



# MOOLARBEN COAL PROJECT 2021 COMPLIANCE REPORT

EPBC 2007/3297

EPBC 2013/6926

EPBC 2008/4444

EPBC 2017/7974

<b>Project Name</b>	Moolarben Coal Complex
<b>Approval Holder</b>	Moolarben Coal Mines Pty Ltd Moolarben Coal Operations Pty Ltd
<b>EPBC Reference</b>	2007/3297 2013/6926 2008/4444 2017/7974
<b>Approved Actions</b>	<p>The establishment of a coal mine and associated infrastructure 40 kilometres east of Mudgee to generate approximately 10Mtpa of product coal and as described in the referral received under the Act on 16 February 2007(EPBC 2007/3297);</p> <p>To modify and extend the Moolarben Coal Project (Stage 1), approximately 40km north east of Mudgee, NSW. (EPBC 2013/6926).</p> <p>To develop a new open cut coal mine and two underground coal mines, 40 km north-east of Mudgee, NSW and as described in the referral received under the EPBC Act on 9 September 2008 and the request for variation received under the EPBC Act on 27 February 2012.</p> <p>To Modify the extend the Moolarben Coal Project (Stage1 and Stage 2), 40 km north of Mudgee, NSW (see EPBC Act referral 2017/7974).</p>
<b>Reporting Period</b>	1 January 2021 to 31 December 2021
<b>Version</b>	FINAL
<b>Declaration of Accuracy</b>	
<p>In making this declaration, I am aware that sections 490 and 491 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.</p>	
<b>Signature of authorised reporting officer</b>	
<b>Name of authorised reporting officer</b>	Trent Cini
<b>Title of authorised reporting officer</b>	Environment and Community Manager
<b>Date</b>	31 March 2022
<b>Organisation Name</b>	Moolarben Coal Operations Pty Ltd
<b>Organisation ACN</b>	077 939 569

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## 1.0 INTRODUCTION

The Moolarben Coal Complex (MCC) is located in the Western Coalfield of New South Wales (NSW) approximately 40 kilometres (km) north of Mudgee to the south east of Ulan. The Moolarben Coal Complex is located within the Mid-Western Regional Local Government Area (LGA). Figure 1 depicts the regional location of the Biodiversity Offsets Areas and the Moolarben Coal Complex and Table 1 summarises the Moolarben Coal Complex offsets by approval.

Moolarben Coal Operations Pty Ltd (MCO) is the operator of the Moolarben Coal Complex on behalf of the Moolarben Joint Venture (Moolarben Coal Mines Pty Ltd [MCM], Yancoal Moolarben Pty Ltd (YM) and a consortium of Korean power companies). MCO, MCM and YM are wholly owned subsidiaries of Yancoal Australia Limited (Yancoal).

All mining operations are conducted in accordance with NSW Project Approval (05\_0117) (Moolarben Coal Project Stage 1) as modified, and NSW Project Approval (08\_0135) (Moolarben Coal Project Stage 2) as modified. Current mining operations undertaken across MCC have approval until 31 December 2038.

The current mining operations are undertaken in accordance with Approval Decisions (EPBC 2007/3297), (EPBC 2013/6926), (EPBC 2008/4444) and (EPBC 2017/7974) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report details activities and compliance with EPBC 2007/3297, EPBC 2013/6926, EPBC 2008/4444 and EPBC 2017/7974 for the period 1 January 2021 to 31 December 2021

**Table 1:** EPBC Approval Biodiversity Offset Areas

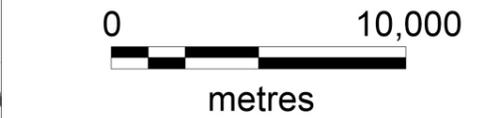
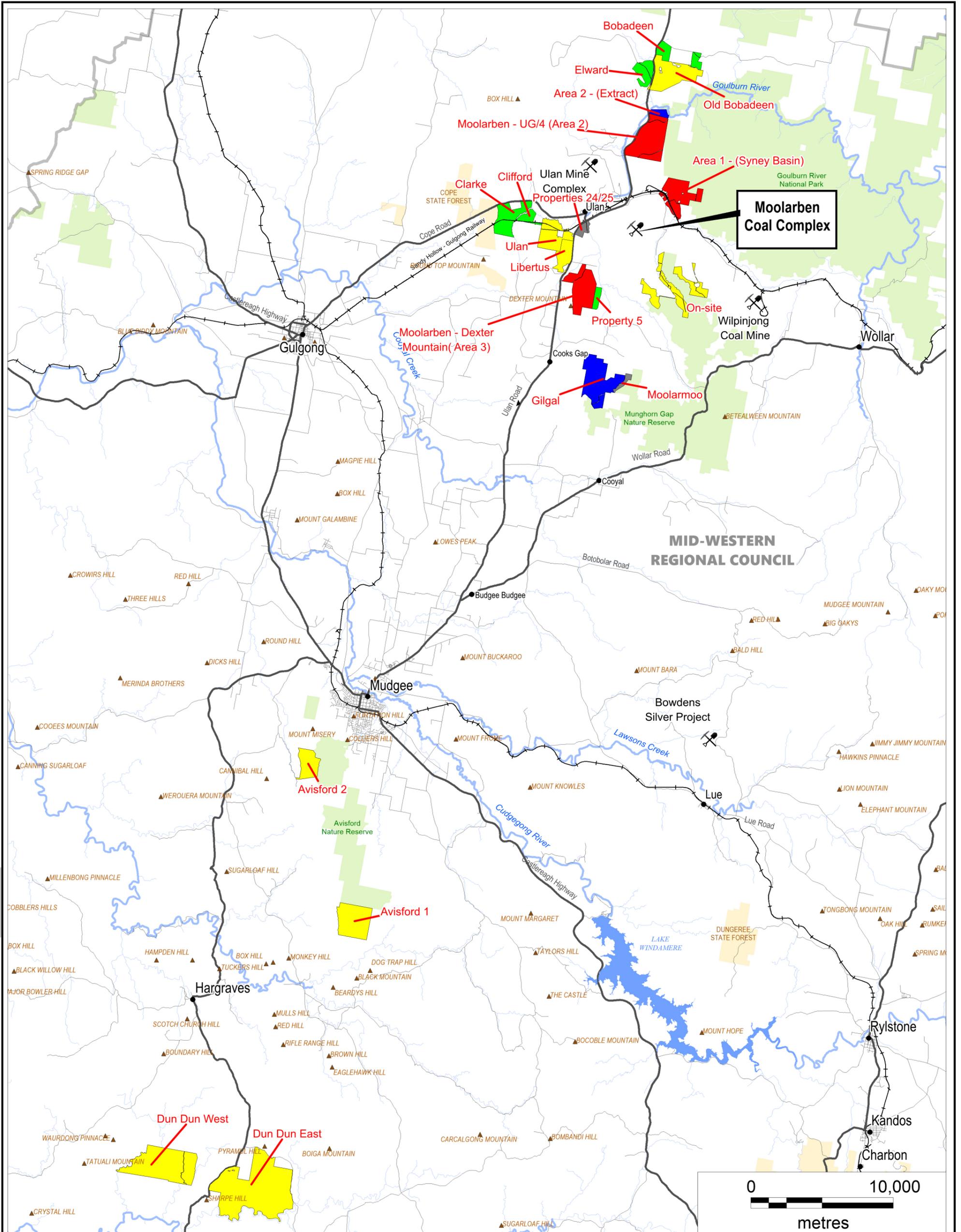
EPBC Approval	Offset
2007/3297	<ul style="list-style-type: none"> <li>• Area 1 (Sydney Basin)</li> <li>• Area 2 (Moolarben)</li> <li>• Area 3 (Property 6)</li> </ul>
2013/6926	<ul style="list-style-type: none"> <li>• Elward</li> <li>• Bobadeen East</li> <li>• Bobadeen West</li> <li>• Clifford</li> <li>• Area 3 (Property 5)</li> <li>• Clarke</li> </ul>
2008/4444	<ul style="list-style-type: none"> <li>• Old Bobadeen</li> <li>• Ulan</li> <li>• Libertus</li> <li>• On-site</li> <li>• Avisford 2</li> <li>• Avisford 1</li> <li>• Dun Dun West</li> <li>• Dun Dun East</li> </ul>
2017/7974	<ul style="list-style-type: none"> <li>• Area 1 (Sydney Basin)</li> <li>• Rehabilitation (Credits)</li> <li>• Gilgal (Credits)</li> </ul>
Non EPBC offsets	<ul style="list-style-type: none"> <li>• Moolarmoo</li> <li>• Property 24/25</li> </ul>

## 2.0 DESCRIPTION OF ACTIVITIES

During the reporting period the following activities have been undertaken:

- Land preparation and disturbance in accordance with the VCPLMP, including pre-clearance surveys, salvage of habitat features and fauna management within action areas.
- Collection of locally sourced native seed.
- BOA management including fencing, access maintenance, weed and vertebrate pest management.
- Continued assisted regeneration across relevant BOAs including planting of approximately 68,000 tube stock to supplement natural regeneration within the Ulan 18, Bobadeen and Red Hills Biodiversity Offset clusters.
- Monitoring in accordance with the Biodiversity Offset Management Plan (BOMP), Landscape Management Plan (LMP) and Rehabilitation Management Plan (RMP).

- Approval of Moolarben 2008/4444 Biodiversity and Offset Management Plan by the Department of Agriculture, Water and the Environment (DAWE).



**Legend**

- Local Government Area
- State Forest
- National Park / Nature Reserve
- Mining Project

**EPBC Approval**

- 2007/3297
- 2008/4444
- 2013/6926
- 2017/7974
- Non EPBC



**Figure 1**  
**Regional Location**

### 3.0 COMPLIANCE TABLES (2007/3297) (2008/4444) (2013/6926)

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
EPBC 2007/3297			
1	<p>In order to protect the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed ecological community, the person taking the action shall make suitable arrangements within 12 months of this approval to:</p> <p>(a) Transfer at least 130 hectares of the White Box-Yellow Box-Blakely's Red Gum Woodland and Derived Native Grassland listed ecological community to the NSW Minister for Climate Change Environment and Water offset, on a "like for like" basis, the 65 hectares that would be cleared by the project at an offset ratio of 2:1; and</p> <p>(b) Provide the NSW Department of Environment and Climate Change (DECC) with funds (which at the discretion of DECC may include an in-kind contribution) to cover any reasonable costs associated with the transfer and ongoing management of this land.</p>	Compliant	Completed prior to period.
1A	The approval holder must undertake the action within the area enclosed by the red line designated as 'DA Boundary' in the map at Appendix 1. The approval holder must not undertake the action within the areas designated as 'Areas not part of the Action' in the map at Appendix 1.	Compliant	Noted. Action undertaken within the DA Boundary and not undertaken within the areas designated as 'Areas not part of the Action'.
2	<p>In order to protect the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed ecological community, the person taking the action shall in accordance with the Rehabilitation and Offset Management Plan (See Condition 3 below):</p> <p>(a) Revegetate at least 38 hectares of disturbed land on the "Red Hills" property with Yellow Box-White Box-Blakely's Red Gum vegetation;</p> <p>(b) Revegetate at least 143 hectares of cleared land on the "Red Hills" property with suitable native vegetation to improve wildlife corridor linkages;</p> <p>(c) Conserve and enhance at least 1211 hectares of existing native vegetation onsite within the areas marked with green crosshatching designated as 'Biodiversity Offset Area' shown in the map at Appendix 2; and</p> <p>(d) make arrangements, as approved in writing by the Minister, to protect these offset areas from development for the long term.</p>	Compliant	<p>Revegetation works were commenced in a prior period.</p> <p>MCO continues to conserve and enhance Area 1, Area 2 and Area 3.</p> <p>Area 1, Area 2 and Area 2 were secured in a prior reporting period by the registering on title a 'Positive Covenant' and a 'Restriction on the Use of Land by a Prescribed Authority' under Section 88E(3) of the NSW <i>Conveyancing Act 1919</i>.</p>
3	In order to protect the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland listed ecological community, the person taking action shall prepare and implement a detailed Rehabilitation and Offsets Management Plan for the project to the satisfaction of the Minister for the	Compliant	The Landscape Management Plan was approved by the Department of Agriculture, Water and the Environment (DAWE <sup>1</sup> ) in 2011.

<sup>1</sup> References to DAWE includes the previous relevant commonwealth agencies responsible for administering the EPBC Act.

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	<p>Environment and Water Resources. The proponent shall progressively rehabilitate the site to the satisfaction of Minister for the Environment and Water Resources and the NSW Department of Primary Industries, in general accordance with the proposed Rehabilitation and Offset Management Plan. The rehabilitation and Offset Management Plan must include:</p> <p>(a) The rehabilitation objectives for the site, vegetation offsets and landscaping;</p> <p>(b) A description of the short, medium and long-term measures that would be implemented to:</p> <ul style="list-style-type: none"> <li>• Rehabilitate the site</li> <li>• Implement the vegetation offsets; and</li> <li>• Landscape the environmental bunds;</li> </ul> <p>(c) Performance and completion criteria for the rehabilitation of the site, implementation of the vegetation offsets, and landscaping of the environmental bunds;</p> <p>(d) A detailed description of the measures that would be implemented over the next 3 years including the progressive rehabilitation of mining areas and progressive implementation of the vegetation offset areas referred to in Condition 2.</p> <p>(e) A program to monitor the effectiveness of these measures, and progress against the performance and completion criteria (see (c) above);</p> <p>(f) A description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and</p> <p>(g) Details of who would be responsible for monitoring, reviewing, and implementing the plan.</p> <p>Coal mining operations must not commence until the plan has been approved. The approved plan must be implemented.</p>		<p>The NSW Project Approval Rehabilitation Management Plan was approved on <b>30 October 2020</b>.</p> <p>This report, Appendix A and B.</p>
4	<p>The person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, by 31 March for the preceding calendar year. Annual reports must be published until the Minister is satisfied that the person taking the action has complied with all conditions of the approval. 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>	Compliant	This report.
5	<p>Upon the direction of the Minister, the person taking the action 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 Minister and the audit report must address the criteria to the satisfaction of the Minister</p>	Compliant	Noted.
6	<p>If the Minister believes that it is necessary or desirable for the better protection of the listed threatened species and ecological communities to do so, the Minister may request that the person taking the action make specified revisions to the plans, reports or management strategies approved pursuant to</p>	Compliant	Noted.

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	paragraphs 1, 2 and 3, and submit the revised plan, report or strategy for the Minister's approval. The person taking the action must comply with any such request. The revised approve plan, report or strategy must be implemented.		
7	If at any time after 5 years from the date of this approval, the Minister notifies the person taking the action in writing that the Minister is not satisfied that there has been substantial commencement of coal mining operations, the action must not thereafter be commenced without the written agreement of the Minister.	Compliant	Action commenced <b>2009</b> .
EPBC 2008/4444			
1	The approval holder must not clear more than 1, 534 hectares of native vegetation within the defined footprint at Schedule 1.	Compliant	At the end of the period <b>726 Ha</b> of the approved <b>1,534 Ha</b> of native vegetation within the defined footprint had been disturbed.
2	To mitigate the impacts of the proposal on the Large-eared Pied Bat, Southern Long-eared Bat, Regent Honeyeater, Swift Parrot and the 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; <ol style="list-style-type: none"> <li>Delineate areas to be cleared, describe pre-clearance survey methods, specify actions to minimise fauna impacts and detail vegetation clearance procedures.</li> <li>Require collection and stockpiling of habitat features important to threatened fauna species for reinstatement in rehabilitation areas.</li> <li>Require use of native, locally sourced seed for propagation for rehabilitation activates.</li> <li>Specify a two stage clearing protocol where non-habitat trees are cleared 24 hours prior to any habitat trees are cleared, to encourage fauna to move out of an area.</li> </ol> The approval holder must not commence until the VCPLMP is approved by the Minister. The approved VCPLMP must be implemented.	Compliant	VCPLMP was approved by the minister on <b>29 May 2015</b> . Action commenced <b>2 August 2015</b> . The VCPLMP continues to be implemented.
3	To compensate for the loss of 123.3 hectares of the White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 902 hectares of habitat for <b>EPBC listed threatened species</b> , the approval holder must submit, by 1 September 2021, a Biodiversity Offset Management Plan (BOMP) for the <b>Minister's</b> written approval. The BOMP must: <ol style="list-style-type: none"> <li>include offset attributes, shapefiles, textual descriptions and maps that clearly define the location and boundaries of the offset areas specified at Figures 1-7 of Schedule 2;</li> <li>include a survey, and describe the condition of, the offset areas specified at Figures 1-7 of Schedule 2, immediately prior to them being managed as offset areas;</li> <li>for the offset areas shown at Figures 1-3 and 6-7 of Schedule 2:                             <ol style="list-style-type: none"> <li>specify strategies and management actions that will improve the quality of WBGW and habitat for <b>EPBC listed threatened species</b>;</li> <li>include timeframes for management actions;</li> </ol> </li> </ol>	Compliant	An updated Biodiversity Offset Management Plan was submitted to DAWE on 20 August 2021. In consideration of Department feedback, a further revised version with offset attribute data and shapefiles was submitted 26 November 2021.  The Biodiversity Offset Management Plan was approved by the DAWE on <b>14 December 2021</b> .

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	<p>(iii) specify performance and completion criteria for achieving (i) above, for evaluating effectiveness of the management of the offset areas, and criteria for triggering remedial action;</p> <p>(iv) include a program to detect trigger criteria and monitor and report on the effectiveness of management actions, and progress against the performance and completion criteria;</p> <p>(v) describe potential risks to achieving the plans objectives, measures that will be implemented to mitigate against these risks and remedial actions that will be implemented if defined trigger criteria are detected; and</p> <p>(vi) detail of who will be responsible for monitoring, reviewing, and implementing the BOMP.</p> <p>d. for offset areas shown at Figure 4 and 5 of Schedule 2, explain how management of the offset areas will ensure the quality of WBGW and habitat for EPBC listed threatened species in the offset areas will be improved and protected for the period of approval.</p> <p>If, after 1 December 2021, the <b>Minister</b> informs the approval holder that the submitted BOMP (required by 1 September 2021) is not suitable for approval, the <b>Minister</b> may, after 1 February 2022, approve a version of the BOMP revised by the <b>Department</b>.</p> <p>The approved BOMP must be published on the approval holder's internet web site, within 1 month of being approved by the <b>Minister</b> and remain so published for the period of approval. The approval holder must implement the BOMP approved by the <b>Minister</b> in writing.</p>		
4	<p>To compensate for the loss of 123.3 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 902 hectares of habitat for EPBC listed threatened species, within 24 months of the date of this approval, the approval holder must secure the lands identified as the Offset Areas at Schedule 2 (Figures 1-7) of this notice as a biodiversity offset by a legal instrument under relevant nature conservation legislation on the title of the land. This instrument must:</p> <p>a. Provide for the protection of the land in perpetuity;</p> <p>b. Prevent any future development activities, including mining and mineral extraction;</p> <p>c. Ensure the active management of the land; and</p> <p>d. Be provided to the Department within 3 months of it being issued, as evidence of compliance with this condition.</p>	Compliant	Eight (8) Offsets (Old Bobaddeen, On-site, Avisford 1, Avisford 2, Libertus, Ulan 18, Dun Dun East, and Dun Dun West) were secured in accordance with Condition 4 of EPBC 2008/4444 in a previous reporting period.
5	<p>The approval holder must undertake management and monitoring of water resources in accordance with this project approval for Application Number 08-0135 issued by the NSW Planning Assessment Commission under the Environmental Planning and Assessment Act 1979 (NSW) on 30 January 2015.</p>	Compliant	<p>Moolarben Complex Water Management Plan.</p> <p>MCO 2021 Annual Review</p>

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
6	Upon request, the approval holder shall supply the groundwater monitoring data for the Moolarben Coal Project to the Department, NSW Government agencies, Operators of the Ulan and/or Wilpinjong mines or other adjacent mine operators. A protocol for the supply of the data will be included in the project's Water Management Plan.	Compliant	Section 5.5 of the NSW DPIE approved Moolarben Complex Water Management Plan.
7	The approval holder must make available for the Minister on request, all plans or programs and any review of plans or programs produced pursuant to Condition 5.	Compliant	Noted No requests received during the 2021 reporting period
8	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	Completed in a previous period. Action commenced <b>2 August 2015</b> . Notification in writing sent on <b>13 August 2015</b>
9	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. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Compliant	Noted
10	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, by 31 March for the preceding calendar year. 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.	Compliant	This report
11	Non-compliance with any of the conditions of this approval must be reported to the Department within 2 business days of becoming aware of the non-compliance.	Compliant	Noted
12	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 Minister and the audit report must address the criteria to the satisfaction of the Minister.	Not Applicable	Noted
13	If the approval holder wishes to carry out any activity otherwise than in accordance with the Plans 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	Not Applicable	Noted

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	time. If the Minister approves the revised Plan, that Plan must be implemented in place of the Plan originally approved.		
14	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 the 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.	Not Applicable	Noted
15	If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	Compliant	Action commenced <b>2 August 2015</b> .
EPBC 2013/6926			
1	The approval holder must not clear more than 171.4 hectares of native vegetation within the defined footprint at Schedule 1, Figures 1 and 2.	Compliant	At the end of the period <b>129 Ha</b> of the approved <b>171.4 Ha</b> of native vegetation within the defined footprint had been disturbed.
2	To assist in mitigating the impacts of the proposal on the Large-eared Pied Bat, Southern Long-eared Bat, Regent Honeyeater, Swift Parrot, Potted-tail Quoll and the Koala, the approval holder must prepare and submit a mine site Vegetation Clearance Protocol and Landscape Management Plan (VCPLMP) for the Minister's written approval. The VCPLMP must; <ol style="list-style-type: none"> <li>Delineate areas to be cleared, describe pre-clearance survey methods, specify actions to minimise fauna impacts and details vegetation clearance procedures.</li> <li>Require collection and stockpiling of habitat features important to threatened fauna species for reinstatement in rehabilitation areas.</li> <li>Require use of native, locally sourced seed for propagation for rehabilitation activities.</li> <li>Specify a two stage clearing protocol where non-habitat trees are cleared 24 hours prior to any habitat trees in their proximity being cleared, to encourage fauna to move out of an area.</li> <li>Include a revegetation strategy to improve connectivity between isolated vegetation patches (including between Munghorn Gap Nature Reserve, Goulburn River National Park and Dexter Mountain).</li> </ol>	Compliant	VCPLMP was approved by the minister on <b>17 December 2014</b> . The VCPLMP continues to be implemented.
3	The approval holder must not commence until the VCPLMP is approved by the Minister. The approved VCPLMP must be implemented.	Compliant	VCPLMP was approved by the minister on <b>17 December 2014</b> . Action commenced on <b>23 December 2014</b> .

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
			The VCPLMP continues to be implemented.
4	<p>To compensate for the loss of 16.5 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 171.4 hectares of habitat for EPBC listed threatened species, the approval holder must prepare and submit a Biodiversity Offset Management Plan (BOMP) for the proposed EPBC offset sites, for the Minister's written approval. The BOMP must;</p> <p>a. Identify those lands described as the Offset Areas at Schedule 2 (Figures 1-5) of this notice that are necessary to achieve the outcomes required by the Environmental Offsets Policy 2012 (or subsequent published revisions). This must include offset attributes, shapefiles, textual descriptions and maps clearly define the location and boundaries of the offset area(s).</p> <p>b. Provide a survey and description of the current condition (prior to any management activities) of the offset areas identified in Condition 4a.</p> <p>c. Details management actions and regeneration and revegetation strategies to be undertaken on the offset areas to improve the ecological quality of these areas, including:</p> <p>(i) A description and timeframe of measures that would be implemented to improve the condition of the ecological communities on the site;</p> <p>(ii) Performance and completion criteria for evaluating the management of the offset area, and criteria triggering remedial action;</p> <p>(iii) A program to monitor and report on the effectiveness of these measures, and progress 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>	Compliant	<p>A Biodiversity Offset Management Plan (BOMP) was approved by the Minister on <b>17 December 2014</b>.</p> <p>The requirements of this conditions are addressed in the below section of the BOMP:</p> <p>a) Section 2 and Appendix 1</p> <p>b) Section 3</p> <p>c) Sections 4, 5, 6 &amp; 7.</p>
5	<p>The approval holder must not commence the action until the BOMP is approved by the Minister. The approval BOMP must be published on an internet web site approved by the Department, within 1 month of being approved and for a period of 5 years thereafter. The approved BOMP must be implemented.</p>	Compliant	<p>A BOMP was approved by the Minister on <b>17 December 2014</b>.</p> <p>Action commenced on <b>23 December 2014</b></p> <p>The BOMP is located on MCO's website. <a href="http://www.moolarbencoal.com.au">www.moolarbencoal.com.au</a></p> <p>The BOMP continues to be implemented.</p> <p>This report, refer to Appendix A and B</p>
6	<p>To compensate for the loss of 16.5 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) ecological community and 171.4 hectares of habitat for EPBC listed threatened species, the approval holder must secure the lands identified as the Offset</p>	Compliant	<p>Six (6) Offsets (Bobadeen East, Bobadeen West, Elward, Clifford, Clarke and Property 5) were secured in accordance</p>

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	Areas at Schedule 2 (Figures 1-5) of this notice as a biodiversity offset by a legal instrument under relevant nature conservation legislation on the title of the land. This instrument must: a. Provide for the protection of the land in perpetuity; b. Prevent any future development activities, including mining and mineral extraction; and c. ensure the active management of the land. The approval holder must not commence the action until the Department has approved the proposed instrument in writing.		with Condition 6 of EPBC 2013/6926 in a previous reporting period. The Department approved the protection mechanism for offsets under EPBC 2013/6926 on <b>17 December 2014</b> .
7	The approval holder must provide evidence to the Department of their compliance with Condition 6, along with offset attributes, shapefiles and textual descriptions and maps to clearly define the location and boundaries of the offset sites, prior to the commencement of the action.	Compliant	Completed in a previous period. Evidence including shapefiles provided on <b>1 December 2014</b> .
8	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	Completed in a previous period. Notification in writing sent on <b>20 January 2015</b>
9	The approval holder must maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures take to implement the BOMP and VCPLMP, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with Section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may be publicised through the general media.	Compliant	Noted
10	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, by 31 March for the preceding calendar year. 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.	Compliant	This report.
11	Non-compliance with any of the conditions of this approval must be reported to the Department within 2 business days of becoming aware of the non-compliance.	Compliant	Noted
12	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 Minister and the audit report must be address the criteria to the satisfaction of the Minister.	Not Applicable	Noted
13	If the approval holder wishes to carry out any activity otherwise than in accordance with the Plan as specified in the conditions, the approval holder must submit to the Department for the Minister's written approval a revised version of the 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	Not Applicable	Noted

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	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.		
14	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 the 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.	Not Applicable	Noted
15	If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	Compliant	Action commenced <b>23 December 2014</b>
EPBC 2017/7974			
1	The approval holder must undertake the Moolarben Coal Project within the development footprint.	Compliant	Noted
2	The approval holder must comply with Condition 34A of Schedule 3 of the NSW Consolidated Project Approvals to implement the supplementary offset strategy, by retiring the required number of credits specified in Table 12A.	Compliant	Gilgal is owned and managed by Moolarben. Activities are underway to retire the required number of credits specified in Table 12A of the NSW Consolidated Project Approvals through a Biodiversity Stewardship Agreement. Rehabilitation is being undertaken to secure residual credits specified in Table 12A.
3	The approval holder must comply with Conditions 35A of the NSW Consolidated Project Approvals to secure the credits and/or area at the Gilgal Offset Area (as identified at Attachment B) under a Biodiversity Stewardship Agreement, unless otherwise agreed in writing by the Minister. The approval holder may seek agreement from the Minister to use an alternative mechanism to secure the credits and/or area, subject to the additional rules at Condition 20. The approval holder must submit a copy of the Biodiversity Stewardship Agreement to the Minister within ten business days of an agreement being made.	Compliant	Gilgal is owned and managed by MCO, substantial progress has been made towards securing the required number of credits specified in Table 12A of the NSW Consolidated Project Approvals under a Biodiversity Stewardship Agreement (BSA). Conditions 35A of the NSW Consolidated Project Approvals required to be completed by <b>30 September 2021</b> , however an Extension of Time (EOT) was granted by NSW DPIE until <b>31 March 2022</b> .
4	The approval holder must provide for the long-term security of the Area 2 (extract) offset area as identified at Attachment B, by 30 June 2020. The approval holder must submit details of the security mechanism to the Minister within ten business days of the mechanism being made.	Non-Compliant	Area 2 (Extract) offset was secured on <b>25 August 2020</b> , post the required due date. MCO advised the DAWE on <b>24 June 2020</b> that the offsets security mechanism were in the final stages of execution and requested an Extension of time to <b>31 August 2020</b> to align

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
			<p>with the offset security timing as approved by the NSW DPIE for the same offset area.</p> <p>On <b>2 July 2020</b> MCO advised the DAWE of a technical non-compliance as the offset security mechanism for Area 2 (Extract) had been executed by MCO but not the NSW DPIE on 30 June 2020.</p> <p>On <b>25 August 2020</b>, a 'Positive Covenant' and a 'Restriction on the Use of Land by a Prescribed Authority' under Section 88E(3) of the NSW <i>Conveyancing Act 1919</i> was executed by MCO and the NSW Department of Planning, Industry and Environment (DPIE) to secure the Area 2 (Extract).</p> <p>On <b>18 September 2020</b>, MCO provided the DAWE with a copy of the Positive and Restrictive Covenants executed by MCO and the NSW Department of Planning, Industry and Environment (DPIE) to secure the Area 2 (Extract) offset. The executed covenants will be registered on title.</p>
5	The approval holder must enhance existing native vegetation in the Area 2 (extract) offset area, in accordance with the biodiversity offset strategy required by Condition 34 of the NSW Consolidated Project Approvals, and in accordance with the Biodiversity Management Plan required by Condition 36 of Schedule 3 of the NSW Consolidated Project Approvals.	Compliant	During the reporting period MCO continued works to maintain and enhance the existing native vegetation in the Area 2 (Extract) BOA.
6	The approval holder must comply with Condition 35B of Schedule 3 of the NSW Consolidated Project Approvals to develop suitable rehabilitation performance and completion criteria for the rehabilitation of OC2 and/or OC3, to generate the required number of residual credits specified in Table 12A of Schedule 3.	Compliant	Suitable rehabilitation performance and completion criteria for OC2 and/or OC3 have been developed by MCO with approval of the criteria granted by the NSW DPIE on <b>7 July 2020</b> in accordance with Condition 35B of Schedule 3.
7	Unless the approval holder retires the residual credits in accordance with Condition 8, the approval holder must undertake progressive rehabilitation of OC2 and OC3, so as to meet the rehabilitation performance and completion criteria developed in accordance with Condition 6, and in accordance with an approved Rehabilitation Management Plan. The approval holder must also comply with Condition 35C of Schedule 3 of the NSW Consolidated Project Approvals to retire the residual credits if the performance and completion criteria are not achieved in the specified timeframe in Condition 35C, subject to the additional rules at Condition 20.	Compliant	Noted
8	The approval holder may retire the residual credits earlier than the specified timeframe in Condition 35C in accordance with Condition 35D of Schedule 3 of the NSW Consolidated Project Approvals,	Not Applicable	Noted

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	subject to the additional rules at Condition 20. If the approval holder chooses to retire credits early, the approval holder must notify the Department within 30 business days of retiring the credits.		
9	The approval holder must comply with Condition 36 of Schedule 3, and Conditions 3 and 5 of Schedule 5, of the NSW Consolidated Project Approvals to prepare and implement a Biodiversity Management Plan for the Moolarben Coal Project.	Compliant	A revised Biodiversity Management Plan was approved by the NSW DPIE on <b>2 September 2020</b> . MCO continues to progress the development of a Complex wide BOMP in consideration of both State and Federal Department feedback.
10	The Biodiversity Management Plan implemented in accordance with Condition 9 must be approved by the Department as adequately providing for the management of protected matters on the site and in the offset areas.	Compliant	Noted. The DAWE advised MCO on <b>14 August 2020</b> that there is no requirement for the Biodiversity Management Plan to be approved under the EPBC Act.
11	The approval holder must comply with Condition 33 of Schedule 3, and Conditions 3 and 5 of Schedule 5, of the NSW Consolidated Project Approvals to prepare and implement a revised Water Management Plan for the Moolarben Coal Project.	Compliant	A revised Moolarben Complex Water Management Plan incorporating EPBC 2017/7974 was approved by DPIE on <b>20 October 2020</b> . The WMP continues to be implemented.
12	The approval holder must comply with the timing and content requirements of Condition 32A of Schedule 3 of the NSW Consolidated Project Approvals for the completion of an Independent Water Quality Study (IQWS).	Compliant	MCO have commenced the Independent Water Quality Study, completion of the IWQS is required by <b>1 December 2021</b> . An Extension of Time was granted by NSW DPIE until <b>28 February 2022</b> .
13	The approval holder must ensure that the performance measures recommended in the IQWS are incorporated in a revised version of the Water Management Plan within 12 months of the IWQS being completed, and must implement the revised Water Management Plan.	Not Applicable	IQWS was not completed during the 2021 reporting period. Completion of the IWQS is required by <b>28 February 2022</b> .
14	The approval holder must comply with condition 33A of the NSW Consolidated Project Approvals to prepare and implement a Brine Management Plan.	Compliant	A revised Moolarben Complex Brine Management Plan incorporating EPBC 2017/7974 was approved by DPIE on <b>21 October 2020</b> . The Brine MP continues to be implemented.
15	The approval holder must notify the Department in writing of the date of commencement of works in OC3, within ten business days after the date of commencement of works in OC3.	Compliant	Notification was provided to the Department on <b>18 February 2020</b> informing on the commencement of works in OC3.
16	The approval holder must notify the Department in writing of the date of commencement of operation of the water treatment facility, within ten business days after the date of commencement of operation of the water treatment facility.	Compliant	The commencement of operation of the water treatment facility occurred on <b>18 May 2020</b> .

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
			Written notification of commencement of the water treatment facility was provide to the Department on <b>27 May 2020</b> .
17	The approval holder must maintain accurate and complete compliance records.	Compliant	Noted
18	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.	Compliant	Noted No requests received during the 2021 reporting period.
19	The approval holder must: <ul style="list-style-type: none"> <li>a. Submit the Biodiversity Management Plan electronically to the Department for approval by the Minister.</li> <li>b. Publish each plan on its website within 20 business days of the date the plan is approved by the Minister and/or Secretary.</li> <li>c. Exclude or redact sensitive ecological data from plans published on its website or provided to a member of the public.</li> </ul>	Compliant	Noted The DAWE advised MCO on <b>14 August 2020</b> that there is no requirement for the Biodiversity Management Plan to be approved under the EPBC Act. MCO continues to progress the development of the Complex wide Biodiversity Management Plan in consideration of both State and Federal Department feedback.
20	The approval holder must use one or a combination of the following methods to retire the credits required for protected matters: <ul style="list-style-type: none"> <li>a. Retire like-for-like biodiversity credits within the meaning of the Biodiversity Conservation Act 2016 (NSW).</li> <li>b. Make payments into an offsets fund that has been developed by the NSW Government and that has been endorsed by the Minister. The financial contribution or payments into an offset fund must be determined by converting biodiversity credits to an equivalent dollar value through the NSW offsets payment calculator. The approval holder must submit evidence to the Minister of any payments, within ten business days of the payment being made.</li> <li>c. Fund a biodiversity conservation action within the meaning of the Biodiversity Conservation Act 2016 (NSW). The financial contribution to biodiversity conservation actions must be determined by converting biodiversity credits to an equivalent dollar value through the NSW offsets payment calculator. The approval holder must submit to the Minister evidence of any payments within ten business days of the payment being made.</li> </ul>	Compliant	Noted No credits were retired in the reporting period.
21	The approval holder must prepare a compliance report each year. The timing for preparing the compliance report must be consistent with the requirements of Condition 4 of Schedule 5 of the NSW Consolidated Project Approvals, or otherwise in accordance with an annual date that has been agreed in writing by the Department. The approval holder must: <ul style="list-style-type: none"> <li>a. Publish each compliance report on its website within one month of being approved by the Secretary.</li> </ul>	Compliant	This report

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	<ul style="list-style-type: none"> <li>b. Notify the Department by email that a compliance report has been published on its website within five business days of the date of publication.</li> <li>c. Exclude or redact sensitive ecological data from compliance reports published on its website.</li> <li>d. Where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within five business days of publication.</li> </ul>		
22	<p>The approval holder must notify the Department in writing of any non-compliance with the conditions or non-compliance with the commitments made in plans that relate to protected matters. The notification must be given no later than two business days after becoming aware of the non-compliance. The notification must specify:</p> <ul style="list-style-type: none"> <li>a. The condition which is or may be in breach.</li> <li>b. A short description of the non-compliance.</li> </ul>	Compliant	MCO advised the DAWE of a non-compliance with condition 4 on <b>2 July 2020</b> (Refer condition 4 comments above). No other non-compliances associated with EPBC 2017/7974 occurred during the reporting period.
23	<p>The approval holder must provide to the Department the details of any non-compliance with the conditions or commitments made in plans that relate to protected matters no later than ten business days after becoming aware of the non-compliance, specifying:</p> <ul style="list-style-type: none"> <li>a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future.</li> <li>b. The potential impacts of the non-compliance.</li> <li>c. The method and timing of any remedial action that will be undertaken by the approval holder.</li> </ul>	Compliant	MCO advised the DAWE of a non-compliance with condition 4 on <b>2 July 2020</b> and described the corrective actions, impacts and timing for remediation. No other non-compliances associated with EPBC 2017/7974 occurred during the reporting period.
24	The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister.	Not Applicable	Noted
25	<p>For each independent audit, the approval holder must:</p> <ul style="list-style-type: none"> <li>a. Provide the name and qualifications of the independent auditor and the draft audit criteria to the Department.</li> <li>b. Only commence the independent audit once the audit criteria have been approved in writing by the Department.</li> <li>c. Submit an audit report to the Department within the timeframe specified in the approved audit criteria.</li> </ul>	Not Applicable	Noted
26	The approval holder must publish the audit report on its website within ten business days of receiving the Department's approval of the audit report and keep the audit report published on its website until the end date of this approval.	Not Applicable	Noted
27	The approval holder may, at any time, apply to the Minister for a variation to the Biodiversity Management Plan approved by the Minister under condition 10, or as subsequently revised in	Not Applicable	Noted

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
	accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the EPBC Act.		
28	The approval holder may revise the Biodiversity Management Plan approved by the Minister under condition 10, or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised Biodiversity Management Plan would not be likely to have a new or increased impact.	Not Applicable	Noted
29	If the approval holder revises the Biodiversity Management Plan without submitting it for approval, the approval holder must: <ul style="list-style-type: none"> <li>a. notify the Department in writing that the approved action management plan has been revised and provide the Department with: <ul style="list-style-type: none"> <li>I. An electronic copy of the revised Biodiversity Management Plan.</li> <li>II. An explanation of the differences between the approved action management plan and the revised Biodiversity Management Plan.</li> <li>III. The reasons the approval holder considers that taking the action in accordance with the revised Biodiversity Management Plan would not be likely to have a new or increased impact.</li> <li>IV. Written notice of the date on which the approval holder will implement the revised Biodiversity Management Plan.</li> </ul> </li> </ul>	Not Applicable	Noted
30	If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised Biodiversity Management Plan would be likely to have a new or increased impact, then: <ul style="list-style-type: none"> <li>a. Condition 28 does not apply, or ceases to apply, in relation to the revised Biodiversity Management Plan.</li> <li>b. The approval holder must implement the Biodiversity Management Plan specified by the Minister in the notice.</li> </ul>	Not Applicable	Noted
31	At the time of giving the notice under condition 30, the Minister may also notify that for a specified period of time, condition 28 does not apply for one or more specified action management plans.	Not Applicable	Noted
32	The approval holder must notify the Department in writing of any proposed change to the conditions of the NSW Consolidated Project Approvals referred to in the conditions of this approval, no later than two weeks after formally proposing a change or becoming aware of a change being proposed. The approval holder must also notify the Department in writing of any change to the conditions of the NSW Consolidated Project Approvals referred to in the conditions of this approval, within two weeks of a change being finalised.	Not Applicable	Noted There have been no proposed changes to the conditions of the NSW Consolidated Project Approvals referred to in the conditions of this approval during the reporting period.

Condition Number	Condition	Compliance <sup>1</sup>	Evidence/Comments
33	Within 30 days after the completion of the action, the approval holder must notify the Department in writing and provide completion data.	Not Applicable	Noted

<sup>1</sup> Definitions:

Compliant

'Compliance' is achieved when all the requirements of a condition have been met, including the implementation of management plans or other measures required by those conditions.

Non-compliant

requirements of a condition or elements of a condition, including the implementation of management plans and other measures have not been met.

Not applicable

requirements of a condition or elements of a condition fall outside of the scope of the current reporting period. For example, a condition which applies to an activity that has not yet commenced.

## **APPENDIX A – Moolarben Coal Annual Summaries –Biodiversity Offset Area (BOA) Flora and Fauna Monitoring**

### **Stage 1 and EPBC (2007/3297) offset areas monitoring<sup>2</sup>**

Floristic monitoring undertaken within the Stage 1 BOAs during Autumn and Spring 2021 recorded: 244 species were recorded across Area 1 BOA. This consisted of 190 native species, 44 exotic species and 10 species that could not be identified to species level nor confidently be determined as native or exotic species.

170 species were recorded across Area 2 BOA. This consisted of 140 native species, 20 exotic species and 10 species that could not be identified to species level nor confidently be determined as native or exotic species.

220 species were recorded across Area 3 BOA. This consisted of 183 native species, 23 exotic species and 14 species that could not be identified to species level nor confidently be determined as native or exotic species.

Overall, the condition of Stage 1 MZ1 sites compare favourably with analogue sites. The majority of areas had an overall ranking of high or moderate; with overall condition being similar to analogue sites. An assessment of Site Value Scores (SVS) over the monitoring period demonstrated an overall improvement in biodiversity values within MZ1 areas within Area 1 BOA. Generally, biodiversity values have also been maintained within MZ1 areas within the Area 2 and Area 3 BOA.

The Blakely's Red Gum Grassy Woodland in MZ2 of the Area 1 and Area 3 BOAs is showing good progress towards benchmark conditions with low exotic cover and Native Groundcover (NGC) and NMC attributes meeting benchmark values. NSD and NTC were also approaching benchmarks in Area 1 BOA, in part due to maturing revegetation plantings. Canopy cover was improving at one site in Area 3 BOA and absent at the other site in MZ2, but all other conditions are good and there is no apparent hindrance to natural regeneration at this site.

The fauna monitoring undertaken within the Stage 1 BOAs during spring 2021 identified a total of 95 fauna species were recorded at Area 1 BOA, made up of 71 birds, eight positively identified microbats, five other mammals (two of which were introduced species), five amphibians and six reptiles. Four threatened bird species and two threatened microbats were recorded within this BOA.

A total of 55 fauna species were recorded at Area 2 BOA, made up of 39 birds, nine positively identified microbats, five other mammals, one amphibian and one reptile. Two definitely recorded threatened microbat species were recorded within this BOA.

A total of 56 fauna species were recorded at Area 3 BOA, made up of 39 birds, seven positively identified microbats, seven other mammals, two amphibians and reptile. One threatened bird species and two definitely recorded threatened microbat species were recorded within this BOA.

### **Stage 1 Mod 9 and EPBC (2013/6929) offset areas monitoring<sup>3</sup>.**

Floristic monitoring undertaken within the MOD 9 BOAs during Autumn and Spring 2021 recorded:

- 190 species were recorded across Bobadeen BOA. This consisted of 115 native species, 58 exotic species and 17 species that could not be identified to species level nor confidently be determined as native or exotic species.

<sup>2</sup> EPBC (2007/3297) offset area monitoring include the portion of Area 2 offset extracted and included in EPBC2017/7974.

<sup>3</sup> Whilst Moolarmoo and Property 24/25 are related to NSW project approvals, data has been included as all Modification 9 Offsets are managed consistently.

- 163 species were recorded across Clarke BOA. This consisted of 135 native species, 19 exotic species and 9 species that could not be identified to species level nor confidently be determined as native or exotic species.
- 119 species were recorded across Clifford BOA. This consisted of 95 native species, 16 exotic species and 8 species that could not be identified to species level nor confidently be determined as native or exotic species.
- 150 species were recorded across Elward BOA. This consisted of 120 native species, 23 exotic species and 7 species that could not be identified to species level nor confidently be determined as native or exotic species.
- 144 species were recorded across Moolarmoo BOA. This consisted of 95 native species, 33 exotic species and 16 species that could not be identified to species level nor confidently be determined as native or exotic species.
- 84 species were recorded across Property 5 BOA. This consisted of 53 native species, 27 exotic species and four species that could not be identified to species level nor confidently be determined as native or exotic species
- 97 species were recorded across Property 24 & 25 BOA. This consisted of 68 native species, 25 exotic species and four species that could not be identified to species level nor confidently be determined as native or exotic species.

In general, the overall objective of maintaining vegetation structure has been achieved. Most MOD 9 MZ1 sites ranked well for Native Species Diversity (NSD), NGC and exotic cover. Key feed species for Koala were recorded naturally regenerating at all MOD 9 BOAs with key feed species for Regent Honeyeater and Swift Parrot also recorded as naturally regenerating at Bobadeen, Clarke and Property 5 BOAs.

The lack of NTC and NMC is the main reason why most MZ2 areas have not met all completion criteria in 2021. Although some NTC was recorded at two sites at Bobadeen, one site at Clarke and the site at Elward, the remaining 13 sites recorded no NTC or NMC. However, natural regeneration of canopy species is occurring across MZ2 areas of all BOAs. These trees are not yet large enough to contribute to NMC or NTC. However, it is noted that revegetation works have commenced at Bobadeen, Property 5, and Property 24 & 25 BOA's.

The total bird and microbat species assemblages recorded across both MZ1 and MZ2 sites indicated that the majority of BOAs contain overall similar bird and microbat species assemblages between MZ1 and MZ2 sites, with MZ2 sites recording a range of typically woodland species, as well as multiple threatened species. The BOAs on the whole are providing habitat for a wide range of woodland/forest indicator birds and that in some BOAs at least, there is still connectivity between remnant patches within and surrounding BOAs.

### **Stage 2 and EPBC (2008/4444) offset areas monitoring.**

Floristic monitoring has continued to be undertaken within the Stage 2 BOAs during Autumn and Spring 2021. Monitoring has been undertaken general in accordance with the 2008/4444 EPBC BioMP.

- All Consolidated Offset Outcome 1(a) woodland/forest areas recorded natural regeneration of dominant mature trees and less than 15% cover of high threat exotic species.
- All Consolidated Offset Outcome 1(a) DNG areas at Libertus and Ulan 18 BOA recorded natural regeneration of overstorey species and less than 15% cover of high threat exotic species.

- All Consolidated Offset Outcome 1(a) DNG areas at Dun Dun East, Dun Dun West and Onsite Offset BOAs recorded less than 15% cover of high threat exotic species. However, only some areas recorded natural regeneration of overstorey species.
- All Consolidated Offset Outcome 1(b) woodland areas within Dun Dun East, Libertus, Old Bobadeen, Onsite Offset and Ulan 18 BOAs recorded evidence of natural regeneration of overstorey species representative of Box Gum Woodland EEC, evidence of flowering and seeding of shrub and groundcover species that are representative of Box Gum Woodland EEC, shrub cover not exceeding 30%, and less than 15% cover of high threat exotic species.
- Consolidated Offset Outcome 1(b) woodland areas at Dun Dun West recorded a large population of *Nassella trichotoma*, within one site and in the surrounding area.
- Consolidated Offset Outcome 1(b) DNG areas at Dun Dun East BOA recorded evidence of flowering and seeding of shrub and groundcover species that are representative of Box Gum Woodland EEC, shrub cover not exceeding 30%, and less than 15% cover of high threat exotic species.
- Consolidated Offset Outcome 1(b) DNG areas monitored in autumn at Old Bobadeen BOA recorded evidence of flowering and seeding of shrub and groundcover species that are representative of Box Gum Woodland EEC, and shrub cover not exceeding 30%.
- Consolidated Offset Outcome 2(c) areas at Old Bobadeen and Onsite Offset BOA recorded high threat exotic species less than 15% cover at all monitoring sites.

### 3.1.1 ACTIONS FOR NEXT REPORTING PERIOD

During the next period activities to be undertaken include review of management plans and revision where necessary, continued monitoring, assisted regeneration planning and implementation, fencing, track and fire trail works, continued weed and feral animal control works, maintenance of property security and progression of Gilgal Biodiversity Stewardship Agreement.

## APPENDIX B – Moolarben Coal Annual Summaries –Rehabilitation Flora and Fauna Monitoring

### REHABILITATION MONITORING

MCO undertakes a monitoring program of rehabilitation areas in accordance with the RMP. The monitoring program includes landscape function analysis, floristic monitoring, vegetation structure and growth, fauna monitoring and visual monitoring.

#### 3.1.2 ECOSYSTEM FUNCTION ANALYSIS

EFA was undertaken at 24 EFA sites within the MCO open cut rehabilitation areas, as well as at seven (7) analogue sites which are located within vegetation communities equivalent to the general rehabilitation target communities.

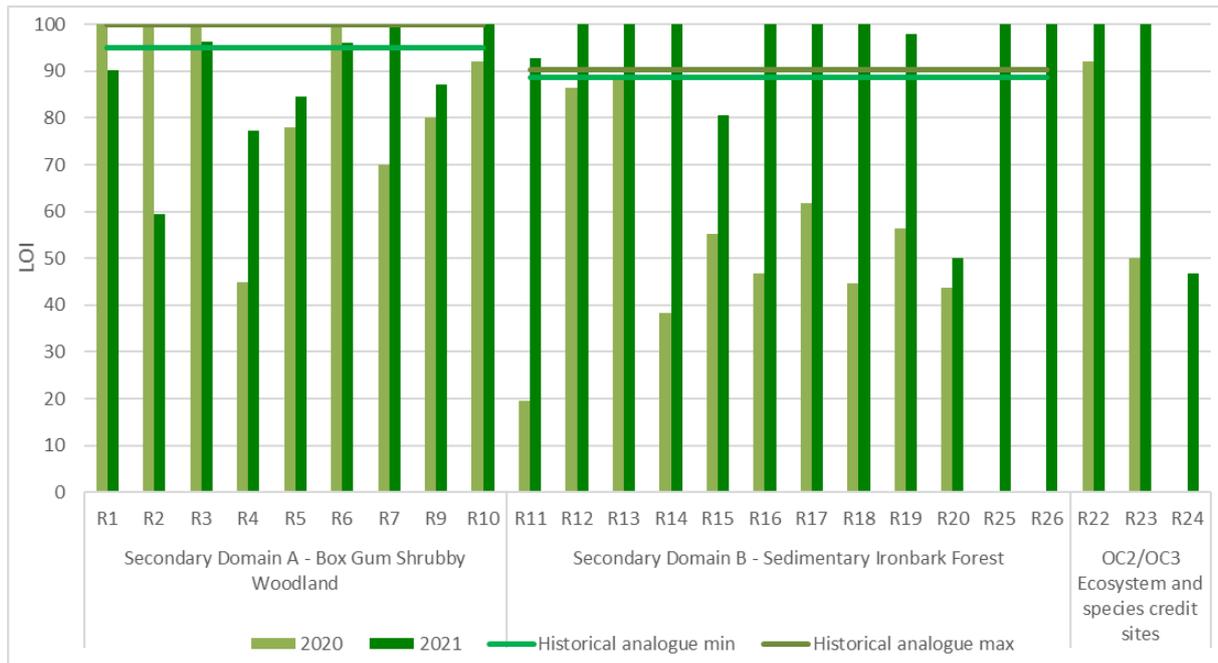
##### Landscape Function Analysis

LFA assessment allows for the calculation of a Landscape Organisation Index (LO), reflecting the proportion of a transect occupied by patches. Patches are defined by soil surface elements, such as perennial ground cover, litter, logs or rocks that help retain soil and other resources at a site. A higher LOI implies a more stable transect that is less prone to erosion and resource loss.

An LOI of 100 was recorded at one analogue site (A1c). LOI ranged from 50 (R20) to 100 (R12, R13, R14, R16, R17, R18, R25 and R26) at Sedimentary Ironbark Forest sites, with an average of 93 compared to an LOI of 89 recorded at the analogue site (A5B). LOI Ranged from 47 (R24) to 100 (R22 and R23) within the OC2/OC3 Ecosystem and species credit sites. LOI comparison to analogue sites is shown in **Figure 1**.

Variation in the patch assemblages has been recorded throughout the duration of monitoring for each site which can be attributed to variation in climatic conditions across years and seasons, as well as monitoring timing and rehabilitation development.

The majority of sites recorded less than 10% bare soil patches during 2021 monitoring. There is an increasing tree and shrub canopy associated with maturing rehabilitation campaigns and seasonal changes in ground herbage year to year.



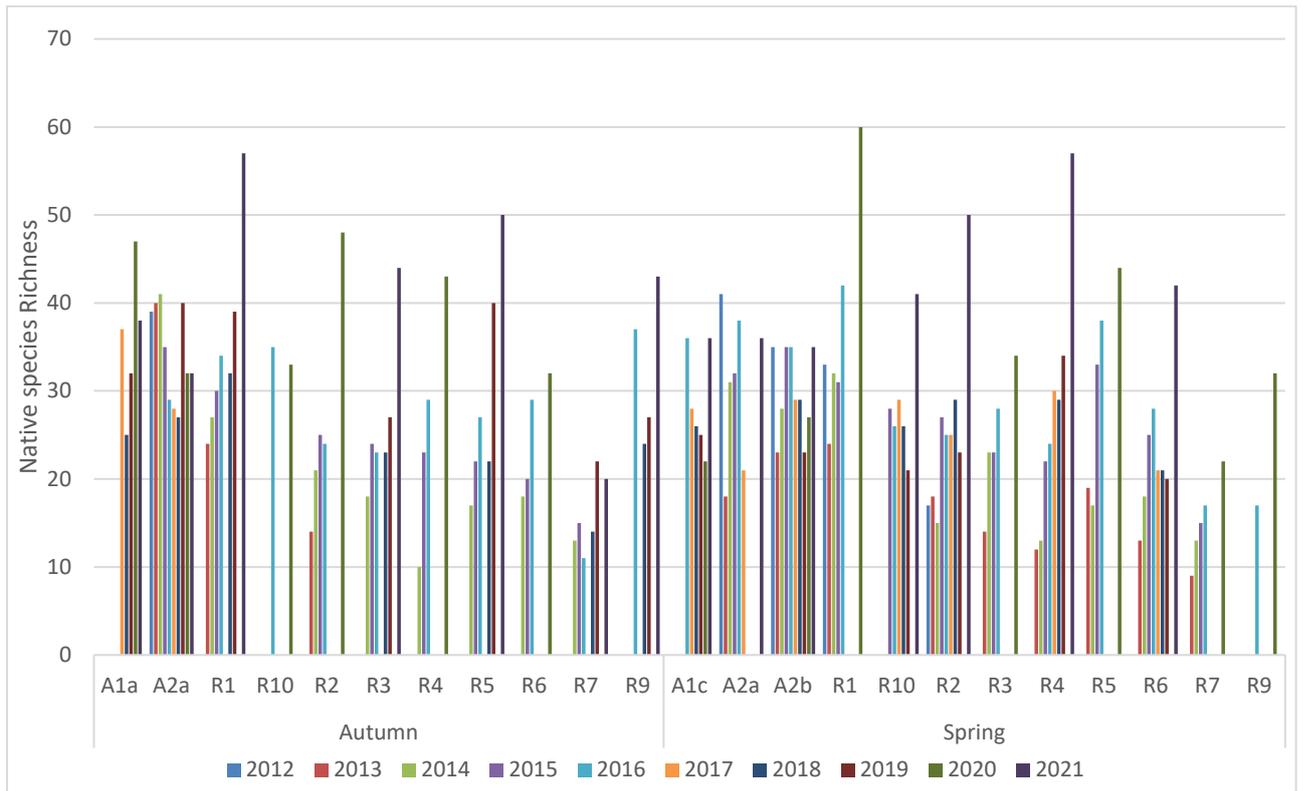
**Figure 1: Landscape organisation indices (LOIs) for 2020 and 2021 compared to analogue LOI values**

### Floristic Monitoring

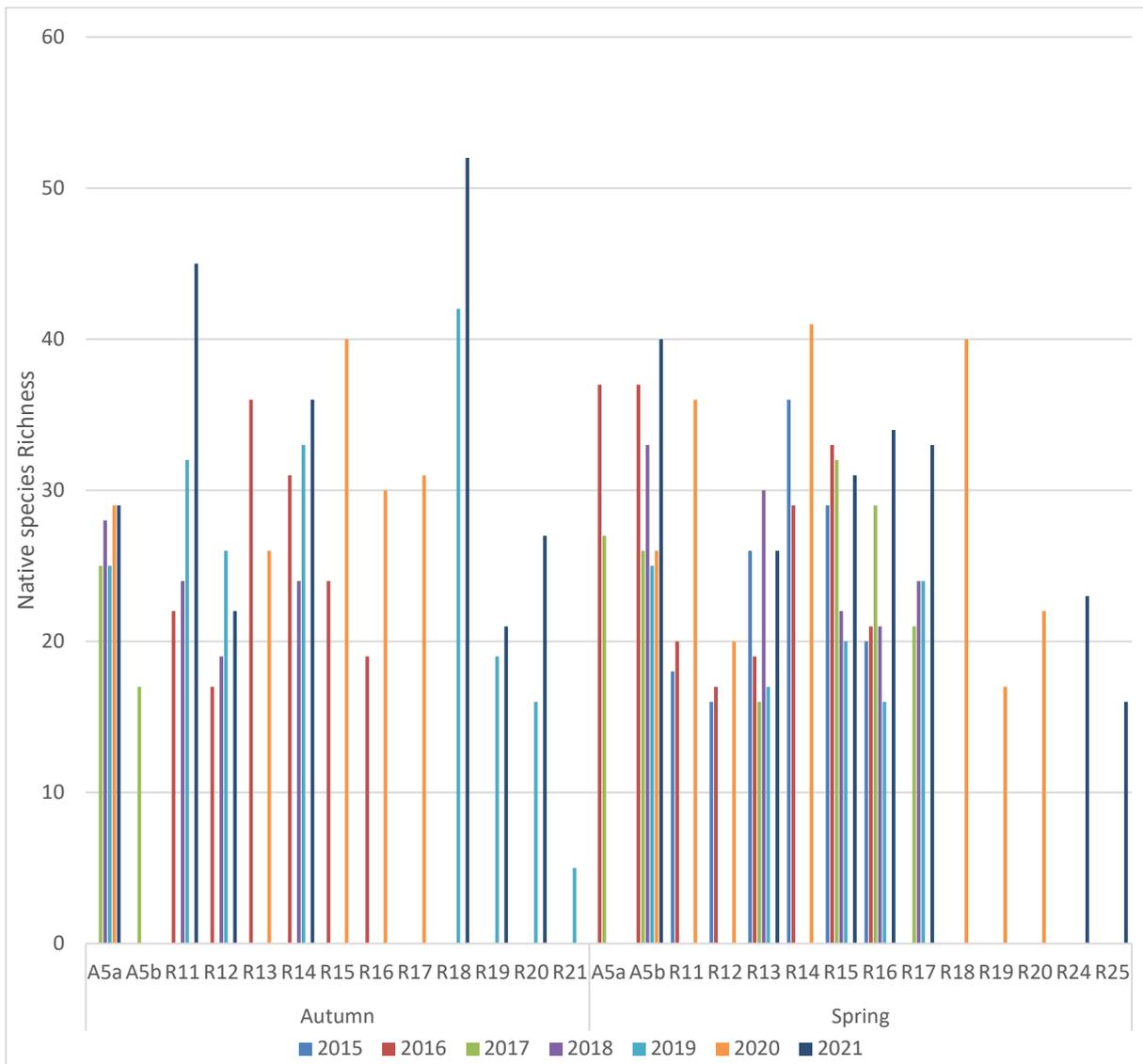
During the 2021 monitoring of Box Gum Shrubby Woodland, a total of 196 species were recorded including 13 native canopy species, 35 native mid-storey species, one (1) exotic mid-storey species, 96 native and 44 exotic groundcover species. Five (5) species were recorded which could not be identified to species level due to absence of material required for identification. All sites show an increasing trend in native species richness with time. All sites except R7 recorded the highest native species richness for the respective monitoring season since monitoring began.

During the 2021 monitoring of Sedimentary Ironbark Forest, a total of 199 species were recorded including 14 native canopy species, 31 native mid-storey species, one (1) exotic midstorey species, and 86 native and 62 exotic groundcover species. Four (4) species were recorded which could not be identified to species level due to the absence of material required for identification. Native species richness in 2021 was comparable to analogue sites.

The trend in native species diversity at Box Gum Shrubby Woodland rehabilitation sites, shows a similar pattern in recent years to that at the equivalent analogue sites (**Figure 2**). At most sites, there was an increase in native species diversity from 2019 to 2021, likely in response to the recent improved rainfall in the region. The same pattern was observed for Sedimentary Ironbark sites (**Figure 3**). This indicates that the vegetation at rehabilitation sites is responding in a similar way to that at analogue sites which suggests that it may be developing resilience to environmental stress. If the rehabilitated vegetation continues to respond in a similar way to analogue sites this will be a clear demonstration of resilience which is a critical element for long-term sustainability.



**Figure 2: Native species Richness 2012 – 2021 for Box Gum Shrubby Woodland open cut rehabilitation monitoring sites and Box Gum Grassy Woodland analogue sites.**



**Figure 3: Native species Richness 2015 – 2021 for open cut rehabilitation and analogue Sedimentary Ironbark Forest sites**

**Vegetation Structure and Growth**

Canopy cover for Box Gum Shrubby Woodlands averaged 9%, which is consistent with 2020 (10%), and continues to be less than that seen at the analogue sites which during 2021 averaged 16.7%. Canopy cover for Sedimentary Ironbark Forest sites averaged 5%, which is consistent with the average canopy cover recorded in 2020 (5.5%). Average canopy cover remains slightly less than that recorded at analogue sites which averaged 8%. No canopy cover was recorded within the OC2/OC3 Ecosystem and species credit sites, this is consistent for the age of the rehab.

The average mid-storey cover for both Box Gum Shrubby Woodlands averaged 11% which is consistent with 2020 results (10%) which is higher than the average midstorey cover recorded at analogue sites (0.6%). Sedimentary Ironbark Forest averaged 11%, which is slightly higher than 2020 results (9%). Midstorey species were recorded at all Native Vegetation Sites with between two (2) and four (4) species present.

Total native groundcover (grasses, herbs/forbs and shrubs <1 m in height) for Box Gum Shrubby Woodlands and Sedimentary Ironbark Forest sites in 2020 averaged 18% and 27% respectively, which is slightly higher than 2020 results for Box Gum Shrubby Woodlands and consistent with 2020 results for Sedimentary Ironbark Forest sites. Total native groundcover (grasses, herbs, forbs and shrubs <1 m in height) for the OC2/OC3 Ecosystem and species credit sites ranged from 10% (R24 and R25) to 52% (R26), with an average of 29%.

### **Fauna Monitoring**

Two (2) amphibian species, 45 bird species and eight (8) microbat species were recorded during monitoring in 2021 including four (4) threatened species being Speckled Warbler (*Chthonicola sagittata*), Large-eared Pied Bat (*Chalinolobus dwyeri*), Large Bent-winged Bat (*Miniopterus orianae oceanensis*) and Varied Sitella (*Daphoenositta chrysoptera*). A wide range of bird guilds were recorded during 2021 monitoring, including insectivores, nectivores and herbivores which forage at different stratum levels within vegetation. Bird species richness was consistent with 2020.

### **Visual Monitoring**

Visual transect monitoring results from 2021 were largely consistent with previous years. Eight (8) out of 13 transects scored between 'moderate' and 'good' in all attributes. All transects achieved a score of 'good' for groundcover, soil compaction and disturbance factors.

Transect 13 (OC2) continued to achieve a score of 'poor' for overstorey components, with no overstorey species recorded along the transect, however this is expected in immature rehabilitation.

### **Assessment of Rehabilitation Performance Indicators**

Analysis of the Box Gum Woodland, Sedimentary Ironbark Forest, and OC2/OC3 Ecosystem and species credit sites rehabilitation against the Rehabilitation Management Plan Performance Indicators (and vegetation structure indicators) for Ecosystem and Land Use Establishment is presented in **Table 2**, **Table 3** and **Table 4**.

**Table 2: Box Gum Shrubby Woodland rehabilitation assessment (Secondary Domain A)**

Completion Criteria (by years 5-7)	Objective: Establish native vegetation comparable to Box Gum Shrubby Woodland communities (including stands of <i>Allocasuarina</i> spp. in OC1)
	Rehabilitation Monitoring Outcome
No evidence of significant noxious weed infestation	Three priority weed species, <i>X. spinosum</i> , <i>H. perforatum</i> and <i>H. amplexicaule</i> were recorded and contributed less than 1% cover for this secondary domain.  <b>Outcome:</b> Priority weeds are present; however, the level of infestation is not significant (i.e <1% total pfc)
Pest animal populations are not causing significant damage to rehabilitation areas.	European Hare and Common Starling were observed in very low abundances during both autumn and spring monitoring periods.  <b>Outcome:</b> No damage from feral animals was recorded. This Secondary Domain meets the completion criteria related to feral animals.
There are one to three overstorey species from the Box Gum Shrubby Woodland EEC present by Years 5 to 7.	All individual rehabilitation campaigns had at least two (2) overstorey species from the Box Gum Shrubby Woodland community.  <b>Outcome:</b> Based on data from autumn and spring 2021; the area covered by all four rehabilitation campaigns within this secondary domain meet the completion criteria related to Box Gum Woodland overstorey species richness.
Indicator species plant densities are trending towards plant densities of analogue sites at Years 5 to 7.	This has been assessed on a rehabilitation campaign level. February 2012 rehabilitation campaign indicator species plant densities are trending towards analogue site densities. Indicator species densities at November 2010, March 2012 and February 2013 are not yet trending towards analogue densities, however, it is expected that these sites will trend towards analogue densities as the rehabilitation continues to mature.  <b>Outcome:</b> Based on data from autumn and spring 2021; All Secondary Domain A – Box Gum Shrubby Woodland rehabilitation campaigns meet the completion criteria related to indicator species plant density trends.
A minimum of four native ground cover species that are present in analogue sites are present by Years 5 to 7.	During 2021, All individual sites recorded greater than the minimum of four (4) (and recorded up to 31) native ground cover species that are present in analogue sites.  <b>Outcome:</b> Based on data from plots monitored in 2021, Secondary Domain A meets the completion criteria related to native ground cover species.
Stands of <i>Allocasuarina</i> spp. are present in Box Gum Shrubby Woodland rehabilitation areas by Years 5 to 7.	Stands of <i>Allocasuarina</i> spp. were recorded within the OC1 rehabilitation in R1 ten (10) individuals) and R5 (10 individuals). An <i>Allocasuarina</i> spp. stand was also recorded in an area downslope (west) of R1.  <b>Outcome:</b> Based on data from plots and visual transects in 2021 this secondary domain meets the completion criteria related to the presence of stands of <i>Allocasuarina</i> spp.

**Table 3: Sedimentary Ironbark Forest rehabilitation assessment (Secondary Domain B)**

Completion Criteria (by years 5-7)	Objective: Establish native vegetation comparable to Sedimentary Ironbark Forest communities (including stands of <i>Allocasuarina</i> spp. in OC1)
	Rehabilitation Monitoring Outcome
No evidence of significant noxious weed infestation	Two priority weed species, ( <i>H. perforatum</i> and <i>O. stricta</i> ) were recorded at less than 1% cover. <b>Outcome:</b> Priority weeds are present; however, the level of infestation is not significant (i.e <1% total pfc)
Pest animal populations are not causing significant damage to rehabilitation areas.	European Hare and Common Starling were observed in very low abundances within this Secondary Domain in OC1 during both autumn and spring monitoring periods. No feral animals were recorded within this Secondary Domain within OC4. <b>Outcome:</b> No damage from feral animals was recorded. This Secondary Domain meets the completion criteria related to feral animals.
There are two to three overstorey species from the Sedimentary Ironbark Forest community present by Years 5 to 7	Between 1 and 4 indicator species were recorded Secondary Domain B – Sedimentary Ironbark Forest rehabilitation campaign areas during 2021. <b>Outcome:</b> The rehabilitation campaigns March 2012, November 2012, November 2016 and March 2018 have met this completion criteria. The rehabilitation campaigns December 2014, April 2017 (OC1), April 2017 (OC4) and December 2019 have not yet met the completion criteria.
Indicator species plant densities are trending towards plant densities of analogue sites at Years 5 to 7.	November 2012 and November 2016 rehabilitation campaigns are meeting this criteria. The OC1 April 2017, OC4 April 2017, March 2018 and December 2019 rehabilitation campaigns have not yet reached Year 5. Densities within the the OC1 April 2017 and OC4 April 2017 rehabilitation campaigns have remained low between the 2020 and 2021 monitoring campaigns. OC4 March and December 2019 rehabilitation campaigns were first monitored in 2021 and as such no trends can be determined. Density at the March 2012 rehabilitation campaign have fluctuated since 2017 and is not trending towards analogue densities. There were no indicator plant species recorded during 2021 within the OC1 December 2014 rehabilitation campaign. <b>Outcome:</b> Secondary Domain B – Sedimentary Ironbark Forest has not yet met the completion criteria on a landscape level. It is expected that densities across all rehabilitation campaigns will decrease (trend towards analogue values) as the rehabilitation matures.
A minimum of four native ground cover species that are present in analogue sites are present by Years 5 to 7.	All Rehabilitation campaigns recorded a minimum of four native groundcover species that are present in analogue sites. <b>Outcome:</b> Secondary Domain B meets the completion criteria related to native ground cover species
Stands of <i>Allocasuarina</i> spp. are present in Sedimentary Ironbark Forest rehabilitation areas by Years 5 to 7.	Two stands of <i>Allocasuarina</i> spp. were observed within the OC1 rehabilitation areas. R18 has over 50 individuals of <i>Allocasuarina</i> spp present and a less extensive stand is present at R14 (five (5) individuals). <b>Outcome:</b> Based 2021 results, the OC1 area of Secondary Domain B meets the completion criteria related to the presence of stands of <i>Allocasuarina</i> .

**Table 4: OC2/OC3 Ecosystem and species credit sites**

<b>Completion Criteria (year 10 post landform establishment)</b>	<b>Objective:</b> Establish vegetation communities in the rehabilitated OC2 and/or OC3 landforms to generate the residual ecosystem credits for HU730 (PCT618) and HU910 (PCT1696) and species credits for the Koala.  Rehabilitation Monitoring Outcome
Native Plant Species Richness is $\geq 10.25$ at year 10 post landform establishment.	November 2015 and May 2019 sites are meeting criteria with the March 2018 rehabilitation campaign measuring ten (10).  <b>Outcome:</b> Based on 2021 results, two (2) sites are meeting criteria with the March 2018 rehabilitation campaign trending towards the completion criteria it expected to achieve criteria as the rehabilitation matures.
Native Over Storey Cover between 1.88 and 40% at year 10 post landform establishment	No sites have reached Year 10. All sites recorded 0% canopy cover along the 50m transects, however canopy species are present in the May 2019 rehabilitation campaign.  <b>Outcome:</b> The completion criteria has not been met. It is expected that Over Storey Species will develop as the rehabilitation matures.
Native Mid-Storey Cover between 1 and 20% at year 10 post landform establishment.	No sites have reached Year 10. All sites recorded 0% mid-storey cover along the 50 m transect; however, 20 x 20 m plot data indicates that mid-storey species are present at all sites except the March 2018 rehabilitation campaign.  <b>Outcome:</b> It is anticipated that, once these individuals have matured over the coming year, the criteria relating to native mid-storey cover will be met.
Native Ground Cover, Grass between 1.5 and 50% at year 10 post landform establishment.	All Rehabilitation campaigns recorded between 1.5% and 50% for Native Ground Cover Grass.  <b>Outcome:</b> Native Vegetation Sites meets the completion criteria for Native Ground Cover Grass.
Native Ground Cover, Shrubs between 0.25 and 10% at year 10 post landform establishment.	No sites have reached Year 10. All sites recorded 0% Native Ground Cover Shrubs.  <b>Outcome:</b> The completion criteria has not been met. It is expected that Over Storey Species will develop as the rehabilitation matures.
Native Ground Cover, Other between 1 and 40% at year 10 post landform establishment.	All Rehabilitation campaigns recorded between 1% and 40% for Native Ground Cover Other.  <b>Outcome:</b> Native Vegetation Sites meets the completion criteria for Native Ground Cover Other
Total Length Fallen Logs (m) is 1 at year 10 post landform establishment.	November 2015 and May 2019 rehabilitation campaigns are meeting criteria with the March 2018 rehabilitation campaign not yet meeting the criteria, measuring zero (0).  <b>Outcome:</b> The completion criteria has not been met for the March 2018 rehabilitation campaign. It is expected that the criteria will be met as the rehabilitation matures.
Exotic Plant Cover (% of total cover) is $<50\%$ at year 10 post landform establishment.	All Rehabilitation campaigns recorded $<50\%$ for Exotic Plant Cover.  <b>Outcome:</b> Native Vegetation Sites meets the completion criteria for Exotic Plant Cover.
Overall Site Value Score (OEH, 2015) (average of plots in vegetation zone) is $\geq 6.9$ at 10 years post landform establishment.	All Rehabilitation campaigns achieved an Overall Site Value Score of $\geq 6.9$  <b>Outcome:</b> Native Vegetation Sites meets the completion criteria for Overall Site Value Score.