KARARA
MINING LIMITED

Karara Mining Limited

Department of Water and Environmental Regulation
Ministerial Statements 805, 806 & 968
Annual Compliance Assessment Report 2024

CORP-EN-REP-1191

30 August 2024

CORP-EN-REP-1191 KARARA MINING LIMITED					
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ABBREVIATIONS

Abbreviation	Definition
ACAR	Annual Compliance Assessment Report
ARC	Australian Research Council
BHN	Blue Hills North
CAP	Compliance Assessment Plan
CEO	Chief Executive Officer
CMSR	Centre of Mine Site Restoration
CQ	Control Quadrat
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, Environment and Water
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety (formerly DMIRS)
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EMS	Environmental Management System
EPAS	Environmental Protection Authority Services
EPBC Act	Environment Protection and Biodiversity Conservation Act
GD	Ground Disturbance
GIS	Geographical Information System
HIN	Hinge
HIOP	Hinge Iron Ore Project
INX	Incident Reporting System
KAR	Karara
KIOP	Karara Iron Ore Project

Abbreviation	Definition
KML	Karara Mining Limited
LIC	Linear Infrastructure Corridor
MCP	Mine Closure Plan
MLE	Mine Life Extension
MIOP	Mungada Iron Ore Project
MS805	Ministerial Statement 805
MS806	Ministerial Statement 806
MS968	Ministerial Statement 968
NATA	National Association of Testing Authorities
NIR	Near Infra-Red
OEPA	Office of the Environmental Protection Authority
PAF	Potentially Acid Forming
PEC	Priority Ecological Community
The Project	Greater Karara Iron Ore Project
RGB	Red Green Blue
ROM	Run-of-Mine
SbTS	Shield-backed Trapdoor Spider
TDS	Total Dissolved Solids
TPD	Terapod
Translocation Plan	KML Environmental Plan - Translocation Proposal – *Acacia Woodmaniorum* (Fabaceae) (CORP-EN-PLN-1007)
TSF	Tailings Storage Facility
WA	Western Australia
WRD	Waste Rock Dump

Abbreviation	Definition
WStS	Western Spiny-tailed Skink

1 INTRODUCTION

This Annual Compliance Assessment Report (ACAR) has been prepared in accordance with the requirements of Condition 4.6 of Ministerial Statement No. 805 (MS805) – Karara Iron Ore Project (KIOP), No. 806 (MS806) – Mungada Iron Ore Project (MIOP) and No. 968 (MS968) – Hinge Iron Ore Project (HIOP). Collectively KIOP, MIOP, and HIOP form the 'Greater Karara Iron Ore Project' (the Project).

This is the fifteenth ACAR prepared by Karara Mining Limited (KML) for KIOP and MIOP, and the tenth ACAR prepared for HIOP. To satisfy conditions 4.1 and 4.2 of the Ministerial Statements, KML has prepared and submitted Compliance Assessment Plans (CAPs) for the Statements to the Department of Water and Environmental Regulation (DWER). The CAPs govern the compliance of the Ministerial Statements and are used as the template for this report. The CAPs for KIOP, MIOP and HIOP were revised on 16 June 2020 and were approved by DWER on 30 July 2020.

This ACAR combines the requirements of MS805, MS806 and MS968 and has been prepared in accordance with the approved CAPs. The ACAR addresses compliance with Ministerial Conditions for the reporting period (1 July 2023 – 30 June 2024 for MS805 and MS806 and 4 June 2023 – 3 June 2024 for MS968).

2 PROJECT SUMMARY AND STATUS

The Project is comprised of three mining projects: KIOP, MIOP and HIOP (Figure 1).

2.1 Karara Iron Ore Project (KIOP)

KIOP is a magnetite mining and processing operation located 215km east-southeast of Geraldton and 320 km north-northeast of Perth (Figure 1). The Project commenced in 2010 with a project life of at least 40 years and continues to be actively mined.

KIOP consists of a single open pit, a beneficiation processing plant, tailings storage facilities (TSF), accommodation facilities and a Linear Infrastructure Corridor (LIC) containing the raw water pipeline towards the Yandanooka borefield and access road to Morawa (Figure 2).

2.2 Mungada Iron Ore Project (MIOP)

MIOP is a hematite mining operation, which encompasses three open pits and one backfilled pit in two areas (Blue Hills North [BHN] and Terapod [TPD]). BHN consists of a single open cut mining pit. TPD consists of two open pits, and the third pit has been backfilled to surface and rehabilitated (Figure 3). MIOP also includes the Tilley Siding and a 330 kV power transmission line between the mine site and Koolanooka.

Active mining operations at BHN ceased in July 2013 and mining ceased at TPD in March 2014. All inactive areas have been rehabilitated at MIOP, including all waste dumps and run of mine (ROM) pads.

In a letter dated 24 May 2017, the Office of the Environmental Protection Authority (OEPA) determined that MIOP entered into its closure phase officially on 25th March 2014 (being the date that productive mining ceased at Terapod). In the same letter, OEPA advised the following:

- KML are to continue to monitor and record Declared Rare Flora and Priority Flora species and vegetation condition as defined by Keighery (1994) on the Blue Hills Range, and feral animals in the proposal area and continue to provide an annual report on the monitoring results to the OEPA and DMIRS as required by Condition 11-2.
- The long-term management of the MIOP pit lake is to be submitted by 25th March 2019 as required by Condition 11-3; and
- Annual monitoring and reporting of vegetation in rehabilitated areas is to continue and that completion criteria as detailed in Condition 11-1(1) is to be met by 25th March 2019.

Monitoring results are further discussed in Section 6 of this report.

Although MIOP was determined to be in closure, some infrastructure at MIOP is actively supporting mining operations at KIOP. Active areas not rehabilitated and currently in use include:

- Blue Hills workshop and laydowns at which are used as a mines emergency response training area;
- Terapod open pits are used as a water source to support KIOP and Terapod West pit is currently used to store dewatering from Karara pit;
- Blue Hills North open pit is used to store saline dewatering from Karara pit;
- Blue Hills North and Terapod turkey's nests; and
- Production bores, pipelines, and access roads.

These areas are not scheduled to be rehabilitated until the closure of the KIOP, or when they are no longer needed to support mining operations at Karara.

2.3 Hinge Iron Ore Project (HIOP)

HIOP is a hematite mining operation comprised of an open cut mining pit, which is currently in care and maintenance. Active mining operations ceased in January 2016 when the crushing and screening facility was removed and the majority of disturbed areas rehabilitated. Rehabilitation earthworks and revegetation have largely been completed, with the exception for infrastructure that continues to be used to support KIOP operations, such as laydown areas, water pipelines, ROM pad, and haul roads (Figure 4). Whilst operations have been suspended at HIOP, the ore resource has not been exhausted.

Figure 1: Project Location

Figure 2: KIOP Site Features

Figure 3: MIOP Site Features

Figure 4: HIOP Site Features

3 KEY ENVIRONMENTAL IMPROVEMENTS

KML's Environment Policy requires KML to apply, maintain and continually improve an effective environmental management system to maintain compliance with obligations and enhance environmental performance. The current Environment Policy (revised in January 2023) is provided in Appendix A.

This section provides a summary of the research and trials conducted to improve KML's ability to monitor and rehabilitate areas impacted by mining activities.

3.1 Remote Sensing - 2023 Aerial Survey

An annual aerial survey (fixed wing aircraft) of the site was conducted in July 2023 to capture high resolution imagery over the rehabilitated area of the Project including waste rock dumps (WRDs) and analogue transect areas. The survey incorporated standard 5cm resolution three band red green blue (RGB) as well as Near Infra-Red (NIR, four band) to enable vegetation condition assessment. In addition, imagery was processed via photogrammetry to produce a 20cm Digital Elevation Model of the WRDs. This data set is intended to provide a baseline for a change detection assessment of vegetation going forward.

3.2 KML - ARC Centre for Mine Site Restoration Research Program

KML commenced a research partnership with Kings Park and Botanic Garden in 2014. This had evolved over time and was led by the Centre for Mine Site Restoration (CMSR) at Curtin University in partnership with Kings Park and Botanic Garden, the University of Western Australia, and other parties. The CMSR research program consisted of a number of projects directly relating to field and glasshouse or laboratory experiments examining techniques for the ecological restoration of the TSF. KML has utilised the outcomes of the research program to develop effective rehabilitation techniques for the long-term closure of the TSF. This research program concluded in late 2021 and a final report was submitted to the Australian Research Council in June 2023. The major findings of this research indicate that dry tailings pose specific challenges to the successful rehabilitation of native plant communities due to its unique physiochemical properties compared to reference soils. The preliminary results suggest that changes in tailings physiochemical properties could be very slow without ecological engineering inputs. Following the findings of the research program, KML completed the fifth and sixth rehabilitation trials (referred to as TSF05 and TSF06) on the northern wall of the dry-stack TSF in May 2021 and July 2023 respectively. The rehabilitation monitoring to date indicated that TSF05 and TSF06 were efficient to minimise erosion on the TSF slopes by application of more rocky materials (500 mm depth) in addition to the 200 mm BIF waste rock on the slope of the dry-stack TSF northern wall. The trial also continued assessing and

determining the most suitable seed mix to use to achieve successful restoration of the final TSF landform.

3.3 EPBC Listed Fauna Stress Monitoring

KML engaged Curtin University to undertake a four-year research program to evaluate threats, recovery strategies and managing stress levels of EPBC listed fauna – endangered Western Spiny-tailed Skink (WStS) (*Egernia stokesii badia*) and vulnerable Malleefowl (*Leipoa ocellata*) associated with mining activities. The whole Research Proposal was completed in December 2021, and the Final Report was provided to KML in February 2022.

The key highlights and findings or the research program are summarised below (Gagnon & Bateman, 2021):

- A backward projected species distribution model shows that much of the distribution of the Malleefowl available at the time of European settlement in Australia is now unsuitable for the species, meaning that populations that were once on the fringes, such as those at Karara, are now essential holdouts for the species;
- Based on preliminary analysis of camera trap data, the number and diversity of animals detected does not appear to be impacted by noise levels; and
- No robust patterns of metal, metalloid or trace element contamination in relation to proximity of Malleefowl mounds to Karara mine dry tailings was detected. The measured Lead (Pb) concentrations in soil samples from the Malleefowl mounds at Karara mine site are significantly lower than the guideline value. Consequently, these levels are not expected to cause adverse impacts to biota coming into contact with these sediments.

The findings of the research program were published in a range of local, national and international conferences and technical forums and online scientific journals.

3.4 *Acacia woodmaniorum* Translocation Plan

KML, in conjunction with DBCA, developed a Translocation Plan for the Threatened species *Acacia woodmaniorum*. The objective of the Translocation Plan is to:

- Determine which *A. woodmaniorum* translocation technique (planting cuttings or whole plants) results in greater *A. woodmaniorum* plant survival and recruitment, and thus inform whether either method is suitable for future translocations; and
- Determine if an *A. woodmaniorum* seed orchard can be successfully established from propagated seed in order to preserve genetic diversity and supplement the amount of propagation material available for future restoration.

KML established two translocation sites at the rehabilitated mine area of the Terapod North Pit (Site A) and the rehabilitated Blue Hills North (BHN) Waste Rock Dump (WRD) (Site C). Two different translocation techniques (i.e. planting cuttings or whole plants) were trialled at the two sites. A third site within the KML nursery facility (Site D) was established as an *A. woodmaniorum* seed orchard with plants propagated from seed salvaged from the Terapod population before mining operations in that area. However, the nursery facility was discontinued in 2021 due to the area being required for the expansion of the Karara WRD. The plants in the nursery were all relocated to the DBCA in Geraldton during September 2021.

Monitoring of these sites is conducted annually in spring, and KML provides DWER, DBCA and DEMIRS with a report of the monitoring results by the end of each year.

During the reporting period the assessed health of *Acacia woodmaniorum* observed in the two translocations sites declined, although there were no additional deaths. There was an increase in the height at Site A for the cuttings plant and Site C for the salvaged plants, all other plants had an average decrease in height and there was not significant new growth compared to the previous year due to a season. The benchmark measure of interim success for the translocation of cuttings and salvaged plants 2-10 years from planting, as outlined in 'the proposal', was for a greater than 40% survival rate beyond the first year. At site A, the survival rate is still 100% for the cuttings, and 89% for the salvaged plants. At site C, the survival rate has declined to 54% for the cuttings, and 68% for the salvaged plants. Under the terms of the proposal, both sites and treatments are still considered as successful.

At site C, 17.8% of plants recorded seed and 67.8% were recorded as having flowers. At site A, 5% of the plants recorded seed and 45% were recorded as having flowers. This indicates the reproductive potential of the translocated plants remains high. For the total plants, 41.6% had neither flower or seeds.

KML continues to work with the DBCA during the implementation of the Translocation Plan to ensure its successful outcomes.

The next annual monitoring is scheduled to be conducted in September 2024, and the next report is scheduled to be submitted by the end of the year.

4 PROJECT APPROVALS

The formal assessment of the KIOP Mine Life Extension (MLE) Proposal (the Proposal) under Part IV of the *Environmental Protection Act 1986* (EP Act) (at an assessment level of '*Assess - Referral Information with additional information required under s40(2)(a) and public review s40(5)*') continued during the reporting period. The Proposal was also referred to the Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 31 May 2023 and the DCCEEW decided that the Proposal is a 'Controlled Action' under s75 of the EPBC Act on 1 September 2023. The DCCEEW and the Environmental Protection Authority (EPA) agreed on the accredited assessment approach for the Proposal. The EPA issued a s40(2)(a) notice for the additional information required to continue the assessment for the Proposal along with the DCCEEW's additional information requirements for assessment of Proposal under the EPBC Act on 19 October 2023. KML had a few meetings with the EPA / the DCCEEW to clarify the additional information requirements and various specialist consultants have been engaged to address those information requirements for various environmental factors during the reporting period. A range of environmental studies and assessments for the Proposal have started during the reporting period with the flora and vegetation surveys scheduled in late August / early September 2024. Those studies and assessments to address the key environmental factors as required by the EPA / the DCCEEW will continue in the next reporting period and an Environmental Review Document will be prepared and submitted to the DWER-EPAS when all additional information required by the EPA / the DCCEEW becomes available.

5 COMPLIANCE WITH CONDITIONS

KML conducted an audit in August 2024 to satisfy Condition 4-3 of MS805, MS806 and MS968. The audit was conducted in accordance with the CAPs prepared under MS805, MS806, and MS968 respectively and evaluated compliance with all conditions for the period 1 July 2023 to 30 June 2024 (MS805 and MS806) and 4 June 2023 to 3 June 2024 (MS968).

The DWER-approved audit table for MS805 (Appendix B) comprise 54 audit elements. Of these:

- 38 elements were found to be Compliant;
- 6 elements were found to be Completed;
- 5 elements were found to be Not Required at this Stage;
- 0 elements were assessed as being a major Non-Compliance;
- 5 element was assessed as being a minor Non-Compliance (all related to Shield-backed Trapdoor Spider Monitoring);
- 0 elements were assessed as being Potentially Non-Compliant; and
- 0 elements were assessed as being In Process.

The DWER-approved audit table for MS806 (Appendix C) comprise 56 audit elements. Of these:

- 32 elements were found to be Compliant;
- 17 elements were found to be Completed;
- 5 elements were found to be Not Audited at this Stage;
- 0 elements were assessed as being a major Non-Compliance;
- 2 element was assessed as being a minor Non-Compliance;
- 0 elements were assessed as being Potentially Non-Compliant; and
- 0 elements were assessed as being In Process.

The DWER-approved audit table for MS968 (Appendix D) comprise 34 audit elements. Of those:

- 15 elements were found to be Compliant;
- 5 elements were found to be Completed;
- 14 elements were found to be Not Audited at this Stage;
- 0 elements were assessed as being a Non-Compliance; and
- 0 elements were assessed as being In Process.

The findings of the audit are summarised below. The statements of compliance for MS805, MS806 for the period 1 July 2023 to 30 June 2024 and MS968 for the period of 4 June 2023 to 3 June 2024 are detailed in Appendix B, Appendix C and Appendix D respectively.

5.1 Non-compliance

Five Non-Compliance (Minor) associated with the non-compliance reporting (MS805:4.5) and Shield-backed Trapdoor Spider monitoring (MS805:9.2, 9.3, 9.4 and 9.5) continued to be recorded in this annual audit for MS805. Two Non-Compliance (Minor) with respect to the non-compliance reporting (MS806:4.5) and rehabilitation of the MIOP area within five years following cessation of productive mining (MS806:11.1.1a) also continued to be recorded in this annual audit for MS806. Those non-compliances are summarised in Table 1.

Table 1: Non-compliance Summary

Condition	Level of Non-compliance	Description of Non-compliance	Corrective Action
MS805:4.5 The proponent shall advise the CEO of any non-compliance as soon as practicable.	Minor	DWER-EPAS advised on 13 June 2023 that the EPA's inquiry in relation to removal of Condition 9 of spider monitoring under s46 of the EP Act has been mostly placed on hold and DWER-EPAS expects staging of progression on the s46 inquiry to remove Condition 9 of spider monitoring as part of the deliberations during assessment of the KIOP MLE Proposal, which is currently being formally assessed by the EPA. DWER-EPAS provided no updates on the progress on the removal of Condition 9 of MS805: Spider monitoring during this reporting period. Despite the above, the discontinued monitoring of Shield-backed Trapdoor Spiders during the monitoring period was considered as non-compliance and	KML will continue to follow up with DWER-EPAS for the progression on the s46 inquiry to remove Condition 9 of spider monitoring during the following assessment of the Proposal.

Condition	Level of Non-compliance	Description of Non-compliance	Corrective Action
		DWER was not advised of this non-compliance. However, DWER has previously advised that KML can discontinue spider monitoring and KML are considered to meet the intention of the Conditions of Spider Monitoring.	
Spider Monitoring MS805:9.2(1-2) The objective of the monitoring program required by condition 9-1 is to: demonstrate that the persistence of the population of *Idiosoma nigrum* in the Blue Hills area will not be impacted as a result of the proposal, improve knowledge of the ecology and impacts of the proposal on *Idiosoma nigrum*. MS805:9.3(1-3) The proponent shall monitor changes in the population in terms of: number and size of area(s) inhabited by spiders.	Minor	DWER-EPAS advised on 13 June 2023 that the EPA's inquiry in relation to removal of Condition 9 of spider monitoring under s46 of the EP Act has been mostly placed on hold and DWER-EPAS expects staging of progression on the s46 inquiry to remove Condition 9 of spider monitoring as part of the deliberations during assessment of the KIOP MLE Proposal, which is currently being formally assessed by the EPA. DWER-EPAS provided no updates on the progress on the removal of Condition 9 of MS805: Spider	KML will continue to follow up with DWER-EPAS for the progression on the s46 inquiry to remove Condition 9 of spider monitoring during the following assessment of the Proposal.

Condition	Level of Non-compliance	Description of Non-compliance	Corrective Action
number, size and distribution of burrows in occupied areas number of burrows occupied by spiders MS805:9.4 The proponent shall submit the results of the monitoring program required by Condition 9.1 to the CEO annually, as required. MS805:9.5 In the event that condition 9.2(1) cannot be met, the proponent shall develop and implement management measures and contingency actions to the satisfaction of the CEO.		monitoring during this reporting period. Despite the above, the discontinued monitoring of Shield-backed Trapdoor Spiders during the monitoring period was considered as non-compliance and DWER was not advised of this non-compliance. However, DWER has previously advised that KML can discontinue spider monitoring and KML are considered to meet the intention of the Conditions of Spider Monitoring.	
MS806:4.5 The proponent shall advise the CEO of any non-compliance as soon as practicable.	Minor	One minor non-compliance associated with not meeting the 70% species composition target for MIOP (e.g. only at monitoring quadrat BHNWD01 due to abundance of one species) within five years of following the cessation of productive mining (Condition 11.1.1a) was identified during the 2024 compliance audit. Although	It is expected the ongoing non-compliance with MS806 Condition 11.1.1a will be resolved when the Proposal is approved and those MIOP areas will be used for the KIOP mine life operations. While continuous monitoring of the rehabilitation sites at MIOP will be undertaken in accordance with Condition 11.1.1, KML will continue

Condition	Level of Non-compliance	Description of Non-compliance	Corrective Action
		DWER is aware this is an ongoing non-compliance as the un-rehabilitated MIOP area is being utilised to support KIOP operations, the individual monitoring quadrat BHNWD01 not meeting the 70% species composition target for MIOP should have been reported to DWER as soon as practicable.	to work closely with the DWER-EPAS during the following assessment of the Proposal and expect to resolve this ongoing non-compliance when the Proposal is approved.
MS806:11.1.1 As mining progresses, the proponent shall commence progressive rehabilitation of the mine site area in accordance with the following: re-establishment of vegetation in the rehabilitation area to be comparable with that of the pre-mining vegetation such that the following criteria are met within five years following the cessation of productive mining: (a) flora and vegetation are re-established with not less than 70 percent species composition (not including weed species); and	Minor	Not all areas of MIOP have been rehabilitated within five years of mining cessation. Although average of 70% species composition was achieved for MIOP as a whole for the area, however 70% for one monitoring quadrat BHNWD01 was not achieved.	It is expected the ongoing non-compliance with MS806 Condition 11.1.1a will be resolved when the Proposal is approved and those MIOP areas will be used for the KIOP mine life operations. While continuous monitoring of the rehabilitation sites at MIOP will be undertaken in accordance with Condition 11.1.1, KML will continue to work closely with the DWER-EPAS during the following assessment of the Proposal and expect to resolve

Condition	Level of Non-compliance	Description of Non-compliance	Corrective Action
(b) weed coverage consistent with recorded baseline levels or 10 percent, whichever is less			this ongoing non-compliance when the Proposal is approved.

Spider Monitoring at KIOP

MS805 Conditions 9.2(1), 9.3(1-3), 9.4 and 9.5 require monitoring and reporting of the population of Shield-backed Trapdoor Spider (*Idiosoma nigrum*) in the Blue Hills area to demonstrate that the persistence of the population of *Idiosoma nigrum* is not impacted by the Project. Following taxonomic review by the Western Australian Museum, it has been identified that the species of *Idiosoma* associated with the Project is not *Idiosoma nigrum* (Endangered), but the common *Idiosoma clypeatum* 'MYG018' (P3). KML submitted a letter of request to DWER in July 2018 seeking variation of MS805 through removal of Condition 9: Spider monitoring. Response received from DWER-EPAS via EP Act s46 form on 13 February 2019 indicated that the Minister requested that the EPA inquire into and report on the removal of Condition 9, as well as the application of offsets to the proposal and whether they should be included as a condition. KML submitted additional offsets related information as requested by the DWER-EPAS for EPA's inquiry into changing the implementation conditions relating to KIOP MS805 pursuant to section 46(1) of the EP Act on 18 May 2022.

The proposed removal of Condition 9 (and its associated sub-condition 9.1 – 9.5) in relation to the spider monitoring program was also included in the referral application for the Proposal submitted to the DWER-EPAS under s38 of the EP Act on 21 February 2022 and a revised referral application was submitted to the DWER-EPAS under s38C of the EP Act on 30 September 2022. DWER-EPAS accepted the revised referral and decided to assess the Proposal at a level of '*Assess - Referral Information with additional information required under s40(2)(a) and public review s40(5)'* pursuant to s38G(1) of the EP Act on 21 June 2023. DWER-EPAS advised on 13 June 2023 that the EPA's inquiry in relation to removal of Condition 9 of spider monitoring under s46 of the EP Act has been mostly placed on hold and is likely to be considered along with the assessment of the Proposal under Part IV of the EP Act and decision on the conditions of the new Ministerial Statement for the Proposal. No further updates on this matter were received from the DWER-EPAS while the Proposal remained in assessment by the DWER-EPAS during the reporting period.

The most recent Shield-backed Trapdoor Spider Monitoring occurred in 2019, with no monitoring occurring in 2020, 2021, 2022 and 2023. The spider monitoring has been discontinued following re-classification of the species. DWER advised in a meeting in September 2021 that KML can discontinue spider monitoring and KML are considered to meet the intention of the MS805 Conditions 9.2(1-2), 9.3(1-3), 9.4 and 9.5 associated with spider monitoring.

KML will continue to follow up with DWER-EPAS for the progression on the s46 inquiry to remove Condition 9 of spider monitoring during the following assessment of the Proposal.

Rehabilitation at MIOP

MS806 Condition 11.1.1a requires that flora and vegetation are re-established with not less than 70% species composition within five years following cessation of productive mining. Mining at MIOP was completed in March 2014 and consequently KML was required to satisfy this condition by March 2019. The audit found that, whilst KML has rehabilitated substantial parts of MIOP to the 70% criterion (12 out of 13 rehabilitation sites), parts of MIOP (estimated at 3.7% of the MIOP project footprint) have not yet been rehabilitated. The un-rehabilitated areas include areas used to support ongoing operations at KIOP, including pits for water storage and supply, pipeline, access tracks, transmission line, a laydown yard and an emergency response training area. Those areas are expected to be required until the completion of mining at KIOP in approximately 30 years.

DWER-EPAS identified this was an ongoing non-compliance following their compliance audit on MS806 in 2021. KML intended to include the above MIOP areas that are currently used to support mining at KIOP in the referral application for the Proposal in February 2022 to resolve this ongoing non-compliance.

Based on the discussion with the DWER-EPAS in August 2022, a revised referral for the Proposal, which incorporates the entire footprint previously approved under MIOP (MS806) (except those areas within the tenements that are no longer held by KML) was submitted to the DWER-EPAS under s38C of the EP Act on 30 September 2022. DWER-EPAS accepted the revised referral and decided to assess the Proposal at a level of '*Assess - Referral Information with additional information required under s40(2)(a) and public review s40(5)'* pursuant to s38G(1) of the EP Act on 21 June 2023. It is expected this will resolve the ongoing non-compliance with MS806 Condition 11.1.1a when the Proposal is approved and those MIOP areas will be used for the KIOP mine life operations.

While continuous monitoring of the rehabilitation sites at MIOP will be undertaken in accordance with Condition 11.1.1, KML will continue to work closely with the DWER-EPAS for the following assessment of the Proposal and expect to resolve this ongoing non-compliance when the Proposal is approved.

6 ENVIRONMENTAL MONITORING AND MANAGEMENT

This section provides details of monitoring conducted by KML as per the conditions in MS805, MS806 and MS968.

6.1 Dust Management

In accordance with condition 6.5 of MS805 and MS806, the KML Environmental Plan – Dust Management CORP-EN-PLN-1010 and the KML Environmental Procedure – Dust Monitoring CORP-EN-PRO-1005, KML monitors the impact of mining related activities on ambient dust levels and the potential effects from dust on vegetation health.

The following internal KML dust trigger limits are outlined in the KML Environmental Procedure – Dust Monitoring CORP-EN-PRO-1005:

- Trigger limit of 8 g/m^2/month around operational mining areas; and
- Threshold limit of 10 g/m^2/month around operational mining areas.

Dust deposition is monitored at KIOP, MIOP and HIOP via 24 dust deposition gauges. Thirteen of these gauges have been installed around the operational mining area at KIOP and seven have been installed around post operational areas at HIOP and MIOP to monitor for dust generated as a result of mining activities and its impacts on ecological receptors. Three gauges have been installed outside of active mining areas to monitor for background dust levels (Gauges 5, 6, and 16) and a single gauge has been placed at the Karara Homestead (Gauge 1). Dust deposition gauges are collected monthly and sent to a National Association of Testing Authorities (NATA) accredited laboratory for analysis. Monthly dust deposition results are assessed against the internal KML dust limits listed above.

This section details findings in relation to dust management and monitoring over the reporting period.

6.1.1 HIOP and MIOP Dust Results

Since cessation of crushing and screening activities at HIOP and MIOP, dust levels have reflected background levels recorded at control sites. Over the reporting period, average dust deposition levels ranged between 0.5 to 24.1 g/m^2/month (12-month average of 3.3 g/m^2/month) at HIOP (Figure 5), noting this significantly elevated value of 24.1 g/m^2/month was associated with an exceedance recorded at HIOP (dust bottle ID 20) in October 2023, which was attributed to a natural anomaly (either local dust storm or bird pooping in the bottle's funnel) as this bottle is located more than 20km away from any active mining activity or hauling road. At MIOP (Figure 6), average dust deposition levels ranged from 0.7 to 4.1 g/m^2/month (12-month average of 1.87 g/m^2/month).

Excluding the exceedance recorded in October 2023 at HIOP due to a natural anomaly, the 12-monthly average dust deposition level recorded at HIOP during the reporting period recorded a slight decrease compared to last year's monitoring result from 1.43 g/m^2/month to 1.40 g/m^2/month. The 12-month average dust deposition level showed a significant decrease at MIOP compared to the last year's monitoring result from 3.72 g/m^2/month to 1.87 g/m^2/month as no exceedances were recorded at MIOP over the reporting period.

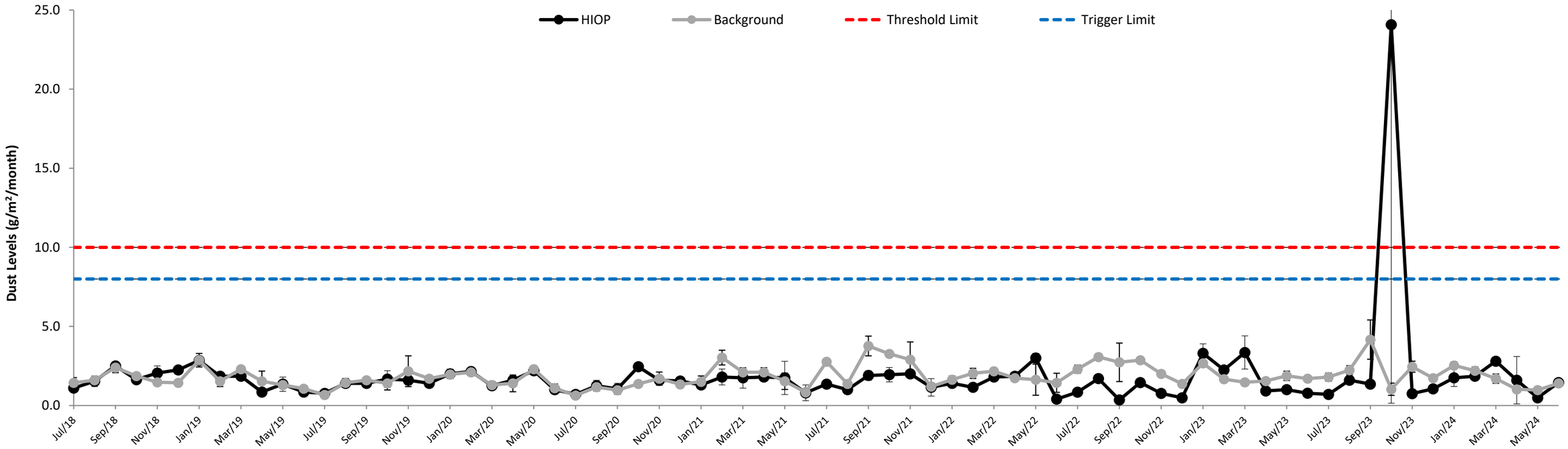


Figure 5: HIOP Monthly Dust Deposition Levels

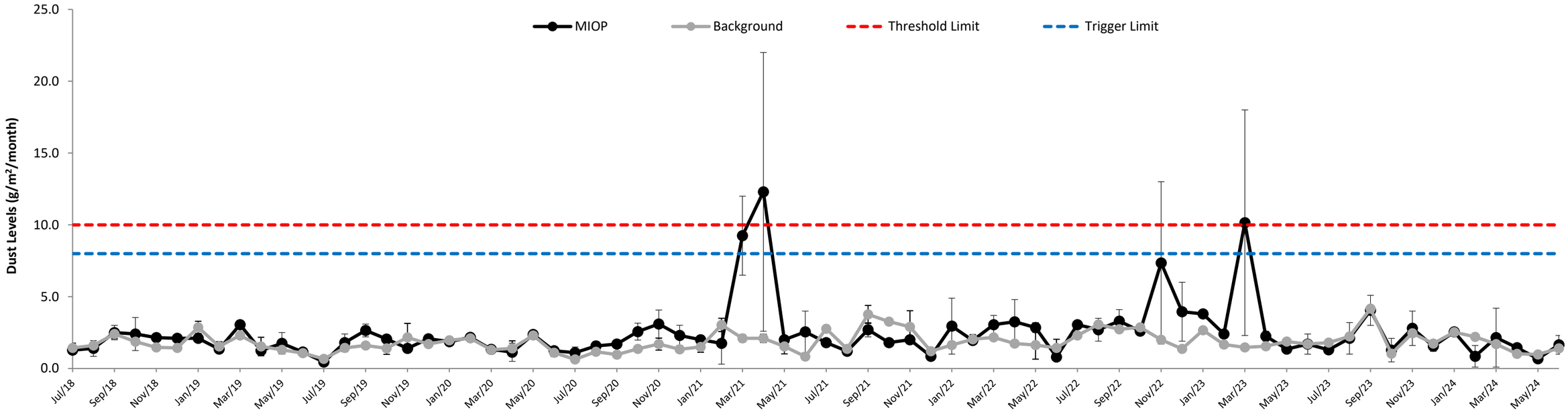


Figure 6: MIOP Monthly Dust Deposition Levels

6.1.2 KIOP Dust Results

During the reporting period, average dust deposition levels of the cumulative dust gauges at KIOP ranged from 1.2 to 6.9 g/m^2/month (12-month average of 2.81 g/m^2/month compared to 2.76 g/m^2/month recorded during last reporting period), whilst average background levels ranged from 1.0 to 4.2 g/m^2/month (12-month average of 1.94 g/m^2/month) (Figure 7). The average dust deposition levels have remained steady around 3.00 g/m^2/month since last reporting period.

During the reporting period, average dust deposition levels at the nearest sensitive receptor (Karara Homestead, approximately 7km south of KIOP) ranged from 0.3 to 2.2 g/m^2/month, with a 12-month average of 1.28 g/m^2/month (Figure 8), which shows a decrease from 2.01 g/m^2/month recorded in the last reporting period.

During the reporting period there were five occurrences where threshold limit (10 g/m^2/month) was exceeded, as these exceedances were not consecutive, there was no requirement for regulator notification. The exceedances were related to the increasing mining activities adjacent to Karara pit area (Stage 5), strong winds and reduced stockpile moisture/watering at the rail loop (TLO); and non-mining related events (e.g. local dust storm or bird's pooping) at HIOP and Karara Homestead. These exceedances were reported and investigated internally as per KML's Dust Monitoring Procedure (CORP-EN-PRO-1005), and the mining contractor was notified to take additional dust management actions.

These monitoring results show that KML's dust management measures are effective at managing dust emissions to the surrounding environment during the reporting period.

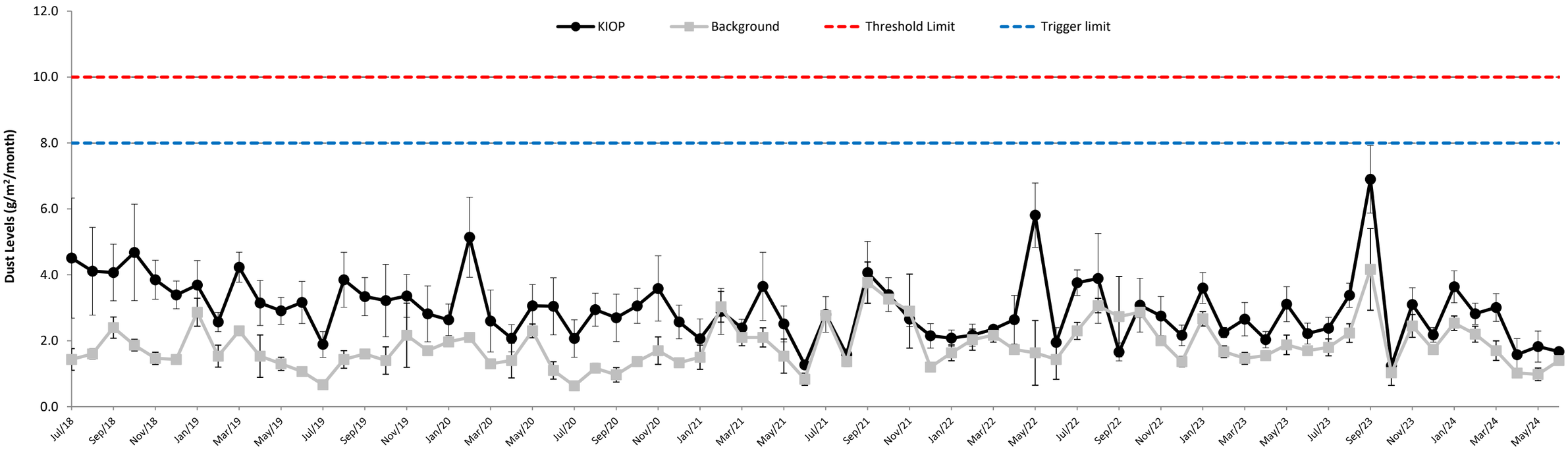


Figure 7: KIOP Monthly Dust Deposition Levels

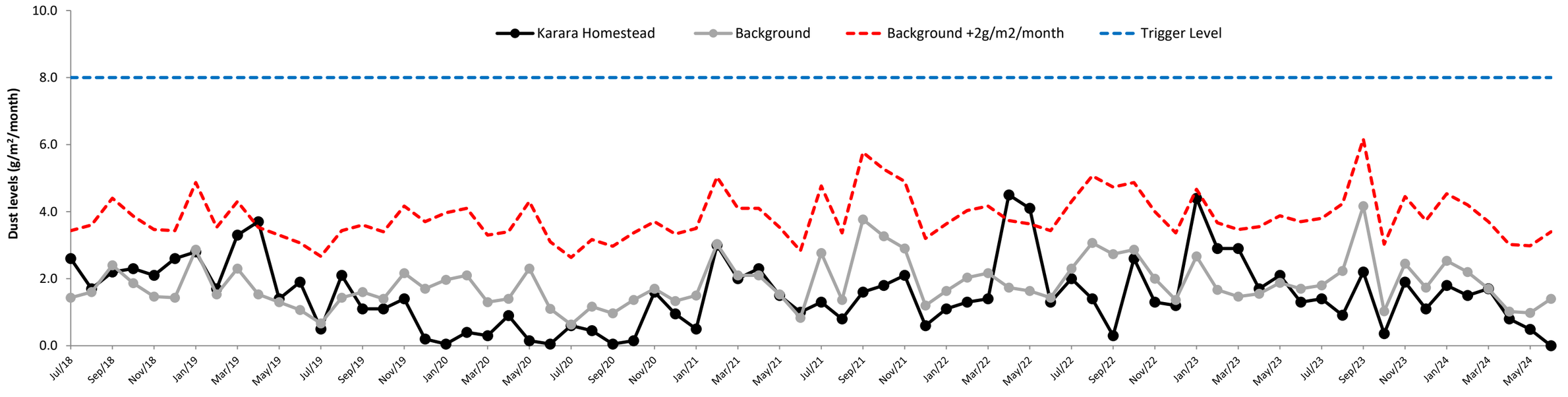


Figure 8: Karara Homestead Monthly Dust Deposition Levels

6.2 Fauna Management

During the reporting period, KML undertook management of fauna, in accordance with the following environmental plans and procedures:

- CORP-EN-PRO-1024 – Western Spiny-tailed Skink, Management, Monitoring and Translocation
- CORP-EN-PRO-1035 – Malleefowl Management and Monitoring
- CORP-EN-PRO-1050 – Feral Animal Management and Monitoring
- CORP-EN-PLN-1008 – Fauna Management
- CORP-EN-PRO-1010 – Terrestrial Fauna Management

This section details findings in relation to performance against fauna management.

6.2.1 Western Spiny-tailed Skink Management and Monitoring

KML mapped prospective Western Spiny-tailed Skink (WStS) habitat in 2008 and has been conducting monitoring since 2011 to determine whether mining is impacting on the local population.

WStS monitoring is undertaken in accordance with the Department of Sustainability, Environment, Water, Populations and Communities (now Department of Climate Change, Energy, the Environment and Water [DCCEEW]) survey guidelines for Australia's threatened reptiles (Commonwealth of Australia, 2011) and the Environmental Procedure – Western Spiny-tailed Skink Management, Monitoring and Translocation CORP-EN-PRO-1024.

To investigate potential impacts of mining, monitoring sites within monitoring areas are divided into two categories:

- **Impact Sites:** within 500m from mining disturbance
- **Control Sites:** outside 500m from mining disturbance

Monitoring is undertaken during the breeding season between spring and summer by trained personnel from the KML Environmental Department. Monitoring involves thoroughly searching for skinks and/or scats in sheltering sites such as hollow logs/trees and roots, piles of timber and rocky outcrops within prospective skink habitats. Monitoring includes details on evidence of WStS, such as the age, contents and size of scats and latrines and photographs of monitoring sites and scats so as to adequately determine recent activity or presence of WStS. WStS are classified as present using direct observation, camera trap evidence or presence of

scat. Scat evidence is further broken down into fresh or old scats, with the presence of fresh scats a better indicator of skink activity.

Annual WStS monitoring in the reporting period was undertaken in October and November 2023. Monitoring of 160 sites was undertaken, including 73 control sites, 76 impact sites, and 11 translocation sites. Monitoring identified that 49 sites were inhabited (28 at control sites and 21 at impact sites) and 111 sites were uninhabited (45 at control sites, 55 at impact sites and 11 at translocation sites) (Figure 9). The results indicate a slight decrease in inhabited logs at both control and impact sites, from 25 to 21 logs (approximately 16%) at the impact sites and from 32 to 28 logs (approximately 12%) at the control sites compared with last year's results (Figure 10). The reduced number of inhabited logs could be potentially associated with a significant decrease rainfall recorded during the reporting period as annual rainfall recorded in 2023 at Karara Mine Site was 232.6mm being the second lowest recorded annual rainfall since the driest reporting period in 2019 (166.25mm). Low rainfall rates may have potentially impacted the skink population by decreasing food availability and the microhabitat suitability due to reduced overhanging vegetation on the log piles they tend to occupy. Numbers of old scats are still greater than the new/fresh scats recorded in 2023 monitoring (Figure 11).

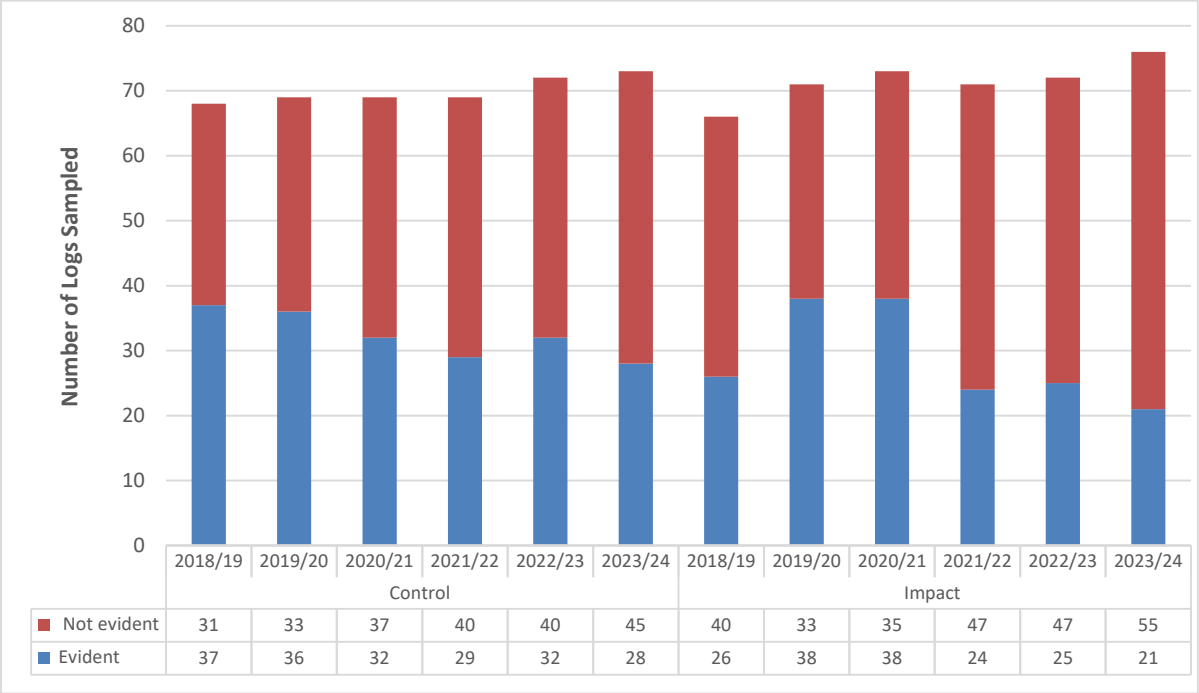
Ongoing WStS monitoring has shown that decline or recovery in skink population is potentially driven by seasonal factors. Further monitoring will be undertaken to determine whether there is a correlation between seasonal factors and WStS populations or if it is more associated with a long-term trend.

KML's objective of monitoring for the presence or absence of WStS on an annual basis has been achieved in each successive year since the commencement of monitoring in the spring of 2011. Monitoring results to date strongly suggest that mining related activities are not impacting WStS populations. Whilst presence/absence data varies between years, skink activity at impact and control sites are closely aligned, with an average presence of skinks at control sites comparable at impact sites (both around 50%). Similarly, at sites where skink presence is observed, the indicators of recent activity (fresh scats) were basically consistent between impact and control sites (Figure 11).

A translocation program for WStS colonies within KML disturbance areas has been in place since the commencement of the project in 2010. A total of ten WStS and 21 potential WStS colonies (habitat log piles) have been translocated since the start of the project. All translocation sites have been monitored on an annual basis, no evidence of WStS (presence of fresh scats) was observed at any translocation site during the reporting period.

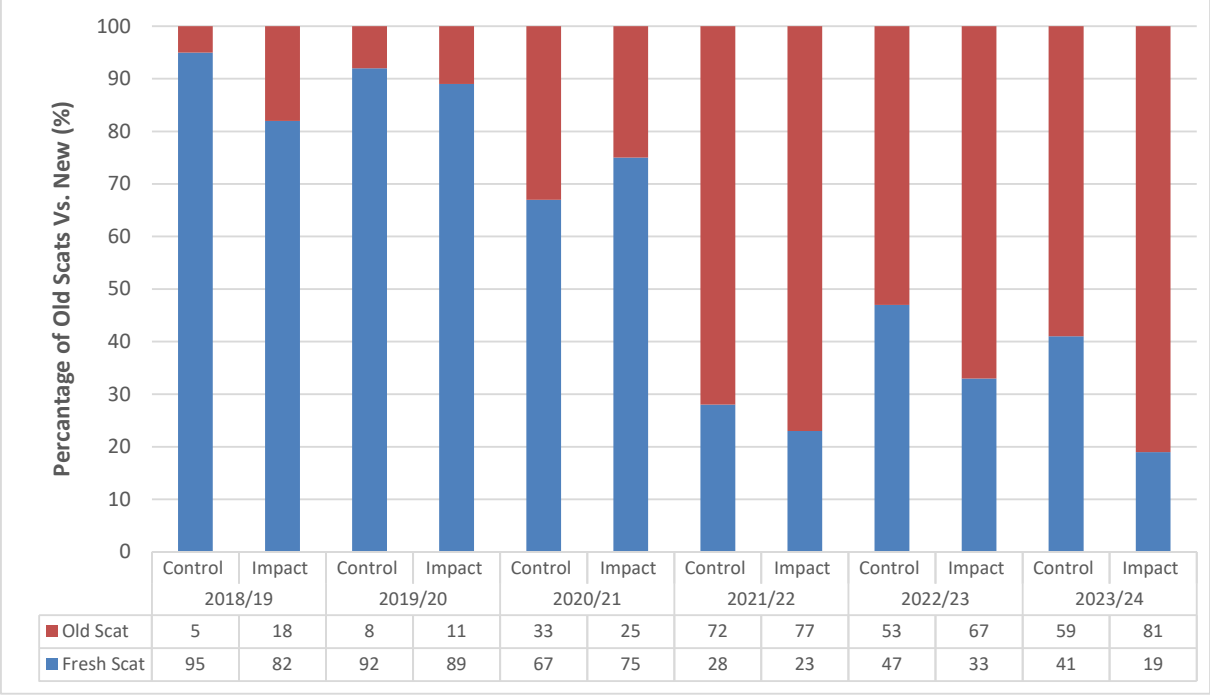
No mortalities of WStS were recorded during the reporting period.

Figure 9: WStS Monitoring Locations



	Control						Impact					
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Not evident	31	33	37	40	40	45	40	33	35	47	47	55
Evident	37	36	32	29	32	28	26	38	38	24	25	21

Figure 10: WStS evidence recorded at control and impact sites across all KML tenements



	2018/19		2019/20		2020/21		2021/22		2022/23		2023/24	
	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Old Scat	5	18	8	11	33	25	72	77	53	67	59	81
Fresh Scat	95	82	92	89	67	75	28	23	47	33	41	19

Figure 11: WStS scat evidence recorded (%) at control and impact sites across all KML tenements

6.2.2 Malleefowl Management and Monitoring

KML have monitored Malleefowl annually since 2008 in accordance with the Environmental Procedure - Malleefowl Monitoring and Management CORP-EN-PRO-1035. In addition, opportunistic observational records of Malleefowl and mounds are recorded by KML employees and contractors on the KML Environmental Form – Fauna Sighting, Relocation and Mortality CORP-EN-FRM-1045.

Monitoring is undertaken by the KML Environment team throughout the Malleefowl breeding season, from 1st September until 30th April so that accurate information can be gathered on populations and mound activity. KML uses the National Malleefowl Monitoring Manual (National Malleefowl Recovery Team, 2016) to define and determine which mounds shall be monitored within any given year. Mounds that were active the previous year and those in close proximity to infrastructure are monitored as a priority, followed by mounds with less recent activity. Selections of mounds with an unverified status in close proximity to activity or infrastructure are included in the monitoring schedule.

A total of 65 mounds were surveyed over the reporting period, of which 8 were reported as active (Figure 12). The number of active mounds has decreased by approximately 58% compared to last reporting period with 19 active mounds being recorded (Table 2).

There were 19 Malleefowl sightings (24 individuals) during the reporting period (Table 2). Overall, the location and number of sightings recorded during the reporting period has remained relatively consistent in recent reporting periods, indicating that populations are not being impacted by mining activities. No new mounds were found on KML tenements during the 2023/24 reporting period. One Malleefowl mortality on KML tenements were recorded during the 2023/24 reporting period.

A total of 914 mounds of varying status (ancient through to fresh and actively used) have been identified and surveyed since 2008. The percentage of all mounds that are active has ranged from 2% (in 2012) to 27% (in 2022) and an average activity of 10% has been recorded over the past 15 years. The total number of mounds monitored in any one year has varied since the commencement of monitoring (ranging from 63 to 298), however the total number of active mounds identified each year has remained relatively consistent with some fluctuations associated with seasonal patterns. Overall, active mounds have ranged from 7 to 19 over the past 7 years with an average of 10 active mounds identified per year in last 15 years.

A spatial analysis of monitoring data shows that Malleefowl have occupied various mounds within operational areas where impacts to Malleefowl activity may be anticipated, with many

sites being used for multiple years over the reporting period. This would suggest that Malleefowl are relatively undisturbed by proximity to mining activity.

Figure 12: Malleefowl Mound Monitoring

Table 2: Malleefowl Monitoring Results 2018-2024

Year	Mounds Surveyed	Category		% Active mounds	No. Sighted
		Active	Inactive		
2018/2019	89	10	79	11.2	21
2019/2020	84	10	74	11.9	24
2020/2021	157	10	147	6.4	19
2021/2022	88	15	73	17.0	7
2022/2023	71	19	52	27.0	18
2023/2024	65	8	57	12.3	19

6.2.3 Shield Backed Trapdoor Spider Monitoring

The Shield Backed Trapdoor Spider monitoring discontinued in 2020 and 2021 following the re-classification of the species as the Northern Shield-backed Trapdoor Spider (*Idiosoma clypeatum*), which is listed as non-threatened 'Priority 3' under the *Biodiversity Conservation Act*, 2016. KML submitted a letter of request to DWER in July 2018 seeking variation to MS805 through removal of Condition 9: Spider Monitoring. In January 2019 the Minister for Environment requested the EPA's inquiry into and report on the removal of Condition 9 as well as the application of offsets and KML provided additional offsets related information as per the EPA's request for further information for the inquiry in May 2022. Recent communication with DWER-EPAS on this matter on 13 June 2023 indicated that the EPA's inquiry in relation to removal of Condition 9 of spider monitoring under s46 of the EP Act has been mostly placed on hold and is likely to be considered along with the assessment of the Proposal under Part IV of the EP Act and decision on the conditions of the new Ministerial Statement for the Proposal.

6.2.4 Feral Animal Monitoring

In accordance with KML Environmental Procedure – Feral Animal Management and Monitoring CORP-EN-PRO-1050, KML monitor feral animal sightings and trapping success to ensure feral animal numbers are not increasing nor having a detrimental impact on conservation significant flora and fauna and other native fauna and flora resident on KML tenements.

Monitoring of feral animals is conducted via regular inspections of landfill facilities and rehabilitated areas, as well as via a fixed camera located in an area of Blue Hills Priority

Ecological Community (PEC) that is adjacent to the BHN pit. Opportunistic feral sightings are also recorded by staff around the Project area. Sightings of feral animals has varied slightly over the past three reporting periods, the number of cats sighted has remained stable compared to last reporting period. No goat or fox was sighted during this reporting period and last two reporting periods, possibly due to seasonal factors while the number of wild dogs/dingos sighted has increased by 4 since last reporting period (refer to Table 3).

Table 3: Feral animals sighted between 2018-2024

Reporting Year	Cats	Dogs/Dingos	Foxes	Goats
2018/2019	29	1	5	23
2019/2020	17	0	14	32
2020/2021	22	4	0	5
2021/2022	5	3	0	0
2022/2023	31	1	0	0
2023/2024	32	5	0	0

A comparison of trapping success from the past six reporting periods indicates the number of trapped feral animals has remained relatively consistent with some fluctuations in 2019/20, 2021/22 and 2022/23 reporting years. Feral cats trapped in 2023/24 have significantly increased compared to last year's reporting period, indicating consistency with the trapping success recorded since 2017. No foxes have been trapped since 2017 (refer to Table 4).

Table 4: Feral Animals trapped between 2017-2024

Reporting Year	Cats	Foxes	Goats
2017/2018	9	0	3
2018/2019	11	0	1
2019/2020	5	0	0
2020/2021	10	0	1

Reporting Year	Cats	Foxes	Goats
2021/2022	21	0	0
2022/2023	9	0	0
2023/2024	17	0	0

6.3 Fauna Mortalities

In accordance with condition 10.2 of MS805, condition 9.2 of MS806, and the KML Environmental Procedure – Terrestrial Fauna Management CORP-EN-PRO-1010, KML maintains a register of fauna mortalities related to mining activities. The KML Environmental Plan – Fauna Management CORP-EN-PRO-1008 also requires all personnel on site to report all fauna vehicle strikes or deaths from activities to the KML Environment Department for inclusion in this register, via the Environmental Form – Fauna Sighting, Relocation, and Mortality CORP-EN-FRM-1045.

During this reporting period a total of 43 mortalities were reported on KML tenements (Table 5). Vehicle and train strikes accounted for all known causes of death. Kangaroos and Wallaroos were the most common species struck on the site roads (17 recorded). One Malleefowl mortalities occurred during the reporting period. A review of fauna mortalities recorded in the last six years across all KML tenements was completed as part of this report and presented as Table 5.

Fauna mortality numbers were significantly lower recorded in this reporting period compared to last reporting period, being 77 mortalities recorded in 2022/23 compared to 43 mortalities recorded in 2023/24.

Fauna mortality records over the last six years are still relatively low in comparison to the total man-hours and vehicle/train movements associated with the Project operations. Kangaroos and Wallaroos made up 39% of the number of animals struck on the road.

Table 5: Fauna Mortalities

Species	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total Individuals
Australian Hobby (*Falco longipennis*)	0	0	0	0	0	1	0	**1**
Australian Bustard (*Ardeotis australis)*	1	0	0	0	0	1	0	**2**
Black Swan (*Cygnus atratus*)	0	0	0	0	0	0	1	**1**
Bungarra (*Varanus gouldii)*	0	0	0	0	0	4	4	**8**
Bronzewing (*Phaps chalcoptera*)	0	0	0	0	0	7	0	**7**
Cat (*Felis catus)*	0	1	0	0	0	1	1	**3**
Brown Falcon (*Falco berigora*)	1	0	0	0	0	0	1	**2**
Echidna (*Trachyglossidae* sp.)	0	0	0	1	2	0	1	**4**
Emu (*Dromaius novaehollandiae*)	2	0	1	4	1	2	1	**11**
Grey Teal Duck (*Anas gracilis*)	1	0	0	0	0	0	1	**2**
Kangaroo (*Macropus* sp.)	26	24	18	20	17	35	17	**157**
Magpie Lark (*Grallina cyanoleuca*)	1	0	0	0	0	0	0	**1**
Malleefowl (*Leipoa ocellata)*	1	0	0	0	2	2	1	**6**
Mulga Snake (*Pseudechis australis*)	0	1	2	0	1	0	0	**4**
Parrot sp. (*Psittrichasiidae* sp.)	0	1	0	0	1	2	0	**4**
Perentie (*Varanus giganteus*)	0	1	0	0	1	0	1	**3**
Red-tailed Black Cockatoo (*Calyptorhyncus banksii*)	1	0	0	0	0	1	0	**2**
Snake, Jans Banded (*Simoselaps bertholdi*)	0	1	0	0	0	0	0	**1**

Species	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total Individuals
Snake, Gwardar (*Pseudonaja nuchalis*)	1	0	1	0	0	2	2	**6**
Snake, Mulga (Pseudechis australis)	0	0	0	1	0	0	0	**1**
Snake, Stimsons Python (*Antaresia stimsoni)*	0	0	0	0	1	0	0	**1**
Snake, unknown	0	0	0	1	0	0	1	**2**
Sparrow	0	0	0	0	0	1	0	**1**
Spotted Nightjar (*Eurostopodus argus*)	1	0	0	0	0	0	1	**2**
Unknown bird	0	1	0	1	0	5	4	**11**
Western Spiny-tailed Skink (*Egernia stokesii badia)*	1	0	0	0	0	0	0	**1**
Monitor lizard (*Varanus sp.)*	0	1	2	0	0	1	1	**5**
Major Mitchell's cockatoo (*Lophochroa leadbeateri*)	0	0	1	0	0	0	0	**1**
Goat	0	0	1	0	0	0	0	**1**
Unknown bat	0	0	1	0	0	1	0	**2**
Rabbit (*Oryctolagus cuniculus*)	0	0	0	0	0	7	5	**12**
Welcome Swallow (*Hirundo neoxena)*	0	0	0	0	0	4	0	**4**
Total Individuals	**37**	**31**	**27**	**28**	**26**	**77**	**43**	**269**
Total number of species	**11**	**8**	**8**	**7**	**8**	**17**	**16**	**75**

6.4 Flora Management

During the reporting period, KML undertook management of flora in accordance with the following environmental plans and procedures:

- CORP-EN-PLN-1011 – Flora and Vegetation Management Plan
- CORP-EN-PLN-1012 – Flora and Vegetation Health Monitoring Plan
- CORP-EN-PRO-1009 – Flora, Weeds and Plant Pathogens Procedure

This section details our findings in relation to KML's management of its flora and vegetation health.

6.4.1 Vegetation Health

Condition 6.5 of MS805 and MS806 requires the minimisation of disturbance and/or loss of the Blue Hills PEC; specifically, through monitoring impacts from mining and mining-related activities due to dust, saline water application for dust control, fire and feral species.

KML have developed and implemented the following plans and procedures to meet legislative conditions in relation to flora and vegetation:

- CORP-EN-PLN-1011 – Flora and Vegetation Management Plan
- CORP-EN-PLN-1012 – Flora and Vegetation Health Monitoring Plan
- CORP-EN-PRO-1009 – Flora, Weeds and Plant Pathogens Procedure
- CORP-EN-PRO-1005 – Dust Monitoring Procedure
- CORP-EN-PRO-1004 – Approvals Requests and Ground Disturbance Procedure

During the reporting period monitoring data was collected during spring (September 2023). A total of 30 monitoring quadrats (20m by 20m) were assessed within HIOP, KIOP and MIOP, comprising of 25 quadrats adjacent to operational areas and five control quadrats distant from operations. The locations of the quadrats are shown in Figure 13 to Figure 16.

The following monitoring parameters of potential vegetation health threats were monitored:

- Weeds
- Dust
- Saline water
- Feral grazing
- Erosion

- Drought Stress
- Fire

Threats to vegetation health are monitored at each quadrat and assessed against Karara's internal impact rating scale, with 1 equating to 'nil' impact and 5 equating to 'extreme' impact. **Trigger** criteria have been set to forewarn adverse trends and **Threshold** criteria have been set to represent the limit of acceptable impact beyond which there is likely to be a significant effect on vegetation health. The following trigger and threshold criteria have been adopted by KML for assessing threats and impacts to vegetation health.

- **Trigger Criteria:** Any threat or impact (excluding rainfall and fire) that is given a rating of Moderate (3) **AND** no change detected at relevant control sites.
- **Threshold Criteria:** Any threat or impact (excluding rainfall and fire) that is given a rating of High (4) **AND** no change detected at relevant control sites.

Overall vegetation health is assessed using the Karara vegetation condition rating scale (Adapted from the Keighley Condition Rating Scale). The current Karara rating scale is based on a five-level quantitative rating system from 2 (Excellent) to 6 (Completely degraded). It should be noted that there have been changes to vegetation health classification categories used across reporting years (2011 – present). The rating scale of 1 (Pristine) was used for annual compliance reports from 2013 to 2015. However, this rating scale (1 Pristine) was removed from the vegetation health classification categories after 2015 annual compliance report, as it is not representative of the natural environment that the project is located within due to years of grazing impacts on the ex-pastoral leases. Details of the changes to vegetation health classification categories used since 2011 annual compliance report were provided to DWER on 9 November 2021 in response to the request for a more accurate representation of vegetation health data following DWER's audit of Condition 6.2 of MS805 and MS806 in September 2021.

The currently adapted vegetation health rating scale utilises both a visual vegetation structure assessment and quantitative calculation of species diversity and density to generate an overall condition score for each quadrat. Based on historical monitoring results and ensuring a conservative approach prior to potential impact to the health of vegetation, the following trigger and threshold criteria have been adopted by KML for vegetation condition.

- **Trigger Criteria:** Condition rating of very good (3) **AND** no change detected at relevant control site.

- **Threshold Criteria:** Condition rating of good (4) **AND** no change detected at relevant control site.

Following exceedance of the trigger or threshold criteria, KML initiates responsive actions in accordance with the KML Environmental Plan – Flora and Vegetation Health Monitoring CORP-EN-PLN-1012.

Figure 13: Vegetation Health Monitoring Quadrats at KIOP1

Figure 14: Vegetation Health Monitoring Quadrats at KIOP2

Figure 15: Vegetation Health Monitoring Quadrats at MIOP

Figure 16: Vegetation Health Monitoring Quadrats at HIOP

6.4.1.1 Weeds

KML monitors the percentage of weed cover at all sites to determine if mining operations have spread existing weed populations and/or increased weed density within the monitoring areas. During the reporting period, all the sites recorded weed percentage cover rating of 1 (less than 1% of weeds, Table 6). KML will continue to monitor for the weed in future surveys and manage if required. No trigger or threshold criteria were exceeded during the reporting period and thus no responsive actions were required in relation to weeds.

Table 6: Weed cover impact ratings at monitoring and analogue (CQ1-5 & HIN04) sites

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
MIOP	BHN03MQ1	1	1	1	1	1	1
	BHN03MQ2	1	1	1	1	1	1
	BHN03MQ3	1	1	1	1	1	1
	BHN04MQ3	1	1	1	1	1	1
	TP01MQ1	1	1	1	1	1	1
	CQ3 (analogue)	1	1	1	1	1	1
	CQ5 (analogue)	1	1	1	1	1	1
HIOP	HIN01MQ1	1	1	1	1	1	1
	HIN02MQ2	1	1	1	1	1	1
	HIN03MQ1	1	1	1	1	1	1
	HIN04 (analogue)	1	1	1	1	1	1
KIOP	AERODROME01MQ1	1	1	1	1	1	1
	AERODROME01MQ2	1	1	1	1	1	1
	KRE02MQ3	1	1	1	1	1	1
	KRE02MQ4	1	1	1	1	1	1
	KRE02MQ5	1	1	1	1	1	1
	KRE03MQ1	1	1	1	1	1	1
	KRE03MQ2	1	1	1	1	1	1
	KRE03MQ3	1	1	1	1	1	1
	KRE04MQ1	1	1	1	1	1	1

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
	KRE04MQ2	1	2	1	1	1	1
	KRE04MQ3	2	2	1	1	1	1
	KRE05MQ1	-	1	1	1	1	1
	KRE05MQ2	-	1	1	1	1	1
	KRE05MQ3	-	1	1	1	1	1
	LINEAR01MQ1	1	1	1	1	1	1
	TAILINGS01MQ2	1	1	2	1	1	1
	RAILVHM	1	1	2	2	2	1
	CQ1 (analogue)	1	1	1	1	1	1
	CQ4 (analogue)	1	1	1	1	1	1

Scale 1 = Nil (<1% weeds), 2 = low (1-15% weeds), 3 = moderate (15-30% weeds), 4 = High (30 -60% weeds), 5 = Extreme (60-90% weeds). N/A = not assessed.

6.4.1.2 Foliage Dust Cover

KML monitor dust impacts on vegetation health through annual visual assessment of dust coverage on foliage within the quadrats and monthly dust depositional analysis results. Dust depositional monitoring is covered in Section 6.1 of this report.

Most of monitoring sites recorded nil to low dust levels (Table 7) during the reporting period, however the quadrat RAILVHM located within the rail loop continued to be recorded a dust coverage rating of 5 (extreme), this rating is attributed to the dust emitted from the magnetite stockpiles which produce a dark fine dust.

Table 7 indicates that dust coverage ratings recorded at all the KRE02 and KRE03 quadrats have increased from ‘nil’ and ‘low’ (rating of 1 and 2) to ‘moderate’ (rating of 3) or ‘high’ (rating of 4) during the reporting period, the KRE04MQ1 quadrat also recorded an increase from ‘nil’ (rating of 1) to ‘low’ (rating of 2). Dust coverage levels at TAILINGS01MQ2 quadrat showed an increment from ‘nil’ (rating of 1) to ‘moderate’ (rating of 3). Dust coverage ratings at all the quadrats at MIOP and HIOP remain ‘nil’ (rating of 1).

Incremental dust coverage ratings at the KRE02 and KRE03 quadrats are likely to be attributed to increased mining operations adjacent to Karara pit area (Stage 5). Local dust storms and reduced stockpile moisture/watering at the rail loop (TLO) may potentially cause the increased dust coverage at quadrat RAILVHM. Low rainfall rates recorded during the

reporting period in conjunction with strong winds are also considered to contribute to the increased dust foliage coverage on the vegetation. Enhanced dust management measures were implemented by the mining contractor around east and southeast of Karara pit, including increased uses of water trucks and dust suppressant. Blasting, haulage and train loading is also avoided during high wind conditions.

Dusting of vegetation will continue to be monitored closely for excess dust on foliage and, if required, additional management actions will be undertaken in accordance with KML's Environmental Plan – Flora and Vegetation Health Monitoring CORP-EN-PLN-1012.

Table 7: Percentage dust cover impact ratings recorded at the vegetation health monitoring and control (CQ1-5 & HIN04) sites

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
MIOP	BHN03MQ1	1	1	1	1	1	1
	BHN03MQ2	1	1	1	1	1	1
	BHN03MQ3	1	1	1	1	1	1
	BHN04MQ3	1	1	1	1	1	1
	TP01MQ1	1	1	1	1	1	1
	CQ3 (analogue)	1	1	1	1	1	1
	CQ5 (analogue)	1	1	1	1	1	1
HIOP	HIN01MQ1	1	1	1	1	1	1
	HIN02MQ2	1	1	1	1	1	1
	HIN03MQ1	1	1	1	1	1	1
	HIN04 (analogue)	1	1	1	1	1	1
KIOP	AERODROME01MQ1	1	1	1	1	1	1
	AERODROME01MQ2	1	1	1	1	1	1
	KRE02MQ3	4	2	4	4	2	4
	KRE02MQ4	4	1	2	4	2	3
	KRE02MQ5	3	1	2	3	1	3
	KRE03MQ1	3	2	2	4	2	3
	KRE03MQ2	3	1	2	4	1	3
	KRE03MQ3	3	1	2	4	2	3

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
	KRE04MQ1	1	1	1	1	1	2
	KRE04MQ2	1	1	1	1	1	1
	KRE04MQ3	1	1	1	1	1	1
	KRE05MQ1	-	1	2	2	1	1
	KRE05MQ2	-	1	2	2	1	1
	KRE05MQ3	-	1	2	1	1	1
	LINEAR01MQ1	1	1	2	2	1	1
	TAILINGS01MQ2	1	1	3	3	1	3
	RAIL VHM	4	4	5	5	5	5
	CQ1 (analogue)	1	1	1	1	1	1
	CQ4 (analogue)	1	1	1	1	1	1

Scale 1 = Nil dust, 2 = low dust (0-5% of plants), 3 = moderate (5-15% of plants), 4 = High (15-50% of plants), 5 = Extreme (>50% of plants). N/A = not assessed.

6.4.1.3 Soil salinity

KML monitors potential impacts to vegetation from saline water overspray through analysis of soil salinity levels and observational assessments of salt residue on vegetation foliage and soil surfaces. The soils within Karara's monitoring and control sites are reported by Jenny Borger (2012) as clay loams. In a report written by the Department of Agriculture and Food (2006), 'non saline' clay loams are defined as below 22 mS/m (rating of 1) and 'slightly saline' clay loams are between 22 and 44 mS/m (rating of 2).

During the reporting period salinity ratings (Table 8) for most sites recorded rating of 1 (non-saline) with only a low salinity (rating of 2) being recorded at BHN04MQ3 (25 mS/m). TP01MQ1 and LINEAR01MQ1 quadrats showed a reduction in salinity rating from 'low' (rating of 2) to 'nil' (rating of 1) in comparison to last year's reporting period. Salinity rating at analogue site CQ3 also decreased from 'moderate' (rating of 3) to 'low' (rating of 2) with a value of 32 mS/m being recorded in 2023. The vegetation health condition at CQ3 was recorded as 'excellent' (rating of 2) during the reporting period. No visual evidence of salt staining on soil or foliage was recorded at monitoring quadrats or threshold criteria were exceeded. Overall, soil salinity levels have remained constant across all sites, indicating that potential water overspray for dust suppression is not impacting on soil salinity levels.

Table 8: Salinity ratings recorded at the vegetation health monitoring and control (CQ1-5 & HIN04) sites

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
MIOP	BHN03MQ1	1	1	1	1	1	1
	BHN03MQ2	1	1	1	1	1	1
	BHN03MQ3	1	1	1	1	1	1
	BHN04MQ3	1	1	1	2	1	2
	TP01MQ1	1	2	3	1	2	1
	CQ3 (analogue)	1	2	1	3	3	2
	CQ5 (analogue)	1	1	1	1	1	1
HIOP	HIN01MQ1	1	1	1	1	1	1
	HIN02MQ2	1	1	1	1	1	1
	HIN03MQ1	1	1	1	1	1	1
	HIN04 (analogue)	1	1	1	1	1	1
KIOP	AERODROME01MQ1	1	1	1	1	1	1
	AERODROME01MQ2	1	1	1	1	1	1
	KRE02MQ3	1	1	1	1	1	1
	KRE02MQ4	1	1	1	1	1	1
	KRE02MQ5	1	1	1	1	1	1
	KRE03MQ1	1	1	1	1	1	1
	KRE03MQ2	1	1	1	1	1	1
	KRE03MQ3	1	1	1	1	1	1
	KRE04MQ1	1	1	1	1	1	1
	KRE04MQ2	1	1	1	1	1	1
	KRE04MQ3	1	1	1	1	1	1
	KRE05MQ1	-	1	1	1	1	1
	KRE05MQ2	-	1	1	1	1	1
	KRE05MQ3	-	1	1	1	1	1

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
	LINEAR01MQ1	1	1	1	1	2	1
	TAILINGS01MQ2	1	1	1	1	1	1
	RAILVHM	1	1	1	1	1	1
	CQ1 (analogue)	1	1	1	2	1	1
	CQ4 (analogue)	1	1	1	1	1	1

Scale 1 = Nil (<22 mS/m), 2 = Low (22-44 mS/m), 3 = Moderate (44-89 mS/m), 4 = High (89-178 mS/m), 5 = Extreme (>178 mS/m), N/A = not assessed.

6.4.1.4 Vegetation grazing

KML monitor feral fauna impacts to vegetation by recording evidence of vegetation grazing by feral goats and rabbits. During the reporting period, all sites recorded nil or low amounts (< 5% within the quadrat affected) of grazing by feral animals (Table 9) and no trigger or threshold criteria were exceeded. As a result, feral grazing is not considered to impact vegetation health. Feral management is discussed in more details in Section 6.2.4.

Table 9: Vegetation grazing impact ratings recorded at the vegetation health monitoring and control (CQ1-5 & HINO4) sites

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
MIOP	BHN03MQ1	1	2	1	1	2	2
	BHN03MQ2	1	1	1	1	1	1
	BHN03MQ3	1	1	1	1	1	1
	BHN04MQ3	1	1	1	1	1	1
	TP01MQ1	1	1	1	1	1	1
	CQ3 (analogue)	1	1	1	1	1	1
	CQ5 (analogue)	1	1	2	2	1	1
HIOP	HIN01MQ1	2	2	1	1	1	1
	HIN02MQ2	2	1	1	1	1	1
	HIN03MQ1	1	1	1	1	1	1
	HIN04 (analogue)	2	2	1	1	1	1
KIOP	AERODROME01MQ1	2	1	2	1	1	2

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
	AERODROME01MQ2	1	2	2	1	1	2
	KRE02MQ3	1	1	1	1	1	1
	KRE02MQ4	1	1	1	1	1	1
	KRE02MQ5	1	2	1	1	1	1
	KRE03MQ1	2	1	1	1	1	1
	KRE03MQ2	1	1	1	1	1	1
	KRE03MQ3	1	2	1	1	1	1
	KRE04MQ1	1	1	1	1	1	1
	KRE04MQ2	2	1	1	1	1	1
	KRE04MQ3	2	1	1	1	1	1
	KRE05MQ1	-	1	1	1	1	1
	KRE05MQ2	-	1	1	1	1	1
	KRE05MQ3	-	1	1	1	1	1
	LINEAR01MQ1	1	1	1	1	1	2
	TAILINGS01MQ2	1	1	1	1	1	1
	RAILVHM	1	1	1	1	1	2
	CQ1 (analogue)	2	1	1	1	1	1
	CQ4 (analogue)	1	1	1	1	1	1

Scale 1 = no grazing, 2 = low grazing (0-5%), 3 = moderate grazing (5-15%), 4 = high grazing (15-50%), 5 = extreme grazing (>50%). N/A = not assessed.

6.4.1.5 Erosion

Erosion is visually assessed at each quadrat to determine if KML's operations are resulting in increased land instability and sedimentation. During the reporting period, 23 out the 30 quadrats recorded no evidence of erosion, as they are located in natural undisturbed landscapes. Five quadrats recorded erosion scores of 'low' (0 - 5% of topsoil loss) at BHN03MQ2, KRE03MQ1, KRE03MQ3, KRE04MQ1 and KRE04MQ2. Score of 'moderate' (>5 - 15% of topsoil loss) was recorded at BHN03MQ1 and KRE03MQ2 (Table 10). These sites will continue to be monitored for any potential increase of erosion.

The BHN03MQ1 quadrat erosion score has remained unchanged with a value of 3 (moderate) since last year's reporting period. This sustained moderate erosion score could be potentially associated with active erosive process along channels, back cutting, sedimentation behind the adjacent coir logs and several diggings most likely caused by rabbits. Erosion score at KRE03MQ2 quadrat has increased from 2 (low) to 3 (moderate), which was likely due to incremented echidnas' activity (diggings) along the quadrat. Increased scores of 2 (low) were also recorded at BHN03MQ2, KRE04MQ1 and KRE04MQ2 quadrats, which might be potentially attributed to the presence of several diggings mostly caused by echidnas. Erosion scores remained unchanged with a value of 2 (low) at KRE03MQ1 and KRE03MQ3 quadrats.

The vegetation conditions recorded at those quadrats were rated as 'Very Good' or 'Good' condition (scores of 3 or 4). No erosion mitigation measures have been recently implemented. The erosion mitigation measures will be implemented at the monitoring sites with low or moderate erosion impacts if needed.

Table 10: Erosion impacts recorded at the KIOP vegetation health monitoring and control sites

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
MIOP	BHN03MQ1	2	2	2	2	3	3
	BHN03MQ2	1	2	1	2	1	2
	BHN03MQ3	1	1	1	1	1	1
	BHN04MQ3	1	1	1	1	1	1
	TP01MQ1	1	2	2	1	1	1
	CQ3 (analogue)	1	1	1	1	1	1
	CQ5 (analogue)	1	1	1	1	1	1
HIOP	HIN01MQ1	1	1	1	1	1	1
	HIN02MQ2	1	1	1	1	1	1
	HIN03MQ1	1	1	1	1	1	1
	HIN04 (analogue)	1	1	1	1	2	1
KIOP	AERODROME01MQ1	1	1	1	1	1	1
	AERODROME01MQ2	1	1	1	2	1	1
	KRE02MQ3	1	1	1	1	1	1

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
	KRE02MQ4	1	1	1	1	1	1
	KRE02MQ5	1	1	1	1	1	1
	KRE03MQ1	1	1	2	1	2	2
	KRE03MQ2	2	2	2	3	2	3
	KRE03MQ3	1	1	1	1	2	2
	KRE04MQ1	1	1	1	1	1	2
	KRE04MQ2	1	1	1	1	1	2
	KRE04MQ3	1	1	1	1	1	1
	KRE05MQ1	-	1	1	1	1	1
	KRE05MQ2	-	1	1	1	1	1
	KRE05MQ3	-	1	1	2	1	1
	LINEAR01MQ1	1	1	1	1	1	1
	TAILINGS01MQ2	1	1	1	1	1	1
	RAILVHM	1	1	1	1	2	1
	CQ1 (analogue)	1	1	1	1	1	1
	CQ4 (analogue)	1	1	1	1	1	1

Scale 1 = Nil, 2 = Low (>0-5% of topsoil loss), 3 = moderate (>5-15% moderate topsoil loss and runoff channels), 4 = High (>15-50% severe topsoil loss), 5 = Extreme (>50% complete truncation of soil profile, exposure of subsoil). N/A = not assessed.

6.4.1.6 Rainfall and climate

Rainfall is monitored to account for changes in vegetation health due to rainfall variability. Rainfall figures are recorded on site daily and graphed into monthly totals (Figure 17).

The Midwest region where the Karara mine site is located, has been experiencing a decline in winter rainfall over a number of decades. This can sometimes be offset by the remnants of tropical low pressure systems bringing summer rainfall, however these systems are typically less reliable and patchier than the rain bearing fronts that occur during winter. It was particularly dry at the Karara mine site in 2019 and 2020, while a recovery of total annual rainfall was recorded in 2021 and 2022 (Figure 18). However, the total annual rainfall recorded

in 2023 was 232.6mm, being the second lowest recorded annual rainfall since the driest reporting period in 2019 (166.25mm).

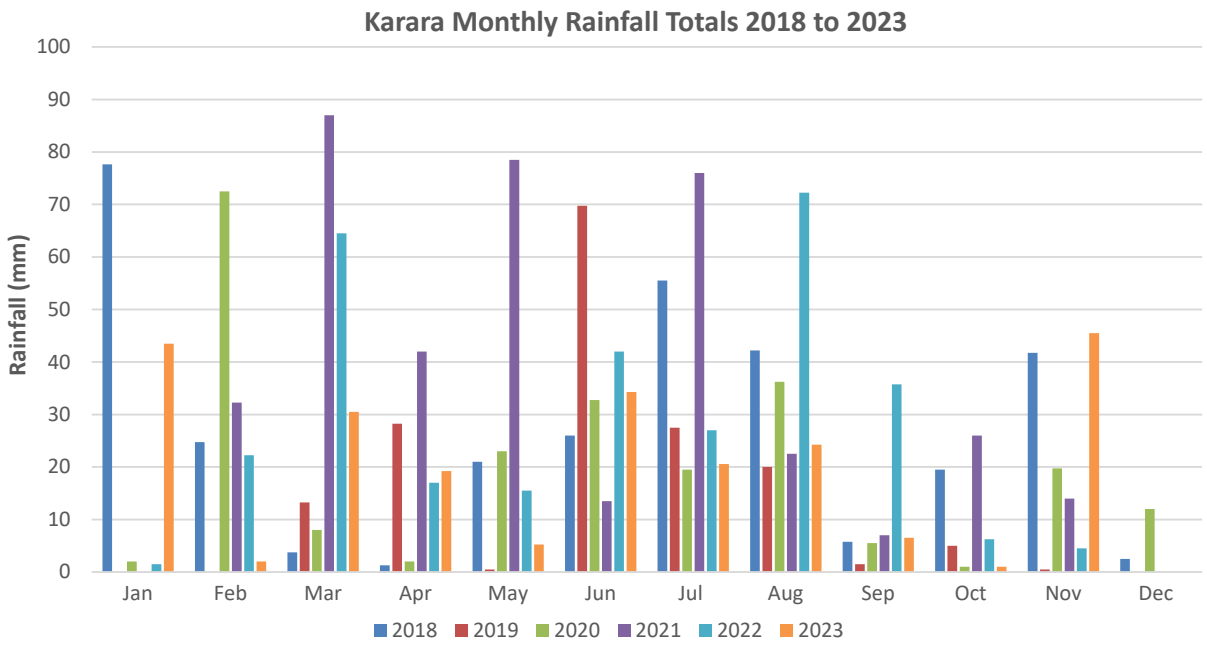


Figure 17: Monthly Rainfall for the Karara Mine Site (2018 – 2023)

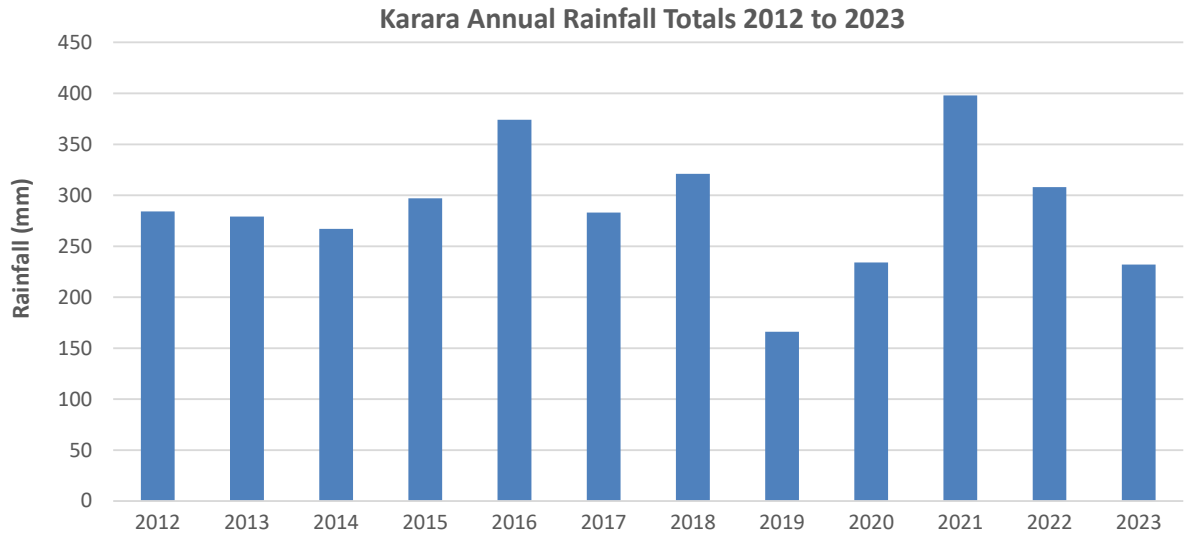


Figure 18: Annual Rainfall for the Karara Mine Site (2012 – 2023)

6.4.1.7 Fire Impacts

Since commencement of operation in 2013, no fires have been reported on KML managed land and as a result fire has not had an impact on vegetation health at Karara.

6.4.1.8 Vegetation Condition Rating

During the reporting period, 9 of 30 quadrats recorded a vegetation condition rating of 'Excellent' (2), 19 of 30 quadrats recorded a rating of 'Very Good' (3) and the remaining 2 quadrats recorded a rating of 'Good' (4).

Decline in vegetation condition rating from 'Very Good' (3) to 'Good' (4) was recorded at BHN03MQ1 and RAILVHM quadrats (Table 11). At BHN03MQ1 quadrat, vegetation condition rating has declined mainly due to a progressing erosive process, reduced count species compared to last year's reporting, deteriorated ground cover, presence of litter and increased diggings most likely caused by rabbits. Decline in vegetation condition at RAILVHM was potentially attributed to persistent dust emitted from the magnetite stockpiles leading to stressed vegetation along with several rabbit's diggings and cat tracks being recorded across the quadrat.

BHN03MQ3, HIN01MQ1, KRE02MQ5, KRE04MQ1 and KRE04MQ2 quadrats have recorded a slight decline in vegetation condition rating from 'Excellent' (2) to 'Very Good' (3) being mostly attributable to increased weeds, higher species death rate, water stress/drought and incremented echidna's activity (higher presence of diggings).

All the KRE02, KRE03, KRE04 and KRE05 quadrats have recorded either an unchanged rating of 'Very Good' (3) compared to the last year's reporting period or decline in vegetation condition rating from 'Excellent' (2) to 'Very Good' (3), which might be potentially associated with water stress/drought in 2023. Increased dust foliage coverage, reduced count species and recorded increased echidna's activity were also considered to contribute the declined vegetation condition at these quadrats.

Vegetation condition rating at HIN03MQ1, HIN04, AERODROME01MQ1 and AERODROME01MQ2 quadrats remained unchanged with a rating of 'Very Good' (3) compared to last year's monitoring.

The quadrats with a declined vegetation condition recorded in the reporting period will be closely monitored in future reporting periods to determine potential measures to be implemented for improvement of the vegetation condition at those quadrats. Although total annual rainfall has been progressively decreasing over the last three year's reporting periods (Figure 18), recovery in overall vegetation condition is expected to be recorded in the

upcoming vegetation health monitoring in September 2024 as measured rainfall during 2024 (particularly in June 2024) has been significantly higher than any year since rainfall monitoring started in 2011.

Table 11: Vegetation conditions ratings recorded at the vegetation health monitoring and control sites

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
MIOP	BHN03MQ1	3	3	3	3	3	4
	BHN03MQ2	3	3	2	3	3	3
	BHN03MQ3	3	3	2	2	2	3
	BHN04MQ3	2	2	2	2	2	2
	TP01MQ1	2	2	2	2	2	2
	CQ3 (analogue)	2	2	2	2	2	2
	CQ5 (analogue)	2	2	2	2	2	2
HIOP	HIN01MQ1	2	2	2	2	2	3
	HIN02MQ2	2	2	2	2	2	2
	HIN03MQ1	2	2	2	2	3	3
	HIN04 (analogue)	2	2	3	3	3	3
KIOP	AERODROME01MQ1	2	2	2	2	3	3
	AERODROME01MQ2	2	3	3	3	3	3
	KRE02MQ3	3	2	2	3	3	3
	KRE02MQ4	3	2	2	3	3	3
	KRE02MQ5	2	2	2	2	2	3
	KRE03MQ1	2	2	2	2	3	3
	KRE03MQ2	3	2	3	3	3	3
	KRE03MQ3	3	3	3	3	3	3
	KRE04MQ1	2	2	2	2	2	3
	KRE04MQ2	2	2	2	2	2	3

Project	Quadrat	Sep-18	Sep-19	Sep-20	Sep-21	Sep-22	Sep-23
	KRE04MQ3	2	2	2	2	2	2
	KRE05MQ1	-	2	2	2	3	3
	KRE05MQ2	-	2	2	2	3	3
	KRE05MQ3	-	2	2	2	3	3
	LINEAR01MQ1	2	3	3	3	3	3
	TAILINGS01MQ2	2	2	2	2	2	2
	RAILVHM	2	3	3	3	3	4
	CQ1 (analogue)	2	2	2	2	2	2
	CQ4 (analogue)	2	2	2	2	2	2

Note: *Relative condition rating based on revised vegetation health monitoring methodology was approved for 2016 onwards. Condition rankings 1 = pristine, 2 = excellent, 3 = very good, 4 = good, 5 = degraded, 6 = completely degraded.

6.5 Rehabilitation

During the reporting period, KML undertook progressive rehabilitation and rehabilitation performance monitoring, in accordance with the following KML environmental procedures:

- CORP-EN-PRO-1002 – Land Rehabilitation
- CORP-EN-PRO-1040 – Rehabilitation Performance Monitoring

KML ensures implementation of all environmental management measures through regular environmental inspections and audits.

KML maintains a Rehabilitation Schedule CORP-EN-SCH-1006 to meet MS805 (condition 12-1-2) and MS806 (condition 11-1-2), which requires *"A schedule of the rate of rehabilitation acceptable to the CEO of the Department of Environment and Conservation, and the Director Environment of the Department of Mines and Petroleum."* The Rehabilitation Schedule was submitted to the DWER and approved on the 30 August 2013. A revision to the schedule was made in April 2020 and provided to the DWER for endorsement. A formal endorsement is yet to be received from DWER.

KML continues to progressively rehabilitate disturbed areas, as per the Rehabilitation Schedule. Ongoing monitoring indicates that all rehabilitated areas are continuing to

rehabilitate well and are likely to meet the requirement of >70% species composition (not including weed species) within 5 years following the cessation of productive mining.

6.5.1 Rehabilitation Performance monitoring

To track progress towards achieving the closure objective of "establishing a rehabilitated ecosystem that retains the biological values of the surrounding natural ecosystem", KML undertake annual assessments each September/October of rehabilitation performance. In accordance with condition 11 of MS805 and MS806 and the KML Mine Closure Plan CORP-EN-PLN-1038, the following criteria are to be met within five years following the cessation of productive mining:

- Flora and vegetation are re-established with not less than 70% species composition (KML define species composition as the diversity of the rehabilitated site (H_{rehab}) relative to the corresponding analogue site ($H_{control}$).
- Weed coverage consistent with recorded baseline levels or 10%, whichever is less.
- Vegetation density, species richness and weed coverage is to be comparable to the surrounding area, as determined by analogue flora and vegetation surveys.

During the report period, KML monitored 36 rehabilitation monitoring quadrats (20m by 20m or 40m by 10m), comprising of 27 quadrats within rehabilitated sites and 9 control quadrats in surrounding natural vegetation. Monitoring quadrats have been established within the rehabilitated areas of the waste rock dumps (Blue Hills, Terapod, Hinge & Karara), and linear infrastructure corridors (Pipeline) (Figure 19 to Figure 23).

Figure 19: Rehabilitation monitoring quadrats at Blue Hills North Waste Rock Dump

Figure 20: Rehabilitation monitoring quadrats at Terapod Waste Rock Dump

Figure 21: Rehabilitation monitoring quadrats at Hinge Waste Rock Dump

Figure 22: Rehabilitation monitoring quadrats at Karara Waste Rock Dump

Figure 23: Rehabilitation Monitoring Quadrats at Pipeline

6.5.2 Analogue sites

Fifteen analogue quadrats were originally installed adjacent to rehabilitation areas, in vegetation undisturbed by mining activities. Analogue sites are selected according to the Rehabilitation Performance Monitoring Procedure CORP-EN-PRO-1040, at sites with comparable slope, aspect, soil type, resource regulation and vegetation community to the rehabilitation site. Species diversity varies considerably between the analogue quadrats (Figure 24 and Figure 25). Four rail analogue quadrats (RAIL01C, RAIL02C, RAIL03C and RAIL04C) in the vicinity of the rail loop were removed in 2019 following approval of KML Environmental Management Plan – Flora and Vegetation Health Monitoring Plan CORP-EN-PLN-1012 (Rev 4) by DWER in 2019. The Windanning quadrat was also removed in 2019 and replaced with the Spyder West quadrat. There has been no change to the analogue quadrats during this reporting period. Species diversity values in the following sections are all presented relative to the associated analogue site.

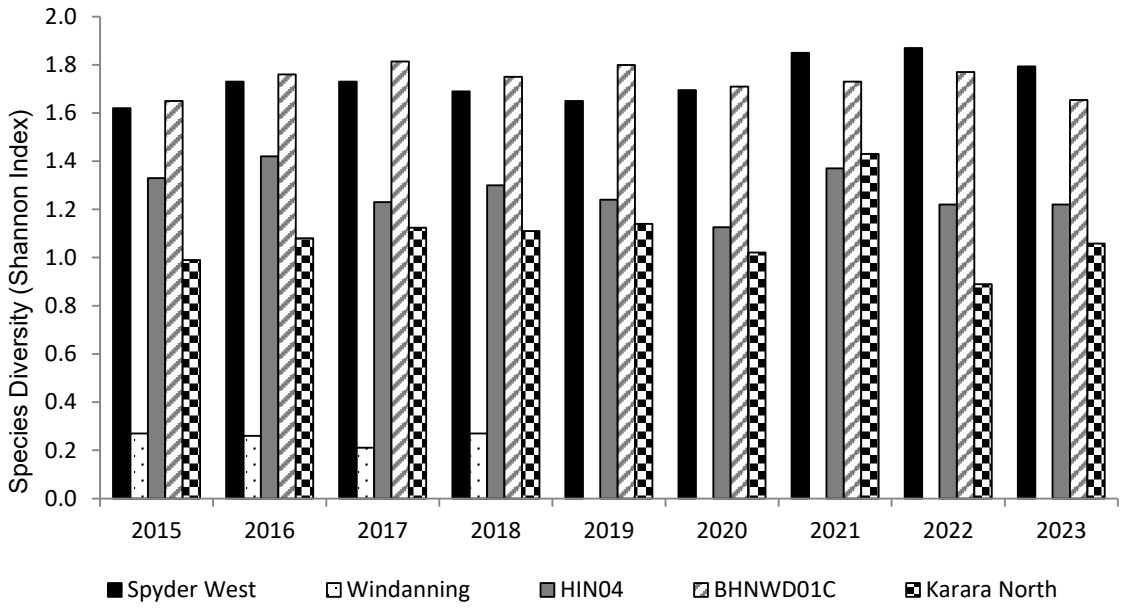


Figure 24: Species diversity (Shannon Index) recorded at analogue quadrats surrounding the Waste Rock Dumps

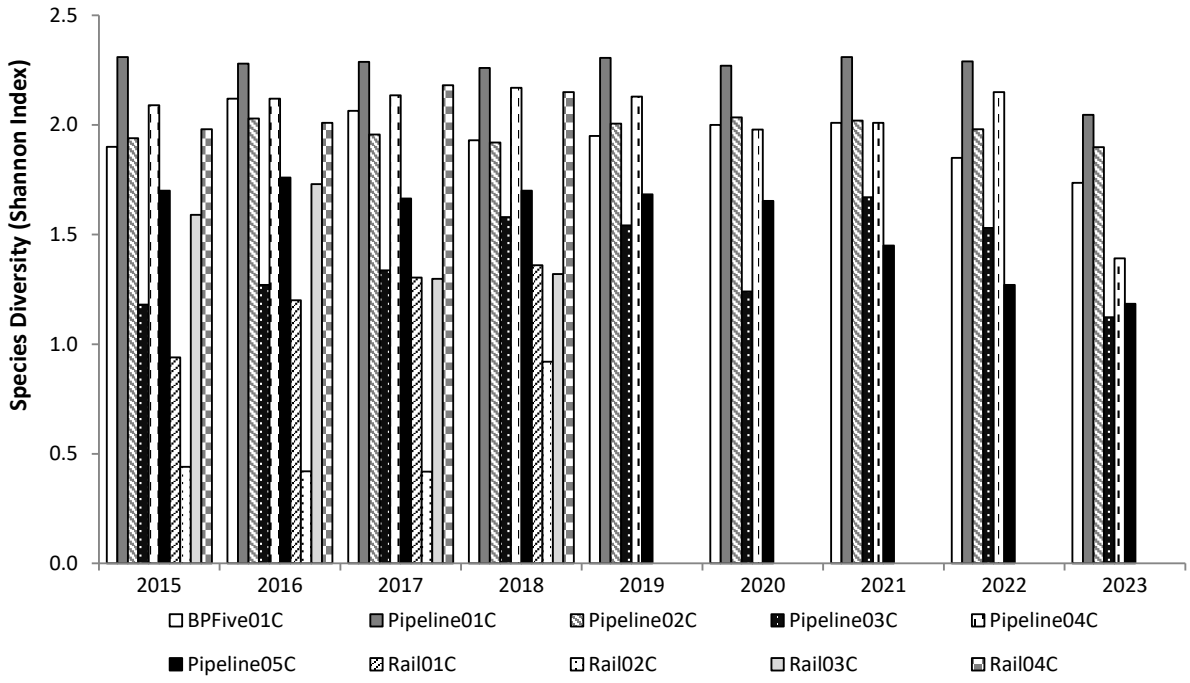


Figure 25: Species diversity (Shannon Index) recorded at analogue quadrats surrounding the Linear Infrastructure Corridor

6.5.3 Blue Hills Waste Rock Dump Rehabilitation

A trial rehabilitation slope was established in early 2013 with a single monitoring (BHNWD01) and analogue site (BHNWD01C) established in March 2013. Blue Hills North WRD rehabilitation works were completed in May 2014, with three additional rehabilitation quadrats established in September 2014. Vegetation has established well since initial rehabilitation, with the soil surface stabilising as rip lines settle (Plate 1). The September 2023 monitoring identified a maximum of 20 (BHNWD05) to a minimum of 14 (BHNWD01) species from the four sampled rehabilitation quadrats at Blue Hills North WRD. Blue Hills North WRD has been assessed against the BHNWD01C analogue quadrat, located approximately 0.3km to the southeast of Blue Hills WRD where 16 species were identified on the analogue site.

During the reporting period, three of the four Blue Hills sites exceeded the 70% target, with the only exception being BHNWD01 (53.07%), which has been recorded continuously below the target since 2019 (Figure 26). The relative species diversity value (relative to the diversity index of the analogue site) recorded within the BHNWD01 quadrat has been falling from 125% in 2018 to below the 70% target in the last five years. During the reporting period the diversity index recorded at this quadrat has slightly decreased from 0.99 in 2022 to 0.87 in 2023. Fourteen (14) species were recorded at BHNWD01 in 2023, which correspond to the 85% of

the species number (16 species) recorded at the analogue site (BHNWD01C). The decrease in the diversity Shannon index at BHNWD01 could be potentially associated with a significant increase in abundance of one species in particular (*Maireana trichopteran)* as 116 individuals were recorded in 2022, while that 409 individuals were recorded in 2023, this quadrat also recorded higher death rates of *Acacia ramulosa* species and some non-chenopod shrubs. It should be noted that the Shannon diversity index measures not only the species diversity, but also the evenness in the number of individuals from different species across the quadrat. The diversity index at BHNWD03 has slightly decreased in comparison to last year's value, which is a result of reduced number of *Acacia obtecta* species from 24 individuals in 2022 to 5 individuals in 2023 (Figure 26) and high recorded deaths of *Acacia anthochaera* species. Shannon Diversity Index at BHNWD04 and BHNWD05 quadrats have slightly incremented compared to last year's value.

It should be noted that although the species diversity recorded at BHNWD01 is still below the target of 70%, an average species density of 89% for all Blue Hill North WRD rehabilitation quadrats was achieved across ten years of monitoring.

Two weed species were recorded at BHNWD01 [*Limonium lobatum (statice)* and *Rumex vesicarius*], three weed species were recorded at BHNWD04 (*Mesembryanthemum nodiflorum, Spergula pentandra* and *Taraxacum khatoonae*). No weed species recorded at either BHNWD03 or BHNWD05 quadrats. Weed coverage was described as being nil (<1%) at BHNWD01, BHNWD03, BHNWD04 and BHNWD05. These weeds will continue to be managed by KML environmental department as part of ongoing weed management practices.

Plate 1: Blue Hills North WRD monitoring site 3 - September 2023 (Left); September 2018 (Right)

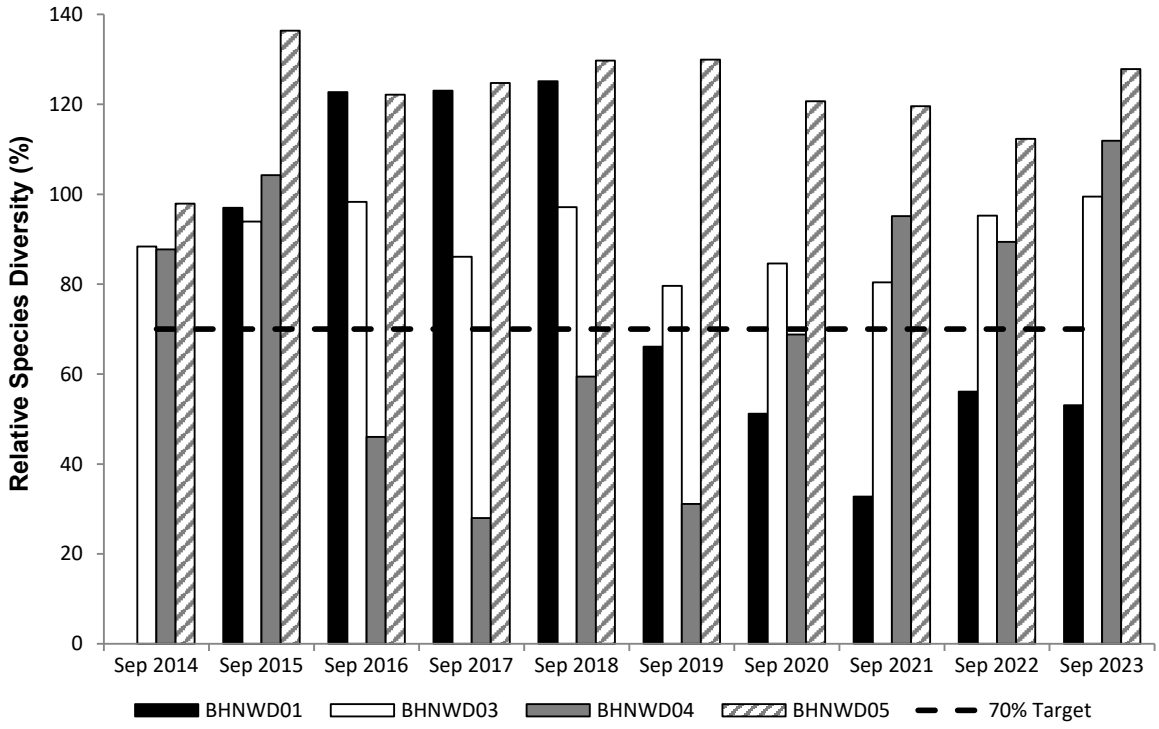


Figure 26: Species diversity recorded at the Blue Hills North rehabilitation monitoring (BHNWD01, 3-5) quadrats, relative to the analogue (BHNWD01C)

6.5.4 Terapod Waste Rock Dump Rehabilitation

Rehabilitation works on the Terapod WRD were completed in April 2014. Seven rehabilitation quadrats were established in September 2014, with additional quadrats established in March and September 2015 respectively, for a total of nine quadrats. Terapod WRD has been assessed against the Spyder West analogue quadrat, located approximately 1.5km to the west of Terapod. Overall, vegetation has established well since initial rehabilitation, with the soil surface stabilising as rip lines have flattened (Plate 2).

During the reporting period all rehabilitation quadrats at Terapod WRD met the species diversity target of 70%, with diversity stable and comparable to the previous two monitoring periods (Figure 27). From the nine sampled quadrats at Terapod WRD, 53 perennial plant species were identified. A total of eleven perennial species were also identified at the analogue site, Spyder West, and of these four were identified over the nine rehabilitation transects.

Plate 2: Terapod WRD monitoring site 4 - September 2023 (Left); September 2018 (Right)

Weed coverage at Terapod WRD was described as nil (<1%) at all the rehabilitation quadrats. Only one weed species was identified during the monitoring period: *Spergula pentandra* (TPD05). The weeds will continue to be monitored and managed.

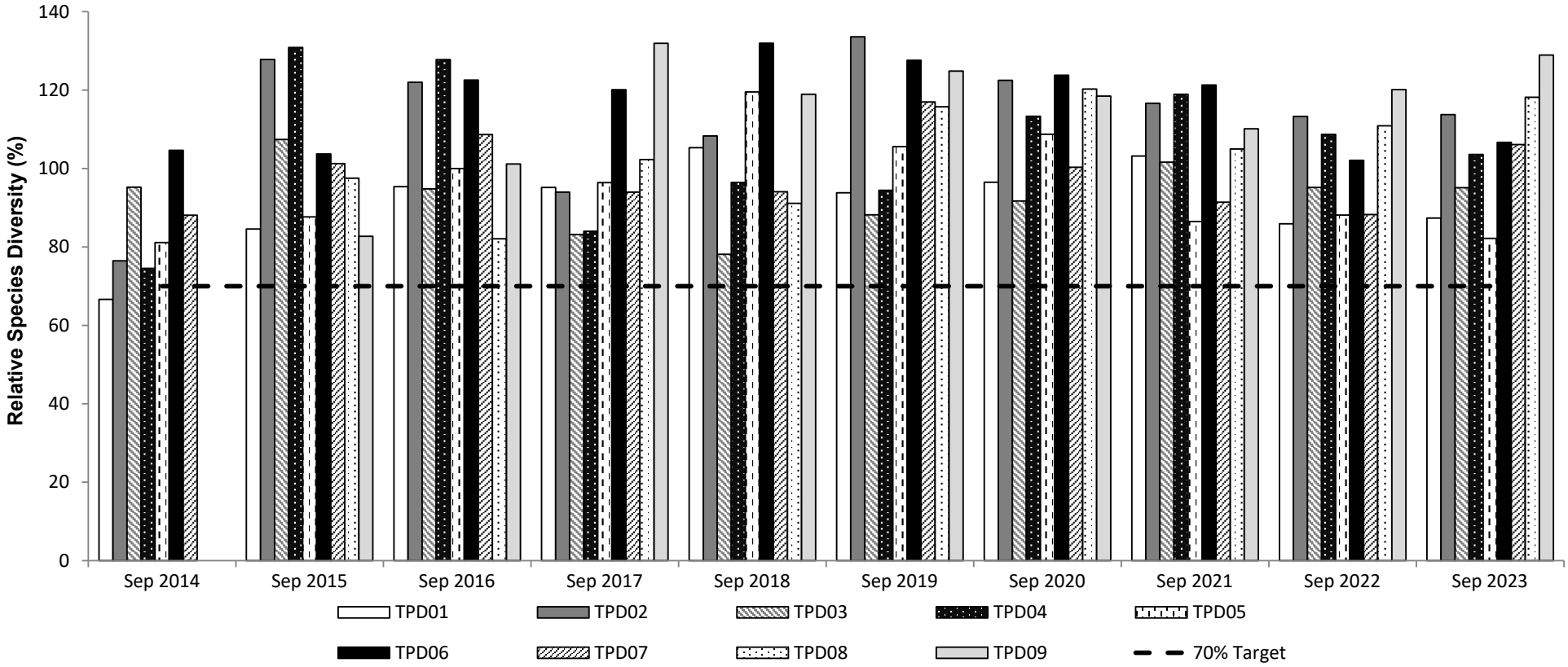


Figure 27: Species diversity recorded at the Terapod rehabilitation monitoring (TPD01-09) quadrats, relative to the analogue (Spyder West).

6.5.5 Hinge Waste Rock Dump Rehabilitation

Rehabilitation works on the Hinge WRD were completed in March 2016, with four monitoring sites established in March 2016 and two additional sites established in September 2016. The six rehabilitation quadrats (HINWRD01 to 06) and one analogue site (HIN04), which are located approximately 2km south of Hinge WRD have been surveyed annually since September 2016. Vegetation has established well, with the soil surface stabilising as rip lines have settled (Plate 3).

Plate 3: Hinge WRD monitoring site 6 - September 2023 (Left); September 2018 (Right)

Rehabilitation at Hinge WRD is tracking well, with species diversity being generally consistent with 2020 levels and exceeding 70% target at most quadrats except at HINWRD03. The relative species diversity at HINWRD03 has increased from 24.2% in 2022 to 49.7% in 2023 (Figure 28). Similar to BHNWD01, the continuous relative species diversity below 70% target at HINWRD03 since 2020 was due to the over-abundance of one species in particular (*Atriplex holocarpa*) which recorded 1651 individuals in 2023 compared to 600 recorded in 2021. This has caused the Shannon diversity index value to drop at HINWRD03 as the evenness of the species is reduced significantly, while the number of species at this site has increased from 14 in 2020 to 16 in 2023.

From the six sampled quadrats at Hinge WRD, 49 perennial plants were identified. Of the six perennial species identified at the analogue site (HIN04), three species were also recorded at Hinge WRD rehabilitation quadrats.

Weed coverage at most rehabilitation monitoring quadrats has remained either low (2-15%) or decreased since last monitoring round. The weed coverage recorded at HINWRD01 has decreased from high (30-60%) to low (2-15%), while the weed coverage recorded at HINWRD05 has also decreased from high (30-60%) to moderate (15-30%). Four weed

species were identified, *Rumex vesicarius* (HINWRD06), *Taraxacum khatoonae* (HINWRD01 and HINWRD02), *Mesembryanthemum nodiflorum* (HINWRD05) and *Spergula pentandra* (HINWRD02, HINWRD03, HINWRD04, HINWRD05 and HINWRD06). Weed management has been ongoing at these areas and will continue while the perennial vegetation continues to establish.

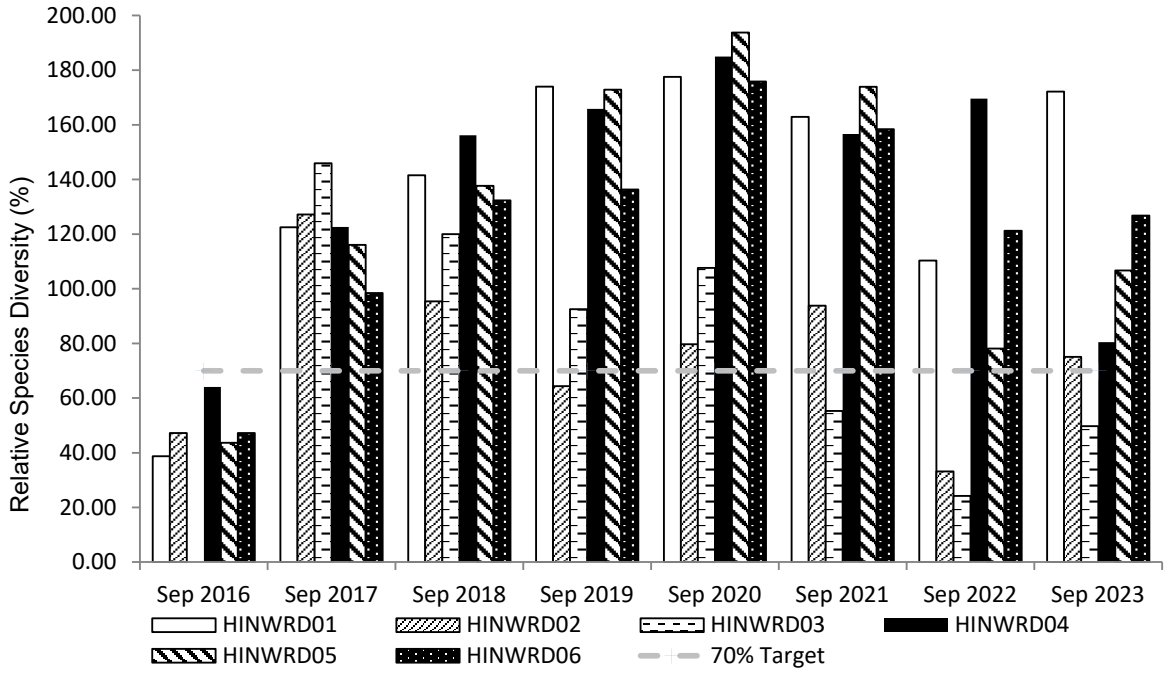


Figure 28: Species diversity recorded at the Hinge rehabilitation monitoring (HIN01-06) quadrats, relative to the analogue (HIN04)

6.5.6 Karara Waste Rock Dump Rehabilitation

Available sections of the Karara WRD have been progressively rehabilitated in 2013, 2015, and 2017. One monitoring quadrat (KARWD01) was established in August 2013 and a second quadrat (KARWD02) was established in August 2015 (Plate 4). One analogue quadrat was established in March 2015 (Karara North), located approximately 1.5 km to the north-northeast of the Karara WRD.

Plate 4: Karara WRD monitoring point 2 - September 2023 (Left); September 2018 (Right)

During the reporting period, relative species diversity recorded at KARWD02 remained at a high level of 206.2% since 2015 monitoring, while KARWD01 quadrat continued to decrease in the relative species diversity index from 21.6% in 2022 to 15.4% in 2023 (Figure 29), which was largely caused by over-abundance of one species (*Atriplex codonocarpa),* being recorded 1705 individuals in 2023 compared to 28 individuals recorded in 2021.

From the two quadrats at Karara WRD, the September 2024 monitoring identified 26 perennial species native to the surrounding area. One of the five perennial species identified at the analogue site (Karara North), were also identified at KARWD02.

Weed coverage has decreased at both rehabilitation monitoring quadrats since last monitoring period. It has decreased from moderate (15-30%) to low (2-15%) at KARWD01 and from low (2-15%) to nil (<1%) at KARWD02. *Mesembryanthemum nodiflorum, Rumex vesicarius, Spergula pentandra* and *Taraxacum khatoonae* were recorded at both KARWD01 and *Spergula pentandra, Waitzia acuminata and Phalaris minor were recorded at* KARWD02. These weeds will continue to be managed.

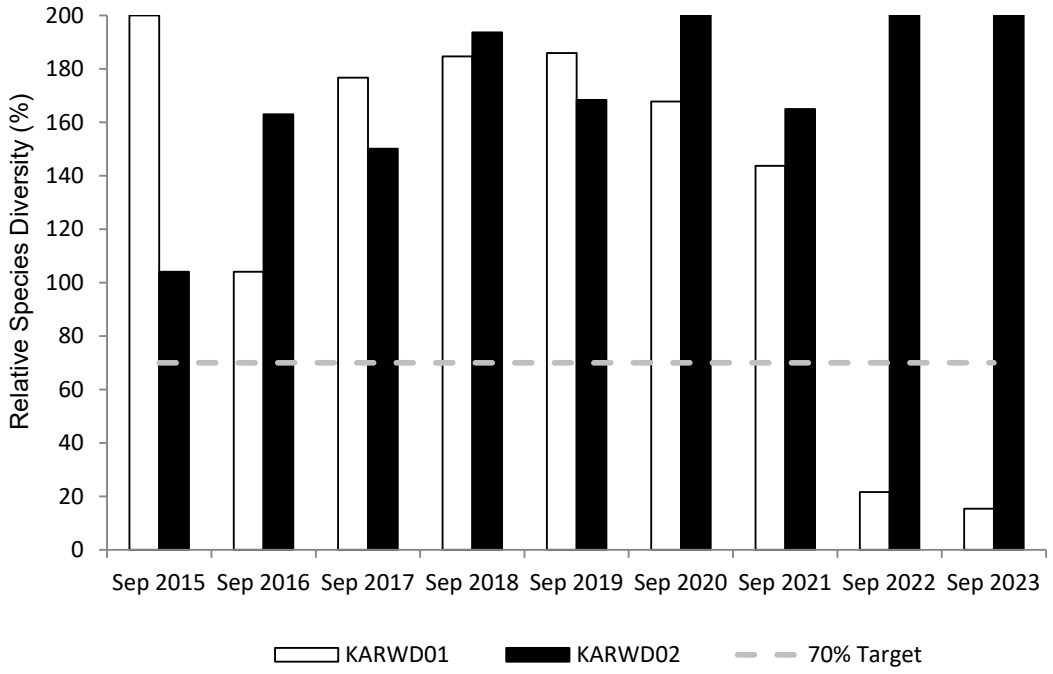


Figure 29: Species diversity recorded at the Karara rehabilitation monitoring (KAR01-02) quadrats, relative to the analogue (Karara North)

6.5.7 Linear Infrastructure Rehabilitation

Rehabilitation works on the linear infrastructure including pipeline, rail and power line were completed in 2012 with six monthly rehabilitation monitoring at three power line quadrats (Power 01-03) commencing in March 2013. All power line monitoring quadrats (Power 01-03) and associated analogue quadrats (Power 01C-03C) were removed in 2016. Monitoring has been undertaken at pipeline and rail sites annually since September 2016. Four rail monitoring quadrats (Rail 01-04) and associated analogue quadrats (Rail 01C-04C) in the vicinity of the rail loop was removed in 2019 monitoring following approval of KML Environmental Management Plan – Flora and Vegetation Health Monitoring Plan CORP-EN-PLN-1012 (Rev 4) by DWER in 2019. Five pipeline quadrats (Pipeline 01-05) were monitored during the reporting period. Each of the five pipeline quadrats have an associated analogue quadrat (Pipeline 01C-05C) established in adjacent undisturbed vegetation (Figure 30).

For the pipeline rehabilitation area, the September 2023 monitoring identified 44 perennial species over the five rehabilitation quadrats and 46 on the five analogue quadrats. Of the 46 perennial species identified on the analogue quadrats, 25 were also identified within the rehabilitation quadrats.

Whilst not all species present in the rehabilitation quadrats were identical to the analogues, all species identified were of local provenance.

All five pipeline rehabilitation quadrats meet the 70% species diversity target, except Pipeline03 (Figure 30). The relative species diversity index at Pipeline03 has been slightly decreased from 71.3% in 2022 to 66.4% in 2023, which is slightly below the target.

In the 2023 monitoring period, weed coverage percentage recorded at all the monitoring sites was less than 1%. Two weed species (*Mesembryanthemum nodiflorum* and *Taraxacum khatoonae*) were identified at Pipeline03. No weed species were recorded at analogue sites.

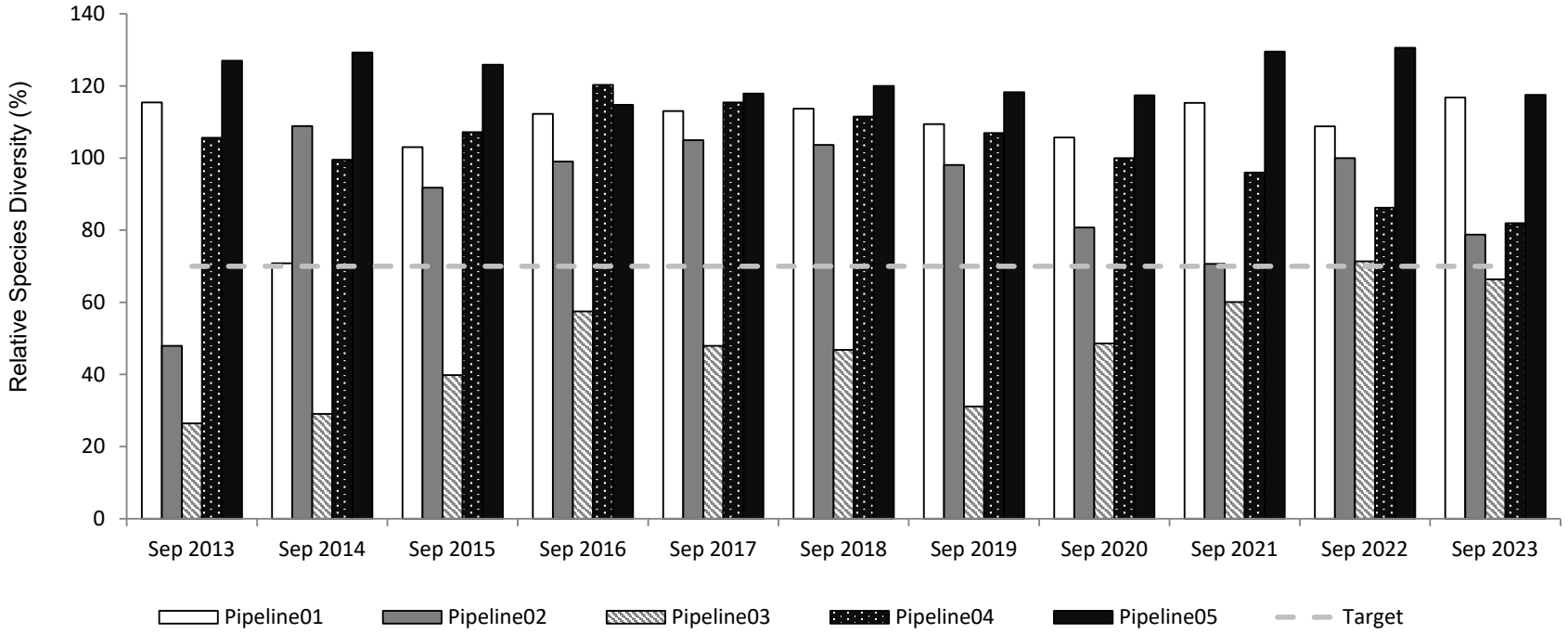


Figure 30: Species diversity recorded at the pipeline rehabilitation quadrats (Pipeline 01-05), relative to the associated analogues (Pipeline 01C-05C)

6.5.8 Seed Collection

Direct seeding and planting of tube stock is undertaken to help achieve KML's rehabilitation goal of establishing self-sustaining vegetation communities that are reflective of the surrounding environment. All seed is collected under a valid licence in accordance with the *Biodiversity Conservation Regulations 2018*. Fourteen seed collection zones[1] have been established within the permitted seed collection area (Figure 31).

During the reporting period approximately 0.36kg of seed of one species (*Brachychiton gregorii*), was collected at the Terapod zone. The collected seed is cleaned, dried and placed in a sealed refrigerated container for later use on rehabilitated areas and in research trials. KML maintains a 'Seed Inventory' of all seed stored onsite to track the quantity and species availability for future rehabilitation programs.

No incidents in relation to seed collection or nursery propagation occurred during the reporting period.

[1] Mungada Ridge seed collection zone was discarded following surrender of M59/650 in August 2021.

Figure 31: Seed collection areas within the Project

7 CONCLUSION

KML has maintained a high level of compliance with MS805, MS806 and MS968 during the reporting period. Five minor non-compliances were reported associated with monitoring of Shield-backed Trapdoor Spiders (*Idiosoma nigrum*) at KIOP (MS805). The spider monitoring discontinued after re-classification of the species, but without formal confirmation of removal of Condition 9 of MS805: Spider monitoring being received from DWER. DWER-EPAS advised on 13 June 2023 that the EPA's inquiry in relation to removal of Condition 9 of spider monitoring under s46 of the EP Act has been mostly placed on hold and DWER-EPAS expects staging of progression on the s46 inquiry to remove Condition 9 of spider monitoring as part of the deliberations during assessment of the KIOP MLE Proposal, which is currently being formally assessed by the EPA. DWER-EPAS provided no updates on the progress on the removal of Condition 9 of MS805: Spider monitoring during this reporting period.

Two minor non-compliance was also recorded with respect to rehabilitation of the MIOP area (MS806) to meet the 70% species composition within five years following cessation of productive mining. DWER-EPAS identified this was an ongoing non-compliance following their compliance audit on MS806 in 2021. The KIOP MLE Proposal, which incorporates the entire footprint previously approved under MIOP (MS806) (except those areas within the tenements that are no longer held by KML) was continued to be formally assessed by the DWER-EPAS under Part IV of the EP Act during this reporting period. It is expected that the approval of the Proposal will resolve this ongoing non-compliance with MS806 Condition 11.1.1a in relation to meeting the 70% species composition within five years following cessation of productive mining at MIOP and those MIOP areas will be used for the KIOP mine life operations.

Monitoring results continue to demonstrate that KML is effectively managing potential impacts to flora and fauna. Fauna monitoring results have consistently demonstrated that mining and associated activities have not significantly impacted conservation significant fauna populations, particularly with respect to the Malleefowl, and WStS. Monitoring of vegetation health also demonstrates that the Blue Hills PEC has not been adversely impacted by KML operations.

Ongoing rehabilitation monitoring also demonstrates that rehabilitation of disturbed areas is still progressing in a positive trajectory and is on track to meet closure objectives. The 70% species composition target has not been met at three WRD rehabilitation monitoring quadrats (e.g. BHNWRD01, HINWRD02 and KARWD01) during the reporting period. This was mainly due to the over-abundance of three species in particular (*Atriplex codonocarpa*, *Atriplex holocarpa* and *Maireana trichoptera*) being recorded hundreds/thousands of individuals at these three sites which caused the Shannon diversity index to drop as the evenness of the

species is reduced significantly. The three over-abundant species are native colonisers, which have flourished and filled in the space where the shrub cover is predominantly sparse. These species are beneficial perennials species with a medium lifespan which play a key role in inhibiting weed growth. Overall, the number of the species at these three sites either remains stable or has decreased due to the over-abundance of above individual species, which are however, consistent with the number of the species recorded at respective analogue sites during this monitoring period.

8 REFERENCES

Bamford, 2019. Karara Iron Ore Project: Annual Monitoring of the Northern Shield-backed Trapdoor Spider 2010 to 2019. Unpublished report prepared for Karara Mining Limited, October 2019.

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National Malleefowl Recovery Team, 2016. National Manual for the Malleefowl Monitoring System: Edition 2016-1.

APPENDIX A: KML ENVIRONMENT POLICY (January 2023)

APPENDIX B: MS805 STATEMENTS OF COMPLIANCE AND AUDIT TABLE

APPENDIX C: MS806 STATEMENTS OF COMPLIANCE AND AUDIT TABLE

APPENDIX D: MS968 STATEMENTS OF COMPLIANCE AND AUDIT TABLE