

Edna May Operations

Compliance Report

EPBC 2018/8213 24 January 2021 to 23 January 2022

Edna May Operations 22 Wolfram St Westonia WA 6423 Ph: (08) 9046 8000



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| Document Status | Authors | Date of issue | Review |
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| Draft v0 | C. Dart | 20/02/2022 | G. Firth, A. Chandler |
| Final v1 | C. Dart | 21/02/2022 | |

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.

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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 data 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 2021 to the 23rd of January 2022 and is required to be published before the 20th of April 2022.

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 EMO compliance to the conditions of the approval document.

The project approved is for the development of the Greenfinch pit which includes 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).

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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 current and historic 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 are:

- 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.

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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, 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. No clearing was undertaken during the reporting period. A total of 11.5 ha of native vegetation was previously 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.

All clearing has been 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.

A haulage road approved to the north of the Pit was not required which has reduced the total project footprint. Clearing for the extension of the Corsini Flood bund to the south of the Corsini WRL has not yet been undertaken. Ramelius are currently completing prefeasibility studies to extend the Edna May pit which could impact the location of the bund. The Clearing Permit CPS8550 was amended during the reporting year to extend the period to complete clearing by a year until 25 October 2022. It is expected a decision on the feasibility of the expansion works will be reached before this date.

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).

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 nests.



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.

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

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

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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

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

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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 during the reporting period which consisted of removing the bitumen road surface and ripping the road base (Figure 5). EMO plan to continue rehabilitation in the 2022-2023 reporting period which will include planting of seedlings and direct seeding. Depending on rainfall, this is planned for June 2022.

On completion of rehabilitation works a vegetation monitoring plot will be installed to monitor progress. This will be compared to existing analogue sites that are currently monitored annually. 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.



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Figure 5: Ripping of the diverted Warrachuppin road in preparation for planting. Completed during 2021

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Figure 7: Rehabilitation Areas – Ripping of Warrachuppin road was completed this reporting period

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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 7).

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

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 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 Lot1578 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.

| 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 |

Table 1: Species list of seedlings planted in Lot 1578

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.

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Management of the site this year included weed spraying of the northern site, and maintenance of firebreaks around both sites

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.

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Figure 9: Location of Farmland revegetation sites and the year they were established

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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 2).

| 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 10: 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.

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 Table 3: Seed List for 2021 farmland revegetation project

| 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 pottiputki in some of the seeded rows.

A selective broad leaf and grass herbicides were applied to the area in September. Unfortunately, this was applied later than preferred and many of the grasses went to seed. 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 to monitor the progress of the site.

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Figure 11: Direct Seeding of Lot 162, May 2021, using the CommVeg Direct Seeder.

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Figure 12: Planting of Seedlings in Lot 162, June 2021, using the Chatfields Tree Planter

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 161. During this reporting period, 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.



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Figure 13: Seedling planted in the remnant 15ha block, July 2021. Picture taken February 2022

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 it 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 are providing \$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.



Environment

7. MONITORING AND COMPLETION CRITERIA

The farmland revegetation areas surrounding the mining project are monitored annually to assess their performance against completion criteria (Table 3 and Table 4). 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 2021 and included new transects which were installed in the offset areas, Lot 1578 and Lot 162 (Figure 14). The survey was completed by Botanica Consulting (2022) and the full report can be found in Appendix B.

| 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 |

 Table 4: Completion Criteria for Flora/Vegetation in the farmland revegetation

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 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



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Table 5: Completion Criteria Targets

| Completion Criteria | Completion Criteria Target |
|--|----------------------------|
| Species Diversity (400 m ²) | >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% |

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Figure 14: Farmland Rehabilitation and Vegetation Monitoring Transect Locations (Botanica 2022)

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| | | | | | |



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 6. All measures rated poorly, and weed presence was high, however no WoNS or declared plants were recorded (Botanica 2022).

| | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|-------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------|----------|
| Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| T7 | 0.1 | 2 | 0.5 | 99 | 0 | 0 |
| T8 | 0 | 1 | 0 | 99 | 0 | 0 |

Table 6: Assessment of Lot 162, transect 7-8, against completion criteria for 2021 monitoring

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 22 taxa were recorded within the transects, 14 of these were native plants, and eight weed species were present. Species richness had increased slightly from previous years and plant density had decreased slightly. Species diversity index had also slightly decreased and was equal to the analogue average. Vegetation cover has increased since previous years, and so too has weed cover. T9 and T10 met the completion criteria target for plant density (m²) and species richness (25m²). All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 7). Relative weed cover rated poorly for all sites. Ward's weed (*Carrichtera annua*) was a weed that was present at all sites. Iceplant (*Mesembryanthemum crystallinum*) was dominant at sites T9 and T10. Bearded oat (*Avena barbata*) was dominant at T11 (Botanica 2022).

| | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|-------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------|----------|
| Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| Т9 | 2.3 | 9 | 25 | 59 | 0 | 0 |
| T10 | 1.4 | 8 | 20 | 62 | 0 | 0 |
| T11 | 0.2 | 2 | 1.5 | 97 | 0 | 0 |
| T12 | 0.2 | 3 | 3 | 71 | 0 | 0 |

Table 7: Assessment of Lot 1578, transect 9-12, against completion criteria for 2021 monitoring (Botanica 2022)

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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 Weed and Vertebrate Pest 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.

EMO has continued to implement the Weed and Vertebrate Pest 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 15).
- 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

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Figure 15: Weed Management completed during the 2021-2022 reporting period.

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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.



Environment

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.

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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. | | | |



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| 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, this reporting period, in preparation for planting in Winte 2022. |
| 3a | Rehabilitate the Rehabilitation Areas using species representative of the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community; | Compliant | EMO is planning to plant the area in Winte 2022. Seedlings and seed, representative o the Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecologica Community, have been ordered. |
| 3b | Commence rehabilitation activities in all Rehabilitation Areas within twelve months of the completion of construction of the abandonment bund; | Compliant | Construction of the abandonment bund wa completed in December 2020. EMO commenced rehabilitation activities in July 2021. |
| Зс | 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; | Not Applicable | EMO has only commenced rehabilitation activities this reporting period. |
| 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. |


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| Number | Condition | Compliance | Comments |
|--------|---|-------------------|--|
| | 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. | | 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 during the reporting period (winter 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. |
| 5b | 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 managemen 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 Weston Common Management Plan 2016-2020. Th 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 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 | Compliant | EMO began implementing the Rehabilitatio Offset Plan in 2020, within 12 months of th commencement of the action. |



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| Number | Condition | Compliance | Comments |
|--------|---|-------------------|---|
| | 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 th 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. |
| 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 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). | Not Applicable | EMO commenced rehabilitation activities in 2020. Verification report is not yet required Initial discussions with DBCA indicate that a covenant agreement is not suitable to the rehabilitation offset areas. |



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|------|----------|--|
| | Unincinc | |

| Number | Condition | Compliance | Comments |
|-----------|---|-------------------|---|
| | | | Instead, EMO will hold discussions with the Westonia Shire about including the areas within the Westonia Common. |
| Part B – | Standard administrative conditions | | |
| Notificat | tion 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 or the 23rd of January 2020 that they will be commencing the action. |
| Complia | nce 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 availab if requested. |
| Preparat | tion 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: Greenfinch Weed and Vertebrate Pest Management Plan Edna May Operations Offset Rehabilitation Plan Greenfinch Fauna Management Plan |
| | | | The Edna May Operations Offset Rehabilitation Plan was revised this reporting period to update the shape of the 75ha offset revegetation area. The updated plan will be submitted to the Department and uploaded to the Ramelius website alor with this Report. |
| 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: |
| | | | Greenfinch Weed and Vertebrate Pest Management Plan Greenfinch Offset Rehabilitation Plan Greenfinch Fauna Management Plan |
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| Number | Condition | Constitution | Commonte |
|-----------|---|-------------------|---|
| Number | | Compliance | Comments |
| 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 co | ompliance reporting | I | |
| 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 2021 to 23rd January 2022 |
| 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 prior to the 21st of April 2022 |
| 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 on the Ramelius website prior to the 21st of April 2022 |
| 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 | g 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: | 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 | Not Applicable | |



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| Number | Condition | Compliance | Comments |
|----------|--|-------------------|---|
| | 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: | 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 | |
| Independ | ent 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 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. | Not Applicable | |
| Completi | on of the action | Γ | |
| 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 to all applicable conditions of the licence

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Environment

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. REFERENCES

- Botanica Consulting (2022). Edna May Project Farmland Rehabilitation Monitoring Report 2021. 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.

| File Name: | 2022 ACR EPBC2018-8213 Final | Version: | 1 | Date Published: | 21/02/2022 |
|------------|------------------------------|----------|---|-----------------|------------|



Environment

15. APPENDICES

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

| File Name: | 2022 ACR EPBC2018-8213 Final | Version: | 1 | Date Published: | 21/02/2022 |
|------------|------------------------------|----------|---|-----------------|------------|



Australian Government

Department of the Environment and Energy

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 | 20 |
|-------------------|--|----|
| | Acting Assistant Secretary | |
| | Environment Approvals Division | |
| | Department of the Environment and Energy | |
| Signature | Sum | |
| 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

- 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 <u>Attachment A</u>. 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 <u>Attachment C</u>. 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 in the 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;
 - 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**.
- 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 <u>Attachment D</u>;
 - 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 <u>Attachment D</u>; 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 <u>Attachment C</u> 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 <u>Attachment C</u> 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 noncompliance 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 **us**e 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 <u>Attachment B</u>.

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.



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





Appendix B: Edna May Project Farmland Rehabilitation Monitoring Report 2022

| File Name: | 2022 ACR EPBC2018-8213 Final | Version: | 1 | Date Published: | 21/02/2022 |
|------------|------------------------------|----------|---|-----------------|------------|



EDNA MAY PROJECT

Farmland Rehabilitation Monitoring Report 2021



Final February 2022



33 Brewer St PERTH WA 6000 | 0419 916 034



Document Information

| Prepared for: | Ramelius Resources Limited |
|----------------|--|
| Project Name: | Edna May Project |
| Tenements: | G77/122, M77/88, M77/110, M77/124, L77/18, L77/233 |
| Job Reference: | Farmland Rehabilitation Monitoring Report 2021 |
| Job Number: | 2021/106 |
| Date: | 21 February 2022 |
| Version: | Final |

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Quality Assurance

An internal quality review process has been implemented to each project task undertaken by BC. Each document and its contents is 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: T2, transect 2 at Site 3, rehabilitated in 2016 (October 2021)

| Prepared by: | Jennifer Jackson Senior Environmental Consultant Botanica Consulting |
|--------------|--|
| Reviewed by: | Andrea Williams Director Botanica Consulting |
| Approved by: | Jim Williams Director Botanica Consulting |



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APPENDICES

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Appendix C: Assessment of rehabilitation sites against completion criteria from 2017 to 2021

Appendix D: Old and new site IDs



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 fourth 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 2021 monitoring there were 12 sites in the farmland rehabilitation areas and six analogue sites in nearby Eucalypt woodlands.

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 2021 monitoring was completed by Michelle Luinstra (Environmental Consultant) and Jennifer Jackson (Senior Botanist) on the 19th and 20th of October 2021.





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 2.9 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).

The current life of mine (LoM) for the EMO is eight to nine years (to financial year 2030). On 2 August 2021, Ramelius announced a new 1.84 million ounce mine plan which would include a low grade tail in financial years 2029 and 2030. This mine plan resulted in a total increase in expected gold production of 27% (Ramelius Resources, 2021).

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 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).



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).

| 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 <i>Eremophila resinosa</i> 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 <i>Eremophila resinosa</i> 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 <i>Eremophila resinosa</i> 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. <i>Eremophila resinosa</i> 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. (See Appendix 5 for species composition) |

Table 1: Revegetation methods





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 2.

| 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. |

Table 2: Land Systems across the EMO Project area



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 3 (BoM, 2021). With the exception of 2019 when the annual rainfall was 232.5 mm, annual rainfall has been close to the annual average of 324.9 mm for several years. Rainfall for 2021 is also expected to reach the annual average, with 314.8 mm recorded until the end of October 2021 (Figure 3) (BoM, 2021).



Figure 3: Rainfall Data for the Westonia weather station (#12083) (BoM, 2021)



2 METHODS

For the 2021 monitoring there were 12 sites in the farmland rehabilitation areas and six analogue sites in nearby Eucalypt woodlands. Transect coordinates and year of rehabilitation are presented in Table 3.

The previous site numbering was changed for this report and future monitoring to avoid any confusion. The previous site numbering compared to the new numbering is presented in Appendix D. For this report only the new numbering will be used.

| Rehabilitation/ Analogue Site | Rehab year | New Transect ID | GPS Coordinates (GDA 94, 32751) | | | | | | |
|----------------------------------|---------------|-----------------------|------------------------------------|--|--|--|--|--|--|
| Site 1 | 2015 | T1 | 51J 91495 6530951 | | | | | | |
| Site 2 | 2016 | T2 | 51J 91501 6531500 | | | | | | |
| Site 3 | 2016 | Т3 | 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 | | | | | | |
| Sile / | 2021 | T8 | 51J 91129 6534031 | | | | | | |
| | 2020 | Т9 | 51J 89538 6529943 | | | | | | |
| Slippony's Paddock | 2020 | T10 | 51J 89399 6529969 | | | | | | |
| Supperysraduock | 2020 | T11 | 51J 89278 6529787 | | | | | | |
| | 2020 | T12 | 51J 89424 6529744 | | | | | | |
| Analogua 1 | - | A1 | 51J 91391 6530770 | | | | | | |
| Analogue | - | A2 | 51J 91375 6530778 | | | | | | |
| | - | A3 | 51J 90486 6529443 | | | | | | |
| Analogue 2 | - | A4 | 51J 90444 6529468 | | | | | | |
| | - | A5 | 51J 89261 6530010 | | | | | | |
| Analogue 3 | - | A6 | 51J 89290 6530091 | | | | | | |

Table 3: Monitoring Transect Details

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 foliage¹/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 4). 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.

| 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 |

Table 4: Completion Criteria Targets

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 2021 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 2017-2021 results for each transect are summarised in Table 5.

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.

| Site | Species Richness | | | | | | Species Diversity Index | | | | Plant Density | | | | | Plant Density (m²) | | | | | | Relative Weed Cover (%) | | | | | | | | |
|--------------------|------------------|------|------|------|------|------|-------------------------|------|------|------|---------------|------|------|------|------|--------------------|------|------|------|------|------|-------------------------|------|------|------|------|------|------|------|------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2017 | 2018 | 2019 | 2020 | 2021 | 2017 | 2018 | 2019 | 2020 | 2021 | 2017 | 2018 | 2019 | 2020 | 2021 | 2017 | 2018 | 2019 | 2020 | 2021 | 2017 | 2018 | 2019 | 2020 | 2021 |
| T1 | 15 | 16 | 16 | 10 | 7 | 2.3 | 2.4 | 2.4 | 1.9 | 1.6 | 48 | 53 | 53 | 43 | 31 | 1.9 | 2.1 | 2.1 | 1.7 | 1.2 | 35 | 40 | 40 | 40 | 68.5 | 28 | 7 | 0 | 0 | 9 |
| Т5 | 7 | 5 | 7 | 7 | 6 | 1.6 | 1.6 | 2.1 | 1.9 | 1.7 | 13 | 6 | 8 | 8 | 7 | 0.5 | 0.2 | 0.3 | 0.3 | 0.3 | 10 | 10 | 10 | 10 | 18 | 80 | 89 | 0 | 20 | 74 |
| Mean 2015 Rehab | 11 | 11 | 12 | 9 | 7 | 2.0 | 2.0 | 2.3 | 1.9 | 1.7 | 31 | 30 | 31 | 26 | 19 | 1.2 | 1.2 | 1.2 | 1.0 | 0.8 | 23 | 25 | 25 | 25 | 43 | 54 | 48 | 0 | 10 | 42 |
| T2 | 8 | 4 | 4 | 4 | 4 | 2.0 | 1.3 | 1.3 | 1.3 | 1.3 | 13 | 5 | 5 | 5 | 5 | 0.5 | 0.2 | 0.2 | 0.2 | 0.2 | 5 | 10 | 10 | 10 | 16 | 82 | 89 | 45 | 10 | 50 |
| Т3 | 10 | 10 | 9 | 7 | 11 | 2.2 | 2.2 | 2.0 | 1.8 | 2.3 | 25 | 20 | 17 | 12 | 21 | 1.0 | 0.8 | 0.7 | 0.5 | 0.8 | 15 | 15 | 15 | 15 | 63 | 50 | 60 | 0 | 0 | 28 |
| Τ4 | 8 | 5 | 6 | 5 | 6 | 1.9 | 1.4 | 1.5 | 1.4 | 1.5 | 28 | 17 | 18 | 17 | 17 | 1.1 | 0.7 | 0.7 | 0.7 | 0.7 | 15 | 10 | 20 | 30 | 34 | 20 | 54 | 51 | 30 | 14 |
| Т6 | 12 | 10 | 10 | 10 | 9 | 2.2 | 2.1 | 2.1 | 2.1 | 1.6 | 29 | 25 | 31 | 31 | 28 | 1.2 | 1.0 | 1.2 | 1.2 | 1.1 | 18 | 10 | 10 | 20 | 39 | 28 | 40 | 0 | 5 | 50 |
| Mean 2016 Rehab | 10 | 7 | 7 | 2 | 8 | 2.1 | 1.8 | 1.8 | 1.7 | 1.7 | 24 | 17 | 18 | 16 | 18 | 1.0 | 0.7 | 0.7 | 0.7 | 0.7 | 13 | 11 | 14 | 19 | 38 | 45 | 61 | 24 | 11 | 36 |
| Т9 | | | | 5 | 9 | | | | 1.4 | 1.9 | | | | 46 | 58 | | | | 1.8 | 2.3 | | | | 10 | 25 | | | | 20 | 59 |
| T10 | | | | 3 | 8 | | | | 0.8 | 1.8 | | | | 21 | 36 | | | | 0.8 | 1.4 | | | | 10 | 20 | | | | 10 | 62 |
| T11 | | | | | 2 | | | | | 0.5 | | | | | 6 | | | | | 0.2 | | | | | 1.5 | | | | | 97 |
| T12 | | | | | 3 | | | | | 1.1 | | | | | 5 | | | | | 0.2 | | | | | 3 | | | | | 71 |
| Mean 2020 Rehab | | | | 4 | 6 | | | | 1.1 | 1 | | | | 34 | 26 | | | | 1.3 | 1 | | | | 10 | 12 | | | | 15 | 72 |
| Τ7 | | | | | 2 | | | | | - | | | | | 2 | | | | | 0.1 | | | | | 0.5 | | | | | 99 |
| Т8 | | | | | 1 | | | | | - | | | | | 1 | | | | | 0.0 | | | | | 0 | | | | | 99 |
| Mean 2021 Rehab | | | | | 2 | | | | | - | | | | | 2 | | | | | 0 | | | | | 0 | | | | | 99 |
| A1 | 11 | 11 | 11 | 6 | 12 | 1.5 | 1.7 | 1.8 | 1.8 | 1.5 | 110 | 125 | 54 | 10 | 90 | 4.4 | 5.0 | 2.2 | 0.4 | 3.6 | 50 | 50 | 50 | 50 | 56 | 0 | 0 | 0 | 0 | 0 |
| A2 | 14 | 12 | 12 | 6 | 9 | 2.1 | 2.1 | 2.1 | 1.7 | 1.0 | 70 | 62 | 36 | 9 | 46 | 2.8 | 2.5 | 1.4 | 0.4 | 1.8 | 80 | 70 | 70 | 65 | 67 | 0 | 0 | 0 | 0 | 0 |
| A3 | 7 | 6 | 6 | 6 | 7 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 71 | 60 | 51 | 48 | 44 | 2.8 | 2.4 | 0.2 | 1.9 | 1.8 | 100 | 100 | 100 | 100 | 84 | 0 | 0 | 0 | 0 | 0 |
| A4 | 6 | 6 | 6 | 5 | 5 | 1.4 | 1.3 | 1.3 | 1.3 | 1.5 | 34 | 47 | 43 | 32 | 26 | 1.4 | 1.9 | 1.7 | 1.3 | 1.0 | 75 | 70 | 70 | 70 | 37 | 0 | 0 | 0 | 0 | 0 |
| A5 | 6 | 7 | 7 | 3 | 7 | 1.3 | 1.5 | 1.6 | 0.3 | 1.1 | 138 | 62 | 44 | 40 | 41 | 5.5 | 2.5 | 1.8 | 1.6 | 1.6 | 40 | 40 | 40 | 75 | 51 | 0 | 0 | 0 | 0 | 0 |
| A6 | 8 | 6 | 6 | 4 | 8 | 1.6 | 1.4 | 1.2 | 0.9 | 1.4 | 153 | 77 | 55 | 46 | 84 | 6.1 | 3.1 | 2.2 | 2.0 | 3.4 | 75 | 70 | 70 | 80 | 71 | 0 | 0 | 0 | 0 | 0 |
| Mean Analogue | 9 | 8 | 8 | 5 | 8 | 1.5 | 1.5 | 1.5 | 1.2 | 1.3 | 96 | 72 | 47 | 31 | 55 | 3.8 | 2.9 | 1.6 | 1.3 | 2.2 | 70 | 67 | 67 | 73 | 61 | 0 | 0 | 0 | 0 | 0 |

Table 5: Monitoring Results Summary 2017-2021

| 360 | BOTANICA |
|-----|------------|
| - | CONSULTING |


3.1.1 Completion Criteria Assessment

An assessment of the rehabilitation sites against completion criteria targets is provided in Table 6. Completion criteria has been taken from the EMO Offset Rehabilitation Plan 2020 – 2022 (2019). These completion criteria targets were modified in this Offset Rehabilitation Plan and are different to what has been presented in previous reports. Therefore, this table presents an assessment for 2021 monitoring only, and all previous years monitoring assessments can be found in Appendix C.

The plant density (m²) met the completion criteria at four sites. Species richness (25m²) met the completion criteria at five sites and for vegetation cover (%) completion criteria was met at four sites. 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 five 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).

| | | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|---------------------|----------------------------------|--|--|-------------------------------------|--|---------------------------|-------------|
| | Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| | = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| 201E Robabilitation | T1 | 1.2 | 7 | 68.5 | 9 | 0 | 0 |
| | T5 | 0.3 | 6 | 18 | 74 | 0 | 0 |
| | T2 | 0.2 | 4 | 16 | 50 | 0 | 0 |
| 2016 Robabilitation | Т3 | 0.8 | 11 | 63 | 28 | 0 | 0 |
| | T4 | 0.7 | 6 | 34 | 14 | 0 | 0 |
| | Т6 | 1.1 | 9 | 39 | 50 | 0 | 0 |
| 2021 Debabilitation | T7 | 0.1 | 2 | 0.5 | 99 | 0 | 0 |
| | Т8 | 0 | 1 | 0 | 99 | 0 | 0 |
| | Т9 | 2.3 | 9 | 25 | 59 | 0 | 0 |
| | T10 | 1.4 | 8 | 20 | 62 | 0 | 0 |
| 2020 Renabilitation | T11 | 0.2 | 2 | 1.5 | 97 | 0 | 0 |
| | T12 | 0.2 | 3 | 3 | 71 | 0 | 0 |

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

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



3.1.2 2015 Rehabilitation

In 2021, a total of 17 taxa were recorded within the transects in the 2015 rehabilitated areas (T1 and T5). 14 of these 17 taxa were native plants, and three weed species were present.

Species richness and plant density had decreased slightly from previous years (Figure 4). Species diversity index had also slightly decreased but rated higher than the analogue average (Figure 5).

Vegetation cover has increased since previous years, but so too has weed cover (Figure 6).

T1 met the completion criteria target for plant density (m²), species richness (25m²) and vegetation cover (%). All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 7).

Weed cover was 9% at T1 and 74% at T5. A daisy, *Oncosiphon piluliferum* was a dominant weed at both sites, with a weedy grass also dominant at T5 and this is evident in the photo at Figure 7. 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 species diversity and plant density (m²) of 2015 Rehabilitation sites





Figure 6: Mean vegetation cover and relative weed cover (%) of 2015 Rehabilitation sites

| | | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|---------------------|----------------------------------|--|--|-------------------------------------|--|---------------------------|-------------|
| | Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| | = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| 2015 Debekilitetien | T1 | 1.2 | 7 | 68.5 | 9 | 0 | 0 |
| 2015 Renabilitation | T5 | 0.3 | 6 | 18 | 74 | 0 | 0 |



Figure 7: 2021 photos of transects T1 (left) and T5 (right)



3.1.3 2016 Rehabilitation

In 2021, a total of 24 taxa were recorded within the four transects in the 2016 rehabilitated areas (T2, T3, T4 and T6). 17 of these 24 taxa were native plants, and seven weed species were present. The Threatened flora *Eremophila resinosa* was present at T2.

Species richness and plant density had increased slightly from previous years (Figure 4). Species diversity index had also slightly increased and rated higher than the analogue average (Figure 5).

Vegetation cover has increased since previous years, and so too has weed cover (Figure 10).

T6 met the completion criteria target for plant density (m²), species richness (25m²) and vegetation cover (%). All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 7).

A daisy, Globe chamomile (*Oncosiphon piluliferum*) was a weed that was present at all sites, but dominant at site T6 (Figure 12). Weedy grasses such as Ryegrass (*Lolium rigidum*) were present at sites T2 and T3. No WoNS or declared plants were present at these sites.



Figure 8: Mean species richness and total plant density of 2016 Rehabilitation sites



Figure 9: Mean species diversity and plant density (m²) of 2016 Rehabilitation sites





Figure 10: Mean vegetation cover and relative weed cover (%) of 2016 Rehabilitation sites

| | | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|---------------------|----------------------------------|--|--|-------------------------------------|--|---------------------------|-------------|
| | Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| | = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| | T2 | 0.2 | 4 | 16 | 50 | 0 | 0 |
| 2016 Debebilitation | Т3 | 0.8 | 11 | 63 | 28 | 0 | 0 |
| 2016 Renabilitation | T4 | 0.7 | 6 | 34 | 14 | 0 | 0 |
| | T6 | 1.1 | 9 | 39 | 50 | 0 | 0 |



Figure 11: 2021 photos of transects T2 (left) and T3 (right)





Figure 12: 2021 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).

A total of 22 taxa were recorded within the transects, 14 of these were native plants, and eight weed species were present.

Species richness had increased slightly from previous years and plant density had decreased slightly (Figure 4). Species diversity index had also slightly decreased and was equal to the analogue average (Figure 5).

Vegetation cover has increased since previous years, and so too has weed cover (Figure 10).

T9 and T10 met the completion criteria target for plant density (m²) and species richness (25m²). All sites met the completion criteria targets for not having any WoNS or declared plants present (Table 7).

Relative weed cover rated poorly for all sites. Ward's weed (*Carrichtera annua*) was a weed that was present at all sites. Iceplant (*Mesembryanthemum crystallinum*) was dominant at sites T9 and T10. Bearded oat (*Avena barbata*) was dominant at T11, and this is evident in the photo at Figure 17.





Figure 13: Mean species richness and total plant density of the Slippery's Paddock Rehabilitation sites



Figure 14: Mean species diversity and plant density (m²) of the Slippery's Paddock Rehabilitation sites





Figure 15: Mean vegetation cover and relative weed cover (%) of the Slippery's Paddock Rehabilitation sites

| | | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|---------------------|----------------------------------|--|--|-------------------------------------|--|---------------------------|-------------|
| | Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| | = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| | Т9 | 2.3 | 9 | 25 | 59 | 0 | 0 |
| 2020 Debekilitetion | T10 | 1.4 | 8 | 20 | 62 | 0 | 0 |
| 2020 Renabilitation | T11 | 0.2 | 2 | 1.5 | 97 | 0 | 0 |
| | T12 | 0.2 | 3 | 3 | 71 | 0 | 0 |



Figure 16: 2021 photos of transects T9 (left) and T10 (right)





Figure 17: 2021 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 this monitoring (T7 and T8). Results against completion criteria are presented in Table 10: All measures rated poorly, and weed presence was high, however no WoNS or declared plants were recorded.

| | | Plant Density (m²) | Species Richness (25m²) | Vegetation Cover (%) | Relative Weed Cover (%) | Declared plants (%) | WoNS (%) |
|---------------------|----------------------------------|--|--|-------------------------------------|--|---------------------------|-------------|
| | Completion Criteria Target | 50% of the analogue mean (2.2) | >80% of the analogue mean (8) | 50% of the analogue mean (61) | <20% of the analogue mean (0) | 0% | 0% |
| | = | 1.1 | 6.4 | 30.5 | 0 | 0% | 0% |
| 2021 Pababilitation | T7 | 0.1 | 2 | 0.5 | 99 | 0 | 0 |
| | Т8 | 0 | 1 | 0 | 99 | 0 | 0 |

Table 10: Assessment of 2021 rehabilitation sites against completion criteria for 2021 monitoring



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 eight years old) this result is not unexpected when compared to the very mature and stable environments of the analogue sites.

The plant density (m²) results met the completion criteria at four sites. Species richness (25m²) met the completion criteria at five sites and for vegetation cover (%) completion criteria was met at four sites. 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 five 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 has increased since 2020 and this could be the result of good rainfall for 2021. 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 shown increased 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.



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Appendix A: Species list

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

| | Sit | te 1 | Sit | e 2 | Sit | te 3 | Si | te 4 | Site | e 5 | Si | te 6 | | Sit | te 7 | | | | SI | linnerv' | e Dadda | ck | | | | Analo | oaue 1 | | | Analo | oaue 2 | | | Anal | oque 3 | |
|---|--------|-------|--------|----------|--------|-------|--------|---------|--------|-------|--------|-------|--------|-------|--------|-------|----------|-------|--------|----------|---------|-----------------|--------|-------|--------|-------|--------|-------|----------|-------|----------|-------|--------|-------|----------|----------|
| Taxon | 1 | ۲1 | Т | 2 | 1 | Г3 | | Г4 | Т | 5 | - | Т6 | 1 | [7 | 1 | 8 | - | ۲۹ | т | 10 | Т | <u>ск</u> 11 | - | 12 | A | 1 | A | 12 | A | 43 | J 4 | ۹4 | | 45 | A | A6 |
| Taxon | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No | % | No | % | No | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| *Access have to (AA) | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover | plants | Cover |
| *Avena barbata (W) | | | | | | | 6 | <1 | | | | | 14 | 6 | 4 | 0.5 | 4 | 0.5 | | | 600 | 90 | 30 | 10 | | | | | | | | | | | | |
| Brassica tournerortii (W) | | | 100 | 2 | 20 | 4 | 3 | <1 | | | | | | | 1 | 0.5 | | | | | | | | | | | | | | | | | | | | |
| | | | 106 | 2 | 20 | 1 | | | | | | | | | | | 80 | 20 | 60 | 20 | 50 | 10 | 260 | 20 | | | | | | | | | | | | |
| *Chanapadium album (M/) | | | | | | | | | | | | | | | | | | | | | 22 | 1 | 10 | 1 | | | | | | | | | | | | |
| | | | | | | | | | + + | | | | 1 | 0.5 | | | 4 | 2 | 8 | 4 | | | 1 | 0.5 | | | | | | | | | | | <u> </u> | |
| *Lolium rigidum (M) | 26 | 1 | 26 | 10 | 50 | 10 | | | 50 | 10 | | | 200 | 0.5 | 200 | 05 | | | | | 3 | 1 | | | | | | | | | | | | | <u> </u> | <u> </u> |
| *Modicago polymorpha (M) | 20 | 1 | 30 | 2 | 50 | 12 | | | 50 | 12 | | | 300 | 90 | 200 | 95 | | | | | | | | | | | | | | | | | | | | |
| *Mosombn/anthomum_cn/stallinum_(M/) | | | 2 | 2 | | | | | + + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *Opcosiphon piluliforum (W) | 40 | 6 | 82 | 12 | 60 | 10 | 20 | 6 | 120 | 20 | 200 | 26 | 70 | 25 | 60 | 20 | 300 | 20 | 200 | 20 | | | | | | | | | | | | | | | | - |
| *Popopop sp whoat (W) | 40 | 0 | 02 | 12 | 20 | 6 | 30 | 0 | 120 | 20 | 200 | 30 | 10 | 20 | 2 | 1 | | | 2 | 2 | | | | | | | | | | | | | | | | - |
| *Sonobup conor (M) | | | | | 30 | 0 | | | 100 | 20 | 30 | 3 | 4 | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | | | |
| | 2 | 10 | | | | | | | + + | | | | | | | | | | | | | | 2 | 0.5 | | | | | | | | | | | | |
| | 12 | 20 | | | | | 1 | -1 | + + | | | | | | | | <u> </u> | | | | | | | | 1 | 10 | | | | | | | | | <u> </u> | |
| | 13 | 20 | | | 1 | 0.5 | 1 | <1 | + + | | 1 | 0.5 | | | | | 4 | 2 | | | | | 1 | 1 | | 10 | | | | | | | | | <u> </u> | |
| | 4 | 0.5 | | | 2 | 10 | 5 | <1 6 | + + | | 2 | 0.5 | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | |
| | | 0.5 | | | 3 | 10 | 5 | 0 | | | 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 4 | 4 | 4 | 14 | 7 | 10 | | | 2 | 2 | | | | | | | | | | | | | | | 4 | 2 | | | | | | | | |
| | | | 1 | 4 | 4 | 14 | / | 18 | | | 2 | 3 | | | | | | | | | | | | | | | 1 | 3 | | | | | | | | |
| | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 2 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | + + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 2 | | | | + + | | | | 1 | 0.5 | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 10 | | | 2 | 0 | | | + + | | | | | 0.5 | | | 3 | 1 | | | | | | | | | | | | | | | | | | |
| | - 2 | 20 | | | | | | | + + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aristida conterta (A) | 2 | 20 | | | | | | | + + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atriplov ampicolo | 5 | 0.5 | | | | | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 1 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 |
| | | | | | | | | | + + | | 7 | 10 | | | | | | | | | | | | | | | | | 20 | 25 | 10 | 1 | | | 2 | 1 |
| Austrostina ologantissima | | | | | | | | | + + | | | 10 | | | | | | | | | | | | | 4 | -1 | 2 | 1 | 20 | 23 | 10 | 4 | 2 | -1 | 2 | + |
| | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | | 20 | 2 | 5 | ' | | | | | 2 | | 2 | 1 |
| Calothamnus gilesii | | | | | | | | | | | 5 | | | | | | | | 6 | <1 | | | | | 20 | 2 | | | | | | | | | 2 | |
| Cophaliptorum drummondii (A) | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 1 | | | | | | | | | | - |
| | | | | | | | | | | | | | | | | | | | | | | | | | 30 | 4 | | | | | | | | | | + |
| Dysphania glomulifera subsp. Eremaea (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enchylaena tomentosa | | | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 5 | 6 |
| Enteropogon ramosus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eremophila decipiens | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 3 | | | | | | | | | | |
| Eremophila ionantha | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3 | | | 3 | 2 | 1 | 5 | | |
| Eremophila resinosa | | | 2 | 4 | 1 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eriochiton sclerolaenoides | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Erodium sp. (sterile) | | | | | | | | | | | | | 1 | 0.5 | 1 | 0.5 | | | | | | | | | | | | | | | | | | | | |
| Eucalyptus ?salmonophloia | 1 | 1 | 1 | 4 | 1 | 5 | 2 | 8 | | | | | | | | | 1 | | | | 1 | | | | | | | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 |
| Eucalyptus ?salubris | 1 | 1 | 1 | 4 | 3 | 10 | 1 | | 2 | 7 | 1 | 2 | | | | | 1 | | | | 1 | | | | | | | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 |
| Eucalyptus ?yilgarnensis | 1 | 1 | | | 1 | | 1 | | | | 1 | 4 | | | | | 1 | | | | 1 | | | | | | | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 |
| Eucalyptus longicornis | 1 | 1 | | | 1 | | 1 | | | | | | | | | | 1 | | | | 1 | | | | | | | 1 | 2 | 50 | | 1 | 2 | 30 | 3 | 30 |
| Eucalyptus loxophleba subsp. lissophloia | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | <u> </u> | 1 | <u> </u> | | | | <u> </u> | 1 |
| Eucalyptus salmonophloia | 1 | 1 | | | 1 | | 1 | | | | | | | | | | 1 | | | | 1 | | | | | | 1 | 10 | | 1 | | 1 | 1 | 1 | 1 | 1 |
| | | | | <u>.</u> | | | | | · | | | • | | | | • | | | • • | | | | | | | • | | | | | • | | | | | |



Ramelius Resources Ltd Edna May Operations – Farmland Rehabilitation Monitoring

| Site 1 Site | | | Site | 2 | Si | te 3 | Si | te 4 | Si | ite 5 | Si | te 6 | | Si | te 7 | | | | s | lippery' | s Paddo | ock | | | | Analo | gue 1 | | | Analo | gue 2 | | | Analo | gue 3 | |
|--------------------------------------|---------------------|--------|--------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|--------|------------|--------|------------|---------|-------------|--------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|
| Taxon | T1 | | Т2 | 2 | ٦ | Г3 | ٦ | Т4 | | T5 | | Г6 | 1 | Γ7 | ٦ | 8 | | Г9 | Т | 10 | Т | [11 | | ۲12 | A | \1 | A | 2 | A | 3 | A | ۸4 | A | 5 | A | 6 |
| | No. % plants Cov | er pla | No. lants | % Cover | No. plants | % Cover | No. | % Cover | No. | % Cover | No. | % Cover | No. | % Cover | No. plants | % Cover |
| Eucalyptus salubris | | | | | | | | | | | | | | | | | plaine | | pranto | | planto | | prante | | 1 | 20 | 1 | 10 | | | | | | | | |
| Eucalyptus spp. | | | | | | | | | | | | | | | | | 5 | 5 | 6 | 2 | 5 | 1 | 2 | 1 | | | | | | | | | | | | |
| Euphorbia drummondii | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exocarpos aphyllus | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 6 | 2 | 5 | 2 | 4 | | | | | | |
| Grass sp 2 | 32 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grevillea acuaria | | | | | | | | | | | | | | | | | | | | | | | | | 1 | <1 | | | | | | | | | | |
| Maireana aphylla | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maireana brevifolia | | | | | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 10 | 12 | | | | | | | 6 | 1 | | | | | | | | | | | | | | | | |
| Maireana enchylaenoides | | | | | | | | | | | | | | | | | 20 | 2 | | | | | | | | | | | | | | | | | | |
| Maireana georgei | | | | | | | | | | | | | | | | | 2 | 1 | 1 | <1 | | | | | | | | | 1 | <1 | | | | | | |
| Maireana radiata | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maireana sedifolia | | | | | | | | | | | | | | | | | | | 3 | 4 | | | | | | | | | | | | | | | 7 | 1 |
| Maireana tomentosa | | | | | | | | | | | | | | | | | 1 | 3 | | | | | | | | | | | 7 | 1 | 5 | <1 | 1 | <1 | 3 | 1 |
| Maireana trichoptera | | | | | | | | | | | | | | | | | | | | | | | | | 12 | 3 | | | | | | | 12 | 6 | 32 | 14 |
| Maireana sp 1 | | | | | | | | | | | | | | | | | 6 | 2 | 8 | 4 | | | | | | | | | | | | | | | | |
| Melaleuca eleuterostachya | | | | | | | | | 1 | 2 | 1 | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| Melaleuca lateriflora | | | | | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Melaleuca pauperiflora | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 30 | | | 2 | 30 | | | | |
| Melaleuca spp. | | | | | | | | | | | | | | | | | 9 | 3 | 2 | <1 | 1 | 0.5 | 2 | 1 | | | | | | | | | | | | |
| Olearia muelleri | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | | | | | | | | | | |
| Ptilotus exaltatus (A) | | | | | | | | | | | | | | | | | | | | | | | | | 13 | 4 | 32 | 4 | | | | | | | | |
| Ptilotus polystachyus (A) | 12 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rhagodia drummondii | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | |
| Rhodanthe sp (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | 50 | 10 | | | | | | | | |
| Roepera sp (A) | | | | | | | | | | | | | | | | | 12 | 2 | 26 | 6 | | | | | | | | | 7 | 1 | | | 3 | <1 | | |
| Salsola australis (A) | 1 0.1 | 1 3 | 30 | 10 | 16 | 10 | 26 | 4 | 12 | 3 | 4 | <1 | | | | | 20 | 2 | 16 | 4 | 8 | 1 | 155 | 10 | | | | | | | | | | | | |
| Sclerolaena diacantha | | | | | | | | | | | | | | | | | | | | | | | | | 26 | 4 | 32 | 4 | 11 | 1 | 6 | 1 | | | | |
| Sclerolaena uniflora | | | | | | | | | 1 | 0.3 | | | | | | | 8 | 6 | 4 | 7 | | | | | | | | | | | | | 22 | 8 | 40 | 16 |
| Senna artemisioides subsp. filifolia | | | | | | | | | | | | | | | | | | | | | | | | | 8 | 6 | | | | | | | | | | |
| Templetonia ceracea | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.5 | | | | | | |
| Waitzia acuminata (A) | 1 0.1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Species richness (25m²) | 7 | | 4 | | 11 | | 6 | | 6 | | 9 | | 2 | | 1 | | 9 | | 8 | | 2 | | 3 | | 12 | | 9 | | 7 | | 5 | | 7 | | 8 | |
| Plant Density (25m²) | 31 | | 5 | | 21 | | 17 | | 7 | | 28 | | 2 | | 1 | | 58 | | 36 | | 6 | | 5 | | 90 | | 46 | | 44 | | 26 | | 41 | | 84 | |
| Species Richness (1m²) | 0.28 | 0. | .16 | | 0.44 | | 0.24 | | 0.24 | | 0.36 | | 0.08 | | 0.04 | | 0.36 | | 0.32 | | 0.08 | | 0.12 | | 0.48 | | 0.36 | | 0.28 | | 0.2 | | 0.28 | | 0.32 | |
| Perennial Plant Density (1m²) | 1.24 | 0. | .20 | | 0.84 | | 0.68 | | 0.28 | | 1.12 | | 0.08 | | 0.04 | | 2.32 | | 1.44 | | 0.24 | | 0.2 | | 3.60 | | 1.84 | | 1.76 | | 1.04 | | 1.64 | | 3.36 | |
| Total % Cover (excluding weeds) | 68. | 5 | | 16 | | 63 | | 34 | | 18.5 | | 39 | | 1 | | 0.5 | | 25 | | 20 | | 1.5 | | 3 | | 56 | | 67 | | 84 | | 37 | | 51 | | 71 |
| Total % Cover (weeds) | 7 | | | 26 | | 29 | | 8 | | 62 | | 39 | | 123.5 | | 126.5 | | 42.5 | | 46 | | 102 | | 31.5 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 |
| Relative Cover of weeds (%) | 8.9 | 5 | | 50 | | 28.43 | | 14.12 | | 73.99 | | 50.32 | | 99.20 | | 99.61 | | 59.44 | | 62.16 | | 97.61 | | 71.11 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 |



Appendix B: Photographs of Transects

| | 2017 | 2018 | 2019 | 2020 |
|----|------|------|------|------|
| 11 | | | | |
| 72 | | | | |
| T3 | | | | |
| Τ4 | | | | |





Ramelius Resources Ltd Edna May Operations – Farmland Rehabilitation Monitoring



BOTANIO

NSULTIN

| | 2017 | 2018 | 2019 | 2020 |
|-----|------|------|------|------|
| Т9 | | | | |
| T10 | | | | |
| 111 | | | | |
| T12 | | | | |







BOTANIC

| | 2017 | 2018 | 2019 | 2020 |
|----|------|------|-------------------------------------|------|
| A5 | | | The original A5 was removed in 2020 | |
| A6 | | | The original A6 was removed in 2020 | |



BOTAN

| | 2017 | | | | | 2018 | | | | | 2019 | | | | | 2020 | | | | | | | | | | | | |
|----------------------------|--------|----------------------------|------------------------|--------|---------------------|--------|--------|------------------------|--------|---------------------|--------|--------|------------------------|--------|---------------------|--------|--------|--------|------------------------|--------|---------------------|--------|--------|--------|---|--------|--------|--------|
| Measure | Target | Rehabilitation Category | 2015 Rehabilitation | | 2016 Rehabilitation | | | 2015 Rehabilitation | | 2016 Rehabilitation | | | 2015 Rehabilitation | | 2016 Rehabilitation | | | | 2015 Rehabilitation | | 2016 Rehabilitation | | | 1 | Slippery's Paddock 2020 Rehabilitation | | | |
| medsure | | | 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 |
| | ≥2.4 | Excellent | 1.9 | 0.5 | 0.5 | 1 | 1.1 | | | 0.2 | 0.2 | 0.8 | 0.7 | | | | 0.2 | | | 1.2 | 1.7 | | | 0.3 | 0.7 | 1.2 | 1.8 | 0.8 |
| Plant Density | ≥1.2 | Satisfactory | | | | | | 1.2 | 2.1 | | | | | 1 | 21 | 03 | | 07 | 07 | | | 0.3 | 0.2 | | | | | |
| (m²) | <1.2 | Requires review | | | | | | | | | | 0.0 | | · | 2.1 | 0.0 | | 0.7 | 0.7 | | | | | | | | | 0.0 |
| | ≥1.4 | Excellent | 2.3 1. | | | 2.2 | | | | | | | 1.4 | 2.1 | 2.4 | | 1.3 | 2 | 1.5 | 2.1 | 1.9 | 1.9 | 1.2 | 1.8 | 1.4 | 2.1 | 1.4 | |
| Species Diversity Index | ≥1.1 | Satisfactory | | 1.6 | 2 | | 1.9 | 2.2 | 2.4 | 1.6 | 1.3 | 2.2 | | | | 2.1 | | | | | | | | | | | | 0.8 |
| | <1.1 | Requires review | | | | | | | | | | | | | | 2 | | | | | | | | | | | | 0.0 |
| | ≥8 | Excellent | 15 | 7 | 8 | 10 | 8 | 12 | 16 | 5 | 4 | 10 | 5 | 10 | 16 | | | | | 10 | 10 | 7 | 4 | 7 | | 10 | 5 | |
| Species | ≥6 | Satisfactory | | | | | | | | | | | | | | 7 | 4 | 9 | 6 | | | | | | 5 | | | 3 |
| Richness | <6 | Requires review | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ≥69 | Excellent | - 35 | 10 | 5 | | | | | | 10 | 15 | 10 | 10 | | | 10 | | | 10 | 40 1 | | | 15 | 30 | 20 | 10 | 10 |
| Vegetation | ≥35 | Satisfactory | | | | 15 | 15 | 18 | 40 | 10 | | | | | 40 | 10 | | 15 | 20 | | | 10 | 10 | | | | | |
| Cover (%) | <35 | Requires review | | | | | | - | | - | | | | | | | | | | | | | | | | | | |
| | 0 | Excellent | - 28 80 | | | | | | | | | | 54 | | | | 45 | 5 0 | 51 | 0 | 0 | 20 | 10 | 0 | 30 | 5 | 20 | 10 |
| Relative Weed | <20 | Satisfactory | | 80 | 82 | 50 | 20 | 28 | 7 | 89 | 89 | 60 | | 40 | 0 | 0 | | | | | | | | | | | | |
| Cover (%) | >20 | Requires review | | | | | | 20 | | | | | | Ē | | | | | | | | | | | | | | |
| Weeds of | 0 | Excellent | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | 0 | |
| National Environmental | 0 | Satisfactory | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| Significance (%) | >0 | Requires review | | | | Ŭ | 0 | U | Ū | Ū | 0 | 0 | 0 | U | U | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 |
| | 0 | Excellent | 0 | | | | | | | | | | | | | | | | | | | | | | | | 0 | |
| Declared | 0 | Satisfactory | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| Plants (%) | >0 | Requires review | | U | U | Ĵ | , | 5 | Ĵ | Ĵ | Ĵ | , | Ĵ | 5 | Ĵ | Ĵ | , | , | , | Ĵ | | | 0 | | 0 | | 0 | 5 |

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





Appendix D: Old and new site IDs

| Rehabilitation/ Analogue Site | Rehab year | Previous Site ID pre 2021 | New Transect ID | GPS Coordinates (GDA 94, 32751) | | | | | | |
|----------------------------------|---------------|---------------------------------|-----------------------|------------------------------------|--|--|--|--|--|--|
| Site 1 | 2015 | Site 1 T1 | T1 | 51J 91495 6530951 | | | | | | |
| Site 2 | 2016 | Site 2 T1 | T2 | 51J 91501 6531500 | | | | | | |
| Site 3 | 2016 | Site 3 T2 | Т3 | 51J 91406 6532358 | | | | | | |
| Site 4 | 2016 | Site 4 T3 | T4 | 51J 89807 6534117 | | | | | | |
| Site 5 | 2015 | Site 5 T2 | T5 | 51J 88761 6533229 | | | | | | |
| Site 6 | 2016 | Site 6 T4 | Т6 | 51J 88797 6532647 | | | | | | |
| Site 7 | 2021 | - | T7 | 51J 91283 6534011 | | | | | | |
| Sile 7 | 2021 | - | Т8 | 51J 91129 6534031 | | | | | | |
| | 2020 | SLP T1 | Т9 | 51J 89538 6529943 | | | | | | |
| Slippery's | 2020 | SLP T2 | T10 | 51J 89399 6529969 | | | | | | |
| Paddock | 2020 | - | T11 | 51J 89278 6529787 | | | | | | |
| | 2020 | - | T12 | 51J 89424 6529744 | | | | | | |
| | - | A1T1 | A1 | 51J 91391 6530770 | | | | | | |
| Analogue | - | A1T2 | A2 | 51J 91375 6530778 | | | | | | |
| | - | A2T1 | A3 | 51J 90486 6529443 | | | | | | |
| Analogue 2 | - | A2T2 | A4 | 51J 90444 6529468 | | | | | | |
| | - | A3aT1 | A5 | 51J 89261 6530010 | | | | | | |
| Analogue 3 | - | A3aT2 | A6 | 51J 89290 6530091 | | | | | | |