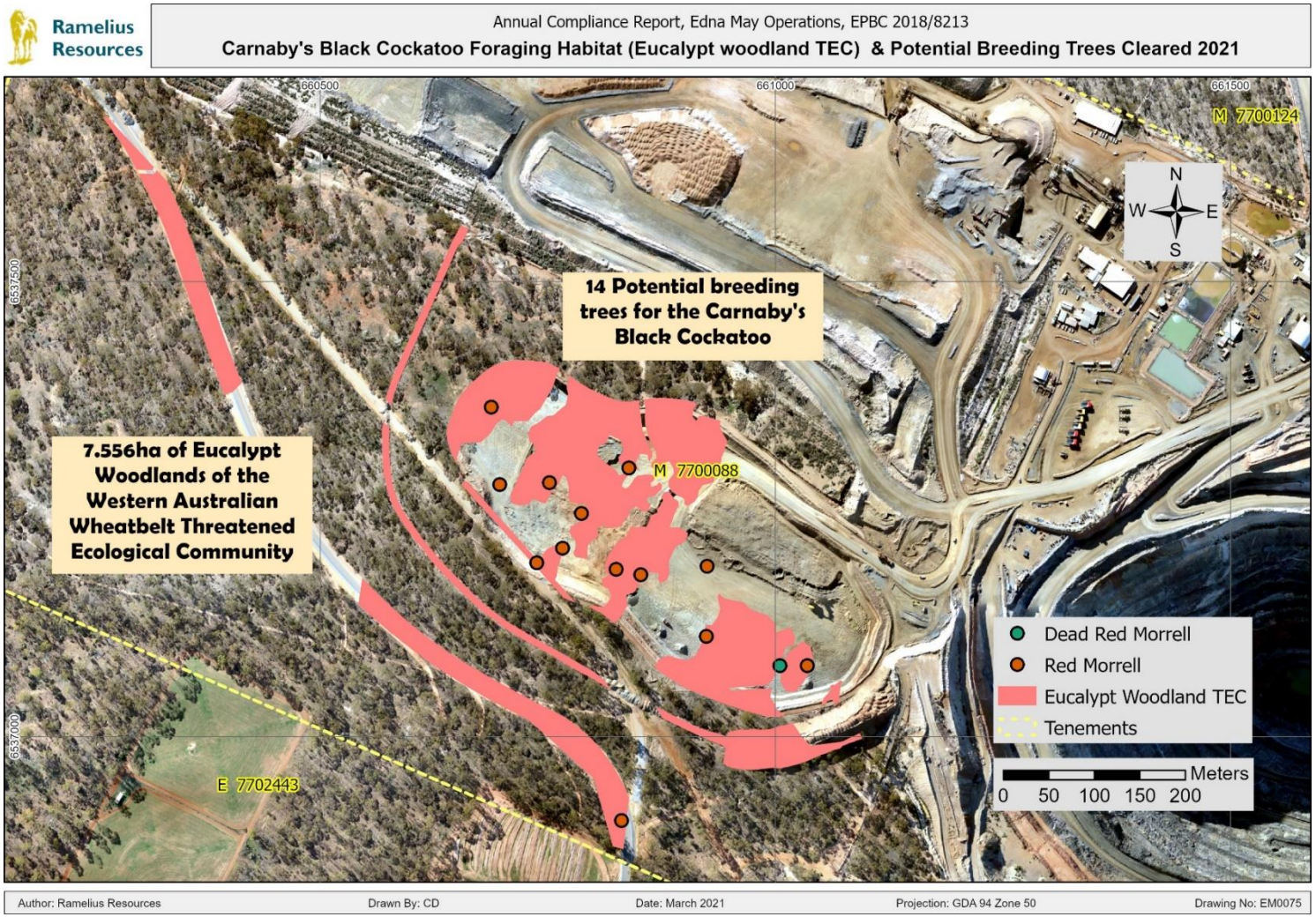


Figure 4: Carnaby's Black Cockatoo Foraging Habitat (Eucalypt woodland TEC) and Potential Breeding Trees Cleared during the development of Greenfinch project

4. VEGETATION CORRIDOR

The Greenfinch project was designed so that the footprint required minimal clearing and maintained and enhanced the connectivity between the east and west remnant woodland blocks of the Westonia Common to avoid habitat fragmentation.

To maximise the corridors EMO amended the proposal so that:

i) a minimum 50m wide vegetation corridor between the abandonment bund and the diverted road to the south was retained to facilitate fauna movement; and

ii) further maximise the corridor connectivity to the south of the mine by not clearing any vegetation between the pit and the abandonment bund so that an additional approximately 40 m wide vegetation corridor is retained to facilitate fauna movement and reduce the area of TEC vegetation clearing.

EMO has maintained the "50m wide corridor" which at its minimum is approximately 50.86m wide. No clearing has occurred between the pit boundary and the abandonment bund and the 40m distance has been maintained. This distance does narrow out to extinction to the southeast as designed where the abandonment bund joined the existing Noise bund (Figure 5).

5. REHABILITATION AREAS

Areas disturbed within the project which are no longer required for the operation and will not be permanent disturbance features are rehabilitated as soon as possible. There are two features which were required as per the EPBC approval conditions to be rehabilitated within 12 months of completion of the abandonment bund. These were the original Warrachuppin road, which was diverted, and a haulage track to the north of the pit used to construct an abandonment bund. The total proposed rehabilitation as per the approval was 1.9ha.

The actual area to be rehabilitated is smaller as the haul road was not required and the area not cleared. The total disturbance from the Warrachuppin road to be rehabilitated is approximately 1.06ha.

Rehabilitation earthworks commenced in 2021 which consisted of removing the bitumen road surface and ripping the road base. In June 2022, EMO seeded and planted seedlings on the site. Seed was sown using a commveg seeder with seedlings planted in the rows using the potti-putki. A species list can be found in Table 5-1 and Table 6-3.

Table 5-1: Species list of seedlings planted into Warrachuppin road in 2022

Genus	Species
Eucalyptus	*longicornis*
Eucalyptus	*salubris*
Eucalyptus	*salmonophloia*
Eucalyptus	*yilgarnensis*
Eucalyptus	*loxopheba*
Melaleuca	*pauperiflora. ssp fastigiata*
Melaleuca	*eleuterostachya*
Melaleuca	*lateriflora*

A Vegetation monitoring plot was established in November 2022 to track the progress of the site to achieving completion criteria. The criteria for successful rehabilitation is to establish a self-sustaining

and fully functioning, Eucalypt Woodlands of the Western Australian Wheatbelt TEC which integrates into the surrounding woodland. Rehabilitating these areas will minimise impacts on the existing woodland by reducing threats associated with fragmentation and the edge affect.

Figure 5: Photo of Warrachuppin road rehabilitation March 2024.

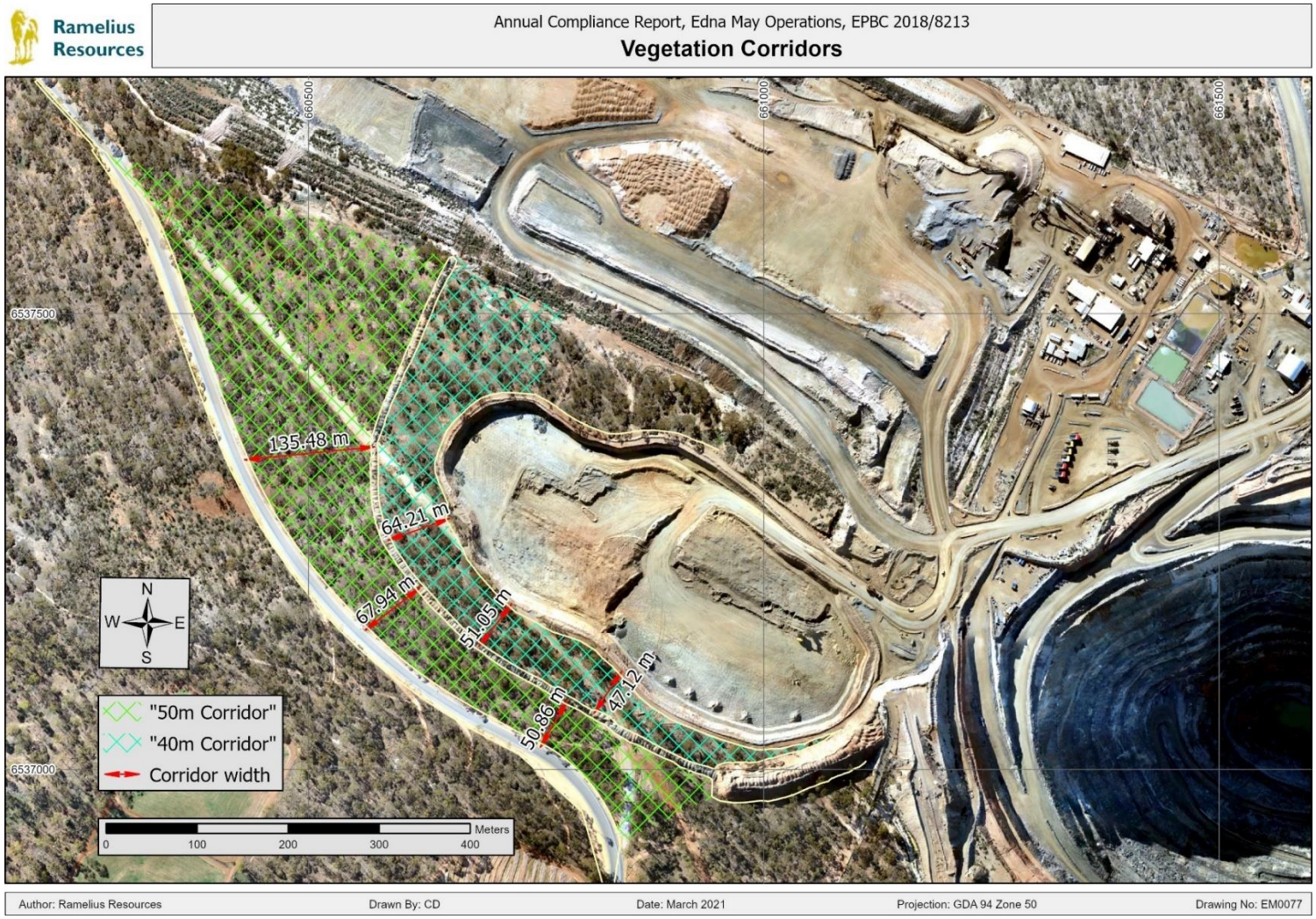


Figure 6: Vegetation Corridors

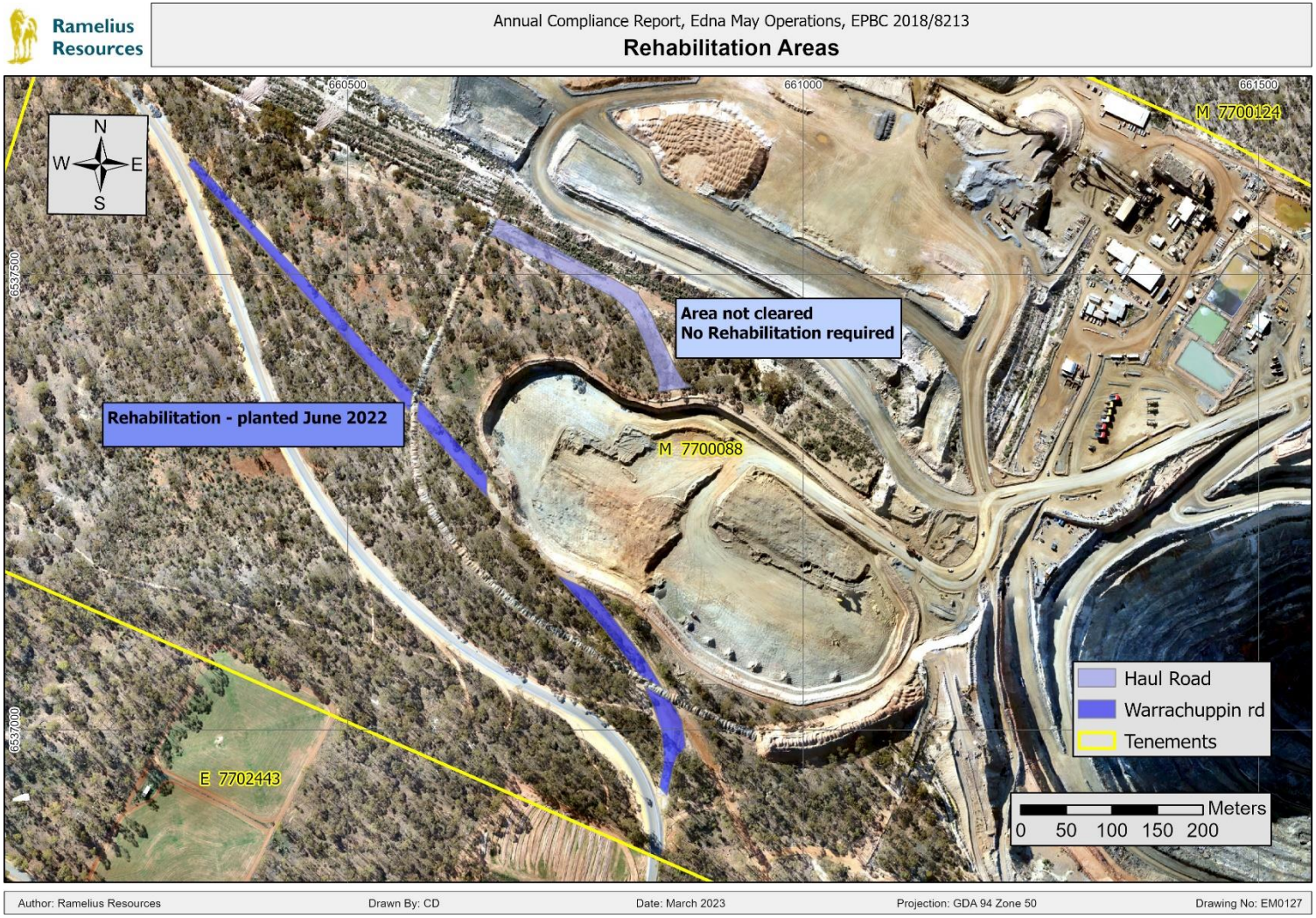


Figure 7: Rehabilitation Areas – Planting and seeding of Warrachuppin road completed June 2022

6. REHABILITATION OFFSET

6.1 FARMLAND REVEGETATION

A condition of the clearing approval granted for the Greenfinch project is that 75 ha of ex-farmland (Lot 1578, Lot 161 and Lot 162) will be rehabilitated with Red morrel woodland TEC species. In addition to this a degraded 15 ha remnant at the north-east corner of the Lot 162 will be improved with the additional planting as required.

The Offset Rehabilitation Plan for the EMO Offset area has been developed to enable EMO to continue the high standard of annual woodland rehabilitation activities on ex-farmland that commenced in 2015. The purposes of the Rehabilitation Plan are to:

- ensure that annual planning and budgeting of ex-farmland rehabilitation continues to be integrated into the mine planning and operational activities;
- provide technical information and procedures on the rehabilitation of ex-farmland; and
- demonstrate to Government regulators that EMO follows a well-understood process based on monitoring results from trials and research that maximises the success rate of woodland rehabilitation.

Implementation of this Offset Rehabilitation Plan will maintain the linkage between the eastern and western natural vegetation blocks of the Westonia Common to avoid fragmentation, widen biodiversity corridor plantings already implemented on ex-farmland on Lots 161 and 162, and maintain and improve the biological diversity and ecological integrity of flora and vegetation protected under the EPBC Act (*E. resinosa* and the TEC woodland).

6.1.1 Lot 1578

The revegetation of 13.65 ha of ex farmland on lot 1578, known as Greenfinch Farm, commenced in early 2020. The site is split into two paddocks by Stoneman Road which is a public road intersecting the site.

Site preparation activities on northern paddock included the removal of internal fencing and clean-up of historical scrap and wire from various areas of the site. The agricultural land was then ploughed as a form of weed control and to level the surface. Topsoil from the Greenfinch pit was windrowed in situ by dozer and then transported and applied to the site by tipper truck. Once application was complete the fresh topsoil was shaped by a grader forming 6 m-wide bands of topsoil with 3 m-wide tracks between for vehicle access to allow for future weed management activities (Figure 8).

Figure 8: Greenfinch farm Paddock 1 (Northern Paddock) after topsoil was placed from the Clearing of the Greenfinch project, April 2020

Figure 9: Photo of Greenfinch farm Paddock 1 (Northern Paddock), March 2024

Site preparation for the southern paddock consisted of herbicide weed control, followed by ploughing several weeks later as a form of effective weed control and to level the surface.

Seedlings of woodland species were grown by Chatfield's Tree Nursery from local provenance seed (Table 6-1). The seed was collected in December 2019 from the vegetation areas which were to be cleared to make way for the Greenfinch pit and realignment of Warrachuppin Road and from the surrounding woodland area. A total of 17,437 local provenance seedlings were planted into Lot 1578 in 2020. In the northern paddock 6,300 seedlings were hand planted using a potti-putki into rows pre-prepared by the Chatfields Tree planter. In the southern paddock 11,137 seedling were planted using the Chatfields Tree planter.

Figure 10: Photo of Lot 1578 southern paddock, March 2024

Table 6-1: Species list of seedlings planted in Lot 1578

Acacia aestivalis	*Eucalyptus longicornis*	*Eremophilla decipiens*
Acacia acuminata	*Eucalyptus loxophleba subsp. lissophloia*	*Melaleuca pauperiflora*
Acacia erinacea	*Eucalyptus salmonophloia*	*Pittosporum angustifolium*
Acacia hemiteles	*Eucalyptus yilgarnensis*	*Senna artemesioides*
Acacia deficiens	*Eucalyptus salubris*	*Solanum orbiculatum*
Acacia merrallii		*Templetonia sulcata*

As vegetation becomes established it will improve connectivity of the remnant vegetation of the surrounding Westonia Common, which is primarily a Red morrel woodland TEC. Vegetation Transects have been established in both the paddocks to monitor progress. Further detail in Section 7.

Management of the site this year included weed spraying and maintenance of firebreaks around both sites. Planned infill planting was completed in both paddocks in the reporting year, approximately 3100 seedlings in combination with seed was planted during the winter months of the reporting period.

6.1.2 Lot 161 and 162

During planning of the 2021 revegetation works it was decided to change the shape of the revegetation area on Lot 161 & Lot 162 to account for possible expansion of mining landforms. The revegetation area was amended to move it further away from the current mining operation to account for any future expansion of the Waste Rock Landforms or an additional Tailings Storage Facility (TSF) if required.

The revegetation areas were removed from north of the TSF and concentrated to the North east corner of Lot 162. This new shape increases the width of vegetation near the 15ha of remnant native vegetation, north east corner of the block, which EMO have committed to improve as part of the offset.

The amended location retains the main goals and merits of the rehabilitation plan which were:

- maintaining the linkage between the eastern and western natural vegetation blocks of the Westonia Common and to avoid fragmentation; and
- maintaining and improving the biological diversity and ecological integrity of flora and vegetation protected under the EPBC Act (namely, Eremophila resinosa and the TEC woodland).

These changes were raised initially in the 2021 Annual compliance report and EMO have also informed DMIRS of the changes in 2021.

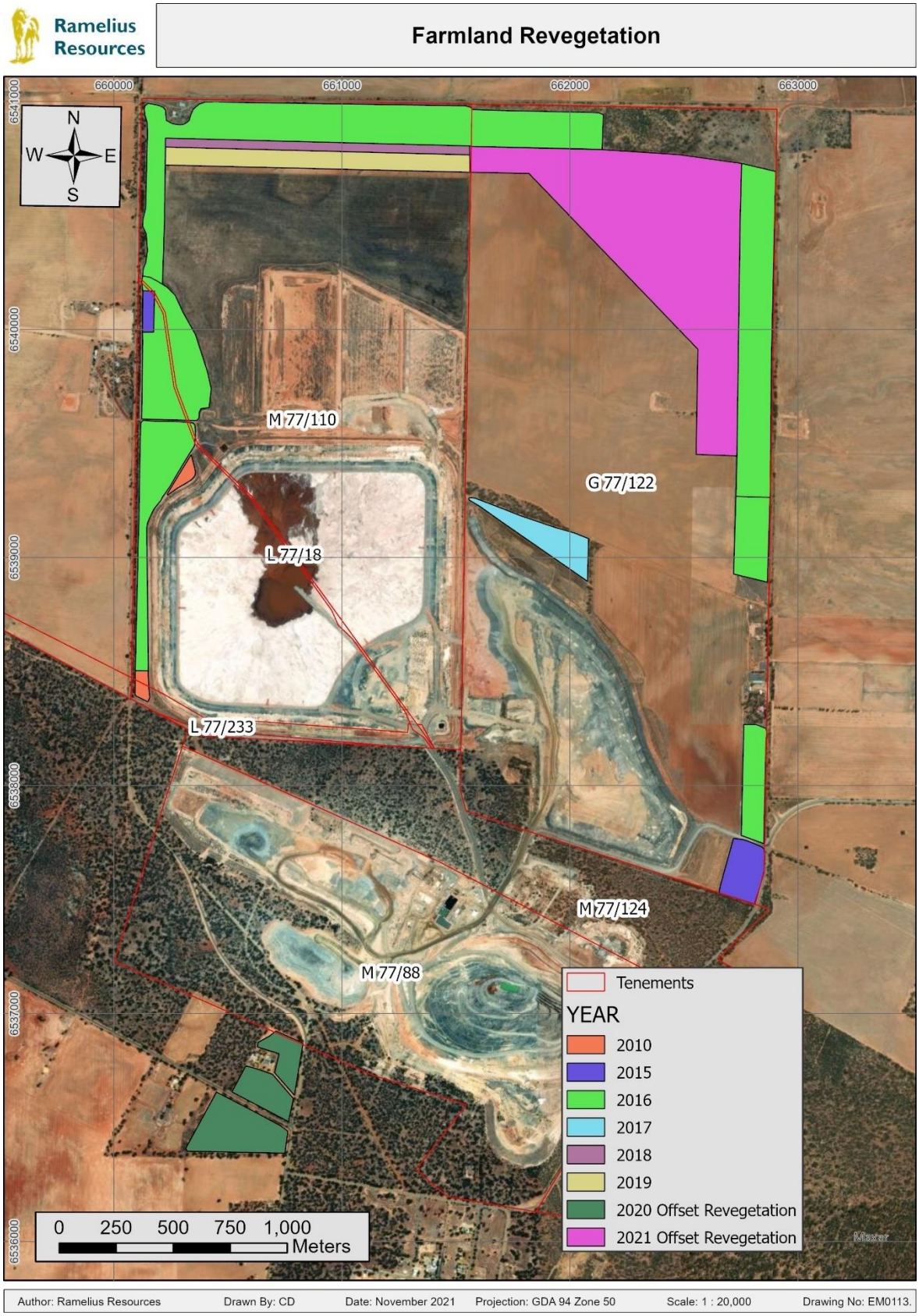


Figure 11: Location of Farmland revegetation sites and the year they were established

A Native plant Agronomist was engaged to organise and plan the works. Restoration of the farmland included a mix of direct seeding and planting. Species mix and planting densities were determined using information from the analogue flora surveys completed by Botanica (2018), and the consultant's onsite experience.

Collected and purchased seed was supplied to a local Tammin-based business, Chatfield's Tree Nursery, in October 2020. The seedling order of 34,800 for the 62ha consists of a mix of *Eucalyptus* and *Melaleuca* species, and other plants that are difficult to establish from direct seed (Table 6-2).

Table 6-2: Seedling order for the 2021 farmland revegetation project

Genus	Species	Seedlings
Eucalyptus	*longicornis*	8,000
Eucalyptus	*salubris*	6,000
Eucalyptus	*salmonophloia*	2,000
Eucalyptus	*yilgarnensis*	6,000
Melaleuca	*pauperiflora. ssp fastigiata*	8,000
Melaleuca	*eleuterostachya*	1,000
Melaleuca	*uncinata*	1,000
Eucalyptus	*loxopheba*	1,000
Calothamnus	*gilesii*	1,200
Pittosporum	*angustifolium*	600
	Total	**34,800**

Figure 12: Seedlings growing at Chatfield's Tree Nursery for Offset Planting, taken 18th February 2020

In addition, seed was applied at a rate of 1.5kg per hectare to the paddocks. The seed required for the project (seed list in Table 2) was treated accordingly prior to application.

Table 6-3: Seed List for offset revegetation

Genus	Species	Genus	Species
Acacia	*acuminata (narrow)*	*Eucalyptus*	*longicornis*
Acacia	*aestivalis*	*Eucalyptus*	*salubris*
Acacia	*colletioides*	*Eucalyptus*	*yilgarnensis*
Acacia	*hemiteles*	*Grevillea*	*paradoxa*
Acacia	*lasiocalyx*	*Hakea*	*preissii*
Acacia	*longispinea*	*Hakea*	*recurva*
Acacia	*merallii*	*Hibbertia*	*exasperata*
Acacia	*microbotrya*	*Maireana*	*carnosa*
Acacia	*murrayana*	*Maireana*	*tomentosa*
Acacia	*prainii*	*Maireana*	*triptera*
Acacia	*ramulosa*	*Melaleuca*	*pauperiflora. ssp fastigiata*
Acacia	*steedmanii*	*Olearia*	*muelleri*
Acacia	*yorkrakinensis ssp acrita*	*Pittosporum*	*angustifolium*
Acacia	*coolgardiensis*	*Ptilotus*	*drummondii*
Acacia	*erinacea*	*Ptilotus*	*exaltatus (nobilis)*
Acacia	*tetragonophylla*	*Ptilotus*	*holosericeus*
Allocasuarina	*huegeliana*	*Santalum*	*acuminatum*
Calothamnus	*gilesii*	*Santalum*	*spicatum*
Dianella	*revoluta*	*Senna*	*artemesioides ssp filifolia*
Enchlylaena	*lanata*	*Senna*	*pleurocarpa var pleurocarpa*
Eremophila	*decipiens*	*Solanum*	*orbiculatum*
Eremophila	*resinosa*	*Templetonia*	*sulcata*
Eriochyton	*sclerolaenoides*	*Vittadinia*	*gracilis*

Rehabilitation of the 62.280 ha on Lot 162 commenced in 2021. To prepare the site prior to planting a weed spray and pest spray were completed. This included a glyphosate spray in April and then just before planting, in May, the area was sprayed with glyphosate and Bifenthrin (pest spray).

Direct seeding of the site commenced in late May 2021 utilising a CommVeg Direct Seeder. This machine is pulled along by a tractor and scalp, rip and sows in one pass. Room was left between each of the seeding rows for either access, seedling row, or *Eremophila Resinosa* direct seeding row. The seedlings were planted in June 2021 using the Chatfields Tree Planter. In July 2021, *Eremophila Resinosa* seed was planted using the Commveg direct seeder. At this time any remaining seedlings were planted using potti-putki in some of the seeded rows. Pest spray and selective herbicide sprays were applied in some of the seeded rows.

A selective broad leaf and grass herbicides were applied to the area in September. In November the site was sprayed with Fipronil to stop any grasshoppers feeding on the emergent natives.

Vegetation monitoring plots were established in the site in Spring 2021 to monitor the progress of the site.

Figure 13: Direct Seeding of Lot 162, May 2021, using the CommVeg Direct Seeder.

Figure 14: Planting of Seedlings in Lot 162, June 2021, using the Chatfields Tree Planter

Between the 8th to 10th June 2022, infill planting and seeding was completed in the southern 5ha section of the rehabilitation site (Table 6-4 & Table 6-5). A mix of acacia species was sown in between existing rows and supplemented with seedlings that were ordered for mine site rehabilitation which was delayed to the 2023 planting season.

Table 6-4: Species list of seedlings planted in Lot 162, June 2022

Genus	Species
Eucalyptus	*longicornis*
Eucalyptus	*salubris*
Eucalyptus	*salmonophloia*
Eucalyptus	*yilgarnensis*
Eucalyptus	*loxopheba*
Melaleuca	*pauperiflora. ssp fastigiata*
Melaleuca	*eleuterostachya*
Melaleuca	*lateriflora*

Table 6-5: Species list of seed sown into Lot 162, June 2022

Genus	Species
Acacia	*hemiteles*
Acacia	*microbotrya*
Acacia	*aestivalis*
Acacia	*merralli*

Further rehabilitation was completed during winter of the reporting period consisting of 17,600 seedlings from the same species list in Table 6-4. Seedlings were planted using the potti-putki. Seed was sowed during the ripping of the Lot 162 offset area in every second row.

Table 6: Species list of seed sown into Lot 162, Winter 2023

Genus	Species
Acacia	acuminata
Acacia	aestivalis
Acacia	colletioides
Acacia	hemiteles
Acacia	merralli
Acacia	microbotrya
Acacia	tetragonophylla
Acacia	yorkrakinensis ssp acrita
Eucalyptus	salubris
Pittosporum	angustifolium

Weed management during the period included spraying of the firebreaks and application of a grass selective herbicide across the whole site in March, April and August 2023. A pest spray was completed on the infill planting section in April 2023.

Figure 15: Photo of Lot 162 rehabilitation, April 2024

6.2 REMNANT 15HA BLOCK OF RED MORREL (LOT 162)

A requirement of the Offset Plan is the protection, management and improvement (interplanting, weed control) of a remnant 15ha block of Red Morrel on Lot 162. On July 2021, EMO planted out some of the bare areas within the block. This was completed by plantings seedlings with a potti-putki in rows prepared by the Chatfields tree planter. No new seedlings were planted in this section in the winter of 2023.

Figure 16: Seedling planted in the remnant 15ha block, July 2021. Picture taken April 2024

6.3 WESTONIA TOWN COMMON

The Westonia Town Common is made up of 15 remnant vegetation reserves that surround the Town of Westonia and is located next to the EMO Greenfinch Project. It covers approximately 2,500 ha and is an important reserve as it contains a large area of Eucalypt Woodlands of the Western Australian Wheatbelt TEC. A conservation management plan (CMP), Westonia Common Conservation Management Plan 2016-2021, has been developed to protect the reserve from threats including feral animals and weeds and preserve the site for the future (Eco Logical Australia 2016).

To assist the Shire of Westonia implement and achieve the objectives of the CMP, EMO provided $10,000 per year for two years from the start of the Greenfinch project. The first of these annual payments was made to the Shire of Westonia in July 2020 and the second payment was made in July 2021.

7. MONITORING AND COMPLETION CRITERIA

The farmland revegetation areas surrounding the mining project are monitored annually to assess their performance against completion criteria (Table 7-1 and Table 7-2). Analogue sites of remnant Eucalypt woodland vegetation are used as a benchmark. Monitoring is conducted on species richness, species diversity, plant density, vegetation cover, relative weed cover and presence of significant weeds.

Annual monitoring took place in October 2023 and used the Landscape Function Analysis method to determine ecosystem stability and health. The survey was completed by Botanica Consulting (2024) and the full report can be found in Appendix B.

Table 7-1: Completion Criteria for Flora/Vegetation in the farmland revegetation

Aspect	Closure Objectives	Closure Indicators	Completion Criteria	Management/ Measurement Approach
Flora/ Vegetation	Revegetation of disturbed areas are the best achievable with available rehabilitation resources and are rehabilitated using local provenance species to reflect the surrounding Westonia Common	Vegetation comprised of local provenance species in a self-sustaining and resilient community comparative to natural landscape	Vegetation cover (total percentage cover of live vegetation) and species density (total no. perennial plants) levels ≥50% of the mean value from the analogue sites in the target ecosystem[1]. Species diversity (total no. perennial species) levels ≥50% of the mean value from the analogue sites in the target ecosystem	Landscape/Vegetation monitoring on rehabilitated landforms and target ecosystems in Spring to measure biodiversity. Reporting of monitoring results annually in AER
		Weed species not impacting upon the recruitment and growth of indigenous flora	Percentage cover of weeds of National Significance (listed by DotEE) or Declared Plants (listed by DPIRD) on rehabilitated landforms no greater than 0%[2].	Weed monitoring during landscape/ vegetation monitoring and/ or WRL assessments. Management of weeds as per Weed Management Plan

[1] Completion criteria based on the minimum biodiversity and landscape function (critical threshold as described by Tongway & Hindley (2003) based on three successive years of monitoring data) at which a landform is self-sustaining (Beyond the critical threshold, the ecosystem becomes increasingly more self-sustaining and able to survive stress and disturbance, both natural and human induced the ecosystem becomes increasingly more self-sustaining and able to survive stress and disturbance, both natural and human induced (Tongway, & Hindley 2003). Will be compared against analogue site/s to ensure target biodiversity values are representative of the natural environment and consistent with the Westonia Common. Rehabilitation will be conducted using best practices for the site and will aim to achieve higher values than the minimum targets/ threshold specified.

[2] Completion criteria targets for weed coverage better than those that are based on published literature which suggests that weed cover (non-naturalised weeds) exceeding 40% impedes native vegetation growth. The target has been set at lower threshold to ensure weeds identified/ managed before native vegetation impacts occur

Table 7-2: Completion Criteria Targets

Completion Criteria	Completion Criteria Target
Species Diversity (400 m²)	>80% of the analogue mean
Plant Density (plants/ha)	50% of the analogue mean
Vegetation Cover (%)	50% of the analogue mean
Relative Weed Cover (%)	<20% of the analogue mean
Weeds of National Environmental Significance (%)	<0%
Declared Plants (%)	<0%

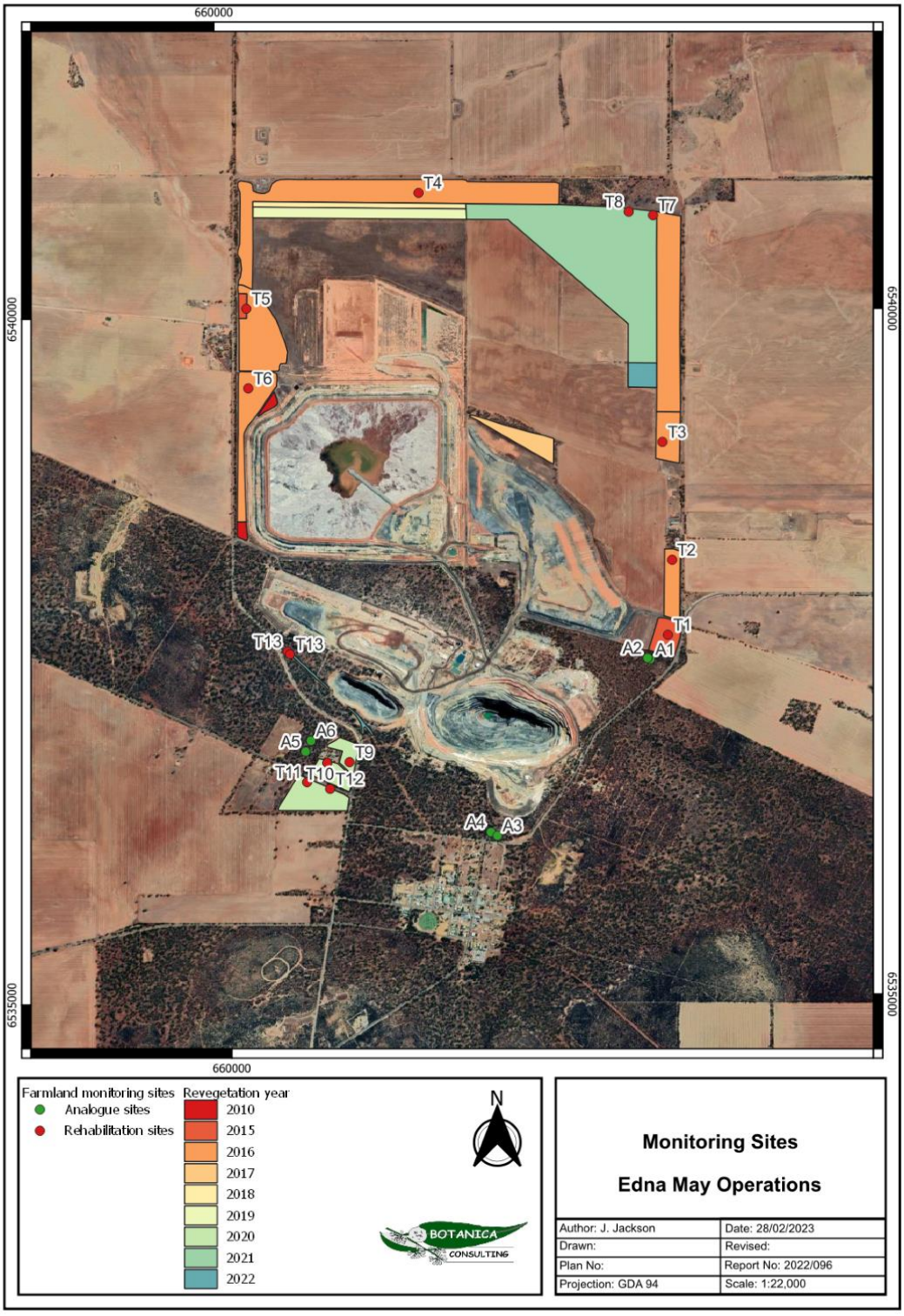


Figure 17: Farmland Rehabilitation and Vegetation Monitoring Transect Locations (Botanica 2024)

7.1 LOT 162 MONITORING

At Lot 162 there are two transects which were installed in 2021, T7 & T8. Results against completion criteria are presented in Table 7-3. All measures rated poorly, and weed presence was high, however no WoNS or declared plants were recorded (Botanica 2024).

Infill planting was completed over the course of winter 2023. It is expected that once the vegetation cover increases over time the weed cover will reduce. Selective herbicide spraying has and will continue to be undertaken where possible to control weeds and encourage native vegetation cover and growth.

Table 7-3: Assessment of Lot 162, transect 7-8, against completion criteria for 2023 monitoring (Botanica 2024)

	Plant Density (m^2)	Species Richness ($25m^2$)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
=	1.3	6.4	31	0	0%	0%
T7	0.1	2	2	98	0	0
T8	0.4	2	2	95	0	0

7.2 LOT 1578 MONITORING

At Lot 1578 there are two transects installed in the northern paddock, T9 & T10, and two transects in the southern paddock, T11 & T12. A total of 16 taxa were recorded within the transects, 12 of these were native plants, and 4 weed species were present. Species richness had increased slightly from previous years and plant density had also increased slightly. Vegetation cover has increased since previous years, while weed cover had decreased. T9 and T10 met the completion criteria target for plant density (m^2), T10 met the completion criteria for species richness ($25m^2$) and vegetation cover (%). All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 7-4). Relative weed cover has decreased compared to the 2022 monitoring results. Weedy grasses were dominant at T10, T11 as well as T12, likely originating from wind blown seed from adjacent agricultural areas.

Table 7-4: Assessment of Lot 1578, transect 9-12, against completion criteria for 2023 monitoring (Botanica 2024)

	Plant Density (m^2)	Species Richness ($25m^2$)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
=	1.3	6.4	31	0	0%	0%
T9	3.2	6	30	71	0	0
T10	2.4	7	33	2.6	0	0
T11	0.6	4	27	56.5	0	0
T12	0.2	3	11	56.4	0	0

7.3 WARRACHUPPIN ROAD REHABILITATION

Transects at this site were established in November 2022. This is the second year of monitoring. Results against completion criteria are presented in table Table 7-5 which show that the site met completion criteria for plant density, however these numbers were high due to the presence of more than 50 Acacia seedlings. The site vegetation cover (%) had increased in comparison to the 2022 monitoring along with weed cover. No WoNS or declared plants were recorded.

Table 7-5: Assessment of Warrachuppin road, transect 13, against completion criteria for 2023 monitoring (Botanica 2024)

	Plant Density (m^2)	Species Richness ($25m^2$)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
=	1.3	6.4	31	0	0%	0%
T13	2.8	3	36	15.5	0	0

8. WEED MANAGEMENT

Weed management is undertaken at the Edna May Project to minimise the adverse impacts from weeds on the environment including local fauna and flora communities. EMO has a Flora Management Plan and Fauna Management plan which provides a management framework for the implementation, monitoring and review of actions which specifically aims to:

- Maintain the abundance, diversity, geographic distribution and productivity of terrestrial flora at species and ecosystem levels.
- Protect and minimise impact to DRF and Priority Flora located within the Edna May Operations leases.
- Disturb land only within approved clearing envelopes.
- Ensure that land rehabilitation is implemented progressively.

Note that the Weed and Vertebrate Pest Management Plan which was previously referenced has been retired in 2023 and details and management actions have been incorporated into the Flora Management Plan and Fauna Management Plan.

Activities completed during the reporting period have included:

- Inspections of Mining and surrounding areas for the presence of weeds.
- Specific weed control activities to control populations of Ruby dock (*Acetosa vesicaria*) and Skeleton weed (*Chondrilla juncea*).
- Mapping of significant weed populations in GIS (Figure 18).
- Reporting of Skeleton weed monitoring and control to DPIRD.
- Inspection of earthmoving equipment to ensure they are clean and free of soil material before entering site and undertaking clearing activities.

- Control of weeds and grasses in Offset Rehabilitation areas to ensure successful revegetation to Eucalypt woodland

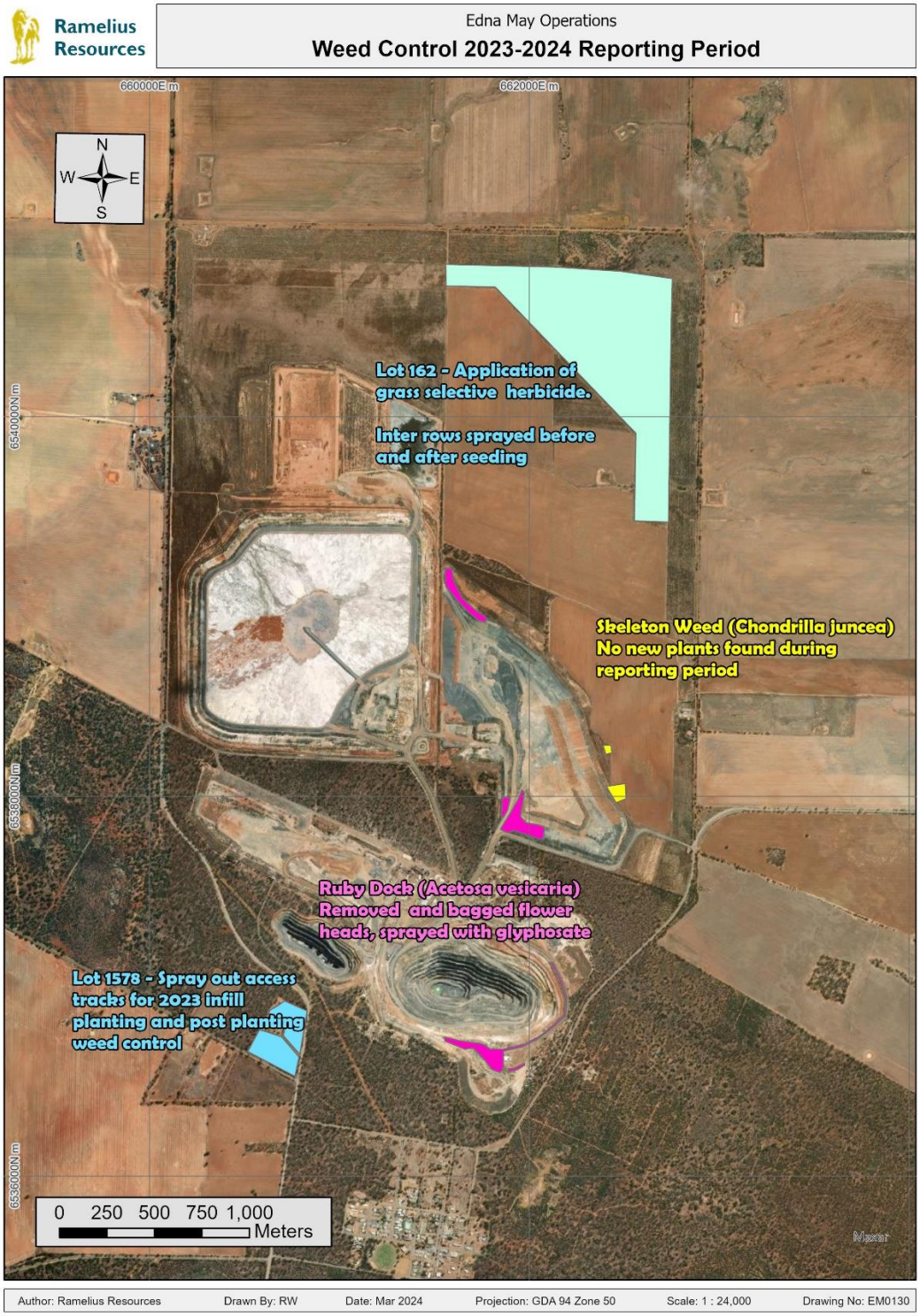


Figure 18: Weed Management completed during the 2023-2024 reporting period.

9. FAUNA MANAGEMENT

To protect native fauna and control feral animals at the project EMO have continued to implement their Fauna Management Plan. The objectives of the management plan are to:

- Maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels.
- Minimise impacts to fauna habitats.
- Adopt practices aimed at minimising impacts on fauna, including controlling the extent of open excavations; regularly checking areas where animals could become trapped; actively managing features such as water storages, domestic waste storages, processing water storage, tailings supernatant pond and lighting which may attract fauna.
- Disturb land only within approved clearing envelopes.
- Ensure that land rehabilitation is implemented progressively.

Actions implemented during the reporting period to Manage Fauna onsite have included:

- Adhering to all clearing and ground disturbance permits by following all internal related procedures.
- Recording sightings of any species of conservation significance and feral animals on the mining lease.
- Relocation of snakes and reptiles from work areas by trained personnel.
- Injured fauna or deaths have been reported to the Environment department and treated as appropriate.
- Ensuring landfill waste is regularly covered to prevent attracting feral fauna.
- Managing and monitoring dust onsite.
- Monitoring levels of cyanide (CN) in the TSF decant and recording fauna sightings in the TSF.
- Regularly monitoring sumps and water storage dams to ensure adequate egress points are in place and there is no trapped fauna.

10. RECORD KEEPING

EMO maintains accurate records of all monitoring, inspections, and other environmental management activities that occur on site. EMO utilises the INX InControl management system to store and manage all records, inspections, hazards and incidents. Environmental monitoring data that is collected is uploaded to MonitorPro database for safe storage and to ensure compliance. All other records are maintained and backed up on the site servers. EMO can provide records including spatial data to the department for audits if requested.

11. INSPECTIONS AND AUDITS

11.1 INTERNAL

A coordinated internal inspection programme is completed by Environmental Department personnel with assistance from operational personnel. Key operational areas of the site are inspected for compliance with licence requirements such as clearing and waste management. Inspection documentation is recorded along with supporting photos. Inspections are scheduled on a weekly, monthly or quarterly basis dependent on the area and regulatory requirements. A monitoring schedule is completed for each calendar year so that all activities can be captured.

11.2 EXTERNAL

External independent audits may be required to ensure that EMO is within compliance of all the conditions of the approval. No external audits have been completed nor requested during the reporting period.

An independent review is required five years from the commencement of the rehabilitation activities and the audits are due to be completed in 2025, 2030 and 2035. The purpose of the reviews will be to determine if the performance indicators and completion criteria as described in the Rehabilitation Offset Plan have been met.

To verify that rehabilitation areas have reached completion criteria, comprise self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt TEC, an audit report is to be completed by and independent and suitably qualified expert. This audit is to be completed 20 years from the commencement of rehabilitation activities and will be due to be completed in 2041.

12. COMPLIANCE

12.1 COMPLIANCE TABLE

Number	Condition	Compliance	Comments
Part A – Conditions specific to the action			
1	To minimise impacts to EPBC Act listed species and ecological communities, the approval holder must not clear more than 16.6 hectares of native vegetation within the Clearing Permit Area. Within the Clearing Permit Area the approval holder must not clear more than the following:	Compliant	EMO has cleared a total of 11.5 ha of the native vegetation within the clearing permit. No clearing was completed during the reporting period. For more information refer to Section 3
1a	9.3 ha of Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community; and	Compliant	EMO has cleared a total of 7.556 ha of the Eucalypt Woodlands within the clearing permit area. No clearing was completed during the reporting period. For more information refer to Section 3
1b	9.3 ha of foraging habitat and no more than 38 potential breeding trees for the Carnaby's Black Cockatoo.	Compliant	EMO has cleared a total of 7.556 ha of foraging habitat for the Carnaby's Black Cockatoo within the clearing permit area. EMO has cleared 14 potential breeding trees for the Carnaby's Black Cockatoo within the clearing permit area. No clearing was completed during the reporting period. For more information refer to Section 3.
2	To minimise the impacts of fragmentation on the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community, the approval holder must retain and maintain the two corridors of native vegetation shown as '40m wide corridor' and '50m wide corridor' in Attachment A. The approval holder must maintain these corridors as self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community, integrated with Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community in the surrounding ecosystem. The '40m wide corridor' must be maintained so as to be at least 40 metres wide at its narrowest point for the life of the approval. The '50m wide corridor' must be maintained so as to be at least 50 metres wide at its narrowest point for the life of the approval.	Compliant	EMO has retained and maintained the two corridors of native vegetation shown as '40m wide corridor' and '50m wide corridor' in Attachment A. The Width of the corridors exceeds the narrowest widths of 40m and 50m. For more information refer to Section 4.

Number	Condition	Compliance	Comments
3	To minimise the impacts of clearing, fragmentation and edge effects on the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community and foraging habitat and potential breeding trees for the Carnaby's Black Cockatoo, the approval holder must rehabilitate at least 1.9 hectares identified as 'Rehabilitation Areas (1.9ha)' in Attachment C. The rehabilitation must establish and maintain self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community in the Rehabilitation Areas, integrated with the surrounding Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community within ten years of the commencement of rehabilitation activities. In order to meet this objective, the approval holder must:	Compliant	EMO commenced rehabilitation activities of the area identified as 'Rehabilitation Areas (1.9ha)' in July 2021. The total 'Rehabilitation Areas' will be smaller than 1.9ha as EMO has managed to develop the project within a smaller disturbance than that which was approved. An access road to construct the abandonment bund to the west of the pit was not required. The total area of rehabilitation to complete is 1.06 ha. EMO has ripped the road in 2021 and sown local provenance seed and planted seedlings in June 2022.
3a	Rehabilitate the Rehabilitation Areas using species representative of the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community;	Compliant	EMO planted the area in June 2022. Seedlings and seed, representative of the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community, were used.
3b	Commence rehabilitation activities in all Rehabilitation Areas within twelve months of the completion of construction of the abandonment bund;	Compliant	Construction of the west and south section of the abandonment bund was completed in December 2020. EMO commenced rehabilitation activities in July 2021.
3c	Implement sufficient monitoring and management of the Rehabilitation Areas to a standard that will ensure that the objective of condition 3 is met within ten years of the commencement of rehabilitation activities;	Compliant	EMO commenced rehabilitation activities in 2021 and the area planted in 2022. Vegetation monitoring plots were installed in November 2022. Annual monitoring will be completed, and a report prepared by a qualified consultant. For details on this year's monitoring refer to Section 7.3
3d	Provide, within eleven years from the commencement of rehabilitation activities, a report prepared by an independent and suitably qualified expert verifying that the rehabilitation areas comprise self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community; and	Not Applicable	
3e	Continue the same standard of monitoring and management of the Rehabilitation Areas until the Department advises in writing that it has reviewed and accepts the report of the independent and suitably qualified expert.	Not Applicable	
4	To minimise the impacts of weeds on the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community,	Compliant	EMO has implemented the "Weed and Vertebrate Pest Management Plan" during the reporting period.

Number	Condition	Compliance	Comments
	foraging habitat and potential breeding trees for the Carnaby's Black Cockatoo, the approval holder must implement the Weed and Vertebrate Pest Management Plan from the commencement of the action for the life of the approval.		Note that the Weed and Vertebrate Pest Management Plan which was previously referenced has been retired in March 2023 and details and management actions have been incorporated into the Flora Management Plan and Fauna Management Plan. For more information on management activities and compliance with the "Weed and Vertebrate Pest Management Plan" strategies refer to Section 8.
5	To minimise the impacts of predation by feral animals on the Carnaby's Black Cockatoo, the approval holder must implement the Fauna Management Plan from the commencement of the action for the life of the approval.	Compliant	EMO has implemented the "Fauna Management Plan" during the reporting period. For more information on management activities and compliance with the "Fauna Management Plan" strategies refer to Section 9.
6a	To compensate for the residual significant impact on the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community, the approval holder must: Rehabilitate, to establish and maintain self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheat belt Threatened Ecological Community on 70 ha comprising the portions of Lots 161 and 162 shaded in dark blue in Attachment D;	Compliant	EMO Rehabilitated 62.280 ha of farmland and began improvements on 15ha remnant block of Red morrel in 2021 within Lot 162. The farmland rehabilitation area does not match that highlighted in dark blue in Attachment D of the approval. See section 6.1.2 for more detail. For more information on planning and schedule of rehabilitation works refer to Section 6.
6b	rehabilitate, to establish and maintain self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community on 15 ha comprising the portions of Lot 1578 shaded in dark blue in Attachment D; and	Not Applicable	EMO has completed rehabilitation of Lot 1578. Ongoing monitoring and management activities will occur to achieve a self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community.
6c	provide $10,000 per year for two years from the commencement of the action (indexed to the National Consumer Price Index value in 2019) to the Shire of Westonia for the purpose of funding activities in the Westonia Common Management Plan 2016-2020 and subsequent versions. The first payment must be made within six months from the commencement of the action.	Compliant	On the 7th of July 2020, EMO provided $10,000 to the Shire of Westonia for the purpose of funding activities in the Westonia Common Management Plan 2016-2020. The second payment was made in July 2021.
7	To provide for the establishment and ongoing management of the compensatory measures described in condition 6a and 6b, the approval	Compliant	EMO began implementing the Rehabilitation Offset Plan in 2020, within 12 months of the commencement of the action.

Number	Condition	Compliance	Comments
	holder must implement the Rehabilitation Offset Plan within 12 months of the commencement of the action. The purpose of the Rehabilitation Offset Plan will be to establish and maintain a self-sustaining native vegetation cover that is representative of the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community within twenty years from the commencement of rehabilitation activities. In addition the approval holder must:		
7a	Commence rehabilitation activities in the offset areas described in Attachment C within 18 months of the date of this approval;	Compliant	EMO commenced rehabilitation works in the offset area, LOT 1578, in 2020 which was within 18 months of the date of this approval.
7b	Undertake a review by an independent and suitably qualified expert at five years, ten and fifteen years from the commencement of the rehabilitation activities. The purpose of the reviews will be to determine if the performance indicators and completion criteria as described in the Rehabilitation Offset Plan have been met. The approval holder must provide the results of each review to the Department within five months of the completion of each review;	Not Applicable	Independent review is not required until 5 years from the commencement of the rehabilitation activities. Audits are due to be completed in 2025, 2030 & 2035. Annual vegetation monitoring is completed and a report prepared by a qualified consultant comparing performance to the criteria. Refer to Section 7 for more details.
7c	Provide to the Department details of corrective actions, including triggers and timeframes for the implementation of corrective actions, that will be undertaken by the approval holder in the event that the reviews undertaken under condition 7b show that rehabilitation activities are not meeting the performance indicators and completion criteria as described in the Rehabilitation Offset Plan;	Not Applicable	
7d	Provide the Department, within twenty years from the commencement of rehabilitation activities, a report prepared by an independent and suitably qualified expert verifying that the rehabilitation areas comprise self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community;	Not Applicable	EMO commenced rehabilitation activities in 2020. Verification report is not yet required
7e	Continue the same standard of monitoring and management of the rehabilitation areas identified in Attachment C until the Department advises in writing that it has reviewed and accepts the report of the independent and suitably qualified expert; and	Not Applicable	
7f	Within 12 months of the advice notification in condition 7e, provide the Department with	Not Applicable	EMO commenced rehabilitation activities in 2020. Verification report is not yet required.

Number	Condition	Compliance	Comments
	written evidence for the legal protection of the rehabilitation offset described in conditions 6a and 6b in perpetuity (for example, through a covenant agreed with the Western Australian Department of Biodiversity, Conservation and Attractions).		Initial discussions with DBCA in 2020 indicated that their covenant agreement is not suitable to the rehabilitation offset areas. EMO have approached the National Trust in Jan 2023 to protect the areas through their covenant agreement. The feedback was positive, although they would not consider entering into an agreement until the completion criteria were met. EMO will conduct further discussions with National Trust after receiving the initial audit report due in 2025.
Part B – Standard administrative conditions			
Notification of date of commencement of the action			
8	The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action.	Compliant	EMO provided notice to the Department on the 23rd of January 2020 that they will be commencing the action.
Compliance records			
9	The approval holder must maintain accurate and complete compliance records.	Compliant	EMO is maintaining accurate and complete compliance records. Data is stored and backed up on the site server or databases.
10	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.	Not Applicable	The Department have not requested copies of compliance records. Records are available if requested.
Preparation and publication of plans			
11a	The approval holder must: submit plans electronically to the Department for approval by the Minister;	Compliant	Plans were submitted to the Department and approved by the Minister on the 22/1/2020.
11b	publish each plan on the website within 20 business days of the date the plan is approved by the Minister or of the date a revised action management plan is submitted to the Minister or the Department, unless otherwise agreed to in writing by the Minister;	Compliant	Plans are published and available on the Ramelius website: • Flora Management Plan • Offset Rehabilitation Plan • Fauna Management Plan The Offset Rehabilitation Plan was revised in 2021 to update the shape of the 75ha offset revegetation area. The updated plan was submitted to the Department and uploaded to the Ramelius website in 2022. The Weed and Vertebrate Pest Management Plan which was previously referenced has been retired in March 2023 and details and

Number	Condition	Compliance	Comments
			management actions have been incorporated into the Flora Management Plan and Fauna Management Plan. The updated Plans are on the Ramelius Resources website.
11c	exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public; and	Compliant	No sensitive ecological data is published in the plans available on the website
11d	keep plans published on the website until the end date of this approval.	Compliant	Plans are published and available on the Ramelius website: • Flora Management Plan • Offset Rehabilitation Plan • Fauna Management Plan
12	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under a plan is prepared in accordance with the Department's Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department in accordance with the requirements of the plan.	Not Applicable	Plans do not require monitoring data to be submitted to the Department.
Annual compliance reporting			
13	The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder must:	Compliant	Compliance Report completed for 12-month period 24th January 2023 to 23rd January 2024
13a	publish each compliance report on the website within 60 business days following the relevant 12 month period;	Compliant	EMO will publish this report on the Ramelius website within 60 business days
13b	notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within five business days of the date of publication;	Compliant	EMO will notify the department and provide a weblink within five business days of this report's publication
13c	keep all compliance reports publicly available on the website until this approval expires;	Compliant	EMO will publish this report and make all compliance reports available on the Ramelius website until the approval expires
13d	exclude or redact sensitive ecological data from compliance reports published on the website; and	Compliant	EMO has not included any sensitive ecological data in this report
13e	where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within 5 business days of publication.	Not Applicable	No sensitive ecological data was included or excluded from this report.
Reporting non-compliance			

Number	Condition	Compliance	Comments
14	The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:	Not Applicable	EMO is not aware of any incident; non-compliance with the conditions; or non-compliance with the commitments made in plans
14a	any condition which is or may be in breach;	Not Applicable	
14b	a short description of the incident and/or non-compliance; and	Not Applicable	
14c	the location (including co-ordinates); date, and time of the incident and/or non-compliance. In the event the exact. information cannot be provided, provide the best information available	Not Applicable	
15	The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:	Not Applicable	
15a	any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;	Not Applicable	
15b	the potential impacts of the incident or non-compliance; and	Not Applicable	
15c	the method and timing of any remedial action that will be undertaken by the approval holder.	Not Applicable	
Independent Audit			
16	The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister.	Not Applicable	The Minister has not requested from EMO an independent audit of compliance with the conditions.
17a	For each independent audit, the approval holder must: provide the name and qualifications of the independent auditor and the draft audit criteria to the Department;	Not Applicable	
17b	only commence the independent audit once the audit criteria have been approved in writing by the Department; and	Not Applicable	
17c	submit an audit report to the Department within the timeframe specified in the approved audit criteria.	Not Applicable	
18	The approval holder must publish the audit report on the website within 10 business days	Not Applicable	

Number	Condition	Compliance	Comments
	of receiving the Department's approval of the audit report and keep the audit report published on the website until the end date of this approval.		
Completion of the action			
19	Within 30 days after the completion of the action, the approval holder must notify the Department in writing and provide completion data.	Not Applicable	EMO has not completed the action.

12.2 NON COMPLIANCES

EMO has complied with all applicable conditions of the licence.

13. NEW ENVIRONMENTAL RISKS

EMO is unaware of any new risks which may impact the achievement of the approval conditions or pose a risk to the Environment in the project area.

The success of plantings established will depend on factors including weather and control of weeds. Weed management in the few years post planting will be critical to survival of plants and ensure progression to establishing self-sustaining and fully functioning Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community.

14. FUTURE WORKS PLAN

No specific rehabilitation works are currently planned for next year. Monitoring and implementation of management plans will continue.

15. REFERENCES

Botanica Consulting (2024). *Edna May Project Farmland and Offset Rehabilitation Monitoring Report 2023*. Unpublished report prepared for Ramelius Resources Ltd.

Eco Logical Australia (2016). *Westonia Common Conservation Management Plan 2016-2021*. Prepared for Shire of Westonia

Harewood (2018). *Targeted Survey Search of Carnaby's black cockatoo.* Unpublished report prepared for Ramelius Resources Ltd.

16. APPENDICES

Appendix A: EPBC Act Proposal Approval Decision and Conditions – EPBC 2018/8213

PROPOSED APPROVAL

Edna May Gold Project Expansion – Greenfinch Pit, Western Australia (EPBC 2018/8213)

This decision is made under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*. Note that section 134(1A) of the **EPBC Act** applies to this approval, which provides in general terms that if the approval holder authorises another person to undertake any part of the action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such condition.

Details

Person to whom the approval is granted (approval holder)	Edna May Operations Pty Ltd
ACN or ABN of approval holder	136 365 001
Action	Clearing of vegetation for the expansion of the existing Edna May Gold Project including the establishment of an open pit (the 'Greenfinch pit'), storage of non-reactive waste rock in an expanded North-North West waste rock landform, buttressing of an existing Tailings Storage Facility, development of a noise abandonment bund and construction of a haul road, site drainage works and storage of topsoil approximately 1 km north of Westonia, Western Australia [See EPBC Act referral 2018/8213].

Proposed Approval decision

My decision on whether or not to approve the taking of the action for the purposes of the controlling provision for the action is as follows.

Controlling Provisions

Listed Threatened Species and Communities	
Section 18	Approve
Section 18A	Approve

Period for which the approval has effect

This approval has effect until 30 December 2039.

Decision-maker

Name and position	Declan O'Connor-Cox Acting Assistant Secretary Environment Approvals Division Department of the Environment and Energy
Signature	
Date of decision	22/1/2020

Conditions of approval

This approval is subject to the conditions under the EPBC Act as set out in ANNEXURE A.

ANNEXURE A – CONDITIONS OF APPROVAL

Part A – Conditions specific to the action

1. To minimise impacts to **EPBC Act listed species and ecological communities**, the approval holder must not clear more than 16.6 hectares of native vegetation within the **Clearing Permit Area**. Within the **Clearing Permit Area** the approval holder must not clear more than the following:

    a. 9.3 ha of **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**; and

    b. 9.3 ha of **foraging habitat** and no more than 38 **potential breeding trees for the Carnaby's Black Cockatoo**.

2. To minimise the impacts of fragmentation on the **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**, the approval holder must retain and maintain the two corridors of native vegetation shown as '40m wide corridor' and '50m wide corridor' in Attachment A. The approval holder must maintain these corridors as self-sustaining and fully functioning **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**, integrated with **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** in the surrounding ecosystem. The '40m wide corridor' must be maintained so as to be at least 40 metres wide at its narrowest point for the **life of the approval**. The '50m wide corridor' must be maintained so as to be at least 50 metres wide at its narrowest point for the **life of the approval**.

3. To minimise the impacts of clearing, fragmentation and edge effects on the **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** and **foraging habitat** and **potential breeding trees for the Carnaby's Black Cockatoo,** the approval holder must rehabilitate at least 1.9 hectares identified as 'Rehabilitation Areas (1.9ha)' in Attachment C. The rehabilitation must establish and maintain self-sustaining and fully functioning **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** in the Rehabilitation Areas, integrated with the surrounding **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** within ten years of the commencement of rehabilitation activities. In order to meet this objective, the approval holder must:

    a. Rehabilitate the Rehabilitation Areas using species representative of the **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**;

    b. Commence rehabilitation activities in all Rehabilitation Areas within twelve months of the completion of construction of the abandonment bund;

    c. Implement sufficient monitoring and management of the Rehabilitation Areas to a standard that will ensure that the objective of condition 3 is met within ten years of the commencement of rehabilitation activities;

    d. Provide, within eleven years from the commencement of rehabilitation activities, a report prepared by an **independent and suitably qualified expert** verifying that the rehabilitation areas comprise self-sustaining and fully functioning **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community;** and

    e. Continue the same standard of monitoring and management of the Rehabilitation Areas until the **Department** advises in writing that it has reviewed and accepts the report of the **independent and suitably qualified expert**.

4. To minimise the impacts of **weeds** on the **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community, foraging habitat** and **potential breeding trees for the Carnaby's Black Cockatoo**, the approval holder must implement the **Weed and Vertebrate Pest Management Plan** from the **commencement of the action** for the **life of the approval**.

5. To minimise the impacts of predation by **feral animals** on the **Carnaby's Black Cockatoo**, the **approval holder** must implement the **Fauna Management Plan** from the **commencement of the action** for the **life of the approval**.

6. To compensate for the residual significant impact on the **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**, the approval holder must:

   a. Rehabilitate, to establish and maintain self-sustaining and fully functioning **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** on 70 ha comprising the portions of Lots 161 and 162 shaded in dark blue in Attachment D;

   b. rehabilitate, to establish and maintain self-sustaining and fully functioning **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** on 15 ha comprising the portions of Lot 1578 shaded in dark blue in Attachment D; and

   c. provide $10,000 per year for two years from the **commencement of the action** (indexed to the National Consumer Price Index value in 2019) to the Shire of Westonia for the purpose of funding activities in the **Westonia Common Management Plan 2016-2020** and subsequent versions. The first payment must be made within six months from the **commencement of the action**.

7. To provide for the establishment and ongoing management of the compensatory measures described in condition 6a and 6b, the approval holder must implement the **Rehabilitation Offset Plan** within 12 months of the **commencement of the action**. The purpose of the **Rehabilitation Offset Plan** will be to establish and maintain a self-sustaining native vegetation cover that is representative of the **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community** within twenty years from the commencement of rehabilitation activities.

   In addition the approval holder must:

   a. Commence rehabilitation activities in the offset areas described in Attachment C within 18 months of the date of this approval;

   b. Undertake a review by an **independent and suitably qualified expert** at five years, ten and fifteen years from the commencement of the rehabilitation activities. The purpose of the reviews will be to determine if the performance indicators and completion criteria as described in the **Rehabilitation Offset Plan** have been met. The approval holder must provide the results of each review to the **Department** within five months of the completion of each review;

   c. Provide to the **Department** details of corrective actions, including triggers and timeframes for the implementation of corrective actions, that will be undertaken by the approval holder in the event that the reviews undertaken under condition 7b show that rehabilitation activities are not meeting the performance indicators and completion criteria as described in the **Rehabilitation Offset Plan**;

   d. Provide the **Department,** within twenty years from the commencement of rehabilitation activities, a report prepared by an **independent and suitably qualified expert** verifying that

the rehabilitation areas comprise self-sustaining and fully functioning **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**;

e. Continue the same standard of monitoring and management of the rehabilitation areas identified in Attachment C until the **Department** advises in writing that it has reviewed and accepts the report of the **independent and suitably qualified expert**; and

f. Within 12 months of the advice notification in condition 7e, provide the **Department** with written evidence for the legal protection of the rehabilitation offset described in conditions 6a and 6b in perpetuity (for example, through a covenant agreed with the **Western Australian Department of Biodiversity, Conservation and Attractions**).

Part B – Standard administrative conditions

Notification of date of commencement of the action

8. The approval holder must notify the **Department** in writing of the date of **commencement of the action** within 10 **business days** after the date of **commencement of the action**.

Compliance records

9. The approval holder must maintain accurate and complete **compliance records**.

10. If the **Department** makes a request in writing, the approval holder must provide electronic copies of **compliance records** to the **Department** within the timeframe specified in the request.

Note: **Compliance records** may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the **Department**'s website or through the general media.

Preparation and publication of plans

11. The approval holder must:

    a. submit **plans** electronically to the **Department** for approval by the **Minister**;

    b. publish each **plan** on the **website** within 20 **business days** of the date the **plan** is approved by the **Minister** or of the date a revised action management plan is submitted to the **Minister** or the **Department**, unless otherwise agreed to in writing by the **Minister**;

    c. exclude or redact **sensitive ecological data** from **plans** published on the **website** or provided to a member of the public; and

    d. keep **plans** published on the **website** until the end date of this approval.

12. The approval holder must ensure that any **monitoring data** (including **sensitive ecological data**), surveys, maps, and other spatial and metadata required under a **plan** is prepared in accordance with the **Department's** *Guidelines for biological survey and mapped data* (2018) and submitted electronically to the **Department** in accordance with the requirements of the **plan**.

Annual compliance reporting

13. The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the action**, or otherwise in accordance with an annual date that has been agreed to in writing by the **Minister**. The approval holder must:

    a. publish each **compliance report** on the **website** within 60 **business days** following the relevant 12 month period;

    b. notify the **Department** by email that a **compliance report** has been published on the **website** and provide the weblink for the **compliance report** within five **business days** of the date of publication;

c. keep all **compliance reports** publicly available on the **website** until this approval expires;

d. exclude or redact **sensitive ecological data** from **compliance reports** published on the **website**; and

e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **Department** within 5 **business days** of publication.

Note: **Compliance reports** may be published on the **Department**'s website.

Reporting non-compliance

14. The approval holder must notify the **Department** in writing of any: **incident;** non-compliance with the conditions; or non-compliance with the commitments made in **plans**. The notification must be given as soon as practicable, and no later than two **business days** after becoming aware of the **incident** or non-compliance. The notification must specify:

    a. any condition which is or may be in breach;

    b. a short description of the **incident** and/or non-compliance; and

    c. the location (including co-ordinates), date, and time of the **incident** and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.

15. The approval holder must provide to the **Department** the details of any **incident** or non-compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 10 **business days** after becoming aware of the **incident** or non-compliance, specifying:

    a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;

    b. the potential impacts of the **incident** or non-compliance; and

    c. the method and timing of any remedial action that will be undertaken by the approval holder.

Independent audit

16. The approval holder must ensure that **independent audits** of compliance with the conditions are conducted as requested in writing by the **Minister**.

17. For each **independent audit**, the approval holder must:

    a. provide the name and qualifications of the independent auditor and the draft audit criteria to the **Department**;

    b. only commence the **independent audit** once the audit criteria have been approved in writing by the **Department**; and

    c. submit an audit report to the **Department** within the timeframe specified in the approved audit criteria.

18. The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **Department's** approval of the audit report and keep the audit report published on the **website** until the end date of this approval.

Completion of the action

19. Within 30 days after the **completion of the action**, the approval holder must notify the **Department** in writing and provide **completion data**.

Part C - Definitions

In these conditions, except where contrary intention is expressed, the following definitions are used:

Business day means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.

Carnaby's Black Cockatoo means the **EPBC Act** listed Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*).

Clearing means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation.

Clearing Permit Area is the Clearing Permit Area identified in Attachment A.

Commencement of the action means the first instance of any specified activity associated with the action including clearing of vegetation and **construction** of any infrastructure. **Commencement of the action** does not include minor physical disturbance necessary to:

i. undertake pre-clearance surveys or monitoring programs;

ii. install signage and /or temporary fencing to prevent unapproved use of the project area;

iii. protect environmental and property assets from fire, weeds and pests, including **use** of existing surface access tracks; and

iv. install temporary site facilities for persons undertaking pre-commencement activities so long as these are located where they have no impact on the **protected matters**.

Completion criteria means, but may not be limited to, the completion criteria to be achieved at ten years from the commencement of rehabilitation activities identified in the Edna May Operations Offset Rehabilitation Plan provided to the Department on 4 November 2019.

Completion data means an environmental report and spatial data clearly detailing how the conditions of this approval have been met. The **Department**'s preferred spatial data format is **shapefile**.

Completion of the action means all specified activities associated with the action have permanently ceased.

Compliance records means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.

Compliance reports means written reports:

i. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans**;

ii. consistent with the **Department's** *Annual Compliance Report Guidelines* (2014);

iii. include a **shapefile** of any clearance of any **protected matters**, or their habitat, undertaken within the relevant 12 month period; and

iv. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.

Construction means the erection of a building or structure that is or is to be fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; preliminary site preparation work which involves breaking of the ground (including pile driving); the laying of pipes and other prefabricated materials in the ground, and any associated excavation work; but excluding the installation of temporary fences and signage.

Department means the Australian Government agency responsible for administering the **EPBC Act**.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

EPBC Act listed species and ecological communities means the **EPBC Act** listed **Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community**, Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) and **Resinous Eremophila** (*Eremophila resinosa*).

EPBC Regulations means the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth).

Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community means the **EPBC Act** listed Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community.

Fauna Management Plan means the *Fauna Management Plan* provided to the Department as part of preliminary documentation on 9 October 2019.

Feral animals includes, but may not be limited to, Red Fox (*Vulpes vulpes*), European Rabbit (*Oryctolagus cuniculus*), Cat (*Felis catus*) and Wild Dog (*Canis lupus familaris*)

Foraging habitat for the Carnaby's Black Cockatoo means the **EPBC Act** listed Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community.

Incident means any event which has the potential to, or does, impact on one or more **protected matter(s)**.

Independent and suitably qualified expert means a person that:

a. does not have, an individual or by employment or family affiliation, any conflicting or competing interests with the approval holder; the approval holder's staff, representatives or associated persons; or the project, including any personal, financial, business or employment relationship, other than receiving payment for undertaking the role for which the condition requires an independent expert;

b. has professional qualifications relevant to the **protected matter(s)**;

c. is a recognised expert, supported by relevant peer reviewed publications, regarding the **protected matter(s)**; and

d. has at least 7 years of experience designing and undertaking surveys relevant to the **protected matter(s)**.

Independent audit: means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2015).

Life of the approval means the period for which the approval has effect.

Monitoring data means the data required to be recorded under the conditions of this approval.

Minister means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.

Performance indicators means, but may not be limited to, the performance indicators to be achieved at five years from the commencement of rehabilitation activities identified in the Edna May Operations Offset Rehabilitation Plan provided to the Department on 4 November 2019.

Plan(s) means any of the documents required to be prepared, approved by the **Minister**, and/or implemented by the approval holder and published on the **website** in accordance with these conditions (includes action management plans and/or strategies).

Potential breeding trees for the Carnaby's Black Cockatoo means the breeding habitat for Carnaby's Black Cockatoo identified in Attachment B.

Protected matter means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Rehabilitation Offset Plan means the EMO Offset Rehabilitation Plan provided to the Department as part of the preliminary documentation on 9 October 2019 and any subsequent revisions as approved by the **Department**.

Resinous Eremophila means the **EPBC Act** listed Resinous Eremophila (*Eremophila resinosa*).

Sensitive ecological data means data as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0.*

Shapefile means location and attribute information of the action provided in an Esri shapefile format. Shapefiles must contain '.shp', '.shx' , '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. Shapefiles must also include an '.xml' metadata file that describes the shapefile for discovery and identification purposes.

Species representative of the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community means Salmon Gum (*Eucalyptus salmonophloia*), Red Morrell (*Eucalyptus longicornis*) and Gimlet (*Eucalyptus salubris*) and/or species that will produce the following Eucalypt woodlands as described in the **Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt**:

- Mid woodland of Red Morrell (*Eucalyptus longicornis*) over isolated tall Boree (*Melaleuca pauperiflora* subsp. *fastigiata*) shrubs, low open chenopod shrubland Saltbush (*Atirplex*) species and open low forbland of Grey Copper Burr (*Sclerolaena diacantha*) on clay-loam plain; and/or

- Mid woodland of Gimlet over open mid shrubland of Desert Quandong (*Santalum acuminatum*) and open low shrubland of Tan Wattle (*Acacia hemiteles*) and Spiny Grevillea (*Grevillea acuaria*) on clay-loam plain.

Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

Website means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.

Weed and Vertebrate Pest Management Plan is the *Weed and Vertebrate Pest Management Plan* provided to the Department as part of the preliminary documentation on 9 October 2018.

Weeds includes, but may not be limited to, Wild Oats (*Avena fatua*), Onion Weed (*Asphodelus fistulosus*) and Wild Raddish (*Raphanus raphanistrum*).

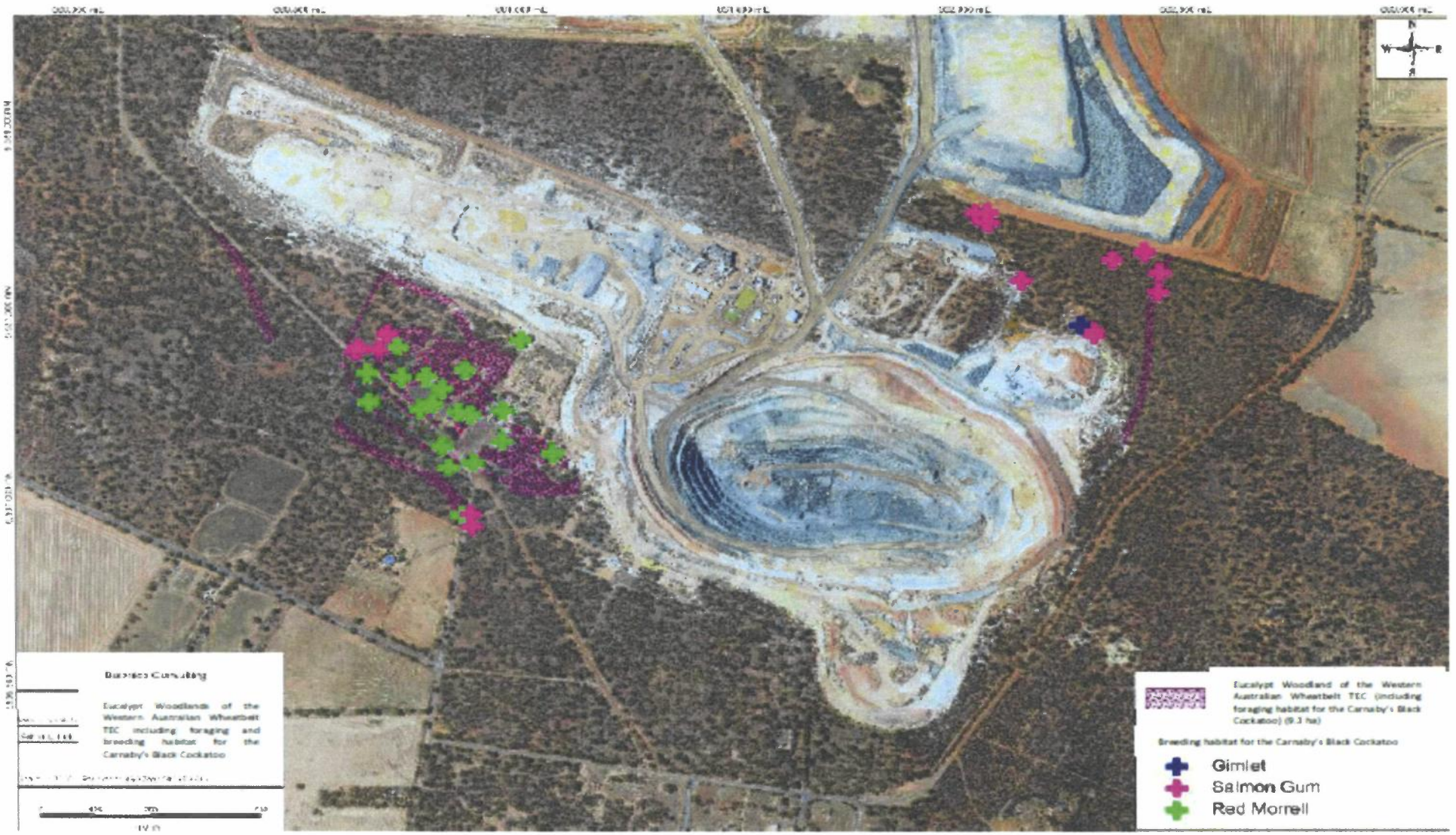
Western Australian Department of Biodiversity, Conservation and Attractions means the Western Australian Department of Biodiversity, Conservation and Attractions or any future agencies that retain its roles and responsibilities.

Westonia Common Management Plan 2016-2021 is the *Westonia Common Management Plan 2016-2021* provided to the Department as part of the preliminary documentation on 9 October 2018, or any subsequent versions.

ATTACHMENTS

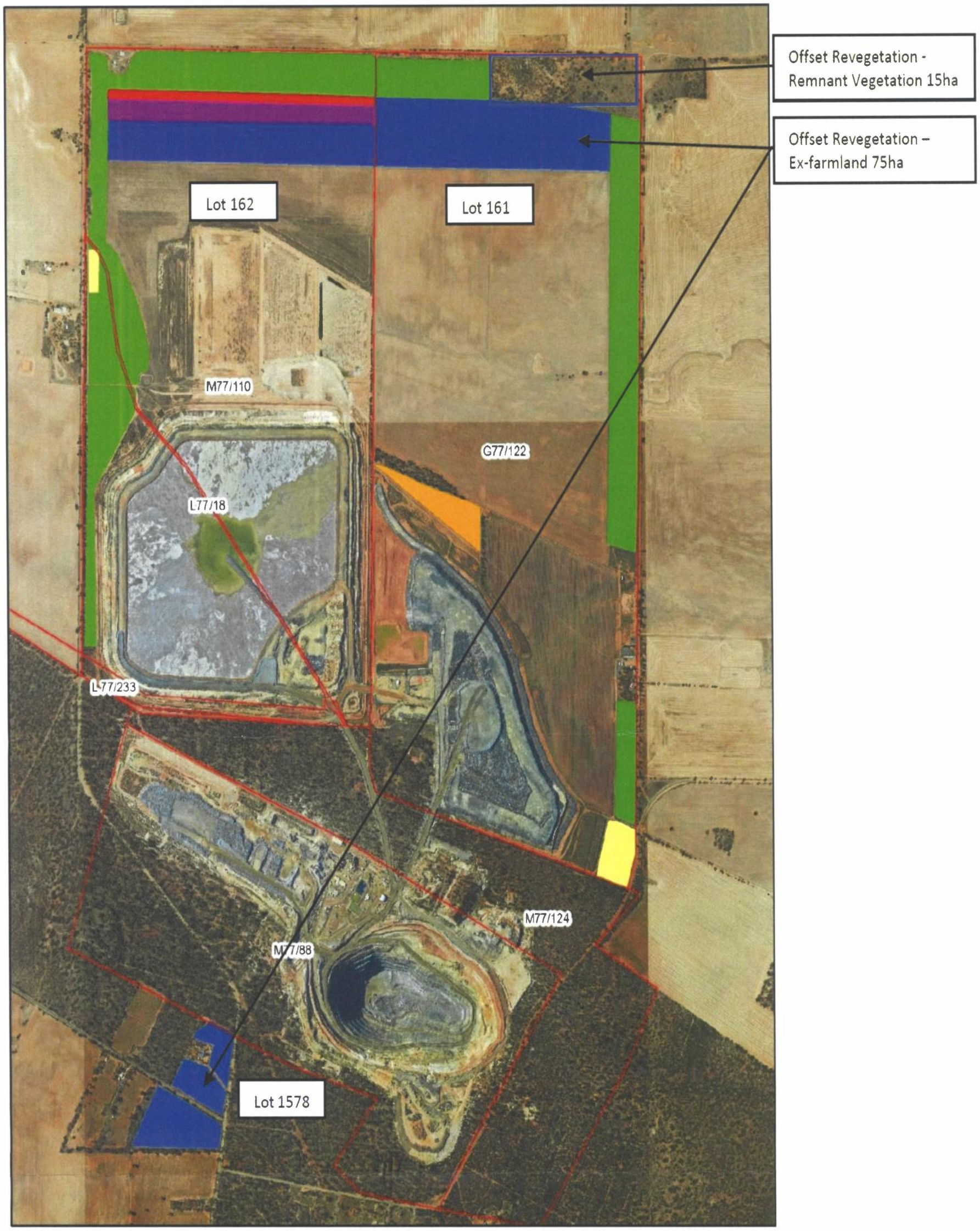
ATTACHMENT A – Map of Clearing Permit Area

ATTACHMENT B – Map of Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community and breeding and foraging habitat for the Carnaby's Black Cockatoo in the Clearing Permit Area.



ATTACHMENT C – Map of rehabilitation areas

ATTACHMENT D – Map of environmental offset areas (Lots 161, 162 and 1578)



Appendix B: Edna May Project Farmland and Offset Rehabilitation Monitoring Report 2023

EDNA MAY PROJECT

Farmland and Offset Rehabilitation Monitoring
October 2023

January 2024

Prepared by

BOTANICA CONSULTING

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Document Information

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Project Name: Edna May Project
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Disclaimer

Quality Assurance

An internal quality review process has been implemented to each project task undertaken by BC. Each document and its contents are carefully reviewed by core members of the Consultancy team and signed off at Director Level prior to issue to the client. Draft documents are submitted to the client for comment and acceptance prior to final production.

Cover Photo: T4, transect 4 rehabilitated in 2016 (taken October 2023)

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Director
Botanica Consulting

Approved by: Jim Williams
Director
Botanica Consulting

Contents

Tables

Figures

APPENDICES

1 INTRODUCTION

The Edna May Gold Mine is located in the Shire of Westonia, approximately 1 km north of the township of Westonia and approximately 280 km east-northeast of Perth Western Australia (Figure 1). Mining of the Edna May deposit has been conducted periodically since the early 1900s with current operations being conducted by Edna May Operations Pty Ltd (EMO), which is a wholly owned subsidiary of Ramelius Resources Limited (Ramelius).

EMO is located within the Merredin Subregion of the Avon Wheatbelt Bioregion, which has been subject to extensive clearing for agriculture. Remnant Eucalypt woodland vegetation within the region is protected under Commonwealth legislation as a Threatened Ecological Community (TEC) known as the 'Eucalypt woodlands of the Western Australian Wheatbelt'. EMO commenced a large-scale rehabilitation programme in 2015 with the intention of rehabilitating ex-farmland and agricultural land back to woodland, similar to that of the TEC.

In July 2017, Phoenix Environmental Sciences Pty Ltd (Phoenix) was engaged by EMO to undertake a rehabilitation assessment in areas rehabilitated in 2015 and 2016 surrounding the Edna May Gold Mine. Botanica Consulting (BC) took over the monitoring of these sites in 2018, and this is the fifth year of monitoring completed by BC. EMO has rehabilitated an additional 74.5 ha of farmland in 2020 and 2021 and additional monitoring sites have been added to these areas. For the 2023 monitoring there were 12 sites in the farmland rehabilitation areas and six analogue sites in nearby Eucalypt woodlands. One site that was established during the 2022 monitoring at the rehabilitated Warrachuppin Road was also monitored in 2023.

The objectives of the vegetation monitoring program were to:

- Undertake vegetation monitoring of each analogue and rehabilitation site and assess rehabilitation against baseline data and completion criteria.
- Present a report detailing the current status of the rehabilitated areas.

The 2023 monitoring was completed by Jennifer Jackson (Senior Botanist) and Kym Pearce (Environmental Consultant) on the 23rd of October 2023.

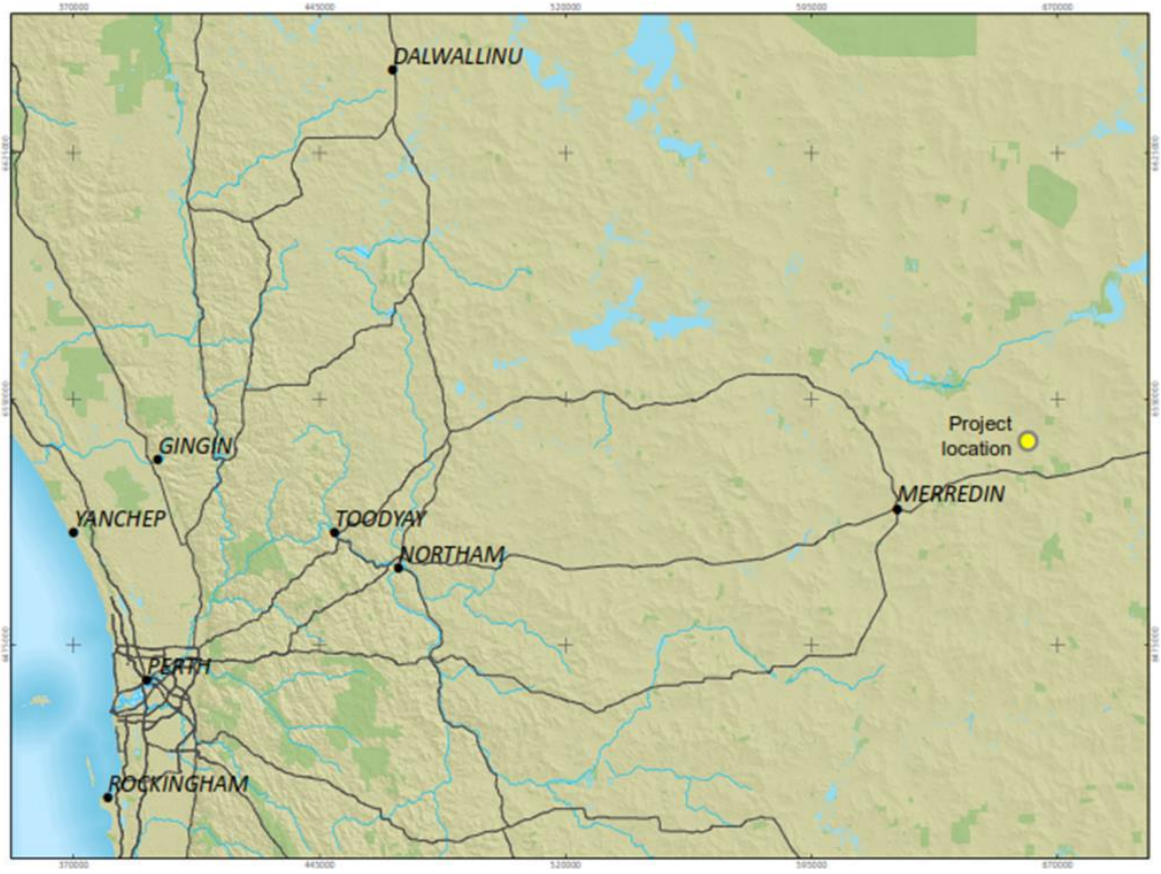


Figure 1: Regional Map – Project Location

1.1 Project Background

The EMO is located approximately one kilometre (km) north of the Westonia township in Western Australia (Figure 1), which is the administrative centre for the Shire of Westonia. The EMO is 52 km by road east of the regional population centre of Merredin. There is a sealed road to the town, which is serviced by scheme power and water, reliable telecommunications and mobile phone coverage. The EMO is located within the Yilgarn mineral field.

The EMO site has been subject to several phases of mining since 1911 over which time development of the town and mining operations have remained intimately linked. Currently, it is a medium-sized, gold mining operation that consists of conventional open cut pits, underground mining operation and a carbon-in-leach (CIL) processing plant. It processes approximately 2 million tonnes per annum (Mtpa) of oxide and primary ore. Tailings are discharged in a Tailings Storage Facility (TSF) located within the Integrated Waste Landform (IWL) (namely the TSF/IWL). The TSF/IWL has one cell, an associated decant tower and submersible pump which returns supernatant reclaim water to the process water pond (EMO, 2021).

Currently, the Edna May processing plant has ore feed supply through to Financial Year 2025 (as shown in the Company's 3 Year Outlook) without any contribution from the Stage 3 open pit. Other feed options will be assessed in the meantime to extend mine life beyond this period (Ramelius Resources, 2023).

1.2 Farmland Vegetation Monitoring

Approximately 97 ha of farmland surrounding the Project was rehabilitated in 2015 and 2016 (Figure 2). These areas contain two sites that are 5 ha each, these sites are where the Threatened flora, *Eremophila resinosa*, was sown with the direct seeding mix. Revegetation was undertaken across six sites utilising direct seeding and planting of tubestock (Table 1-1).

Direct seeding was undertaken utilising a Commercial Native Vegetation Seeder (CommVeg seeder developed by Dr Geoff Woodall). In a single pass operation, the CommVeg seeder scalping blade produces a flat-bottomed scalp which is followed by a shallow rip (0.3 m) with a spring tyne followed by paired tillage disks and then the passage of the floating seeder arm which flattens the ripped and tilled soil then forms a seeding trench at a present depth, then places seed before closing the trench and pressing the soil.

In the majority of rehabilitated areas tubestock was hand planted utilising Pottiputki planters. For site 4 rehabilitated in 2016 tubestock was planted by a Chatsfield tree planter that in a one pass operation rips, scalps and plants a seedling (Bella Bamford pers. Comm.).

The seeding and planting methods result in parallel shallow trenches that have been seeded and/or planted interspaced by areas that are not tilled and received no native seed or plants.

EMO rehabilitated an additional 74.5 ha of farmland in 2020 and 2021, an area to the northeast that will connect two sites rehabilitated in 2016, and an area to the southwest, known as Slippery's Paddock. This brings the total of land rehabilitated to approximately 170 ha.

In July 2017 Phoenix Environmental Sciences Pty Ltd (Phoenix) was engaged by EMO to undertake a rehabilitation assessment in areas rehabilitated in 2015 and 2016 surrounding the Edna May Gold Mine. These sites were monitored in December 2018, 2019 and 2020 by Botanica Consulting (BC). In December 2020, BC established two transects on rehabilitated land in Slippery's Paddock to begin vegetation monitoring there. In 2021 an additional four transects were established; two in Slippery's Paddock and two between Sites 3 and 4. For the 2021 monitoring there were 12 sites in the farmland rehabilitation areas and six analogue sites in nearby Eucalypt woodlands (Figure 2).

1.2.1 Warrachuppin Road Rehabilitation

There are two features within the EMO which were required to be rehabilitated as per Federal Government EPBC (Environment Protection and Biodiversity Conservation Act 1999) approval conditions. This included the original Warrachuppin road, southwest of the EMO. This was rehabilitated in 2022.

Table 1-1: Revegetation methods

Site	Rehabilitation Year	Area (ha)	Methods
1	2015	4.1	Direct seeded using the CommVeg seeder, seedlings were hand planted into the direct seeding rows
2	2016	5	Site was direct seeded using the CommVeg seeder, seedlings were hand planted into the direct seeding rows. This site is also *Eremophila resinosa* translocation site
3	2016	5.3+21.4	Site was direct seeded using the CommVeg seeder, seedlings were hand planted into the direct seeding rows. This site is also *Eremophila resinosa* translocation site
4	2016	36.8	Site was direct seeded using the CommVeg seeder, seedlings were planted into separate rows to the direct seeding using the Chatsfield tree planter. This site is also *Eremophila resinosa* translocation site planted 2018– direct seeding and seedlings with CommVeg seeder, (established between existing rows)
5	2015	0.9	Direct seeded using the CommVeg seeder, seedlings were hand planted into the direct seeding rows. Previous failed revegetation attempts in 2011 & 2013
6	2016	9.8+13.2	Direct seeded using the CommVeg seeder, seedlings were hand planted into the direct seeding rows. Previous failed revegetation attempts in 2011 & 2013
7	2021	62	Direct seeding using the CommVeg seeder, Seedlings planted in separate rows using the Chatsfield tree planter. *Eremophila resinosa* seed sown in own rows using CommVeg seeder.
Slippery's Paddock	2020	5.7	Topsoil, sourced from Greenfinch Pit clearing, spread 200mm deep in rows. Seedlings hand planted into topsoil within rows created by the Chatsfield tree planter (See Appendix 5 for species composition)
Slippery's Paddock	2020	6.8	Seedlings planted with Chatsfield tree planter.
Warrachuppin Road	2022	1.06	Rehabilitation earthworks commenced in 2021 which consisted of removing the bitumen road surface and ripping the road base. In June 2022 EMO seeded and planted seedlings on the site. This was completed using the CommVeg direct seeder. Seedlings were planted using potti-putki in seeded and ripped rows.

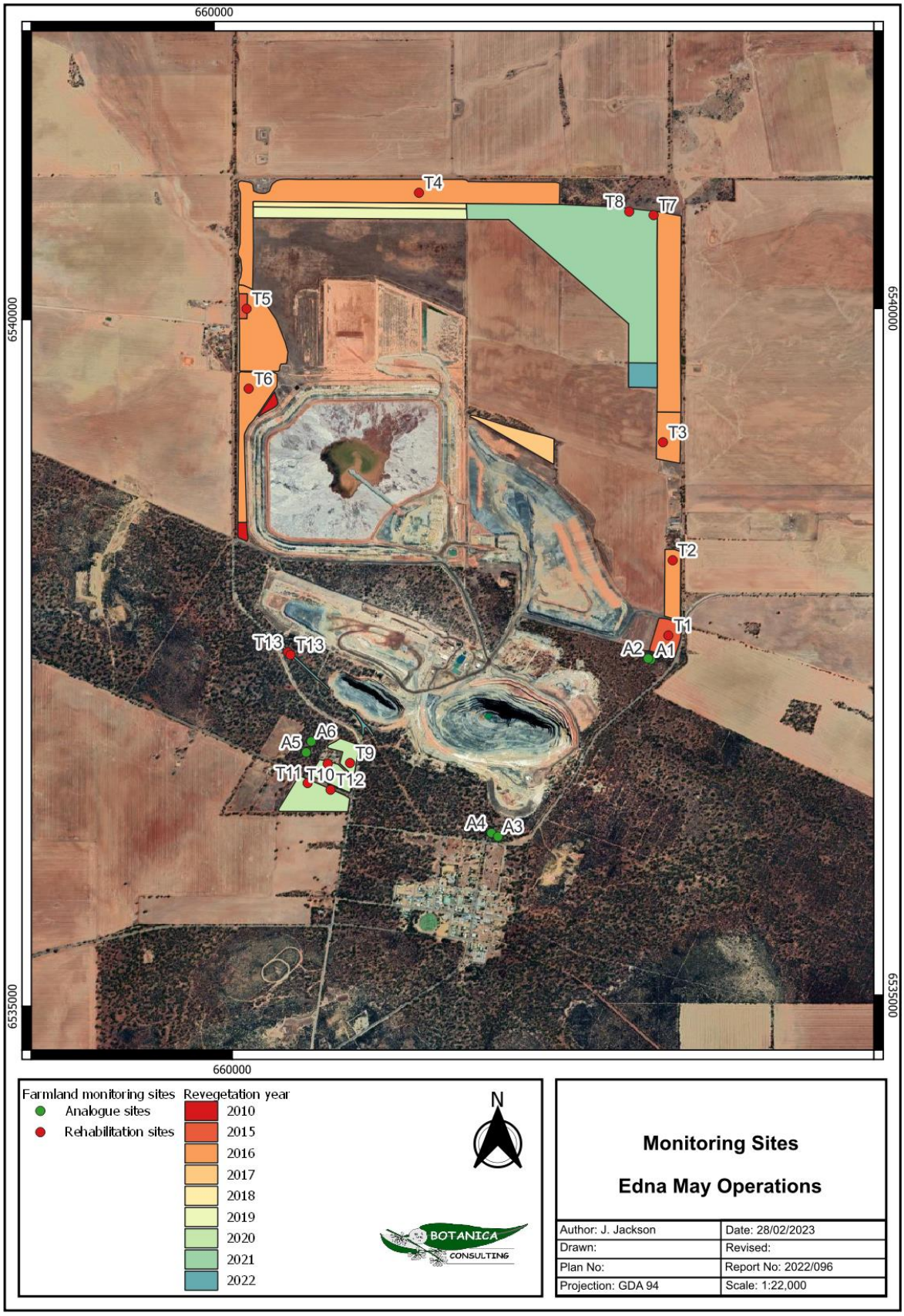


Figure 2: Farmland Rehabilitation and Vegetation Monitoring Transect Locations

1.3 Regional Setting

1.3.1 Vegetation

The Edna May Gold Mine is located within the Merredin Subregion of the Avon Wheatbelt Bioregion, which has been subject to extensive clearing for agriculture and grazed by stock. Remnant Eucalypt woodland vegetation within the region is protected under Commonwealth legislation as a Threatened Ecological Community (TEC) known as the 'Eucalypt woodlands of the Western Australian Wheatbelt'.

The Merredin subregion is characterized by gently undulating landscapes of low relief; proteaceous scrub heaths on residual lateritic uplands and mixed woodlands on quaternary alluvial soils. The region is dominated by mixed woodland of Mallee and Eucalyptus species. Remnant vegetation, riparian systems, populations of threatened native flora and fauna species and ecosystems are in poor condition, with the trend expected to decline (McKenzie, May and McKenna, 2002). Extensive clearing of native vegetation has led to salinity problems being experienced throughout the bioregion.

Multiple reconnaissance flora and vegetation surveys of native vegetation surrounding the Edna May Gold Mine have been conducted, including surveys conducted by MWH (2014), Phoenix Environmental Services (2016; 2017) and Botanica Consulting (2018). From these surveys, a total of five natural vegetation communities are present in the area surrounding the Edna May Gold Mine:

1. *Eucalyptus corrugata* Mallee Woodland
2. *Eucalyptus longicornis* Woodland
3. *Eucalyptus loxophleba* Mallee Woodland
4. *Eucalyptus salubris* Woodland
5. *Melaleuca/Acacia* Scrub

1.3.2 Land Systems

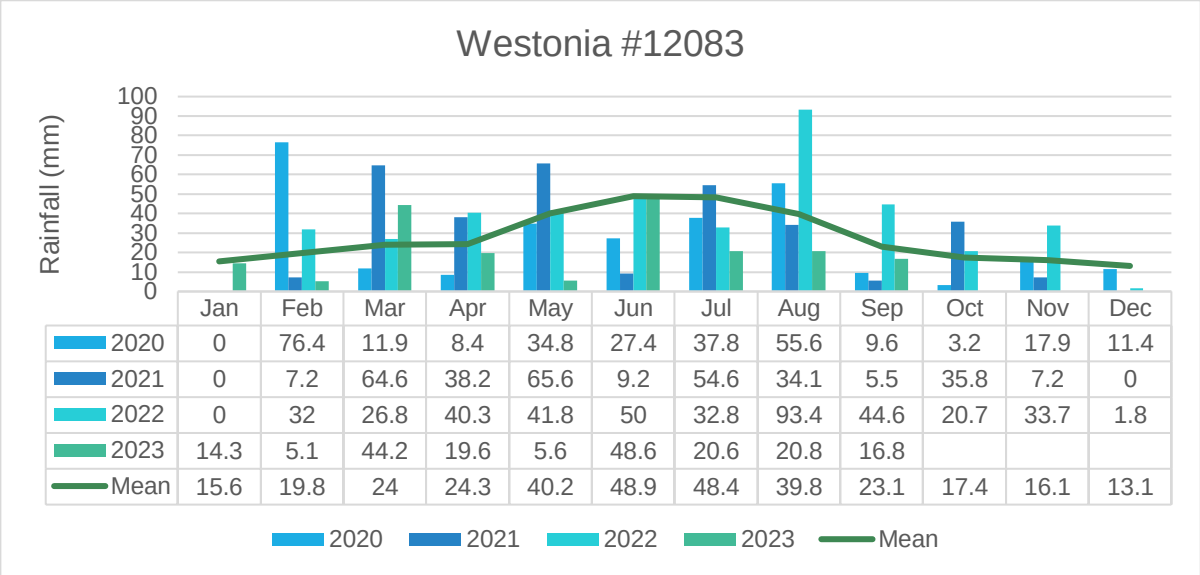
Land systems are defined by Payne, et. al. (1998) as areas or groups of areas throughout which there are recurring patterns of topography, soil and vegetation. The Edna May Project farmland revegetation is located across four land systems as described in Table 1-2.

Table 1-2: Land Systems across the EMO Project area

Land System	Description
Baladjie	Valley floors and lower slopes, in the northern Zone of Ancient Drainage, with calcareous loamy earth and alkaline red loamy duplex (mostly shallow). Woodland.
Bencubin	Gently undulating gneissic and granitic terrain with rock outcrop surrounded by mallee-broom bush duplexs and yellow sandplain.
Holleton	Lateritic sandplain and other soil formations on low isolated often mafic hills. Isolated low hills and rises with yellowish red sandplain and Mallee and Gimlet duplexes on lower slopes.
Tandegin	Sandplain dominated interfluves with weakly indurated lateritised crests and upper slopes and long colluvial yellow sandplain upper to lower slopes. Unlateritised surfaces dominated by sodic and alkaline duplex soils.

1.3.3 Climate

The climate of the Merredin subregion is characterised as semi-arid warm Mediterranean and is characterised by hot dry summers and wet winters (Beard, 1990; Beecham, 2001). Rainfall data for the Westonia weather station (#12083), located approximately 1 km south-east of the Edna May Gold Mine, is shown in Figure 1-4 (BoM, 2023). Rainfall for 2023 was below the annual average of 331.3 mm, with 195.6 mm recorded until the end of September 2023, with the month of March receiving above the monthly average, and June almost equalling the monthly average (Figure 3) (BoM, 2023).



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	0	76.4	11.9	8.4	34.8	27.4	37.8	55.6	9.6	3.2	17.9	11.4
2021	0	7.2	64.6	38.2	65.6	9.2	54.6	34.1	5.5	35.8	7.2	0
2022	0	32	26.8	40.3	41.8	50	32.8	93.4	44.6	20.7	33.7	1.8
2023	14.3	5.1	44.2	19.6	5.6	48.6	20.6	20.8	16.8			
Mean	15.6	19.8	24	24.3	40.2	48.9	48.4	39.8	23.1	17.4	16.1	13.1

Figure 3: Rainfall Data for the Westonia weather station (#12083) (BoM, 2023)

2 METHODS

For the 2023 monitoring there were 13 sites in the farmland rehabilitation areas, including a site at the old Warrachupin Road, and six analogue sites in nearby Eucalypt woodlands. Transect coordinates and year of rehabilitation are presented in Table 2-1.

Table 2-1: Monitoring Transect Details

Rehabilitation/ Analogue Site	Rehab year	Transect ID	GPS Coordinates (GDA 94, 32751)
Site 1	2015	T1	51J 91495 6530951
Site 2	2016	T2	51J 91501 6531500
Site 3	2016	T3	51J 91406 6532358
Site 4	2016	T4	51J 89807 6534117
Site 5	2015	T5	51J 88761 6533229
Site 6	2016	T6	51J 88797 6532647
Site 7	2021	T7	51J 91283 6534011
	2021	T8	51J 91129 6534031
Slippery's Paddock	2020	T9	51J 89538 6529943
	2020	T10	51J 89399 6529969
	2020	T11	51J 89278 6529787
	2020	T12	51J 89424 6529744
Warrachuppin Road	2022	T13	51J 89119 6530737
Analogue 1	-	A1	51J 91391 6530770
	-	A2	51J 91375 6530778
Analogue 2	-	A3	51J 90486 6529443
	-	A4	51J 90444 6529468
Analogue 3	-	A5	51J 89261 6530010
	-	A6	51J 89290 6530091

Each transect comprised of 1m x 1m quadrats (25 quadrats per transect) along the length of the transect (25m length).

Quantitative floristic data collected in each sequential 1 m x 1 m quadrat along the 25 m transect included:

- Identification of all vascular plants within the quadrat (species richness);
- Count of all vascular plants of each species recorded in the quadrat (plant density);
- Visual estimate of the perennial foliage cover of each species in the quadrat (vegetation cover); and
- Visual estimate of the weed cover in the quadrat (weed cover).

The following assessments were conducted on the quadrat data collected for each transect:

- Species Richness (total number of perennial species) within each transect
- Species Diversity (Shannon diversity index (H)) within each transect
- Plant Density (total number of perennial plants) within each transect
- Vegetation Cover (percentage of live perennial foliage) within each transect

- Relative Weed Cover (percentage of weed foliage[1]/total foliage cover X100) within each transect
- Weed cover (total percentage of foliage) for Weeds of National Environmental Significance (WONS) listed by the Department of Agriculture, Water and the Environment (DAWE, 2022) and Declared Plants listed by Department of Primary Industries and Regional Development (DPIRD, 2020) within each transect.

Annuals/ short-lived species and weed species were excluded from the biodiversity assessments (richness, diversity, density and vegetation cover).

Completion criteria has been taken from the EMO Offset Rehabilitation Plan 2020 – 2022 (2019) (Table 2-2). Completion criteria based on the minimum biodiversity and landscape function critical threshold as described by Tongway & Hindley (2003) based on three successive years of monitoring data at which a landform is self-sustaining (Beyond the critical threshold, the ecosystem becomes increasingly more self-sustaining and able to survive stress and disturbance), both natural and human induced the ecosystem becomes increasingly more self-sustaining and able to survive stress and disturbance, both natural and human induced (Tongway, & Hindley 2003). Results will be compared against analogue site/s to ensure target biodiversity values are representative of the natural environment and consistent with the Westonia Common.

Completion criteria targets for weed coverage are based on published literature which suggests that weed cover (non-naturalised weeds) exceeding 40% impedes native vegetation growth. Target has been set at lower threshold to ensure weeds identified/ managed before native vegetation impacts occur (<20% target for weeds not listed as WONS or Declared Plants; 0% target for weeds listed as WONS or Declared Plants).

The completion criteria targets were modified in the 2020-2022 Offset Rehabilitation Plan and are different to what has been presented in previous reports. Therefore, all previous years monitoring assessments can be found in Appendix C.

Table 2-2: Completion Criteria Targets

Completion Criteria	Completion Criteria Target
Species Richness (400 m²)	>80% of the analogue mean
Plant Density (plants/ha)	50% of the analogue mean
Vegetation Cover (%)	50% of the analogue mean
Weeds of National Environmental Significance (%)	<0%
Declared Plants (%)	<0%
Relative Weed Cover[3] (%)	<20% of the analogue mean

[1] Relative weed cover calculated for all weeds not listed as WONS or Declared Plants. Much of the weed cover was dry/ dying off at the time of assessment (summer) however distinction between live and dead weed foliage was not possible. As a result, the total coverage was recorded which provides a conservative/ over-estimation of the actual weed cover. Further monitoring in cooler climatic conditions (winter) will determine whether weeds have persisted.

2.1 Analogue Site Selection

The analogue sites were selected to represent native vegetation in close proximity to the rehabilitated areas that the rehabilitated areas could be expected to return to. The analogue sites were selected to replicate the species composition, biodiversity, and landscape function that probably existed at the site before mining disturbance. The analogue sites are within the Baladjie and Holleton landscape systems. There are four of the rehabilitated sites within the Baladjie system.

The rehabilitation transect monitoring results are compared against the analogue transect monitoring results to confirm that target biodiversity and landscape function values of the rehabilitation sites are comparative to the surrounding natural landscape.

3 RESULTS

3.1 Vegetation Monitoring

The total species list for the 2023 monitoring (including annuals/short-lived species and weed species excluded from the analysis) is provided in Appendix A. Photographic monitoring records for each transect is provided in Appendix B. The 2017-2023 results for each transect are summarised in Table 3-1.

No Weeds of National Significance or Declared plants have been recorded at any of the sites during the previous monitoring, and this data is not presented in this table.

Table 3-1: Monitoring Results Summary 2017-2023

Site	Site	Species Richness							Plant Density (m²)							Vegetation Cover %							Relative Weed Cover (%)						
		2017	2018	2019	2020	2021	2022	2023	2017	2018	2019	2020	2021	2022	2023	2017	2018	2019	2020	2021	2022	2023	2017	2018	2019	2020	2021	2022	2023
Site 1	T1	15	16	16	10	7	8	8	1.9	2.1	2.1	1.7	1.2	1.4	1.2	35	40	40	40	68.5	73	62	28	7	0	0	9	6.3	0
Site 2	T2	8	4	4	4	4	5	6	0.5	0.2	0.2	0.2	0.2	0.3	0.3	5	10	10	10	16	24.5	24	82	89	45	10	50	60	4
Site 3	T3	10	10	9	7	11	10	12	1.0	0.8	0.7	0.5	0.8	0.8	1.1	15	15	15	15	63	56	51	50	60	0	0	28	26.1	0
Site 4	T4	8	5	6	5	6	6	5	1.1	0.7	0.7	0.7	0.7	0.7	0.6	15	10	20	30	34	35.5	37	20	54	51	30	14	12.8	0
Site 5	T5	7	5	7	7	6	5	6	0.5	0.2	0.3	0.3	0.3	0.2	0.4	10	10	10	10	18	20.5	26	2	89	0	20	74	65.7	43.5
Site 6	T6	12	10	10	10	9	9	9	1.2	1.0	1.2	1.2	1.1	1.4	1.2	18	10	10	20	39	40.5	53	28	40	0	5	50	46.1	7.02
Site 7	T7					2	2	2					0.1	0.1	0.1					0.5	1	2					99	98.9	98
Site 7	T8					1	2	2					0.0	0.1	0.4					0	1	2					99	99	94.9
SLP	T9				5	9	7	6				1.8	2.3	2.6	3.2				10	25	24	30				20	59	59.7	70.9
	T10				3	8	7	7				0.8	1.4	2.0	2.4				10	20	19.5	33				10	62	64.9	2.63
	T11					2	2	4					0.2	0.4	0.6					1.5	20.5	27					97	82.1	56.5
	T12					3	2	3					0.2	0.2	0.2					3	5	11					71	92.2	56.4
Warra Rd	T13						3	3						3.0	2.8						5	36						1.92	15.5
A1T1	A1	11	11	11	6	12	10	10	4.4	5.0	2.2	0.4	3.6	5.4	3.2	50	50	50	50	56	67	54	0	0	0	0	0	0	0
A1T2	A2	14	12	12	6	9	10	10	2.8	2.5	1.4	0.4	1.8	2.2	2.0	80	70	70	65	67	67.5	63	0	0	0	0	0	0	0
A2T1	A3	7	6	6	6	7	7	8	2.8	2.4	0.2	1.9	1.8	1.7	1.8	100	100	100	100	84	76.5	77	0	0	0	0	0	0	0
A2T2	A4	6	6	6	5	5	5	5	1.4	1.9	1.7	1.3	1.0	0.9	1.4	75	70	70	70	37	37.5	40	0	0	0	0	0	0	0
A3aT1	A5				3	7	7	6				1.6	1.6	3.0	2.5				75	51	53.5	51				0	0	0	0
A3aT2	A6				4	8	7	7				2.0	3.4	5.0	4.7				80	71	91	88				0	0	0	0
Mean Analogue		**9**	**8**	**8**	**5**	**8**	**8**	**8**	**3.8**	**2.9**	**1.6**	**1.3**	**2.2**	**3.0**	**2.6**	**70**	**67**	**67**	**73**	**61**	**66**	**62**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

3.1.1 Completion Criteria Assessment

An assessment of the rehabilitation sites against completion criteria targets for 2023 monitoring is provided in Table 3-2. Completion criteria has been taken from the EMO Offset Rehabilitation Plan 2020 – 2022 (2019). All previous years monitoring assessments can be found in Appendix C.

The plant density (m²) met the completion criteria at three sites. Species richness (25m²) met the completion criteria at four sites. Vegetation cover (%) completion criteria was met at six sites, an increase from four sites in 2022. Three sites met completion criteria for relative weed cover, this was an increase from 2022, when no sites met the criteria. No WoNS or declared plants were present at any sites.

Overall, the assessments against completion criteria have been consistent for the six years of monitoring, with each site not varying greatly. However, the rehabilitation at the farmlands sites north of the Edna May operations has consistently rated better than the Slippery's Paddock rehabilitation (Appendix C).

Table 3-2: Assessment of rehabilitation sites against completion criteria for 2023 monitoring

		Plant Density (m²)	Species Richness (25m²)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
	=	1.3	6.4	31	0	0%	0%
2015 Rehabilitation	**T1**	1.2	8	62	0	0	0
	T5	0.4	6	26	43.5	0	0
2016 Rehabilitation	**T2**	0.3	6	24	4	0	0
	T3	1.1	12	51	0	0	0
	T4	0.6	5	37	0	0	0
	T6	1.2	9	53	7	0	0
2021 Rehabilitation	**T7**	0.1	2	2	98	0	0
	T8	0.4	2	2	95	0	0
2020 Rehabilitation	**T9**	3.2	6	30	71	0	0
	T10	2.4	7	33	2.6	0	0
	T11	0.6	4	27	56.5	0	0
	T12	0.2	3	11	56.4	0	0
2022 Rehabilitation	**T13**	2.8	3	36	15.5	0	0

Green shading = site has met completion criteria target; Red shading = did not meet completion criteria target.

3.1.2 2015 Rehabilitation

In 2023, a total of 21 taxa were recorded within the transects in the 2015 rehabilitated areas (T1 and T5). 18 of these 22 taxa were native plants, including four species of native annuals. Three weed species were present, this had decreased from four weed species present in 2022.

Species richness and plant density results were stable and recorded the same results from 2022 (Figure 4). Vegetation cover had decreased slightly since 2022, the analogues sites had also decreased (Figure 5).

T1 met the completion criteria target for species richness (25m²) and vegetation cover (%). T5 did not meet any completion criteria targets in 2023. All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 3-3).

Weed cover was <1% at T1 and 20% at T5, these had decreased from 2021 and 2022 results. A weedy grass was dominant at T5, this is evident in the photo at Figure 6, and seed of this is likely blown in from adjacent agricultural areas. No WoNS or declared plants were present at these sites.

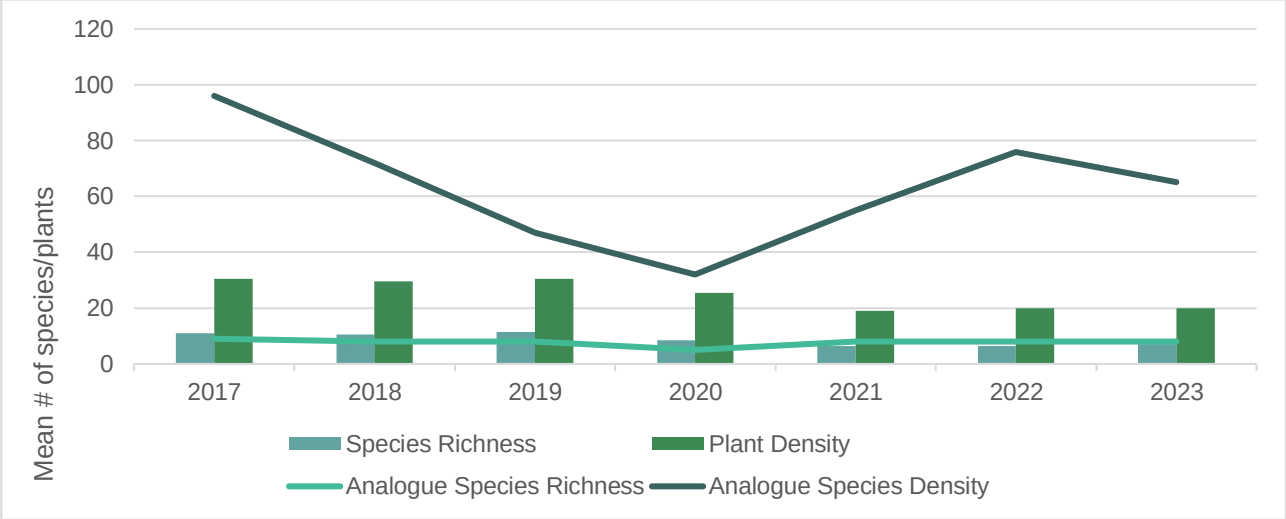


Figure 4: Mean species richness and total plant density of 2015 Rehabilitation sites

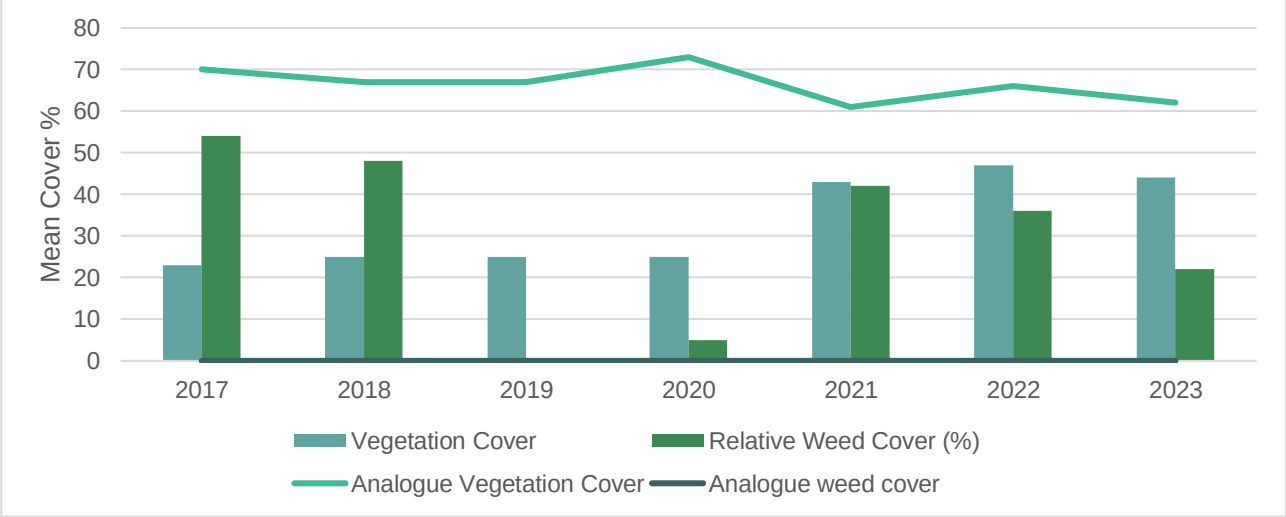


Figure 5: Mean vegetation cover and relative weed cover (%) of 2015 Rehabilitation sites

Table 3-3: Assessment of 2015 rehabilitation sites against completion criteria for 2023 monitoring

		Plant Density (m²)	Species Richness (25m²)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
	=	1.3	6.4	31	0	0%	0%
2015 Rehabilitation	**T1**	1.2	8	62	0	0	0
	T5	0.4	6	26	43.5	0	0

Figure 6: 2023 photos of transects T1 (left) and T5 (right)

3.1.3 2016 Rehabilitation

In 2023, a total of 20 taxa were recorded within the four transects in the 2016 rehabilitated areas (T2, T3, T4 and T6). 18 of these 20 taxa were native plants, with two weed species present, this is down from six weed species present in 2022. The Threatened flora *Eremophila resinosa* was present at T2 and T3.

Mean species richness had increased slightly from 2022 and plant density had increased slightly from previous years (Figure 7). Vegetation cover has increased slightly since 2022, weed cover has decreased since 2022 (Figure 8). Note that species density and vegetation cover had decreased for the analogue sites.

No sites met the completion criteria target for plant density (m²). Two sites met the completion criteria for species richness (25m²) and three sites met the vegetation cover (%) target. All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 3-4).

Weeds had decreased in 2023. A daisy, Globe chamomile (*Oncosiphon piluliferum)* was a weed that was present at sites T2 and T6, in 2022 this was present at all 2016 rehab sites (Figure 10). A weedy grass was also present at T6, no other weeds were observed. No WoNS or declared plants were present at these sites.

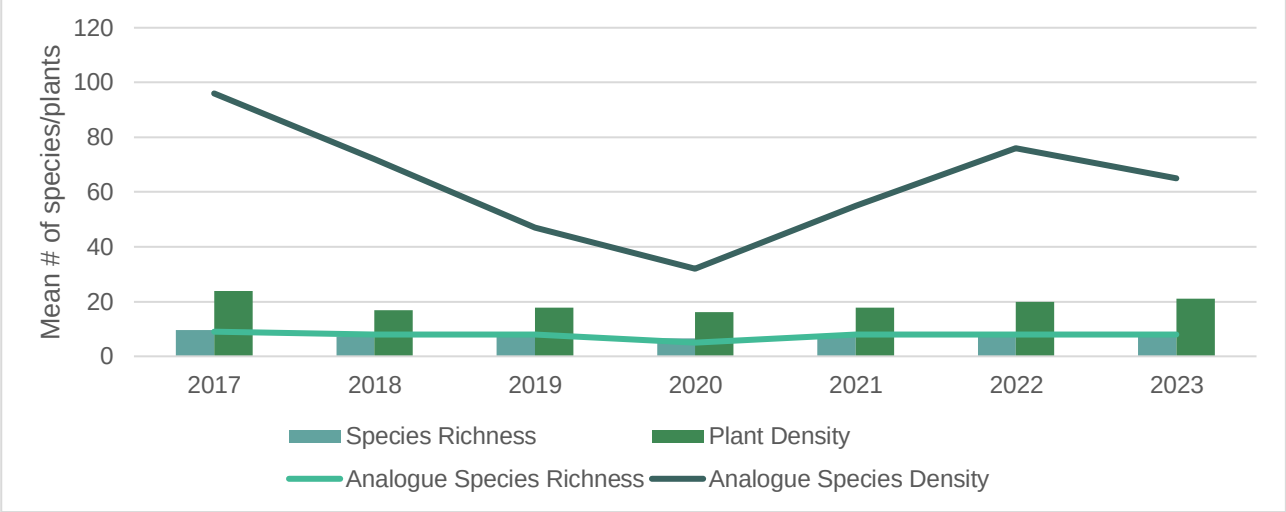


Figure 7: Mean species richness and total plant density of 2016 Rehabilitation sites

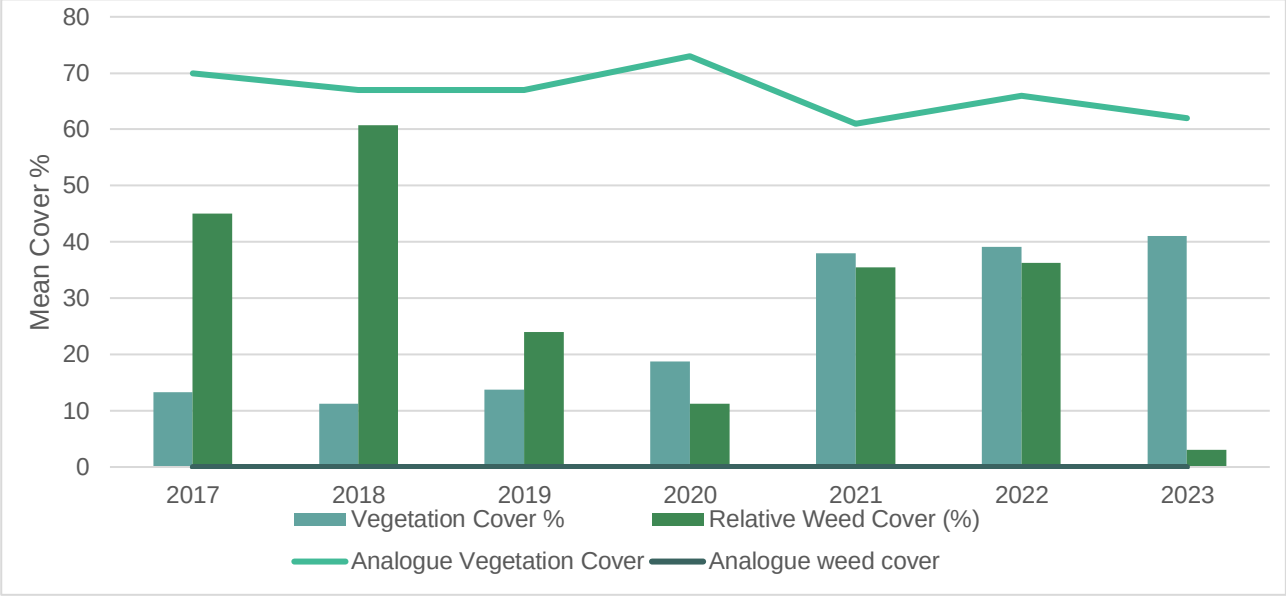


Figure 8: Mean vegetation cover and relative weed cover (%) of 2016 Rehabilitation sites

Table 3-4: Assessment of 2016 rehabilitation sites against completion criteria for 2023 monitoring

		Plant Density (m²)	Species Richness (25m²)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
	=	1.3	6.4	31	0	0%	0%
2016 Rehabilitation	**T2**	0.3	6	24	4	0	0
	T3	1.1	12	51	0	0	0
	T4	0.6	5	37	0	0	0
	T6	1.2	9	53	7	0	0

Figure 9: 2023 photos of transects T2 (left) and T3 (right)

Figure 10: 2023 photos of transects T4 (left) and T6 (right)

3.1.4 2020 Slippery's Paddock Rehabilitation

In 2020, Slippery's Paddock transects were established and monitoring commenced at two sites (T9 and T10). In 2021 an additional two transects were added to the Slippery's Paddock rehabilitation (T11 and T12).

In 2023, a total of 16 taxa were recorded within the transects, twelve of these were native plants, and four weed species were present.

Species richness had increased slightly from previous years and plant density had also increased slightly (Figure 11). Vegetation cover has increased since previous years, and weed cover has decreased since 2022 (Figure 12). Note that species density and vegetation cover had decreased for the analogue sites.

T9 and T10 met the completion criteria target for plant density (m²), T10 met the completion criteria target for species richness (25m²) and vegetation cover (%). All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 3-5).

Relative weed cover had decreased since 2022 results. Weedy grasses were dominant at T10, T11 and T12, seed of these grasses is likely blown in from adjacent agricultural areas, this is evident in the photos at Figure 13 and Figure 14.

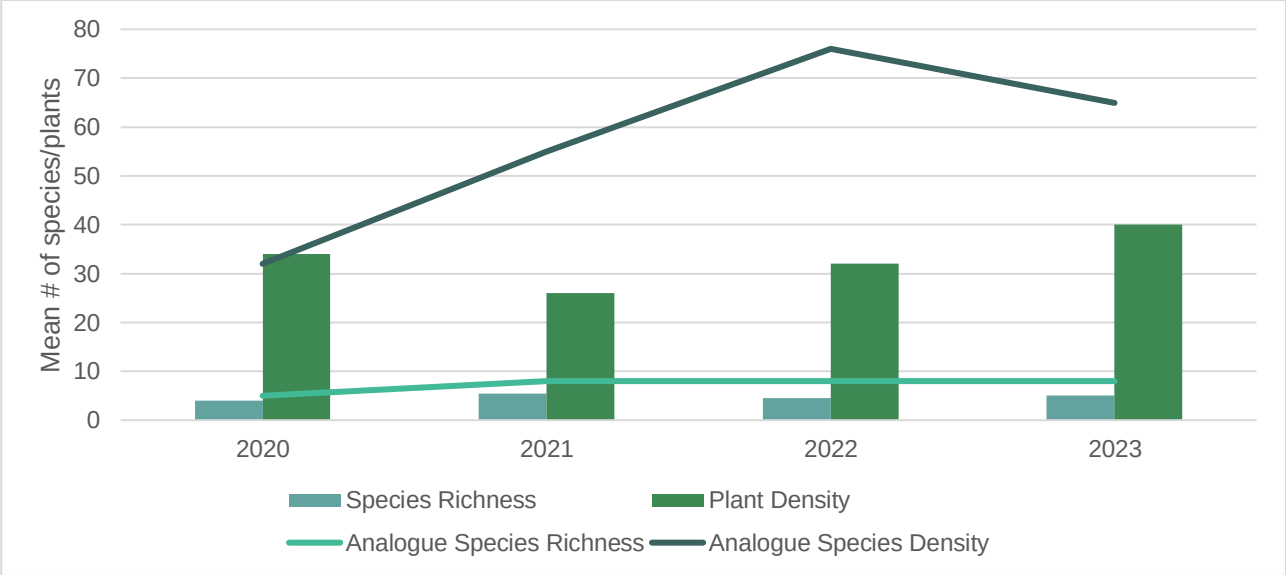


Figure 11: Mean species richness and total plant density of the Slippery's Paddock Rehabilitation sites

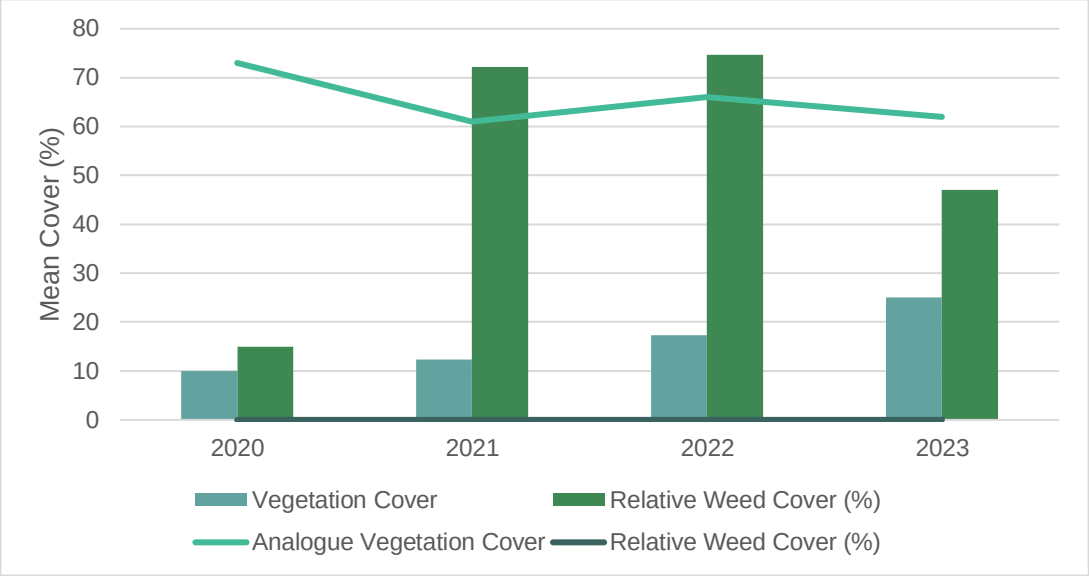


Figure 12: Mean vegetation cover and relative weed cover (%) of the Slippery's Paddock Rehabilitation sites

Table 3-5: Assessment of 2020 rehabilitation sites against completion criteria for 2023 monitoring

		Plant Density (m²)	Species Richness (25m²)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
	=	1.3	6.4	31	0	0%	0%
2020 Rehabilitation	T9	3.2	6	30	71	0	0
	T10	2.4	7	33	2.6	0	0
	T11	0.6	4	27	56.5	0	0
	T12	0.2	3	11	56.4	0	0

Figure 13: 2023 photos of transects T9 (left) and T10 (right)

Figure 14: 2023 photos of transects T11 (left) and T12 (right)

3.1.5 2021 Rehabilitation

Approximately 62 ha was rehabilitated in 2021 and two sites were established here during the 2021 monitoring (T7 and T8). Results against completion criteria are presented in Table 3-6. As for 2021 and 2022, all measures rated poorly, and weed presence was high (Table 3-7, Figure 15), however no WoNS or declared plants were recorded.

Table 3-6: Assessment of 2021 rehabilitation sites against completion criteria for 2023 monitoring

		Plant Density (m²)	Species Richness (25m²)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
	=	1.3	6.4	31	0	0%	0%
2021 Rehabilitation	T7	0.1	2	2	98	0	0
	T8	0.4	2	2	95	0	0

Table 3-7: Results for 2021 rehabilitation sites (2021 to 2023)

	Species Richness			Plant Density		
Year	2021	2022	2023	2021	2022	2023
Mean 2021 Rehabilitation	2	2	2	2	2	6
Analogue Species Richness	8	8	8	55	76	65

	Vegetation Cover (%)			Relative Weed Cover (%)		
Year	2021	2022	2023	2021	2022	2023
Mean 2021 Rehabilitation	0	1	2	99	99	96
Analogue Species Richness	61	66	62	0	0	0

Figure 15: 2023 photos of transects T7 (left) and T8 (right)

3.1.6 2022 (Warrachuppin Road) Rehabilitation

Approximately 1.06 ha was rehabilitated in 2022 and one new site was established here during the 2022 monitoring (T13). Results against completion criteria are presented in Table 3-8. The site met the completion criteria target for plant density; however, these numbers were high due to the presence of more than 50 Acacia seedlings. The site had increased for vegetation cover (%) from 2022, and weed cover had also increased from 2022 (Table 3-9, Figure 16), and no WoNS or declared plants were recorded.

Table 3-8: Assessment of the Warrachuppin Road rehabilitation site against completion criteria for 2023 monitoring

		Plant Density (m²)	Species Richness (25m²)	Vegetation Cover (%)	Relative Weed Cover (%)	Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	50% of the analogue mean (62)	<20% of the analogue mean (0)	0%	0%
	=	1.3	6.4	31	0	0%	0%
Warrachuppin Road	T13	2.8	3	36	15.5	0	0

Table 3-9: Results for 2022 rehabilitation sites (2022 to 2023)

	Species Richness		Plant Density	
Year	2022	2023	2022	2023
2022 Rehabilitation	3	3	76	69
Analogue Species Richness	8	8	76	65

	Vegetation Cover (%)		Relative Weed Cover (%)	
Year	2022	2023	2022	2023
2022 Rehabilitation	5	36	1.9	15.5
Analogue Species Richness	66	62	0	0

Figure 16: 2023 photo of transect T13

4 DISCUSSION

Vegetation cover and plant density criteria have not yet been met for the majority of rehabilitated sites; however, given the rehabilitation is at an early stage of development (less than nine years old) this result is not unexpected when compared to the very mature and stable environments of the analogue sites.

The plant density (m^2) results met the completion criteria at three sites, this was the same as 2022. Species richness ($25m^2$) met the completion criteria at four sites, this had decreased from five sites in 2022. Six sites met the completion criteria for vegetation cover (%) this was an increase from four sites in 2022. No sites met completion criteria for relative weed cover, this is due to the analogue sites having no weeds present, however no WoNS or declared plants were present so they met these criteria.

Overall, the assessments against completion criteria have been consistent for the six years of monitoring, with each site not varying greatly. However, the rehabilitation at the farmlands sites north of the Edna May operations has consistently rated better than the Slippery's Paddock rehabilitation, this is not unexpected given the Slippery's Paddock rehabilitation is four to five years younger (Appendix C).

Weed presence and density (none of which were listed as WONS or Declared Plants) of the rehabilitated sites had notably decreased at most sites in 2023, and this could be the result of lower rainfall in 2023 compared to good rainfall in 2021 and 2022. It is likely many of the weeds present are being blown in from seed from surrounding farms and will be difficult to manage in the long term, until more native plants establish and increase in vegetation cover. Given the current cover of weeds at all sites, continued weed management is advised.

Emergent Eucalypts identified in the first year of monitoring (2017) at the farmlands sites have continued to show good growth over the past 12 months and were in a healthy condition, yet were sterile and could not be identified to species level. Other chenopod species that were present at the analogue sites are consistently occurring and recolonising the rehabilitation sites.

5 BIBLIOGRAPHY

Beard, J.S., (1990). *Plant Life of Western Australia,* Kangaroo Press Pty Ltd, NSW.

Beecham (2001), *A Biodiversity Audit of Western Australia's 53 Biogeographical Region in 2001- Avon Wheatbelt Region (AW1 Merredin Subregion)*, Department of Conservation and Land Management.

Botanica Consulting (BC) (2018). R*econnaissance Flora and Vegetation Survey Greenfinch Project*. Prepared for Ramelius Resource Pty Ltd. January 2019.

Bureau of Meteorology (BOM) (2023). *Climate information for Westonia Weather Station*. Available WWW: http://www.bom.gov.au/climate/data/.

DAWE (2022). *Pest Animals and Weeds in Australia.* Available WWW: https://www.awe.gov.au/biosecurity-trade/pests-diseases-weeds/pest-animals-and-weeds

DPIRD (2020). *Declared Organism database search,* Department of Primary Industries and Regional Development, Western Australia. Available: http://www.biosecurity.wa.gov.au/

EMO (2021). *Edna May Operation Mine Closure Plan*. Prepared by Botanica Consulting for Edna May Operations.

McKenzie, N. L., May, J. E. and McKenna, S. (2002). *Bioregional summary of the 2002 biodiversity audit for Western Australia.* Department of Conservation and Land Management.

MWH Australia Pty Ltd (2014). *Evolution Mining Edna May and Greenfinch Project: Level 2 Flora and Vegetation Assessment.*

Payne, A.L., Mitchell, A.A. and Hennig, P. (1998*). Land Systems of the Kambalda Area and Surrounds*. Report prepared for Western Mining Corporation Resources Ltd. Agriculture Western Australia, July 1998.

Phoenix (2016). *Flora and vegetation survey for the Edna May Greenfinch Project*. Prepared for Evolution Mining Ltd by Phoenix Environmental Sciences Pty Ltd. August 2016.

Phoenix (2017). Targeted *Eremophila resinosa* survey of the Edna May Gold Project. Phoenix Environmental Sciences Pty Ltd, Balcatta, WA. Unpublished report prepared for Evolution Mining Ltd.

Ramelius Resources (2019). *Edna May Operations Offset Rehabilitation Plan 2020-2022.*

Ramelius Resources (2021). Edna May Operations: *Eremophila resinosa* translocation sites, 2020 Report. January 2021.

Ramelius Resources (2023). *ASX Release*. Available WWW: https://www.rameliusresources.com.au/wp-content/uploads/bsk-pdf-manager/2023/01/Confirmation-of-Release-Edna-May-Stage-3-PFS-Update.pdf

Tongway, D and Hindley, N (2003). *Landscape Function Analysis: Procedures for Monitoring and Assessing Landscapes, with special reference to Mine sites and Rangelands*. CSIRO Sustainable Ecosystems, Canberra. Updated February 2005.

Appendix A: Species list

*Green shading indicates weed species; blue shading indicates annual species; red shading indicates Threatened flora.

Taxon	Site 1		Site 2		Site 3		Site 4		Site 5		Site 6		Site 7				Slippery's Paddock								Warra Rd		Analogue 1				Analogue 2				Analogue 3			
	T1		T2		T3		T4		T5		T6		T7		T8		T10		T9		T11		T12		T13		A1		A2		A3		A4		A5		A6	
	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover
Avena barbata (W)																	12	1	12	1	12	1	12	2														
Brassica tournefortii (W)													2	2																								
Lolium rigidum (W)	12	<1											400	65	200	65					30	4																
**Mesembryanthemum crystallinum (W)*																	80	2																				
**Oncosiphon piluliferum (W)*			50	1					2	<1	40	2	130	25	200	65																						
Poaceae sp wheat (W)									200	20	30	2					500	70			300	30	200	20	6	11												
Sonchus asper (W)													19	<1	13	0.5																						
Acacia ?coolgardiensis	3	8																																				
Acacia acuminata	10	20			3	3																					1	10										
Acacia colletioides	3	3			1	0.5	2	0.5			1	1																										
Acacia erinacea					1	1																																
Acacia hemiteles	2	3	1	<1	3	6	4	6			2	4																										
Acacia merrallii			1	4	5	12	7	20			2	4																	1	3								
Acacia microbotrya	1	2																																				
Acacia murrayana					1	4																																
Acacia spp.																							1	1	58	20												
Acacia steedmanii	4	2																																				
Allocasuarina campestris	6	20																																				
Aristida contorta (A)	4	0.5																																				
Atriplex amnicola									1	3																												
Atriplex nummularia									1	6																												
Atriplex semibaccata (A)			1	<1													6	<1	6	4			2	6	24	8												
Atriplex vesicaria											10	10			8	1															20	20	6	4			1	1
Austrostipa elegantissima																											4	<1	3	1					2	<1		
Austrostipa nitida											3	<1					2	<1	6	<1							12	<1	6	<1							9	1
Calothamnus gilesii	1	4																																				
Convolvulus remotus															1	1																						
Enchylaena tomentosa					8	4													3	6											1	1			0	0	5	6
Eremophila decipiens																											1	1										
Eremophila ionantha																													2	1			3	2	1	4		
Eremophila resinosa			2	8	1	4																																
Eucalyptus ?salmonophloia			1	6	1	5	2	10																														
Eucalyptus ?salubris			1	6	1	6			2	12	2	6																										
Eucalyptus ?yilgarnensis											2	8																										
Eucalyptus longicornis																															2	50			2	30	3	30
Eucalyptus salmonophloia																													1	10								
Eucalyptus salubris																											1	20	1	10								
Eucalyptus spp.													1	1			3	2	5	6	8	20	3	8	6	10												
Exocarpos aphyllus																											1	6	2	3	1	2						
Maireana brevifolia			2	<1	1	0.5	1	0.5	2	1	10	16	1	1			52	20	1	1																		
Maireana georgei																															1	<1						
Maireana tomentosa																	16	3	28	8											5	1	3	<1	6	1	16	20
Maireana trichoptera																											24	4							20	6	60	15
Melaleuca eleuterostachya									1	3	1	4																										
Melaleuca pauperiflora					1	5																							2	30			2	30				
Melaleuca spp.																	1	1	7	4	1	3	2	2	5	6												
Olearia muelleri																											1	1										
Ptilotus exaltatus (A)																									38	6	7	2	1	<1								
Ptilotus polystachyus (A)	4	<1																																				
Rhagodia drummondii																													2	1								
Salsola australis (A)			14	<1	6	1	8	<1	10	<1	6	<1			2	5	0	0	1	<1	1	<1	1	<1	52	10												
Sclerolaena diacantha																											26	4	30	4	14	1	22	4				
Sclerolaena uniflora									3	1							6	4	10	8															32	10	24	15
Senna artemisioides subsp. *filifolia*																											8	8										
Sida sp.																					4	3																
Templetonia ceracea																															1	2						
Vittadinia gracilis																					1	1																
Waitzia acuminata (A)	2	0.1																							1	<1												
Species richness (25m²)	**8**		**6**		**12**		**5**		**6**		**9**		**2**		**2**		**6**		**7**		**4**		**3**		**3**		**10**		**10**		**8**		**5**		**6**		**7**	
Plant Density (25m²)	**30**		**8**		**27**		**16**		**10**		**31**		**2**		**9**		**80**		**60**		**14**		**6**		**69**		**79**		**50**		**45**		**36**		**63**		**118**	
Species Richness (1m²)	**0.32**		**0.24**		**0.48**		**0.2**		**0.24**		**0.36**		**0.08**		**0.08**		**0.24**		**0.28**		**0.16**		**0.12**		**0.12**		**0.4**		**0.4**		**0.32**		**0.2**		**0.24**		**0.28**	
Perennial Plant Density (1m²)	**1.20**		**0.32**		**1.08**		**0.64**		**0.40**		**1.24**		**0.08**		**0.36**		**3.2**		**2.4**		**0.56**		**0.24**		**2.76**		**3.16**		**2.00**		**1.80**		**1.44**		**2.52**		**4.72**	
Total % Cover (excluding weeds)		**62**		**24**		**51**		**37**		**26**		**53**		**2**		**2**		**30**		**33**		**27**		**11**		**36**		**54**		**63**		**77**		**40**		**51**		**88**
Total % Cover (weeds)		**<1**		**1**		**0**		**0**		**20**		**4**		**92**		**130.5**		**73**		**1**		**35**		**22**		**11**		**0**		**0**		**0**		**0**		**0**		**0**

Taxon	Site 1		Site 2		Site 3		Site 4		Site 5		Site 6		Site 7				Slippery's Paddock								Warra Rd		Analogue 1				Analogue 2				Analogue 3			
	T1		T2		T3		T4		T5		T6		T7		T8		T10		T9		T11		T12		T13		A1		A2		A3		A4		A5		A6	
	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover	No. plants	% Cover
Relative Cover of weeds (%)		0.00		4		0.00		0.00		43.48		7.02		97.87		94.91		70.87		2.63		56.45		56.41		15.49		0		0		0		0		0		0

Appendix B: Photographs of Transects

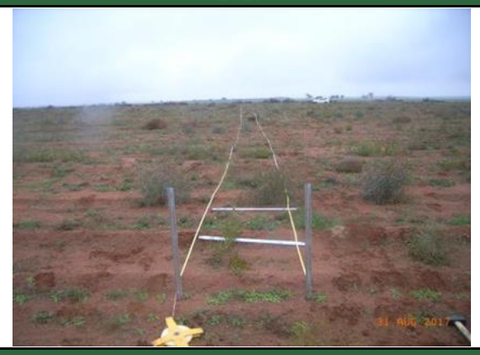
	2017	2018	2019	2020
T1				

	2021	2022	2023	
T1				

	2017	2018	2019	2020
T2				

	2021	2022	2023	
T2				

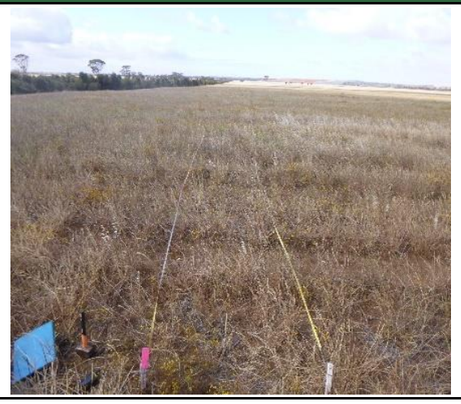
	2017	2018	2019	2020
T3				
	2021	**2022**	**2023**	
T3				

	2017	2018	2019	2020
T4				
	2021	**2022**	**2023**	
T4				

	2017	2018	2019	2020
T5				

	2021	2022	2023	
T5				

	2017	2018	2019	2020
T6				
	2021	**2022**	**2023**	
T6				

	2021	2022	2023	
T7				

	2021	2022	2023	
T8				

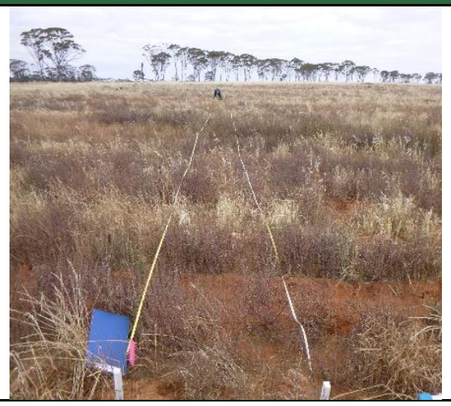
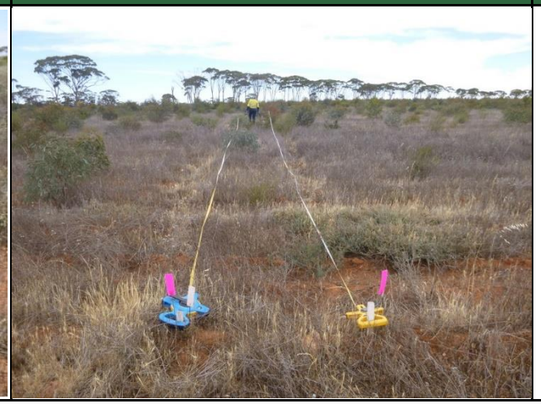
	2017	2018	2019	2020
T9				

	2021	2022	2023	
T9				

	2017	2018	2019	2020
T10				

	2021	2022	2023	
T10				

	2021	2022	2023	
T11				

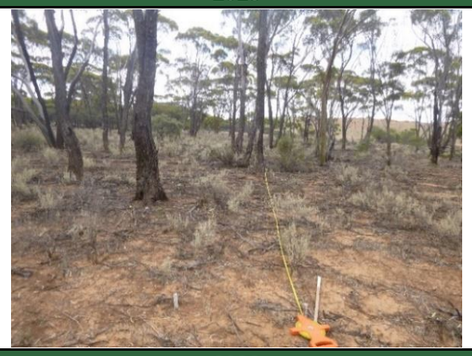
	2021	2022	2023	
T12				

	2021	2022	2023	
T13				

	2017	2018	2019	2020
A1				
	2021	**2022**	**2023**	
A1				

	2017	2018	2019	2020
A2				

	2021	2022	2023	
A2				

	2017	2018	2019	2020
A3				

	2021	2022	2023	
A3				

	2017	2018	2019	2020
A4				
	2021	**2022**	**2023**	
A4				

	2017	2018	2019	2020
A5				*The original A5 was removed in 2020* 

	2021	2022	2023	
A5				

	2017	2018	2019	2020
A6				*The original A6 was removed in 2020* 

	2021	2022	2023	
A6				

Appendix C: Assessment of rehabilitation sites against completion criteria (2017 to 2020)

Measure	Target	Rehabilitation Category	2017						2018						2019						2020							
			2015 Rehabilitation		2016 Rehabilitation				2015 Rehabilitation		2016 Rehabilitation				2015 Rehabilitation		2016 Rehabilitation				2015 Rehabilitation		2016 Rehabilitation				Slippery's Paddock 2020 Rehabilitation	
			Site 1	Site 5	Site 2	Site 3	Site 4	Site 6	Site 1	Site 5	Site 2	Site 3	Site 4	Site 6	Site 1	Site 5	Site 2	Site 3	Site 4	Site 6	Site 1	Site 5	Site 2	Site 3	Site 4	Site 6	SLP T1	SLP T2
Plant Density (m^2)	≥2.4	Excellent	1.9	0.5	0.5	1	1.1	1.2	2.1	0.2	0.2	0.8	0.7	1	2.1	0.3	0.2	0.7	0.7	1.2	1.7	0.3	0.2	0.3	0.7	1.2	1.8	0.8
	≥1.2	Satisfactory																										
	<1.2	Requires review																										
Species Diversity Index	≥1.4	Excellent	2.3	1.6	2	2.2	1.9	2.2	2.4	1.6	1.3	2.2	1.4	2.1	2.4	2.1	1.3	2	1.5	2.1	1.9	1.9	1.2	1.8	1.4	2.1	1.4	0.8
	≥1.1	Satisfactory																										
	<1.1	Requires review																										
Species Richness	≥8	Excellent	15	7	8	10	8	12	16	5	4	10	5	10	16	7	4	9	6	10	10	7	4	7	5	10	5	3
	≥6	Satisfactory																										
	<6	Requires review																										
Vegetation Cover (%)	≥69	Excellent	35	10	5	15	15	18	40	10	10	15	10	10	40	10	10	15	20	10	40	10	10	15	30	20	10	10
	≥35	Satisfactory																										
	<35	Requires review																										
Relative Weed Cover (%)	0	Excellent	28	80	82	50	20	28	7	89	89	60	54	40	0	0	45	0	51	0	0	20	10	0	30	5	20	10
	<20	Satisfactory																										
	>20	Requires review																										
Weeds of National Environmental Significance (%)	0	Excellent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	Satisfactory																										
	>0	Requires review																										
Declared Plants (%)	0	Excellent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	Satisfactory																										
	>0	Requires review																										

Appendix D:Assessment of rehabilitation sites against completion criteria (2021 to 2023)

		Plant Density (m²)			Species Richness (25m²)			Vegetation Cover (%)			Relative Weed Cover (%)			Declared plants (%)	WoNS (%)
	Completion Criteria Target	50% of the analogue mean (2.2)	50% of the analogue mean (3.0)	50% of the analogue mean (2.6)	>80% of the analogue mean (8)	>80% of the analogue mean (8)	>80% of the analogue mean (8)	50% of the analogue mean (61)	50% of the analogue mean (66)	50% of the analogue mean (62)	<20% of the analogue mean (0)	<20% of the analogue mean (0)	<20% of the analogue mean (0)	0%	0%
		2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021-2023%	
	=	1.1	1.5	1.3	6.4	6.4	6.4	30.5	33	31	0	0	0	0%	0%
2015 Rehabilitation	T1	1.2	1.4	1.2	7	8	8	68.5	73	62	9	6.3	0	0	0
	T5	0.3	0.2	0.4	6	5	6	18	20.5	26	74	65.7	43.5	0	0
2016 Rehabilitation	T2	0.2	0.3	0.3	4	5	6	16	24.5	24	50	60	4	0	0
	T3	0.8	0.8	1.1	11	10	12	63	56	51	28	26.1	0	0	0
	T4	0.7	0.7	0.6	6	6	5	34	35.5	37	14	12.8	0	0	0
	T6	1.1	1.4	1.2	9	9	9	39	40.5	53	50	46	7	0	0
2021 Rehabilitation	T7	0.1	0.1	0.1	2	2	2	0.5	1	2	99	99	98	0	0
	T8	0	0.1	0.4	1	2	2	0	1	2	99	99	95	0	0
2020 Rehabilitation	T9	2.3	2.6	3.2	9	7	6	25	24	30	59	60	71	0	0
	T10	1.4	2	2.4	8	7	7	20	19.5	33	62	65	2.6	0	0
	T11	0.2	0.4	0.6	2	2	4	1.5	20.5	27	97	82	56.5	0	0
	T12	0.2	0.2	0.2	3	2	3	3	5	11	71	92	56.4	0	0
2022 Rehabilitation	T13		3	2.8		3	3		5	36		1.9	15.5	0	0

Green shading = site has met completion criteria target; Red shading = did not meet completion criteria target.