Iluka Resources Limited

2024 Annual Compliance Report EPBC 2012/6509 Balranald Mineral Sands Mine, NSW

8 November 2024

DOCUMENT REVISION STATUS RECORD

Title: EPBC 2012/6509 2024 Annual Compliance Report				
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1. Declaration of accuracy

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

Signed:	 Phil Lazzari (Nov 8, 2024 09:42 GMT+8)
Full name:	Philip Lazzari
Position:	Project Manager
Organisation:	Iluka Resources Limited (ACN 008 675 018)
Date:	8 November 2024

2. Description of activities

EPBC number	EPBC 2012/6509
Project name	Balranald Mineral Sands Mine
Approval holder and ACN or ABN	Iluka Resources Limited (ACN 008 675 018)
The approved action	To construct, operate and rehabilitate a mineral sand mine near Balranald, NSW, and associated infrastructure and activities. The following elements are excluded: traffic movements generated by the Balranald project in Victoria; construction and operation of a new rail loading facility at Manangatang and transport of ilmenite by rail to port facilities in Victoria; and construction of a power transmission line from the West Balranald ore deposit to the existing substation located south of Balranald.
Location of the project	South-western New South Wales, 12km north-west of Balranald (see Figure 1)
Person accepting responsibility for the report	Philip Lazzari (see declaration)
Dates for the reporting period of the report	9 August 2023 to 9 August 2024
Date of preparation of the report.	8 November 2024

2.1 Activities undertaken during reporting period

The action commenced on the 9th August 2023 with the following preparatory works undertaken during the reporting period:

- Construction of a 23km haul road to connect the site with the public road network for future mineral haulage;
- Construction of the accommodation camp facility;
- Construction of temporary office facilities and contractor yards; and
- Construction of pads, dams and water supply infrastructure in preparation for delivery and construction of mining and processing infrastructure.

Plate 1- Processing plant area construction

Plate 2- Accommodation village construction works

Plate 3- Mine access road construction

3. Addressing all approval conditions

The reporting period for this Compliance Assessment Report is from the 9 August 2023 to 9 August 2024.

All conditions of EPBC 2012/6509 were considered over the reporting period. A variation of the conditions of approval was determined on 1 August 2023. The variation deleted conditions 1, 2, 4, 10, 11, 12 and 13 attached to the approval and substituted with the conditions specified in the table below. New conditions 2A, 10A, 11A-11M, 12A-12B, 15 and 16 were added and several definitions added or substituted with the definitions specified in the table below.

4. EPBC approval conditions compliance table

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
1 August 2023	1	Within the **project area** the person taking the action must not **clear**: a. more than 2,544 hectares (ha) of **Malleefowl habitat**; and b. more than 3,143 ha of **Corben's Long-eared Bat habitat**. The person taking the action must not **clear** outside the **project area** as part of this approval.	Non-compliant	Since the commencement of the action a total of 56.2Ha of Malleefowl habitat and 29.5Ha of Corben's Long-eared Bat habitat have been cleared respectively. An incident occurred on 23 May 2024 where 0.13ha of native vegetation was cleared outside the project area. The Department was notified in writing by email on 25 May 2024. (See Appendix C- attached copy of the sent notification)
1 August 2023	2	The person taking the action must submit a **Biodiversity Management Plan** (**BMP**) for the **Minister's** written approval. The **BMP** must include measures to avoid and mitigate impacts to **Malleefowl** and **Corben's Long-eared Bat,** taking into consideration Chapter 6 of the *Biodiversity Assessment for the Environmental Impact Statement* (June 2016). The **BMP** must include but not be limited to: a. **pre-disturbance surveys** supervised by a **suitably qualified expert** to determine presence of: i. **Malleefowl** mounds in areas mapped as moderate, high, and very high **Malleefowl Habitat** Potential in Figures 12B and 12C as shown at Appendix A; and ii. **hollow-bearing trees** for the **Corben's Long-eared Bat** in areas mapped as Medium Tree Hollow Density, Medium-High Tree Hollow Density and High Tree Hollow Density in Figures 13A, 13B and 13C as shown at Appendix C. b. REVOKED c. measures to ensure **active** or potentially **active Malleefowl** mounds located during **pre-disturbance surveys** between September and February (inclusive) are protected until the end of that **Malleefowl** nesting season (end of February); d. measures to identify **Malleefowl** nesting activity within	Compliant	The Biodiversity Management Plan (Version 5, June 2023) was approved by the Department on 1 August 2023. The BMP is published on the Iluka website in accordance with Condition 11.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
		Malleefowl habitat during the **Malleefowl** nesting season; e. speed limits and warning signs in and near **Malleefowl habitat;** f. measures to minimise dust and light spill within 200 metres of identified **Malleefowl** mounds; g. no **clearing** of vegetation mapped as Medium Tree Hollow Density, Medium-High Tree Hollow Density and High Tree Hollow Density in Figures 13A, 13B and 13C as shown at Appendix C, during the period May to October (inclusive); h. retention in situ, of all **hollow-bearing trees** identified as **active** within **Corben's Long-eared Bat habitat**, for two nights after the surrounding vegetation has been **cleared**, prior to being felled; i. fire management measures; and j. pest, predator and weed management measures. The person taking the action must not **commence** the action until the **BMP** has been approved by the **Minister** in writing. The approved **BMP** must be implemented by the person taking the action.		The action commenced on 9 August 2023 and the Department notified in writing of this commencement date on 14 August 2023. (See Appendix D- attached copy of the sent notification)
1 August 2023	2A	To avoid and mitigate impacts as a result of the action on **Malleefowl**, prior to undertaking any **clearing** within areas mapped as moderate, high, and very high **Malleefowl Habitat** Potential, the person taking the action must ensure a **suitably qualified expert** conducts **pre-disturbance surveys** to detect and record all **Malleefowl** mounds. The person taking the action must not undertake any **clearing** unless: a. the **suitably qualified person** has completed a **Malleefowl** mound **pre-disturbance surveys** for that **breeding season**, b. all **Malleefowl** mounds, and avoidance areas around each mound, within the **project area** have been mapped for that **breeding season**, and c. the finalised **survey** results and associated maps have been submitted electronically to the **Department**. The person taking the action must ensure that no **Malleefowl** mound is directly disturbed during any **breeding season**. The person taking the action must not **clear** within 200 metres of any **Malleefowl** mound during any **breeding season**.	Compliant	a) Pre- clearance surveys were conducted by EMM Consulting in September 2023. b) The pre-clearance report and spatial data was submitted to the Department on 13 October 2023 via email. c) One active Malleefowl mound was protected with a 200m buffer until 5 consecutive days of no activity was observed by remote camera (9th April 2024).

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
6 January 2017	3	In order to mitigate impacts to **Malleefowl** and **Corben's Long-eared Bat,** the person taking the action must undertake rehabilitation activities in accordance with **NSW approval** conditions 32, 33 and 34.	Not Applicable	No rehabilitation has been undertaken to date as the project is in construction phase. Rehabilitation will be undertaken in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*.
1 August 2023	4	To compensate for the loss of **Malleefowl habitat** and **Corben's Long-eared Bat habitat**, the person taking the action must submit an Offset Management Plan (OMP) for the written approval of the **Minister**. The OMP must be prepared in accordance with the principles of the **EPBC Act Environmental Offsets Policy** and include: a. details of an offset site(s) required to compensate for the loss of **Malleefowl habitat** and **Corben's Long-eared Bat habitat**, including confirmation that the site can be **secured**, the actions to progress **securing** the site, and timeframe to **secure** the site; b. A report prepared by a **suitably qualified expert** that clearly describes the **baseline vegetation quality** (prior to any management activities) of the proposed offset site(s); c. the **offset attributes** and a map, including a GIS **shapefile**, that clearly defines the location and boundaries of the offset area; d. details of how the offset site(s) provide connectivity with other relevant habitats and biodiversity corridors; e. a description of the management measures that will be implemented, including a discussion of how the measures outlined take into account relevant **conservation advice** and are consistent with the measures in relevant **recovery plans** and **threat abatement plans**; f. performance indicators, including success, failure, and completion criteria, for evaluating the management of the offset site(s), as well as an assessment of the **baseline vegetation quality** consistent with the **Department's offsets assessment guide** and criteria for triggering remedial action (if necessary); g. a program to monitor and report on the effectiveness and success or failure of these measures, and progress against the performance and completion criteria;	Not Applicable	Mining operations have not commenced.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
		h. how the offset site will be protected, and ecological benefits maintained, at least until the expiry date of this approval; i. corrective measures and contingency measures (including evaluation measures) that will be used in the event that performance indicators are not met. The person taking the action must not **commence mining operations** until the OMP has been approved by the **Minister** in writing. The OMP approved by the **Minister** must be implemented at least until the expiry date of this approval.		
6 January 2017	5	To compensate for the loss of **Malleefowl habitat** and **Corben's Long-eared Bat habitat,** the person taking the action must **secure** an environmental offset site(s) in accordance with the approved OMP required under Condition 4.	Not Applicable	In progress but not required until one year from the commencement of mining operations.
6 January 2017	6	The person taking the action may provide the environmental offset site(s) required in Condition 5 in accordance with the corresponding **project stages.** If the person taking the action elects to do this, the person taking the action must: a. **secure** an environmental offset site(s) to compensate for the first **project stage** within one year of the **commencement** of **mining operations**; b. provide the **Minister** with the following prior to **commencement** of the second **project stage**: i. written evidence demonstrating that an environmental offset consistent with the requirements of Condition 6(a) has been **secured** and that management measures under the approved OMP have been implemented; ii. an updated OMP as required under Condition 4 which includes the offsets for both **project stages**, for written approval by the **Minister**. The updated OMP must also demonstrate how the environmental offset(s) for the second **project stage** consolidates the offset(s) already **secured** for the first **project stage**. The person taking the action must not **commence** the second **project stage** until the updated OMP has been approved by the **Minister** in writing. The updated approved OMP must be implemented. An environmental offset site(s) to compensate for the second **project stage** must be **secured** within one year of **commencement** of the second **project stage.** If the person	Not Applicable	Mining operations have not commenced.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
		taking the action elects not to provide the environmental offset site(s) in accordance with the corresponding **project stages,** the environmental offset site(s) must be **secured** within one year of the **commencement** of **mining operations.**		
6 January 2017	7	The person taking the action must ensure that cultural awareness training be included in the Aboriginal Cultural Heritage Management Plan to be developed under Schedule 3 Condition 20 of the NSW Approval. The cultural awareness training must include information on the World Heritage and National Heritage values of the Willandra Lakes Region and the culturally sensitive use of this place.	Compliant	A cultural heritage awareness package has been developed and is delivered to workers periodically.
6 January 2017	8	Within 10 days after the **commencement** of the action, the person taking the action must advise the **Department** in writing of the actual date of **commencement**.	Compliant	The Department was notified in writing on the 14th August 2023 for the commencement of the action as being the 9th August 2023.
6 January 2017	9	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of this approval, including measures taken to implement the approved **BMP** and OMP, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act** or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department**'s **website**. The results of audits may also be publicised through the general media.	Compliant	Records, reports, pre-clearance and clearing activities in accordance the approved BMP are maintained. (Refer Appendix F- Photographs of pre-disturbance activities) The requirement to have the OMP approved is not yet triggered. (Mining operations have not commenced).
6 January 2017	10	Within three months of every 12-month anniversary of the **commencement** of the action, the person taking the action must publish a report on their **website** addressing compliance with each of the conditions of this approval, including implementation of any **management plans** and reports as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Reports must remain published for the life of the approval. The person taking the action may cease	Compliant	This is the first Annual Compliance Report required within 3 months of the 12-month anniversary of the commencement of the action.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
		preparing compliance reports required by this condition with written agreement of the **Minister**.		
1 August 2023	10A	The approval holder must submit all **plans** required by these conditions electronically to the **Department**.	Complaint	The BMP was approved by the Department on 1 August 2023. The requirement to have the OMP approved is not yet triggered. (Mining operations have not commenced).
1 August 2023	11	Unless otherwise agreed to in writing by the **Minister**, the approval holder must publish each **plan** on the **website** within 15 **business days** of the date: a. the **plan** is approved by the **Minister** in writing, if the **plan** requires the approval of the **Minister**, or b. the **plan** is submitted to the **Department** in accordance with a requirement of these conditions, if the **plan** does not require the approval of the **Minister**, or c. the **plan** is approved by a state or territory government official as required under a state or territory government condition which must be complied with in accordance with these **EPBC Act** conditions.	Compliant	The BMP is published on the Iluka website. Balranald - Community Engagement | Iluka Resources
1 August 2023	11A	The approval holder must keep all published **plans** required by these conditions on the **website** until the expiry date of this approval.	Compliant	The BMP is published on the Iluka website. Balranald - Community Engagement | Iluka Resources
1 August 2023	11B	The approval holder is required to exclude or redact sensitive ecological data from **plans** published on the **website** or otherwise provided to a member of the public. If sensitive ecological data is excluded or redacted from a **plan**, the approval holder must notify the **Department** in writing what exclusions and redactions have been made in the version published on the **website**.	Compliant	No sensitive information has been disclosed and no content has been redacted.
1 August 2023	11C	The approval holder must maintain accurate and complete **compliance records**.	Compliant	Records of activities carried in accordance with the approval are kept on record including all surveys and reports for threatened species management. Records are kept of any identified non-compliances with the conditions

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
				of approval.
1 August 2023	11D	If the **Department** makes a request in writing, the approval holder must provide electronic copies of **compliance records** to the **Department** within the timeframe specified in the request.	Compliant	No request has been made by the Department to provide such records.
1 August 2023	11E	The approval holder must ensure that any **monitoring data** (including **sensitive ecological data**), **surveys**, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the *Guidelines for biological **survey** and mapped data*, Commonwealth of Australia 2018, or as otherwise specified by the **Minister** in writing.	Compliant	Monitoring data, survey reports and spatial data have been prepared by a suitably qualified person and submitted to the Department in accordance with the guidelines.
1 August 2023	11F	The approval holder must ensure that any **monitoring data** (including **sensitive ecological data**), **surveys**, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the *Guide to providing maps and boundary data for **EPBC Act projects***, Commonwealth of Australia 2021, or as otherwise specified by the **Minister** in writing.	Compliant	Monitoring data, survey reports and spatial data have been prepared by a suitably qualified person and submitted to the Department in accordance with the guideline.
1 August 2023	11G	The approval holder must submit all **monitoring data** (including **sensitive ecological data**), **surveys**, maps, other spatial and metadata and all species occurrence record data (sightings and evidence of presence) electronically to the **Department** within 20 **business days** of each anniversary of the date of this approval decision or in accordance with the requirements of the *Balranald Mineral Sands Project NSW (EPBC 2012/6509), Commonwealth **Biodiversity Management Plan***, version 5.0 (June 2023), Iluka Resources Limited 2023.	Compliant	Monitoring data, survey reports and spatial data have been submitted to the Department in accordance with the BMP.
1 August 2023	11H	The approval holder must prepare a **compliance report** for each 12-month period following the date of this approval decision, or as otherwise agreed to in writing by the **Minister**. The person taking the action may cease preparing **compliance reports** required by this condition with written agreement of the **Minister**.	Complaint	This is the first Annual Compliance Report required within 3 months of the 12-month anniversary of commencement of the action (9 November 2024).

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
1 August 2023	11I	Each **compliance report** must be consistent with the *Annual Compliance Report Guidelines*, Commonwealth of Australia 2014.	Complaint	This compliance report has been written in accordance with the guideline.
1 August 2023	11J	Each **compliance report** must include**:** a. Accurate and complete details of compliance and any non-compliance with the conditions and the **plans**, and any incidents. b. One or more **shapefile** showing all **clearing** of protected matters, and/or their habitat, undertaken within the 12-month period at the end of which that **compliance report** is prepared. c. A schedule of all **plans** in existence in relation to these conditions and accurate and complete details of how each **plan** is being implemented.	Compliant	a) See Section 5 for information regarding non-compliances. b) See Figures 1-4 for clearing plans showing areas of clearing undertaken in threatened species habitat (Malleefowl and Corben's Long-eared Bat) c) Biodiversity Management Plan is the only approved plan to date. See clearing reports for 2023 and 2024 (Appendix B) for performance reporting. A table of commitments and how each is being implemented is provided as Appendix E.
1 August 2023	11K	The approval holder must provide initial notification to the **Department** in writing, within 2 **business days** of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a **plan**.	Compliant	An incident occurred on 23 May 2024 where 0.13ha of native vegetation was cleared outside the project area. The Department was notified in writing on 25 May 2024.
1 August 2023	11L	The approval holder must specify in the initial notification**:** a. Any condition or commitment made in a **plan** which has been or may have been breached. b. A short description of the incident and/or potential non-compliance and/or actual non-compliance. c. The location (including co-ordinates), date and time of the incident and/or potential non-compliance and/or actual non-compliance.	Compliant	Details of the clearing incident that occurred on 23 May 2024 were outlined in the notification letter to the Department. Details of the incident are further discussed in Section 5 of this report.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
1 August 2023	11M	The approval holder must provide to the **Department** in writing, within 12 **business days** of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance, the details of that incident and/or potential noncompliance and/or actual non-compliance with the conditions or commitments made in a **plan**. The approval holder must specify**:** a. Any corrective action or investigation which the approval holder has already taken. b. The potential impacts of the incident and/or non-compliance. c. The method and timing of any corrective action that will be undertaken by the approval holder.	Compliant	An initial incident notification relating to the clearing incident was submitted to the Department on 25 May 2024 outlining the nature of the incident, immediate actions taken, preliminary investigation including impact assessment and details and proposed mitigation. It is considered that sufficient information was provided at the time of the incident in accordance with Condition 11M. Details of corrective actions are outlined in Section 5.
1 August 2023	12	The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the **Minister**.	Not Applicable	No audit has been requested in writing by the Minister.
1 August 2023	12A	For each independent audit, the approval holder must**:** a. Provide the name and qualifications of the nominated independent auditor, the draft audit criteria, and proposed timeframe for submitting the **audit report** to the **Department** prior to commencing the independent audit. b. Only **commence** the independent audit once the nominated independent auditor, audit criteria and timeframe for submitting the **audit report** have been approved in writing by the **Department**. c. Submit the **audit report** to the **Department** for approval within the timeframe specified and approved in writing by the **Department**. d. Publish each **audit report** on the **website** within 15 **business days** of the date of the **Department's** approval of the **audit report**. e. Keep every **audit report** published on the **website** until this approval expires.	Not Applicable	No audit has been requested in writing by the Minister.
1 August 2023	12B	Each **audit report** must be completed to the satisfaction of the **Minister** and be consistent with the ***EPBC Act*** *Independent Audit and* ***Audit Report*** *Guidelines*, Commonwealth of Australia 2019.	Not Applicable	No audit has been requested in writing by the Minister.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
1 August 2023	13	If, at any time after eight years from the date of this approval, the person taking the action has not **commenced** the action, then the person taking the action must not **commence** the action without the written agreement of the **Minister**.	Compliant	The action commenced on 9 August 2023 as notified in writing to the Department. (Appendix D)
6 January 2017	14	The person taking the action may choose to revise a **management plan** approved by the **Minister** under condition 2 without submitting it for approval under section 143A of the **EPBC Act,** if the taking of the action in accordance with the revised **plan** would not be likely to have a **new or increased impact.** If the person taking the action makes this choice they must: a. notify the **Department** in writing that the approved **plan** has been revised and provide the **Department** with an electronic copy of the revised **plan**; b. implement the revised **plan** from the date that the **plan** is submitted to the **Department**; and c. for the life of this approval, maintain a record of the reasons the approval holder considers that taking the action in accordance with the revised **plan** would not be likely to have a **new or increased impact**.	Not Applicable	No management plans under Condition 2 were revised during the reporting period.
6 January 2017	14A	The person taking the action may revoke their choice under Condition 14 at any time by notice to the **Department.** If the person taking the action revokes the choice to implement a revised **plan** without approval under section 143A of the **EPBC Act,** the **plan** approved by the **Minister** must be implemented.	Not Applicable	No management plans under Condition 2 were revised during the reporting period.
6 January 2017	14B	Condition 14 does not apply if the revisions to the approved **management plan** include changes to environmental offsets provided under the **plan** in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the **Minister.** This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised **plan** would, or would not, be likely to have **new or increased impacts**.	Not Applicable	No management plans under Condition 2 were revised during the reporting period.
6 January 2017	14C	If the Minister gives a notice to the person taking the action that the Minister is satisfied that the taking of the action in accordance with the revised plan would be likely to have a new or increased impact, then: a. Condition 14 does not apply, or ceases to apply, in relation to the revised plan; and b. The person taking the action must implement the plan approved by	Not Applicable	No management plans under Condition 2 were revised during the reporting period.

Date of Decision	Condition Number	Condition	Is condition compliant?	Evidence/Comments
		the Minister. To avoid any doubt, this condition does not affect any operation of conditions 14, 14A and 14B in the period before the day the notice is given. At the time of giving the notice the Minister may also notify that for a specified period of time that condition 14 does not apply for one or more specified management plans required under the approval.		
6 January 2017	14D	Conditions 14, 14A, 14B and 14C are not intended to limit the operation of section 143A of the **EPBC Act** which allows the person taking the action to submit a revised **plan** to the **Minister** for approval.	Not Applicable	No management plans under Condition 2 were revised during the reporting period.
1 August 2023	15	The approval holder must notify the **Department** electronically 60 **business days** prior to the expiry date of this approval, that the approval is due to expire.	Not Applicable	Expiry date is 1 January 2046.
1 August 2023	16	Within 20 **business days** after the completion of the Action**,** and, in any event, before this approval expires, the approval holder must notify the **Department** electronically of the date of completion of the Action and provide **completion data**. The approval holder must submit any spatial data that comprises **completion data** as a **shapefile**.	Not Applicable	Action not completed and approval expiry date is 1 January 2046.

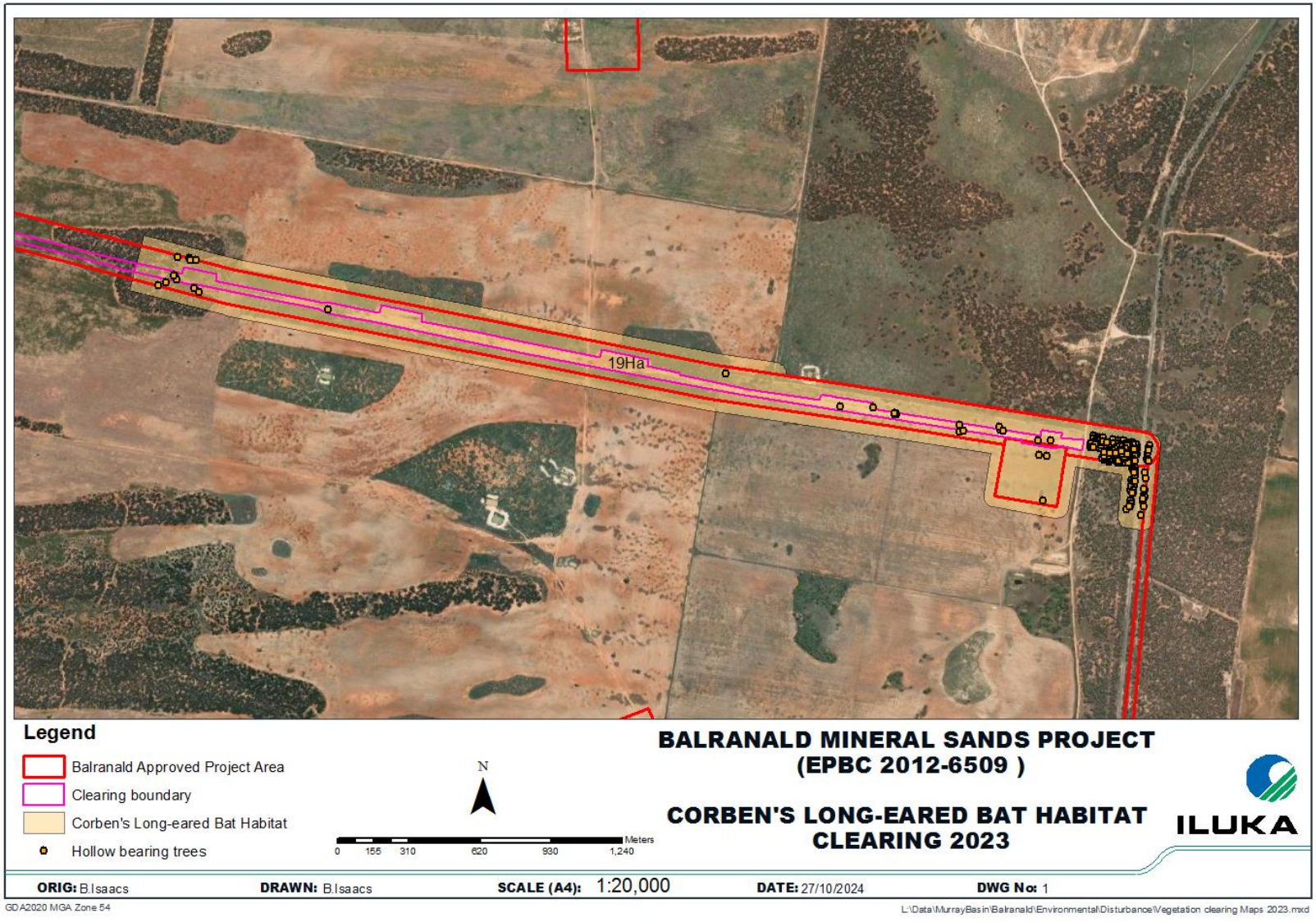

Figure 1- Corben's Long-eared Bat habitat clearing 2023

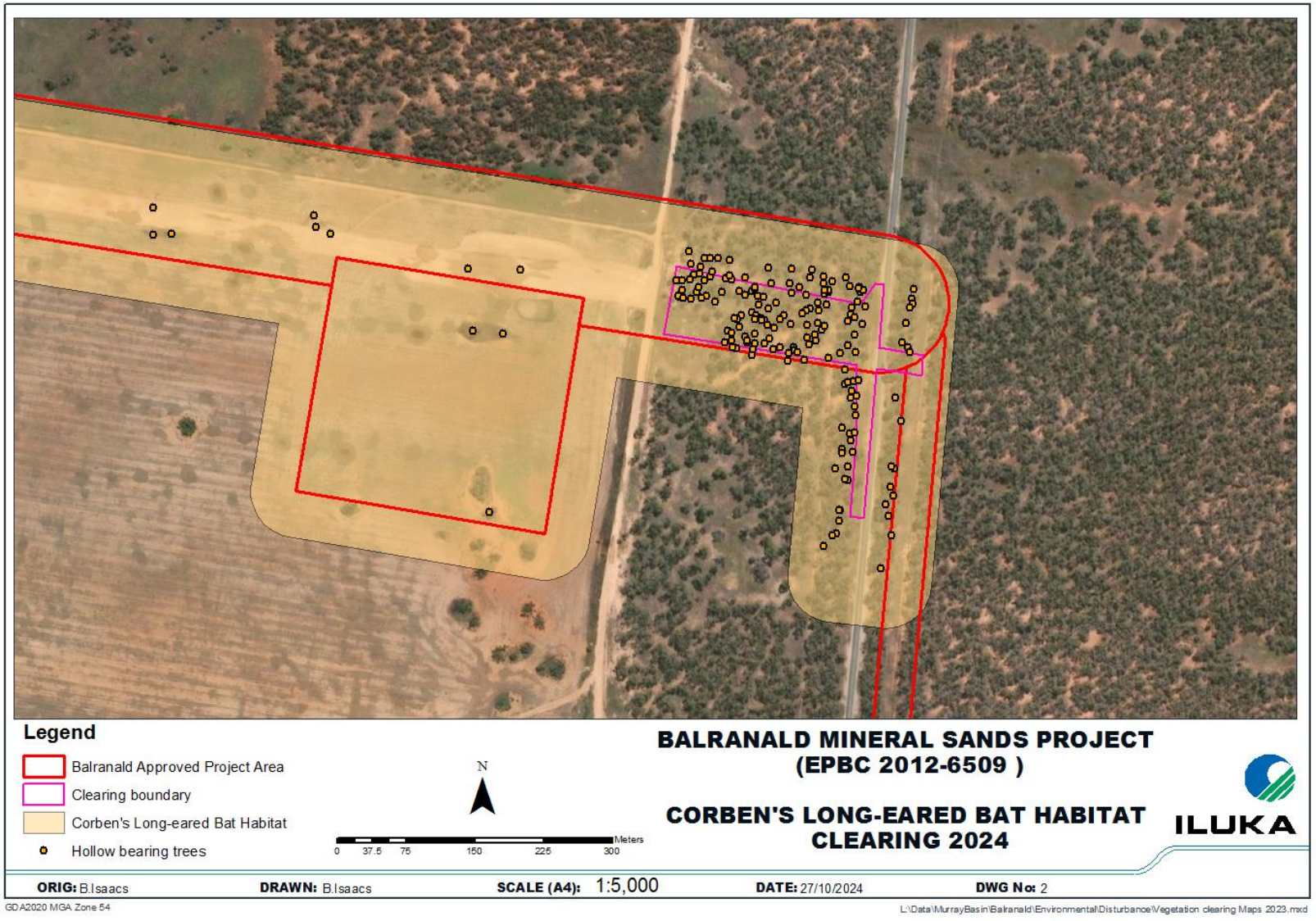

Figure 2- Corben's Long-eared Bat habitat clearing 2024

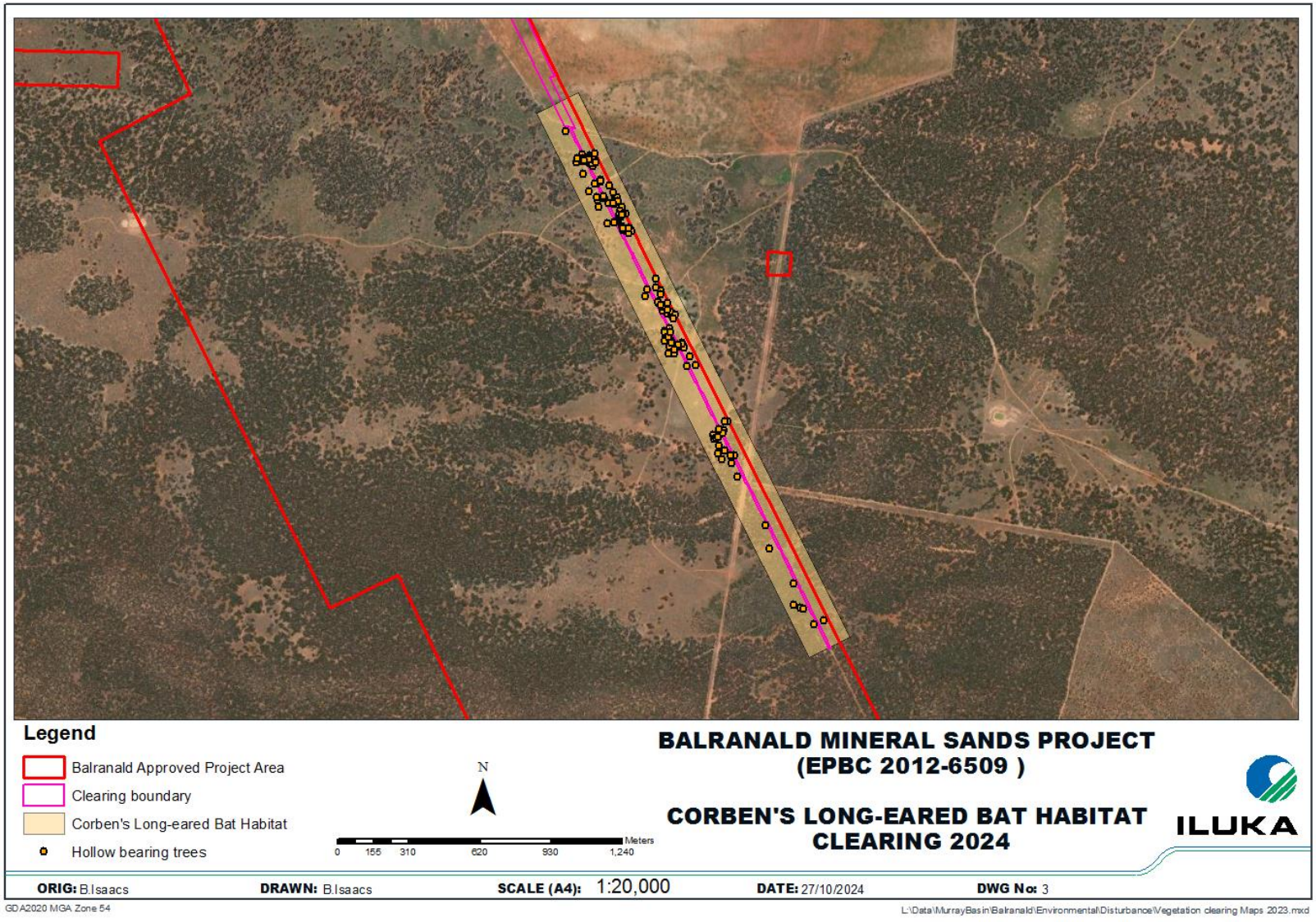

Figure 3- Corben's Long-eared Bat habitat clearing 2024

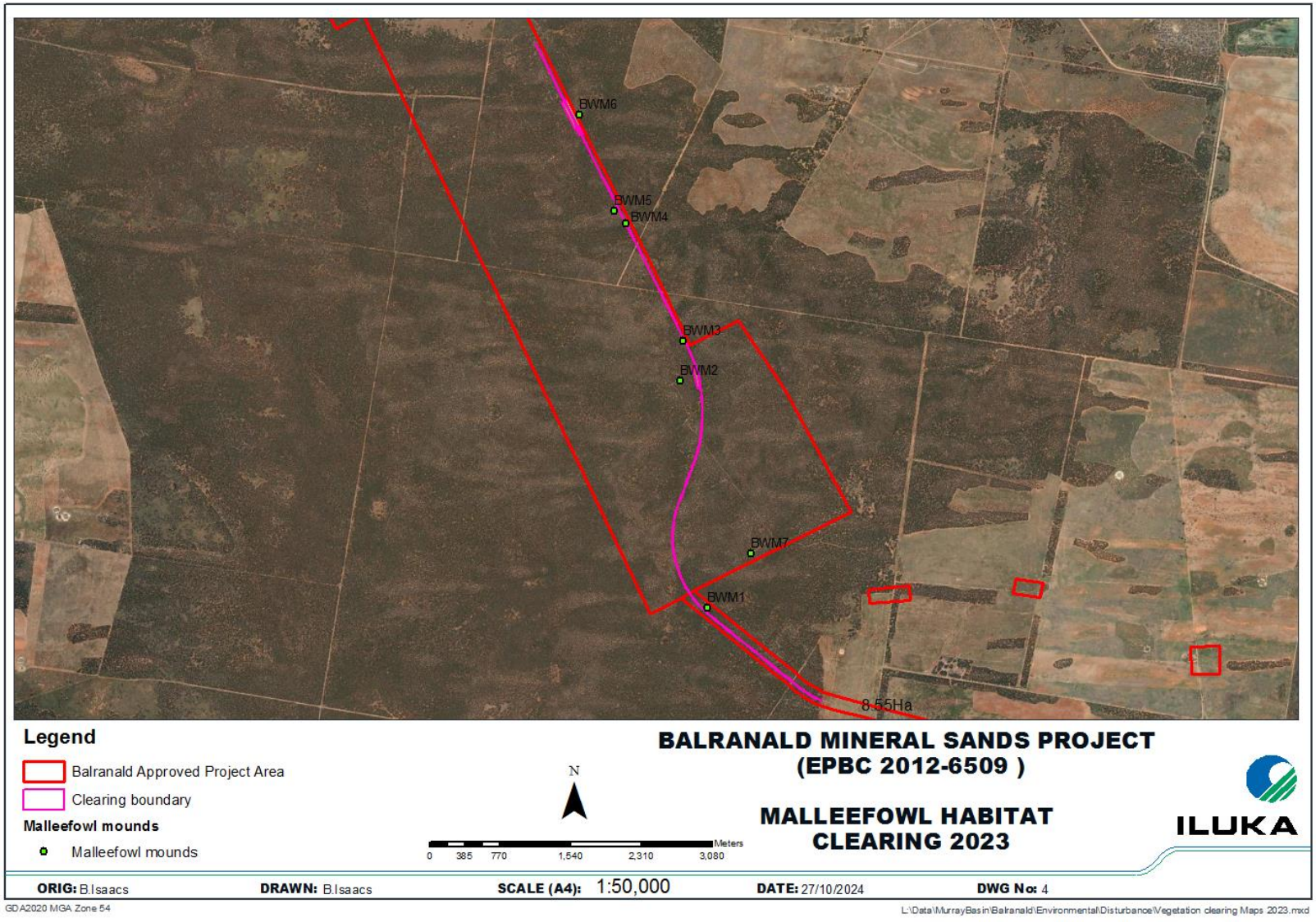

Figure 4- Malleefowl habitat clearing 2023

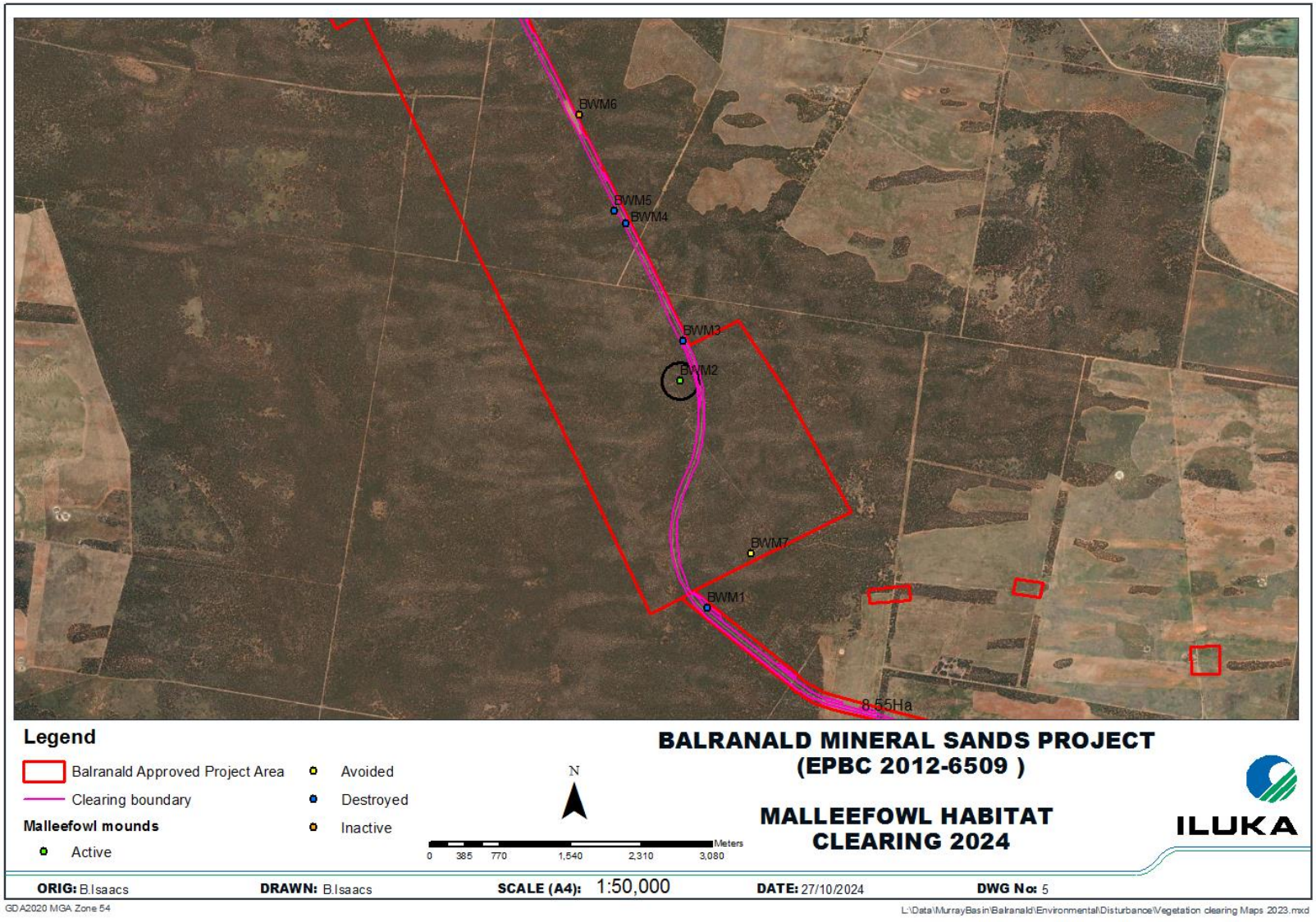

Figure 5- Malleefowl habitat clearing 2024

5. Correcting non-compliances

One non-compliance to Condition 1 was recognised for clearing vegetation outside the approved disturbance boundary. An incident occurred on 23 May 2024 where 0.13ha of native vegetation was cleared outside the project area. The Department was notified in writing on 25 May 2024 outlining the nature of the incident, immediate actions taken, preliminary investigation including impact assessment and details and proposed mitigation.

An incident investigation was conducted 27 May 2024, details of the incident investigation and corrective actions are outlined below.

Incident summary

While clearing native vegetation for a new boundary fence-line inside the approved site disturbance area, the driver of an excavator (Contractor) has accidentally veered off-course and cleared 0.13Ha of Mallee Vegetation outside the approved site disturbance area. There was no direct impact to cultural heritage as clearing occurred in an area of low cultural heritage significance as indicated by previous assessment reports. There was no direct impact to known threatened species as indicated by previous pre-clearance surveys.

The clearing was being conducted under a Site Disturbance Permit (BSDP018) and the center alignment was marked by a registered surveyor with pegs and flagging tape. These pegs were spaced at approximately 125m. GPS spatial design files were issued to the contractor for use in the machine guidance system, however the files were not loaded into the machines' GPS.
Upon realising unapproved vegetation had been cleared, the incident was immediately reported to the Site Supervisor and the scene preserved for investigation.

Root cause and contributing factors

The operator did not follow the approved site disturbance permitting process, on the assumption he could manage clearing based on visual observation of pegs. He didn't sight the clearing boundary and continued to clear vegetation. There was also no spotter on the ground while the clearing was underway.

- No standard procedure for survey marking for vegetation clearing to ensure sufficient visibility of pegs.

- Assumed survey pegs would be adequate to follow as a centerline for clearing and GPS guidance not necessary.

- The relevance and importance of the permit was not appreciated.

Corrective actions implemented

- Develop a standard Work Instruction/procedure for survey marking for vegetation clearance. (Completed 30/6)

- Amend the site disturbance permit to ensure controls are verified and in place prior to works commencing. (Completed 30/6)

- Formalise procedure that outlines the permitting process and mandatory requirements. (i.e. GPS guidance, spotter within 50m of boundary) (Completed 30/6)

- Develop and deliver awareness presentation for contractors working under site disturbance permits. (Completed 11/6)

- Mandate a site meeting with contractor supervisor and operators prior to commencement. (Completed 11/6)

- Review site induction content to ensure sufficient information is provided to personnel regarding site disturbance risks. (Completed 11/6)

6. New Environmental risks

No new environmental risks became apparent during the reporting period.

Appendix A- Pre-disturbance reports 2022 & 2023

Balranald Mineral Sands Project Modification 1

EPBC Biodiversity Pre-disturbance Survey Report

Prepared for Iluka Resources Limited

October 2022

Balranald Mineral Sands Project Modification 1

EPBC Biodiversity Pre-disturbance Survey Report

Iluka Resources Limited

S200529 RP34

October 2022

Version	Date	Prepared by	Approved by	Comments
1	21/10/22	Justin Chey	Sarah Perry	Draft

Approved by

Sarah Perry
Associate Ecologist
21/10/2022

Level 3 175 Scott Street
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1 Introduction

1.1 Purpose of this report

EMM Consulting Pty Limited (EMM) was commissioned by Iluka Resources Limited (Iluka) to undertake pre-disturbance surveys for the proposed Balranald modification of consent disturbance area (MOD1) in order to:

- inform the preparation of avoidance and minimisation measures for the Commonwealth Biodiversity Management Plan (BMP) for MOD1; and
- collect information to inform the scope of pre-disturbance surveys under conditions of approval (EPBC 2012/6509) for Corben's Long-eared bat (*Nyctophilus corbeni*) and conducting pre-disturbance surveys for Malleefowl (*Leipoa ocellata*).

1.2 Project background

Iluka has approval to develop a mineral sands mine in south-western (NSW), known as the Balranald Project. It includes construction, mining, primary processing, and rehabilitation of two linear mineral sand deposits, known as the West Balranald and Nepean deposits, located approximately 12 kilometres (km) and 66 km north-west of the town of Balranald (Balranald town), respectively.

An environmental impact statement (EIS) was prepared and submitted in 2015 to accompany a State Significant Development (SSD-5285) application under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) for an open cut, truck and shovel mining method. The Balranald Project also included undertaking a bulk sampling activity at the West Balranald mine to test the removal of ore using underground mining methods. Development consent was granted by the Department of Planning and Environment (DPE) as delegated of the NSW Minister for Planning under Part 4 of the EP&A Act on 5 April 2016.

The Balranald Project was deemed a controlled action (EPBC 2012/6509) under the EPBC Act, and a Commonwealth EIS was submitted in 2016 (EMM 2016) for approval under Part 8 of the EPBC Act. The project was approved by the (then) Commonwealth Department of the Environment and Energy as delegated of the Commonwealth Minister for the Environment in January 2017.

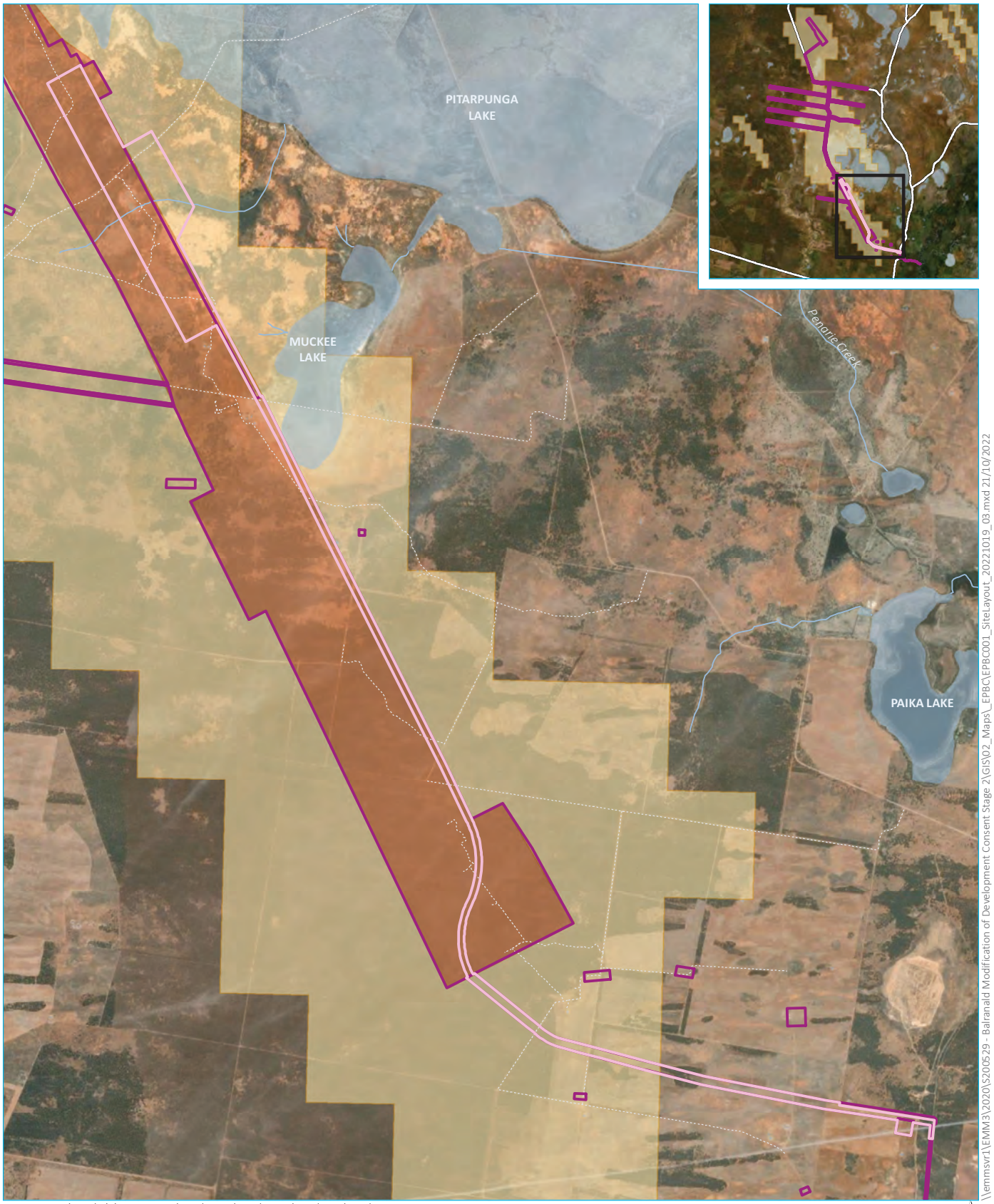
Since SSD-5285 development consent was granted in April 2016, Iluka has undertaken the approved bulk sampling activity with the outcome confirming the effectiveness of the underground mining method, validating key elements of the mining unit design and has been used to help guide a proposed modification to inform the potential suitability (ie commerciality and reduced environmental impacts) of underground mining as an alternative method for resource extraction for the Balranald Project.

1.3 Description of modification

Iluka are proposing a modification (MOD1) (Figure 1.1) to the approved Balranald project which involves:

- continuing underground mining within a portion of the approved disturbance footprint of the West Balranald mine pursuant to the consent;
- development of approved mineral processing infrastructure and a portion of the access road outside of the approved disturbance footprint, and excising a corresponding area from the approved disturbance footprint; and
- removal of previously approved areas from the disturbance footprint to demonstrate no net increase in overall biodiversity impacts for the Balranald Project.

This report focuses on pre-disturbance surveys to map Malleefowl mounds in areas mapped as moderate, high and very high Malleefowl habitat (Niche, 2015), and surveys to map potential hollow bearing trees for the Corben's Long-eared bat in areas mapped across medium and medium-high hollow density (Niche 2016) in accordance with condition 2a of the approval (EPBC 2012/6509).



Source: EMM (2022); Iluka Resources (2021); ESRI (2021); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

MOD1 study area

KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

Existing environment

- Existing track
- Watercourse/drainage line
- Waterbody
- Exploration Licence (EL7450)
- Mining Lease (ML1736)

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 1.1

EMM creating opportunities

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2 Methods

2.1 Field investigation

2.1.1 Hollow bearing trees

A comprehensive hollow bearing tree survey was undertaken by EMM in September 2022 within MOD1areas mapped as medium, medium-high tree hollow density (Niche, 2015) (Figure 3.1 and the condition 2(a) EPBC 2012/6509), guided by hollow bearing tree survey methods in the Biodiversity Assessment Method (BAM) (DPIE2020a, DPIE2020b).

The aim of the surveys were to determine the presence of hollow bearing trees suitable for Corben's Long-eared bat to inform future pre-disturbance surveys and the strategy for the BMP. Transect surveys were undertaken by two Ecologists up to 20 m apart, to search for and record hollow bearing trees to determine suitability for Corben's Long-eared Bat. Hollow bearing trees were individually counted, coordinates recorded from a hand-held GPS, tree species (where possible), size of hollow, and count of hollows. Hollows were categorised and counted from small (<5 cm), medium (5 – 20cm), large (>20 cm) to very large (>40cm), to assess the suitability of the hollow for Corben's Long-eared Bat (ie small and medium hollows at least 1 m above the ground).

2.1.2 Malleefowl

Targeted Malleefowl surveys were undertaken by EMM in September 2022 in areas of suitable habitat within the MOD1 areas mapped as moderate, high and very high (Niche, 2015) (Figure 3.2 and condition 2(a) EPBC 2012/6509), in accordance with the *Commonwealth Guidelines for Australia's threatened birds* (DEWHA 2010). Suitable Malleefowl habitat includes PCT 170 – Chenopod sandplain mallee woodland/shrubland and PCT 171 – Spinifex linear dune mallee.

Transect surveys were undertaken by two Ecologists up to 20m apart, searching for direct sightings, nest mounds, footprint tracks, and listening for calls. When Malleefowl nest mounds were identified, they were recorded as being either active, with signs of recent use including a well-established mound, footprint tracks and recent leaf litter, or inactive, being weathered down, and lacking signs of recent use. The location of each Malleefowl mound was recorded from coordinates obtained from a hand-held GPS.

2.2 Limitations

Condition 2aii of the approval (EPBC 2012/6509) requires pre-disturbance surveys for Corben's Long-eared Bat. The approval defines pre-disturbance surveys as surveys in strict accordance with *Survey guidelines for Australia's threatened bats* (DEWHA 2010a), which require 20 trap nights over a minimum of five nights in areas <50ha, or another method approved by the Department. The purpose of the surveys conducted in September 2022 was to collect detailed information regarding the number and suitability of hollows for Corben's Long-eared Bat to inform clearing processes for the BMP. The BMP will include a strategy to identify any "active or likely active" Corben's Long-eared Bat roosts which require retention for two nights during clearing operations, in accordance with EPBC condition 2h.

3 Results

3.1 Hollow bearing trees

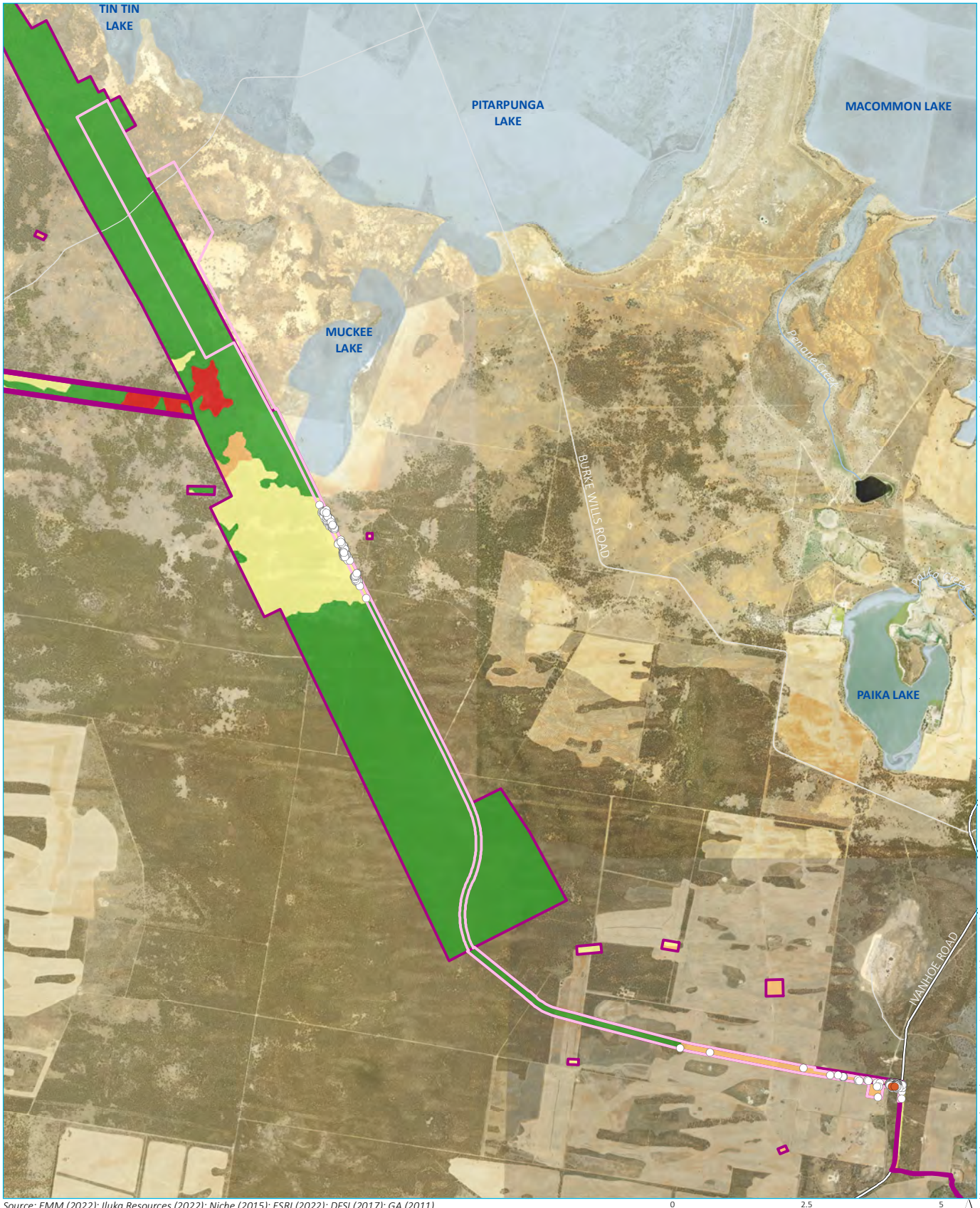
A total of 278 hollow bearing trees were identified within MOD1 and areas mapped as medium or medium-high tree hollow density (Figure 3.1). The majority of hollow bearing trees identified had small and medium hollows, often with several hollows on single trees. All trees with small and medium hollows above 1 m from the ground were considered to be suitable for Corben's Long-eared Bat. Figure 3.1 shows the location of hollow bearing trees identified within MOD1, and Appendix A details the survey results for the 278 hollow bearing trees recorded.

3.2 Malleefowl

A total of two active Malleefowl mounds were identified within the MOD1, as shown in Figure 3.2, and detailed in Table 3.1. In addition, three potentially active Malleefowl mounds were recorded, one within MOD1 disturbance and two others within 200 m of MOD1 (Figure 3.2; Table 3.1). No direct sightings of Malleefowl were observed, and no calls were recorded during the Malleefowl surveys.

Table 3.1 Malleefowl Mounds

Habitat Feature	Status	Coordinates	Location
Malleefowl Nest Mound	Active	-34.492130, 143.487379	MOD1
Malleefowl Nest Mound	Potentially Active	-34.493378, 143.488695	MOD1
Malleefowl Nest Mound	Active	-34.504781, 143.495869	MOD1
Malleefowl Nest Mound	Potentially Active	-35.482770, 143.485944	Within 200 m of MOD1
Malleefowl Nest Mound	Potentially Active	-34.508705, 143.495634	Within 200 m of MOD1



Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

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KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody

Hollow bearing trees (HBT)

- HBT with no potential for Corben's long-eared bat
- HBT with potential for Corben's long-eared bat

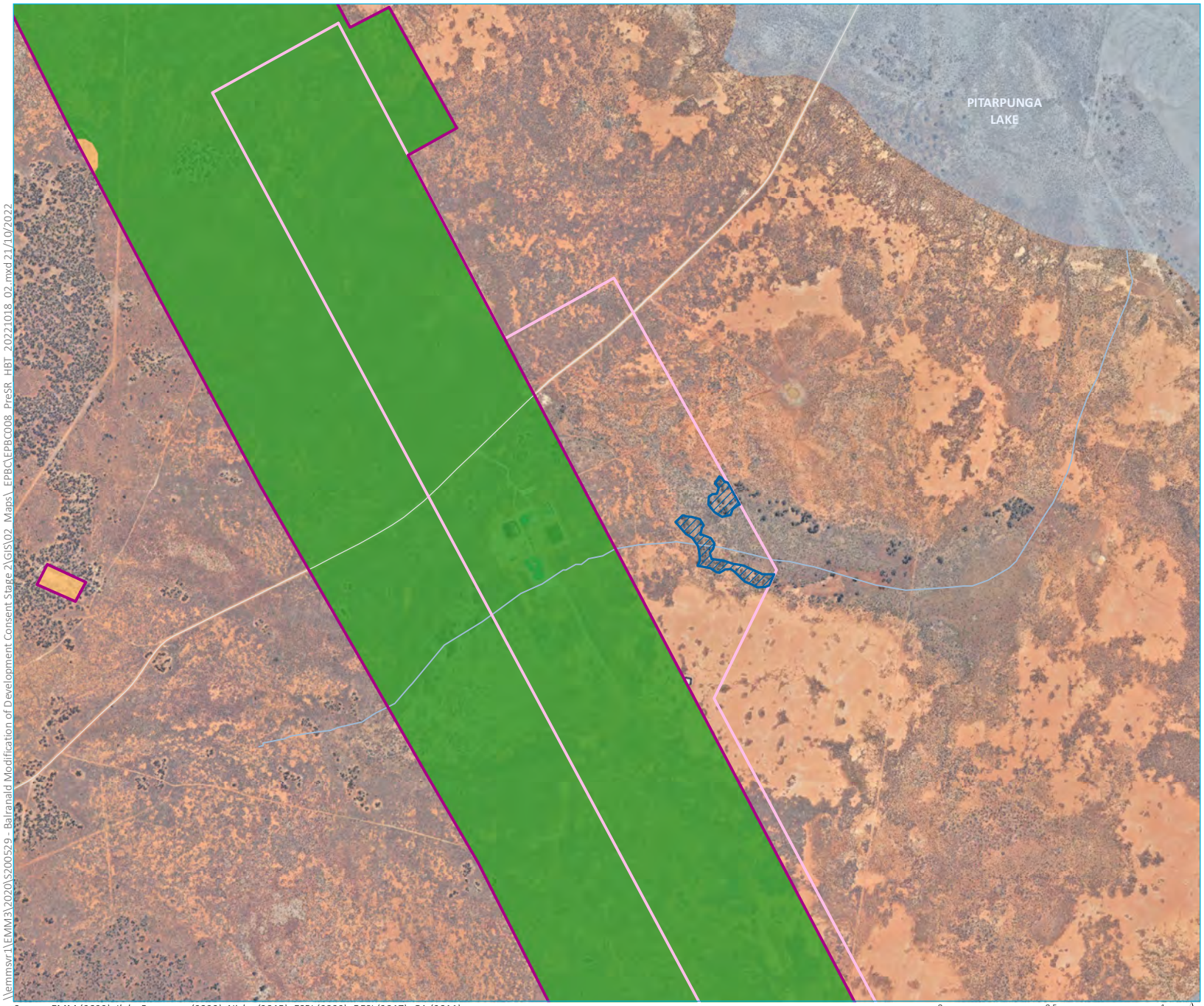
Tree hollow density

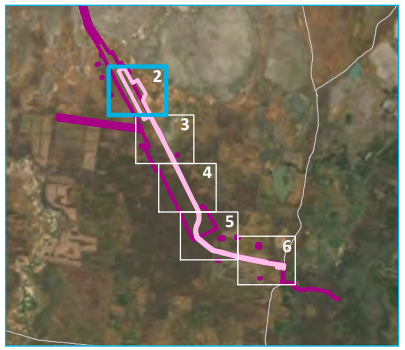
- High
- Medium/High
- Medium
- Low

Hollow bearing trees
Map 1 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.1

EMM creating opportunities





KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area
- Proposed MOD1 avoidance area

Existing environment

- Minor road
- Watercourse/drainage line
- Named waterbody

Tree hollow density

- Medium/High
- Low

Hollow bearing tree
Map 2 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.1

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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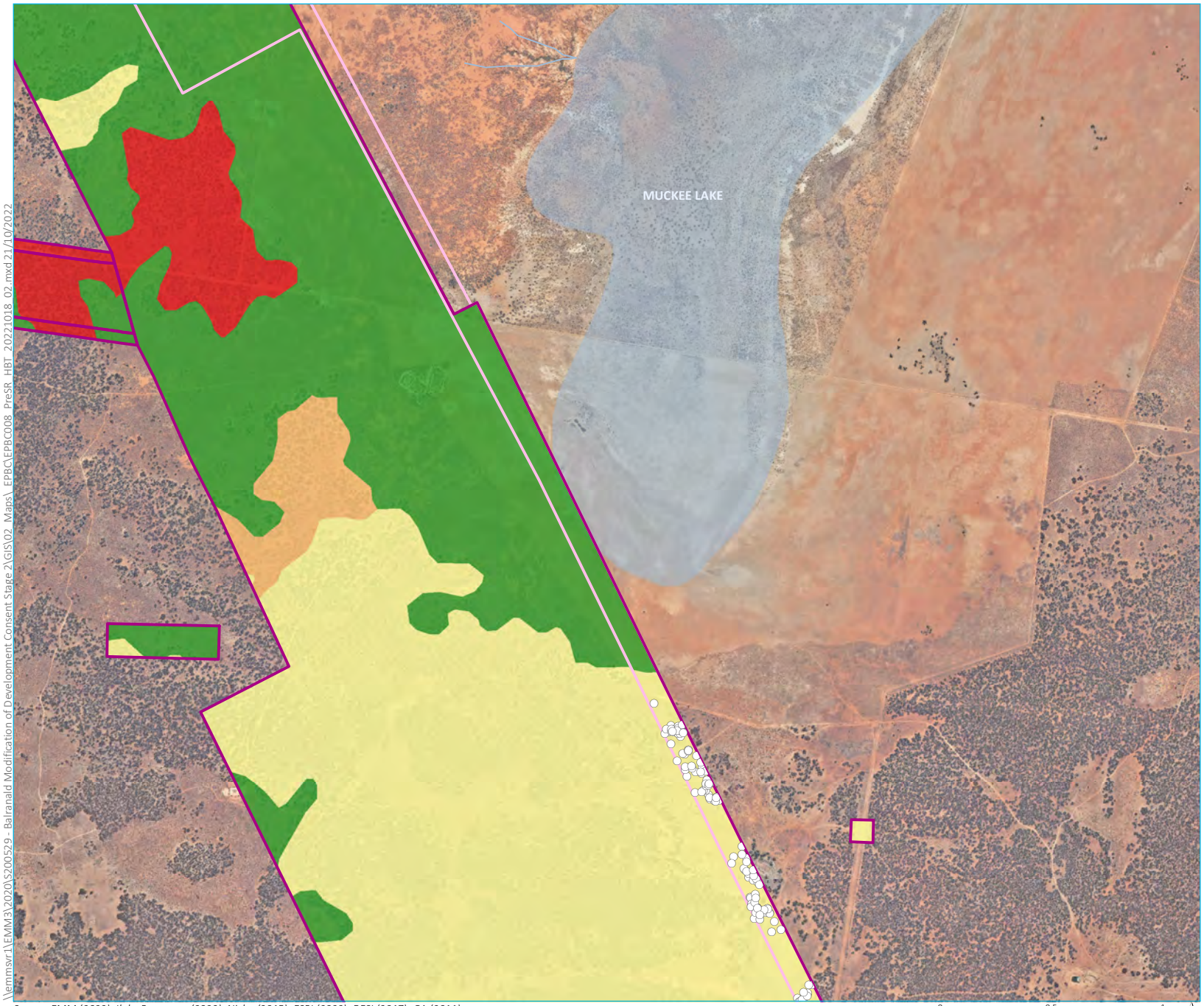
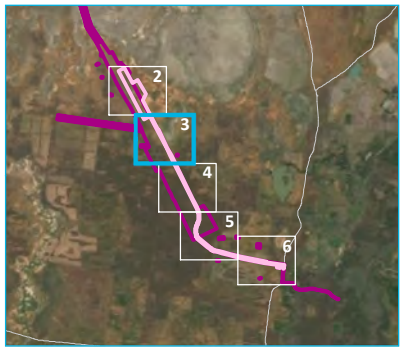
creating opportunities





KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

Existing environment

- Watercourse/drainage line
- Named waterbody

Hollow bearing trees (HBT)

- HBT with potential for Corben's long-eared bat

Tree hollow density

- High
- Medium/High
- Medium
- Low

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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Hollow bearing tree
Map 3 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.1

EMM
creating opportunities

KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area
- Named waterbody

Hollow bearing trees (HBT)

- HBT with potential for Corben's long-eared bat

Tree hollow density

- Medium
- Low

Hollow bearing tree
Map 4 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.1

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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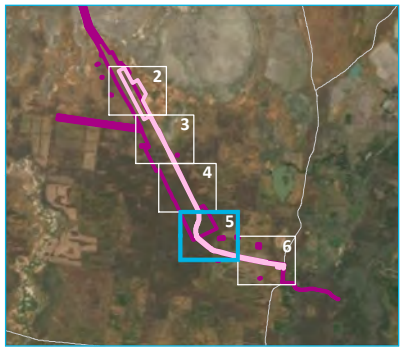
EMM creating opportunities



KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area
- Named waterbody

Tree hollow density

- Medium/High
- Medium
- Low

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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Hollow bearing tree
Map 5 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.1

EMM creating opportunities

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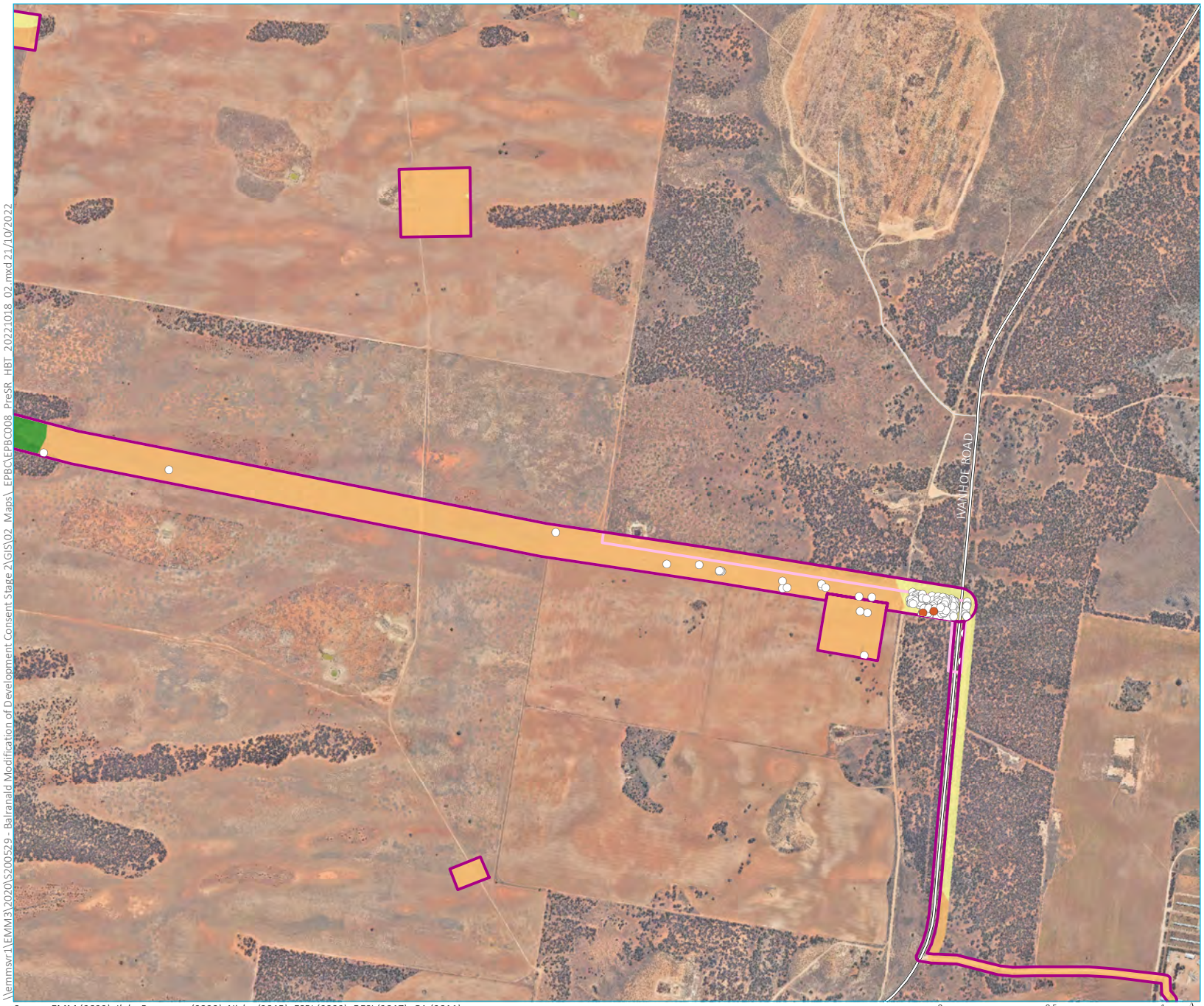

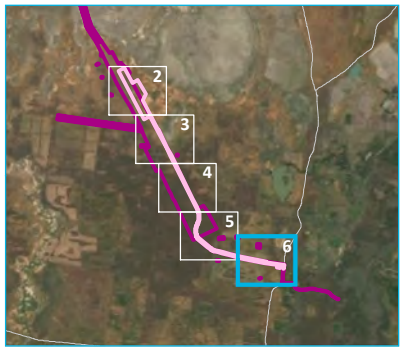

KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

Existing environment

- Major road
- Minor road
- Named waterbody

Hollow bearing trees (HBT)

- HBT with no potential for Corben's long-eared bat
- HBT with potential for Corben's long-eared bat

Tree hollow density

- Medium/High
- Medium
- Low

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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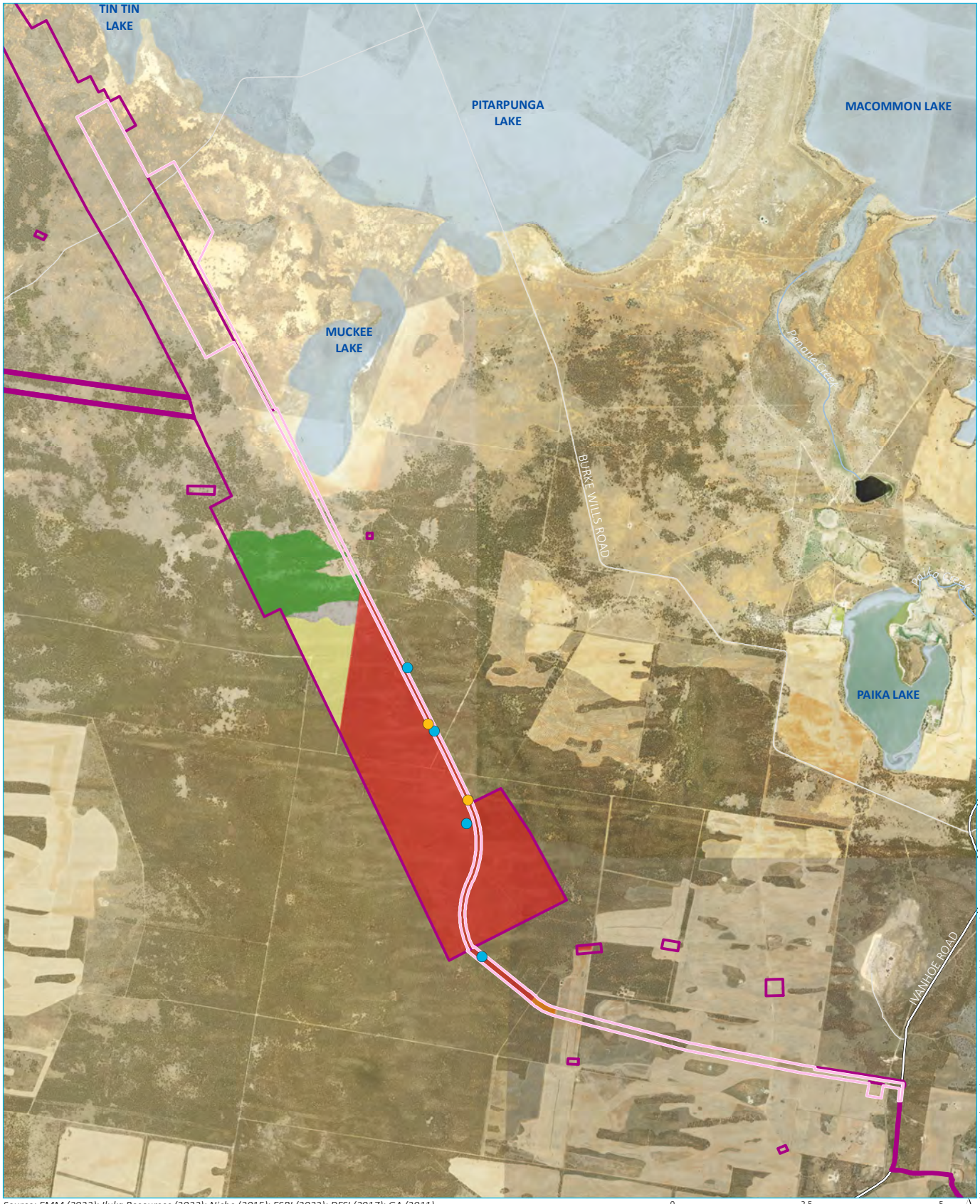
Hollow bearing tree
Map 6 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.1

EMM
creating opportunities



Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

EMM survey results

- Active Malleefowl mound
- Potentially active Malleefowl mound

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody

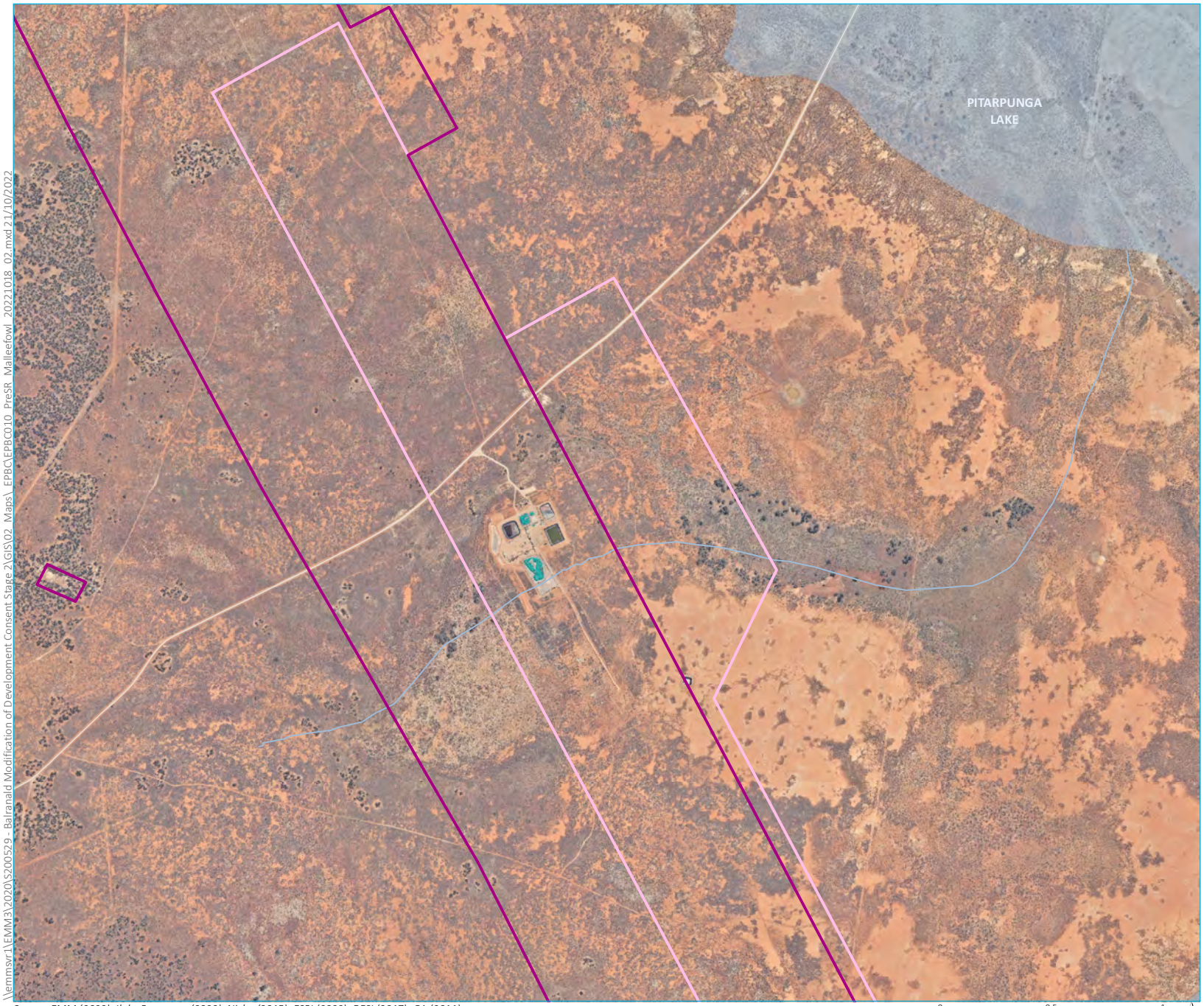
Malleefowl habitat potential

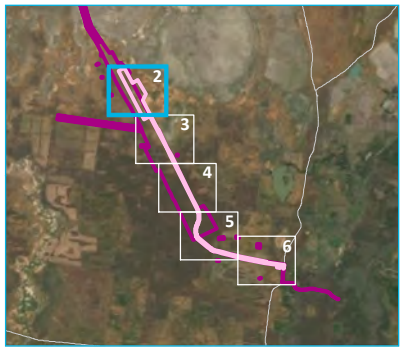
- Unknown
- Very High
- High
- Moderate
- Low

Malleefowl
Map 1 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.2

EMM creating opportunities





KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

Existing environment

- Minor road
- Watercourse/drainage line
- Named waterbody

Hollow bearing tree
Map 2 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.2

EMM
creating opportunities

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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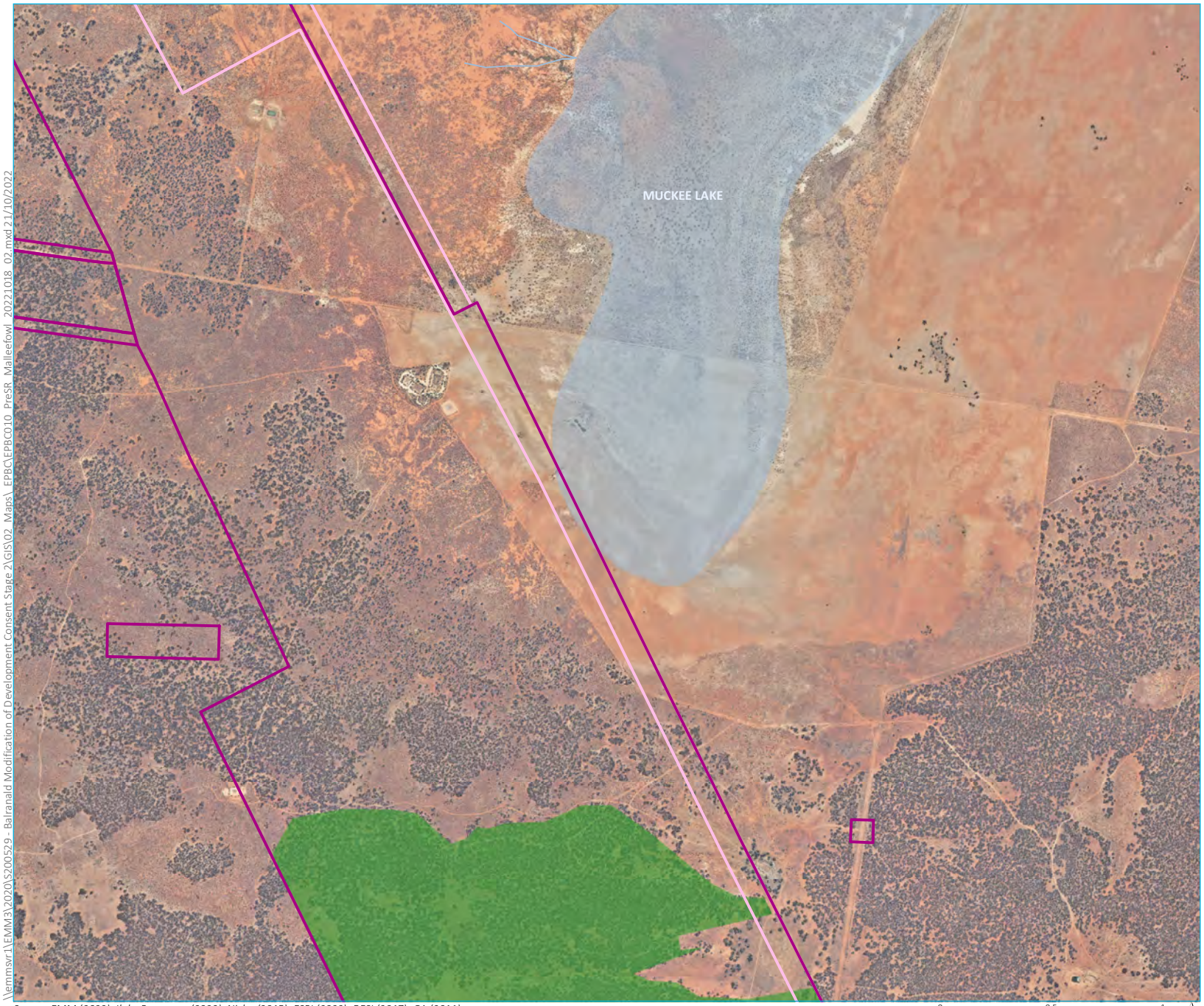

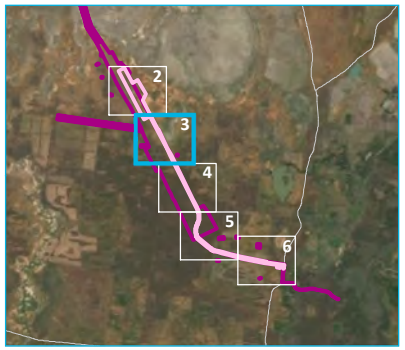

KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

Existing environment

- Watercourse/drainage line
- Named waterbody

Malleefowl habitat potential

- Moderate
- Low

Hollow bearing tree
Map 3 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.2

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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creating opportunities

KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

EMM survey results

- Active Malleefowl mound
- Potentially active Malleefowl mound

Malleefowl habitat potential

- Unknown
- Very High
- Moderate
- Low

Hollow bearing tree
Map 4 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.2

EMM
creating opportunities

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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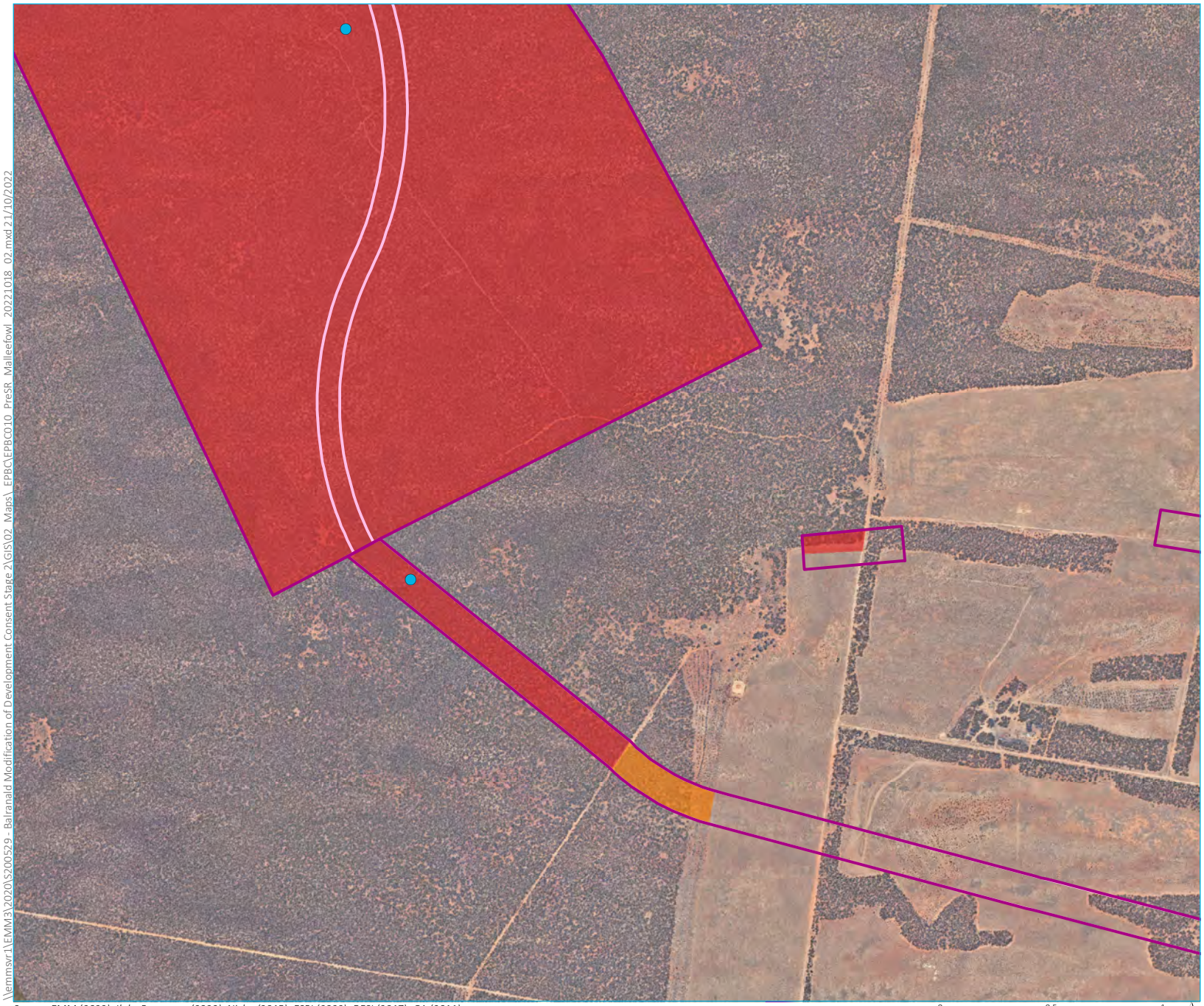

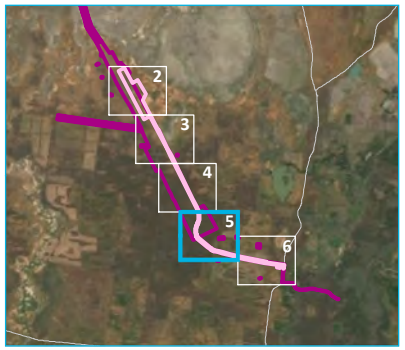

KEY

- EIS Approved Balranald Project Area (SSD-5285)
- MOD1 study area

EMM survey results

- Potentially active Malleefowl mound

Malleefowl habitat potential

- Very High
- High

Hollow bearing tree
Map 5 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.2

EMM
creating opportunities

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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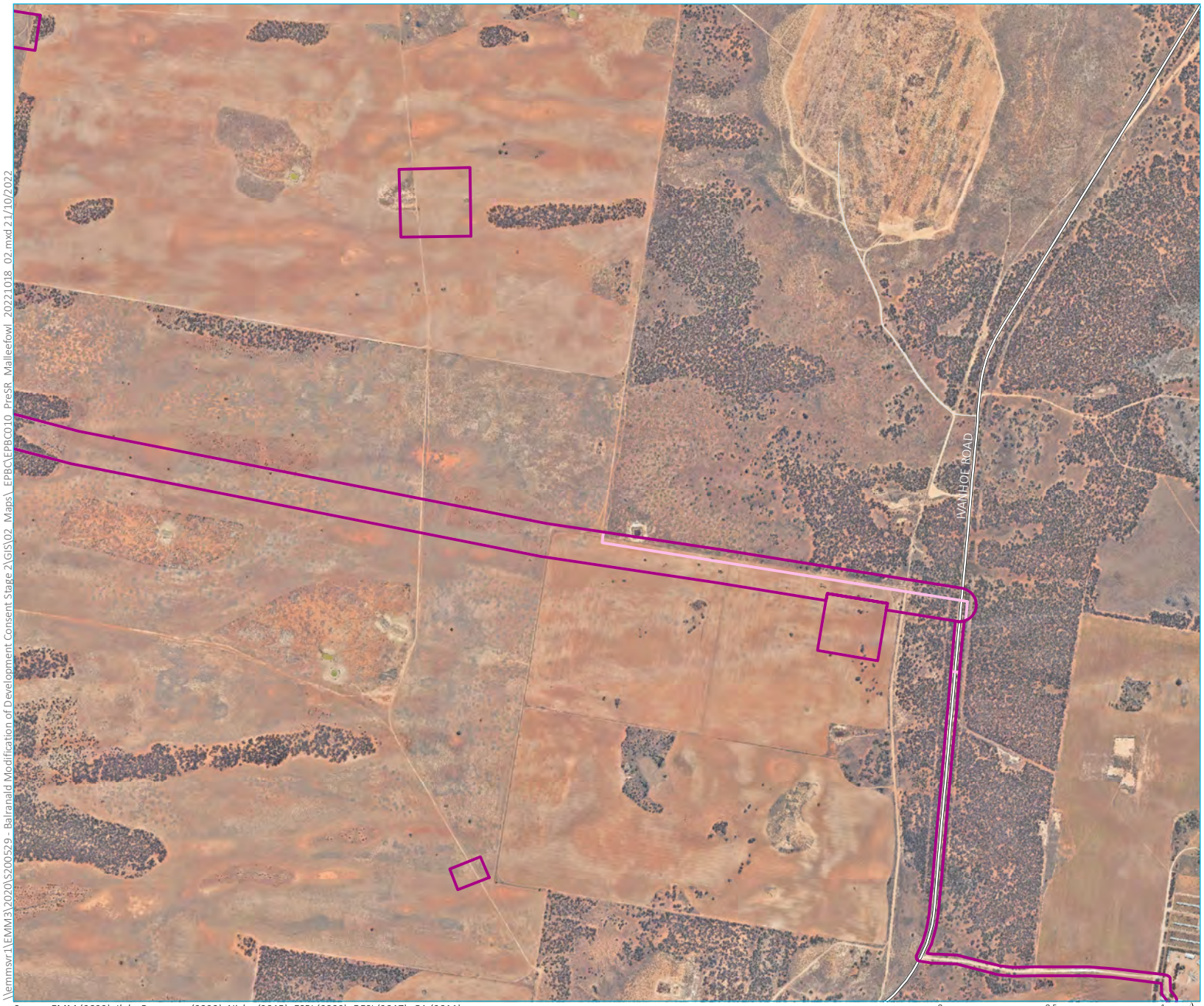

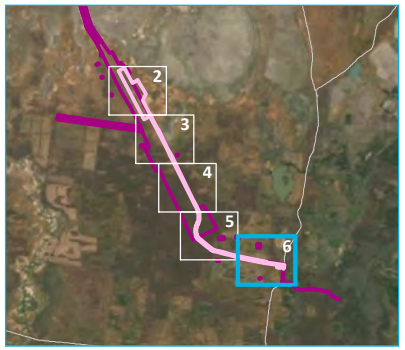

KEY

EIS Approved Balranald Project Area (SSD-5285)

MOD1 study area

Existing environment

Major road

Minor road

Hollow bearing tree

Map 6 of 6

Balranald Mineral Sands Project
EPBC pre-clearance survey results
Figure 3.2

Source: EMM (2022); Iluka Resources (2022); Niche (2015); ESRI (2022); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

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Photograph 3.1 Active Malleefowl Mound

Photograph 3.2 Active Malleefowl Mound

4 Strategy to satisfy conditions relating to BMP

Table 4.1 lists conditions from EPBC 2012/6509 relevant to preparation of the BMP. Strategies are proposed to satisfy each relevant condition of approval, for further discussion with Iluka and consultation with the Department of Climate Change, Energy, Environment and Water (DCCEEW).

Table 4.1 EPBC 2012/6509 Conditions of approval relevant to the BMP

Condition #	Detail	Proposed strategy to satisfy condition
1	The person taking the action must not clear more than 2,544 hectares of Malleefowl habitat and 3,143 ha of Corben's Long-eared Bat habitat.	The proportion of Malleefowl and Corben's Long-eared Bat habitat impacted by MOD1 will be calculated and presented in the BMP. Measures will be provided in the BMP to assist with clear delineation of the species habitat on the ground and prevent inadvertent clearing.
2	The person taking the action must submit a Biodiversity Management Plan (BMP) for the Minister's written approval. The BMP must include measures to avoid and mitigate impacts to Malleefowl and Corben's Long-eared Bat, taking into consideration Chapter 6 of the Biodiversity Assessment for the Environmental Impact Statement (June 2016). The BMP must include but not be limited to:	The BMP, currently in preparation, will include measures to avoid and mitigate impacts to Malleefowl and Corben's Long-eared Bat, taking into consideration Chapter 6 of the Biodiversity Assessment for the EIS (Niche 2015).
2b	Presence of a suitably qualified expert during all clearing operations to identify Malleefowl mounds in areas mapped as 'moderate, high and very high Malleefowl Habitat Potential' in Figures 12B and 12C as shown at Appendix A;	The BMP will clearly define Malleefowl habitat on a map and the definition of a suitably qualified expert. A measure will be included for Iluka to have a suitably qualified fauna expert to identify Malleefowl mounds in Malleefowl habitat. It is recommended that confirmation is sought from DCCEEW during the upcoming consultation that the suitably qualified expert does not need to be present for the duration of clearing operations to comply with Condition 2b, only to identify Malleefowl mounds for protection in accordance with Condition 2c.
2c	Measures to ensure active or potentially active Malleefowl mounds located during pre-disturbance surveys between September and February (inclusive) are protected until the end of that Malleefowl nesting season (end of February);	Active and potentially active Malleefowl mounds were located during pre-disturbance surveys in September 2022. The BMP will provide protection measures such as delineating no-go zones around the mounds until the end of the breeding season, and measures for a final check of these mounds to ensure that breeding has concluded.
2d	Measures to identify Malleefowl nesting activity within Malleefowl habitat during the Malleefowl nesting season;	The BMP will include the methods used to identify active and potentially active Malleefowl mounds during pre-disturbance surveys conducted in September 2022 and a measure to include a final check prior to commencement to ensure that breeding has concluded.
2e	Speed limits and warning signs in and near Malleefowl habitat;	Malleefowl habitat will be identified on maps to be included in the BMP and recommendations provided regarding the number of warning signs. The speed limit in Malleefowl habitat will be discussed in consultation with Iluka.

Table 4.1 EPBC 2012/6509 Conditions of approval relevant to the BMP

Condition #	Detail	Proposed strategy to satisfy condition
2f	Measures to minimise dust and light spill within 200 metres of identified Malleefowl mounds;	EMM will review other management plans prepared by Iluka to determine the existing dust management measures proposed in areas of Malleefowl habitat. EMM and Iluka will discuss the location of lights in project infrastructure areas within or proximal to Malleefowl habitat to develop practical measures for the BMP to minimise light spill.
2g	No clearing of vegetation mapped as Medium Tree Hollow Density, Medium-High Tree Hollow Density and High Tree Hollow Density in Figures 13A, 138 and 13C as shown at Appendix C, during the period May to October (inclusive);	The BMP will include maps that clearly show tree hollow density relevant to MOD1. The BMP will include a measure to avoid clearing during May to October in these areas.
2h	Retention of all hollow bearing trees identified as active within Corben's Long-eared Bat habitat in situ for two nights after the surrounding vegetation has been cleared, prior to being felled.	The BMP will include the methods used to identify likely active hollow bearing trees during pre-disturbance surveys conducted in September 2022. The BMP will include a map detailing all likely active hollow bearing trees.
3	In order to mitigate impacts to Malleefowl and Corben's Long-eared Bat, the person taking the action must undertake rehabilitation activities in accordance with NSW approval conditions 32, 33 and 34.	Iluka has prepared a rehabilitation management plan in accordance with NSW approval conditions 32, 33 and 34. This plan will be referenced in the BMP to demonstrate compliance with condition 3.

5 References

DEWHA 2010, *Survey guidelines for Australia's threatened birds*, Department of Environment, Water, Heritage and the Arts, Canberra

DOE, Approval Balranald Mineral Sands Project, NSW (EPBC 2021/6509), Department of the Environment and Energy, Canberra.

DPIE 2020, *Surveying threatened plants and their habitats. NSW survey guide for the Biodiversity Assessment Method*, Department of Planning, Infrastructure and Environment, Sydney.

DPIE 2020a, *Biodiversity Assessment Method*, Department of Planning, Industry & Environment, Sydney.

DPIE 2020b, *Biodiversity Assessment Method 2020 Operational Manual – Stage 1*, Department of Planning, Industry & Environment, Sydney.

Niche 2016. *Balranald Mineral Sands Project, Commonwealth Environmental Impact Statement, EIS Volume 2, Appendix C – Biodiversity Assessment,* prepared for Iluka Limited by Niche Environment and Heritage Pty Limited.

Appendix A

Survey results hollow bearing trees

EMM
creating opportunities

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	10	3	0	0	0		737169.956	6173770.11
Eucalyptus sp.	20	2	0	0	0		737159.938	6173745.83
Eucalyptus sp.	15	1	0	0	0		737175.009	6173755.05
Eucalyptus sp.	10	2	0	0	0		737170.42	6173774.02
Eucalyptus sp.	10	1	0	0	0		737169.379	6173775.79
Eucalyptus sp.	10	3	0	0	0		737173.61	6173772.91
Eucalyptus sp.	15	2	0	0	0		737168.014	6173775.25
Eucalyptus sp.	15	0	1	0	0		737172.38	6173735.65
Eucalyptus sp.	30	2	2	0	0		733083.272	6174440.54
Eucalyptus sp.	15	2	1	0	0	In dead branches	737219.48	6173737.18
Eucalyptus sp.	40	2	2	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737156.46	6173738.39
Eucalyptus sp.	30	1	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737164.059	6173743.51
Eucalyptus sp.	20	2	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737166.747	6173759.99
Eucalyptus sp.	40	1	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737163.711	6173724.32
Eucalyptus sp.	25	1	2	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737154.227	6173786.22
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737156.008	6173711.9
Eucalyptus sp.	25	1	0	0	0	In dead branches	737226.535	6173763.47
Eucalyptus sp.	20	2	0	0	0	In dead branches and live branches	737215.482	6173715.41
Eucalyptus sp.	25	2	0	0	0	In dead branches	737222.184	6173710.18
Eucalyptus sp.	15	2	0	0	0	In dead branches	737227.87	6173773.25
Eucalyptus sp.	25	2	0	0	0	In dead branches	737226.804	6173757.34
Eucalyptus sp.	25	1	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737158.924	6173776.9
Eucalyptus sp.	30	2	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737160.589	6173753.8
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737147.394	6173703.49
Eucalyptus sp.	65	2	1	0	0	In dead branches	735381.737	6174084.29
Eucalyptus sp.	25	2	1	0	0	In dead branches	737223.709	6173705.36
Eucalyptus sp.	25	1	0	0	0	In dead branches	737224.138	6173753.08
Eucalyptus sp.	20	6	1	0	0		736115.66	6173908.4
Stag	15	4	0	0	0		736398.058	6173833.04
Western Rosewood *Alectryon oleifolius*	40	4	0	0	0		736575.392	6173841.74
Eucalyptus sp.	20	0	5	0	0		736125.259	6173907.3
Eremophila sp.	70	5	0	0	0	Dead tree with cracks	736573.691	6173853.81
Western Rosewood *Alectryon oleifolius*	65	5	0	0	0	Dead tree with cracks	736397.99	6173862.9
Eucalyptus sp.	60	3	0	0	0	In dead branches	736741.519	6173795.99
Eucalyptus sp.	65	0	1	0	0	In trunk. 1 m above ground.	735878.15	6173940.95
Mulga sp.	70	3	0	0	0	Nearly dead tree with cracks	736764.818	6173530.32
Eucalyptus sp.	40	2	0	0	0	Live trunk and branches	736119.972	6173912.26
Eucalyptus sp.	35	3	2	0	0	Live trunk and branches	736122.006	6173911.85
Western Rosewood *Alectryon oleifolius*	80	6	0	0	0	Dead tree with cracks	736417.752	6173834.31
Eucalyptus sp.	50	2	3	0	0	Dead branches	736115.472	6173913.1
Eremophila sp.	70	5	0	0	0	Dead tree with cracks	736591.273	6173834.53
Eucalyptus sp.	65	1	1	0	0	In dead branches	736798.2	6173795.15
Western Rosewood *Alectryon oleifolius*	35	1	0	0	0	Dead branch	733643.496	6174366.51
Eucalyptus sp.	40	3	3	0	0	In dead branches	736779.718	6173724.52

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	35	2	3	0	0	Dead branches	736023.46	6173938.45
Eucalyptus sp.	25	3	1	0	0		736746.395	6173728.52
Black Box *Eucalyptus largiflorens*	32	1	0	0	0	Dead branches	726787.525	6183784.01
Eucalyptus sp.	25	1	0	0	0	Dead stem with hollows	726840.473	6183619.1
Eucalyptus sp.	25	2	0	0	0	Dead stem with hollows	726878.731	6183594.28
Eucalyptus sp.	25	2	0	0	0	Live trunk and dead stem with hollows	726606.622	6184141.66
Black Oak *Casuarina* spp.	60	1	0	0	0	Live trunk with hollow	726520.139	6184243.61
Eucalyptus sp.	60	2	2	0	0	Dead stem with hollows	727051.142	6183205.38
Black Box *Eucalyptus largiflorens*	75	3	0	0	0	Broken live branches and dead stumps	726804.715	6183751.74
Eucalyptus sp.	15	2	0	0	0	Dead stem with possible hollow	727064.097	6183105.83
Black Oak *Casuarina* spp.	55	1	0	0	0	Live trunk with hollow	726526.762	6184206.19
Black Box *Eucalyptus largiflorens*	75	3	2	0	0	Broken live branches and dead stumps	726825.397	6183739.52
Eucalyptus sp.	15	1	0	0	0	Dead stem with hollows	726659.889	6184113.19
Eucalyptus sp.	25	1	1	0	0	Dead stumps in live tree	726443.261	6184405.46
Black Oak *Casuarina* spp.	60	2	0	0	0	Live trunk with hollow	726565.756	6184223.1
Stag	55	3	0	0	0	Dead tree	726455.104	6184432.59
Eucalyptus sp.	25	1	2	0	0	Dead stem with hollow	726517.847	6184304.53
Stag	55	3	0	0	0	Dead tree	726427.566	6184398.03
Eucalyptus sp.	30	1	1	0	0	Dead stem with hollows	726828.642	6183566.64
Eucalyptus sp.	35	1	0	0	0	Dead stem with hollow	727023.744	6183208.62
Eucalyptus sp.	35	1	1	0	0	Dead stem with hollows	726810.875	6183661.82
Black Oak *Casuarina* spp.	45	2	1	0	0	Live trunk with hollow	726563.928	6184132.12
Eucalyptus sp.	30	2	2	0	0	Dead stem with hollows	726812.798	6183656.95
Black Box *Eucalyptus largiflorens*	65	2	0	0	0	Broken dead branches	726851.031	6183736.32
Eucalyptus sp.	20	1	1	0	0	Dead stem with hollows	726625.377	6184121.92
Mulga sp.	55	1	0	0	0	Live trunk with hollow	726483.623	6184273.94
Eucalyptus sp.	20	1	1	0	0	Live trunk and dead stem with hollows	726610.864	6184141.98
Eucalyptus sp.	30	0	1	1	0	Dead stem with hollows	726844.38	6183610.6
Black Box *Eucalyptus largiflorens*	75	3	1	1	0	Broken live branches and dead stumps	726804.663	6183768.4
Black Oak *Casuarina* spp.	50	2	0	0	0	Live trunk and dead branches with hollows	726519.011	6184233.78
Eucalyptus sp.	20	2	1	0	0	Dead stem with hollows	726668.959	6184097.44
Eucalyptus sp.	50	1	1	0	0	Live trunk and dead stem with hollows	726600.912	6184140.17
Eucalyptus sp.	15	1	1	0	0	Dead stem with hollow	726379.916	6184533.83
Eucalyptus sp.	25	1	0	0	0	Dead stem with hollows	726817.344	6183631.49
Eucalyptus sp.	65	1	2	0	0	Dead stem with hollows	726899.047	6183595.4
Eucalyptus sp.	30	0	1	0	0	Dead stem with hollows	726549.866	6184240.93
Eucalyptus sp.	20	0	1	0	0	Dead stem with hollow	726570.403	6184296.91
Eucalyptus sp.	30	1	0	0	0	Dead stem with possible hollow	727029.874	6183194.12
Eucalyptus sp.	35	1	1	0	0	Dead stem with hollows	727035.419	6183197.83
Stag	15	1	0	0	0	Dead tree	727047.6	6183130.83
Eucalyptus sp.	15	1	0	0	0	Dead stem with hollows	726813.982	6183619.34
Black Box *Eucalyptus largiflorens*	55	2	1	0	0	~ 5 cm wide Hole in trunk shows signs of current use. Chew marks and hair stuck in sap.	726737.331	6183843.85
Black Oak *Casuarina* spp.	50	1	1	0	0	Live trunk and dead branches with hollows	726518	6184248.84
Black Box *Eucalyptus largiflorens*	80	2	1	0	0	Broken live branches and dead stumps	726783.016	6183790.58
Eucalyptus sp.	30	1	1	0	0	Dead stem with hollows	726853.739	6183564.74
Eucalyptus sp.	45	2	0	0	0	Dead stumps in live tree	726433.739	6184414.43
Eucalyptus sp.	75	0	2	1	0	Dead stumps in live tree	726455.285	6184350.58

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Black Box *Eucalyptus largiflorens*	65	2	2	0	0	Broken live branches	726845.605	6183727.47
Black Box *Eucalyptus largiflorens*	70	1	1	0	0	Dead branches	726796.268	6183777.5
Eucalyptus sp.	45	2	1	0	0	Live trunk and dead stem with hollows	726592.813	6184136.22
Eucalyptus sp.	45	0	1	0	0	Dead stem with hollows	726898.757	6183591.26
Eucalyptus sp.	30	1	1	0	0	Dead stem with hollows	726548.06	6184251.53
Eucalyptus sp.	45	2	0	0	0	Dead stem with hollows	726908.248	6183508.54
Black Box *Eucalyptus largiflorens*	32	4	2	0	0	Dead tree	726727.601	6183813.99
Eucalyptus sp.	20	0	2	0	0	*Eucalyptus* sp.	726593.026	6184217.56
Eucalyptus sp.	20	3	0	0	0	Hollow logs at base of tree	727067.301	6183226.82
Eucalyptus sp.	8	0	1	0	0	*Eucalyptus* sp.	726629.98	6184103.69
Eucalyptus sp.	20	3	1	0	0	*Eucalyptus* sp.	726457.908	6184405.71
Eucalyptus sp.	8	1	0	0	0	*Eucalyptus* sp.	727106.683	6183087.2
Eucalyptus sp.	20	1	0	0	0	*Eucalyptus* sp.	726469.311	6184403.84
Black Box *Eucalyptus largiflorens*	20	0	1	0	0	Black Box	726500.007	6184424.97
Black Box *Eucalyptus largiflorens*	10	0	1	0	0	Black Box	726511.238	6184404.08
Eucalyptus sp.	20	2	0	0	0	*Eucalyptus* sp.	726466.799	6184415.71
Eucalyptus sp.	10	1	0	0	0	*Eucalyptus* sp.	726497.965	6184382.61
Eucalyptus sp.	10	0	3	0	0	*Eucalyptus* sp.	727118.087	6183123.15
Eucalyptus sp.	10	4	0	0	0	*Eucalyptus* sp.	726595.937	6184245.58
Eucalyptus sp.	15	0	2	0	0	*Eucalyptus* sp.	726870.382	6183598.93
Eucalyptus sp.	8	1	0	0	0	*Eucalyptus* sp.	727101.879	6183121.52
Eucalyptus sp.	15	2	1	0	0	*Eucalyptus* sp.	726847.372	6183599.16
Eucalyptus sp.	10	1	0	0	0	*Eucalyptus* sp.	726484.262	6184400.21
Eucalyptus sp.	20	3	2	0	0	*Eucalyptus* sp.	726887.733	6183612.08
Eucalyptus sp.	30	0	3	0	0	*Eucalyptus* sp.	726920.901	6183554.04
Eucalyptus sp.	15	5	0	0	0	*Eucalyptus* sp.	726632.561	6184176.97
Eucalyptus sp.	20	3	0	0	0	Hollow logs at base of tree	727053.914	6183229.39
Eucalyptus sp.	15	1	0	0	0	*Eucalyptus* sp.	726846.583	6183613.73
Eucalyptus sp.	10	1	1	0	0	Hollow logs at base of tree	726509.04	6184308.13
Eucalyptus sp.	40	0	1	1	0	Hollow logs at base of tree	726836.68	6183746.86
Eucalyptus sp.	20	0	1	0	0	*Eucalyptus* sp.	726486.835	6184429.97
Black Box *Eucalyptus largiflorens*	40	3	0	3	0	Black Box	726775.184	6183890.15
Eucalyptus sp.	8	0	1	0	0	*Eucalyptus* sp.	726614.167	6184162.68
Eucalyptus sp.	10	3	0	0	0	*Eucalyptus* sp.	726487.78	6184397.18
Eucalyptus sp.	8	1	0	0	0	*Eucalyptus* sp.	727132.203	6183026.16
Black Box *Eucalyptus largiflorens*	8	2	0	0	0	Black Box	726649.787	6184097.4
Eucalyptus sp.	8	1	0	0	0	*Eucalyptus* sp.	727074.594	6183141.37
Eucalyptus sp.	15	0	3	0	0	*Eucalyptus* sp.	726616.216	6184189.34
Black Box *Eucalyptus largiflorens*	8	0	1	0	0	Black Box	726629.038	6184110.16
Eucalyptus sp.	6	1	0	0	0	Hollow logs at base of tree	727050.185	6183164.74
Eucalyptus sp.	30	0	3	0	0	Hollow logs at base of tree, no hollows in tree	726950.246	6183515.47
Eucalyptus sp.	10	1	0	0	0	*Eucalyptus* sp.	726494.982	6184396.91
Eucalyptus sp.	20	1	0	0	0	*Eucalyptus* sp.	726891.043	6183609.03
Eucalyptus sp.	15	0	2	0	0	*Eucalyptus* sp.	726831.504	6183639.62
Eucalyptus sp.	20	0	1	0	0	*Eucalyptus* sp.	726486.344	6184421.13
Eucalyptus sp.	10	1	0	0	0	Hollow logs at base of tree	726533.536	6184315.04
Eucalyptus sp.	30	2	3	0	0	Hollow logs at base of tree	727048.245	6183206.68

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	40	3	1	0	0	Hollow logs at base of tree	726826.059	6183758
Eucalyptus sp.	20	3	0	0	0	*Eucalyptus* sp.	726611.882	6184170.02
Eucalyptus sp.	15	2	0	0	0	*Eucalyptus* sp.	726611.458	6184229.8
Eucalyptus sp.	15	0	1	0	0	*Eucalyptus* sp.	726588.672	6184267.4
Eucalyptus sp.	10	2	0	0	0	*Eucalyptus* sp.	726498.118	6184410.44
Eucalyptus sp.	10	0	1	0	0	*Eucalyptus* sp.	726834.861	6183594.83
Eucalyptus sp.	20	4	1	0	0	*Eucalyptus* sp.	726458.632	6184417.95
Eucalyptus sp.	10	0	1	0	0	Hollow logs at base of tree	726534.085	6184324.63
Eucalyptus sp.	15	3	0	0	0	*Eucalyptus* sp.	726874.082	6183604.18
Eucalyptus sp.	40	2	0	0	0	*Eucalyptus* sp.	726796.076	6183838.95
Eucalyptus sp.	30	2	0	0	0	Hollow logs at base of tree	727043.744	6183201.53
Eucalyptus sp.	15	0	3	0	0	*Eucalyptus* sp.	726843.288	6183611.32
Eucalyptus sp.	40	2	0	0	0	*Eucalyptus* sp.	726824.711	6183787.05
Eucalyptus sp.	40	0	4	0	0	Hollow log at base of tree	726851.8	6183719.55
Eucalyptus sp.	20	5	0	0	0	Hollow logs at base of tree	727069.544	6183230.69
Eucalyptus sp.	10	0	1	0	0	Hollow log at base of tree	726832.495	6183676.13
Eucalyptus sp.	10	1	1	0	0	Hollow logs at base of tree	726533.426	6184320.03
Eucalyptus sp.	20	3	0	0	0	*Eucalyptus* sp.	726483.255	6184410.44
Eucalyptus sp.	20	1	1	0	0	*Eucalyptus* sp.	726507.3	6184436.02
Black Box *Eucalyptus largiflorens*	8	3	0	0	0	Black Box	726655.75	6184092.12
Eucalyptus sp.	20	3	1	0	0	*Eucalyptus* sp.	726588.332	6184223.07
Eucalyptus sp.	8	1	0	0	0	*Eucalyptus* sp.	726657.464	6184109.61
Eucalyptus sp.	20	3	0	0	0	*Eucalyptus* sp.	726461.868	6184407.55
Eucalyptus sp.	10	4	0	0	0	*Eucalyptus* sp.	726510.781	6184400.01
Eucalyptus sp.	8	1	0	0	0	*Eucalyptus* sp.	727253.255	6182814.51
Eucalyptus sp.	40	1	0	0	0	*Eucalyptus* sp.	726794.988	6183822.82
Eucalyptus sp.	8	0	1	0	0	*Eucalyptus* sp.	726623.509	6184163.94
Black Box *Eucalyptus largiflorens*	40	3	1	3	0	Striated Pardolote (Pardalotus striatus) using large hollow	726774.175	6183854.95
Eucalyptus sp.	15	3	0	0	0	*Eucalyptus* sp.	726627.373	6184170.77
Eucalyptus sp.	10	0	1	0	0	Hollow log at base of tree	726836.539	6183658.33
Eucalyptus sp.	10	3	0	0	0	Hollow logs at base of tree	727086.106	6183267.27
Eucalyptus sp.	30	4	1	0	0	Hollow logs at base of tree	727066.804	6183217.93
Eucalyptus sp.	60	1	0	0	0	Dead stem with possible hollow	727051.139	6183236.78
Eucalyptus sp.	70	2	2	0	0	Dead stumps on live branches	727074.609	6183269.56
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737113.776	6173713.84
Eucalyptus sp.	40	1	3	0	0	In dead branches and live branches	737070.342	6173719.98
Eucalyptus sp.	20	1	0	0	0	In dead branches and live branches	737052.606	6173707.69
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737109.009	6173696.38
Eucalyptus sp.	40	0	1	0	0	In dead branches and live branches	737074.744	6173708.52
Eucalyptus sp.	45	1	0	1	0	In dead branches and live branches	737082.699	6173710.54
Eucalyptus sp.	25	2	1	0	0	In dead branches and live branches	737034.121	6173709.2
Eucalyptus sp.	40	1	0	0	0	In dead branches and live branches	737044.51	6173721.74
Eucalyptus sp.	30	1	1	0	0	In dead branches and live branches	737096.574	6173709.88
Eucalyptus sp.	35	1	1	0	0	In dead branches and live branches	737098.603	6173706.57
Eucalyptus sp.	40	2	0	0	0	In dead branches and live branches	737065.339	6173714.86
Eucalyptus sp.	20	1	2	0	0	In dead branches and live branches	737030.448	6173709.76
Eucalyptus sp.	35	1	2	0	0	In dead branches and live branches	737055.041	6173714.25

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	35	2	0	0	0	In dead branches and live branches	737045.864	6173715.71
Eucalyptus sp.	45	2	0	0	0	In dead branches and live branches	737101.572	6173704.73
Eucalyptus sp.	20	0	2	0	0	In dead branches and live branches	737046.354	6173717.17
Eucalyptus sp.	20	1	1	0	0	In dead branches and live branches	737091.764	6173703.43
Eucalyptus sp.	65	1	2	0	0	In dead branches and live branches	737135.279	6173698.19
Eucalyptus sp.	35	2	2	0	0	In dead branches and live branches	737029.196	6173717.34
Eucalyptus sp.	60	1	0	0	0	In dead branches and live branches	737025.413	6173727.69
Eucalyptus sp.	30	1	0	0	0	In dead branches and live branches	737021.47	6173715.97
Eucalyptus sp.	65	0	1	0	0	In dead branches and live branches	736982.789	6173815.17
Eucalyptus sp.	65	1	1	1	0	In dead branches and live branches	736969.053	6173782.8
Eucalyptus sp.	50	2	4	0	0	In dead branches and live branches	737014.688	6173807.73
Eucalyptus sp.	20	2	0	0	0	In dead branches and live branches	737006.039	6173787.72
Eucalyptus sp.	35	5	4	0	0	In dead branches and live branches	736999.23	6173807.8
Eucalyptus sp.	45	2	1	0	0	In dead branches and live branches	737005.975	6173807.89
Eucalyptus sp.	65	1	2	0	0	In dead branches and live branches	736987.86	6173789.55
Eucalyptus sp.	65	0	2	0	0	In dead branches and live branches	736985.126	6173801.08
Eucalyptus sp.	30	1	1	0	0	In dead branches and live branches	736995.951	6173797.59
Eucalyptus sp.	45	2	2	0	0	In dead branches and live branches	737008.47	6173792.33
Eucalyptus sp.	30	2	2	0	0	In dead branches and live branches	736994.266	6173790.19
Eucalyptus sp.	20	2	0	0	0	In dead branches	737051.222	6173771.26
Eucalyptus sp.	30	3	1	0	0	In dead branches	736991.284	6173770.08
Eucalyptus sp.	30	0	3	0	0	In dead branches	736973.609	6173765.28
Eucalyptus sp.	20	0	1	0	0	In dead branch	737002.095	6173766.18
Eucalyptus sp.	20	2	0	0	0	In dead branches	737044.621	6173767.59
Eucalyptus sp.	20	0	3	0	0	In dead branches	737055.202	6173773.22
Eucalyptus sp.	30	0	2	0	0	In dead branches	736970.848	6173766.27
Eucalyptus sp.	30	0	1	0	0	In dead branches	736999.796	6173783.13
Eucalyptus sp.	15	0	1	0	0	In dead branches	736975.413	6173772.28
Eucalyptus sp.	20	1	2	0	0	In dead branches	737011.496	6173760.36
Eucalyptus sp.	20	0	1	0	0	In trunk	737058.903	6173756.89
Eucalyptus sp.	20	5	0	0	0	In dead branch	736996.845	6173763.85
Eucalyptus sp.	20	3	0	0	0	In dead branches	737054.588	6173776.12
Eucalyptus sp.	20	2	0	0	0	In dead branches	737037.429	6173771.32
Eucalyptus sp.	20	0	1	0	0	In trunk	737057.639	6173765.78
Eucalyptus sp.	30	3	0	0	0	In dead branches	736983.987	6173784.38
Eucalyptus sp.	30	0	3	1	0	In dead branches	736975.198	6173782.77
Eucalyptus sp.	20	2	0	0	0	In dead branches	737028.852	6173784.5
Eucalyptus sp.	20	1	1	0	0	In dead branches	737018.791	6173771
Eucalyptus sp.	30	3	1	0	0	In dead branches	736992.868	6173775.89
Eucalyptus sp.	20	2	1	0	0	In dead branches	737023.265	6173785.24
Eucalyptus sp.	15	0	1	0	0	In trunk	737063.762	6173764.92
Eucalyptus sp.	50	2	2	0	0	In dead branches and live branches	737027.101	6173805.78
Eucalyptus sp.	25	1	1	0	0	In dead branches and live branches	737027.087	6173788.61
Eucalyptus sp.	25	1	1	0	0	In dead branches and live branches	737130.791	6173768.02
Eucalyptus sp.	40	2	0	0	0	In dead branches and live branches	737139.878	6173782.54
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737069.551	6173797.49
Eucalyptus sp.	60	0	1	0	0	In dead branches and live branches	737072.244	6173780.39

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	50	0	1	0	0	In dead branches and live branches	737130.037	6173787.28
Eucalyptus sp.	45	2	1	0	0	In dead branches and live branches	737095.069	6173796.01
Eucalyptus sp.	25	1	0	0	0	In dead branches and live branches	737135.226	6173770.53
Eucalyptus sp.	40	1	1	0	0	In dead branches and live branches	737115.214	6173786.16
Eucalyptus sp.	45	1	1	0	0	In dead branches and live branches	737116.626	6173794.5
Eucalyptus sp.	40	0	1	0	0	In dead branches and live branches	737129.521	6173780.19
Eucalyptus sp.	25	2	0	0	0	Dead	737044.049	6173786.37
Eucalyptus sp.	30	1	2	0	0	In dead branches and live branches	737093.05	6173779.85
Eucalyptus sp.	55	1	0	0	0	In dead branches and live branches	737103.792	6173775.98
Eucalyptus sp.	20	1	1	0	0	In dead branches	737086.803	6173745.52
Eucalyptus sp.	20	2	0	0	0	In dead branches	737094.57	6173769.23
Eucalyptus sp.	20	1	1	0	0	In dead branch and trunk	737110.76	6173767.71
Eucalyptus sp.	15	1	0	0	0	In dead branch	737114.952	6173752.17
Eucalyptus sp.	10	1	0	0	0	In dead branch	737133.513	6173757.12
Eucalyptus sp.	20	2	1	0	0	In dead branches	737077.632	6173759.38
Eucalyptus sp.	20	2	0	0	0	In dead branches	737135.055	6173772.4
Eucalyptus sp.	20	1	2	0	0	In dead branches	737130.527	6173772.91
Eucalyptus sp.	20	0	1	0	0	In dead branch	737124.505	6173750.05
Eucalyptus sp.	20	2	0	0	0	In dead branches	737123.598	6173759.29
Eucalyptus sp.	50	1	1	0	0	In dead branches	737121.299	6173717.87
Eucalyptus sp.	20	1	0	0	0	In dead branches	737037.507	6173732.89
Eucalyptus sp.	20	1	0	0	0	In dead branch	737060.653	6173741.61
Eucalyptus sp.	30	0	3	0	0	In dead branch and live trunk	737054.186	6173725.11
Eucalyptus sp.	30	1	0	0	0	In dead branch	737123.1	6173736.19
Eucalyptus sp.	20	2	0	0	0	In dead branches	737039.889	6173745.2
Eucalyptus sp.	20	3	1	0	0	In dead branch and live trunk	737051.147	6173748.06
Eucalyptus sp.	30	2	1	0	0	In dead branches and live trunk	737070.015	6173752.52
Eucalyptus sp.	20	4	1	0	0	In dead branches	737035.31	6173741.32
Eucalyptus sp.	20	1	0	0	0	In dead branch	737127.585	6173729.55
Eucalyptus sp.	20	2	0	0	0	In dead branches	737065.058	6173739.84
Eucalyptus sp.	20	2	0	0	0	In dead branch and live trunk	737062.491	6173740.21
Eucalyptus sp.	20	2	0	0	0	In dead branches	737055.328	6173745.37
Eucalyptus sp.	20	3	0	0	0	In dead branches	737032.165	6173741.93
Eucalyptus sp.	20	3	0	1	0	In dead branches	737094.041	6173736.01
Eucalyptus sp.	20	3	0	0	0	In dead branches	737068.541	6173734.27
Eucalyptus sp.	28	0	2	0	0	In dead branches	737054.535	6173740.76
Eucalyptus sp.	40	3	0	0	0	In dead branches and live branches	737165.044	6173705.36
Eucalyptus sp.	20	1	0	0	0	In dead branch	737110.297	6173750.44
Stag	28	0	1	0	0	Standing dead tree, chimney hollow	737111.445	6173720.69
Eucalyptus sp.	30	1	0	0	0	In dead branche	737120.802	6173724.05
Eucalyptus sp.	20	2	0	0	0	In dead branch	737111.559	6173734.18
Eucalyptus sp.	15	2	0	0	0	In dead branches	736976.6	6173763.79
Eucalyptus sp.	15	1	0	0	0	In dead branch	736984.504	6173763.59
Eucalyptus sp.	20	3	0	0	0	In dead branches	737082.71	6173740.94
Eucalyptus sp.	30	2	0	0	0	In dead branch	737131.063	6173733.51
Eucalyptus sp.	20	3	0	0	0	In dead branch	737106.894	6173747.2

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Balranald Mineral Sands Project

Malleefowl and raptor pre-disturbance survey report

Prepared for Iluka Resources Limited

October 2023

Balranald Mineral Sands Project

Malleefowl and raptor pre-disturbance survey report

Iluka Resources Limited

E230962 RP1

October 2023

Version	Date	Prepared by	Reviewed by	Comments
V1	29 September 2023	Jamie Barney	Sarah Perry	Draft
V2	10 October 2023	Jamie Barney	Sarah Perry	Final

Approved by

Sarah Perry
Associate Ecologist
10 October 2023

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Appendices

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Figures

1 Introduction

EMM Consulting Pty Limited (EMM) was commissioned by Iluka Resources Limited (Iluka) to undertake pre-disturbance surveys for the Balranald Mineral Sands Project (the project) in order to:

- satisfy the Commonwealth approval (EPBC 2012/6509) requirements for Malleefowl outlined in the Commonwealth Biodiversity Management Plan (EMM 2023a)
- satisfy the New South Wales (NSW) State approval (SSD-5285) requirements for raptors outlined in the NSW Biodiversity Management Plan (EMM 2023b).

1.1 Purpose of this report

This report focuses on the following pre-clearance surveys undertaken by EMM in accordance with the Iluka's Commonwealth and State Biodiversity Management Plans:

- Map Malleefowl mounds in MOD1 disturbance areas previously mapped as moderate, high and very high Malleefowl habitat (Niche 2016).
- Assess nesting sites for listed raptor species including Black falcon (*Falco subniger*), Grey Falcon (*Falco hypoleucos*), Little Eagle (*Hieraaetus morphnoides*), Spotted Harrier (*Circus assimilis*) and White-bellied Sea-Eagle (*Haliaeetus leucogaster*).

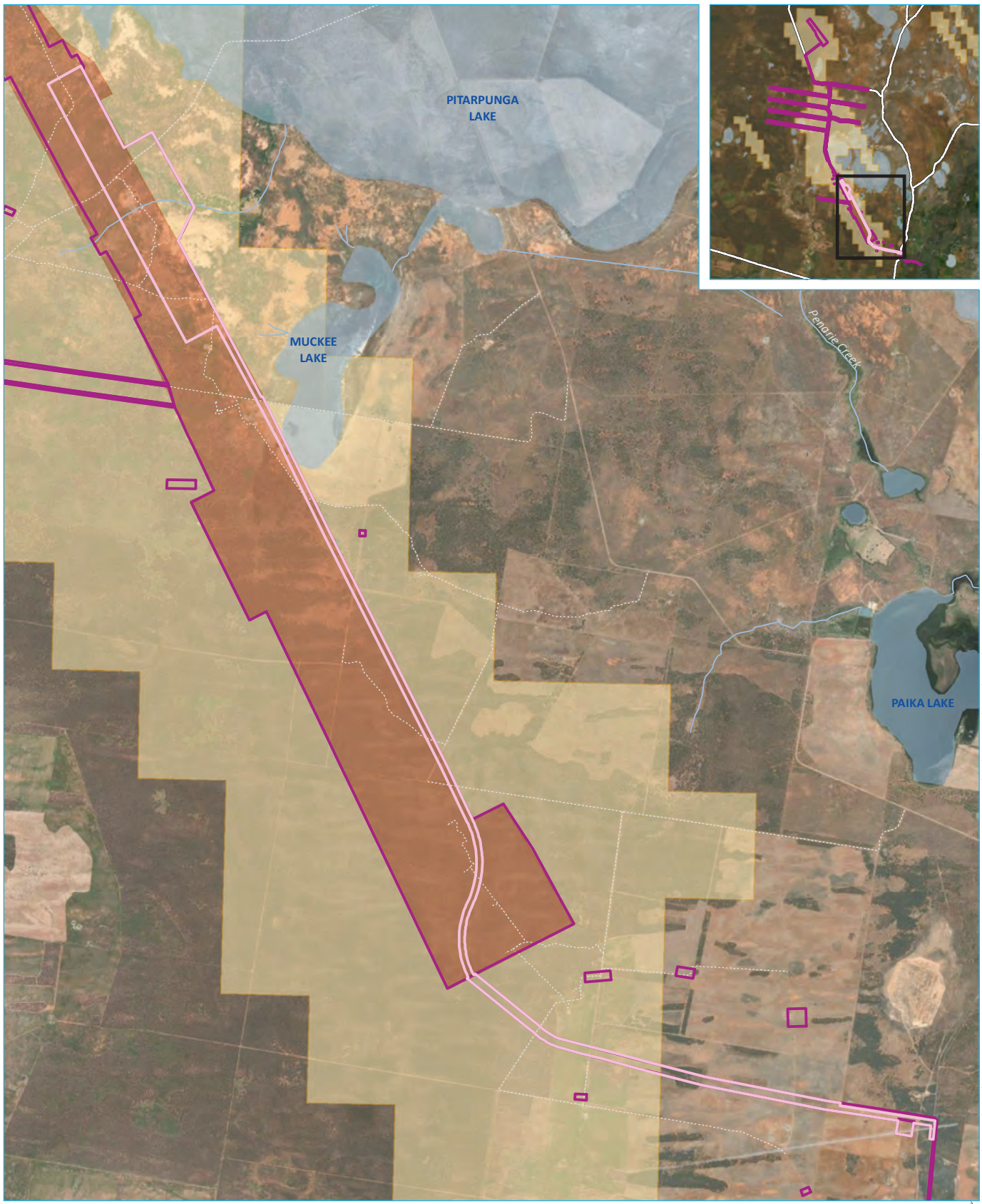
1.2 Project background

Iluka has approval to develop a mineral sand mine in south-western (NSW), known as the Balranald Project. It includes construction, mining, primary processing, and rehabilitation of two linear mineral sand deposits, known as the West Balranald and Nepean deposits, located approximately 12 kilometres (km) and 66 km north-west of the town of Balranald (Balranald town), respectively.

Development consent (SSD-5285) was granted for the Balranald Project by a delegate of the NSW Minister for Planning under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 5 April 2016 (herein referred to as the consent). Approval was also granted under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2012/6509) by a delegate of the Commonwealth Minister for the Environment on 6 January 2017 (herein referred to as the Commonwealth approval). The project EIS was supported by a Biodiversity Assessment prepared by Niche Environment and Heritage Pty Limited in 2016 (Niche 2016).

Since the consent was granted, Iluka undertook some of the approved bulk sampling activity between 2016 and 2020, involving the extraction of the mineral ore from depth using trial underground mining within the approved disturbance area of the West Balranald deposit. On 21 December 2022, Iluka were granted approval to modify the consent (MOD1; Figure 1.1) to expand the underground mining trial which includes an additional area of disturbance to the approved Balranald Project area to enable primary processing of the ore into heavy mineral concentrate (HMC) and transport of HMC offsite for secondary processing at Iluka's facilities in Victoria and/or Western Australia (WA).

In accordance with Commonwealth and State approval requirements Biodiversity Management Plans (BMPs) have been approved with this report satisfying the Pre-disturbance requirements for EPBC 2012/6509 and SSD-5285 respectively.



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Source: EMM (2023); Iluka Resources (2021); ESRI (2023); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

KEY

- Revised project area
- MOD1

Existing environment

- Existing track
- Watercourse/drainage line
- Waterbody
- Exploration Licence (EL7450)
- Mining Lease (ML1736)

Project conceptual layout

Balranald Mineral Sands Project
Malleefowl Pre-disturbance
Report Figure 1.1

EMM
creating opportunities

2 Methods

2.1 Field investigation

2.1.1 Hollow bearing trees

A comprehensive hollow bearing tree survey was undertaken by EMM in September 2022 within MOD1 areas mapped as medium, medium-high tree hollow density (Niche 2016) (condition 2(a) EPBC 2012/6509), guided by hollow bearing tree survey methods in the Biodiversity Assessment Method (BAM) (DPIE2020a; DPIE2020b).

Transect surveys were undertaken by two Ecologists up to 20 metres (m) apart, to search for and record hollow bearing trees to determine suitability for Corben's Long-eared Bat. Hollow bearing trees were individually counted, coordinates recorded from a hand-held GPS, tree species (where possible), size of hollow, and count of hollows. Hollows were categorised and counted from small (<5 centimetres (cm)), medium (5–20 cm), large (>20 cm) to very large (>40 cm), to assess the suitability of the hollow for Corben's Long-eared Bat (i.e. small and medium hollows at least 1 m above the ground).

These surveys were not repeated in 2023 as the site conditions remain stable, the approach for vegetation clearance is set out clearly in the Commonwealth and State BMPs.

2.1.2 Malleefowl

Targeted Malleefowl surveys were undertaken by EMM in September 2022 and September 2023 within the MOD1 disturbance area and a 200 m buffer. The areas surveyed were in habitat mapped as moderate, high and very high suitability for Malleefowl (Niche 2016) (condition 2(a) EPBC 2012/6509). Survey methods were conducted in accordance with the Commonwealth Guidelines for Australia's threatened birds (DEWHA 2010). Suitable Malleefowl habitat includes PCT 170 – Chenopod sandplain mallee woodland/shrubland and PCT 171 – Spinifex linear dune mallee.

Transect surveys were undertaken by two personnel including at least one ecologist, searching for direct sightings, nest mounds, footprint tracks, feathers, and listening for calls. When Malleefowl nest mounds were identified, they were recorded as being either active, with signs of recent use including a well-established mound, footprint tracks and recent leaf litter, or inactive, being weathered down, and lacking signs of recent use. The location of each Malleefowl mound was recorded from coordinates obtained from a hand-held GPS.

2.1.3 Raptor nest

In September 2023, EMM conducted surveys to identify potential active raptor nests. This survey involved two individuals, including an ecologist, who conducted transect surveys across all vegetation zones within the MOD1 disturbance area. During these surveys, handheld GPS devices were used to accurately record the locations of each nest. Additionally, photographs were taken of each nest, documenting whether the nest was currently in use by raptors and the condition of the nest.

2.2 Limitations

Condition 2aii of the approval (EPBC 2012/6509) requires pre-disturbance surveys for Corben's Long-eared Bat. The approval defines pre-disturbance surveys as surveys in strict accordance with Survey guidelines for Australia's threatened bats (DEWHA 2010a), which require 20 trap nights over a minimum of five nights in areas <50 hectares (ha), or another method approved by the Department. The purpose of the surveys conducted in September 2022 was to collect detailed information regarding the number and suitability of hollows for Corben's Long-eared Bat to inform clearing processes for the Commonwealth BMP. Iluka will undertake all clearance activities in accordance with the requirements of Commonwealth and State BMPs.

3 Results

3.1 Hollow bearing trees

A total of 278 hollow bearing trees were identified within MOD1 during the 2022 survey in areas mapped as medium or medium-high tree hollow density (Figure 3.1). Most hollow bearing trees identified had small and medium hollows, often with several hollows on single trees. All trees with small and medium hollows above 1 m from the ground were considered to be suitable for Corben's Long-eared Bat. Figure 3.1 shows the location of hollow bearing trees identified within MOD1, and Appendix A details the survey results for the 278 hollow bearing trees recorded.

3.2 Malleefowl

Nine Malleefowl mounds were discovered during the 2022 and 2023 surveys within the MOD1 disturbance area and 200 m buffer Figure 3.2). During August 2023, four mounds were removed by Iluka Resources Limited to avoid Malleefowl usage during the 2023 breeding season. Five Mounds now remain within the disturbance area and 200 m buffer, with only one confirmed as active as of 7 September 2023. One direct observation of Malleefowl and two indirect sighting of Malleefowl footprints were recorded during the 2023 surveys; no sightings or footprint records were made during the 2022 surveys.

Table 3.1 Malleefowl Mounds

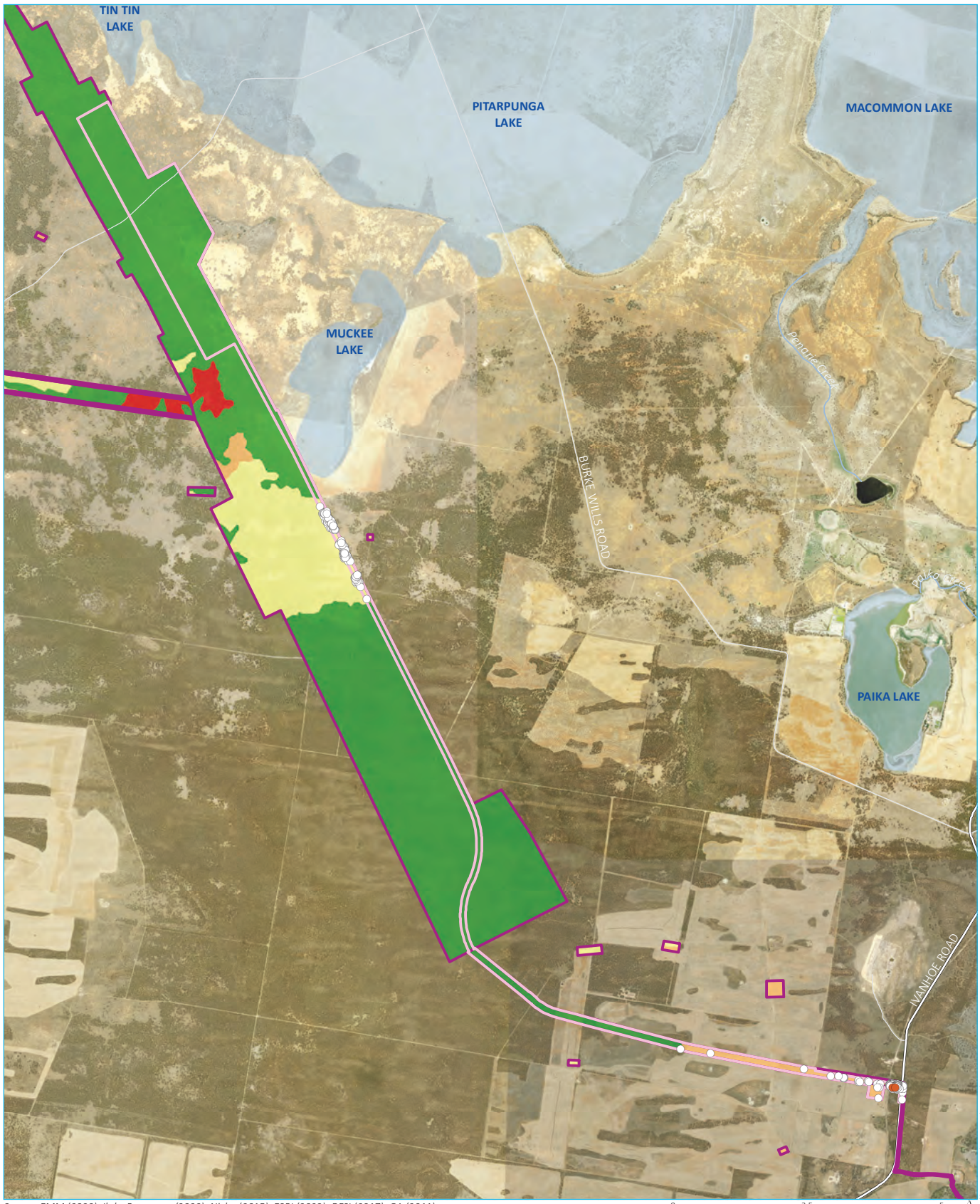
ID	Malleefowl Usage (September 2023)	Coordinates (GDA 2020 Zone 54)	Location
BWM1	Inactive - destroyed	-34.530922, 143.499518	Within MOD 1 disturbance area
BWM2	Active – Malleefowl observed on mound	-34.508701, 143.495671	Within 200 m buffer of MOD1
BWM3	Inactive - Destroyed	-34.504774, 143.495877	Within MOD 1 disturbance area
BWM4	Inactive - Destroyed	-34.493365, 143.488701	Within MOD 1 disturbance area
BWM5	Inactive - Destroyed	-34.492144, 143.487345	Within MOD 1 disturbance area
BWM6	Likely Inactive - Malleefowl footprints on Mound, no other signs of usage.	-34.482771, 143.482957	Within 200 m buffer of MOD1
BWM7	Unchecked during September 2023 surveys as the mound falls outside of the MOD1 disturbance area and buffer	-34.525461, 143.504630	Outside of MOD 1 disturbance area and 200 m buffer
BWM8	Inactive – Long unused mound	-34.532278, 143.501611	Within MOD 1 disturbance area
BWM9	Likely Inactive – woody debris present across whole mound	-34.487121, 143.481600	Within 200 m buffer of MOD1
BWM10	Likely Inactive – Herbs growing on mound	-34.480365, 143.481311	Within 200 m buffer of MOD1

3.3 Raptor nests

One small nest was located within MOD1 with four more located just outside MOD1 (Figure 3.3).

Table 3.2 Nest trees

ID	Comment	Location	Impact
NT1	Small nest	Within MOD1 disturbance area	Tree to be removed
NT2	Small nest	Within 200 m buffer of MOD1	Avoided
NT3	Larger nest, likely raptor nest, however, no signs of use and in a state of deterioration.	Within 200 m buffer of MOD1	Avoided
NT4	Small nest	Within 200 m buffer of MOD1	Avoided (just outside MOD1 boundary)
NT5	Larger nest, likely raptor nest, however, no signs of use	Within 200 m buffer of MOD1	Avoided



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Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

KEY

- Revised Balranald project area
- MOD1

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody

Hollow bearing trees (HBT)

- HBT with no potential for Corben's long-eared bat
- HBT with potential for Corben's long-eared bat

Tree hollow density

- High
- Medium/High
- Medium
- Low

Hollow bearing trees
Map 1 of 6

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.1

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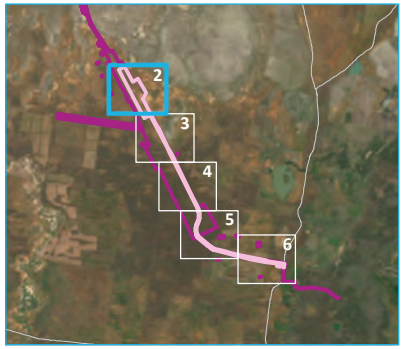

KEY

- Revised Balranald project area
- MOD1
- Avoidance area

Existing environment

- Minor road
- Vehicular track
- Watercourse/drainage line
- Named waterbody

Tree hollow density

- Medium/High
- Low

Hollow bearing tree
Map 2 of 6

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.1

EMM
creating opportunities

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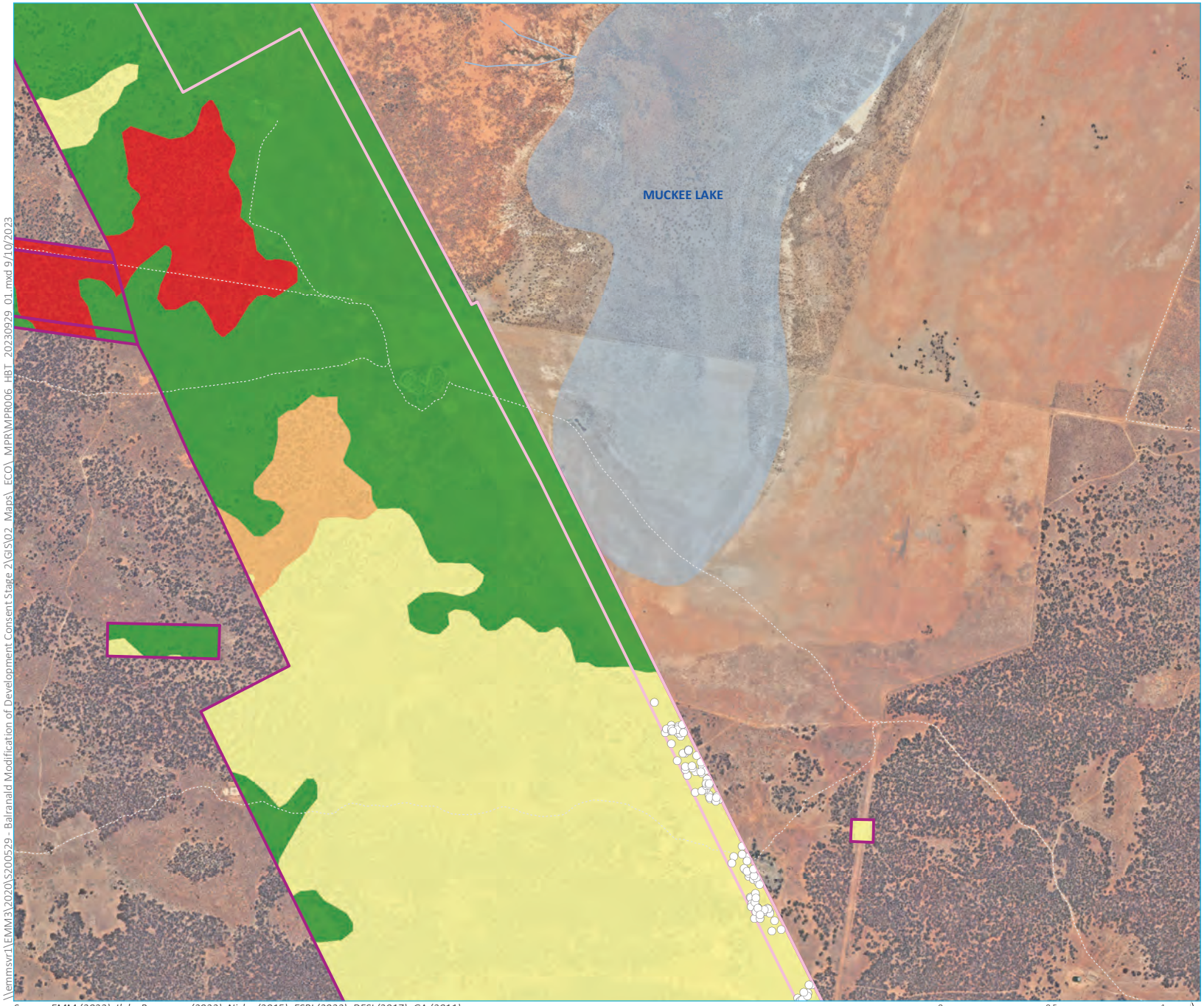
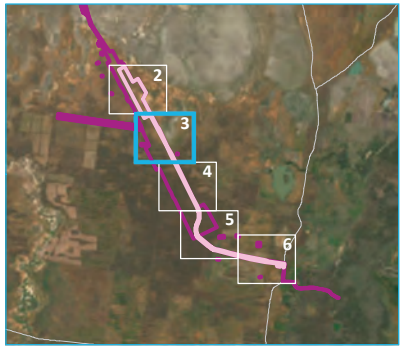
Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N





KEY

- Revised Balranald project area
- MOD1

Existing environment

- Vehicular track
- Watercourse/drainage line
- Named waterbody

Hollow bearing trees (HBT)

- HBT with potential for Corben's long-eared bat

Tree hollow density

- High
- Medium/High
- Medium
- Low

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

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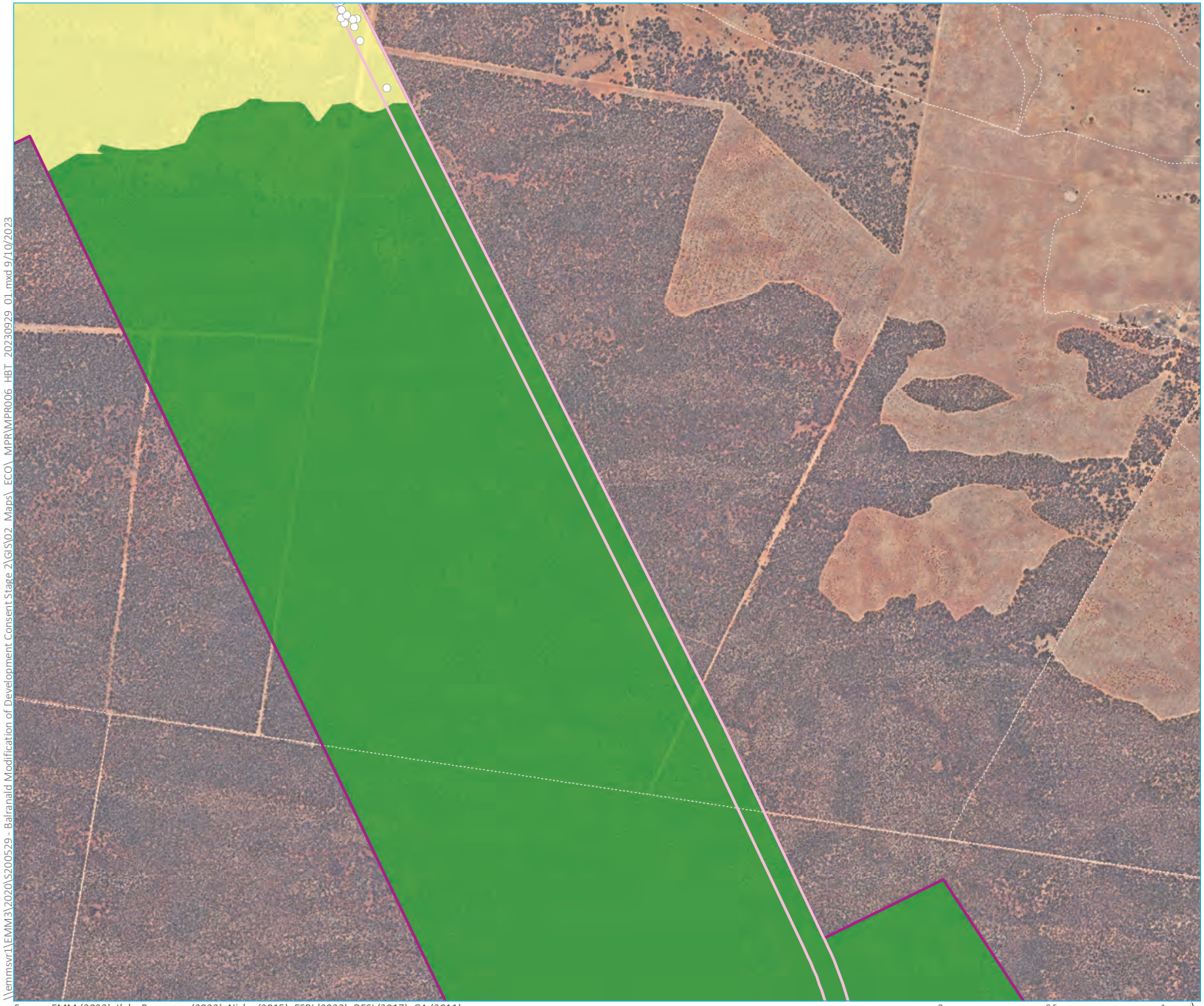
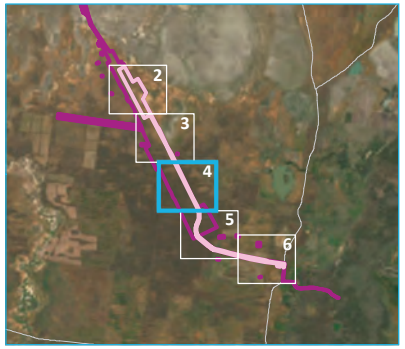
Hollow bearing tree
Map 3 of 6

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.1

EMM
creating opportunities





KEY

- Revised Balranald project area
- MOD1

Existing environment

- Vehicular track
- Named waterbody

Hollow bearing trees (HBT)

- HBT with potential for Corben's long-eared bat

Tree hollow density

- Medium
- Low

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

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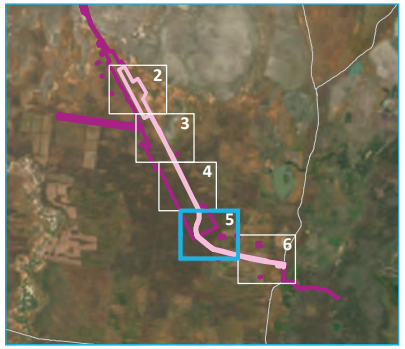
Hollow bearing tree
Map 4 of 6

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.1

EMM
creating opportunities



KEY

- Revised Balranald project area
- MOD1

Existing environment

- Vehicular track
- Named waterbody

Tree hollow density

- Medium/High
- Medium
- Low

Hollow bearing tree
Map 5 of 6

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.1

EMM
creating opportunities

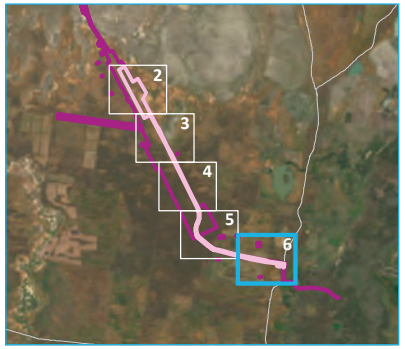
Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_MPR\MPR006_HBT_20230929_01.mxd 9/10/2023



KEY

- Revised Balranald project area
- MOD1

Existing environment

- Major road
- Minor road
- Vehicular track
- Named waterbody

Hollow bearing trees (HBT)

- HBT with no potential for Corben's long-eared bat
- HBT with potential for Corben's long-eared bat

Tree hollow density

- Medium/High
- Medium
- Low

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

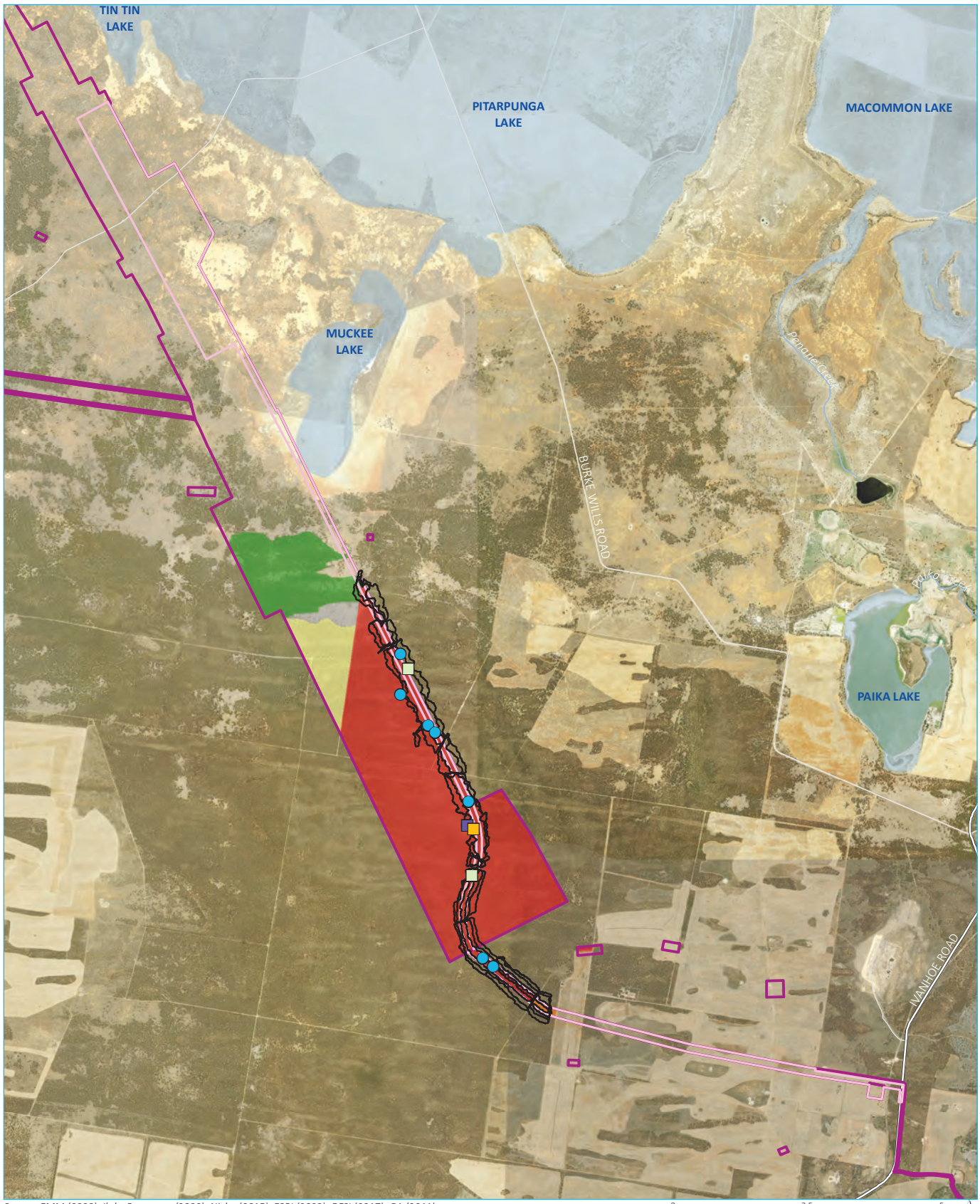
N

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_MPR\MPR006_HBT_20230929_01.mxd 9/10/2023

Hollow bearing tree
Map 6 of 6

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.1

EMM
creating opportunities



\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_MPR\MPR001_MFMoundPresenceOverview_20230926_01.mxd 9/10/2023

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

KEY

- Revised Balranald project area
- MOD1
- Malleefowl survey track

EMM survey results

- Active Malleefowl mound
- Inactive Malleefowl mound

Malleefowl observation

- Feather
- Footprint
- Sighting

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody

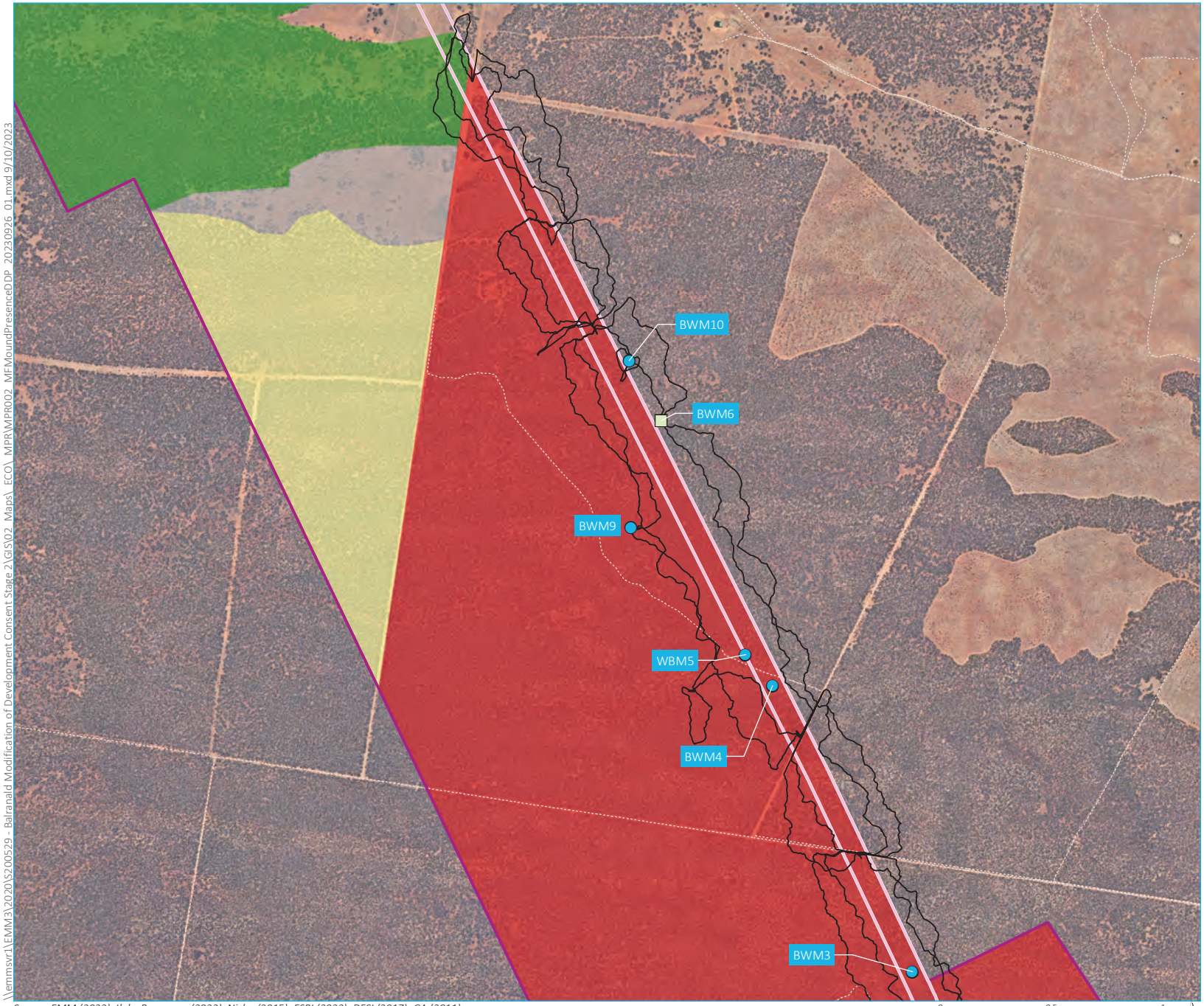
Malleefowl habitat potential

- Unknown
- Very High
- High
- Moderate
- Low

Malleefowl mounds and presence
Map 1 of 3

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.2

EMM
creating opportunities



KEY

MOD1 study area

EIS Approved Balranald Project Area (SSD-5285)

Malleefowl survey track

EMM survey results

Inactive Malleefowl mound

Malleefowl observation

Footprint

Existing environment

Vehicular track

Named waterbody

Malleefowl habitat potential

Unknown

Very High

Moderate

Low

Malleefowl mounds and presence
Map 2 of 3

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.2

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_MPR\MPR002_MFMoundPresenceDPP_20230926_01.mxd 9/10/2023

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

creating opportunities

KEY

- MOD1 study area
- EIS Approved Balranald Project Area (SSD-5285)
- Malleefowl survey track

EMM survey results

- Active Malleefowl mound
- Inactive Malleefowl mound

Malleefowl observation

- Feather
- Footprint
- Sighting

Existing environment

- Vehicular track
- Named waterbody

Malleefowl habitat potential

- Very High
- High

\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_MPR\MPR002_MFMoundPresenceDDP_20230926_01.mxd 9/10/2023

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

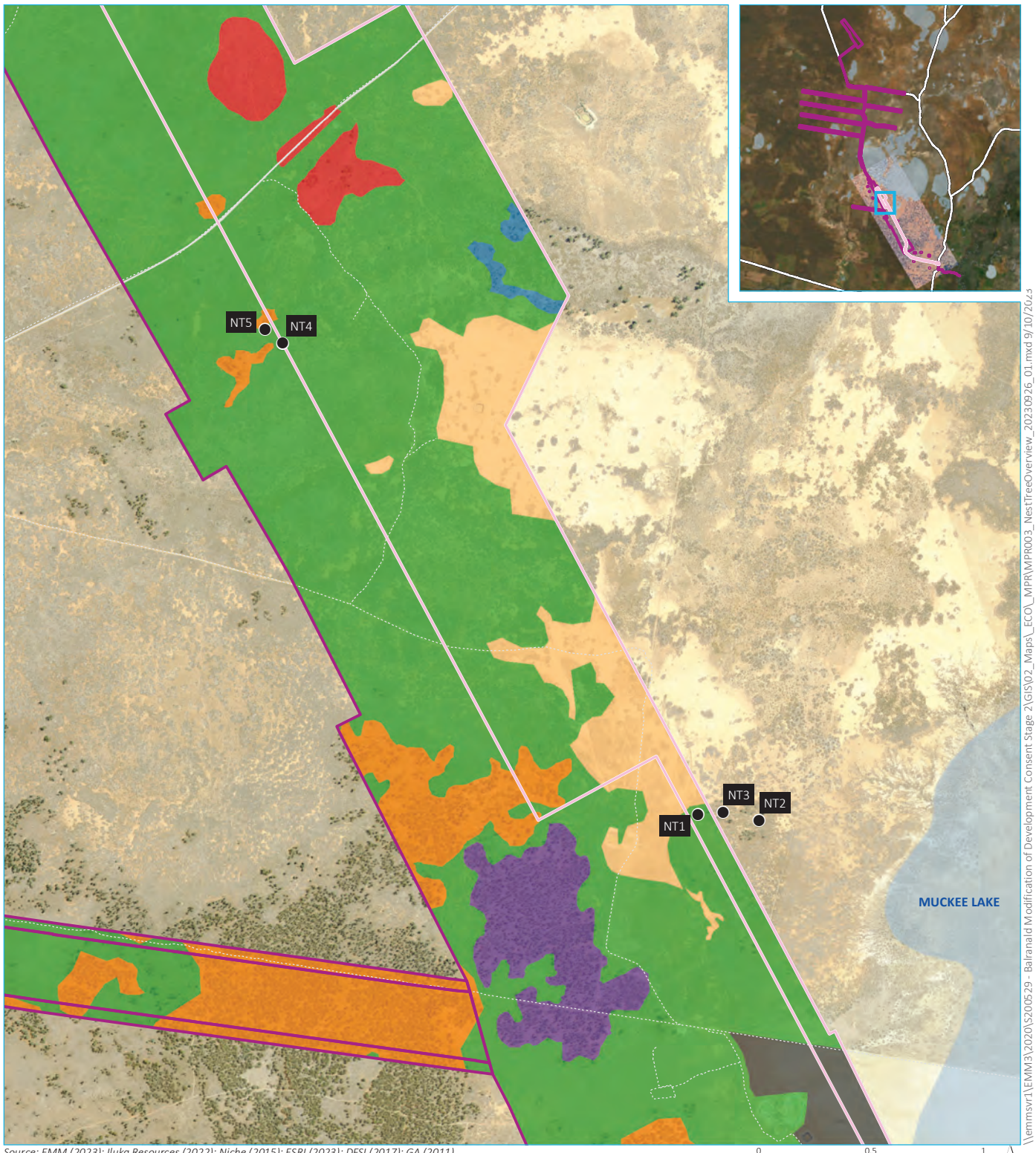
GDA 1994 MGA Zone 54

N

Malleefowl mounds and presence
Map 3 of 3

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.2

EMM
creating opportunities



\\emmsvr1\EMM3\2020\S200529 - Balranald Modification of Development Consent Stage 2\GIS\02_Maps_ECO_MPR\MPR003_NestTreeOverview_20230926_01.mxd 9/10/2023

Source: EMM (2023); Iluka Resources (2022); Niche (2015); ESRI (2023); DFSI (2017); GA (2011)

0 0.5 1 km

GDA 1994 MGA Zone 54

N

KEY

- Revised Balranald project area
- MOD1
- Nest tree

Plant community type

- 15 - Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south- western NSW (mainly Riverina Bioregion & Murray Darling Depression Bioregion)
- 154 - Pearl Bluebush low open shrubland of the arid & semi-arid plains
- 159 - Old Man Saltbush shrubland mainly of the semi-arid (warm) climate zone (south western NSW)
- 166 - Disturbed annual saltbush forbland on clay plains & inundation zones mainly of south-western NSW
- 170 - Chenopod sandplain mallee woodland/ shrubland of the arid & semi-arid (warm) zones
- 221 - Black Oak - Pearl Bluebush open woodland of the sandplains of the semi-arid warm & arid climate zones

Existing environment

- Minor road
- Vehicular track
- Named waterbody
- Cleared/developed (towns, buildings, roads)
- Cleared/derived native grassland/shrubland
- Cleared/agricultural (crops, vineyards, weedy fallow)

Nest tree locations

Balranald Mineral Sands Project
Malleefowl Pre-disturbance Report
Figure 3.3

EMM creating opportunities

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Appendix A
Survey results

EMM
creating opportunities

A.1 Malleefowl mound monitoring datasheet

Date	Inspected By	Nest Number	Sought (y/x)	Found (y/x)	Staked (y/x)	Tagged (y/x)	Active (Y/N)	Profile (see below)	X sticks (see below)	Scraped (Y/N)	Eggshell (n/s/l)	Fire since last monitored? (Y/N)	Prints				Scats				Outer nest surface (n/s/l)					Inner nest surface (n/s/l)					Dimensions (cms)				Photo taken (Y/N)	X sticks replaced (Y/N)	Notes: - location notes that may help others find the mound - general notes regarding the mound itself - time since and evidence of bushfire (if applicable)
													Malleefowl	Fox	Kangaroo	Other (specify)	Malleefowl	Fox	Kangaroo	Other (specify)	Crust	Moss	Herb	Shrub	Tree	Crust	Moss	Herb	Shrub	Tree	Perimeter	Rim	Height (Nrth)	Height (South)			
17/08/2023	BI	BWM1	Y	Y	N	N	N	1	N/A	N/A	N	N	N	N	N	Y	N	Y	N	N	S	S	N	N	N	N	N	N	N	N	480	240	24	24	Y	N	Mound destroyed by mine development
7/09/2023	JB & BI	BWM2	Y	N	N	N	Y	3	N	Y	S	N	Y	N	N	N	N	Y	Y	Goat	N	N	N	N	N	N	N	N	N	N	560	380	35	28	Y	N	Known Mound
17/08/2023	BI	BWM3	Y	Y	N	N	N	3	N/A	N/A	S	N	Y	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	440	175	50	50	Y	N	Mound destroyed by mine development
17/08/2023	BI	BWM4	Y	Y	N	N	N	2	N/A	N/A	S	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	455	180	38	38	Y	N	Mound destroyed by mine development
17/08/2023	BI	BWM5	Y	Y	N	N	N	3	N/A	N/A	L	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	450	150	41	41	Y	N	Mound destroyed by mine development
7/09/2023	JB & BI	BWM6	Y	N	N	N	N	6	N	N	S	N	Y	N	N	N	N	Y	Y	Goat	N	N	Y	Y	N	N	N	Y	N	N	570	N/A	28	28	Y	Y	Known Mound
6/09/2023	JB & BI	BWM8	N	Y	N	N	N	6	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	370	N/A	10	15	Y	N	New Mound
7/09/2023	JB & BI	BWM9	N	Y	N	N	N	6	N	N	S	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	S	N	N	450	N/A	40	40	Y	Y	New Mound
7/09/2023	JB & BI	BWM10	N	Y	N	N	N	6	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	Y	N	N	450	N/A	30	30	Y	Y	New Mound

A.2 Malleefowl mound photos

Malleefowl mound ID: BWM1

Active Malleefowl mound ID: BWM2

Malleefowl mound ID: BWM3

Malleefowl Mound ID: BWM4

Malleefowl Mound ID: BWM5

Malleefowl Mound ID: BWM6

Malleefowl Mound ID: BWM8

Malleefowl Mound ID: BWM9

Malleefowl Mound ID: BWM10

A.3 Malleefowl footprints

Malleefowl footprints 1(Left) / Malleefowl footprints 2 (Right)

A.4 Nest Trees

Nest tree ID: NT1

Nest tree ID: NT2

Nest tree ID: NT3

Nest tree ID: NT4

Nest Tree ID: NT5

A.5 Hollow bearing trees

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	10	3	0	0	0		737169.9561	6173770.107
Eucalyptus sp.	20	2	0	0	0		737159.9376	6173745.83
Eucalyptus sp.	15	1	0	0	0		737175.009	6173755.046
Eucalyptus sp.	10	2	0	0	0		737170.4204	6173774.017
Eucalyptus sp.	10	1	0	0	0		737169.3791	6173775.792
Eucalyptus sp.	10	3	0	0	0		737173.6097	6173772.912
Eucalyptus sp.	15	2	0	0	0		737168.0137	6173775.255
Eucalyptus sp.	15	0	1	0	0		737172.3802	6173735.649
Eucalyptus sp.	30	2	2	0	0		733083.2724	6174440.537
Eucalyptus sp.	15	2	1	0	0	In dead branches	737219.4804	6173737.182
Eucalyptus sp.	40	2	2	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737156.4595	6173738.395
Eucalyptus sp.	30	1	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737164.0587	6173743.514
Eucalyptus sp.	20	2	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737166.7473	6173759.987
Eucalyptus sp.	40	1	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737163.7106	6173724.318
Eucalyptus sp.	25	1	2	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737154.2267	6173786.22
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737156.0077	6173711.895
Eucalyptus sp.	25	1	0	0	0	In dead branches	737226.5353	6173763.47
Eucalyptus sp.	20	2	0	0	0	In dead branches and live branches	737215.4822	6173715.415
Eucalyptus sp.	25	2	0	0	0	In dead branches	737222.1844	6173710.178
Eucalyptus sp.	15	2	0	0	0	In dead branches	737227.8697	6173773.254

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	25	2	0	0	0	In dead branches	737226.8041	6173757.339
Eucalyptus sp.	25	1	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737158.9237	6173776.901
Eucalyptus sp.	30	2	1	0	0	In dead branches. Nesting Chough (*Pyrrhocorax* spp.) in tree.	737160.5888	6173753.797
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737147.3938	6173703.494
Eucalyptus sp.	65	2	1	0	0	In dead branches	735381.7367	6174084.29
Eucalyptus sp.	25	2	1	0	0	In dead branches	737223.7086	6173705.359
Eucalyptus sp.	25	1	0	0	0	In dead branches	737224.1381	6173753.076
Eucalyptus sp.	20	6	1	0	0		736115.6602	6173908.399
Stag	15	4	0	0	0		736398.0585	6173833.036
Western Rosewood Alectryon oleifolius	40	4	0	0	0		736575.3925	6173841.738
Eucalyptus sp.	20	0	5	0	0		736125.2587	6173907.3
Eremophila sp.	70	5	0	0	0	Dead tree with cracks	736573.6906	6173853.809
Western Rosewood Alectryon oleifolius	65	5	0	0	0	Dead tree with cracks	736397.9904	6173862.899
Eucalyptus sp.	60	3	0	0	0	In dead branches	736741.5192	6173795.986
Eucalyptus sp.	65	0	1	0	0	In trunk. 1 m above ground.	735878.15	6173940.952
Mulga sp.	70	3	0	0	0	Nearly dead tree with cracks	736764.8183	6173530.318
Eucalyptus sp.	40	2	0	0	0	Live trunk and branches	736119.9718	6173912.258
Eucalyptus sp.	35	3	2	0	0	Live trunk and branches	736122.0056	6173911.854
Western Rosewood Alectryon oleifolius	80	6	0	0	0	Dead tree with cracks	736417.7515	6173834.315

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	50	2	3	0	0	Dead branches	736115.472	6173913.102
Eremophila sp.	70	5	0	0	0	Dead tree with cracks	736591.2732	6173834.535
Eucalyptus sp.	65	1	1	0	0	In dead branches	736798.1997	6173795.15
Western Rosewood Alectryon oleifolius	35	1	0	0	0	Dead branch	733643.4961	6174366.506
Eucalyptus sp.	40	3	3	0	0	In dead branches	736779.7176	6173724.516
Eucalyptus sp.	35	2	3	0	0	Dead branches	736023.4602	6173938.454
Eucalyptus sp.	25	3	1	0	0		736746.3954	6173728.522
Black Box Eucalyptus largiflorens	32	1	0	0	0	Dead branches	726787.5255	6183784.009
Eucalyptus sp.	25	1	0	0	0	Dead stem with hollows	726840.4728	6183619.096
Eucalyptus sp.	25	2	0	0	0	Dead stem with hollows	726878.7307	6183594.278
Eucalyptus sp.	25	2	0	0	0	Live trunk and dead stem with hollows	726606.622	6184141.662
Black Oak Casuarina spp.	60	1	0	0	0	Live trunk with hollow	726520.1394	6184243.608
Eucalyptus sp.	60	2	2	0	0	Dead stem with hollows	727051.1416	6183205.379
Black Box Eucalyptus largiflorens	75	3	0	0	0	Broken live branches and dead stumps	726804.7146	6183751.741
Eucalyptus sp.	15	2	0	0	0	Dead stem with possible hollow	727064.0966	6183105.828
Black Oak Casuarina spp.	55	1	0	0	0	Live trunk with hollow	726526.7622	6184206.193
Black Box Eucalyptus largiflorens	75	3	2	0	0	Broken live branches and dead stumps	726825.3971	6183739.516
Eucalyptus sp.	15	1	0	0	0	Dead stem with hollows	726659.8885	6184113.19
Eucalyptus sp.	25	1	1	0	0	Dead stumps in live tree	726443.2612	6184405.461

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Black Oak Casuarina spp.	60	2	0	0	0	Live trunk with hollow	726565.7557	6184223.095
Stag	55	3	0	0	0	Dead tree	726455.1044	6184432.594
Eucalyptus sp.	25	1	2	0	0	Dead stem with hollow	726517.8467	6184304.534
Stag	55	3	0	0	0	Dead tree	726427.5658	6184398.033
Eucalyptus sp.	30	1	1	0	0	Dead stem with hollows	726828.642	6183566.643
Eucalyptus sp.	35	1	0	0	0	Dead stem with hollow	727023.7437	6183208.624
Eucalyptus sp.	35	1	1	0	0	Dead stem with hollows	726810.8755	6183661.819
Black Oak Casuarina spp.	45	2	1	0	0	Live trunk with hollow	726563.9281	6184132.123
Eucalyptus sp.	30	2	2	0	0	Dead stem with hollows	726812.798	6183656.95
Black Box Eucalyptus largiflorens	65	2	0	0	0	Broken dead branches	726851.0309	6183736.319
Eucalyptus sp.	20	1	1	0	0	Dead stem with hollows	726625.3774	6184121.923
Mulga sp.	55	1	0	0	0	Live trunk with hollow	726483.6227	6184273.942
Eucalyptus sp.	20	1	1	0	0	Live trunk and dead stem with hollows	726610.8637	6184141.978
Eucalyptus sp.	30	0	1	1	0	Dead stem with hollows	726844.3803	6183610.595
Black Box Eucalyptus largiflorens	75	3	1	1	0	Broken live branches and dead stumps	726804.6632	6183768.398
Black Oak Casuarina spp.	50	2	0	0	0	Live trunk and dead branches with hollows	726519.0109	6184233.783
Eucalyptus sp.	20	2	1	0	0	Dead stem with hollows	726668.9593	6184097.443
Eucalyptus sp.	50	1	1	0	0	Live trunk and dead stem with hollows	726600.9116	6184140.167

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	15	1	1	0	0	Dead stem with hollow	726379.9155	6184533.827
Eucalyptus sp.	25	1	0	0	0	Dead stem with hollows	726817.3444	6183631.488
Eucalyptus sp.	65	1	2	0	0	Dead stem with hollows	726899.0469	6183595.4
Eucalyptus sp.	30	0	1	0	0	Dead stem with hollows	726549.8659	6184240.927
Eucalyptus sp.	20	0	1	0	0	Dead stem with hollow	726570.4027	6184296.907
Eucalyptus sp.	30	1	0	0	0	Dead stem with possible hollow	727029.8743	6183194.124
Eucalyptus sp.	35	1	1	0	0	Dead stem with hollows	727035.4191	6183197.828
Stag	15	1	0	0	0	Dead tree	727047.5995	6183130.831
Eucalyptus sp.	15	1	0	0	0	Dead stem with hollows	726813.9819	6183619.341
Black Box Eucalyptus largiflorens	55	2	1	0	0	~ 5 cm wide Hole in trunk shows signs of current use. Chew marks and hair stuck in sap.	726737.3306	6183843.854
Black Oak Casuarina spp.	50	1	1	0	0	Live trunk and dead branches with hollows	726518.0003	6184248.836
Black Box Eucalyptus largiflorens	80	2	1	0	0	Broken live branches and dead stumps	726783.0159	6183790.581
Eucalyptus sp.	30	1	1	0	0	Dead stem with hollows	726853.7394	6183564.737
Eucalyptus sp.	45	2	0	0	0	Dead stumps in live tree	726433.7394	6184414.432
Eucalyptus sp.	75	0	2	1	0	Dead stumps in live tree	726455.2847	6184350.579
Black Box Eucalyptus largiflorens	65	2	2	0	0	Broken live branches	726845.6053	6183727.467
Black Box Eucalyptus largiflorens	70	1	1	0	0	Dead branches	726796.2676	6183777.499

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	45	2	1	0	0	Live trunk and dead stem with hollows	726592.8134	6184136.217
Eucalyptus sp.	45	0	1	0	0	Dead stem with hollows	726898.7568	6183591.255
Eucalyptus sp.	30	1	1	0	0	Dead stem with hollows	726548.0603	6184251.526
Eucalyptus sp.	45	2	0	0	0	Dead stem with hollows	726908.2476	6183508.541
Black Box Eucalyptus largiflorens	32	4	2	0	0	Dead tree	726727.6015	6183813.994
Eucalyptus sp.	20	0	2	0	0	Eucalyptus sp.	726593.0258	6184217.563
Eucalyptus sp.	20	3	0	0	0	Hollow logs at base of tree	727067.3014	6183226.825
Eucalyptus sp.	8	0	1	0	0	Eucalyptus sp.	726629.9803	6184103.691
Eucalyptus sp.	20	3	1	0	0	Eucalyptus sp.	726457.9079	6184405.713
Eucalyptus sp.	8	1	0	0	0	Eucalyptus sp.	727106.6829	6183087.195
Eucalyptus sp.	20	1	0	0	0	Eucalyptus sp.	726469.3113	6184403.841
Black Box Eucalyptus largiflorens	20	0	1	0	0	Black Box	726500.0072	6184424.975
Black Box Eucalyptus largiflorens	10	0	1	0	0	Black Box	726511.2382	6184404.076
Eucalyptus sp.	20	2	0	0	0	Eucalyptus sp.	726466.7995	6184415.708
Eucalyptus sp.	10	1	0	0	0	Eucalyptus sp.	726497.9652	6184382.606
Eucalyptus sp.	10	0	3	0	0	Eucalyptus sp.	727118.0869	6183123.149
Eucalyptus sp.	10	4	0	0	0	Eucalyptus sp.	726595.9366	6184245.583
Eucalyptus sp.	15	0	2	0	0	Eucalyptus sp.	726870.382	6183598.928
Eucalyptus sp.	8	1	0	0	0	Eucalyptus sp.	727101.8793	6183121.523
Eucalyptus sp.	15	2	1	0	0	Eucalyptus sp.	726847.3718	6183599.156
Eucalyptus sp.	10	1	0	0	0	Eucalyptus sp.	726484.262	6184400.212
Eucalyptus sp.	20	3	2	0	0	Eucalyptus sp.	726887.7328	6183612.084
Eucalyptus sp.	30	0	3	0	0	Eucalyptus sp.	726920.9014	6183554.042
Eucalyptus sp.	15	5	0	0	0	Eucalyptus sp.	726632.5607	6184176.974

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	20	3	0	0	0	Hollow logs at base of tree	727053.914	6183229.392
Eucalyptus sp.	15	1	0	0	0	Eucalyptus sp.	726846.5831	6183613.732
Eucalyptus sp.	10	1	1	0	0	Hollow logs at base of tree	726509.0398	6184308.127
Eucalyptus sp.	40	0	1	1	0	Hollow logs at base of tree	726836.6802	6183746.858
Eucalyptus sp.	20	0	1	0	0	Eucalyptus sp.	726486.8349	6184429.968
Black Box Eucalyptus largiflorens	40	3	0	3	0	Black Box	726775.1836	6183890.152
Eucalyptus sp.	8	0	1	0	0	Eucalyptus sp.	726614.1671	6184162.677
Eucalyptus sp.	10	3	0	0	0	Eucalyptus sp.	726487.7798	6184397.181
Eucalyptus sp.	8	1	0	0	0	Eucalyptus sp.	727132.2028	6183026.165
Black Box Eucalyptus largiflorens	8	2	0	0	0	Black Box	726649.7871	6184097.398
Eucalyptus sp.	8	1	0	0	0	Eucalyptus sp.	727074.594	6183141.366
Eucalyptus sp.	15	0	3	0	0	Eucalyptus sp.	726616.2161	6184189.339
Black Box Eucalyptus largiflorens	8	0	1	0	0	Black Box	726629.0379	6184110.159
Eucalyptus sp.	6	1	0	0	0	Hollow logs at base of tree	727050.1849	6183164.745
Eucalyptus sp.	30	0	3	0	0	Hollow logs at base of tree, no hollows in tree	726950.2459	6183515.474
Eucalyptus sp.	10	1	0	0	0	Eucalyptus sp.	726494.9824	6184396.906
Eucalyptus sp.	20	1	0	0	0	Eucalyptus sp.	726891.0428	6183609.032
Eucalyptus sp.	15	0	2	0	0	Eucalyptus sp.	726831.5043	6183639.617
Eucalyptus sp.	20	0	1	0	0	Eucalyptus sp.	726486.3437	6184421.125
Eucalyptus sp.	10	1	0	0	0	Hollow logs at base of tree	726533.5358	6184315.041
Eucalyptus sp.	30	2	3	0	0	Hollow logs at base of tree	727048.2449	6183206.676
Eucalyptus sp.	40	3	1	0	0	Hollow logs at base of tree	726826.0586	6183758.004

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	20	3	0	0	0	Eucalyptus sp.	726611.8825	6184170.025
Eucalyptus sp.	15	2	0	0	0	Eucalyptus sp.	726611.458	6184229.799
Eucalyptus sp.	15	0	1	0	0	Eucalyptus sp.	726588.6723	6184267.397
Eucalyptus sp.	10	2	0	0	0	Eucalyptus sp.	726498.1176	6184410.437
Eucalyptus sp.	10	0	1	0	0	Eucalyptus sp.	726834.8606	6183594.833
Eucalyptus sp.	20	4	1	0	0	Eucalyptus sp.	726458.6319	6184417.947
Eucalyptus sp.	10	0	1	0	0	Hollow logs at base of tree	726534.0852	6184324.633
Eucalyptus sp.	15	3	0	0	0	Eucalyptus sp.	726874.0815	6183604.18
Eucalyptus sp.	40	2	0	0	0	Eucalyptus sp.	726796.0758	6183838.947
Eucalyptus sp.	30	2	0	0	0	Hollow logs at base of tree	727043.7436	6183201.53
Eucalyptus sp.	15	0	3	0	0	Eucalyptus sp.	726843.2882	6183611.317
Eucalyptus sp.	40	2	0	0	0	Eucalyptus sp.	726824.7112	6183787.051
Eucalyptus sp.	40	0	4	0	0	Hollow log at base of tree	726851.7995	6183719.548
Eucalyptus sp.	20	5	0	0	0	Hollow logs at base of tree	727069.5439	6183230.694
Eucalyptus sp.	10	0	1	0	0	Hollow log at base of tree	726832.495	6183676.132
Eucalyptus sp.	10	1	1	0	0	Hollow logs at base of tree	726533.426	6184320.03
Eucalyptus sp.	20	3	0	0	0	Eucalyptus sp.	726483.2548	6184410.438
Eucalyptus sp.	20	1	1	0	0	Eucalyptus sp.	726507.3003	6184436.024
Black Box Eucalyptus largiflorens	8	3	0	0	0	Black Box	726655.7504	6184092.119
Eucalyptus sp.	20	3	1	0	0	Eucalyptus sp.	726588.3319	6184223.069
Eucalyptus sp.	8	1	0	0	0	Eucalyptus sp.	726657.4641	6184109.614
Eucalyptus sp.	20	3	0	0	0	Eucalyptus sp.	726461.8675	6184407.548
Eucalyptus sp.	10	4	0	0	0	Eucalyptus sp.	726510.7805	6184400.008
Eucalyptus sp.	8	1	0	0	0	Eucalyptus sp.	727253.2546	6182814.506
Eucalyptus sp.	40	1	0	0	0	Eucalyptus sp.	726794.9882	6183822.818
Eucalyptus sp.	8	0	1	0	0	Eucalyptus sp.	726623.5092	6184163.937

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Black Box Eucalyptus largiflorens	40	3	1	3	0	Striated Pardolote (*Pardalotus striatus*) using large hollow	726774.1747	6183854.952
Eucalyptus sp.	15	3	0	0	0	Eucalyptus sp.	726627.3731	6184170.772
Eucalyptus sp.	10	0	1	0	0	Hollow log at base of tree	726836.5391	6183658.332
Eucalyptus sp.	10	3	0	0	0	Hollow logs at base of tree	727086.1062	6183267.271
Eucalyptus sp.	30	4	1	0	0	Hollow logs at base of tree	727066.8036	6183217.928
Eucalyptus sp.	60	1	0	0	0	Dead stem with possible hollow	727051.1394	6183236.779
Eucalyptus sp.	70	2	2	0	0	Dead stumps on live branches	727074.6095	6183269.564
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737113.7759	6173713.835
Eucalyptus sp.	40	1	3	0	0	In dead branches and live branches	737070.3419	6173719.979
Eucalyptus sp.	20	1	0	0	0	In dead branches and live branches	737052.6056	6173707.691
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737109.0086	6173696.38
Eucalyptus sp.	40	0	1	0	0	In dead branches and live branches	737074.7437	6173708.517
Eucalyptus sp.	45	1	0	1	0	In dead branches and live branches	737082.6985	6173710.544
Eucalyptus sp.	25	2	1	0	0	In dead branches and live branches	737034.1211	6173709.202
Eucalyptus sp.	40	1	0	0	0	In dead branches and live branches	737044.5096	6173721.735
Eucalyptus sp.	30	1	1	0	0	In dead branches and live branches	737096.5738	6173709.881
Eucalyptus sp.	35	1	1	0	0	In dead branches and live branches	737098.6027	6173706.566
Eucalyptus sp.	40	2	0	0	0	In dead branches and live branches	737065.3394	6173714.856
Eucalyptus sp.	20	1	2	0	0	In dead branches and live branches	737030.4476	6173709.762

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	35	1	2	0	0	In dead branches and live branches	737055.0415	6173714.25
Eucalyptus sp.	35	2	0	0	0	In dead branches and live branches	737045.8638	6173715.712
Eucalyptus sp.	45	2	0	0	0	In dead branches and live branches	737101.572	6173704.729
Eucalyptus sp.	20	0	2	0	0	In dead branches and live branches	737046.3535	6173717.171
Eucalyptus sp.	20	1	1	0	0	In dead branches and live branches	737091.7639	6173703.43
Eucalyptus sp.	65	1	2	0	0	In dead branches and live branches	737135.2788	6173698.193
Eucalyptus sp.	35	2	2	0	0	In dead branches and live branches	737029.1961	6173717.336
Eucalyptus sp.	60	1	0	0	0	In dead branches and live branches	737025.4128	6173727.688
Eucalyptus sp.	30	1	0	0	0	In dead branches and live branches	737021.4701	6173715.969
Eucalyptus sp.	65	0	1	0	0	In dead branches and live branches	736982.7892	6173815.165
Eucalyptus sp.	65	1	1	1	0	In dead branches and live branches	736969.053	6173782.805
Eucalyptus sp.	50	2	4	0	0	In dead branches and live branches	737014.6875	6173807.734
Eucalyptus sp.	20	2	0	0	0	In dead branches and live branches	737006.0393	6173787.723
Eucalyptus sp.	35	5	4	0	0	In dead branches and live branches	736999.2303	6173807.804
Eucalyptus sp.	45	2	1	0	0	In dead branches and live branches	737005.9747	6173807.886
Eucalyptus sp.	65	1	2	0	0	In dead branches and live branches	736987.8602	6173789.55
Eucalyptus sp.	65	0	2	0	0	In dead branches and live branches	736985.1256	6173801.078
Eucalyptus sp.	30	1	1	0	0	In dead branches and live branches	736995.9515	6173797.594
Eucalyptus sp.	45	2	2	0	0	In dead branches and live branches	737008.4696	6173792.328

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	30	2	2	0	0	In dead branches and live branches	736994.2655	6173790.194
Eucalyptus sp.	20	2	0	0	0	In dead branches	737051.2223	6173771.264
Eucalyptus sp.	30	3	1	0	0	In dead branches	736991.2837	6173770.076
Eucalyptus sp.	30	0	3	0	0	In dead branches	736973.6086	6173765.278
Eucalyptus sp.	20	0	1	0	0	In dead branch	737002.0949	6173766.183
Eucalyptus sp.	20	2	0	0	0	In dead branches	737044.6214	6173767.591
Eucalyptus sp.	20	0	3	0	0	In dead branches	737055.2016	6173773.218
Eucalyptus sp.	30	0	2	0	0	In dead branches	736970.848	6173766.266
Eucalyptus sp.	30	0	1	0	0	In dead branches	736999.7961	6173783.129
Eucalyptus sp.	15	0	1	0	0	In dead branches	736975.4132	6173772.277
Eucalyptus sp.	20	1	2	0	0	In dead branches	737011.4958	6173760.357
Eucalyptus sp.	20	0	1	0	0	In trunk	737058.9029	6173756.893
Eucalyptus sp.	20	5	0	0	0	In dead branch	736996.8447	6173763.853
Eucalyptus sp.	20	3	0	0	0	In dead branches	737054.5885	6173776.118
Eucalyptus sp.	20	2	0	0	0	In dead branches	737037.4291	6173771.317
Eucalyptus sp.	20	0	1	0	0	In trunk	737057.6394	6173765.776
Eucalyptus sp.	30	3	0	0	0	In dead branches	736983.9871	6173784.384
Eucalyptus sp.	30	0	3	1	0	In dead branches	736975.198	6173782.772
Eucalyptus sp.	20	2	0	0	0	In dead branches	737028.8516	6173784.5
Eucalyptus sp.	20	1	1	0	0	In dead branches	737018.791	6173771.002
Eucalyptus sp.	30	3	1	0	0	In dead branches	736992.8683	6173775.893
Eucalyptus sp.	20	2	1	0	0	In dead branches	737023.2651	6173785.24
Eucalyptus sp.	15	0	1	0	0	In trunk	737063.7617	6173764.923
Eucalyptus sp.	50	2	2	0	0	In dead branches and live branches	737027.1007	6173805.78
Eucalyptus sp.	25	1	1	0	0	In dead branches and live branches	737027.0873	6173788.611
Eucalyptus sp.	25	1	1	0	0	In dead branches and live branches	737130.7914	6173768.023
Eucalyptus sp.	40	2	0	0	0	In dead branches and live branches	737139.8782	6173782.535

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	50	1	1	0	0	In dead branches and live branches	737069.5505	6173797.493
Eucalyptus sp.	60	0	1	0	0	In dead branches and live branches	737072.2441	6173780.391
Eucalyptus sp.	50	0	1	0	0	In dead branches and live branches	737130.0369	6173787.279
Eucalyptus sp.	45	2	1	0	0	In dead branches and live branches	737095.0692	6173796.013
Eucalyptus sp.	25	1	0	0	0	In dead branches and live branches	737135.2261	6173770.526
Eucalyptus sp.	40	1	1	0	0	In dead branches and live branches	737115.2138	6173786.157
Eucalyptus sp.	45	1	1	0	0	In dead branches and live branches	737116.6259	6173794.502
Eucalyptus sp.	40	0	1	0	0	In dead branches and live branches	737129.521	6173780.192
Eucalyptus sp.	25	2	0	0	0	Dead	737044.0489	6173786.371
Eucalyptus sp.	30	1	2	0	0	In dead branches and live branches	737093.0503	6173779.854
Eucalyptus sp.	55	1	0	0	0	In dead branches and live branches	737103.7919	6173775.976
Eucalyptus sp.	20	1	1	0	0	In dead branches	737086.8026	6173745.519
Eucalyptus sp.	20	2	0	0	0	In dead branches	737094.5701	6173769.233
Eucalyptus sp.	20	1	1	0	0	In dead branch and trunk	737110.7595	6173767.713
Eucalyptus sp.	15	1	0	0	0	In dead branch	737114.9522	6173752.169
Eucalyptus sp.	10	1	0	0	0	In dead branch	737133.513	6173757.118
Eucalyptus sp.	20	2	1	0	0	In dead branches	737077.6318	6173759.377
Eucalyptus sp.	20	2	0	0	0	In dead branches	737135.0553	6173772.402
Eucalyptus sp.	20	1	2	0	0	In dead branches	737130.5269	6173772.914
Eucalyptus sp.	20	0	1	0	0	In dead branch	737124.5046	6173750.05
Eucalyptus sp.	20	2	0	0	0	In dead branches	737123.5976	6173759.287
Eucalyptus sp.	50	1	1	0	0	In dead branches	737121.2992	6173717.874
Eucalyptus sp.	20	1	0	0	0	In dead branches	737037.5066	6173732.892
Eucalyptus sp.	20	1	0	0	0	In dead branch	737060.6533	6173741.611

Table A.1 Hollow bearing trees

Tree Species	DBH (cm)	Small Hollow	Medium Hollow	Large Hollow	Very Large Hollow	Notes	Easting	Northing
Eucalyptus sp.	30	0	3	0	0	In dead branch and live trunk	737054.1865	6173725.114
Eucalyptus sp.	30	1	0	0	0	In dead branch	737123.0998	6173736.193
Eucalyptus sp.	20	2	0	0	0	In dead branches	737039.8894	6173745.197
Eucalyptus sp.	20	3	1	0	0	In dead branch and live trunk	737051.1475	6173748.061
Eucalyptus sp.	30	2	1	0	0	In dead branches and live trunk	737070.0155	6173752.518
Eucalyptus sp.	20	4	1	0	0	In dead branches	737035.31	6173741.322
Eucalyptus sp.	20	1	0	0	0	In dead branch	737127.5847	6173729.555
Eucalyptus sp.	20	2	0	0	0	In dead branches	737065.0576	6173739.835
Eucalyptus sp.	20	2	0	0	0	In dead branch and live trunk	737062.4911	6173740.212
Eucalyptus sp.	20	2	0	0	0	In dead branches	737055.3277	6173745.366
Eucalyptus sp.	20	3	0	0	0	In dead branches	737032.1646	6173741.926
Eucalyptus sp.	20	3	0	1	0	In dead branches	737094.0411	6173736.008
Eucalyptus sp.	20	3	0	0	0	In dead branches	737068.5414	6173734.274
Eucalyptus sp.	28	0	2	0	0	In dead branches	737054.5347	6173740.756
Eucalyptus sp.	40	3	0	0	0	In dead branches and live branches	737165.0443	6173705.363
Eucalyptus sp.	20	1	0	0	0	In dead branch	737110.2974	6173750.436
Stag	28	0	1	0	0	Standing dead tree, chimney hollow	737111.4449	6173720.694
Eucalyptus sp.	30	1	0	0	0	In dead branches	737120.8021	6173724.049
Eucalyptus sp.	20	2	0	0	0	In dead branch	737111.559	6173734.183
Eucalyptus sp.	15	2	0	0	0	In dead branches	736976.5997	6173763.788
Eucalyptus sp.	15	1	0	0	0	In dead branch	736984.5038	6173763.592
Eucalyptus sp.	20	3	0	0	0	In dead branches	737082.7103	6173740.943
Eucalyptus sp.	30	2	0	0	0	In dead branch	737131.0628	6173733.513
Eucalyptus sp.	20	3	0	0	0	In dead branch	737106.894	6173747.2

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Appendix B- Clearing reports 2023 & 2024

BALRANALD WEST MINE

VEGETATION CLEARING REPORT 2023

Document Number: BVCR001

Revision	Details Of Review Or Changes	Date Created	Document Reference
0	Clearing report for 2023	5/1/2024	BVCR001

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INTRODUCTION

1. PURPOSE AND SCOPE

The purpose of this clearing report is to document vegetation clearing activites undertaken from 1 January 2023 to 31 December 2023 in accordance with the Commonweath Biodiversity Management Plan and the NSW Biodiversity Management Plan for the Balranald Mineral Sands West Balranald Mine.

2. BACKGROUND

Iluka has approval to develop a mineral sand mine in south-western (NSW), known as the Balranald Project. It includes construction, mining, primary processing, and rehabilitation of two linear mineral sand deposits, known as the West Balranald and Nepean deposits, located approximately 12 kilometres (km) and 66 km north-west of the town of Balranald, respectively.

Development consent (SSD-5285) was granted for the Balranald Project by a delegate of the NSW Minister for Planning under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 5 April 2016 (herein referred to as the consent). Approval was also granted under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2012/6509) by a delegate of the Commonwealth Minister for the Environment on 6 January 2017 (herein referred to as the Commonwealth approval). The project EIS was supported by a Biodiversity Assessment prepared by Niche Environment and Heritage Pty Limited in 2016 (Niche 2016).

Since the consent was granted, Iluka undertook some of the approved bulk sampling activity between 2016 and 2020, involving the extraction of the mineral ore from depth using trial underground mining within the approved disturbance area of the West Balranald deposit. On 21 December 2022, Iluka were granted approval to modify the consent (MOD1) to expand the underground mining trial which includes an additional area of disturbance to the approved Balranald Project area to enable primary processing of the ore into heavy mineral concentrate (HMC) and transport of HMC offsite for secondary processing at Iluka's facilities in Victoria and/or Western Australia (WA).

Construction of the West Balranald Mine Underground Mining Operation officially commenced on 7 August 2023. Construction involves the clearing of vegetation for the development of mining infrastructure.

3. METHODS

3.1 Corben's Long-eared Bat habitat

Hollow bearing tree (HBT) surveys were undertaken by EMM Consulting Pty Ltd (EMM) in September 2022 within MOD1 areas mapped as medium, medium-high tree hollow density, findings were reported in the Balranald Mineral Sands Project Modification 1 EPBC Biodiversity Pre-disturbance Survey Report (EMM 2022).

Identified HBTs were located using a hand held GPS and demarcated in the field with flagging tape for identification during clearing. A Site Disturbance Permit (BSDP008) was approved by the Senior Environmental Specialist and issued to the clearing contractor for clearing.

Clearing areas were demarcated in the field by a qualified surveyor with pegs and flagging tape prior to clearing works.

The surrounding vegetation was first cleared using an excavator around the HBTs before clearing the HBTs a minimum of 48 hours later. The felled HBTs were then relocated into stockpiles at least 24 hours after being felled.

Where HBTs were isolated (i.e. no surrounding woodland vegetation) they were pushed over and left in situ for 24 hours before being relocated to stockpiles.

3.2 Malleefowl habitat

Targeted Malleefowl surveys were undertaken by EMM in September 2022 and September 2023 within the MOD1 disturbance area and up to 200m around this area. Both the 2022 and 2023 pre-disturbance reports are included in Appendix 1.

Nine Malleefowl mounds were discovered during the 2022 and 2023 surveys within the MOD1 disturbance area and 200 m buffer. During August 2023 before commencement of the breeding season, four inactive mounds were removed with a skid steer loader to avoid Malleefowl usage during the 2023 breeding season. Five mounds remain within the disturbance area and 200 m buffer, with only one confirmed as active as of 7 September 2023 (Figure 2).

Iluka internal Site Disturbance Permit (BSDP008) was approved by the Iluka Senior Environmental Specialist and issued to the clearing contractor for clearing. A 200m buffer around the active Malleefowl mound was established and shown on clearing plans. No vegetation clearing is permitted within the 200m buffer until breeding has ceased and confirmed by a suitably qualified environmental professional.

Clearing areas were demarcated in the field by a qualified surveyor with pegs and flagging tape prior to clearing works. Disturbance boundaries were demarcated with orange flagged rope where clearing was undertaken less than 10m from the approved development consent boundary.

Clearing of an 8m wide access track was undertaken using a D6 bulldozer fitted with a scrub rake, vegetation was pushed to the adjacent edges of the track and left in situ. Further widening of the track will be undertaken in 2024 to clear to the full width of the road alignment.

3.3 Raptor nests

In September 2023, EMM conducted surveys to identify potential active raptor nests and reported findings in the Balranald Mineral Sands Project Malleefowl and raptor pre-disturbance survey report (EMM 2023). One small nest was located within MOD1 with four more located just outside MOD1, which would not be impacted by development.

Raptor nests were checked for the presence of eggs and chicks using a drone on 21 November 2023 by the Senior Environmental Specialist.

4. RESULTS

4.1 Corben's Long-eared Bat habitat clearing

Clearing of Corben's Long-eared Bat habitat and HBTs in the southern part of the mine access road occurred between the 29 November and 5 of December 2023. These HBTs were situated within cleared agricultural land and one small isolated patch of Spinifex Dune Mallee Woodland. A total of 18.73Ha of vegetation was cleared within Corben's Long-eared Bat habitat mapped as medium and medium-high hollow tree density.

Table 1 shows the dates surrounding vegetation was cleared, dates when HBTs were removed and the dates HBTs were relocated to stockpiles. Figure 1 shows the locations of HBTs.

Table 1- Details of HBTs removed

HBT identification number	Date surrounding vegetation cleared	Date HBTs felled	Date HBTs relocated to stockpiles
90,78,92,84,80,81,71,74,76,83,73,75,87,77,89	No surrounding vegetation	29/11/23	30/11/23
16,3,21	02/12/23	04/12/23	05/12/23

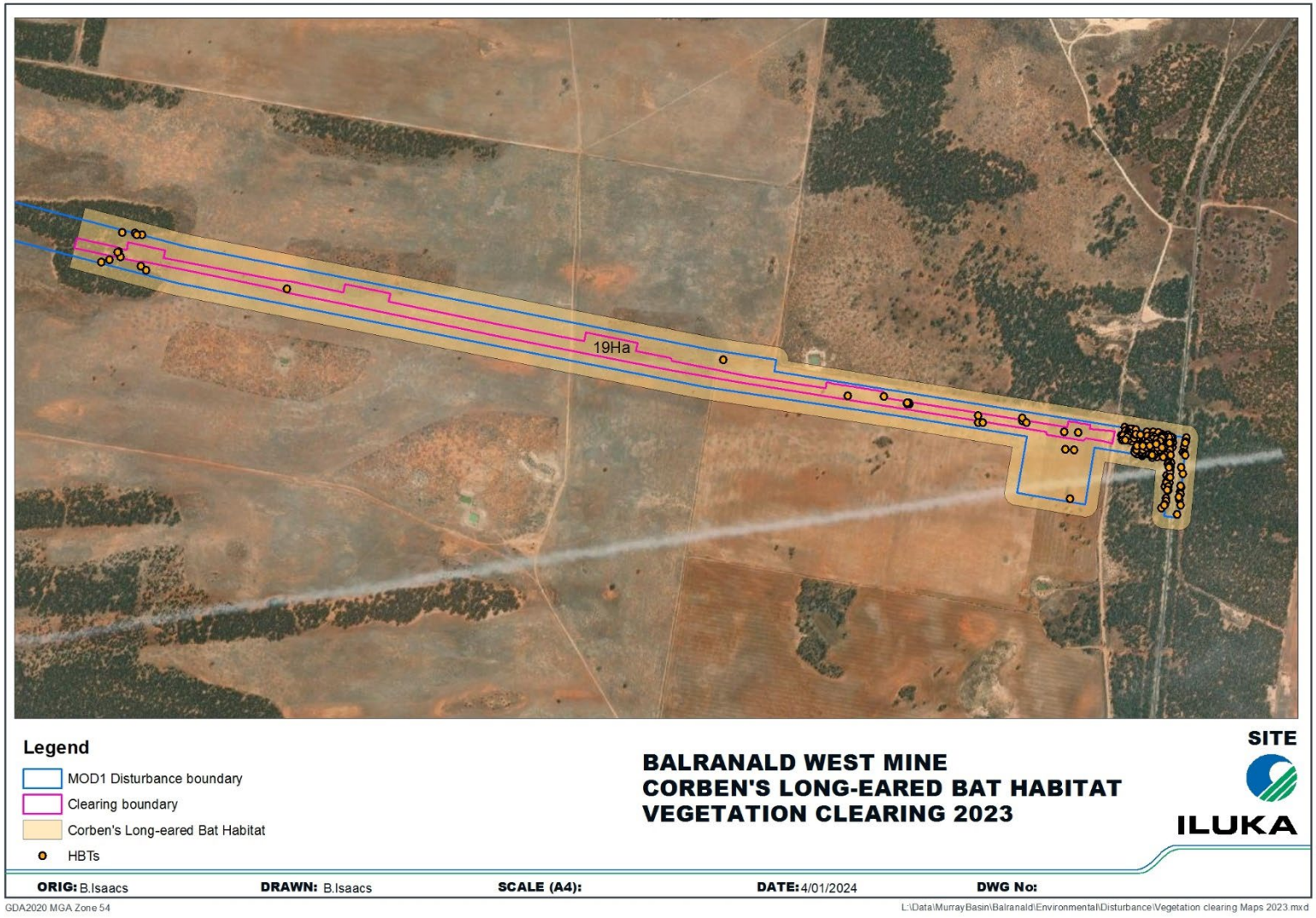

Figure 1- Corben's Long-eared Bat habitat clearing

4.2 Malleefowl habitat clearing

Malleefowl habitat clearing was undertaken between 14 August –21 August 2023. A total of 10.4Ha of vegetation was cleared for the future mine access road, comprising of both Spinifex Dune Mallee and Chenopod Sandplain Mallee (Figure 2). A total of four inactive mounds were destroyed during clearing activities and three mounds were avoided, with one mound (BWM2) later observed to be active during the October 2023 pre-disturbance surveys after vegetation clearing had occurred within 200m of the mound. This mound will continue to be protected until the end of the breeding season (end of February 2024) and any fledglings have left the mound, possibly up to the end of March 2024.

Table 2 shows the status of identified mounds at the end of 2023. Figure 2 shows the location of identified mounds.

Table 2- Malleefowl mound status

Mound identification number	Mound status	Mound active (Y/N)
BWM1	Destroyed	-
BWM2	Protected	Y
BWM3	Destroyed	-
BWM4	Destroyed	-
BWM5	Destroyed	-
BWM6	Protected	N
BWM7	Avoided	N

4.3 Raptor nest bearing trees

No trees were cleared in 2023 that contained rapture nests. One tree containing a raptor nest (NT1) is scheduled to be cleared outside the breeding season in 2024.

4.4 Non-threatened species habitat clearing

A total of 8.55Ha was cleared mainly comprising of cleared agricultural land and cleared-derived native grassland (Figure 3).

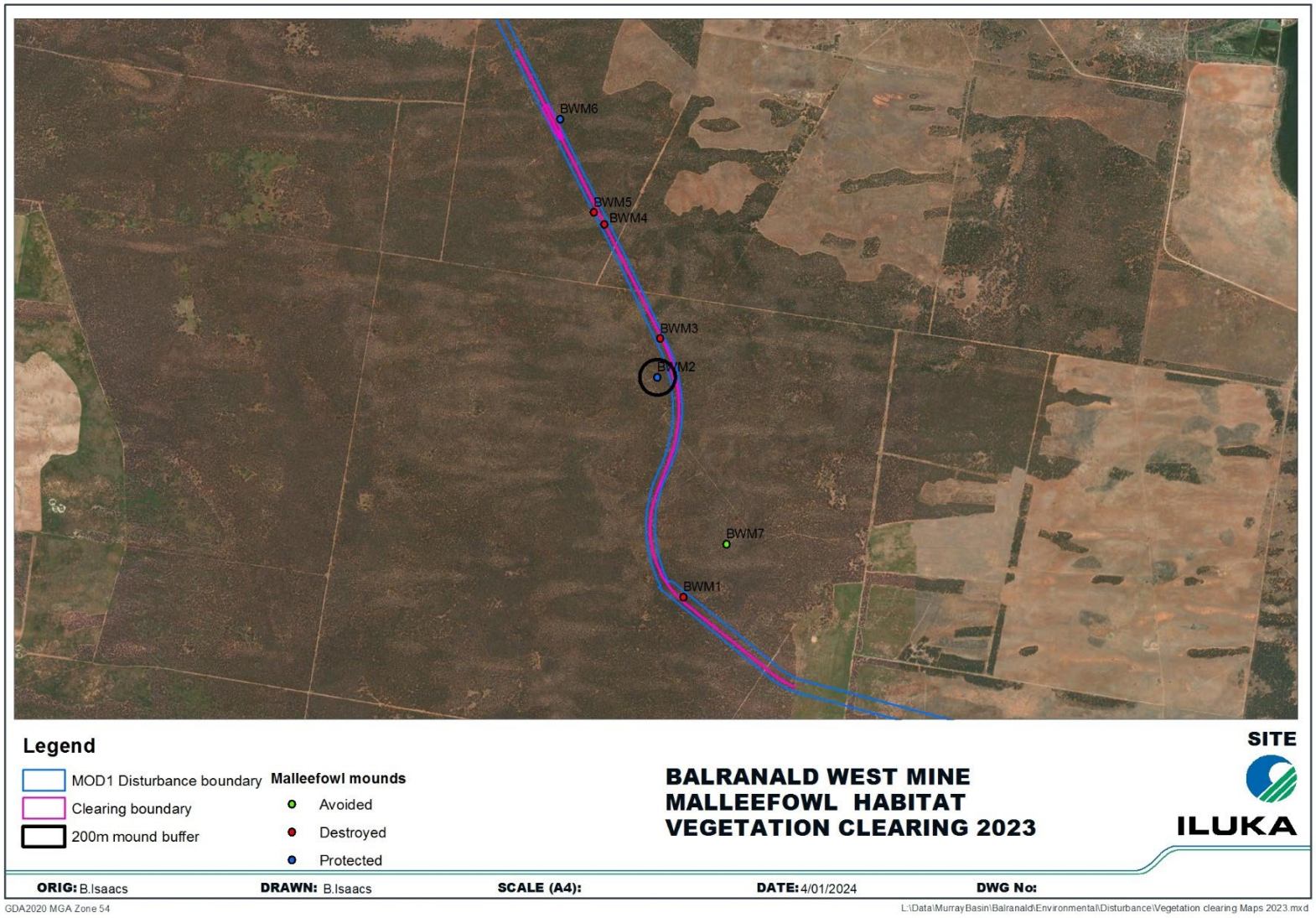

Figure 2- Malleefowl habitat clearing

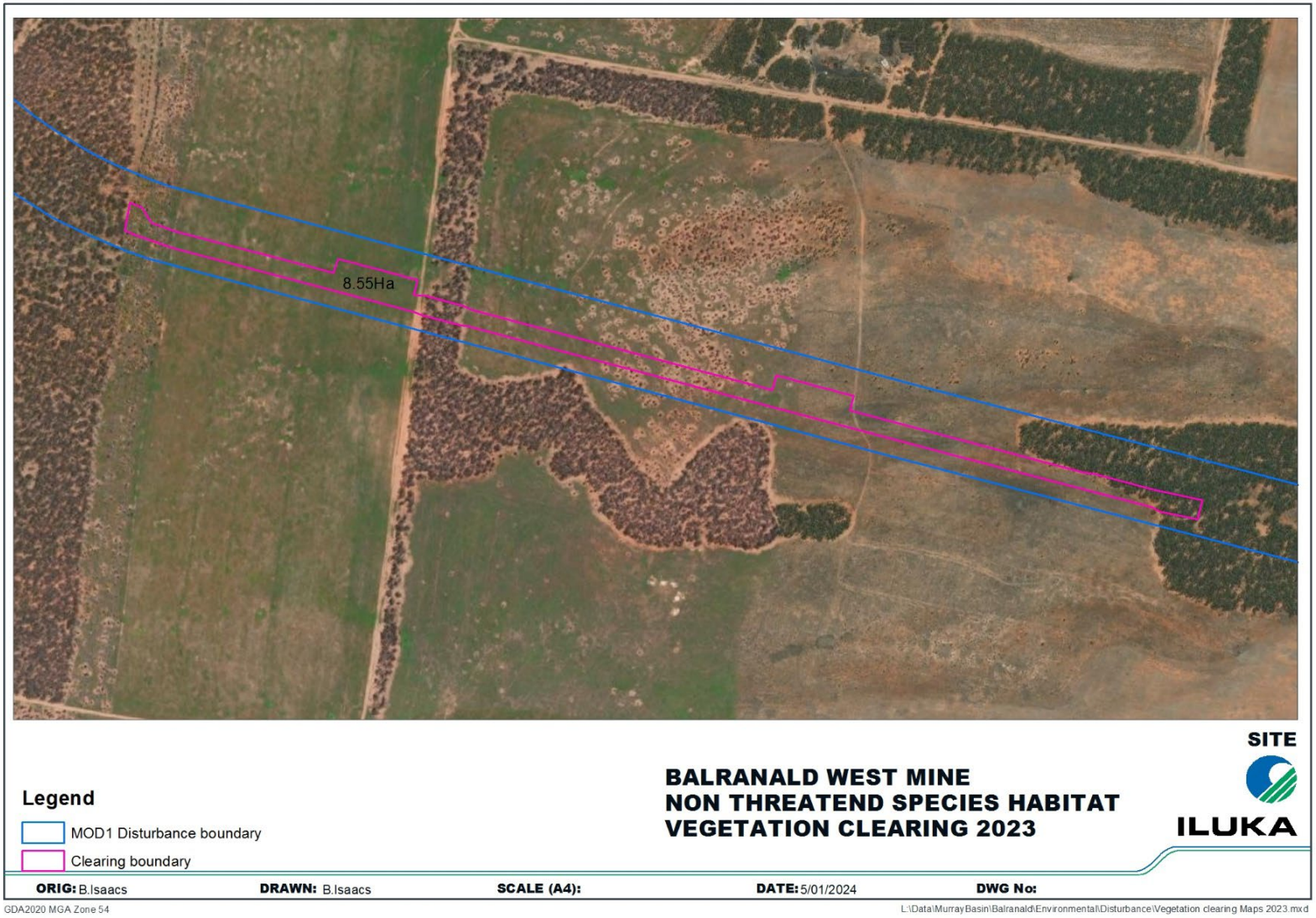

Figure 3- Non-threatened species habitat clearing

5. CONCLUSION

A total of 37.68Ha of vegetation was cleared during 2023 within the alignment of the mine access road, a breakdown of clearing for each habitat type is proved in Table 3. No threatened fauna species were directly impacted during clearing activities.

Table 3- Vegetation clearing summary

Threatened species habitat	Vegetation community(s)	Cleared (Ha)
Corben's Long-eared Bat	Cleared agricultural land	16.90
	Cleared-derived native grassland	1
	Spinifex Dune Mallee	0.83
Sub total		**18.73**
Malleefowl	Spinifex Dune Mallee	3.2
	Chenopod Sandplain Mallee	7.2
Sub total		**10.40**
Non-threatened species	Cleared agricultural land	2.65
	Cleared-derived native grassland	5
	Spinifex Dune Mallee	0.60
	Chenopod Sandplain Mallee	0.30
Sub total		**8.55**
Total area cleared		**37.68**

6. REFERENCES

EMM 2022, *Balranald Mineral Sands Project Modification 1 EPBC Biodiversity Pre-disturbance Survey Report,* EMM Consulting Pty Ltd.

EMM 2023, *Balranald Mineral Sands Project Malleefowl and raptor pre-disturbance survey report,* EMM Consulting Pty Ltd.

7. APPENDICES

Appendix 1 – Pre-disturbance reports 2022-2023

Appendix 2 – Photographs of clearing works

APPENDIX 2- PHOTOGRAPHS OF CLEARING WORKS


POTTER

BALRANALD WEST MINE

VEGETATION CLEARING REPORT 2024

Document Number: BVCR002

Revision	Details Of Review Or Changes	Date Created	Document Reference
0	Clearing report for 2024 (1 Jan to 31 Aug)	31/8/2024	BVCR002

Iluka Resources Limited
ABN 34 008 675 018
L17, 240 St Georges Terrace Perth WA

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1. PURPOSE AND SCOPE

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2. BACKGROUND

Iluka has approval to develop a mineral sand mine in south-western (NSW), known as the Balranald Project. It includes construction, mining, primary processing, and rehabilitation of two linear mineral sand deposits, known as the West Balranald and Nepean deposits, located approximately 12 kilometres (km) and 66 km north-west of the town of Balranald, respectively.

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Since the consent was granted, Iluka undertook some of the approved bulk sampling activity between 2016 and 2020, involving the extraction of the mineral ore from depth using trial underground mining within the approved disturbance area of the West Balranald deposit. On 21 December 2022, Iluka were granted approval to modify the consent (MOD1) to expand the underground mining trial which includes an additional area of disturbance to the approved Balranald Project area to enable primary processing of the ore into heavy mineral concentrate (HMC) and transport of HMC offsite for secondary processing at Iluka's facilities in Victoria and/or Western Australia (WA).

Construction of the West Balranald Mine Underground Mining Operation officially commenced on 7 August 2023. Construction involves the clearing of vegetation for the development of mining infrastructure.

3. METHODS

3.1 Corben's Long-eared Bat habitat

Hollow bearing tree (HBT) surveys were undertaken by EMM Consulting Pty Ltd (EMM) in September 2022 within MOD1 areas mapped as medium, medium-high tree hollow density, findings were reported in the Balranald Mineral Sands Project Modification 1 EPBC Biodiversity Pre-disturbance Survey Report (EMM 2022).

Identified HBTs were located using a hand held GPS and demarcated in the field with flagging tape for identification during clearing. Two Site Disturbance Permits (BSDP008 & BSDP017) were approved by the ERCR Superintendent and issued to the clearing contractor for clearing.

Clearing areas were demarcated in the field by a qualified surveyor with pegs and flagging tape prior to clearing works.

The surrounding vegetation was first cleared using an excavator around the HBTs before clearing the HBTs a minimum of 48 hours later. The felled HBTs were then relocated into stockpiles at least 24 hours after being felled.

Where HBTs were isolated (i.e. no surrounding woodland vegetation) they were pushed over and left in situ for 24 hours before being relocated to stockpiles.

3.2 Malleefowl habitat

Targeted Malleefowl surveys were undertaken by EMM in September 2023 within the MOD1 disturbance area and up to 200m around this area. The 2023 pre-disturbance reports is included as Appendix 1.

Five mounds remain within the disturbance area and 200 m buffer, with only one confirmed as active as of 7 September 2023 (Figure 3). The next monitoring will take place in October 2024.

Iluka internal Site Disturbance Permit (BSDP008) was approved by the Iluka ERCR Superintendent and issued to the clearing contractor for clearing. A 200m buffer around the active Malleefowl mound was established and shown on clearing plans. No vegetation clearing is permitted within the 200m buffer until breeding has ceased and confirmed by a suitably qualified environmental professional.

The active mound was monitored by the Environmental Rehabilitation and Community Relations (ERCR) Superintendent using a remote camera to observe activity during the breeding season and to determine when breeding has ceased.

3.3 Raptor nests

In September 2023, EMM conducted surveys to identify potential active raptor nests and reported findings in the Balranald Mineral Sands Project Malleefowl and raptor pre-disturbance survey report (EMM 2023). One small nest was located within MOD1 with four more located just outside MOD1, which would not be impacted by development.

Raptor nests were checked for the presence of eggs and chicks using a drone on 21 November 2023 by the ERCR Superintendent.

4. RESULTS

4.1 Corben's Long-eared Bat habitat clearing

Clearing of Corben's Long-eared Bat habitat and HBTs in the northern part of the mine access road occurred between 14 February and 28 February 2024 (Figure 2). Clearing of Corben's Long-eared Bat habitat and HBTs in the southern extent of the mine access road occurred between 19 April and 24 April 2024 (Figure 1). The HBTs were situated within Spinifex Dune Mallee and Chenopod Sandplain Mallee Woodlands. A total of 10.77 Ha of vegetation was cleared within Corben's Long-eared Bat habitat mapped as medium and medium-high hollow tree density.

Table 1 shows the dates surrounding vegetation was cleared, dates when HBTs were removed and the dates HBTs were relocated to stockpiles. Figure 1 and Figure 2 shows the locations of HBTs.

Table 1- Details of HBTs removed

HBT identification number	Date surrounding vegetation cleared	Date HBTs felled	Date HBTs relocated to stockpiles
5, 8, 31, 34, 39, 40, 43, 48, 62, 65, 94, 95, 99, 100, 102, 103, 104, 105, 107, 108, 109, 111, 112, 113, 114, 115, 116, 118, 120, 123, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 165, 166, 167, 168, 169, 170, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203	19/04/2024	22/04/2024	24/04/2024
204, 207, 210, 218, 219, 221, 229, 231, 233, 236, 240, 246, 248, 253, 254, 256, 257, 259, 260, 261, 262, 265, 267, 268, 269, 270, 276, 283, 285, 288, 289, 292, 294, 295, 298, 301, 302, 305, 308, 310, 311, 321, 322, 324, 326, 327, 328, 329, 330, 333, 335	25/02/2024	28/02/2024	29/02/2024
214, 318 330	14/02/2024 15/02/2024	20/02/202 20/02/2024	27/02/2024 27/02/2024
264, 271, 274, 290, 293	20/02/2024	24/02/2024	27/02/2024
205, 206, 209, 225, 227, 232, 238, 239, 255, 260, 273, 275, 277, 281, 282, 299, 300, 303, 312, 315, 319, 320, 331, 337, 339, 340	25/02/2024	28/02/2024	29/02/2024

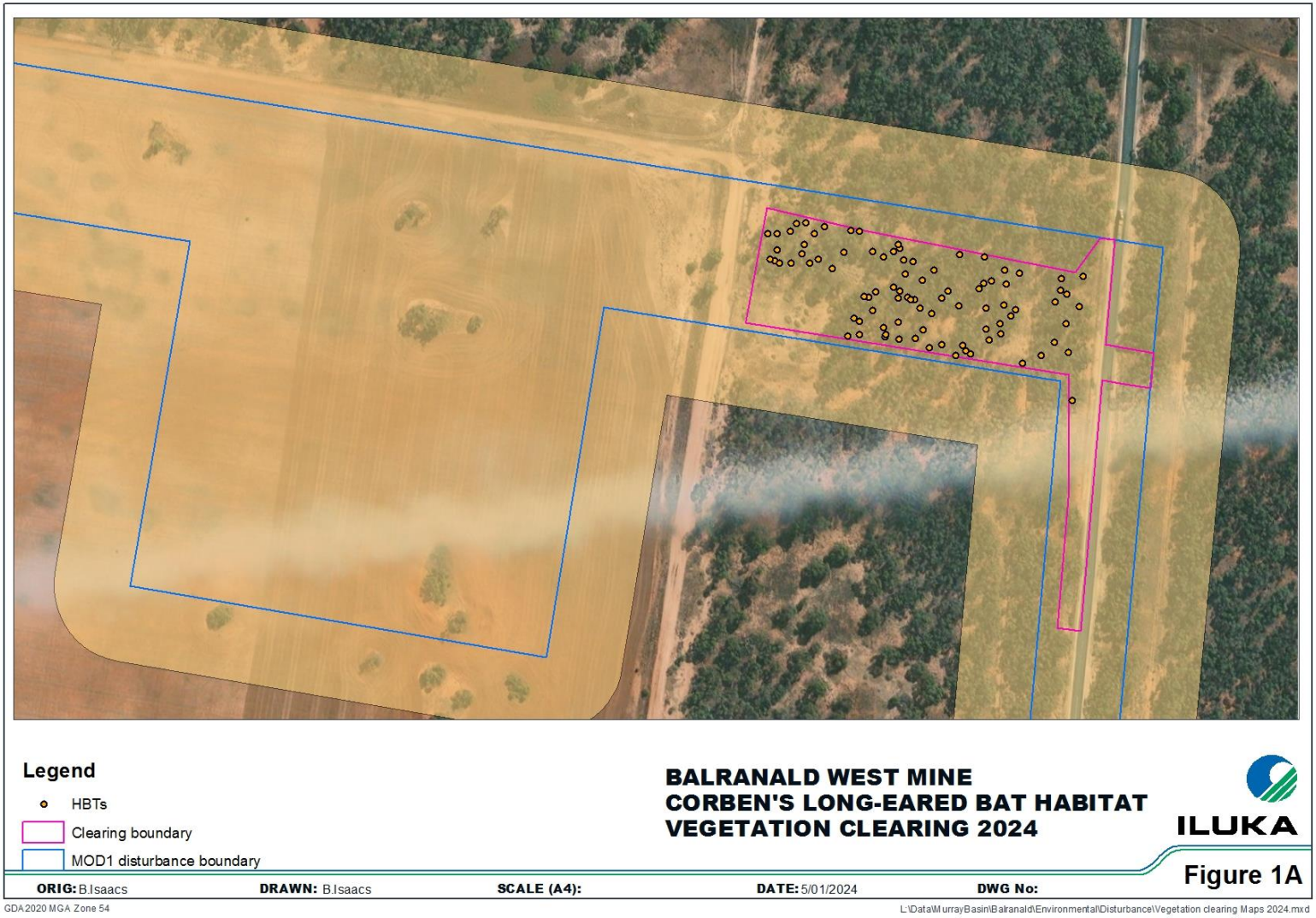


Figure 1- Corben's Long-eared Bat habitat clearing 1A

Figure 2- Corben's Long-eared Bat habitat clearing 1B

4.2 Malleefowl habitat clearing

Malleefowl habitat clearing was undertaken between 14 January –22 February 2024. A total of 45.8 Ha of vegetation was cleared for the future mine access road, comprising of both Spinifex Dune Mallee and Chenopod Sandplain Mallee (Figure 3). One mound (BWM2) was observed to be active during the September 2023 pre-disturbance surveys. This mound was protected with a 200m buffer until no mound activity was observed on remote camera for 5 consecutive days and the mound was deemed inactive from 9 April 2024, work activities within the 200m were completed on 22 April 2024.

Table 2 shows the status of identified mounds at the end of vegetation clearing in 2024. Figure 3 shows the location of identified mounds.

Table 2- Malleefowl mound status

Mound identification number	Mound status	Mound active (Y/N)
BWM1	Destroyed 2023	-
BWM2	Protected	N
BWM3	Destroyed 2023	-
BWM4	Destroyed 2023	-
BWM5	Destroyed 2023	-
BWM6	Protected	N
BWM7	Avoided by development	N

4.3 Raptor nest bearing trees

One tree containing a raptor nest (NT1) was cleared outside the breeding season in February 2024.

4.4 Non-threatened species habitat clearing

A total of 74.8 Ha was cleared mainly comprising of cleared agricultural land, Pearl Bluebush Shrubland, Old Man Saltbush Shrubland and Disturbed Annual Saltbush Forbland on Clay Plains (Figure 4).

4.5 Fenceline clearing

Approximately 5 ha was cleared for a new livestock fence along various sections of the mine access road (Figure 5). The average width of the clearing was approximately 8m.

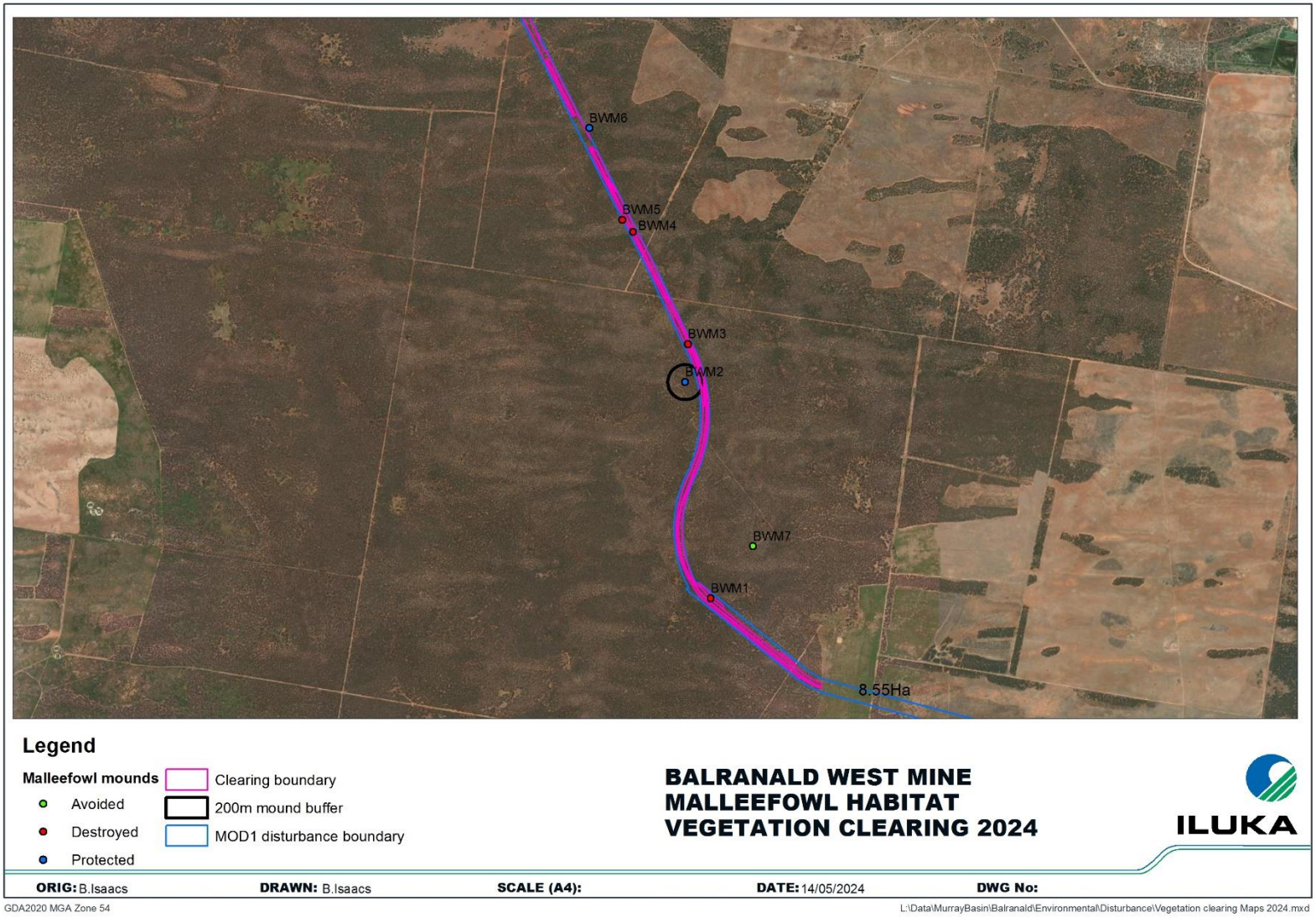


Figure 3- Malleefowl habitat clearing

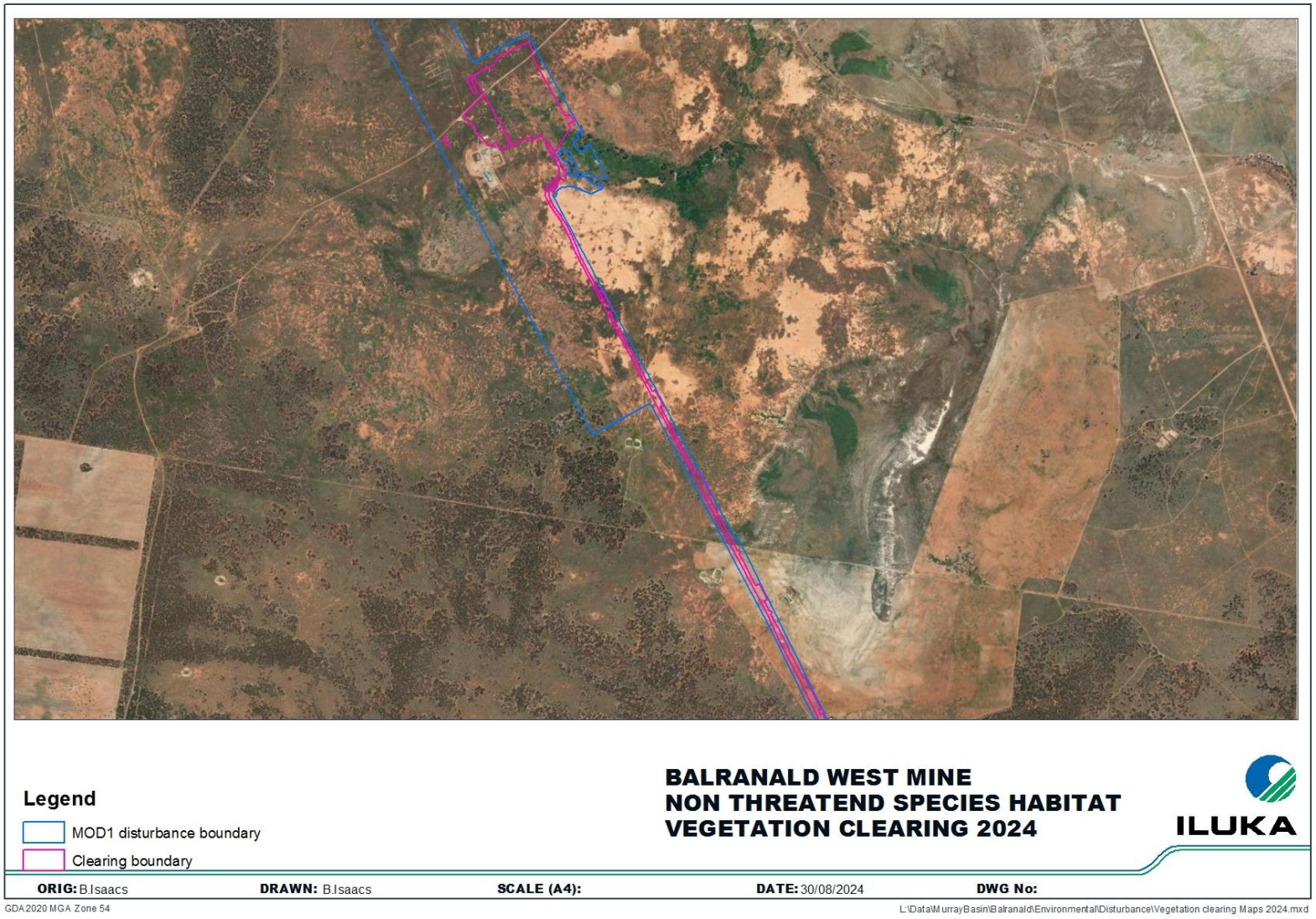


Figure 4- Non-threatened species habitat clearing

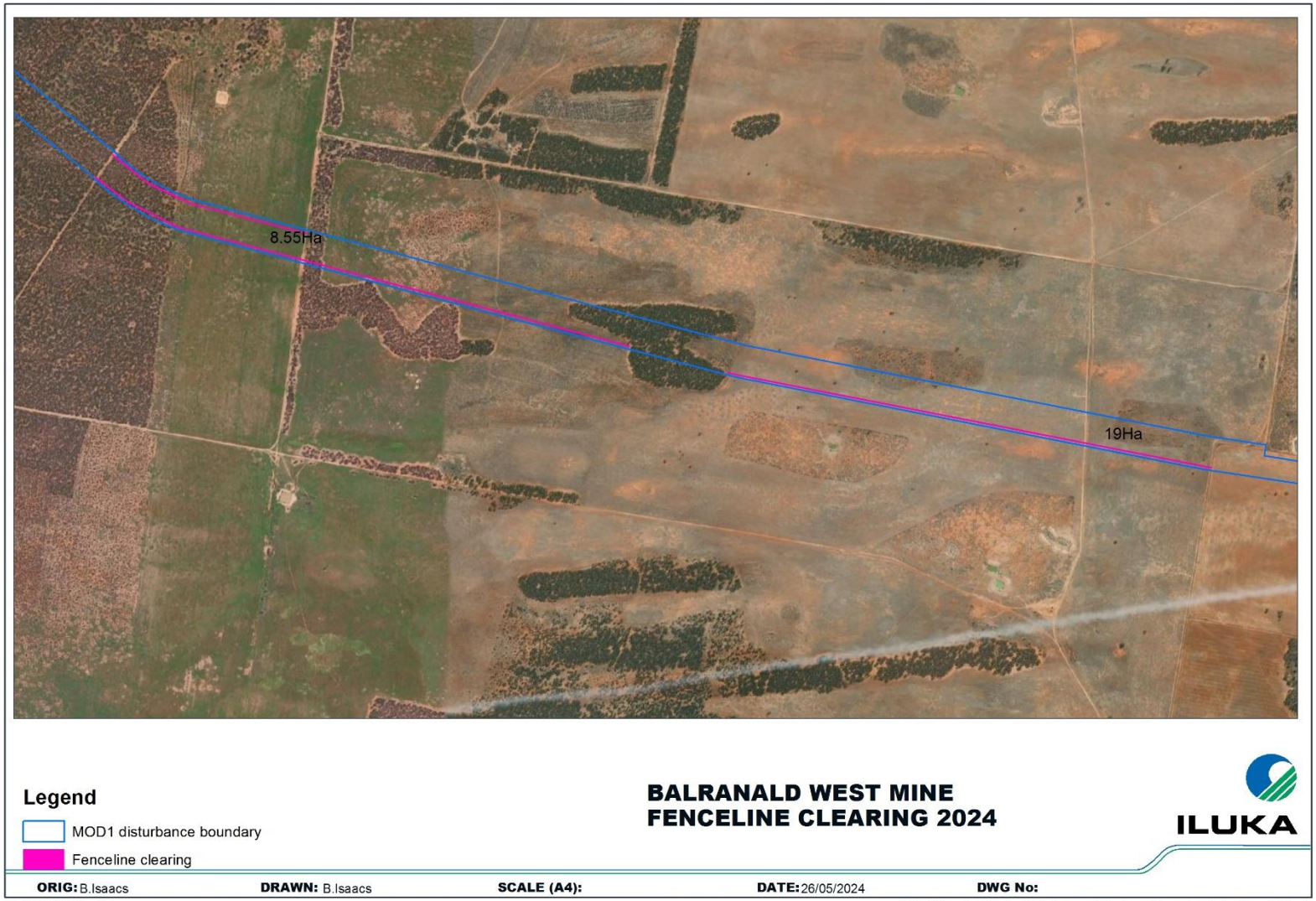


Figure 5- Fenceline clearing

5. CONCLUSION

A total of 136.4Ha of vegetation was cleared during 2024 (1 January to 31 August) within the alignment of the mine access road and processing plant area, a breakdown of clearing for each habitat type is provided in Table 3. No threatened fauna species were directly impacted during clearing activities.

Table 3- Vegetation clearing summary

Habitat	Vegetation community(s)	Cleared (Ha)
Corben's Long-eared Bat	Chenopod Sandplain Mallee	3.45
	Cleared-derived native grassland	3.87
	Spinifex Dune Mallee	2.15
	Belah - Pearl Bluebush Woodland	0.6
	Black Box Grassy Open Woodland	0.7
Sub total		**10.77**
Malleefowl	Spinifex Dune Mallee	11.7
	Chenopod Sandplain Mallee	34.1
Sub total		**45.8**
Non-threatened species	Cleared agricultural land	8
	Flat Open Claypan / Derived Sparse Shrubland	7.65
	Pearl Bluebush Low Open Shrubland	49.35
	Old Man Saltbush Shrubland	10.2
Fencelines	Spinifex Dune Mallee	0.15
	Chenopod Sandplain Mallee	0.9
	Cleared/Agricultural (crops, vineyards, weedy fallow)	2.6
	Cleared/Derived Native Grassland/Shrubland	0.95
Sub total		**79.8**
Total area cleared		**136.4**

6. REFERENCES

EMM 2023, *Balranald Mineral Sands Project Malleefowl and raptor pre-disturbance survey report,* EMM Consulting Pty Ltd.

7. APPENDICES

Appendix 1 – Pre-disturbance reports 2023

Appendix 2 – Photographs of clearing works

APPENDIX 2- PHOTOGRAPHS OF CLEARING WORKS

Mine access road clearing (March 2024)

Processing plant area (March 2024)

Active Malleefowl mound BWM2 (January 2024)

Appendix C- Incident notification

25th May 2024

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090, Canberra ACT 2601, Australia

ATT: EPBC Monitoring Division

Subject: Notification of environmental incident at Balranald Mineral Sands Mine (EPBC Ref 2012-6509)

Iluka Resources Limited (Iluka) advises the Department in accordance with Condition 11K and 11L of EPBC Act Referral 2012-6509 (the Approval) of an environmental incident that occurred on 23 May 2024.

Nature of incident:

On the 23rd May a contractor working for Iluka was clearing dense Chenopod Sandplain Mallee Woodland with an excavator for a new livestock/boundary fence-line adjacent the mine access road within the approved disturbance boundary (Appendix 1- Figure 1A).

At around 1:00pm on the 23rd May, the digger operator realised he had gone outside the clearing area by missing the pegged alignment.

Immediate actions taken:

- Operator notified Iluka site supervisor, who notified the Environmental Superintendent;
- Environmental Superintendent assessed the area on 24th May at 8:30am and identified clearing had occurred outside the approved disturbance boundary;
- All clearing works were suspended until further notice; and
- GPS coordinates and photographs were taken of the clearing.

Preliminary investigation:

- Approximately (0.13ha) of clearing had occurred outside the approved disturbance boundary (Appendix 1- Figure 1B) This is a non-compliance with Part A Condition 1 of the Approval.
- No cultural heritage sites, threatened species, fauna or threatened ecological communities were impacted by the clearance;
- The approved clearance path was pegged, with a 10m offset from the disturbance boundary, although spacing of pegs could have impacted their visibility in the dense vegetation;
- The GPS spatial files for the clearing path were not loaded into the contractor's excavator as per Iluka's internal Site Disturbance Permit requirement.

Mitigation of impacts:

- It is proposed that fence alignment will follow the cleared area outside the approval boundary as so no further clearing required and no net increase in disturbance or net loss of biodiversity.

- The total disturbance footprint of the approval area is 9,789ha, the amount cleared outside the approval area is 0.13ha. The amount of un-authorised clearing would have negligible contribution to overall cumulative biodiversity impacts.

Incident investigation:

An incident investigation using Incident Cause Analysis Method (ICAM) will be conducted 28 May 2024 to establish the incident root causes and identify preventative actions to ensure no recurrence.

The outcomes of the investigation and any actions for improvement will be reported to the Department in accordance with Condition 11M of the Approval.

Should you wish to discuss any details of the incident please contact Brendan Isaacs, Iluka's Environmental Rehabilitation and Community Relations Superintendent.

Yours faithfully

Brendan Isaacs

Environmental Rehabilitation & Community Relations Superintendent

Iluka Resources Limited

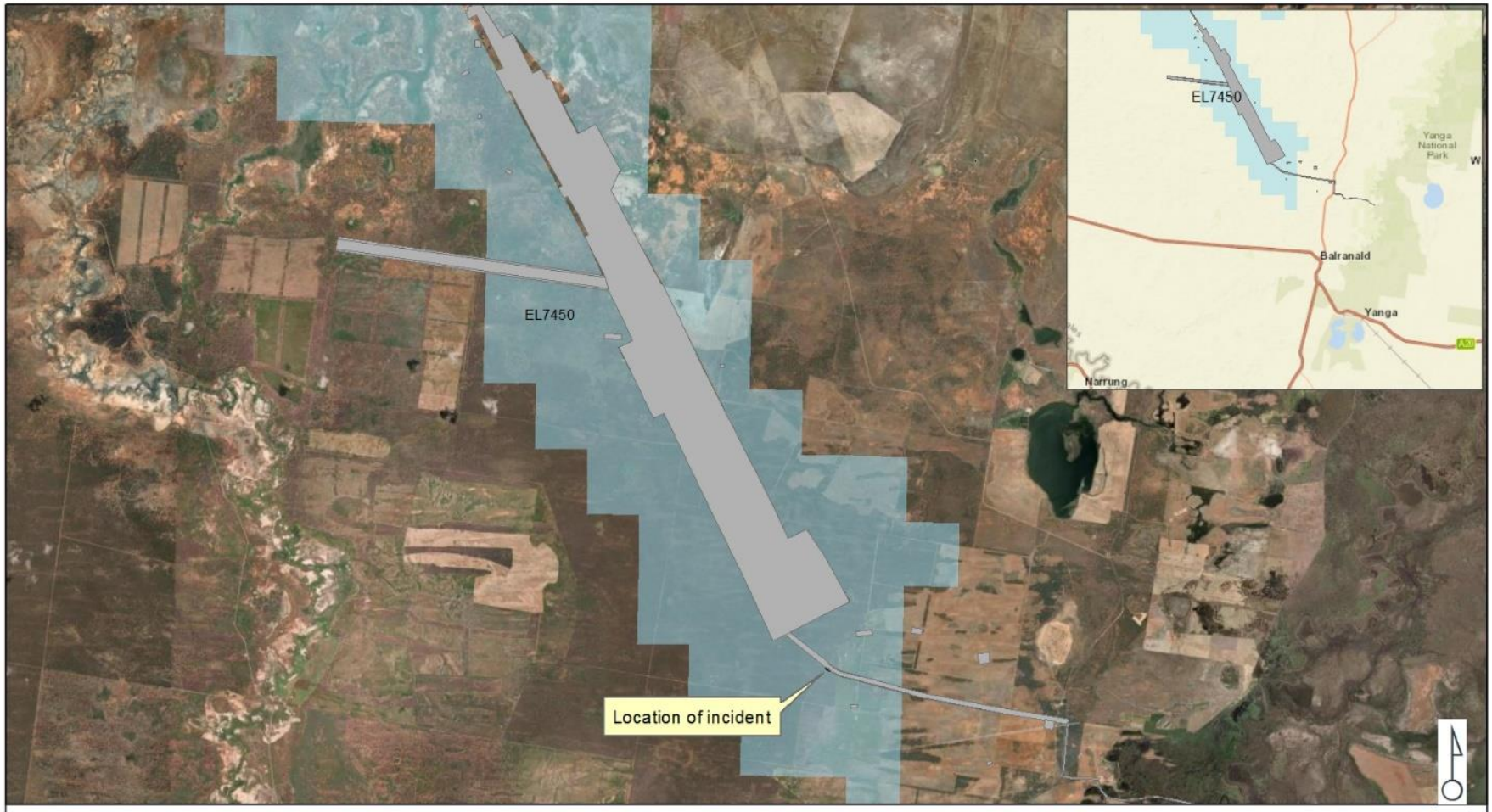
99 Church Street, Balranald NSW 2715 |PO Box 241, Balranald NSW 2715

Mobile: 0455 470 233

Email: **Brendan.Isaacs@Iluka.com**

APPENDIX 1

ILUKA



Legend

- Approved Project Disturbance Boundary
- Exlporation Lease EL7450
- Clearing design
- Unauthorised clearing

BALRANALD MINERAL SANDS MINE

ILUKA

INCIDENT
UN-AUTHORISED VEGETATION CLEARANCE

ORIG: B.Isaacs **DRAWN:** B.Isaacs **SCALE (A4):** **DATE:** 25/05/2024 **DWG No:** **FIGURE:** 1A

GDA2020 MGA Zone 54

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ILUKA

Legend

- Approved Project Disturbance Boundary
- Exlporation Lease EL7450
- Clearing design
- Unauthorised clearing

BALRANALD MINERAL SANDS MINE

ILUKA

INCIDENT
UN-AUTHORISED VEGETATION CLEARANCE

ORIG: B.Isaacs **DRAWN:** B.Isaacs **SCALE (A4):** **DATE:** 25/05/2024 **DWG No:**

FIGURE: 1B

GDA 2020 MGA Zone 54

L:\Data\MurrayBasin\Balranald\Environmental\Clearing plans & Permits\Land Disturbance Permits\BSDP018\Unauthorised clearing.mxd

Photo 1- Mallee trees spread back over cleared area

Appendix D- Notification of commencement of the action

14 August 2023

Iluka Resources Limited

Level 17, 240 St Georges Terrace
Perth, WA, 6000

GPO Box U1988
Perth, WA, 6845

James Newman
Senior Assessment Officer
Department of Climate Change, Energy, the Environment and Water | Nature Positive Regulation Division
Environment Assessments (Vic, Tas) & Post Approvals

BALRANALD MINERAL SANDS PROJECT (EPBC ACT Ref 2012/6509)- COMMENCEMENT OF THE ACTION

Dear James,

Please accept this letter as notification for the commencement of the action in accordance with Condition 8 of EPBC Act Approval 2012/6509.

Iluka commenced the action on 9 August 2023, for the construction of the Underground Mining Trial.

Development to be carried out during construction includes:

- clearing of vegetation and stripping of topsoil and subsoil;
- process water, potassium amyl xanthate (PAX) and fines dams;
- underground mining infrastructure;
- temporary stockpiles (topsoil, subsoil and overburden);
- timber stockpiles (felled vegetation);
- hardstand and laydown areas;
- site offices, warehousing, workshops, amenities and carparking;
- services and utilities infrastructure;
- fuel storage and dispensing area;
- telecommunications tower;
- mine access road and accommodation camp; and
- internal access tracks and roadway.

Yours Sincerely

Brendan Isaacs | Senior Environmental Specialist | Balranald NSW
Iluka Resources Limited
78 Market Street, Balranald NSW 2715 |PO Box 241, Balranald NSW 2715
Mobile 0455 470 233

ILUKA

Appendix E- Biodiversity Management Plan commitments and implementation

Environmental management measure		Implementation comment
Pre-disturbance surveys	Pre-disturbance surveys conducted by a suitably qualified environmental professional.	Pre-disturbance surveys were undertaken by EMM Consulting prior to vegetation clearance. Refer Appendix A.
Clearing limits	Clear delineation of vegetation clearing limits on the ground (e.g. helicopter tape, 'exclusion no-go' signage) prior to clearing.	Site disturbance permits (BSDP003, BSDP008 & BSDP017) included requirement for delineation of vegetation clearing limits and this was implemented.
	Restriction of vehicles and plant to designated roads and tracks.	Site disturbance permits (BSDP003, BSDP008 & BSDP017) included permit impact boundary and these were adhered to.
Clearing limits *(continued)*	Designated areas for stockpiling of cleared vegetation and topsoil.	Stockpile locations were identified in Site Disturbance Permits and topsoil stockpiles signposted and numbered sequentially.
	Awareness and education during the Iluka induction process.	Site Disturbance Permitting awareness training was delivered to clearing contractors. Records of training are maintained.
Timing restrictions on clearing	Malleefowl mounds identified during pre-disturbance surveys will be protected for the duration of that breeding season (September to end of February).	One identified active mound (Mound ID #4) was protected with a 200m buffer delineated with orange flagging and monitored by suitably qualified expert until breeding had ceased. This was confirmed using a remote camera and field observations, where no activity was observed for 5 consecutive days. Refer Appendix B.

Environmental management measure		Implementation comment
	Vegetation clearing in medium, medium-high or high tree hollow density is restricted to November to April (inclusive).	Clearing of Corben's Long-eared bat habitat within medium, medium-high or high tree hollow density was restricted to times outside breeding season (May to October inclusive) Refer Appendix B.
Staged clearing of breeding habitat and active roosts	'Exclusion no-go' signage will be installed at each active or potentially active Malleefowl mound identified during pre-disturbance surveys. The no-go area will comprise a 200 m circular 'no go' exclusion buffer around the mound.	One identified active mound (Mound ID #4) was protected with a 200m buffer delineated with orange flagging and monitored by suitably qualified expert until breeding had ceased. Refer Appendix B.
	Each individual Malleefowl mound will be inspected by a suitably qualified environmental professional at the end of breeding season (February) to confirm that breeding has concluded.	One identified active mound (Mound ID #4) was protected with a 200m buffer delineated with orange flagging and monitored by suitably qualified expert until breeding had ceased. This was confirmed using a remote camera and field observations, where no activity was observed for 5 consecutive days. Refer Appendix B.
	Clearing of Malleefowl mounds and the 200 m buffer can occur following confirmation from a suitably qualified environmental professional that breeding has concluded at all identified active and potentially active mounds.	One identified active mound (Mound ID #4) was protected with a 200m buffer delineated with orange flagging and monitored by suitably qualified expert until breeding had ceased. This was confirmed using a remote camera and field observations, where no activity was observed for 5 consecutive days. Refer Appendix B. Clearing of the surrounding vegetation occurred within the 200m buffer occurred from 9th April. The inactive mound was left in-situ as it is located some 180m from the development footprint.
	All trees with hollows above 1 m height in Corben's Long-eared Bat habitat will be marked with a unique identifier prior clearing.	A pre-clearance inspection of hollow-bearing trees was undertaken by EMM Consulting in 2022. HBTs were given a unique identification number and marked with flagging tape or marking paint for clearing. Refer Appendix B.
Staged clearing of breeding habitat and active roosts *(continued)*	All non-hollow trees and trees with hollows below 1 m height within Corben's Long-eared Bat habitat will be cleared first.	A clearing report has been prepared for each clearing front within Corben's Long-eared Bat habitat, dates were recorded when non-hollow and hollow-bearing trees were cleared. Hollow bearing trees were first marked up before surrounding vegetation was cleared first. Refer Appendix B.

Environmental management measure		Implementation comment
	All trees with hollows above 1 m height in Corben's Long-eared Bat habitat will be retained for two nights after surrounding vegetation has been cleared, prior to being felled.	A clearing report has been prepared for each clearing front within Corben's Long-eared Bat habitat, dates were recorded when non-hollow and hollow-bearing trees were cleared. Hollow bearing trees were retained for two nights prior to being felled. Refer Appendix B.
Clearing supervision	A person with qualifications in environmental science, biology or ecology and demonstrated experience in Malleefowl management will be present prior to clearing activities in areas identified as '*moderate, high or very high Malleefowl habitat potential*' to confirm that breeding has concluded at all Malleefowl mounds prior to the commencement of mound clearing.	One identified active mound (Mound ID #4) was protected with a 200m buffer delineated with orange flagging and monitored by suitably qualified expert, with experience in Malleefowl management until breeding had ceased. This was confirmed using a remote camera and field observations, where no activity was observed for 5 consecutive days. Refer Appendix B.
Clearing supervision *(continued)*	All felled hollow-bearing timber will be left in-situ for 24 hours to allow hollow-dependent fauna to self-relocate or inspection by a suitably qualified environmental professional.	A clearing report has been prepared for each clearing front within Corben's Long-eared Bat habitat, dates were recorded when non-hollow and hollow-bearing trees were cleared. Felled hollow bearing trees were left in-situ for at least 24 hours prior to their relocation to stockpiles. Refer Appendix B.
Fire management	Bushfire mitigation will be in accordance with the *Emergency Control and Response Plan*.	Firebreaks were maintained by grading site fence lines and tracks in November 2023.

Environmental management measure		Implementation comment
Pest, predator and weed management	Weeds will be managed as follows: • inspection of vehicles and mobile plant on site entry and exit. Appropriate wash down and containment of sediment if required; • inspections for declared weeds will be undertaken bi-annually and weeds will be controlled via scalping or chemical spraying; • herbicide will be applied in accordance with industry best practice; • weed control will be undertaken in a manner that will minimise soil disturbance; and • weeds will be managed in consultation with Western Local Land Services (LLS), Balranald Shire Council and NSW Department of Primary Industries (DPI) Agriculture.	Pre-mobilisation checks are completed for all new plant and equipment arriving to site. Records of such checks are maintained. Noxious and declared weed inspections are carried out during monthly environmental inspections. Weed mapping is undertaken biannually and control measures applied if required. Spraying of Bathurst Burr (Declared noxious) was undertaken in January and February 2024. Records of chemical application are maintained.
	The following techniques will be employed by a suitably qualified and licensed contractor/s: • baiting and fumigation of rabbit burrows; • mustering, trapping at water and shooting of goats; and • baiting for foxes and other feral predators (i.e. cats and pigs).	Baiting for foxes was undertaken in April 2024 in conjunction with surrounding landholders. 500 1080 chicken wing baits were laid, with a focus in Malleefowl habitat areas. A number of pig baiting programs using 1080 and Hoggone baits were implemented during March-May 2024, approximately 45 feral pigs were confirmed eradicated. Records of baiting and feral pig carcasses are maintained. A contract musterer was engaged by Iluka to trap feral goats on water points during July and September 2024.
Erosion and sediment management	Implement best practice erosion and sediment control measures within and surrounding the buffer and retained habitats.	Erosion and sediment controls are outlined in the Site Disturbance Permits when required. Generally open areas are contained by constructing a 0.5m high bund wall or silt fencing to prevent turbid water discharge.
Speed limit restrictions	If an active or potentially active Malleefowl mound is identified within 250 m of the access road, and the normal sign-posted speed limit of the nearby access road is 100 km/h, a reduced speed limit of 60 km/h will be applied for that nearby section of road for the duration of the applicable breeding season.	The mine access road was under construction for the duration of the reporting period with a maximum speed limit of 40km/h. Signs have been procured for when the road is completed and speed restrictions apply adjacent active mounds.

Environmental management measure		Implementation comment
Dust and light spill management	A 200 m buffer will be designated around each identified Malleefowl mound will be identified.	One identified active mound was protected with a 200m buffer delineated with orange flagging and monitored by suitably qualified expert until breeding had ceased. Refer Appendix B. The location and buffer was identified in the Site Disturbance Permit (BSDP008)
	Minimise the use of artificial lighting in the 200 m Malleefowl buffer.	No night construction works have been conducted during the reporting period.
	Where artificial lighting is required within the buffer, directional lighting facing away from the Malleefowl mound(s) and retained habitats will be used if safe to do so.	As above

Appendix F- Photographs of pre-disturbance activities

Mallefowl breeding pair captured on remote camera on mound #4

Malleefowl footprints 1(Left) / Malleefowl footprints 2 (Right)

Nest tree ID: NT1

EPBC Ref 2012-6509 Annual Compliance Report 2024&Appen

Final Audit Report 2024-11-08

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