



MOOLARBEN COAL PROJECT 2019 COMPLIANCE REPORT

EPBC 2007/3297

EPBC 2013/6926

EPBC 2008/4444

EPBC 2017/7974

Project Name	Moolarben Coal Complex
Approval Holder	Moolarben Coal Mines Pty Ltd Moolarben Coal Operations Pty Ltd
EPBC Reference	2007/3297 2013/6926 2008/4444 2017/7974
Approved Actions	<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</p>
Reporting Period	1 January 2019 to 31 December 2019
Version	1 – Issued to Department of Agriculture, Water and the Environment
Declaration of Accuracy	
<p>In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.</p>	
Signature of authorised reporting officer	
Name of authorised reporting officer	Graham Chase
Title of authorised reporting officer	Environment and Community Manager
Date	31 March 2020
Organisation Name	Moolarben Coal Operations Pty Ltd
Organisation ACN	077 939 569

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1.0 INTRODUCTION

The Moolarben Coal Complex 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 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], Sojitz Moolarben Resources Pty Ltd and a consortium of Korean power companies). MCO and MCM 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 2019 to 31 December 2019.

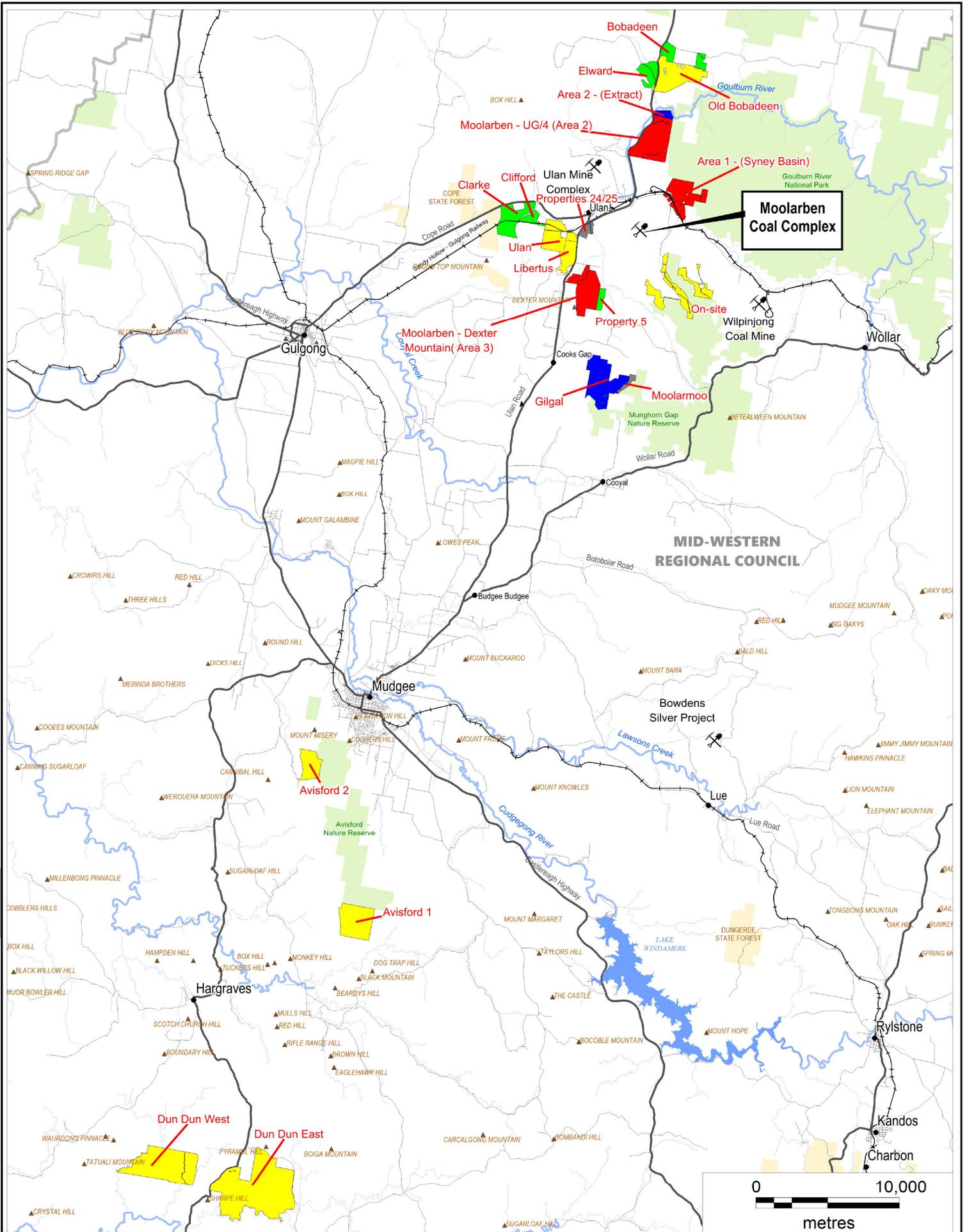
Table 1: EPBC Approval Offsets

EPBC Approval	Offset		
2007/3297	• Area 1 (Sydney Basin)	• Area 2 (Moolarben)	• Area 3 (Property 6)
2013/6926	• Elward • Bobadeen West	• Bobadeen East • Clifford	• Area 3 (Property 5) • Clarke
2008/4444	• Old Bobadeen • Ulan • Libertus	• On-site • Avisford 2 • Avisford 1	• Dun Dun West • Dun Dun East
2017/7974	• Area 1 (Sydney Basin)	• Rehabilitation	• Gilgal
Non EPBC offsets	• Moolarmoo	• Property 24/25	

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, fauna management within action areas.
- Collection of locally sourced native seed.
- Offset area management including fencing, access maintenance, weed and vertebrate pest management.
- Monitoring in accordance with the Biodiversity Offset Management Plan (BOMP), Landscape Management Plan (LMP) and Rehabilitation Management Plan (RMP).
- Progression of offsets security including securing 10 additional offsets in perpetuity.
- Approval of EPBC 2017/7974.
- Variation of EPBC 2007/3297 conditions of approval.



Legend

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

EPBC Approval

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

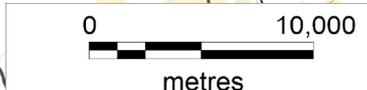


Figure 1
Regional Location

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

Condition Number	Condition	Compliance ¹	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 Area 1, Area 2 and Area 3.</p> <p>During the reporting period ten offsets were secured through a 'Positive Covenant' and a 'Restriction on the Use of Land by a Prescribed Authority' under Section 88E(3) the NSW <i>Conveyancing Act 1919</i> executed between MCO and the NSW Department of Planning, Industry and Environment (DPIE). The remaining offsets have draft Positive and Restrictive Covenants terms with the NSW DPIE for review. MCO will continue to engage with the NSW DPIE on securing the offsets.</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 ¹) on 25 November 2013 .

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

Condition Number	Condition	Compliance ¹	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"> • Rehabilitate the site • Implement the vegetation offsets; and • Landscape the environmental bunds; <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 19 December 2019.</p> <p>This report, refer to 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 ¹	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	Noted
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 587 Ha of the approved 1,534 Ha 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; 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 activates. d. 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. 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 29 May 2015 . Action commenced 2 August 2015 . 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 EPBC listed threatened species, the approval holder must prepare and submit (within 3 months after the approval), a Biodiversity Offset Management Plan (BOMP) for the proposed EPBC Offset Areas, for the Minister's written approval. The BOMP must; a. Identify those lands described as the Offset Areas at Schedule 2 (Figures 1-7) of this notice that are necessary to achieve the outcomes required by the Environmental Offsets Policy 2012. This must include offset attributes, shapefiles, textile 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.	Non-Compliant	Following consultations with the DAWE on the BOMP, a draft complex wide BOMP was submitted by MCO to the DAWE for consultation on the 30th of November 2018. The Offset security terms had not been finalised at this time. Subsequent to comments being received from DAWE, MCO met with representatives of the DAWE on 11 April 2019 to discuss the Moolarben Coal Complex NSW and Federal approvals and options to reduce unnecessary administrative duplication. DAWE suggested on 11 April that variations to EPBC 2007/3297, EPBC 2013/6926 and EPBC 2008/4444 be made

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<p>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:</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 for 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 defines 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 published on the approval holder's internet website, within 1 month of being approved and for a period of 5 years thereafter. The approved BOMP must be implemented.</p>		<p>following grant of EPBC 2017/7974 so that the approach to condition wording can be consistent with EPBC 2017/7974. It was also agreed the BMP structure and content needed to be informed by the outcomes of any approval condition variations to EPBC 2007/3297, EPBC 2013/6926 and EPBC 2008/4444. On 6 June 2019, MCO requested confirmation from the DAWE that BOMP review and update would therefore occur following variation of these conditions.</p> <p>MCO continues to progress the Complex Wide BOMP and security of offsets.</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>	Non-Compliant	<p>Two (2) Offsets (Avisford 1 and Avisford 2) were secured in accordance with Condition 4 of EPBC 2008-4444 in a previous reporting period.</p> <p>A further four (4) Offsets (Libertus, Ulan 18, Dun Dun East, and Dun Dun West) were secured through a 'Positive Covenant' and a 'Restriction on the Use of Land by a Prescribed Authority' under Section 88E(3) the NSW <i>Conveyancing Act</i> 1919 executed between MCO and the NSW DPIE. These offsets were registered by the NSW Land Registry Services on 12 December 2019.</p> <p>The remaining two (2) Offsets (Old Bobadeen and On-site) have draft Positive and Restrictive Covenants terms with the NSW DPIE for review. MCO will continue to engage with NSW DPIE on securing these remaining offsets.</p>
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 2019 Annual Review</p>
6	<p>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</p>	Compliant	<p>Section 5.5 of the NSW DPIE approved Moolarben Complex Water Management Plan.</p>

Condition Number	Condition	Compliance ¹	Evidence/Comments
	mines or other adjacent mine operators. A protocol for the supply of the data will be included in the project's 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 2019 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 2 August 2015 . Notification in writing sent on 13 August 2015
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 time. If the Minister approves the revised Plan, that Plan must be implemented in place of the Plan originally approved.	Not Applicable	Noted

Condition Number	Condition	Compliance ¹	Evidence/Comments
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 2 August 2015 .
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 125 Ha of the approved 171.4 Ha 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"> Delineate areas to be cleared, describe pre-clearance survey methods, specify actions to minimise fauna impacts and details vegetation clearance procedures. Require collection and stockpiling of habitat features important to threatened fauna species for reinstatement in rehabilitation areas. Require use of native, locally sourced seed for propagation for rehabilitation activities. 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. Include a revegetation strategy to improve connectivity between isolated vegetation patches (including between Munghorn Gap Nature Reserve, Goulburn River National Park and Dexter Mountain). 	Compliant	VCPLMP was approved by the minister on 17 December 2014 . 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 17 December 2014 . Action commenced on 23 December 2014 . The VCPLMP continues to be implemented.

Condition Number	Condition	Compliance ¹	Evidence/Comments
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 17 December 2014.</p> <p>The requirements of this conditions are addressed in the below section of the BOMP:</p> <p>a) Section 2 and Appendix 1 b) Section 3 c) Sections 4, 5, 6 & 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 17 December 2014.</p> <p>Action commenced on 23 December 2014</p> <p>The BOMP is located on MCO's website. (www.moolarbencoal.com.au)</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 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:</p>	Compliant	<p>Offsets listed in the EPBC 2013-6926 approval are all under the control of Moolarben.</p> <p>During the reporting period ten offsets were secured through a 'Positive Covenant' and a 'Restriction on the Use of</p>

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<p>a. Provide for the protection of the land in perpetuity;</p> <p>b. Prevent any future development activities, including mining and mineral extraction; and</p> <p>c. ensure the active management of the land.</p> <p>The approval holder must not commence the action until the Department has approved the proposed instrument in writing.</p>		<p>Land by a Prescribed Authority' under Section 88E(3) the NSW <i>Conveyancing Act 1919</i> executed between MCO and the NSW DPIE. The remaining offsets have draft Positive and Restrictive Covenants terms with the NSW DPIE for review. MCO will continue to engage with NSW DPIE on securing the offsets.</p> <p>The Department approved the protection mechanism for offsets under EPBC 2013-6926 on 17 December 2014.</p>
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	<p>Completed in a previous period.</p> <p>Evidence including shapefiles provided on 1 December 2014.</p>
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	<p>Completed in a previous period.</p> <p>Notification in writing sent on 20 January 2015</p>
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	Not Applicable	Noted

Condition Number	Condition	Compliance ¹	Evidence/Comments
	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.		
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 Ministers 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 23 December 2014
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 MCO, activities are underway to retire the required number of credits specified in Table 12A of the NSW Consolidated Project Approvals
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, activities are underway to retire the required number of credits specified in Table 12A of the NSW Consolidated Project Approvals. Conditions 35A of the NSW Consolidated Project Approvals is required to be completed by 30 September 2021 .
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.	Compliant	Draft Positive and Restrictive Covenants terms for the relevant portion of offset Area 2 were provided to the NSW DPIE for review.

Condition Number	Condition	Compliance ¹	Evidence/Comments
			MCO will continue to engage with NSW DPIE on securing the offsets.
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 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	MCO is currently progressing the suitable rehabilitation performance and completion criteria for OC2 and/or OC3.
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, 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.	Not Applicable	Noted
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	Subsequent to comments being received from DEE, MCO met with representatives of the DAWE on 11 April 2019 to discuss the Moolarben Coal Complex NSW and Federal approvals and options to reduce unnecessary administrative duplication. DAWE suggested on 11 April that the variations to EPBC 2007/3297, EPBC 2013/6926 and EPBC 2008/4444 be made following grant of EPBC 2017/7974 so that the approach to condition wording can be consistent with EPBC 2017/7974. The BOMP review and update would therefore occur following variation of these conditions. MCO continues to progress the Complex Wide BOMP.

Condition Number	Condition	Compliance ¹	Evidence/Comments
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
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.	Complaint	MCO prepared and submitted a revised Water Management Plan to the NSW DPIE for approval in accordance with Condition 33 of Schedule 3, and Conditions 3 and 5 of Schedule 5, of the NSW Consolidated Project Approvals on the 17 October 2019 . MCO will continue to liaise with the NSW DPIE to finalise the revised Water Management Plan.
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 if the IWQS is required by 1 December 2021 .
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 not completed during the 2019 reporting period. Completion if the IWQS is required by 1 December 2021 .
14	The approval holder must comply with condition 33A of the NSW Consolidated Project Approvals to prepare and implement a Brine Management Plan.	Compliant	MCO prepared and submitted a Brine Management Plan to the NSW DPIE for approval in accordance with Condition 33A of Schedule 3, and Conditions 3 and 5 of Schedule 5, of the NSW Consolidated Project Approvals on the 23 September 2019 . MCO will continue to liaise with the NSW DPIE to finalise the revised Brine Management Plan.
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.	Not Applicable	Commencement of works in OC3, the Action did not occur during the reporting period.
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.	Not Applicable	Commencement of operation of the water treatment facility did not occur during the reporting period.
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 2019 reporting period.
19	The approval holder must:	Compliant	Noted

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<ul style="list-style-type: none"> a. Submit the Biodiversity Management Plan electronically to the Department for approval by the Minister. b. Publish each plan on its website within 20 business days of the date the plan is approved by the Minister and/or Secretary. c. Exclude or redact sensitive ecological data from plans published on its website or provided to a member of the public. 		MCO continues to progress the Complex Wide BOMP.
20	<p>The approval holder must use one or a combination of the following methods to retire the credits required for protected matters:</p> <ul style="list-style-type: none"> a. Retire like-for-like biodiversity credits within the meaning of the Biodiversity Conservation Act 2016 (NSW). 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. 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. 	Compliant	<p>Noted</p> <p>No credits were retired in the reporting period.</p>
21	<p>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:</p> <ul style="list-style-type: none"> a. Publish each compliance report on its website within one month of being approved by the Secretary. 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. c. Exclude or redact sensitive ecological data from compliance reports published on its website. 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. 	Compliant	This Report
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"> a. The condition which is or may be in breach. 	Compliant	<p>Noted</p> <p>No non-compliance associated with EPBC 2017/7974 occurred during the reporting period.</p>

Condition Number	Condition	Compliance ¹	Evidence/Comments
	b. A short description of the non-compliance.		
23	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: <ul style="list-style-type: none"> a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future. b. The potential impacts of the non-compliance. c. The method and timing of any remedial action that will be undertaken by the approval holder. 	Compliant	Noted No non-compliance 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	For each independent audit, the approval holder must: <ul style="list-style-type: none"> a. Provide the name and qualifications of the independent auditor and the draft audit criteria to the Department. b. Only commence the independent audit once the audit criteria have been approved in writing by the Department. c. Submit an audit report to the Department within the timeframe specified in the approved audit criteria. 	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 accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the EPBC Act.	Not Applicable	Noted
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"> a. notify the Department in writing that the approved action management plan has been revised and provide the Department with: 	Not Applicable	Noted

Condition Number	Condition	Compliance ¹	Evidence/Comments
	<ul style="list-style-type: none"> I. An electronic copy of the revised Biodiversity Management Plan. II. An explanation of the differences between the approved action management plan and the revised Biodiversity Management Plan. 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. IV. Written notice of the date on which the approval holder will implement the revised Biodiversity Management Plan. 		
30	<p>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:</p> <ul style="list-style-type: none"> a. Condition 28 does not apply, or ceases to apply, in relation to the revised Biodiversity Management Plan. b. The approval holder must implement the Biodiversity Management Plan specified by the Minister in the notice. 	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
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

¹ 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 monitoring²

Floristic monitoring undertaken within the Stage 1 BOAs during autumn and spring 2019 recorded:

- 212 species were recorded across BOA 1. Of these, 168 species were native, 32 species were exotic, and 12 species could not be identified as native or exotic.
- 145 species were recorded across BOA 2. Of these, 120 were native, 16 species were exotic, and nine species could not be identified as native or exotic.
- 152 species were recorded across BOA 3. Of these 135 species were native, eight species were exotic, and nine species could not be identified as native or exotic.

The majority of Management Zone 1³ (MZ1) sites received an overall high or moderate ranking which compares favourably with the analogue site results. Consistent with the analogue sites, Native Tree Cover (NTC), Native Mid-Storey Cover (NMC) and Native Ground Cover (NGC) were the attributes receiving the lowest scores. All sites were meeting Exotic Species Cover (ESC) benchmark.

The conditions at Management Zone 2 (MZ2) sites were variable. BOA1 and BOA3 showed the best conditions compared to benchmarks with some evidence of structural development. Native Groundcover Grass (NGCG) was consistently above the benchmark, with NMC meeting or progressing towards benchmark at most sites. NTC continues to develop towards benchmark with signs of structural development at one site. ESC continues to meet benchmark across most sites.

In general woodland/forest birds dominated species and abundance counts at MZ1 sites whereas the reverse was true at MZ2 sites. These results are consistent with the flora monitoring and the differences in the provision of a range of structural layers within each MZ.

Microbat indicator species counts were similar for both indicator groups across MZ1 and MZ2 sites although DNG indicator species abundance was greater overall in both management zones.

Stage 1 Mod 9 and EPBC (2013/6929) offset areas monitoring⁴.

Floristic monitoring undertaken within the MOD 9 BOAs during autumn and spring 2019 recorded:

- 138 species were recorded across the Bobadeen BOA. Of these, 84 species were native, 39 species were exotic, and 15 species could not be identified as native or exotic.
- 96 species were recorded across the Clarkes BOA. Of these, 80 species were native, 12 species were exotic, and 4 species could not be identified as native or exotic.
- 75 species were recorded across the Clifford BOA. Of these, 69 species were native, three species were exotic, and three species could not be identified as native or exotic.
- 83 species were recorded across the Elward BOA. Of these, 77 species were native, two species were exotic, and four species could not be identified as native or exotic.
- 76 species were recorded across the Property 5 BOA. Of these, 49 species were native, 21 species were exotic, and 6 species could not be identified as native or exotic.

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

³ Offsets include Management Zone 1 which includes areas of remnant vegetation and Management Zone 2 which includes the regeneration of grasslands to forest/woodlands.

⁴ Whilst Moolarmoo and Property 24/25 are related to NSW project approvals, data has been included as all Modification 9 Offsets are managed consistently.

- 108 species were recorded across the Moolarmoo BOA. Of these, 71 species were native, 24 species were exotic, and 13 species could not be identified as native or exotic.
- 68 species were recorded across the Property 24/25 BOA. Of these, 52 species were native, 12 species were exotic, and 4 species could not be identified as native or exotic.

The majority of MZ1 sites received an overall high or moderate ranking which compares favourably with the analogue site results. In general, spring conditions were poorer than in autumn which is linked to the ongoing drought conditions and drier conditions experienced in the latter part of 2019.

The conditions at MZ2 sites were variable. Clarkes, Clifford and Elward BOAs recorded the best conditions compared to benchmarks. There was some evidence of structural development at these BOAs and at one site at Bobadeen. As at MZ1 sites, conditions were generally poorer in spring compared to autumn and this was most evident at Moolarmoo, Property 5 and Property 24/25.

At MZ1 sites, woodland/forest indicator birds dominated species and abundance counts within Clarkes, Elward, and Property 24&25 due to the extent of canopy cover within the BOA and surrounding landscape. Generally, at MZ2 sites, woodland/forest indicator birds continued to dominate species and abundance counts within Elward, Moolarmoo and Property 24/25. Species counts of woodland/forest indicator birds were similar to DNG indicator birds at Bobadeen and Clarkes, but DNG abundance was higher.

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

Floristic monitoring undertaken within the Stage 2 BOAs during autumn and spring 2019 recorded:

- 275 species were recorded across the Dun Dun BOA. Of these, 187 species were native, 65 species were exotic, and 23 species could not be identified as native or exotic
- 68 species were recorded across the Libertus BOA. Of these, 60 species were native, seven species were exotic, and one species could not be identified as native or exotic
- 204 species were recorded across the Nori BOA. Of these, 143 species were native, 42 species were exotic, and 19 species could not be identified as native or exotic
- 163 species were recorded across the Old Bobadeen BOA. Of these, 102 species were native, 43 species were exotic, and 18 species could not be identified as native or exotic
- 148 species were recorded across the Onsite Offsets BOA. Of these, 114 species were native, 24 species were exotic, and 10 species could not be identified as native or exotic
- 130 species were recorded across the Ulan 18 BOA. Of these, 90 species were native, 28 species were exotic, and 12 species could not be identified as native or exotic.

MZ1 sites have shown NSD trends to be variable with some sites showing an increasing trend, while others have shown a decreasing trend or have fluctuated around the same value. NTC values have generally improved compared to 2018. NMC has generally fallen over time, but some BOAs have shown variation in responses to the ongoing drought conditions.

MZ2 sites have shown NSD trends to be variable with some sites showing a stable or increasing trend, while others have fluctuated around the same value. NTC is low and has not shown much change over the three years of monitoring although increases have been recorded at Dun Dun West. NMC is low and has not notably changed. NGC has generally not changed overall, but there has been a recovery in NGCG in 2019. ESC has shown a notable decline overall except for some individual sites.

Natural regeneration was recorded at all BOAs. In general, transect monitoring showed that in areas where regeneration had previously been recorded there had been either a stabilisation of, or increase in, the extent of regeneration in 2019 compared to previous years.

MZ1 sites show woodland/forest indicator bird species richness and abundance consistently exceeded that of DNG indicator bird species at Libertus and On-site Offsets. Stage 2 MZ2 sites show woodland/forest indicator bird species richness and abundance has generally exceeded that of DNG indicator bird species at On-site Offsets. The remaining offsets showed higher DNG indicator bird species richness and abundance than woodland/forest indicator bird species.

The 2019 monitoring showed a slight increase in the abundance of woodland/forest indicator microbat species at some sites, however there have been no strong trends in microbat data.

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, revegetation planning and implementation, fencing, track and fire trail works, weed and feral animal control works, maintenance of property security, securing remaining 7 offsets (2007/3297, 2013/6926 & 2008/4444), progression of Gilgal Biodiversity Stewardship Agreement and development of Rehabilitation performance and completion criteria.

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

3.2 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.

3.2.1 ECOSYSTEM FUNCTION ANALYSIS

EFA was undertaken at 21 EFA sites within the three MCO open cut rehabilitation precincts. This included three (3) new sites established during autumn (R18, R19, R20) and two (2) sites established during spring (R22 and R23) in 2019. An additional site established in autumn 2019 (R21; April 2017 Sedimentary Ironbark Forest) was scheduled to undergo baseline EFA monitoring during spring 2019; however, drainage repairs to the landform were undertaken prior to spring monitoring.

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 LO index implies a more stable transect that is less prone to erosion and resource loss.

During 2019, LOI ranged from 0.45 (R4) to 1.0 (R1, R2, R3 and R6). The average LOI for Box Gum Shrubby Woodland rehabilitation sites was 0.85 and the average for Sedimentary Ironbark Forest rehabilitation sites was 0.60. LOI comparison to analogue sites is shown in **Figure 1**.

An increase in bare soil year on year has been recorded (2017-2019), this can be largely attributed to drought conditions experienced during this period. All sites recorded bare soil contributions higher than average bare soil contribution recorded at Box Gum Grassy Woodland and Sedimentary Ironbark Forest analogue sites except for R6 and R16.

Trees/shrubs, and microhabitat features such as logs and rocks, continue to contribute to a limited proportion of the rehabilitation landscape. The average contribution of each of these patch types was consistently less than 1%. Cryptogams were only present within one rehabilitation site (R10 – 43%) the presence of cryptogams at one site is to be expected considering the long period of time that is required for these features to establish.

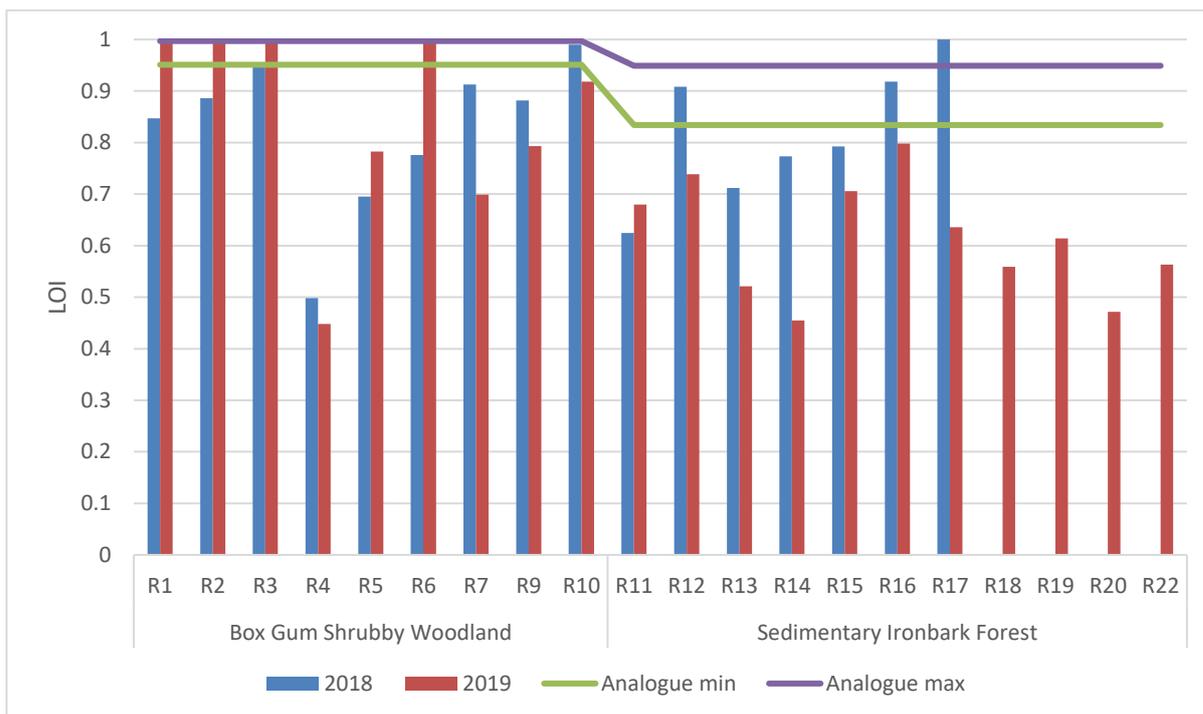


Figure 1: Landscape organisation indices (LOIs) for 2018 and 2019 compared to analogue LOI values

Floristic Monitoring

During autumn 2019 monitoring, all sites except R21, exhibited a higher number of native species than exotic species. Native species richness at Box Gum Shrubby Woodland rehabilitation monitoring sites ranged from 21 species (R7) to 40 species (R1). Native species richness at Sedimentary Ironbark Forest rehabilitation monitoring sites ranged from seven (7) (R21) to 42 species (R18) in 2019. At analogue sites, native species richness ranged from 34 species in the Box-Gum Woodland site A2A to 25 species in the Sedimentary Ironbark Forest site (A5A).

During spring 2019 monitoring, all sites exhibited a higher number of native species than exotic species except R22, which was established during spring monitoring in 2019 (six (6) native species, six (6) exotic species). Native species at Box Gum Shrubby Woodland rehabilitation monitoring sites ranged from 15 species (R17) to 34 species (R4). Native species richness at Sedimentary Ironbark Forest rehabilitation monitoring sites ranged from six (6) species (R22) to 22 species (R10) in 2019. At analogue sites, native species richness ranged from 25 (A1B) to 27 (A1C) species in the Box-Gum Woodland analogue sites. The Sedimentary Ironbark analogue site recorded 25 species (A5B).

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 a decline in native species diversity from 2018 to 2019, likely in response to the very low winter and spring rainfall in the region. The same pattern was observed for Sedimentary Ironbark sites (**Figure 3**). This indicates that the vegetation at rehabilitation sites are 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 responds to an improvement in rainfall patterns in a similar way to analogue sites this will be a clear demonstration of resilience which is a critical element for long-term sustainability.

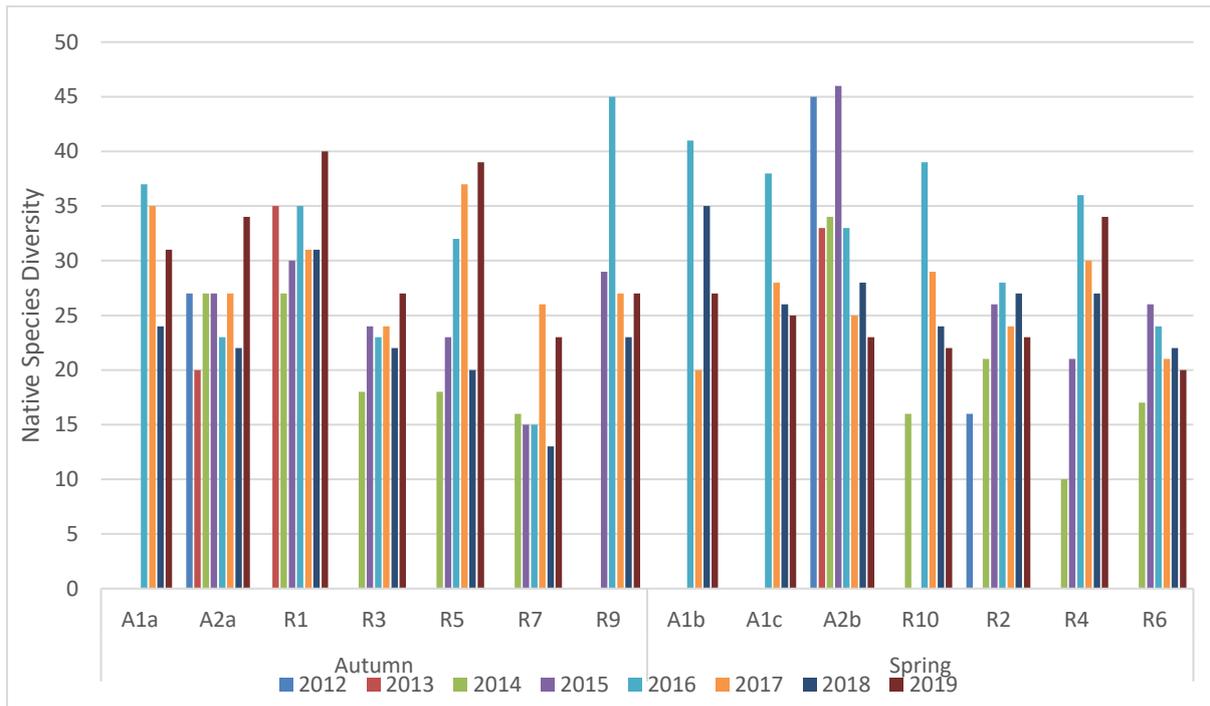


Figure 2: Native species diversity 2012 – 2019 for Box Gum Shrubby Woodland open cut rehabilitation monitoring sites and Box Gum Grassy Woodland analogue sites.

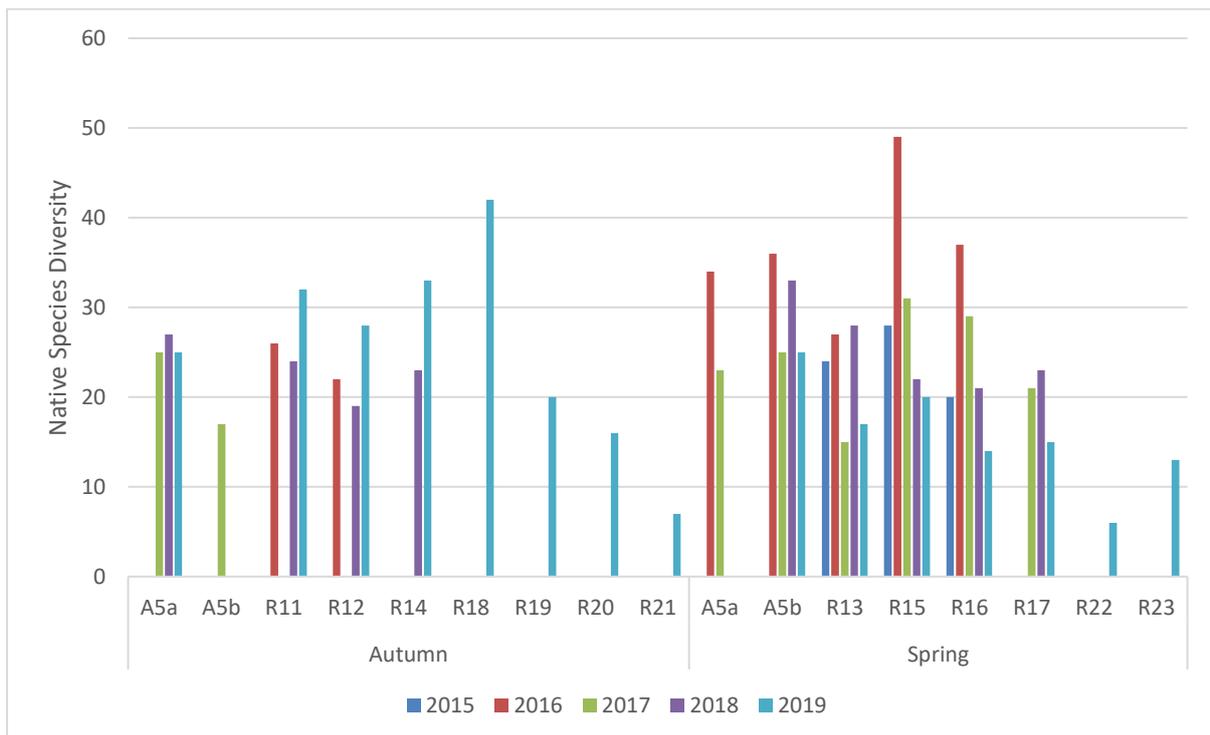


Figure 3: Native species diversity 2015 – 2019 for open cut rehabilitation and analogue Sedimentary Ironbark Forest sites

Vegetation Structure and Growth

At both the Box Gum Woodland and Sedimentary Ironbark Forest sites, the lowest height of the upper strata continues to be less than that seen at their respective analogue sites. This trend is consistent with the age of the rehabilitation. The minimum heights of the upper strata have generally shown an increase demonstrating that these species are continuing to establish within the rehabilitation area.

As with 2018 results, 2019 monitoring indicated that the upper and mid layers were dominated by Acacia species, including *Acacia linearifolia* (Narrow-leaved Wattle), *Acacia spectabilis* (Mudgee Wattle), *Acacia polybotrya* and *Acacia verniciflua* (Varnish Wattle).

Ground cover at rehabilitation Box Gum Shrubby Woodland sites ranged from 2% (R2) to 42% (R5) and Ground cover at rehabilitation Sedimentary Ironbark Forest sites ranged from 0% (R20 and R22) to 64% (R17). These results are consistent with the ongoing intense drought conditions experienced throughout both autumn and spring monitoring periods during 2019.

Fauna Monitoring

A total of 57 native and three (3) exotic fauna species were recorded during spring 2019, including two threatened species *Nyctophilus corbeni* (Corben’s Long-eared Bat) and *Chalinolobus dwyeri* (Large-eared Pied Bat). A comparison of species richness over the last seven years of monitoring is shown in **Figure 4**.

Birds were again the most abundant class of fauna identified during spring 2019, a total of 49 bird species were recorded, with 40 native bird species, one (1) exotic bird species (Common Starling (*Sturnus vulgaris*)), and a further eight (8) species were recorded opportunistically. Fourteen (14) species were recorded for the first time during 2019 monitoring, whilst eleven (11) species recorded during 2018 were not recorded during 2019.

Site R7 had the highest bird species richness with 16 species recorded, followed by R12 and R13; with 11 species recorded at both. R7 has consistently recorded the highest species richness since 2017; which is likely a result of the variety of habitat present nearby; and the presence of stags and a nearby water source.

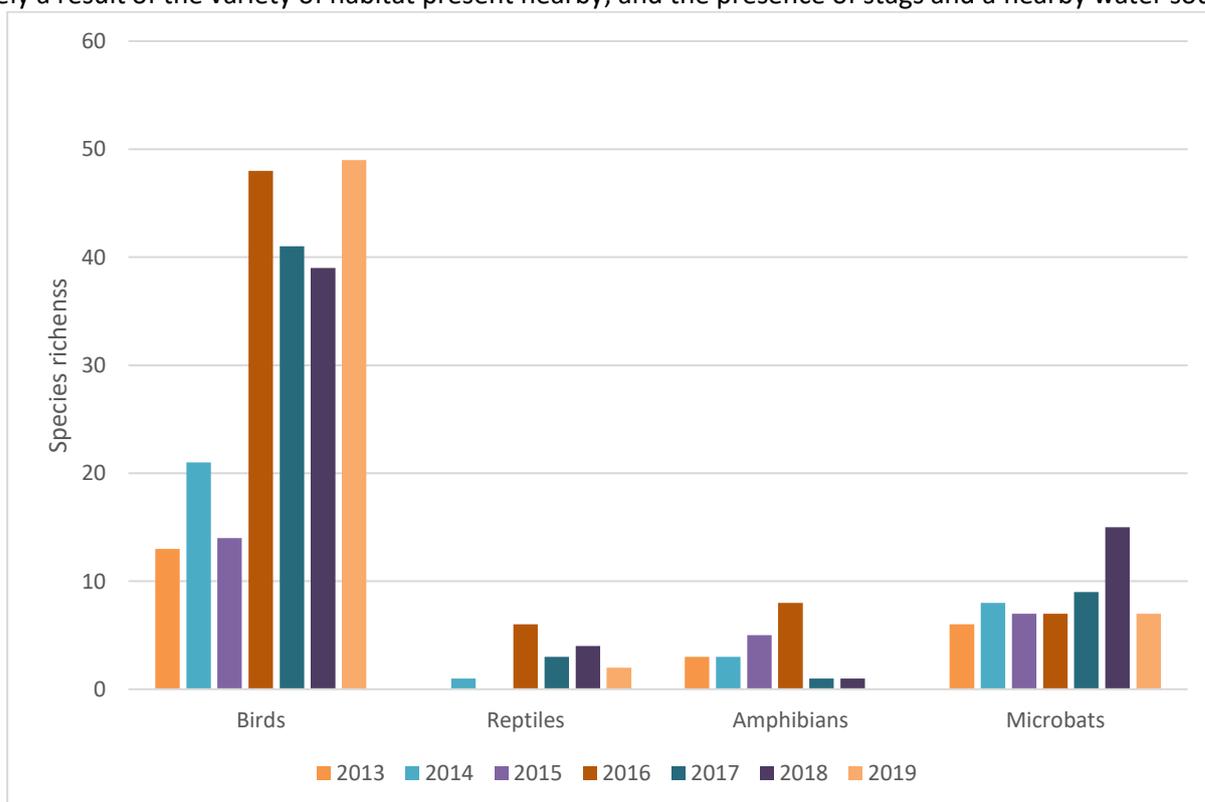


Figure 4: Comparison of target fauna species

Visual Monitoring

Results from 2019 were largely consistent with 2018 results for previously monitored transects across the OC1 rehabilitation. A decrease in ground cover has been evident since 2018 monitoring and this is likely attributed to ongoing drought conditions experienced throughout 2019.

Monitoring of the visual transects within the April 2017 rehabilitation campaign areas of OC1 and OC4 (Transect 11 and Transect 12- established during autumn 2019) demonstrated moderate overstorey components (1-2 canopy species recorded). As expected in rehabilitation of this age, only saplings (no mature eucalypts) were recorded at low densities. Similarly, a moderate score was recorded for mid-storey components with shrubs present throughout both transects. These results are consistent with the age of this rehabilitation and ongoing drought conditions experienced. It is expected that these attributes will increase as the rehabilitation matures.

Assessment of Rehabilitation Performance Indicators

Analysis of the Box Gum Woodland and Sedimentary Ironbark Forest rehabilitation against the Rehabilitation Management Plan Performance Indicators (and vegetation structure indicators) is presented in **Table 2** and **Table 3**.

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

Completion Criteria (by years 5-7)	<p>Objective: Establish native vegetation comparable to Box Gum Shrubby Woodland communities including stands of <i>Allocasuarina</i> spp.</p> <p>Rehabilitation Monitoring Outcome</p>
No evidence of significant noxious weed infestation	<p>Two priority weed species as per table 5 of LLS (2017) present at less than 1% cover for this secondary domain.</p> <p>Outcome: Based on data from autumn and spring 2019, the area covered by all four rehabilitation campaigns within this secondary domain meet the completion criteria related to noxious weeds.</p>
Pest animal populations are not causing significant damage to rehabilitation areas.	<p>Outcome: Based on data from autumn and spring 2019, the area covered by all four rehabilitation campaigns within this secondary domain meet the completion criteria related to pest animal populations.</p>
There are one to three overstorey species from the Box Gum Shrubby Woodland EEC present by Years 5 to 7.	<p>All individual rehabilitation campaigns had a minimum of two (2) overstorey species and a maximum of seven (7) species from the Box Gum Shrubby Woodland community.</p> <p>Outcome: Based on data from autumn and spring 2019; the area covered by all four rehabilitation campaigns within this secondary domain meet the completion criteria related to Box Gum Woodland overstorey species richness.</p>
Indicator species plant densities are trending towards plant densities of analogue sites at Years 5 to 7.	<p>With the exception of sites R3 and R5 which exceed the criteria, average indicator species plant density in the Box Gum Shrubby Woodland are comparable to analogue sites with an average of 14.44 individuals across the rehabilitation area and an average of 14.73 individuals across analogue sites.</p> <p>Outcome: Based on data from autumn and spring 2019; the area covered by all four rehabilitation campaigns within this secondary domain meet the completion criteria related to indicator species plant density trends.</p>
A minimum of four native ground cover species that are present in analogue sites are present by Years 5 to 7.	<p>Eight out of nine of the individual plots had a minimum of four (4) native ground cover species and six (6) ground cover species that are present in analogue sites (A1A, A1B, A1C, A2A and A2B) were recorded in this secondary domain during monitoring in 2019.</p> <p>Outcome: Based on data from plots monitored in 2019, the area covered by all four rehabilitation campaigns has a minimum of four native ground cover species that are present in the analogue sites. As such this Secondary Domain meets the completion criteria related to native ground cover species</p>
Stands of <i>Allocasuarina</i> spp are present in Box Gum Shrubby Woodland rehabilitation areas by Years 5 to 7.	<p>Stands of <i>Allocasuarina</i> spp. were recorded within the OC1 rehabilitation in R1 (six (6) individuals) and R5 (13 individuals). An <i>Allocasuarina</i> spp. stand was also recorded in an area downslope (west) of R1.</p> <p>Outcome: Based on data from plots and visual transects in 2019 this secondary domain meets the completion criteria related to the presence of stands of <i>Allocasuarina</i> spp.</p>

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.
	Rehabilitation Monitoring Outcome
No evidence of significant noxious weed infestation	Two priority weed species as per table 5 of LLS (2017) present at less than 1% cover for this secondary domain. Outcome: Based on data from autumn and spring 2019, the area covered by all five rehabilitation campaigns within this secondary domain meet the completion criteria related to noxious weeds.
Pest animal populations are not causing significant damage to rehabilitation areas.	Outcome: Based on data from autumn and spring 2019, the area covered by all five rehabilitation campaigns within this secondary domain meet the completion criteria related to pest animal populations.
There are two to three overstorey species from the Sedimentary Ironbark Forest community present by Years 5 to 7	Outcome: A minimum of 2 indicator species were recorded at three (3) out of five (5) campaign areas during 2019 monitoring.
Indicator species plant densities are trending towards plant densities of analogue sites at Years 5 to 7.	Monitoring data indicates that all sites within the March 2012 and November 2012 rehabilitation campaigns are trending towards or have exceeded average indicator plant densities. This is the first year of monitoring for two sites within OC1 (R18 and R19; April 2017 rehabilitation campaign) so no trends can be determined for these sites. Outcome: The OC1 area of this secondary domain meets the completion criteria related to indicator species plant density trends for areas where this assessment could be verified.
A minimum of four native ground cover species that are present in analogue sites are present by Years 5 to 7.	During 2019 monitoring, four (4) plots contained a minimum of four (4) of the 32 native ground cover species present at analogue sites A5A and A5B. Outcome: Based on monitoring results in 2019, two (2) out of the five (5) rehabilitation campaigns within OC1 Secondary Domain B meet the completion criteria related to native Ground cover species richness. Therefore, this completion criteria has not been met on a landscape scale.
Stands of <i>Allocasuarina</i> spp are present in Sedimentary Ironbark Forest rehabilitation areas by Years 5 to 7.	Stands of <i>Allocasuarina</i> spp. were recorded within the OC1 rehabilitation in R1 (six (6) individuals) and R5 (13 individuals). An <i>Allocasuarina</i> spp. stand was also recorded in an area downslope (west) of R1. Outcome: Based on data from plots and visual transects in 2019 this secondary domain meets the completion criteria related to the presence of stands of <i>Allocasuarina</i> spp.