

BENGALLA MINING COMPANY



Bengalla Mine (EPBC APPROVAL 2012/6378)

2022 ANNUAL COMPLIANCE REPORT



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BENGALLA MINE

ANNUAL COMPLIANCE REPORT FOR EPBC APPROVAL 2012/6378

1 INTRODUCTION

1.1 Background

Bengalla Mining Company Pty Limited (BMC) operates the Bengalla Mine (Bengalla) on behalf of the Bengalla Joint Venture (comprising New Hope Bengalla Pty Ltd as to 8/10 share and Taipower Bengalla Pty Limited as to 2/10 share). Bengalla is located 130 km north-west of Newcastle and 4 km west of the township of Muswellbrook.

Bengalla commenced operations in 1998 and is approved to extract up to 15 Million tonnes per annum of run of mine coal until 2039.

On 3 March 2015, State Significant Development Consent (SSD-5170) for the Bengalla Continuation of Mining Project was granted by the Secretary of the NSW Department of Planning and Environment (DPE) under the *Environmental Planning and Assessment Act 1979* NSW. SSD-5170 has since been modified on various occasions.

On 27 May 2015, BMC was granted *Environment Protection and Biodiversity Conservation Act 1999* Cth (EPBC Act) Approval 2012/6378 (the EPBC Approval).

Both the EPBC Approval and SSD-5170 (as originally granted) are supported by (relevantly) the 'Continuation of Bengalla Mine Environmental Impact Statement' (Hansen Bailey, 2013) (EIS) and *Continuation of Bengalla Mine Response to Submissions* (Hansen Bailey, 2014) (RTS).

The Biodiversity Offset Management Plan (BOMP) has been developed to meet relevant requirements under the EPBC Approval and SSD-5170. The current version of the BOMP was approved by what was then the Commonwealth Department of Environment and Energy (DoEE)¹ on 8 March 2017 and by DPE on 18 August 2017.

The Biodiversity Management Plan (BDMP) has also been developed to meet relevant requirements under the EPBC Approval and SSD-5170. The current version of the BDMP was approved by DPE on 18 August 2017 and by DoEE on 20 September 2017. The BDMP incorporates the Vegetation Clearance Protocol and Landscape Management Plan (VCPLMP) referred to in the EPBC Approval.

1.2 Purpose and Scope

This report has been prepared in accordance with Condition 12 of the EPBC Approval which states:

"By the end of March each year, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the BOMP and VCLMP as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published.

Note: The Annual Review required under NSW Approval condition 4 (of Schedule 5) may be used to satisfy this condition if it meets the above content and submission requirements."

This report applies to the period 1 January 2022 to 31 December 2022 (Reporting Period).

¹ Now the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

This report is published as a stand-alone report and will also form an Appendix to the 2022 Annual Review for Bengalla required under SSD-5170 Schedule 5 Condition 4.

1.3 Clearing Activities in 2022

Table 1 is a reproduction of Figure 6 from the BDMP. It provides details of the staged clearing approach undertaken at Bengalla.

Table 1
Staged Clearing Approach

Stage	Actions
Pre-Clearing Survey	<ul style="list-style-type: none"> Performed within one month of clearing All fauna, flora and <i>Cymbidium canaliculatum</i> recorded Vegetation health assessed and documented Habitat features marked and flagged Fauna captured and relocated
Clearing – Stage 1	<ul style="list-style-type: none"> Removal of all vegetation other than habitat trees Habitat features left standing overnight
Clearing – Stage 2	<ul style="list-style-type: none"> A final pre-clearing inspection will be conducted to identify and capture any fauna Habitat trees lightly shaken by machinery prior to felling Appropriate machinery used to fell the tree Any <i>Cymbidium canaliculatum</i> (Tiger Orchid) translocated Remaining fauna captured and relocated Felled habitat trees left overnight and then appropriate sections are removed and relocated to a storage location, rehabilitation areas or disposed

The Bengalla Mine Annual Clearing Report for 2022 (Clearing Report) is presented in **Appendix C** and contains details about the procedures and results for all pre-clearing and clearing activities completed at Bengalla during the Reporting Period.

Clearing works in 2022 were undertaken in relation to, but not limited to the following:

- General pit progression and relocation of infrastructure,
- Construction of new infrastructure, and
- Maintenance works.

The Clearing Report summarises the 2022 pre-clearance and clearance surveys, which included:

- Identification of 232 hollow-bearing / habitat trees, of which 207 were felled;
- 100 animals were relocated or captured during pre-clearance and clearance surveys;
- Observation of 21 animals that evaded capture during clearing;
- Nine animals were killed as a result of tree felling;
- Six animals required euthanasia due to injuries obtained when clearing;



- 15 animals required assistance from wildlife rehabilitation agencies; and
- One *Cymbidium canaliculatum* (listed as endangered under the EPBC Act) was identified during Stage 1 pre-clearance surveys in 2022. This individual was successfully translocated to a donor tree prior to Stage 2 tree clearing activities in December 2022.

Figure 1 is a reproduction of Figure 3 from the approved BOMP and has been updated to illustrate areas cleared during the Reporting Period, including Critically Endangered Ecological Communities (CEEC) listed under the EPBC Act.

CEEC identified in environmental assessments completed for the EIS and RTS included the following four communities identified as conforming to Upper Hunter White Box-Ironbark Grassy Woodland (Box Gum Woodland):

- Grey Box/White Box Intergrade Grassy Woodland;
- Upper Hunter White Box -Ironbark Grassy Woodland;
- Central Hunter Ironbark – Spotted Gum Forest; and
- Derived Native Grassland.

1.4 [Weed and Pest Management in 2022](#)

Information about the weed and pest management programs implemented at Bengalla and the offset areas during the Reporting Period is presented in **Appendix D**.

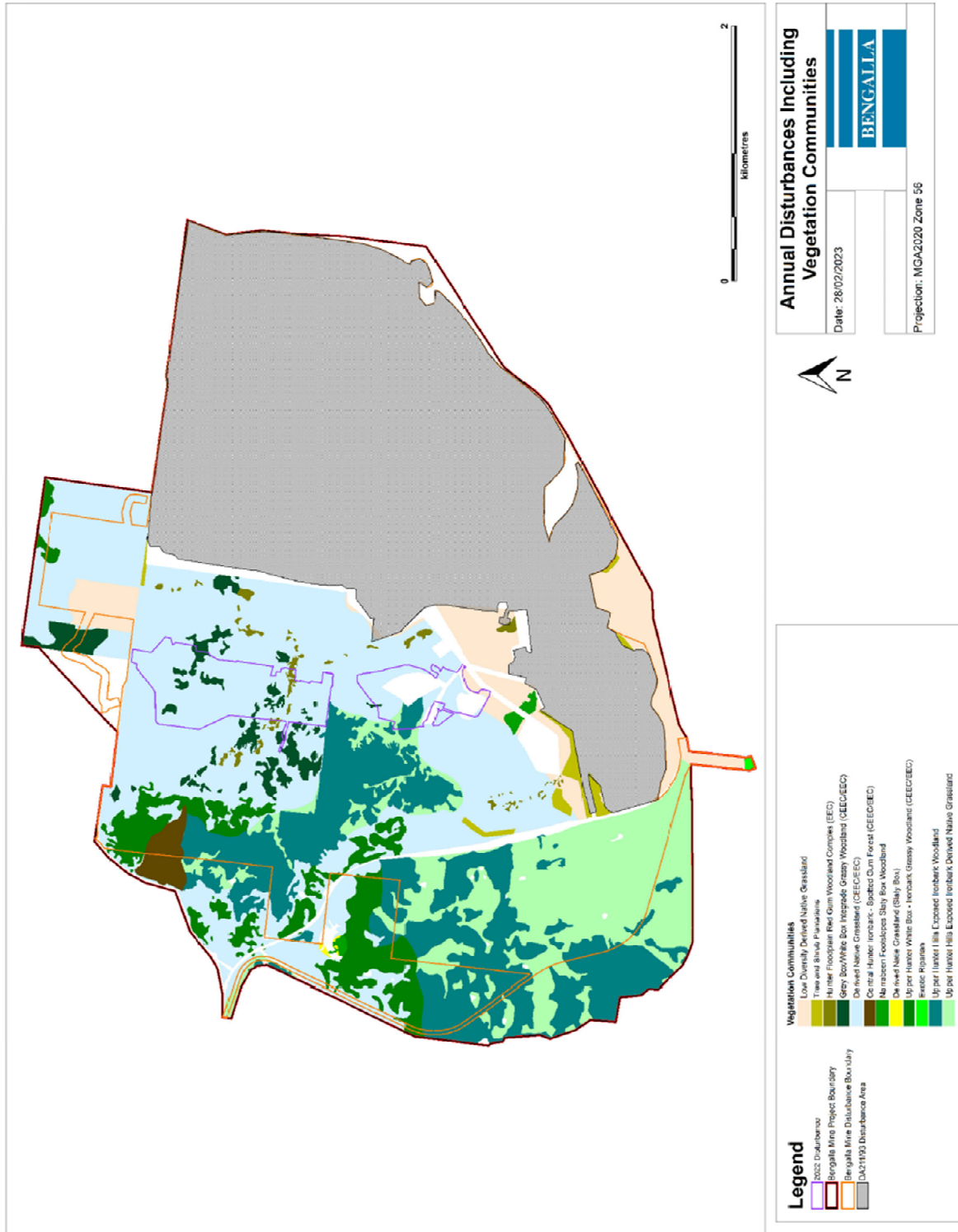


Figure 1 - Vegetation Communities

1.5 Compliance Report

The commitments made in the approved BDMP and BOMP, along with the compliance status of each for the Reporting Period, are presented in **Appendix A** and **Appendix B** respectively with comments provided against each where required.

Table 2 lists the conditions of the EPBC Approval and indicates the compliance status of each for the Reporting Period as ‘compliant’, ‘not compliant’ or ‘not triggered’. Comments are provided against each condition, where required.

Table 2
BMC Compliance Status against Conditions of EPBC Approval for 2022

Ref	Condition	Status	Comment
1	The approval holder must not clear more than 535 hectares of <i>White Box-Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i> ecological community (Box Gum Woodland) and must limit clearing to within the project disturbance boundary defined at Schedule 1.	Compliant	In 2022 clearing was undertaken within the Project Disturbance Boundary shown on the plan at Schedule 1 of the EPBC Approval. BMC has not cleared more than 535 hectares of Box Gum Woodland (see Figure 1).
2	<p>To mitigate impacts of the action on Box Gum Woodland, the Grey Headed Flying Fox, Large-eared Pied Bat, South-eastern Long-eared Bat, Regent Honeyeater, Swift Parrot and Spotted-tail Quoll, the approval holder must prepare and submit, prior to the proposed date of commencement of the action, a mine site Vegetation Clearance Protocol and Landscape Management Plan (VCPLMP) for the Minister's written approval. The VCPLMP must:</p> <ul style="list-style-type: none"> a. Delineate areas to be cleared, describe pre-clearance survey methods, specify actions to minimise fauna impacts and detail vegetation clearance procedures b. Require collection and stockpiling of habitat features important to threatened fauna species for reinstatement in rehabilitation areas c. Require use of native, locally sourced seed for propagation for rehabilitation activities d. Include measures to avoid, suppress and control the spread of plant pathogens (such as <i>Phytophthora cinnamomi</i>) e. Specify a two stage clearing protocol where non-habitat trees are cleared 24 hours prior to any habitat trees being cleared, to encourage fauna to move out of an area. <p>The approval holder must not commence the action until the VCPLMP is approved by the</p>	Compliant	<p>A BDMP was developed to meet this requirement and is implemented at Bengalla. Appendix A sets out the commitments from the BDMP and the compliance status of each for the Reporting Period.</p> <p>The original BDMP was approved by each of (then) DPE and DoEE on 14 August 2015. BMC commenced implementation of the BDMP from that date (before operations commenced under SSD-5170).</p> <p>The current (revised) version of the BDMP was approved by DPE on 18 August 2017 and DoEE on 20 September 2017.</p> <p>The BDMP addresses each of the requirements in Condition 2(a)-(e) of the EPBC Approval (refer to Table 1 of the BDMP).</p>

Ref	Condition	Status	Comment
	<p>Minister. The approved VCPLMP must be implemented.</p> <p>Note: The Biodiversity Management Plan required under NSW Approval condition 29 may be used to satisfy this condition if it meets the above content and submission requirements.</p>		
3	<p>To compensate for the loss of 535 hectares of Box Gum Woodland ecological community and 272 hectares of habitat for the Grey Headed Flying Fox, Large-eared Pied Bat, South-eastern Long-eared Bat, Regent Honeyeater, Swift Parrot and the Spotted-tail Quoll, the approval holder must prepare and submit, by 3 September 2015, a Biodiversity Offset Management Plan (BOMP) for the Minister's written approval.</p> <p>The BOMP must:</p> <ol style="list-style-type: none"> a. Identify those lands described as the Offset Areas at Schedule 2 (Figures 1- 6) of this notice. This must include offset attributes, shape files, textual descriptions and maps to clearly define the location and boundaries of the offset area(s) b. Provide a survey and description of the current condition (prior to any management activities) of the offset areas identified in Condition 3a c. Detail management actions and regeneration and revegetation strategies to be undertaken on the offset areas to improve the ecological quality of these areas, including: <ol style="list-style-type: none"> (i) a description and timeframe of measures that would be implemented to improve the condition of Box Gum Woodland and habitat for the Grey Headed Flying Fox, Large-eared Pied Bat, South-eastern Long-eared Bat, Regent Honeyeater, Swift Parrot and the Spotted-tail Quoll on the offsets sites; (ii) performance and completion criteria for evaluating the management of the offset areas, and criteria for triggering remedial action; (iii) a program to monitor and report on the effectiveness of these measures, and progress 	Compliant	<p>A BOMP was developed to meet this requirement and is implemented at Bengalla. Appendix B sets out the commitments from the BOMP and the compliance status of each for the Reporting Period.</p> <p>The draft BOMP was submitted to then DoEE and DPE on 2 September 2015. Following an extensive consultation process (see Appendix A of the BOMP), the BOMP was approved by DoEE on 8 March 2017 and by DPE on 18 August 2017.</p> <p>The BOMP addresses each of the requirements in Condition 3(a)-(c) of the EPBC Approval (refer to Table 1 of the BOMP).</p> <p>The approved BOMP was published on Bengalla's website within 1 month after being approved and continues to be available on the website.</p> <p>As noted in last year's report, BMC has taken preliminary steps towards separating the BOMP into three separate BOMPs (one for each offset property). At this stage, this process is on hold as BMC proposes to enter into a Biodiversity Stewardship Agreement for each of the three offset properties (refer to Condition 4 below). The currently approved BOMP continues to be implemented in the interim.</p>

Ref	Condition	Status	Comment
	<p>against the performance and completion criteria;</p> <p>(iv) a description of potential risks to the successful implementation of the plan, a description of the measures that will be implemented to mitigate against these risks and a description of the contingency measures that will be implemented if defined triggers arise; and</p> <p>(v) details of who would be responsible for monitoring, reviewing, and implementing the plan.</p> <p>The approved BOMP must be implemented. The approved BOMP must be published on the approval holder's internet web site within 1 month of being approved. The most recently approved version of the BOMP must be published on the approval holder's internet web site for a period of 5 years after it is approved.</p> <p>Note: The Biodiversity Management Plan required under NSW Approval condition 29 may be used to satisfy this condition if it meets the above content and submission requirements.</p>		
4	<p>The approval holder must secure the lands identified as the <i>Offset Areas</i> at Schedule 2 (Figures 1- 6) of this notice as a biodiversity offset, in accordance with NSW Approval condition 28.</p>	<p>DCCEEW concluded not compliant with Condition 4 – no further action taken</p>	<p>All Biodiversity Offset Areas identified in Schedule 2 (Figures 1-6) of the EPBC Approval are owned by the Bengalla Joint Venturers (BJV) and managed by BMC. All Biodiversity Offset Areas are managed in accordance with the BOMP.</p> <p>By letter dated 6 October 2020, the Secretary agreed to an extension of time until 30 June 2022 to finalise the long-term security of the Biodiversity Offset Areas under Schedule 3 Condition 28 of SSD-5170 (Condition 28). At this stage, the DPE has not granted a further extension in which to comply with Condition 28.</p> <p>BMC corresponded with the relevant NSW government departments during 2022 to determine the appropriate long-term mechanism for securing the offsets. Following that correspondence, BMC is taking steps to progress Biodiversity Stewardship Agreements for the offset areas. In the meantime, the offset areas continued to be owned by the BJV and managed by BMC in accordance with the BOMP.</p> <p>BMC notified the non-compliance with Condition 28 to DCCEEW on 7 September 2022. By letter dated 12 October 2022, DCCEEW advised that it</p>

Ref	Condition	Status	Comment
			had reviewed the matter and “concluded that the issuing of an infringement notice would not be an appropriate course of action in this case. Consequently, no further action will be taken regarding this matter”.
5	In order to protect listed threatened species and listed threatened ecological communities, the approval holder must undertake rehabilitation activities in accordance with NSW approval conditions 44, 45 and 46.	Compliant	<p>Condition 44</p> <ul style="list-style-type: none"> <u>Requirement</u> <p>Schedule 3 Condition 44 of SSD-5170 (Condition 44) requires BMC to rehabilitate the site to the satisfaction of what is now the Resources Regulator.² The rehabilitation must comply with the objectives in Table 15 of SSD-5170 and be consistent with the conceptual final landform shown in Appendix 9 of SSD-5170.</p> <ul style="list-style-type: none"> <u>Status</u> <p>Rehabilitation at Bengalla is ongoing. It is undertaken in accordance with SSD-5170 (as modified) and the current Forward Program and Rehabilitation Management Plan (which replaced the former Mining Operations Plan from 1 July 2022).</p> <p>The current Forward Program covers a period from 27 June 2022 to 26 June 2025. The proposed rehabilitation activities for Year 1 (July 2022 to July 2023) include development of approx. 47.7 ha of retrofitted High Density Woody Vegetation (HDWV) on the eastern face of the Overburden Emplacement Area (OEA) and reshaping of approximately 20 ha of land of overburden for rehabilitation to Class IV pasture 8.7 ha and HDWV 11.3 ha on the landform of the OEA.</p> <p>During the Reporting Period, no areas of new rehabilitation were undertaken.</p> <p>BMC installed 20,000 HDWV tubestock into previously rehabilitated land according to the current Forward Plan.</p> <p>Further detail about the rehabilitation carried out at Bengalla during the Reporting Period will be available in Section 8 of the Annual Review for 2022.</p> <p>Condition 45</p> <ul style="list-style-type: none"> <u>Requirement</u> <p>Schedule 3 Condition 45 of SSD-5170 requires BMC to carry out progressive rehabilitation. Interim stabilisation measures are to be used where reasonable and feasible to control dust</p>

² This requirement was modified slightly as a result of Mod 5 to SSD-5170 (approved on 24 February 2023, after the end of the Reporting Period). The first part of Schedule 3 Condition 44 of SSD-5170 now requires BMC to “rehabilitate the site in accordance with the provisions under the Mining Act 1992”.

Ref	Condition	Status	Comment
			<p>emissions in disturbed areas that are not active but not ready for final rehabilitation.</p> <ul style="list-style-type: none"> <u>Status</u> <p>Rehabilitation is carried out progressively at Bengalla, as soon as reasonably practicable following disturbance. Interim stabilisation measures are used where required.</p> <p>Condition 46</p> <ul style="list-style-type: none"> <u>Requirement</u> <p>During the Reporting Period, Schedule 3 Condition 46 of SSD-5170 (Condition 46) required BMC to prepare a Rehabilitation Management Plan to the satisfaction of what is now the Resources Regulator. The plan was to be prepared in accordance with and incorporate the elements specified in Condition 46. BMC was required to implement the plan as approved by the Resources Regulator.³</p> <ul style="list-style-type: none"> <u>Status</u> <p>BMC was required to develop and implement a new Rehabilitation Management Plan and Forward Program (among other actions) from 1 July 2022 due to reforms to the Mining Act 1992.</p> <p>These new documents effectively replaced the previous approved Mining Operations Plan (which was implemented during the first half of the Reporting Period) and function as the Rehabilitation Management Plan for the purposes of Schedule 3 Condition 46 of SSD-5170. The new Rehabilitation Management Plan and Forward Program were implemented at Bengalla as part of mining operations during the second half of the Reporting Period.</p>
6	The approval holder must undertake management and monitoring of water resources in accordance with NSW approval conditions 23 to 25.	EPA concluded not compliant with EPL conditions relating to TSS concentration limits in respect of discharge event on 16 August 2022	<p>Condition 23</p> <ul style="list-style-type: none"> <u>Requirement</u> <p>Schedule 3 Condition 23 of SSD-5170 (Condition 23) requires BMC to comply with section 120 of the <i>Protection of the Environment Operations Act 1990</i> NSW (POEO Act) and the <i>Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002</i> NSW (unless an EPL or the EPA authorises otherwise).</p> <ul style="list-style-type: none"> <u>Status</u> <p>During the Reporting Period BMC notified DCCEEW, DPE and the NSW Environment Protection Authority (EPA) of a potential non-</p>

³ Schedule 3 Condition 46 of SSD-5170 was modified on 24 February 2023, after the end of the Reporting Period. It now requires BMC to “prepare a Rehabilitation Management Plan for the development in accordance with the provisions under the Mining Act 1992 and carry out the development in accordance with this plan.”

Ref	Condition	Status	Comment
		<p>– caution issued</p>	<p>compliance relating to Condition 23. This involved an elevated Total Suspended Solids (TSS) concentration recorded for a discharge event on 16 August 2022.</p> <p>The matter was investigated and a report provided to DCCEE, DPE and EPA. The DPE and EPA subsequently issued further correspondence to BMC, to which BMC responded as requested.</p> <p>By letter dated 10 March 2023, the EPA advised BMC that it <i>“has reasonable grounds to believe that [BMC] committed an offence under section 64(1) of the [POEO Act] by the alleged non-compliance with EPL condition L2.1, by exceeding the concentration limits specified in condition L2.4, which occurred on 16 August 2022 ... the EPA has given consideration to this matter and in these circumstances ... considers it appropriate to issue [BMC] with this Official Caution for the alleged offence”</i>.</p> <p>During the Reporting Period, BMC discharged a total of 1,904 ML of saline water to the Hunter River under the <i>Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002 NSW</i>.</p> <p>Condition 24</p> <ul style="list-style-type: none"> Requirement <p>Schedule 3 Condition 24 of SSD-5170 requires BMC to ensure that mining operations comply with the performance measures in Table 12 of SSD-5170 to the satisfaction of the Secretary.</p> <ul style="list-style-type: none"> Status <p>Water management at Bengalla during the Reporting Period was undertaken in accordance with the performance measures in Table 12 of SSD-5170. The approved Water Management Plan (WMP) also addresses the performance measures (see Table 1 of the WMP).</p> <p>Further detail about the site water balance and results of surface water monitoring and groundwater monitoring during the Reporting Period will be available in the Annual Review for 2022.</p> <p>Condition 25</p> <ul style="list-style-type: none"> Requirement <p>Schedule 3 Condition 25 of SSD-5170 requires BMC to prepare a Water Management Plan to the satisfaction of the Secretary. The plan must be prepared in accordance with and incorporate the elements specified in Condition 25. BMC must implement the plan as approved by the Secretary.</p>

Ref	Condition	Status	Comment
			<ul style="list-style-type: none"> <u>Status</u> <p>The WMP was developed to meet this requirement and is implemented at Bengalla.</p> <p>The current WMP was approved by the Secretary on 1 February 2019. The WMP was prepared in consultation with the relevant authorities and addresses each of the requirements of Schedule 3 Condition 25 of SSD-5170 (see Table 2 of the WMP).</p>
7	In order to protect water resources, the approval holder must undertake rehabilitation activities in accordance with NSW approval conditions 44 and 46.	Compliant	Refer to comments at Conditions 5 and 6 above.
8	Upon request, the approval holder shall supply the groundwater monitoring data for the Bengalla Mine to the Department, NSW Government agencies, operators of the Mt Arthur and/or Mount Pleasant mines or other adjacent mine operators. A protocol for the supply of the data must be included in the approval holder's Water Management Plan.	Not Triggered	<p>No request was made during the Reporting Period.</p> <p>In accordance with Schedule 5 Condition 11 of SSD-5170 and BMC's approved Water Management Plan, groundwater monitoring results are published as part of the Annual Review on Bengalla's website each year.</p>
9	The approval holder must make available to the Minister on request, all plans or programs and any review of plans or programs required under the Project Approval issued for the project under the Environmental Planning and Assessment Act, 1979 (NSW), including the Biodiversity Management Plan, the Rehabilitation Management Plan and the Water Management Plan, which must include a Site Water Balance, Surface Water Management Plan and Groundwater Management Plan.	Not Triggered	<p>No request was made during the Reporting Period.</p> <p>Approved Bengalla management plans are available on Bengalla's website.</p> <p>BMC's approved Water Management Plan includes a Site Water Balance, Surface Water Management Plan and Groundwater Management Plan.</p>
10	Within 30 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement.	Compliant	By email dated 30 October 2015, BMC advised the then DoEE that the action the subject of the EPBC Approval commenced on 1 October 2015.
11	<p>The approval holder must maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement the BOMP and VCPLMP, and make them available upon request to the Department.</p> <p>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.</p>	Not Triggered	<p>BMC maintains accurate records substantiating all activities associated with or relevant to the EPBC Approval conditions, including measures to implement the BOMP and the BDMP (which incorporates the VCPLMP).</p> <p>No request was made during the Reporting Period to make any records available to DCCEEW.</p> <p>Appendix A describes the commitments made in the approved BDMP and how each has been addressed in the Reporting Period.</p> <p>Appendix B describes the commitments made in the approved BOMP and how each has been addressed in the Reporting Period.</p>

Ref	Condition	Status	Comment
			Appendix C describes pre-clearing and clearing activities implemented in accordance with the BDMP during the Reporting Period.
12	<p>By the end of March each year, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of the BOMP and VCPLMP as specified in the conditions. Documentary evidence providing proof of the date of publication must be provided to the Department at the same time as the compliance report is published.</p> <p>Note: The Annual Review required under NSW Approval condition 4 (of Schedule 5) may be used to satisfy this condition if it meets the above content and submission requirements.</p>	Compliant	<p>This report addresses compliance with each of the conditions of the EPBC Approval for the Reporting Period.</p> <p>Appendix A describes the commitments made in the approved BDMP and how each has been addressed in the Reporting Period.</p> <p>Appendix B describes the commitments made in the approved BOMP and how each has been addressed in the Reporting Period.</p> <p>Appendix C describes pre-clearing and clearing activities implemented in accordance with the BDMP during the Reporting Period.</p> <p>This report will be uploaded to Bengalla’s website by the end of March 2023 and documentary evidence of publication will be provided to DCCEEW at the same time.</p>
13	Non-compliance with any of the conditions of this approval must be reported to the Department within 2 business days of the approval holder becoming aware of the non-compliance.	Non-compliances with Conditions 4 and 6 reported to DCCEEW during the Reporting Period	<p>On 23 August 2022 (following receipt of water monitoring results on 19 August 2022 with those results not being viewed by BMC staff until 22 August 2022 due to a Mine Infrastructure Area evacuation due to blasting that occurred nearby on 19 August 2022), BMC notified DCCEEW of a potential non-compliance relating to Schedule 3 Condition 23 of SSD-5170 in respect of a discharge event that occurred on 16 August 2022 (see further comments above).</p> <p>On 7 September 2022, BMC notified DCCEEW of a non-compliance relating to Schedule 3 Condition 28 of SSD-5170 which requires provision of appropriate long-term security for the offset areas (see further comments above). This followed correspondence from DPE on 17 August 2022 advising that an extension of time to comply with Condition 28 would not be granted. As described above, BMC corresponded with the relevant NSW government departments during 2022 to determine the appropriate long-term mechanism for securing the offsets and Biodiversity Stewardship Agreements are being progressed.</p>
14	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the	Not Triggered	No direction was made during the Reporting Period.

Ref	Condition	Status	Comment
	Minister and the audit report must address the criteria to the satisfaction of the Minister.		
15	If the approval holder wishes to carry out any activity other than in accordance with a Plan as specified in the conditions, the approval holder must submit to the Department for the Minister's written approval a revised version of that Plan. The approval holder must not commence the varied activity until the Minister has approved the varied Plan in writing. The Minister will not approve a varied Plan unless the revised Plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised Plan, that Plan must be implemented in place of the Plan originally approved.	Not Triggered	No relevant activities other than those described in the BDMP or BOMP were required during the Reporting Period.
16	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and ecological communities to do so, the Minister may request that the approval holder make specified revisions to a Plan specified in the conditions and submit the revised Plan for the Minister's written approval. The approval holder must comply with any such request. The revised approved Plan must be implemented. Unless the Minister has approved the revised Plan then the approval holder must continue to implement the Plan originally approved, as specified in the conditions.	Not Triggered	No request was made during the Reporting Period.
17	If, at any time after 5 years from the date of this approval, the approval holder has not commenced the action, then the approval holder must not commence the action without the written agreement of the Minister.	Not Triggered	By email dated 30 October 2015, BMC advised the then DoEE that the action the subject of the EPBC Approval commenced on 1 October 2015.

1.6 Conclusion

During the Reporting Period, there were two non-compliances with EPBC Approval conditions reported to DCCEEW. These related to Condition 6 (discharge event on 16 August 2022 in respect of which the EPA has issued a caution) and Condition 4 (provision of long-term security for offset properties in respect of which DCCEEW has advised that no further action will be taken).

BMC will continue to review and document all relevant activities at Bengalla during the 2023 reporting period to assist in maintaining compliance with the EPBC Approval conditions.

Appendix A and **Appendix B** provide comments about the implementation of the BDMP and BOMP commitments respectively during the Reporting Period. In summary, BMC has generally complied with the BDMP and BOMP commitments for the Reporting Period.

Appendix A Biodiversity Management Plan Commitments

BDMP Section	Control / Action	Timing / Trigger	Responsibility	Monitoring	Reporting	Status	Comment
4.1	Marking Limits of Clearing	Prior to clearing	Environment Superintendent / Mining Manager / Surveyors	Inspection to be undertaken throughout duration of clearing.	Documented in Ground Disturbance Permit (GDP) form and signed off.	Compliant	GDP boundaries are demarcated prior to clearing, where required. Refer section 2.2 of Appendix C .
4.2	Identification of suitable fauna relocation sites	Prior to clearing	Environment Superintendent / Mining Manager	N/A	Documented in GDP form and/or pre-clearing report.	Compliant	Refer Section 2.2.6 of Appendix C .
4.2	Pre-clearing surveys	Within one month prior to clearing	Suitably qualified person	Monitoring of fauna and flora (including Tiger Orchid, pest and weed species), habitat features and plant pathogens.	Documented and signed off in the pre-clearing report. Results to be reported in Annual Review. OEH notified if new threatened species identified.	Compliant	Refer Section 3.1 of Appendix C .
4.2	Clearing Surveys	Within one month of the pre-clearing survey	Suitably qualified person	Monitoring of fauna and flora (including Tiger Orchid, pest and weed species), habitat features and plant pathogens.	Documented and signed off in the clearing report. Results to be reported in Annual Review. OEH notified if new threatened species identified.	Compliant	Refer Section 3.2 of Appendix C .
4.3	Pre-clearing weed management	Prior to clearing and during clearing	Suitably qualified person and Environment Superintendent	Inspection to be undertaken prior to clearing.	Documented and signed off in the GDP. Results to be reported in Annual Review.	Compliant	Refer Section 3.1.7 of Appendix C .

BDMP Section	Control / Action	Timing / Trigger	Responsibility	Monitoring	Reporting	Status	Comment
4.2.3	Relocation of habitat features to rehabilitation areas, adjacent vegetation or storage location.	During and/or after clearing	Environment Superintendent	N/A	Documented and signed off in the GDP. Results to be reported in Annual Review.	Compliant	Refer Section 3.1.8 and Section 3.2 of Appendix C.
4.1	Inductions and Staff Education	Ongoing as part of the existing induction process or as part of toolbox talks prior to commencement of ground disturbance works.	Environment Superintendent	N/A	As per Induction procedure	Compliant	Inductions provided to BMC staff and contractors include a component on biodiversity management.
4.2	Vehicle Driving Policy and Signage	Ongoing or when wildlife crossing areas are identified	Mining Manager / Environment Superintendent	N/A	N/A	Compliant	No wildlife crossing areas were identified by the suitably qualified expert (WSP) during 2022. Site access tracks and controls are included in site procedures.
4.2.5	Seed collection	Targeted throughout year and opportunistically before and immediately after clearing	Environment Superintendent	Observations to be made throughout year to check flowering / seeding development of key species. Ensure correct licences are held by any contractors.	To be documented and reported in Annual Review.	Compliant	Refer Section 3.1.6 of Appendix C.
4.3	Weed control	Ongoing over life of mine	Environment Superintendent	Routine field observations in Weed Control Zones, including rehabilitation areas.	Results to be reported in Annual Review.	Compliant	Refer Appendix D.
4.4	Feral animal control	Ongoing over life of mine	Environment Superintendent	Routine field observations undertaken including rehabilitation areas.	Results to be reported in Annual Review.	Compliant	Refer Appendix D.
5.0	Ecological Monitoring	Ongoing over life of mine	Ecologist	N/A	Results to be reported in	Compliant	The purpose of the ecological monitoring program is primarily to



Bengalla Mine
2022 Annual Compliance Report

BDMP Section	Control / Action	Timing / Trigger	Responsibility	Monitoring	Reporting	Status	Comment
	and Inspections				Annual Review.		<p>monitor the risks posed by plant pathogens, exotic weeds and feral animals in biodiversity offsets, residual vegetation and rehabilitation areas and to indicate where management actions are required.</p> <p>For weed and feral animal monitoring programs for Bengalla and the biodiversity offset areas refer to Appendix D.</p> <p>Rehabilitation monitoring was completed during November 2022. Details of results will be presented in Section 8 of the 2022 Annual Review.</p> <p>As stated at section 5.4 of the BDMP, no immediate management actions are required for the management of plant pathogens at Bengalla. However, signs of pathogens outbreaks (e.g. in pre-clearing surveys) may require measures to be taken in the future.</p>

Appendix B Biodiversity Offset Management Plan Commitments

BOMP Section	Commitment	Status	Comment
Notification			
2.3	Following approval, all actions detailed within this BOMP will be implemented. Within one month of receiving approval, this BOMP will be made available to the public on the BMC website.	Compliant	The BOMP is implemented as part of BMC's operations. The BOMP (with regulatory approval letters) (August 2017) is publicly available on Bengalla's website.
Fencing, Gates and Signage			
8.1	Boundary fencing will remain around all BOS Areas and will be inspected annually to identify area that may require maintenance.	Compliant	An annual inspection of certain boundary fencing for all biodiversity offset areas (BOS Areas) was undertaken in 2022. Fencing maintenance work and the replacement of two gates were undertaken at Kenalea during 2022.
8.1	Internal fencing within Kenalea properties and Black Mountain will be maintained (where appropriate) to allow for the management of controlled grazing in these properties.	Compliant	No internal fence repairs were required in 2022 at Kenalea or Black Mountain.
8.1	Stock proof fencing will be utilised where existing fences are absent to protect sensitive areas.	Not Triggered	Not required during the Reporting Period.
8.1	Current gates for access to BOS Areas will be retained and kept locked.	Compliant	Gates to BOS Areas remained secured and locked during 2022. Two gates were replaced at Kenalea.
8.1	BMC will install signage at the entrances to the BOS Areas to inform the public of restricted access to properties.	Compliant	Restricted access signage at the entrances to the BOS Areas has been installed prior to 2022.
Controlled Activities			
8.2	All contractors, stakeholders and visitors to the BOS Areas will be inducted. The induction will include information on activities prohibited in BOS Areas unless explicitly undertaken for the purposes of ongoing management.	Compliant	BMC has established internal policies which require all staff/contractors, stakeholders and visitors working at Bengalla (or BOS Areas) to be inducted prior to undertaking specified work. The BOS Areas induction identifies relevant compliance obligations including under applicable management plans.

BOMP Section	Commitment	Status	Comment
Control Grazing			
8.3	Control grazing will only be permitted in Zone 1 and Zone 2 management areas.	Not Triggered	No control grazing was undertaken during 2022.
8.3	Best practice for control grazing will be implemented wherever control grazing is employed, including: <ul style="list-style-type: none"> • Providing adequate rest periods and adjusting rest periods to suit the recovery needs and growth rates of the desirable plants; • Targeting defined areas with high fuel loads or weed infestations; • Cattle stocking numbers kept below 4 dray sheep equivalent; • Pre and post grazing monitoring; • Periods of grazing must be kept as short as practicable; and • Control grazing will not be conducted during declared drought periods. 	Not Triggered	No control grazing was undertaken during 2022.
8.3	Control grazing will be monitored against Trigger and Performance Criteria.	Not Triggered	No control grazing was undertaken during 2022.
7.1	Should monitoring results indicate that regeneration is not occurring naturally after Year 5, assisted revegetation will take place in areas that require this management action.	Not Triggered	An assisted regeneration program will be developed and implemented to mid and over storey covers in identified areas as required.
8.3	Stock will be excluded from riparian areas and will access water primarily from farm dams or water troughs.	Not Triggered	No cattle grazing was undertaken during 2022.
8.3	Monitoring will be undertaken pre and post grazing with the use of photo reference points. Areas subject to control grazing will be monitored as part of annual monitoring program.	Not Triggered	No cattle grazing was undertaken during 2022.
Bushfire management			
8.4	BMC will take practicable steps to prevent the occurrence of bushfires on the land and minimise the spread of bushfire.	Compliant	Fire trail maintenance was completed on Kenalea and Black Mountain in 2022. An assessment of fuel loads and fuel characteristics was completed on each offset area. Subsequent to this assessment, bushfire hazard reduction burns are planned for 2023 for each offset.

BOMP Section	Commitment	Status	Comment
8.4	BMC will provide maps (including water fill points) and contact details of the properties to the RFS.	Compliant	Maps, keys and relevant contact information have previously been provided to local RFS captains. Locations of water fill points were provided to the RFS in 2018 following the ground truthing of these locations.
Weed Control			
8.5	Weed management actions will target Weeds of National Significance and Noxious Weeds across BOS Areas.	Compliant	Enright Land Management undertook a weed monitoring and control program in BOS Areas (excluding Merriwa River) due to access constraints) during the Reporting Period. Records of the location of weed control are detailed in Appendix D .
8.5	Weed control will focus on species that exclude or have the potential to exclude native species, disrupt the recruitment of native species or impede ecological progress.	Compliant	A summary of the weed monitoring and control program undertaken during the Reporting Period is provided in Appendix D .
8.5	Weed management will be undertaken in accordance with the management principles listed in Section 8.5 of the BOMP.	Compliant	Weed management practices were undertaken during the Reporting Period in accordance with Section 8.5 of the BOMP.
8.5	The results and outcomes of weed management will be documented and analysed for each year in the Annual Review. This will include documentation of areas subject to weeding, techniques used, target species controlled, new species identified, chemicals used and revised approaches to weed control in light of learnings during the previous reporting period.	Compliant	A summary of the weed monitoring and control program for the Reporting Period is provided in Appendix D .
8.5	Weed infestation maps will be updated annually and annotated as required with information about previously implemented weed controls.	Compliant	A weed monitoring and control program was undertaken during the Reporting Period. The location of weeds identified during the program was recorded for GIS input and is presented in Appendix D .
Feral Animal Control			
8.6	BMC will conduct an annual feral animal control program in conjunction with current Local Land Services programs.	Compliant	A feral animal control program was undertaken in 2022. This was undertaken in line with neighbouring properties and the Local Land Services baiting program and is described in Appendix D .
8.6	Should any native fauna deaths be recorded during 1080 baiting and if sufficient carcass is available the animal will be sent to a veterinarian to provide a cause of death should there be any evidence of poisoning.	Not triggered	No native fauna deaths were reported during the 2022 feral animal control program.

BOMP Section	Commitment	Status	Comment
8.6	The results and outcomes of feral animal management will be documented for each year in the Annual Review. This will include documentation of the techniques used for each feral species, the quantity of bait material purchased and deployed, the areas subject to control, estimate of the numbers of animals culled, new species identified (if any) and any other chemicals used.	Compliant	A summary of the 2022 feral animal control program is provided in Appendix D .
8.6	All personnel involved in feral animal management must hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use or a firearms licence for shooting.	Compliant	Staff and/or contractors involved in feral animal management held all relevant licences and accreditations to undertake the feral animal control works in 2022.
Maintenance Track Improvement and Additional Infrastructure			
8.7	Maintenance of existing tracks and installation of additional infrastructure may be required to provide safe access to BOS Areas. Maintenance or construction works may result in minor/localised disturbance. BMC will ensure compliance with all legal and environmental protection measures prior to any significant disturbance.	Compliant	All existing access tracks in Kenalea and Black Mountain were assessed and regraded where required in 2022. Merriwa River was not completed due to access being compromised by continued wet conditions.
8.7	BMC will record and store all relevant GIS information related to the improvement or installation of additional infrastructure.	Compliant	BMC has recorded and stored GIS information for all improvements and installation of additional infrastructure on the BMC GIS database.
8.7	BMC will undertake routine inspections and maintenance of BOS infrastructure (e.g. tracks, fence lines, gates)	Compliant	Inspections and maintenance of tracks was undertaken in 2022. Certain fence lines and gates were also inspected. Fencing maintenance work and the replacement of two gates were undertaken at Kenalea during 2022.
Contingency Measures			
8.8	Contingency measures will be utilised should monitoring indicate that performance measures or contingency measures are not being met.	Not Triggered	No contingency measures were required during the Reporting Period.



Appendix C

Annual Clearing Report 2022

Bengalla Mining Company Pty Ltd

February 2023

Bengalla Coal Mine

2022 Annual Clearing Report

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Question today *Imagine tomorrow* Create for the future

Bengalla Coal Mine 2022 Annual Clearing Report

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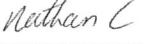

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	Name	Date	Signature
Prepared by:	Gavin Shelley	31/01/2023	
Reviewed by:	Nathan Cooper	06/02/2023	
Approved by:	Nathan Cooper	06/02/2023	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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- Appendix A Recorded flora
- Appendix B Recorded fauna
- Appendix C Scientific licence

Abbreviations

BMC	Bengalla Mining Company Pty Ltd
Bengalla	Bengalla Mine
BMP	Biodiversity Management Plan
EEC	Endangered Ecological Community
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GDP	Ground Disturbance Permit
BC Act	<i>Biodiversity Conservation Act 2016</i>

Executive summary

The Bengalla Mine (Bengalla) Biodiversity Management Plan (BMP) (Bengalla Mining Company Pty Ltd, 2017) provides a framework for biodiversity management, reporting and auditing of ecological issues across Bengalla. As part of the Ground Disturbance Permit (GDP) process, the BMP requires that ecological pre-clearing and clearing surveys be carried out by a suitably qualified person to minimise harm to native flora and fauna.

This report summarises the pre-clearing and clearing surveys completed at Bengalla between January and December of 2022 (reporting period). These works were in relation to:

- general pit progression and relocation of infrastructure
- construction of new infrastructure
- maintenance work.

During the reporting period, pre-clearing and clearing surveys were undertaken by appropriately qualified WSP ecologists in accordance with the BMP.

During pre-clearing surveys, habitat features such as hollow trees were recorded, marked with the letter “H” (for habitat), and flagged with fluorescent tape. A total of 232 hollow-bearing/habitat trees were identified within the GDP area, 207 of which were felled in 2022. Salvaged habitat items were stockpiled, with the intention to relocate them to rehabilitation areas as areas become available.

One large *Cymbidium canaliculatum* was identified during Stage 1 pre-clearing surveys in 2022. This individual was successfully translocated to a donor tree prior to Stage 2 tree clearing activities in December 2022.

Immediately prior to the habitat trees being felled, the ecologist generally conducted a final pre-clearance survey and recorded the results as part of the clearance documentation. Following the felling of the tree, the ecologist investigated hollows for the presence of animals. During the 2022 clearing activities, 100 animals were relocated, 21 were observed but evaded capture, nine animals died during clearing and six animals required immediate euthanasia due to injuries obtained. Fifteen advanced nestling birds were also captured and passed on to appropriate wildlife rehabilitation agencies.

Clearing activities undertaken throughout 2023 will continue to follow the methodology outlined within the BMP.

1 Project background

1.1 Existing operation

The Bengalla Mining Company (BMC) operates Bengalla Mine (Bengalla), an open cut coal mine located approximately four kilometres (km) west of Muswellbrook in the Upper Hunter Valley, NSW.

Activities associated with clearing operations during the reporting period relate to the construction of new infrastructure, the relocation and maintenance of infrastructure and service roads, in addition to an extension of the open cut mining pit towards the west.

1.2 Aims and objectives

The aims of this annual clearing report are to detail the procedures and results for all pre-clearing and clearing operations completed at Bengalla in 2022, inclusive of:

- ecology pre-clearing surveys
- Stage 1 and Stage 2 clearing operations
- fauna handling and relocation
- habitat salvage and procedures.

2 Methods

2.1 Personnel

The contributors to the delivery of clearing operations and reporting, their qualifications and roles are listed in Table 2.1.

Table 2.1 Contributors and their role

Name	Qualification	Role
Gavin Shelley	B.Env Sc. Mgmt	Ecologist – pre-clearing surveys, spotter catcher and reporting
Sebastian Miller	B.Sc.	Ecologist – pre-clearing surveys, spotter catcher and reporting
Allan Richardson	B Env Sc (Hons)	Associate Ecologist – pre-clearing surveys, spotter catcher and reporting
Nathan Cooper	B.Env.Sc. Grad Dip Ornithology	Principal Ecologist – pre-clearing surveys, spotter catcher and technical review, project manager

All work was carried out under the appropriate licenses, including a scientific licence as required under Part 2 of the NSW *Biodiversity Conservation Act 2016* (BC Act) (License Number: SL100630), and an Animal Research Authority issued by the Department of Primary Industries (Agriculture).

2.2 Pre-clearing survey procedure

The ecology pre-clearance surveys were conducted throughout 2022 and were completed in accordance with Section 4.2.1 of the BMP, which outlines management actions for vegetation pre-clearance procedures. The aims and objectives of the ecology pre-clearing survey include:

- detecting the presence/absence of threatened species and their habitat, including *Cymbidium canaliculatum* (Tiger Orchid)
- recording the presence of any fauna or flora species
- identification and demarcation of habitat trees, large logs, and boulders
- identification and demarcation of salvageable material including hollow bearing trees, debris, and boulders
- searching for evidence of plant pathogen *Phytophthora cinnamomi*
- identification of appropriate fauna relocation sites for captured fauna species
- identification of plants suitable for seed collection
- identification of weed and pest species infestations.

Clearing boundaries were initially marked by a surveyor with survey pegs, generally incorporating spacing commensurate with visible line of sight. A hard copy map of the GDP area was also used as a reference when in the field.

It should be noted that throughout the year some GDP areas were assessed more than once due to only part of the GDP area being disturbed or an extended time frame between the initial pre-clearance inspection and commencement of works (Section 3.1).

2.2.1 *Fauna habitat identification*

Each clearing area was traversed by a field ecologist to identify important fauna habitat values, including:

- habitat trees – identified as any substantial non hollow-bearing tree that either provided significant canopy cover and thus significant potential foraging resources, or was observed to contain nesting material
- hollow-bearing trees – which include any tree that was observed to contain a visible hollow or fissure that may support microhabitat values for native fauna.

All identified habitat, hollow-bearing or significant trees were marked with “H” (habitat tree) in high visibility paint as well as pink flagging tape to ensure dark trees, such as *Eucalyptus crebra* (Narrow-leaved Ironbark), were clearly marked prior to the commencement of clearing activities. The number of habitat, hollow-bearing or significant trees were recorded on field proformas.

2.2.2 *Species inventory*

All flora and fauna species identified during the ecology pre-clearance surveys and clearing surveys were recorded and are presented in Appendix A and Appendix B.

2.2.3 *Surveys for *Cymbidium canaliculatum**

Trees within the clearing area were visually examined for the presence of *Cymbidium canaliculatum*, which is listed as an Endangered Population in the Hunter Catchment under the NSW BC Act.

2.2.4 *Salvageable habitat material*

In accordance with the BMP, selected salvageable hollow logs and rocks were identified for later reuse in rehabilitation areas. Since materials vary in abundance and quality throughout Bengalla, ecologists are guided by the selection criteria for salvageable materials (as outlined in Table 5 of the BMP) when identifying logs and rocks for re-use.

2.2.5 *Surveys for *Phytophthora cinnamomi**

Vegetation health assessments were undertaken to detect the presence of the plant pathogen *Phytophthora cinnamomi*. This involved assessing vegetation for any visible signs of disease.

2.2.6 *Fauna relocation sites*

Sites suitable for the relocation of displaced native fauna were assessed prior to the commencement of the ecology pre-clearance survey. Relocation sites were assessed for habitat attributes which represent similar or commensurate habitat attributes as those within the clearing areas. All relocation sites are located outside of the clearing area and consist of the same vegetation community. Fauna relocation sites are illustrated on Figure 3.1.

2.2.7 *Collection of seeds for rehabilitation purposes*

In accordance with the BMP, native trees and shrubs suitable for the harvesting and propagation of native seed for use in rehabilitation activities are required to be identified. Any areas of particularly high seed yield were marked on maps for future reference. During pre-clearing surveys throughout 2022, there was a lack of seed availability and as such, no seed was collected for use in rehabilitation areas.

2.2.8 *Identification of weed and pest species infestations*

Significant infestations of Weeds of National Significance (WONS) and noxious weeds identified during the field surveys were recorded and notified to BMC Environmental Department.

2.3 Clearing procedure

In accordance with Section 4.2.2 of the BMP, clearing activities in 2022 were undertaken as a two-stage process as follows:

- **Stage 1 clearing** – removal of understory vegetation other than marked/flagged habitat features. Habitat trees, marked with an ‘H’, were left to stand overnight to enable any resident fauna to self-relocate into adjacent habitat.
- **Stage 2 clearing** – commenced no less than 24 hours following the completion of Stage 1 clearing. Felled habitat trees were left undisturbed over night to allow any undetected fauna further opportunity to relocate.

2.3.1 *Fauna handling and relocation*

The following information is recorded in relation to fauna species observed during the clearing activities:

- details of animals sighted, captured, relocated, injured, or killed as a result of vegetation clearing activities
- the relocation of fauna within designated relocation areas
- tree species used for breeding or roosting by fauna
- micro-habitat features of where the species was found on the tree.

Uninjured adult fauna will be relocated into suitable habitat within designated relocation sites. Juvenile and injured fauna will be passed on to the Muswellbrook Satur Vets, local Wildlife Aid carers or euthanised in accordance with the Animal Research Authority Code of Practice (National Health and Medical Research Council, 2013).

3 Results

3.1 Stage 1 pre-clearance surveys

Pre-clearing surveys completed by or on behalf of BMC in 2022 are summarised in Table 3.1 and illustrated in Figure 3.1. It should be noted that throughout 2022, the GDP area was assessed on more than one occasion due to only part of the GDP area being disturbed, or an extended time frame between the initial pre-clearance inspection and commencement of works.

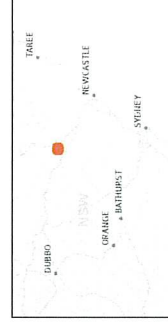
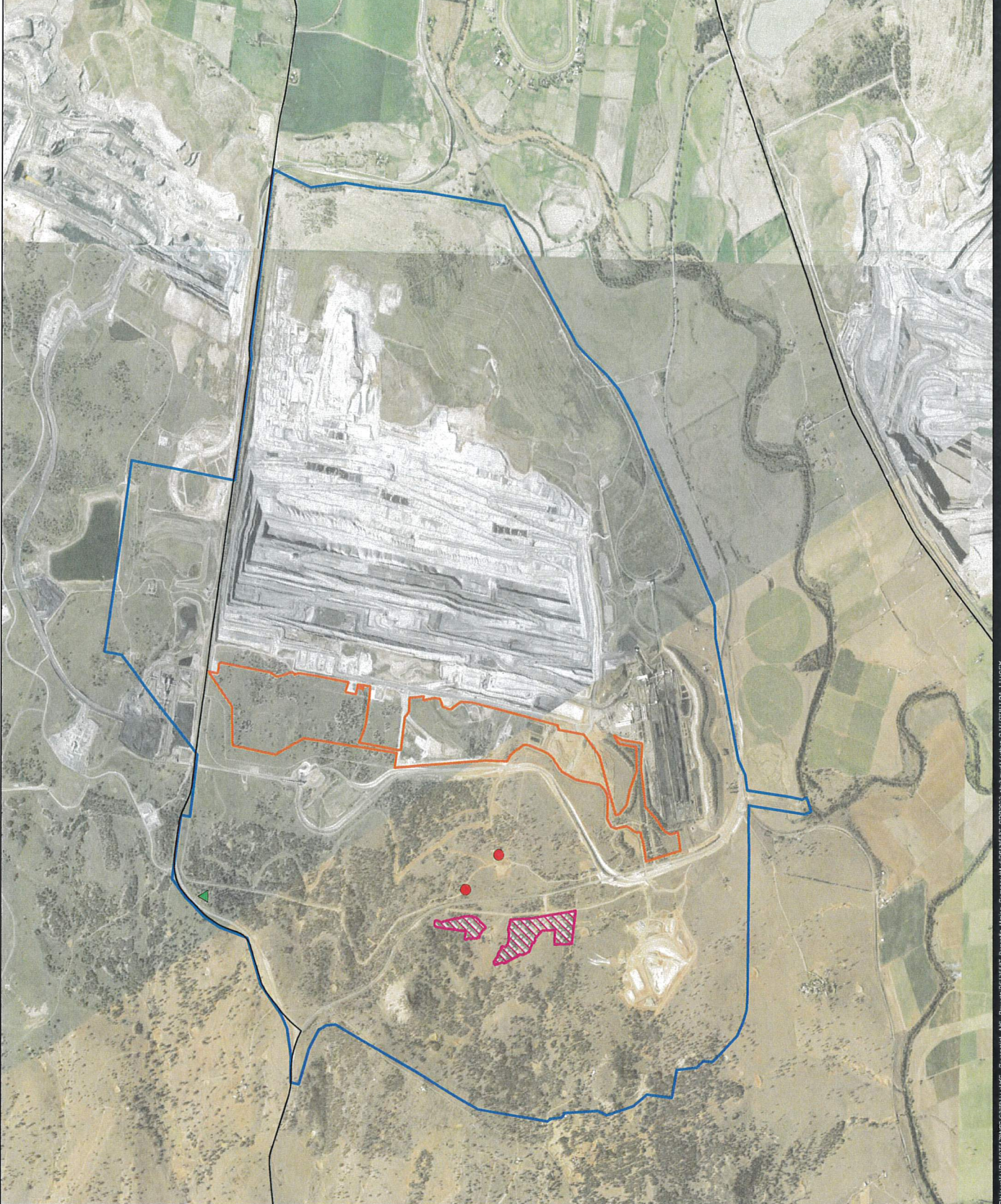
Table 3.1 Pre-clearing surveys completed in 2022

Ground disturbance permit area (GDP)	Date pre-clearance undertaken	Vegetation community
GDP 2201	11/01/2022	Derived native grassland in between <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	16/02/2022	Derived native grassland in between <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	8/06/2022	Derived native and exotic grassland with planted 10 year old <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> canopy.
GDP 2201	8/06/2022	Central Hunter <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> grassy woodland
GDP 2201	15/07/2022	Derived native and exotic grassland with planted 10 year old <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> canopy.
GDP 2201	15/07/2022	Derived native and exotic grassland with patches of <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	29/07/2022 & 3/08/2022	Derived native and exotic grassland with patches of <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	9/08/2022	Derived native and exotic grassland with patches of <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest
GDP 2201	16/11/2022	Derived native grassland in between <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	28/11/2022 & 29/11/2022	Derived native and exotic grassland with patches of <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest
GDP 2201	16/12/2022	Derived native and exotic grassland with planted 10-year-old <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> canopy.

Figure 3.1
Ground disturbance permit areas subject
to clearing activities in 2022

Legend

- Cymbidium Translocation Site
- Relocation Points
- Road
- Fauna Relocation Site
- Project Development Boundary
- GDP2201



Coordinate system: GDA2020

Scale ratio correct when printed at A3

1:30,000

Date: 21/02/2023



Data source: DELWP, Geoscience Australia, Webmap
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3.1.1 *Vegetation community structure*

The following vegetation communities were identified in the areas pre-cleared in 2022:

- derived native and exotic grassland
- derived native and exotic grassland with isolated pockets of *Eucalyptus crebra*
- derived native and exotic grassland with *Eucalyptus crebra*, *Eucalyptus moluccana*, and *Allocasuarina luehmannii* open forest
- derived native and exotic grassland with planted *Eucalyptus crebra* and *Eucalyptus moluccana*
- miscellaneous exotic and native planted vegetation.

3.1.2 *Habitat, hollow-bearing and significant trees*

A total of 232 hollow-bearing/habitat trees were identified within the GDP area subject to pre-clearing surveys in 2022.

3.1.3 *Species inventory*

3.1.3.1 Flora

A total of 43 flora species were recorded during pre-clearing surveys completed in 2022. Of these, 23 were introduced species (Appendix A).

3.1.3.2 Fauna

A total of 46 fauna species were recorded during pre-clearing surveys completed in 2022. Of these, four were introduced species (Appendix B).

3.1.4 *Cymbidium canaliculatum surveys*

One *Cymbidium canaliculatum* was identified during pre-clearing surveys in 2022, in association with Strip 41 (Latitude: -32.259929 Longitude: 150.815367) (Photo 3.1 and Photo 3.2). The orchid was observed growing in a large *Eucalyptus crebra*, approximately 11 m above the ground. The orchid was positioned with a north east aspect, occurring under the host trees canopy, and was observed in shade late in the morning. The orchid would be subject to morning sun but shaded from the afternoon sun.

In accordance with the BMP, Stage 2 clearing of the orchid's host tree was undertaken following the implementation of a translocation procedure, which was derived based on:

- site inspections and liaison between BMC staff, qualified arborists, bucket truck operators, crane operators, qualified ecologists
- determining suitable translocation site(s) and donor tree(s)
- safety and risk assessment documentation.

The *Cymbidium canaliculatum* translocation is detailed in Section 3.2.4.



Photo 3.1 *Cymbidium canaliculatum* requiring translocation in 2022

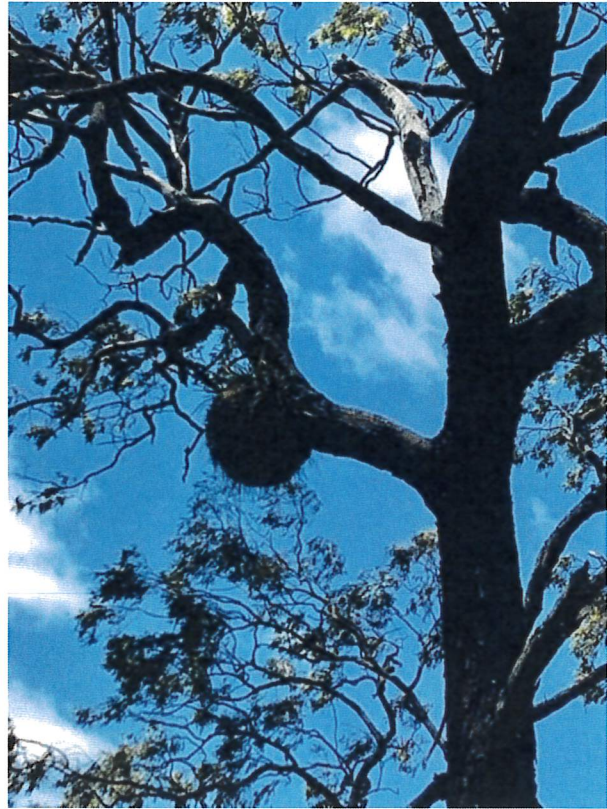


Photo 3.2 *Cymbidium canaliculatum* requiring translocation in 2022

3.1.5 *Phytophthora cinnamomi* surveys

No evidence of disease or plant dieback was identified within the GDP area subject to pre-clearing surveys in 2022.

3.1.6 *Collection of seeds for rehabilitation purposes*

During pre-clearing surveys throughout 2022, no seed was identified within survey areas deemed suitable to be collected for use in rehabilitation. Some species were identified to have seed including *Acacia salicina*, *Acacia parvipinnula*, *Eucalyptus crebra* and *Eucalyptus moluccana*; however, survey times were conducted when these species were mainly flowering, or seeds were too immature to be considered suitable for propagation purposes. Overall, due to clearing times and large areas of derived native and exotic grasslands limiting the number of canopy species, no suitable native flora seeding opportunities were present and no seed collection was conducted.

3.1.7 Weed species

Table 3.2 Noxious weeds recorded during pre-clearance surveys

Species	Class	Legal requirements
<i>Lycium ferocissimum</i> (African Boxthorn)	3	This plant must be continually suppressed and destroyed, and the plant must not be sold propagated or knowingly distributed.
<i>Opuntia stricta</i> (Prickly Pear)	4	The growth of the plant must be managed that reduces its numbers, spread and incidence and continuously inhibits its reproduction and the plant must not be sold propagated or knowingly distributed.
<i>Senecio madagascariensis</i> (Fireweed)	4	The growth of the plant must be managed that reduces its numbers, spread and incidence and continuously inhibits its reproduction and the plant must not be sold propagated or knowingly distributed.

3.1.8 Salvageable material

A total of 308 lineal metres of hollow ground timber was identified during Stage 1 pre-clearance surveys in 2022, examples of which are provided in Photo 3.3 and Photo 3.4.



Photo 3.3 An example of salvageable material identified during Stage 1 pre-clearing surveys in 2022



Photo 3.4 An example of salvageable material identified during Stage 1 pre-clearing surveys in 2022

3.2 Stage 2 tree clearing

The GDP area cleared in part in 2022 is summarised in Table 3.3 and illustrated on Figure 3.1. The removal of understory vegetation surrounding habitat trees was undertaken a minimum of 24 hours prior to habitat tree removal. Stage 2 clearing of habitat trees was undertaken over eight discrete periods in 2022, with a total of 207 habitat trees felled.

Table 3.3 Stage 2 clearing completed in 2022

Ground disturbance permit area	Stage 2 clearing completed (date)	Vegetation community
GDP 2201	12/01/2022	Derived native grassland in between <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	17/02/2022	Derived native grassland in between <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	27/06/2022	Central Hunter <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> grassy woodland.
GDP 2201	27/06/2022	Central Hunter <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> grassy woodland.
GDP 2201	19/07/2022	Derived native and exotic grassland with planted 10 year old <i>Eucalyptus crebra</i> and <i>Eucalyptus moluccana</i> canopy.
GDP 2201	9/08/2022	Low diversity native grassland/exotic understorey, canopy trees <i>Allocasuarina luehmannii</i> dead from historical inundation from dam.
GDP2201	12/12/2022	Derived native grassland in between <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.
GDP 2201	13-16/12/2022	Derived native and exotic grassland with patches of <i>Eucalyptus crebra</i> , <i>Eucalyptus moluccana</i> and <i>Allocasuarina luehmannii</i> shrub open forest.

Prior to the habitat trees being felled, the trees were visually inspected to identify signs of fauna utilisation. Habitat trees were gently shaken prior to felling to encourage any resident fauna to vacate any fissure and/ or hollow. Habitat trees were then felled sequentially when directed by the supervising ecologist.

Immediately following the felling of each habitat tree, the supervising ecologist inspected the trees for remaining fauna. Tree hollows were inspected using a hand-held torch. Felled habitat trees were left undisturbed over night to allow any undetected fauna further opportunity to relocate. The habitat trees were then stockpiled for mulching or utilisation in rehabilitation areas.

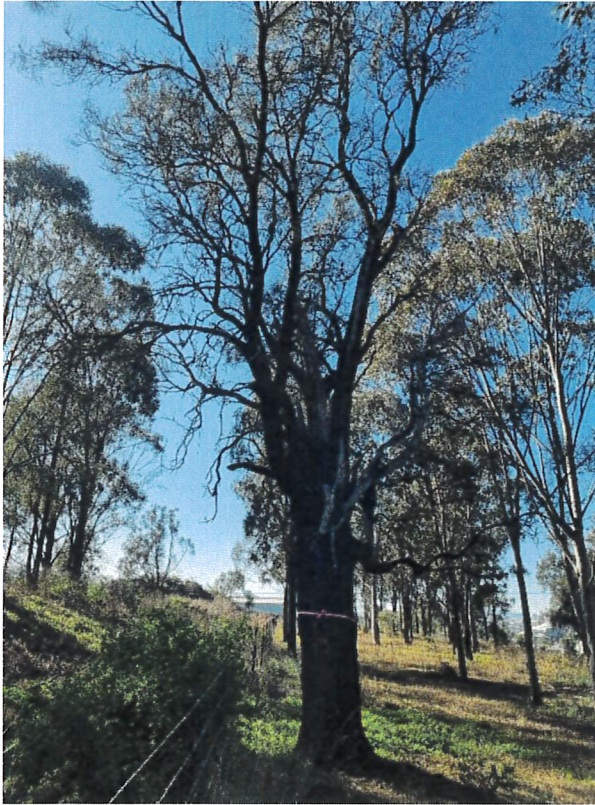


Photo 3.5 Stage 2 – clearing – GDP 2201



Photo 3.6 Stage 2 – clearing – post felling

3.2.1 *Fauna recorded and relocated*

A total of 46 species of animal were observed whilst on site at Bengalla during Stage 1 and Stage 2 clearing activities (Appendix B). No animals were captured or relocated during Stage 1 pre-clearing inspections completed in 2022. Of the 46 species observed on site, a minimum of 151 individual animals were recorded using habitat trees impacted within the GDP area subject to Stage 2 tree clearing activities (Table 3.4, Table 3.5). This comprised of seven species of bird, five mammals, four reptiles and two species of frog. Animals handled for purpose of relocation or euthanasia were handled in accordance with the Animal Research Authority Code of Practice (National Health and Medical Research Council, 2013). During the 2022 Stage 2 tree clearing operations:

- 100 animals were successfully relocated
- 21 animals were displaced but evaded capture
- nine animals were killed as a result of tree felling
- six animals were euthanised following tree felling
- 15 animals required assistance from wildlife rehabilitation agencies.

Table 3.4 Species of animal recorded during Stage 2 tree clearing operations in 2022

Common name	Scientific name	Notes	Number of individuals
Animals relocated during Stage 2 tree clearing operations			
Robust Velvet Gecko	<i>Nebulifera robusta</i>	–	17
Tree Skink	<i>Egernia striolata</i>	–	26
Common Brushtail Possum	<i>Trichosurus vulpecula</i>	–	1
South-eastern Free-tailed Bat	<i>Ozimops planiceps</i>	–	3
Eastern Broad-nosed Bat	<i>Scotorepens orion</i>	–	1
Ride's Free-tailed Bat	<i>Ozimops ridei</i>	–	4
Free-tailed Bat	<i>Ozimops</i> spp.	Roost limb relocated	8 (minimum)
Unidentified microbat	–	Roost limb relocated	6 (minimum)
Gould's Wattled Bat	<i>Chalinolbus gouldii</i>	–	27
Striated Pardalote	<i>Pardalotus striatus</i>	–	1
Eastern Rosella	<i>Platycerus eximius</i>	–	3
Green Tree Frog	<i>Litoria caerulea</i>	–	2
Peron's Tree Frog	<i>Litoria peroni</i>	–	1
Total			100
Animals displaced but evaded capture			
Elegant Snake-eyed Skink	<i>Cryptoblepharus pulcher</i>	–	3
Tree Skink	<i>Egernia striolata</i>	–	3
Robust Velvet Gecko	<i>Nebulifera robusta</i>	–	1
Gould's Wattled Bat	<i>Chalinolbus gouldii</i>	Self-relocated	8
Unidentified microbat	–	Roost limb. Hollow entrance observed but bats were not accessible. Trunk could not be sectioned and relocated, and individuals remained in hollow to self-relocate at nightfall.	1 (minimum)
Common Myna	<i>Acridotheres tristis</i>	Self-relocated	4
Striated Pardalote	<i>Pardalotus striatus</i>	Hollow limb with fledgling relocated immediately adjacent nest tree where parents were calling from. Individual self-relocated within one hour.	1
Total			21

Common name	Scientific name	Notes	Number of individuals
Animal killed during Stage 2 tree clearing operations			
Tree Skink	<i>Egernia striolata</i>	–	4
Common Myna	<i>Acridotheres tristis</i>	3 x recent hatchlings	3
Gould's Wattled Bat	<i>Chalinolbus gouldii</i>	–	1
Eastern Broad-nosed Bat	<i>Scotorepens orion</i>	–	1
Total			9
Animals euthanised following Stage 2 tree clearing operations			
Robust Velvet Gecko	<i>Nebulifera robusta</i>	–	1
Lace monitor	<i>Varanus varius</i>	–	1
Common Myna	<i>Acridotheres tristis</i>	1 x advanced nestling	1
Common Starling	<i>Sturnus vulgaris</i>	1 x advanced nestling	1
Eastern Rosella	<i>Platycercus eximius</i>	3 x eggs, 2 x recent hatchlings	2
Total			6
Animals requiring assistance from wildlife rehabilitation agencies			
Eastern Rosella	<i>Platycercus eximius</i>	Delivered to Muswellbrook Satur Vets for collection by wildlife rehabilitation agencies	7
Galah	<i>Eolophus roseicapilla</i>		1
Striated Pardalote	<i>Pardalotus striatus</i>		3
Black-faced Cuckoo-shrike	<i>Coaracina novaehollandiae</i>		2
Noisy Miner	<i>Manorina melanocephala</i>		2
Total			15

Table 3.5 Fauna guilds recorded during Stage 2 clearing operations in 2022

Guild	Number of individuals recorded				
	Relocated	Observed	Injured	Dead/ Euthanised	Taken to Wildlife carer
Reptiles	43	7	0	6	0
Microchiropteran bats/mammals	50	9	0	2	0
Amphibians	3	0	0	0	0
Birds	4	5	0	7	15
Total	100	21	0	15	15

Whilst reptiles, frogs and microbats were released at designated relocation areas, a Noisy Friarbird nest was observed in an *Allocasuarina luehmanii* (Buloke) during clearing works completed in mid-December 2022, with adults attending and sitting on the nest (Photo 3.7). A strip of trees associated with the nest tree was left for the purpose of allowing the adults to raise and fledge their young (Photo 3.8). It was envisaged that nest might be vacated in a 5–6-week window, after which the nest would be inspected by an ecologist to gauge activity and guide clearing of the remaining trees in accordance with the BMP.



Photo 3.7 Active Noisy Friarbird nest, December 2022



Photo 3.8 Vegetation strip reserved to assist Noisy Friarbird breeding attempt, December 2022

3.2.2 Salvage of habitat resources

Stage 1 clearing operations identified approximately 308 lineal metres of new salvageable material potentially suitable for reuse in rehabilitation works in 2022. An additional 90 lineal metres of suitable salvageable material was identified from hollow-bearing trees felled during Stage 2 tree clearing activities (Photo 3.9 and Photo 3.10). Salvaged habitat items were to be stockpiled with the intention to relocate within rehabilitation areas as work progresses.



Photo 3.9 An example of salvageable material identified during Stage 2 tree clearing



Photo 3.10 An example of salvageable material identified during Stage 2 tree clearing

3.2.3 Stage 2 clearing works completed outside approved clearing time

In accordance with Bengalla's BMP, clearing of woodland areas will be avoided during May to November, in order to avoid impacting hibernating bats and important growth and flowering periods for *Cymbidium canaliculatum* (Bengalla Mining Company Pty Ltd, 2017). If clearing is to occur during this period, an assessment by a suitably qualified ecologist justifying clearing activities must be recorded.

Electrical easement widening (June 2022)

A Stage 1 pre-clearing survey was completed 15 June 2022 (and again on 15 July 2022) to assess the potential for impacts upon ecological values during proposed works requiring the removal of native vegetation for small widening to an electrical easement immediately north of the main mine access road. This area was confirmed as representing habitat of a planted nature, the plantings being restricted to native trees forming the canopy layer of the proposed clearing area. The area also contained two existing trees, two mature *Allocasuarina luehmannii*, one of which was deceased. One planted native tree was deceased but remained standing and was still holding decorticated bark (Photo 3.11 and Photo 3.12). The area did not contain any individuals of threatened flora species or habitat for such species.

In total, there were three trees which contained habitat features that may be used by microchiropteran bats. However, the three trees retained habitat features that were predominantly open in nature and while they may be used as bivouacs for bats hunting in the area during warmer months, the open nature of the habitat features, being limited to open fissures on two trees and decorticated bark on the third tree, are considered unlikely to offer sufficient protection for microchiropteran bats as to represent long-term hibernation sites for such species, due to the exposed nature of these features. Therefore, clearing of this area in the May to September period was considered unlikely to impact upon hibernating bats.

While some minor habitat existed within this area, there was not sufficient resources to justify waiting until summer to clear the vegetation. Appropriate ecologist supervision still occurred to ensure that any arising ecological matters were appropriately addressed and handled to ensure protection of important biodiversity. The three habitat trees were felled successfully on 19 July 2022, with no animals injured or requiring veterinary assistance. One Green Tree Frog (*Litoria caerulea*) was captured and relocated during these works.



Photo 3.11 Stage 1 pre-clearing survey of the proposed electricity easement widening showing two of the three habitat trees



Photo 3.12 Stage 2 tree clearing operations associated with the electricity easement

Clay stockpile

A proposed clay stockpile was also inspected on 15 June 2022. The area encompassed some 318 trees sparsely distributed as single trees and clumps, being a mixture of regrowth eucalyptus species, predominantly *Eucalyptus crebra* and *Eucalyptus moluccana* (Grey Box) and scattered mature *Brachychiton populneus* (Kurrajong). There were no trees within this area of a sufficient age class to develop hollows, and therefore, was not considered to provide potential hibernation habitat for microchiropteran bats. There were three pile of logs within the area from previous clearing operations, each of which had logs containing hollows. However, the proximity of the logs to the ground and their lack of sufficient depth, precludes their potential to represent safe and insulated suitable roosting locations for long term hibernation through the coldest periods of the year. Therefore, clearing of this area through the May to September period was not considered likely to impact threatened microchiropteran bats.

Isolated trees

On the 27 June 2022, one isolated *Brachychiton populneus* positioned on the edge of a mine high wall and a separate *Allocasuarina luehmannii* stump surrounded by mine infrastructure were inspected to determine their potential suitability for felling during the May to November avoidance period. The *Brachychiton populneus* contained one medium-sized trunk hollow approximately 3 m above the ground. The *Allocasuarina luehmannii* stump was approximately 3.5 m high with broken branches, fissures and some decortivating bark. Both trees were considered to contain minimal microchiropteran bat habitat, were positioned near active mine operations and were isolated from other trees or stands of native vegetation (Photo 3.13 and Photo 3.14). Both trees were felled without incidence on 27 June 2022 with no animals observed.



Photo 3.13 Isolated *Brachychiton populneus* felled in June 2022

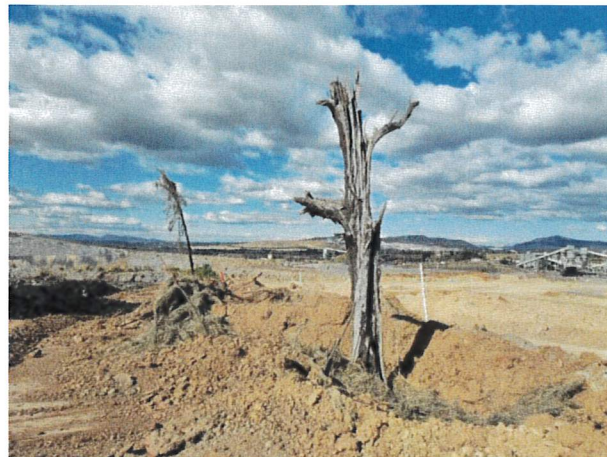


Photo 3.14 Isolated *Allocasuarina luehmannii* stump felled in June 2022

Mine pit advancement (July – August 2022)

A Stage 1 pre-clearing survey was completed 15 July 2022 to assess the potential for impacts upon ecological values associated with a proposed mine advancement that required the removal of native vegetation and fauna habitat. The proposed mine advancement to the west of active mine operations incorporated Strip 41 and Strip 43. Due to the presence of many hollow-bearing trees (including stags with knot holes, fissures and some larger hollows), mine advancement plans were revised.

The revised mine plan reduced the area of impact, and thus, the number of hollow-bearing trees potentially affected. However, hollow-bearing trees were observed to contain features that could offer shelter for native fauna, particularly small mammals, reptiles and amphibians. Habitat features recorded ranged from small to medium sized fissures within the trunks of trees, small to large-sized hollows (including knot holes) and decortivating bark, which had lifted sufficiently to provide spaces for fauna to shelter. Examples of habitat features are provided in Photo 3.15 and Photo 3.16.

Due to the presence of potentially suitable microhabitats, follow-up inspections and additional methodologies were employed to ascertain whether habitat features were in use by over-wintering fauna; particularly microchiropteran bats. For this scenario, a bucket truck was used to visually inspect potential habitat features (fissures, knot holes, hollows, broken branches) at elevation with a hand-held light source and a Signet 9 mm Inspection Camera (QC-8710) with a 2 m gooseneck extension. Additional targeted inspections were completed on 29 July 2022 and 3 August 2022. A total of 16 dead trees associated with an historic mine discharge dam were inspected over the two separate targeted inspection dates and comprised of *Allocasuarina luehmannii* and *Eucalyptus crebra* trees (Photo 3.19).



Photo 3.15 An example of a hollow-bearing tree with small knot holes & fissures



Photo 3.16 A dead *Eucalyptus crebra* that contained hollows of varying size-classes



Photo 3.17 Inspection of microhabitat features from a bucket truck



Photo 3.18 Inspection of a large Ironbark hollow at elevation from a bucket truck

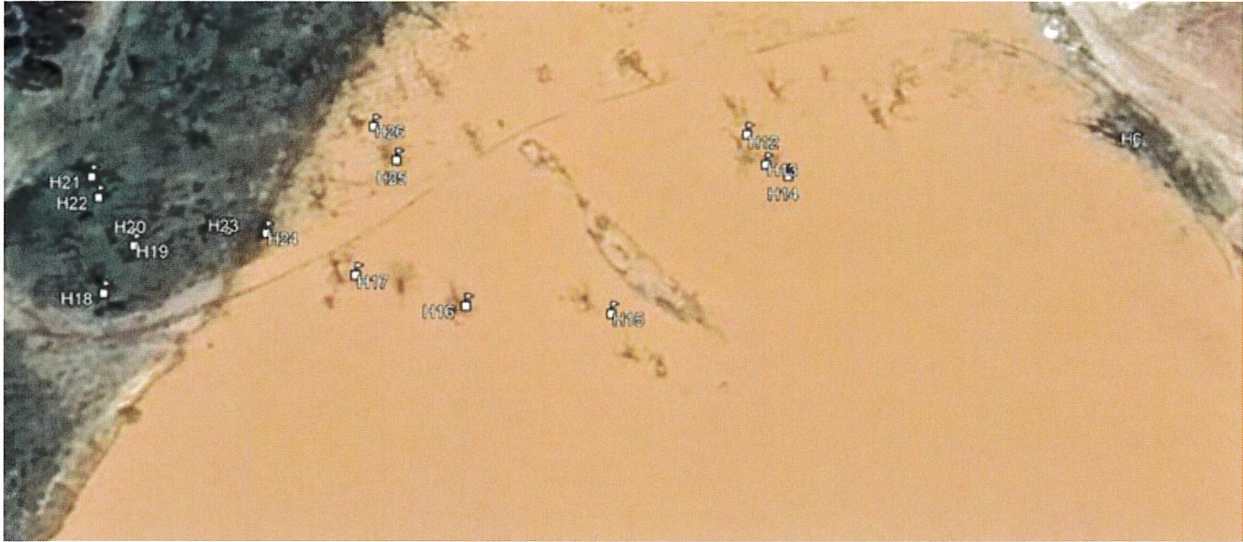


Photo 3.19 Location of dead trees felled in August 2022

In total, 12 of 16 trees were safely inspected from the bucket (Photo 3.17 and Photo 3.18) with no microchiropteran bats or any sign of animal activity or habitation observed, inclusive of H6 and H16 – H26. The inspection of trees at height confirmed that most potential microchiropteran bat roost habitat observed from the ground was minimal in nature and unlikely to provide suitable thermal characteristics or protection during torpor. Four trees (H12 – H15) were not inspected at height during the targeted inspection program. Soft ground conditions in their immediacy dictated that working at height from a bucket truck could not be undertaken safely.

Due to the minimal nature of observed microhabitat features, the trees proximity to active mine operations and distance from patches of native vegetation, it was considered that the trees could be safely felled during the microchiropteran bat avoidance period with appropriate ecological supervision to ensure that any arising ecological matters were appropriately addressed and handled to ensure protection of important biodiversity.

The 16 dead trees were felled on 9 August 2022 without injury to any fauna. A total of nine individual animals (one *Litoria caerulea* (Green Tree Frog), seven *Egernia striolata* (Tree Skink) and one *Chalinolobus gouldii* (Gould’s Wattled Bat) were successfully relocated west of Bengalla Road.

3.2.4 *Cymbidium canaliculatum* translocation

The *Cymbidium canaliculatum* was translocated on 12 December 2022. The orchid was sectioned from the *Eucalyptus crebra* host tree by an experienced arborist from a bucket truck (Photo 3.20). The limb containing the orchid was secured by a crane prior to the arborist sectioning the limb approximately 1.5 m above the orchid and approximately 1 m below, back to the tree trunk (Photo 3.21).

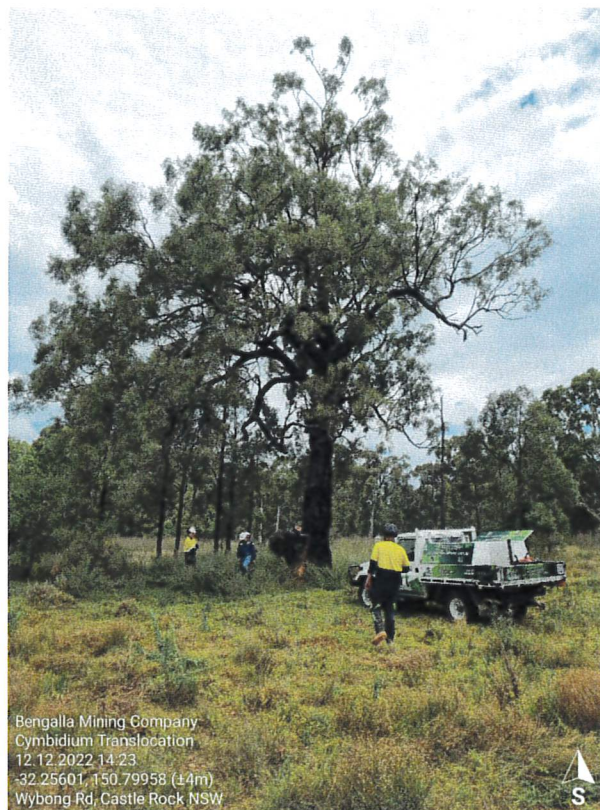


Photo 3.20 Limb containing *Cymbidium canaliculatum* being sectioned from *Eucalyptus crebra* host tree



Photo 3.21 *Cymbidium canaliculatum* being lowered from host tree

The sectioned limb was positioned and secured on a flatbed truck and transported to the proposed translocation site (Photo 3.22). The sectioned limb containing the orchid was positioned on the ground and leant against the donor *Eucalyptus crebra* and secured using metal strips (Photo 3.23).



Bengalla Mining Company
Cymbidium Translocation
12.12.2022 14:23
32.25601, 150.79958 (±4m)
Wybong Rd, Castle Rock NSW

Photo 3.22 *Eucalyptus crebra* donor tree



Bengalla Mining Company
Cymbidium Translocation
12.12.2022 14:24
32.25615, 150.79956 (±4m)
Wybong Rd, Castle Rock NSW

Photo 3.23 Translocated *Cymbidium canaliculatum*

4 Conclusions

This report documents the pre-clearing and clearing activities completed at Bengalla Mine in 2022. Pre-clearing and clearing surveys were undertaken by appropriately qualified WSP ecologists to allow for the safe removal and relocation of native flora and fauna, where practicable.

A total of 232 hollow-bearing/ habitat trees were identified within GDP areas, 207 of which were felled in 2022. In total, approximately 398 lineal metres of salvageable material potentially suitable for reuse in rehabilitation programs was identified, with the intention to relocate within rehabilitation areas as work progresses.

During Stage 2 clearing operations, 100 animals required relocation, nine were killed and six were euthanised. Fifteen advanced nestling birds were also captured and passed on to appropriate wildlife rehabilitation agencies. In addition, 21 animals were observed using habitat trees but evaded capture once the tree was felled, and one microchiropteran bat roost was observed, but the trunk could not be sectioned and relocated. Uncaptured microchiropteran bats remaining in the roost were left to self-relocate at nightfall.

One large *Cymbidium canaliculatum* was identified during Stage 1 pre-clearing surveys in 2022. This individual was successfully translocated to a donor tree prior to Stage 2 tree clearing activities in December 2022.

Several clearing events occurred during the May to November avoidance period in 2022. Due to the minimal nature of observed microhabitat features, or the targeted inspection of microhabitats at elevation from a bucket truck, it was considered that the trees could be safely felled with appropriate ecological supervision to ensure that any arising ecological matters were appropriately addressed and handled to ensure protection of important biodiversity. All trees were felled successfully, with no animals injured or requiring veterinary assistance. Several animals were captured and relocated during these works.

Clearing activities undertaken in 2023 will continue to follow the methodology outlined within the BMP.

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Appendix A

Recorded flora

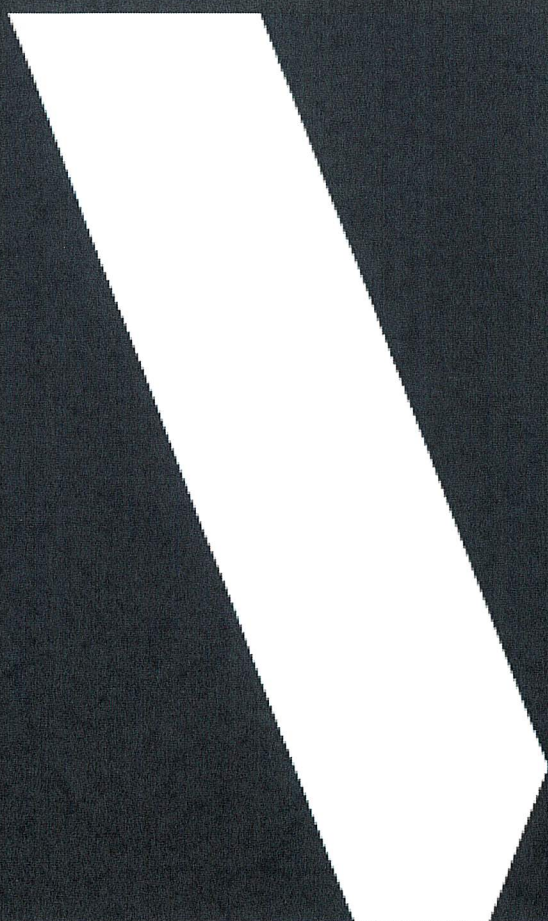


Table A.1 Recorded flora

Scientific name	Common name	Introduced	EPBC Act ¹	BC Act ²
<i>Acacia sp.</i>	Wattle			
<i>Acacia parvipinnula</i>	Silver-stemmed Wattle			
<i>Acacia salicina</i>	Willow Wattle			
<i>Allocasuarina luehmannii</i>	Buloke			
<i>Angophora floribunda</i>	Rough-barked Apple			
<i>Austrostipa verticillata</i>	Bamboo Grass			
<i>Bidens pilosa</i>	Cobblers Pegs	*		
<i>Brachychiton populneus</i>	Kurrajong			
<i>Bursaria spinosa</i>	Blackthorn			
<i>Callistemon viminalis</i>	Weeping Bottlebrush			
<i>Cirsium vulgare</i>	Spear Thistle	*		
<i>Chloris gayana</i>	Rhodes Grass	*		
<i>Chrysocephalum apiculatum</i>	Golden Buttons			
<i>Conyza sp.</i>	Fleabane	*		
<i>Cymbidium canaliculatum</i>	Tiger Orchid			EP
<i>Cynodon sp.</i>	Couch	*		
<i>Dichondra repens</i>	Kidney Weed			
<i>Digitaria sp.</i>	–			
<i>Eragrostis curvula</i>	African Lovegrass	*		
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark			
<i>Eucalyptus moluccana</i>	Grey Box			
<i>Geijera parviflora</i>	Wilga			
<i>Glycine tabacina</i>	–			
<i>Gomphocarpus fruticosus</i>	Balloon Cotton	*		
<i>Hypericum perforatum</i>	St Johns Wort	*		
<i>Hypochaeris radicata</i>	Catsear	*		
<i>Lomandra sp.</i>	–			
<i>Lycium ferocissimum</i>	African Boxthorn	*		
<i>Medicago sp.</i>	–	*		
<i>Melia azedarach</i>	White Cedar	*		
<i>Melinis repens</i>	Red-natal Grass	*		
<i>Onopordum acanthium</i>	Scotch Thistle	*		

Scientific name	Common name	Introduced	EPBC Act ¹	BC Act ²
<i>Opuntia stricta</i>	Prickly Pear	*		
<i>Paspalum sp.</i>	Paspalum	*		
<i>Plantago lanceolata</i>	Plantain	*		
<i>Rumex crispus</i>	Curled Dock	*		
<i>Rytidosperma caespitosum</i>	Wallaby Grass			
<i>Senecio madagascariensis</i>	Fireweed	*		
<i>Sida rhombifolia</i>	Paddys Lucerne	*		
<i>Solanum sp.</i>	–	*		
<i>Taraxacum officinale</i>	Common Dandelion	*		
<i>Verbena bonariensis</i>	Purpletop	*		
<i>Wahlenbergia communis</i>	Blue Bells			

(1) *Environment Protection and Biodiversity Conservation Act 1999*

(2) *Biodiversity Conservation Act 2016* – EP = Endangered Population.

Appendix B

Recorded fauna

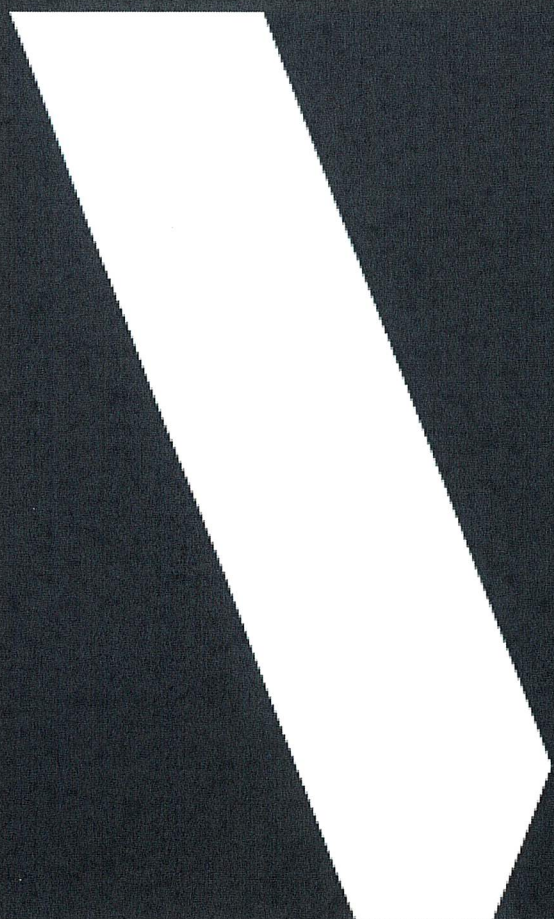


Table B.1 Recorded fauna

Scientific name	Common name	Introduced	EPBC Act ¹	BC Act ²
Amphibians (2)				
<i>Litoria caerulea</i>	Green Tree Frog			
<i>Litoria peroni</i>	Peron's Tree Frog			
Birds (30)				
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			
<i>Acanthiza lineata</i>	Striated Thornbill			
<i>Acridotheres tristis</i>	Common Myna	*		
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar			
<i>Anas superciliosa</i>	Pacific Black Duck			
<i>Anthochaera carunculata</i>	Red Wattlebird			
<i>Aquila audax</i>	Wedge-tailed Eagle			
<i>Chenonetta jubata</i>	Australian Wood Duck			
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			
<i>Corvus coronoides</i>	Australian Raven			
<i>Coturnix ypsilophora</i>	Brown Quail			
<i>Cracticus tibicen</i>	Australian Magpie			
<i>Cracticus torquatus</i>	Grey Butcherbird			
<i>Dacelo noveguineae</i>	Laughing Kookaburra			
<i>Eolophus roseicapilla</i>	Galah			
<i>Falco cenchroides</i>	Nankeen Kestrel			
<i>Falco berigora</i>	Brown Falcon			
<i>Grallina cyanoleuca</i>	Magpie Lark			
<i>Hirundo neoxena</i>	Welcome Swallow			
<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater			
<i>Malurus cyaneus</i>	Superb Fairywren			
<i>Manorina melanocephala</i>	Noisy Miner			
<i>Ocyphaps lophotes</i>	Crested Pigeon			
<i>Pardalotus striatus</i>	Striated Pardalote			
<i>Petrochelidon ariel</i>	Fairy Martin			
<i>Petrochelidon nigricans</i>	Tree Martin			
<i>Philemon corniculatus</i>	Noisy Friarbird			
<i>Platyercus eximius</i>	Eastern Rosella			

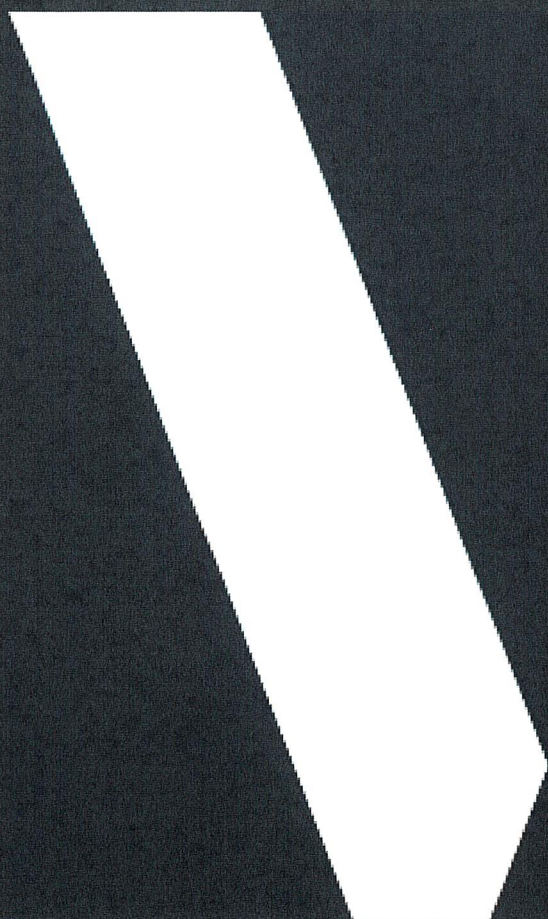
Scientific name	Common name	Introduced	EPBC Act ¹	BC Act ²
<i>Rhipidura leucophrys</i>	Willie Wagtail			
<i>Sturnus vulgaris</i>	Common Starling	*		
Mammals (9)				
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat			
<i>Macropus giganteus</i>	Eastern Grey Kangaroo			
<i>Oryctolagus cuniculus</i>	Rabbit	*		
<i>Ozimops planiceps</i>	South-eastern Free-tailed Bat			
<i>Ozimops ridei</i>	Ride's Free-tailed Bat			
<i>Scotorepens orion</i>	Eastern Broad-nosed Bat			
<i>Trichosurus vulpecula</i>	Common Brushtail Possum			
<i>Vulpes vulpes</i>	Fox	*		
<i>Wallabia bicolor</i>	Swamp Wallaby			
Reptiles (5)				
<i>Cryptoblepharus pulcher</i>	Elegant Snake-eyed Skink			
<i>Egernia striolata</i>	Tree Skink			
<i>Nebulifera robusta</i>	Robust Velvet Gecko			
<i>Pogona barbata</i>	Eastern Bearded Dragon			
<i>Varanus varius</i>	Lace Monitor			

(1) Environment Protection and Biodiversity Conservation Act 1999

(2) Biodiversity Conservation Act 2016.

Appendix C

Scientific licence





Department of Planning, Industry and Environment
Scientific Licence
Biodiversity Conservation Act 2016

Name and postal address of principal licensee

Nominated premises (where appropriate)

Mr Alex Cockerill
 WSP
 Se 1 L 3 51-55 Bolton St
 NEWCASTLE NSW 2300

Your licence number is: SL100630

This licence is valid from: 01 June 2021

This licence will expire on: 31 August 2022

Additional authorisations:

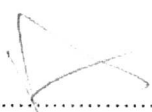
Project Title: General flora and fauna surveys for environmental impact assessments

This class of biodiversity conservation licence granted under Part 2 of the *Biodiversity Conservation Act 2016* authorises the following activities: Harm by means of capture, deal in (possess), and liberate protected and threatened animals for survey purposes; Pick and deal in (possess) protected and threatened plants for identification purposes.

This licence authorises the principal licensee and any associates named in **Attachment A** to conduct those activities authorised above, to those species, communities or materials listed in **Attachment B**, at the locations specified in **Attachment C** of this licence.

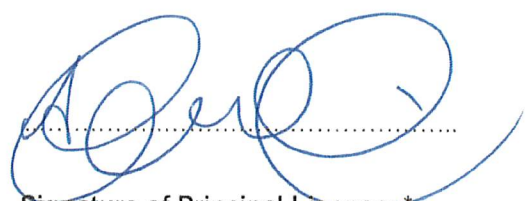
This licence also authorises the principal licensee to conduct research on National Park estate under clause 26 of the National Parks and Wildlife Regulation 2019 (NPW Reg), where this forms part of a project approved by a delegated officer of the *Biodiversity Conservation Act 2016*.

This licence is granted subject to the provisions of *Biodiversity Conservation Act 2016*, Biodiversity Conservation Regulation 2017, the general conditions listed below, any special conditions as may be notified in writing to the licensee by the Environment Agency Head of the Department of Planning, Industry and Environment (the Department) or a 'delegated officer' of the *Biodiversity Conservation Act 2016* and the Department's "Scientific Licensing Policy".



Signature of Delegated Officer

Date: 02 December 2021



Signature of Principal Licensee*

Date: 8/12/21

* This licence is not valid unless it is signed by the principal licensee. By signing this licence, the licensee agrees that they have read, understood and agree to comply with all of the conditions listed on the licence.

About Us

WSP is one of the world's leading professional services consulting firms. We are dedicated to our local communities and propelled by international brainpower. We are technical experts and strategic advisors including engineers, technicians, scientists, planners, surveyors and environmental specialists, as well as other design, program and construction management professionals. We design lasting solutions in the Transport & Water, Property & Buildings, Earth & Environment, and Mining & Power sector as well as offering strategic Advisory, Engagement & Digital services. With approximately 6,100 talented people in more than 50 offices in Australia and New Zealand, we engineer future ready projects that will help societies grow for lifetimes to come. www.wsp.com/en-au/.





Appendix D Weed and Pest Management

WEED AND PEST MANAGEMENT

1 Environmental Management

Weed and pest management at Bengalla and on the offset properties is undertaken in accordance with the BDMP and BOMP, respectively.

Inspections are undertaken for weeds and pests, as required. Weed and pest control at Bengalla and on the offset properties is undertaken through targeted chemical and baiting applications.

2 Environmental Performance

Weed Management

Weeding is undertaken using boom spray, spot spraying or stem application dependent upon the weed and the terrain.

- Bengalla

During 2022, approximately 255 ha was treated for the management of weeds. Target weed species included African boxthorn, galenia, St John's wort and other environmental weeds. Priority areas for treatment included the pre-clearance areas, rehabilitation areas and topsoil stockpiles. Chemicals used during 2022 included Glyphosate with metsulfuron, Grazon Extra and Garlon 600.

Observations during the weed treatment program and follow up inspections indicate that treatment methods used during the Reporting Period have generally been effective in reducing the presence of weeds in target areas.

Weed management areas at Bengalla are shown on **Figure 2** below.

- Biodiversity Offset Areas

Weed management across the biodiversity offset areas involves quarterly inspections and weed control programs.

Quarterly inspections are undertaken to determine weed control required for each quarter in each of the offset areas. Following identification, weed control commences and quarterly work records of site attendance are submitted which detail the sites treated, area (ha) treated, techniques and chemicals utilised and rates of application.

The chemicals to be utilised are based on their effectiveness depending on the type of weeds present. Chemicals used during 2022 include Glyphosate with metsulfuron, Grazon Extra and Garlon 600.

The weeds controlled during the Reporting Period included prickly pear, Paterson's curse, African boxthorn, lantana and several environmental weeds across each offset area. St John's Wort was also addressed at Kenalea properties and Black Mountain.

Application of chemicals was primarily via vehicle mounted spray rigs however backpacks were also used in some areas inaccessible by vehicle.

Regional rainfall was well above the long-term average for 2022 which contributed to the increase of several weed populations and the ensuing level of control required. Access to some areas also proved difficult in 2022 due to flooding of creeks and access crossings.

A significant area of St John's Wort was also addressed using aerial spraying on Kenalea during December 2022. Aerial spraying increased BMC's ability to access areas impacted that were

inaccessible to conventional control measures. The image below shows the aerial spraying. The chemical used aurally was Gazon.

Figures 3 to 6 below show locations of weed control in 2022 at the Black Mountain and Kenalea offset properties. The Merriwa River offset property was inaccessible during 2022 due to ongoing weather conditions impacting road access.



Photo: Aerial weed control being undertaken on Kenalea.

Pest Management

- ***Bengalla***

A pig control program was conducted throughout 2022 at various locations across Bengalla, however this was impacted by continued access issues due to continued rainfall. This utilised both trapping and baiting using sodium nitrite. A total of 19 pigs were trapped and culled in 2022.

Feral pigs were trapped utilising a penning system using grain and molasses as the main attractant. Once trapped, all pigs were disposed of humanely.

This culling program will continue into 2023 across Bengalla.

Dog baiting programs at Bengalla occurred in the Autumn and Spring. Each program was undertaken in conjunction with Local Land Services and local wild dog associations and additionally forms part of a broader scale baiting program targeting foxes and wild dogs in the Hunter Valley. Baiting included utilising 1080 poison baits in addition to ejector capsule baits and each baiting program extended for three weeks during each period.

Both buffer lands and rehabilitation areas were utilised in the programs.

During the autumn baiting program, 25 bait stations were laid over a three week period with a total of 87 baits. Results indicate 42 takes of which 17 takes were by target species being foxes. No wild dog takes were recorded.

During the spring baiting program, 25 bait stations were laid over a three week period with a total of 65 baits. Results indicate 27 takes of which 18 takes were by target species being foxes. 2 wild dog takes were recorded.

- Offset Properties

During the Reporting Period, BMC undertook two 4-week dog ground baiting programs across all offset properties, including aerial dog baiting in Autumn and Spring in consultation with Local Land Services.

Figures 7 to 12 below show locations of wild dog baiting locations in 2022 at the offset properties.

A total of 614 baits were placed during the 2022 ground baiting program targeting foxes and wild dogs. A total of 104 baits were taken during the program. Results indicated that 38% of baits were taken by wild dogs and 62% by foxes. Trends over 5 years indicate that wild dog takes have varied from 67 in 2016, 49 takes in 2017, 33 takes in 2018, 88 takes in 2019, 29 in 2020, 28 in 2021 and 39 in 2022. This suggests that dog numbers have risen during 2022, possibly due to an increase in food supply or migration from other areas where food supply was lower.

Opportunistic feral animal control was also undertaken during weed control works targeting 17 pigs and 2 deer.

Further Actions

Ongoing management of weeds and feral animals at Bengalla and the offset properties will continue during 2023.

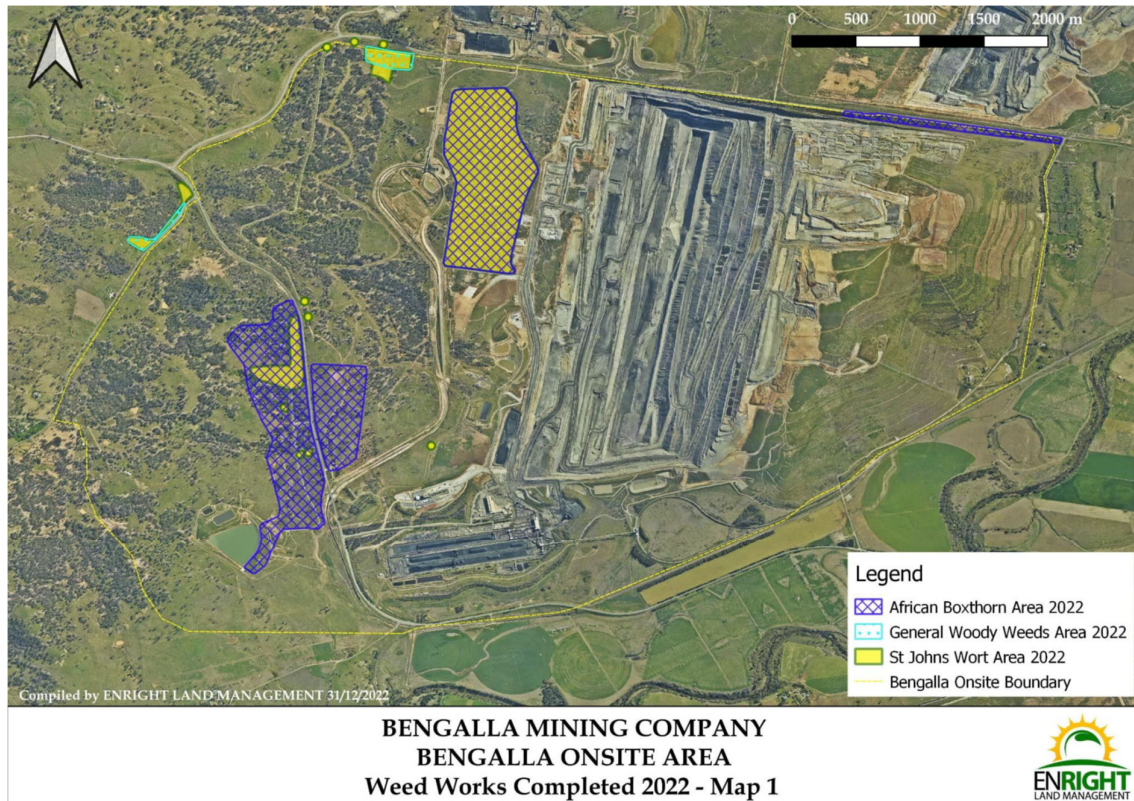


Figure 2 – Bengalla Mine Weed Management Areas 2022

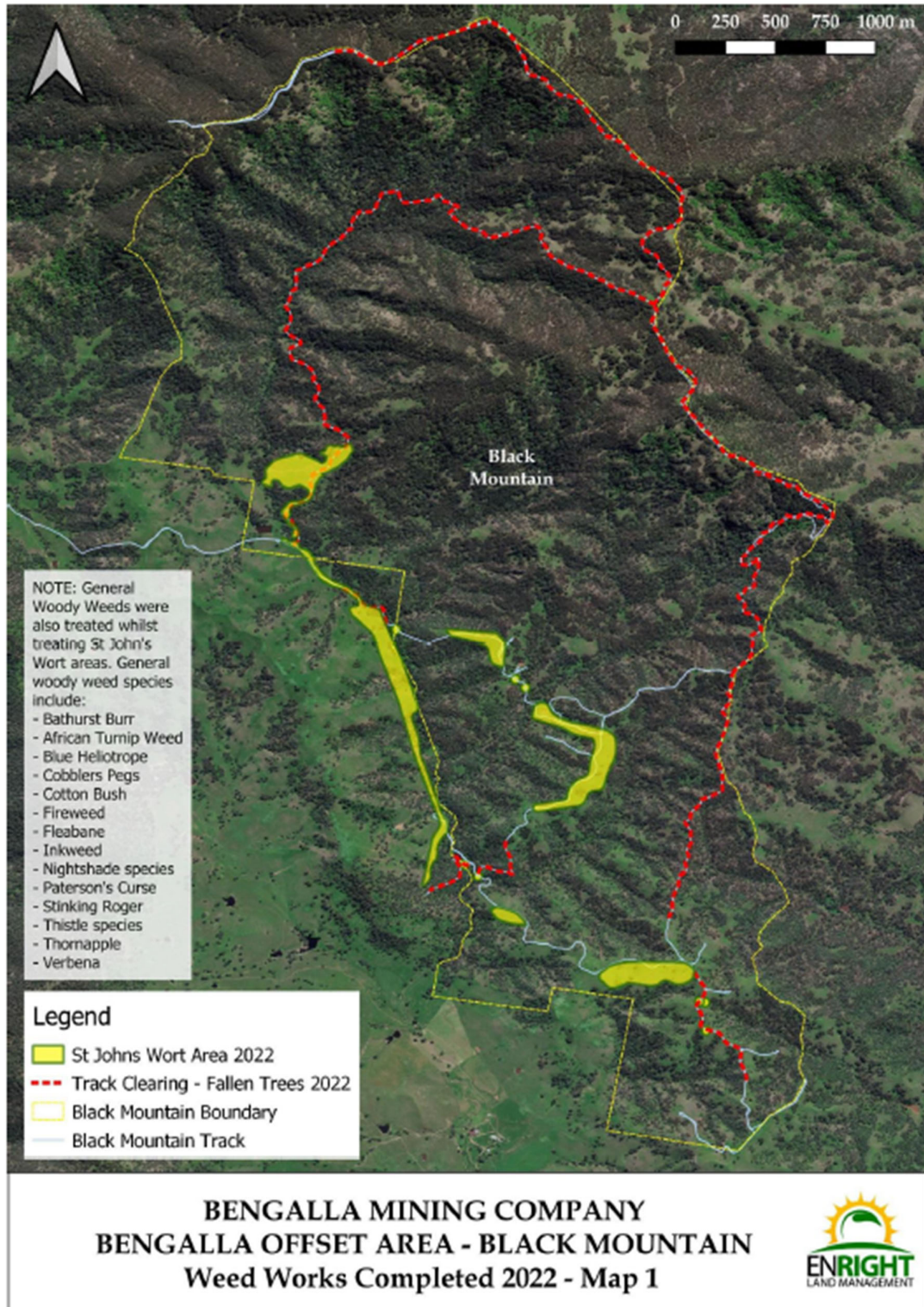


Figure 3 – Black Mountain Weed Management Locations 2022

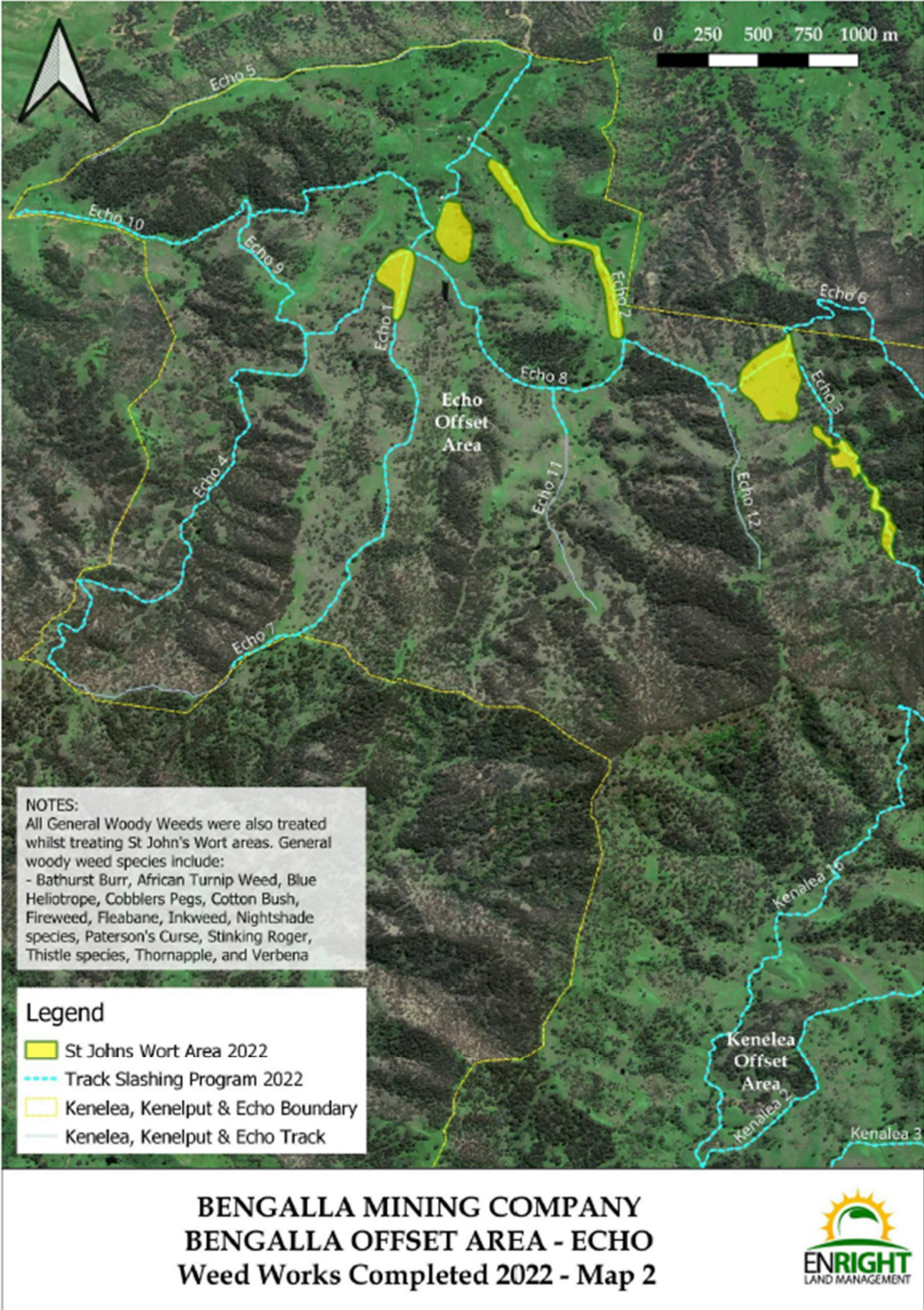
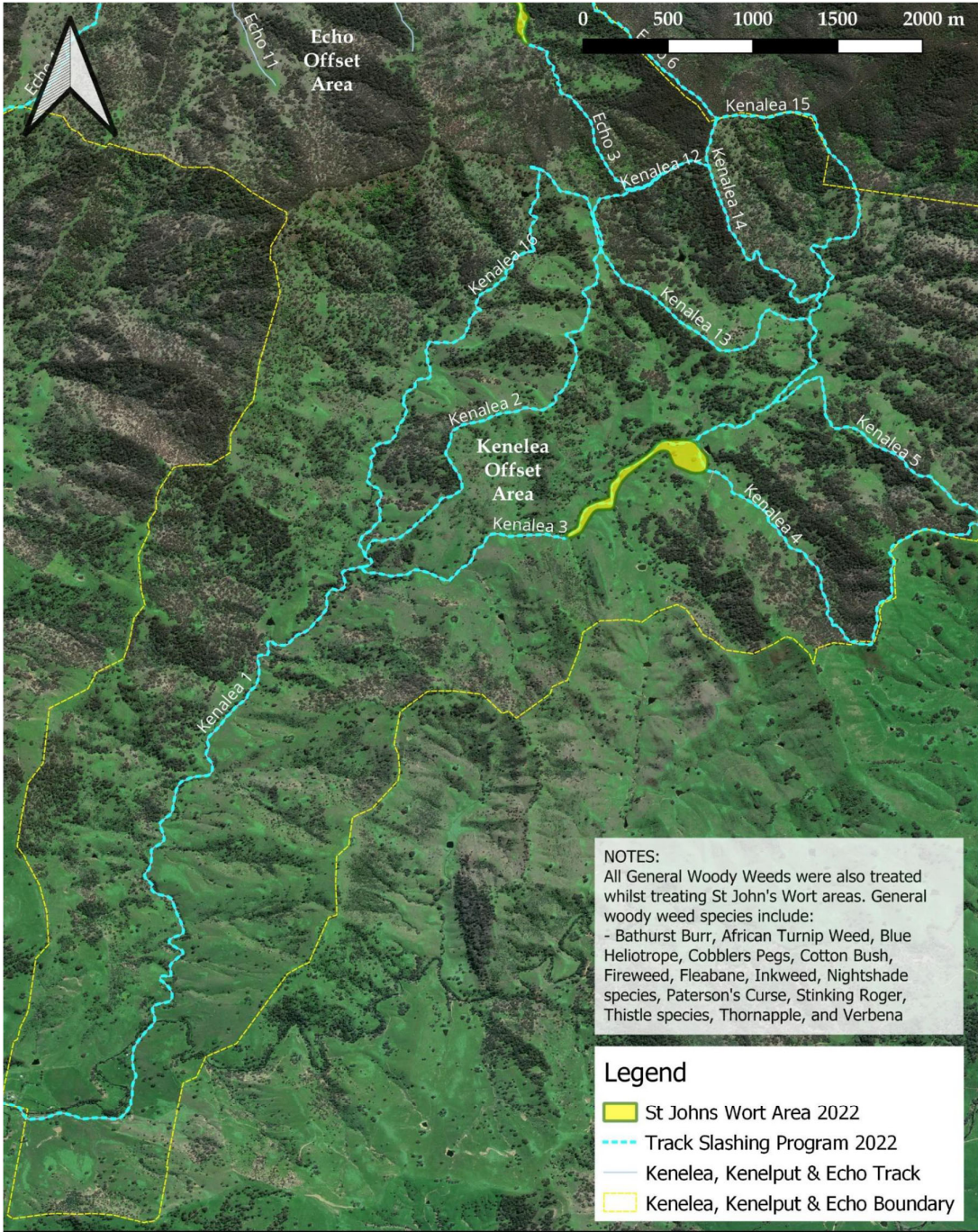


Figure 4 – Kenalea (Echo) Weed Management Locations 2022



**BENGALLA MINING COMPANY
BENGALLA OFFSET AREA - KENELEA
Weed Works Completed 2022 - Map 3**



Figure 5 – Kenalea Weed Management Locations 2022

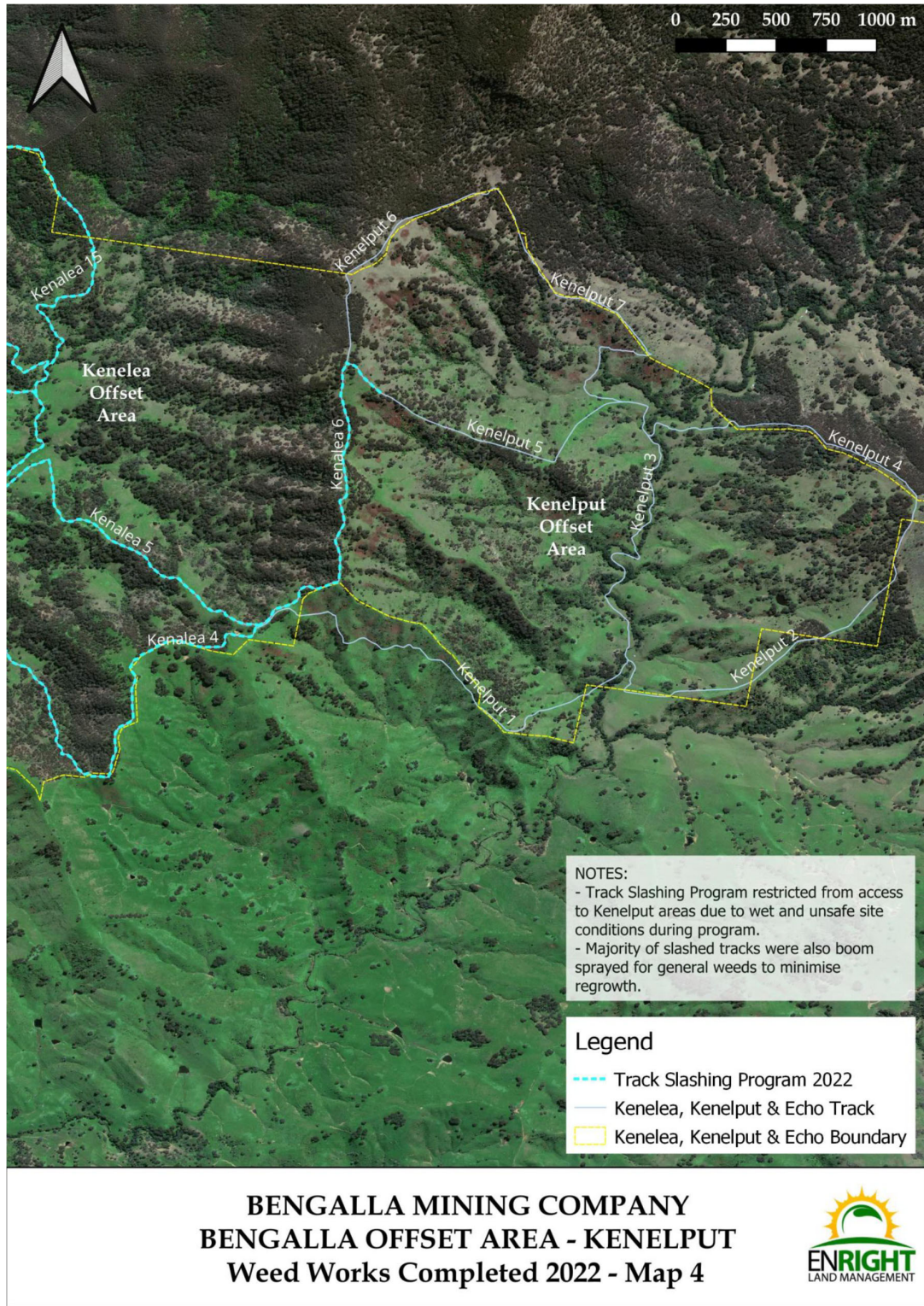
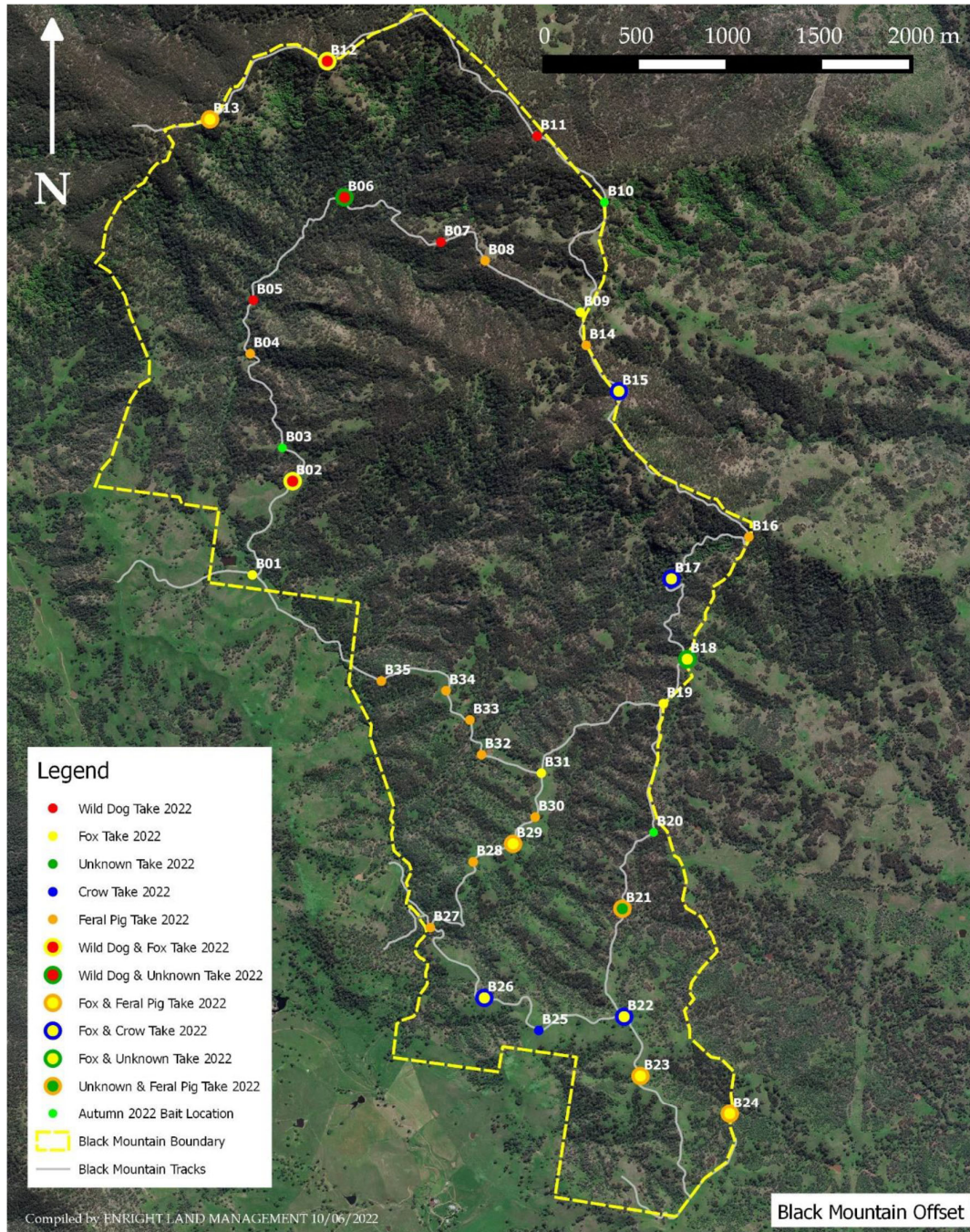


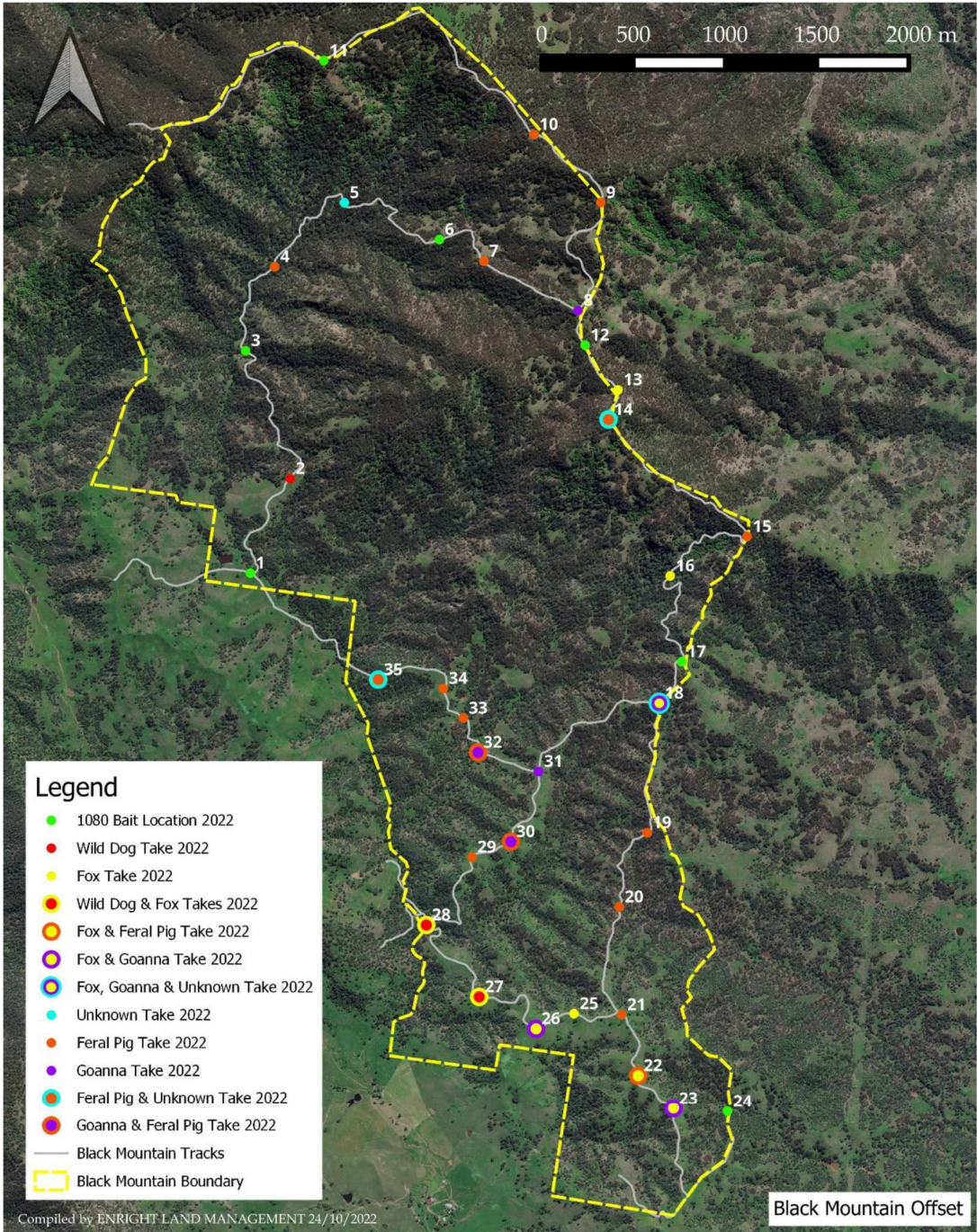
Figure 6 – Kenalea (Kenalput) Weed Management Locations 2022



BENGALLA MINING COMPANY
1080 BAITING PROGRAM AUTUMN 2022
Wild Dog & Fox Bait Taken - Map 1



Figure 7 – Black Mountain Wild Dog Bait Locations Autumn 2022



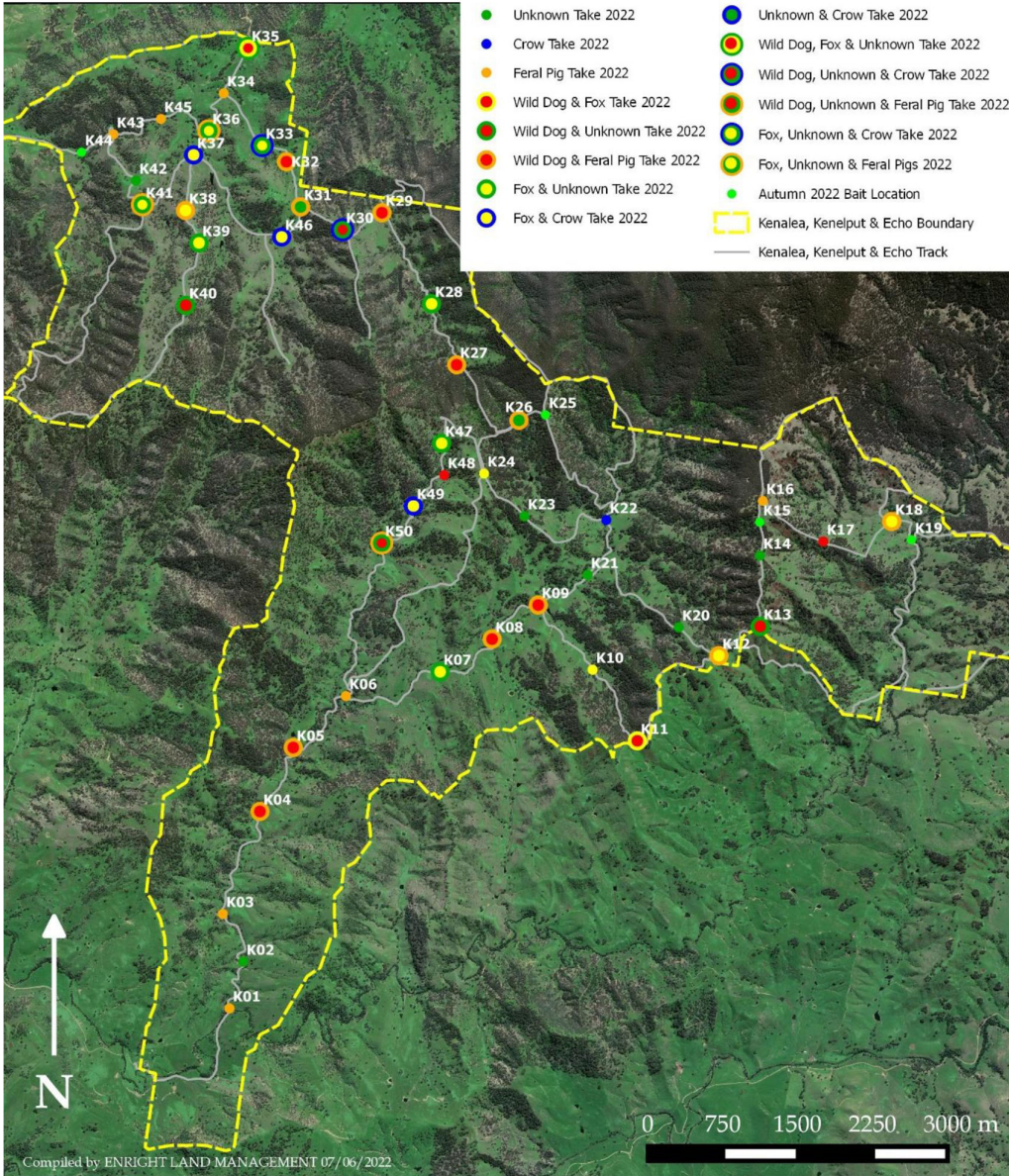
**BENGALLA MINING COMPANY
1080 BAITING PROGRAM SPRING 2022
Wild Dog & Fox Baits Taken - Map 1**



Figure 8 – Black Mountain Wild Dog Bait Locations Spring 2022

Eco/Kenalea/Kenelput Offset

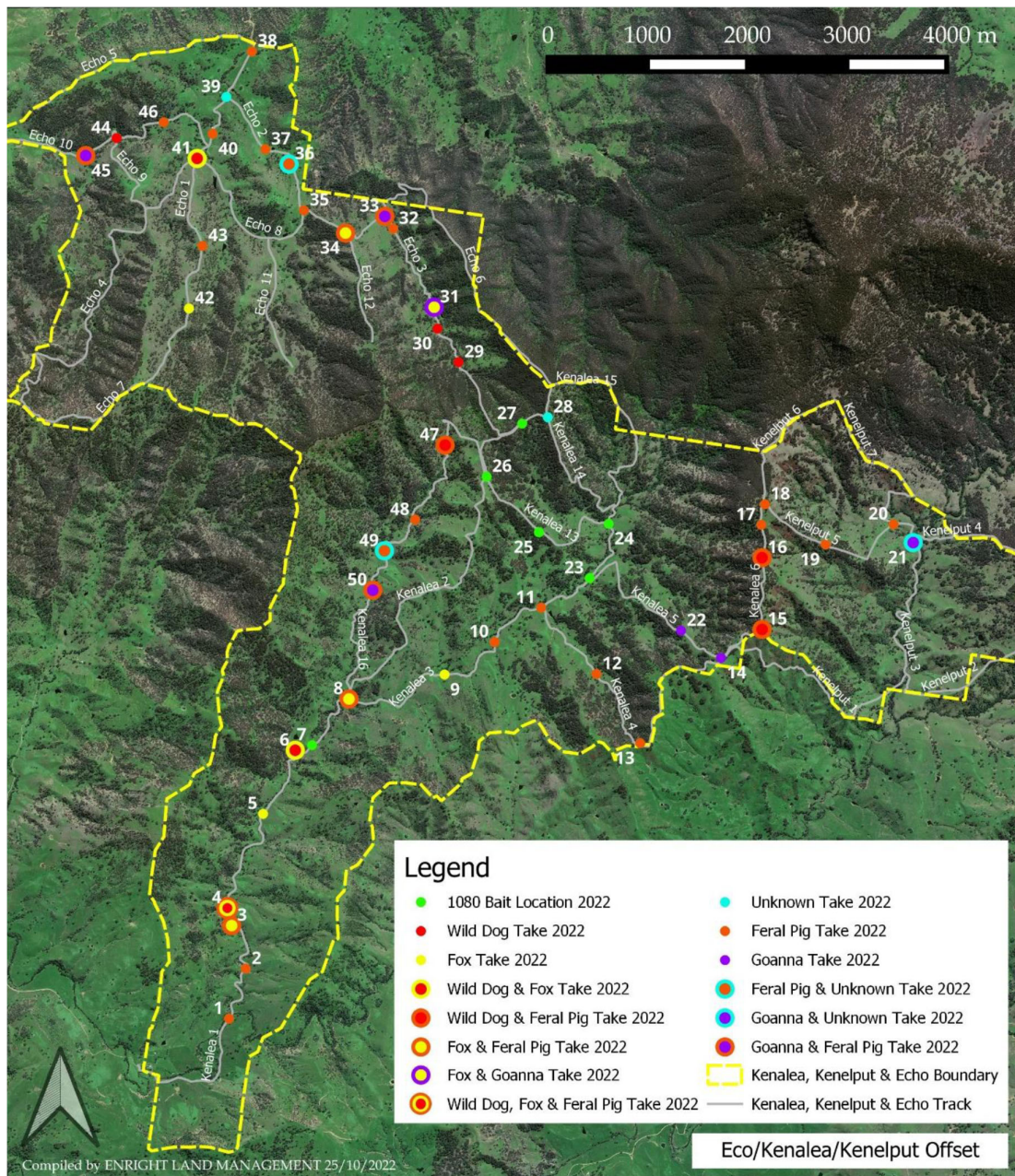
Legend



BENGALLA MINING COMPANY
1080 BAITING PROGRAM AUTUMN 2022
Wild Dog & Fox Baits Taken - Map 1



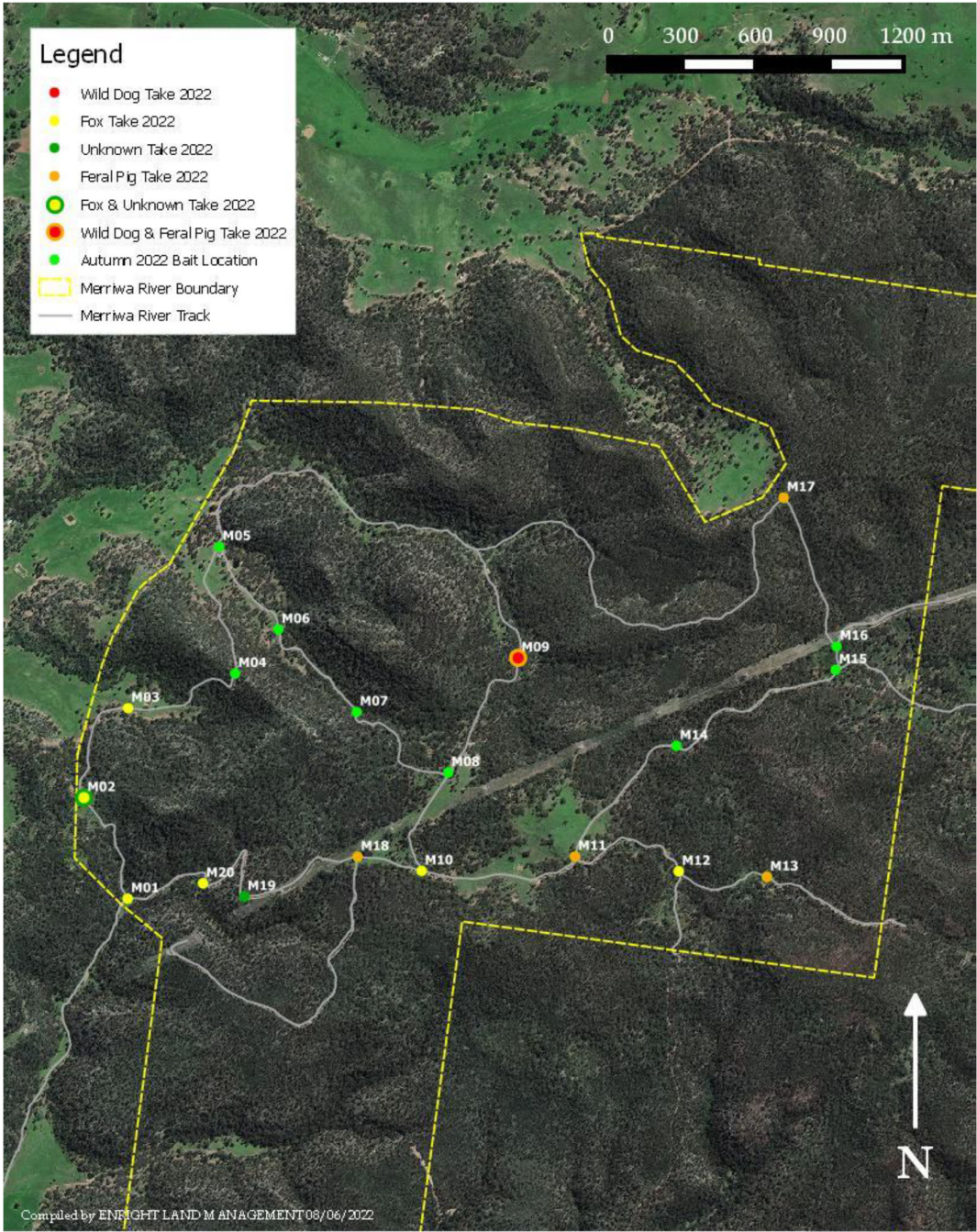
Figure 9 – Kenalea Wild Dog Bait Locations Autumn 2022



BENGALLA MINING COMPANY
1080 BAITING PROGRAM SPRING 2022
Wild Dog & Fox Baits Taken - Map 1



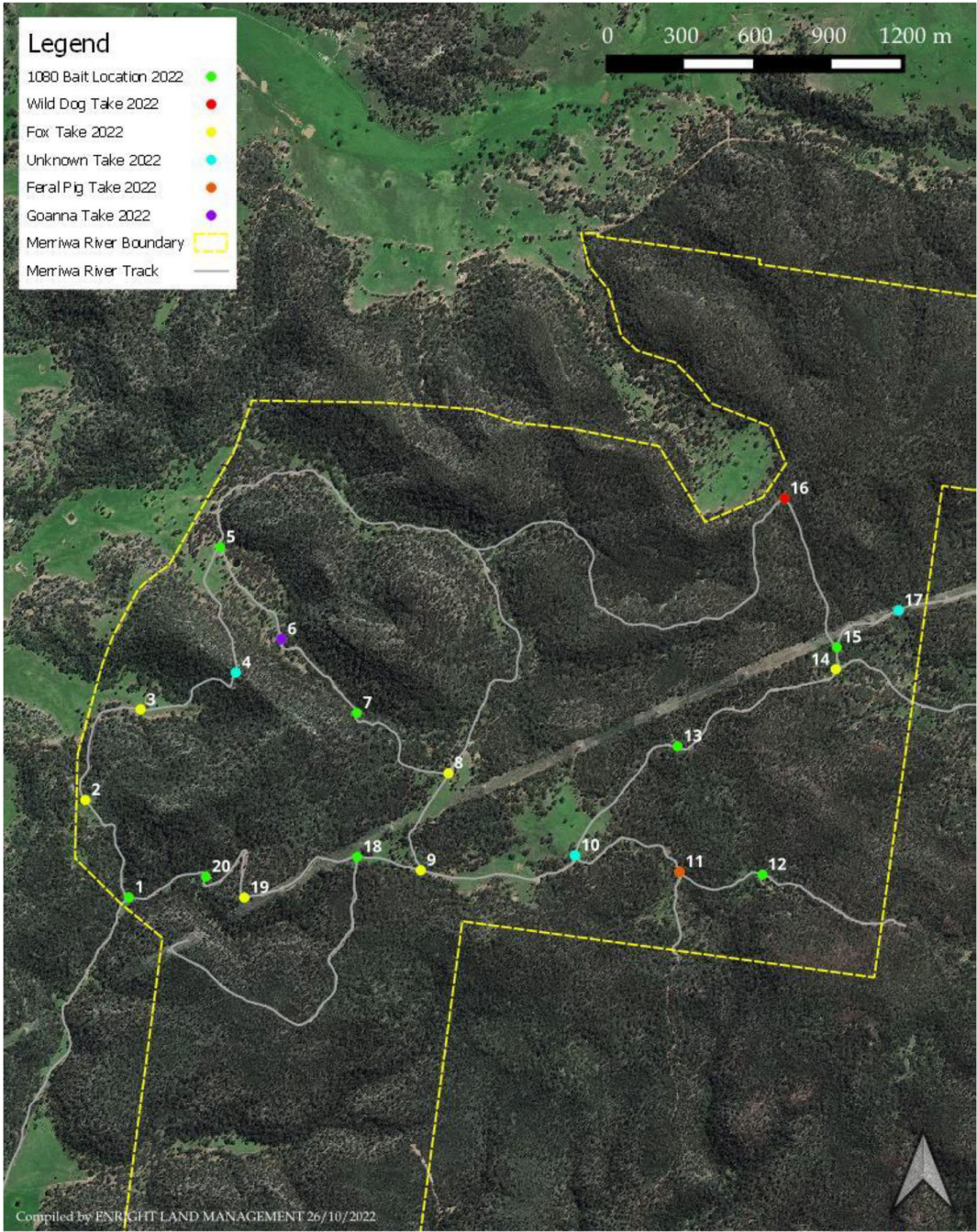
Figure 10 – Kenalea Wild Dog Bait Locations Spring 2022



**BENGALLA MINING COMPANY
1080 BAITING PROGRAM AUTUMN 2022
Wild Dog & Fox Baits Taken - Map 1**



Figure 11 – Merriwa River Wild Dog Bait Locations Autumn 2022



**BENGALLA MINING COMPANY
1080 BAITING PROGRAM SPRING 2022
Wild Dog & Fox Baits Taken - Map 1**



Figure 12 – Merriwa River Wild Dog Bait Locations Spring 2022