Yancoal Australia Ltd

Warkworth Mining Limited

EPBC 2002/629 and EPBC 2009/5081

Annual Compliance Report - 1 February 2018 to 31 January 2019

Date of Submission: 3 May 2019

Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents.

I declare that all the information presented in this compliance report is technically accurate.

Signed _____

Full name Gary Mulhearn_____

Position Manager Environment and Community_____

Organisation

Yancoal Australia Ltd (ABN 82 111 859 119)

Date 3 May 2019_____

Document Title	Version	Date effective	Comment
Annual Compliance Report (EPBC2002/629 and EPBC2009/5081)	1	May 2019	Submitted to Department of the Environment and Energy

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1. Introduction

1.1 Objective

This annual Compliance Report has been prepared in accordance with the *Annual Compliance Report Guidelines* (Commonwealth of Australia 2014) to satisfy Condition 4 of the EPBC 2002/629 Approval and Condition 15 of the EPBC 2009/5081 Approval, for the period 1 February 2018 to 31 January 2019 (reporting period). Both Approvals are held by Warkworth Mining Limited (WML) which is operated by Coal & Allied (NSW) Pty Ltd, a wholly owned subsidiary of Yancoal Australia Limited (YAL).

1.2 Background

WML holds development consent SSD-6464 to construct and operate an open cut coal mine, located approximately 15 kilometres southwest of Singleton in the Hunter Valley, NSW. The Commonwealth Minister for the Environment, under provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), has issued two approvals to WML to construct, operate and extend the open cut coal mine, the first in February 2004 (EPBC 2002/629) and the second in August 2012 (EPBC 2009/5081).

The EPBC 2002/629 approval (as varied) requires WML to offset the impact upon Matters of National Environmental Significance (MNES) by protecting and managing no less than 1,586 hectares (ha) of habitat for the Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*).

The EPBC 2009/5081 approval (as varied) requires WML to offset the MNES by protecting and managing a total of no less than 2,626 ha, of habitat for the Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*). There are also conditions relating to water management and rehabilitation on the mine site.

The Offset Areas for each of the EPBC approvals are presented in **Table 1**.

Table 1 Location and size of the EPBC Offset Areas

Locality	Biodiversity Area	Offset Area (ha)	EPBC2002/629	EPBC2009/5081 Phase 1	EPBC2009/5081 Phase 2
Local	Southern (Putty Road Offset Area)	94		94	
	Southern	892			892
	Southern Total	986		94	892
	Northern	341			341
Regional	North Rothbury	41			41
	Goulburn River	1,066	1,066		
	Bowditch	520	520		
	Bowditch	82			82
	Putty	383			383
	Seven Oaks	519			519
	Condon View	345			345
Total		**4,282**	**1,586**	**94**	**2,602**

2. Condition Compliance

2.1 EPBC 2002/629

EPBC2002/629 Condition Number	Condition	Compliance status	Evidence/Comments (Goulburn River BA, Bowditch BA)
1	By no later than 31 July 2020, the person taking action must register the Biodiversity Management Areas identified in the map at Attachment A under a legally secured offset mechanism. The mechanism must provide enduring protection of no less than a) 1,586 ha of suitable habitat for *Anthochaera phrygia* (regent honeyeater) and *Lathamus discolour* (swift parrot). Evidence of registration must be provided to the Department within 30 days of registration of the legally binding covenant.	Pending	A request was sent to DoEE on 7 December 2017 to extend the due date for a legally binding conservation covenant over the biodiversity areas beyond 17 February 2018. The request was sought on the basis of aligning the timeframe with the NSW Project Approval SSD 6464. DoEE advised by email on 28 February 2018, that given the request was submitted well in advance of 17 February 2018, that no non-compliance would be recorded. After additional consultation and correspondence with DoEE and the NSW Office of Environment and Heritage (OEH), further information was sent to DoEE on 11 September 2018 which noted that WML has been working with the OEH to secure the offsets as Biodiversity Stewardship Agreement (BSA's) pursuant to the Biodiversity Conservation Act 2016. As this Act commenced in August 2017, many of the systems, processes and transitional arrangements are being developed by OEH and the newly created Biodiversity Conservation Trust (BCT). WML had consulted with OEH and developed a timeline to step through the process to register the BSA's, and an extension request was sent to DoEE based on the proposed timeline. Approval from DoEE was received on 14/10/2018, with reference to the 7 December 2017 extension request, for the variation to condition 1 to extend the timeframe by which legally binding covenants must registered over the offset sites to 31 July 2020.
2	To offset the impacts to the regent honeyeater and swift parrot, the person taking the action must submit to the Minister for approval an Offset Management Plan (OMP) for all of the Biodiversity Management Areas by no later than 13 April 2014. The OMP must include, but not be limited to, the following information:	Compliant	Regional Offset Management Plan (ROMP) submitted to the Environment Assessment Branch of Department of Environment (DoE) for Minister approval 14 April 2014 (13 April 2014 was a Sunday). Regional OMP approved by Minister 06 August 2014. The Independent Audit completed in 2015 indicated that separate Offset Management Plans for Bowditch and Goulburn River BAs would be preferable. In addition separate plans are required for the legally binding mechanism. Therefore in February 2017 individual plans were submitted to the Department for approval. In response to comments received from the Department of Environment and Energy (DoEE), a further three versions of the individual plans were submitted during 2017. The final revision, submitted to DoEE in December 2017, was approved on 16 February 2018.
2a	a textual description and map to clearly define the location and boundaries of all of the Biodiversity Management Areas. This must be accompanied with the offset attributes and a shapefile	Compliant	Section 2.1 MP Location and Description

EPBC2002/629 Condition Number	Condition	Compliance status	Evidence/Comments (Goulburn River BA, Bowditch BA)
2b	details of management actions to protect and enhance the extent and condition of habitat values of the offset areas including but not limited to rehabilitation, weed control, fire management, erosion and sediment control, management of livestock and restrictions on access of no less than 1,586 hectares of habitat for the regent honeyeater and swift parrot	Compliant	Section 3 Objectives, Key Performance Indicators and Completion Criteria and Section 4 Conservation Management Actions of the MP.
2c	the timing, responsibilities and performance criteria for management actions	Compliant	Section 4 Conservation Management Actions of the MP.
2d	a monitoring plan including the undertaking of ecological surveys by a qualified ecologist to assess the success of the management actions against identified milestones and objectives	Compliant	Section 5 Monitoring of the MP.
2e	a process to report, to the department, the management actions undertaken in the offset areas and the outcome of those actions, including identifying any need for improved management	Compliant	Section 1.3 Function of the MP.
2f	a description of the potential risks to successful management and rehabilitation in the offset areas, and a description of the contingency measures that would be implemented to mitigate these risks	Compliant	Section 4 Conservation Management Actions of the MP.
2g	details of parties responsible for management, monitoring and implementing the plan, including their position or status as a separate contractor.	Compliant	Section 1.3.2 Key Stakeholders and Roles.
	The approved OMP must be implemented. The person taking the action must publish the approved OMP on their website within 1 month of the OMP being approved by the Minister. The approved OMP must remain published until the expiry of the approval or until such time as agreed in writing by the Minister.	Compliant	The *Regional Offset Management Plan Annual Report 2018* (**Attachment A**) provides a summary of the management and monitoring activities completed in 2018. Approved Regional Offset Management Plan was originally published on Rio Tinto Coal Australia website on 5 September 2014 and is now published on the Yancoal Australia Insite website at the link below. https://insite.yancoal.com.au/asset/download/150/ff0efb/warkworth-regionaloffsetmanagementplan-062014-1.pdf The Regional Offset Management Plan has now been superseded by individual management plans for the relevant Biodiversity Areas. The Goulburn River and Bowditch Management Plans are published on the Yancoal Australia Insite website at the link below: https://insite.yancoal.com.au/document-library/management-plans-mtw

EPBC2002/629 Condition Number	Condition	Compliance status	Evidence/Comments (Goulburn River BA, Bowditch BA)
	Note: For clarity, the Biodiversity Management Areas in condition 1 and identified on the map in Attachment A can accommodate offset requirements for more than one species habitat within the one area, if a qualified ecologist verifies that suitable habitat is present and includes specific habitat requirements for the relevant species.		
3	The Compliance Report (referred to in condition 4) due in 2015, and Compliance Reports due in each subsequent fifth year until the expiry of the approval, must be audited by an independent auditor. Prior to the commencement of each audit, the independent auditor and the audit criteria must be approved by the Department.	Complaint	The 2015 Compliance Report was audited in 2015 by an independent auditor (Peter Horn), approved by DoE on 24 July 2015. The Independent Audit report was sent to DoE on 20 October 2015. Next audit due 2020.
4	Within three months of every 12 month anniversary of the Commencement of Construction, the person taking the action must publish a report (the Compliance Report) on their website addressing compliance with each of the conditions of this approval, including implementation of any plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the Compliance Report is published. The person taking the action must also notify any non-compliance with this approval to the department in writing within 2 business days of becoming aware of the non-compliance. The person taking the action must continue to annually publish the Compliance Report until such time as agreed in writing by the Minister.	Compliant	This report Commencement of Construction June 2004.
5	If the person taking the action wishes to carry out any activity otherwise than in accordance with the plans, as specified in the conditions, the person taking the action must submit to the department for the Minister's written approval a revised version of that plan. The varied activity shall not commence until the Minister has approved the revised plan in writing. If the Minister approves the revised plan that plan must be implemented in place of the plan originally approved.	Compliant	Individual management plans were submitted to the Department for approval in February 2017 and subsequent revisions were submitted in December 2017. The final revisions were approved on 16 February 2018.

EPBC2002/629 Condition Number	Condition	Compliance status	Evidence/Comments (Goulburn River BA, Bowditch BA)
6	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities or listed migratory species to do so, the Minister may require that the person taking the action make specified revisions to a management plan specified in the conditions and submit the revised plan for the Minister's written approval. The revised approved plan must be implemented. Unless the Minister has approved the revised plan the person taking the action must continue to implement the originally approved plan, as specified in the conditions.	Compliant	Comments on the individual management plans were received from DoEE on 13/04/2017 and 22/06/2017. Agreed changes were made to the revised management plans submitted in December 2017.

2.2 EPBC 2009/5081

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
1	To offset the impact on the foraging habitat for *Anthochaera Phrygia* (regent honeyeater) and *Lathamus discolor* (swift parrot), the person taking the action must register a legally binding conservation mechanism over 94ha of land, as illustrated in the map at Attachment A as the Phase 1 Offset. The conservation mechanism must provide enduring protection for the Phase 1 Offset (Putty Road) and must be registered by 31 July 2020. Evidence of registration must be provided to the Department within 30 days of registration of the legally binding conservation mechanism.	Pending	A request was sent to DoEE on 7 December 2017 to extend the due date for a legally binding conservation covenant over the biodiversity areas beyond 17 February 2018. The request was sought on the basis of aligning the timeframe with the NSW Project Approval SSD 6464. DoEE advised by email on 28 February 2018, that given the request was submitted well in advance of 17 February 2018, that no non-compliance would be recorded. After additional consultation and correspondence with DoEE and the NSW Office of Environment and Heritage (OEH), further information was sent to DoEE on 11 September 2018 which noted that WML has been working with the OEH to secure the offsets as Biodiversity Stewardship Agreement (BSA's) pursuant to the Biodiversity Conservation Act 2016. As this Act commenced in August 2017, many of the systems, processes and transitional arrangements are being developed by OEH and the newly created Biodiversity Conservation Trust (BCT). WML had consulted with OEH and developed a timeline to step through the process to register the BSA's, and an extension request was sent to DoEE based on the proposed timeline. Approval from DoEE was received on 14/10/2018, with reference to the 7 December 2017 extension request, for the variation to condition 1 to extend the timeframe by which legally binding covenants must registered over the offset sites to 31 July 2020.
2	To offset the impacts on the foraging habitat of the regent honeyeater and swift parrot, the person taking the action must submit to the Minister for approval an Offset Management Plan (OMP) for the Phase 1 Offset identified in Attachment A by no later than 13 April 2014. The OMP must include, but not be limited to the following:	Compliant	Draft Putty Road Offset - Offset Management Plan (OMP) submitted to Department of Environment and Energy (DoEE) 14 April 2014 (13 April was a Sunday). DoEE approval of Putty Road Offset OMP dated 4 July 2014. In February 2017 a Southern BA Offset Management Plan was submitted to the Department for approval, as it contains the Phase 1 Offset (Putty Road Offset Area) and the Phase 2 Offset. This plan is to be used as part of the legally binding mechanism to secure both the Phase 1 and 2 Offsets. A revised version of the Southern BA Management Plan was submitted to DoEE in December 2017 to address comments provided by DoEE on the February 2017 version. The Southern BA Management Plan was approved by DoEE on 16 February 2018
2a	a textual description and map to clearly define the location and boundaries of all of the offset areas. This must be accompanied with the offset attributes and a shapefile	Compliant	Section 2.1 Location and description of the MP
2b	details of management actions to protect and enhance the extent and condition of habitat values of the offset areas including but not limited to rehabilitation, weed control, fire management, erosion and sediment control, management of livestock and restrictions on access to habitat for the regent honeyeater and swift parrot	Compliant	Section 3 Objectives, Key Performance Indicators and Completion Criteria and Section 4 Conservation Management Actions of the MP.
2c	the timing, responsibilities and performance criteria for management actions	Compliant	Section 4 Conservation Management Actions of the MP.
2d	a monitoring plan including the undertaking of ecological surveys by a qualified ecologist to assess the success of the management	Compliant	Section 5 Monitoring of the MP.

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
	actions against identified milestones and objectives		
2e	a process to report, to the department, the management actions undertaken in the offset areas and the outcome of those actions, including identifying any need for improved management	Compliant	Section 1.3.2 Key Stakeholders and Roles.
2f	a description of the potential risks to successful management and rehabilitation in the offset areas, and a description of the contingency measures that would be implemented to mitigate these risks	Compliant	Section 4 Conservation Management Actions and Section 6 Risk Assessment of the MP.
2g	details of parties responsible for management, monitoring and implementing the plan, including their position or status as a separate contractor.	Compliant	Section 1.3.2 Key Stakeholders and Roles.
	The approved OMP must be implemented. Note: Offset areas can accommodate offset requirements for more than one species habitat within the one area, if a qualified ecologist verifies that suitable habitat is present and includes specific habitat requirements for the relevant species.	Compliant	Implementation of the conservation management strategies and monitoring as described in the Putty Road OMP and the broader Local OMP is supported by their Annual Reports. The Local OMP describes the management of the area surrounding the Putty Road Offset, this area is referred to as the Southern Biodiversity Area. The *Local Offset Management Plan Annual Report 2018* (**Attachment B**) provides a summary of the management and monitoring activities completed in 2018.
3	Prior to Commencement of Construction of Phase 2 of the action, the person taking the action must submit to the Minister details of at least 2,532 hectares of suitable habitat for the Regent Honeyeater and Swift Parrot (Phase 2 Offset) to offset impacts on foraging habitat for these two species. The details of offset sites must include offset attributes and shapefiles and ecological assessment reports. If the offset sites are different to those offset sites previously approved under the approval granted on 9 August 2012, the new offset sites must be submitted to the Minister for approval.	Compliant	Submission of the Phase 2 offsets details was on the 12 January 2016. Approval of Phase 2 offsets was 17 February 2016.
4	To offset the impacts on the foraging habitat of the Regent Honeyeater and Swift Parrot, the person taking the action must register a legally binding conservation mechanism on all Phase 2 offsets by 31 July 2020. Evidence of registration must be provided to the Department within 30 days of registration of the legally binding conservation mechanism.	Pending	A request was sent to DoEE on 7 December 2017 to extend the due date for a legally binding conservation covenant over the biodiversity areas beyond 17 February 2018. The request was sought on the basis of aligning the timeframe with the NSW Project Approval SSD 6464. DoEE advised by email on 28 February 2018, that given the request was submitted well in advance of 17 February 2018, that no non-compliance would be recorded. After additional consultation and correspondence with DoEE and the NSW Office of Environment and Heritage (OEH), further information was sent to DoEE on 11 September 2018 which noted

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
			that WML has been working with the OEH to secure the offsets as Biodiversity Stewardship Agreement (BSA's) pursuant to the Biodiversity Conservation Act 2016. As this Act commenced in August 2017, many of the systems, processes and transitional arrangements are being developed by OEH and the newly created Biodiversity Conservation Trust (BCT). WML had consulted with OEH and developed a timeline to step through the process to register the BSA's, and an extension request was sent to DoEE based on the proposed timeline. Approval from DoEE was received on 14/10/2018, with reference to the 7 December 2017 extension request, for the variation to condition 4 to extend the timeframe by which legally binding covenants must registered over the offset sites to 31 July 2020.
5	The approved OMP, as described in condition 2, must be revised by the person taking the action to include, but not be limited to, those activities as described in condition 2a-g for the Phase 2 Offset. The revised OMP must be submitted for approval by the Minister within 12 months of the submission of details/approval of Phase 2 Offset.	Compliant	The OMP is to be revised to include the approved Phase 2 offsets on or before 17 February 2017. Plans were submitted for approval on 15 February 2017 for the Southern, Northern, North Rothbury, Seven Oaks, Condon View and Putty BAs.
Re-establishment of Woodland in Biodiversity Management and Offset Areas			
6	Within 12 months of the Commencement of Construction of Phase 1, the person taking the action must submit to the Minister for approval a Re-establishment Plan (REP) for the Phase 1 Offset area. The REP must include, but not be limited to the following: a. details of the areas to be re-established (re-establishment areas) including location and maps; b. documentation including mapping of current environmental values relevant to MNES of the re-establishment areas; c. where revegetation through planting seedlings and/or seeds is intended, details of appropriate species and ratios of species relevant to historically occurring listed migratory and listed threatened species' habitat; d. the source and provenance of the seeds and/or seedlings which will be used; e. measures to address threats to MNES including but not limited to grazing pressure and damage by livestock and adverse impacts from feral animals and weeds; f. measures to provide fire management regimes appropriate for the MNES; g. measures to manage the MNES in accordance with the	Compliant	Draft Putty Road Offset REP submitted to DoE 2 February 2015. Comments were received on the 18 July 2016. WML sought approval to address these comments in the Southern BA Management Plan, which was submitted on 15 February 2017. This plan includes a compliance table to show that all elements of this condition are met. The *Local Offset Management Plan Annual Report 2018* (**Attachment B**) provides a summary of the management and monitoring activities completed in 2018.

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
	recommendations of the approved recovery plan for the migratory and threatened species; h. monitoring measures including ecological surveys to measure the establishment and ongoing success of the revegetation based on a comparison with high quality habitat for the MNES; i. performance measures and reporting requirements against identified objectives, including trigger levels for contingency measures to be taken to ensure performance measures and objectives are met; and j. identify persons responsible and arrangements for implementing the REP and for reporting on performance. The approved REP must be implemented.		
7	The approved REP, as described in condition 6, must be revised by the person taking the action to include at least those activities as described in conditions 6a-j for the Phase 2 Offset. The revised REP must be submitted for approval by the Minister within 12 months of the Commencement of Construction of Phase 2 of the action. The approved revised REP must be implemented.	Compliant	The REP is to be revised to include the approved Phase 2 offsets on or before 16 February 2017. The Management Plans submitted for the Southern, Northern, North Rothbury, Seven Oaks, Condon View and Putty BAs on 15 February 2017 for approval. These plans contained the requirements of the REP and include a compliance table to show that all elements of this condition are met.
8	As a precautionary approach, the person taking the action must within 6 months of the date of this approval, or such other timeframe as specified in writing by the Minister, provide to the Minister any NSW Government approved water management plans which apply to the approved action.	Compliant	Water Management Plan (WMP) approved by NSW regulator 10 September 2014. A copy of the WMP was sent to DoEE on 15 September 2014. No request has been received by DoEE to provide further copies of the WMP. The Water Management Plan was revised and submitted to NSW Department of Planning and Environment (DPE) on 2/12/2015 following the WML and MTO Continuation Approvals. It was subsequently approved on 29/1/2016. A minor revision to update monitoring programmes was completed on 21/3/2016. A major revision was submitted to DPE on 16/5/2017, following the incorporation of stream and riparian health monitoring in Wollombi Brook and Loders Creek. The plan was approved 26 June 2017. The WMP was revised and submitted to DPE on 30 November 2017 to reflect the change to Yancoal ownership. The plan was approved 12 February 2018. The WMP was revised and submitted to DPE on 27 July 2018 following the Annual Review submission. Changes were made on 18 September 2018 in response to DP&E feedback and the revised plan was approved 20 September 2018. The latest version of the WMP can be found at https://insite.yancoal.com.au/document-library/management-plans-mtw

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
9	The person taking the action must within 6 months of the date of this approval, or such other timeframe as specified by the Minister, provide to the Minister a report on: a. any updated modelling of surface and groundwater impacts that have been undertaken in preparing the water management plans b. how the water management plans have addressed groundwater and surface water impacts on nationally listed threatened species and ecological communities	Compliant	These conditions are addressed in the WMP (refer Condition 8).
10	If, after receiving the water management plans described in condition 8 and the report in condition 9, the Minister is not satisfied the water management plans adequately address impacts on listed threatened species and ecological communities, the Minister may require in writing that the person taking the action provide additional information within a specified timeframe.	Not triggered	
11	The person taking the action must, within 12 months of the Commencement of Construction of Phase 1, and within 12 months of the Commencement of Construction of Phase 2, submit to the Minister for approval a Mine Site Rehabilitation Plan (MSRP) for the progressive rehabilitation and revegetation of no less than 32ha woodland of mined areas for Phase 1 and 2,303ha of woodland habitat on mined areas for Phase 2. The MSRP must include, at a minimum, the following information: a. the desired outcomes/objectives of implementing the MSRP b. details of the vegetation communities to be rehabilitated and the timing of progressive rehabilitation c. a process to progressively report to the department the rehabilitation management actions undertaken and the outcome of those actions, and the mechanisms to be used to identify the need for improved management d. a description of the potential risks to successful management and rehabilitation on the project site, and a description of the contingency measures that would be implemented to mitigate these risks e. details of parties responsible for reviewing and implementing the plan f. details of long term management and protection of the mine site	Compliant	The Mine Site Rehabilitation Plan (MSRP) is contained within the Mining Operations Plans; a copy was submitted to DoEE 2 February 2015. Feedback was received from DoEE on the 18 July 2016. RTCA sought and received approval to address these comments in the next revision of the Mining operations Plan. The revised Mining Operations Plan was submitted to DoEE for approval on 23 Jan 2019. Approval from DoEE is pending.

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
	The approved MSRP must be implemented.		
12	The person taking the action must submit to the Minister for approval a Mine Closure Plan (MCP) at least 6 months prior to the closure of the mine. The approved MCP must be implemented. Note: The person taking the action may develop a single mine rehabilitation plan to align with the requirements of this approval and those of the NSW Government.	Not triggered	
13	All survey data collected for the project must be collected and recorded so as to conform to data standards notified from time to time by the department. When requested by the department, the person taking the action must provide to the department all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. This survey data must be provided within 30 business days of request, or in a timeframe agreed to by the department in writing. The department may use the survey data for other purposes.	Compliant	All survey data is retained by WML, the offset data is stored within the Biodiversity Offset Portal. Access to the portal was provided to DoEE in 2015. No requests for survey data have been received.
14	Within 14 days after the Commencement of Construction of Phases 1 and 2, the person taking the action must advise the department in writing of the actual date of Commencement of Construction.	Compliant	Phase 1 construction commenced on 3 February 2014 and WML notified DoEE in writing on 13 February 2014. Phase 2 construction commenced on 16 February 2016 and WML notified DoEE in writing on 16 February 2016.
15	Within 3 months of every 12 month anniversary of the Commencement of Construction of Phase 1, the person taking the action must publish a report (the Compliance Report) on their website addressing compliance with each of the conditions of this approval, including implementation of any plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the Compliance Report is published. The person taking the action must also notify any non-compliance with this approval to the department in writing within 2 business days of becoming aware of the noncompliance. The person taking the action must continue to annually publish the Compliance Report until such time as agreed in writing by the Minister.	Compliant	Compliance report due before 3 May each year (based on date of commencement of construction 3 February 2014). 2017 Compliance Report published on Yancoal Australia Insite website 3 May 2018.
16	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the	Not triggered	

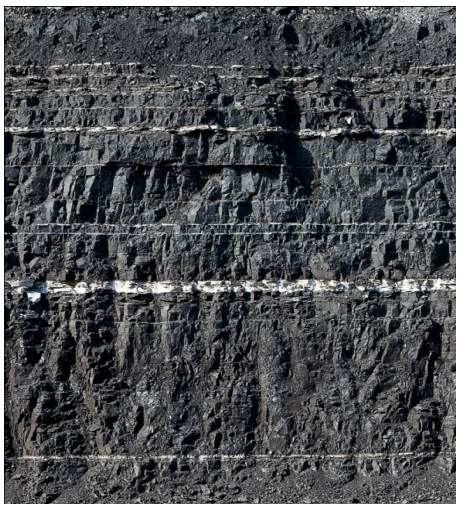
EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
	conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the 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.		
17	Where the conditions require the person taking the action to submit a plan for the Minister's approval, the person taking the action must maintain a register recording: a. the date on which each plan was approved by the Minister b. if a plan has not been approved by the Minister, the date on which it was, or is expected to be, submitted to the Minister. c. the dates on which reports on the outcomes of reviews have been approved by the Minister d. the dates on which the subsequent reviews are due The register must be submitted to the department at the time as the Compliance Report, as described at condition 15.	Compliant	Compliance Register submitted with this report (**Attachment C**)
18	If the person taking the action wishes to carry out any activity otherwise than in accordance with the plans, as specified in the conditions, the person taking the action must submit to the department for the Minister's written approval a revised version of that plan. The varied activity shall not commence until the Minister has approved the revised plan in writing. If the Minister approves the revised plan that plan must be implemented in place of the plan originally approved.	Not triggered	
19	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities or listed migratory species to do so, the Minister may require that the person taking the action make specified revisions to a management plan specified in the conditions and submit the revised plan for the Minister's written approval. The revised approved plan must be implemented. Unless the Minister has approved the revised plan the person taking the action must continue to implement the originally approved plan, as specified in the conditions.	Not triggered	
20	If, at any time after 5 years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.	Not triggered	The action has commenced as per the Commencement of Construction (3 February 2014)

EPBC2009/5081 Condition Number	Condition	Compliance status	Evidence/Comments (Southern BA, Northern BA, Putty BA, Condon View BA, Seven Oaks BA, Bowditch BA, North Rothbury BA)
21	The person taking the action must maintain accurate records substantiating all activities and outcomes associated with or relevant to the above conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the department. Such records may be subject to audit by the department or an independent auditor appointed and/or approved by the department, and used to verify compliance with the conditions of approval. Summaries of audits will be posted on the department's website. The results of audits may also be publicised through the general media.	Compliant	Records of activities and outcomes are maintained by WML.
22	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all plans referred to in these conditions of approval on their website. Each plan must be published on the website within 1 month of being approved. The person taking the action must notify the department within 5 business days of publishing the plan on their website and the plan must remain on the website for the period this approval has effect.	Compliant	All approved plans have been published on the Yancoal Australia Insite website.

3. New environmental risks and potential threats to Matters of National and State Environmental Significance

No new environmental risks have been identified during the reporting period.

ATTACHMENT A: Regional Offset Management Plan Annual Report 2018



Regional Biodiversity Areas

Annual Report 2018

3 May 2019

Annual report for the period from January to December 2018, for activities described in the Management Plans for all regional Warkworth Mining Limited offsets including:

- Goulburn River Biodiversity Area
- Seven Oaks Biodiversity Area
- Bowditch Biodiversity Area
- Putty Biodiversity Area
- Condon View Biodiversity Area
- North Rothbury Biodiversity Area

Note that a portion of Condon View Biodiversity Area is an offset for Hunter Valley Operations to satisfy conditions of the Commonwealth approval EPBC 2016-760.

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1 INTRODUCTION

This annual report is a requirement of the Management Plans for all regional Warkworth Mining Limited offsets for the 2018 reporting period from 1 January through to 31 December 2018.

The annual report provides a summary of the key management activities completed across the biodiversity offsets located within the Goulburn River, Seven Oaks, Bowditch, Putty, Condon View and North Rothbury Biodiversity Areas (BAs).

The management plans describe the conservation management strategies and monitoring to achieve and measure improvement and protection of the offsets biodiversity values. It is a compliance requirement of the Commonwealth and NSW environmental approvals to implement the management plans.

The Regional Offset Management Plan (ROMP) was prepared to satisfy the consent requirements for the New South Wales (NSW) Hunter Valley Operations (HVO) South Project Approval (PA 06_0261) and the Warkworth Mine Commonwealth EPBC 2002/629 Approval. In November 2015, the NSW Warkworth Continuation Project Approval (SSD-6464) was granted providing both NSW and Commonwealth approval for the same disturbance area. Phase 2 of the EPBC2009/5081 action also commenced on 16 February 2016. In response to the granting of these new approvals, new Management Plans for the Bowditch and Goulburn River BA have been prepared to satisfy the Commonwealth approval EPBC2009/5081 and the NSW consent (SSD-6464), replacing the ROMP. On 10 October 2016 HVO was granted approval (EPBC2016/7604), The Condon View BA provides 168ha of suitable direct offset to be compliant with this approval. Management Plans have also been prepared and submitted for the new regional BAs: Seven Oaks, Putty, Condon View and North Rothbury.

The Biodiversity Offset Portal contains all the supporting documentation for this report, including photo point monitoring. Access to the portal is restricted, relevant regulators have been provided with login details; please contact Mount Thorley Warkworth should you require assistance.

2 LOCATION AND LANDHOLDER DETAILS

The locations of the regional BAs are shown in Figure 1, further details are provided in Table 1. The land is owned by Warkworth Mining Limited (WML). The Goulburn River and Condon View BAs are owned by Warkworth Mining Limited and have a portion of the total area designated as an offset for Hunter Valley Operations (HVO). Details of the Warkworth Offset and HVO Offset areas are in Table 2 and Figure 1, 2 and 3.

Table 1 Regional Biodiversity Areas

Biodiversity Area	Local Government Area	Land Owner	Area (ha)	Offset Area (ha)	Location
Goulburn River	Upper Hunter / Mid-Western	Warkworth Mining Limited	1,539	1,206	'The Rivers' 30km west of Merriwa, via Dulhunty Road, Comialla Road and Golden Hwy.
Bowditch	Muswellbrook	Warkworth Mining Limited	607	602	3km north of Sandy Hollow, 3450 Wybong Road, via Golden Hwy.
Seven Oaks	Mid-Western	Warkworth Mining Limited	521	519	35km west of Merriwa via Ulan Road, Summer Hill Road, Durridgerie Road and Smedes Road.
Condon View	Singleton	Warkworth Mining Limited	553	345	5km west of Putty via Box Tree Clearing Trail off Putty Valley Road.
Putty	Singleton	Warkworth Mining Limited	386	383	5km south of Putty via Box Gap Road.
North Rothbury	Cessnock	Warkworth Mining Limited	41	41	1km south of North Rothbury via Wine Country Drive.

Table 2 Goulburn River and Condon View Biodiversity Areas

Biodiversity Area	Land Owner	Area (ha)	Warkworth Offset Area (ha)	HVO Offset Area (ha)
Goulburn River	Warkworth Mining Limited	1,539	1,066	140
Condon View	Warkworth Mining Limited	553	345	168

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Location of the Warkworth Mining Limited Biodiversity Areas

Annual Compliance Report

Figure 1

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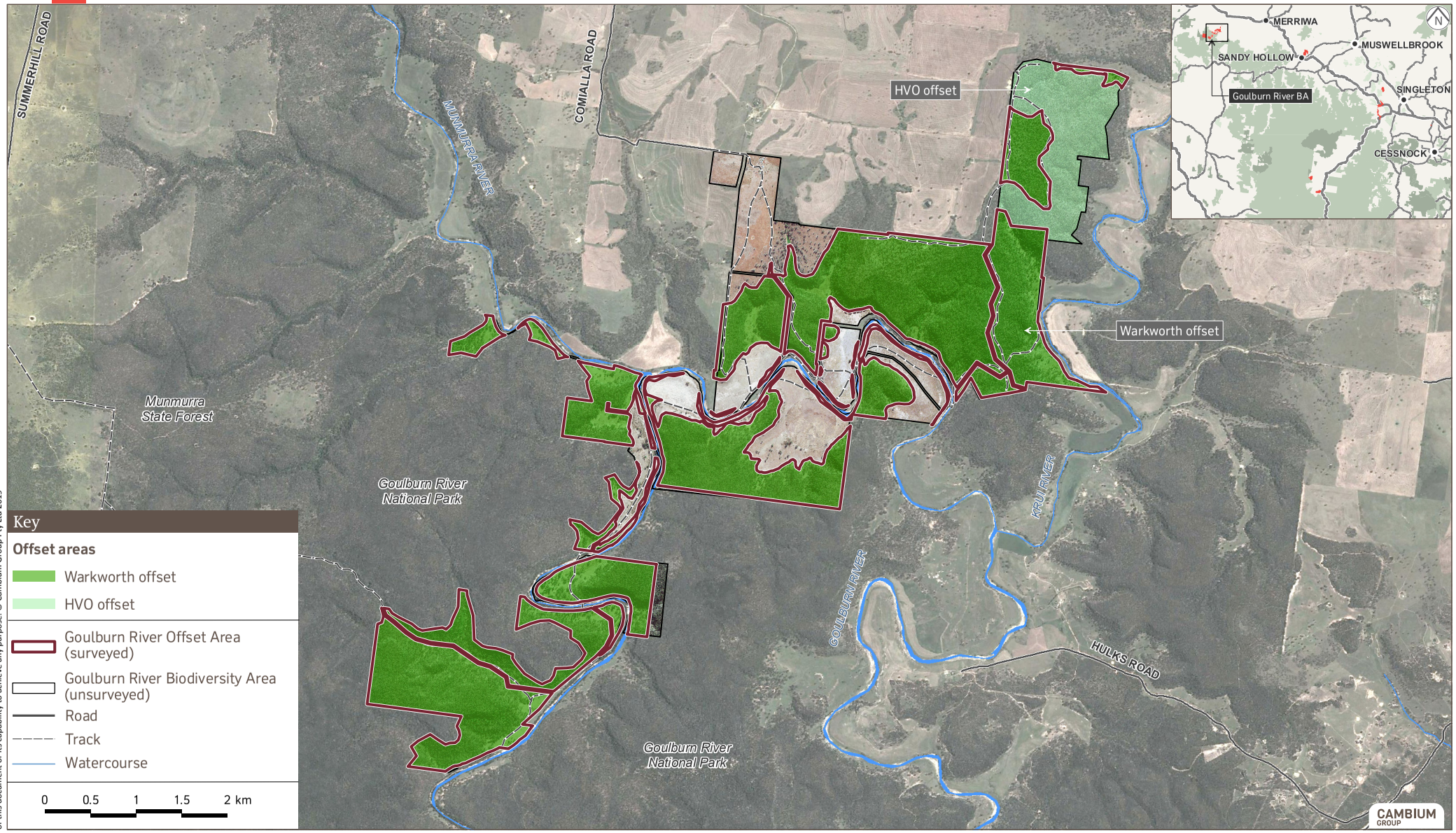
Offset areas at the Goulburn River Biodiversity Area

Annual Compliance Report

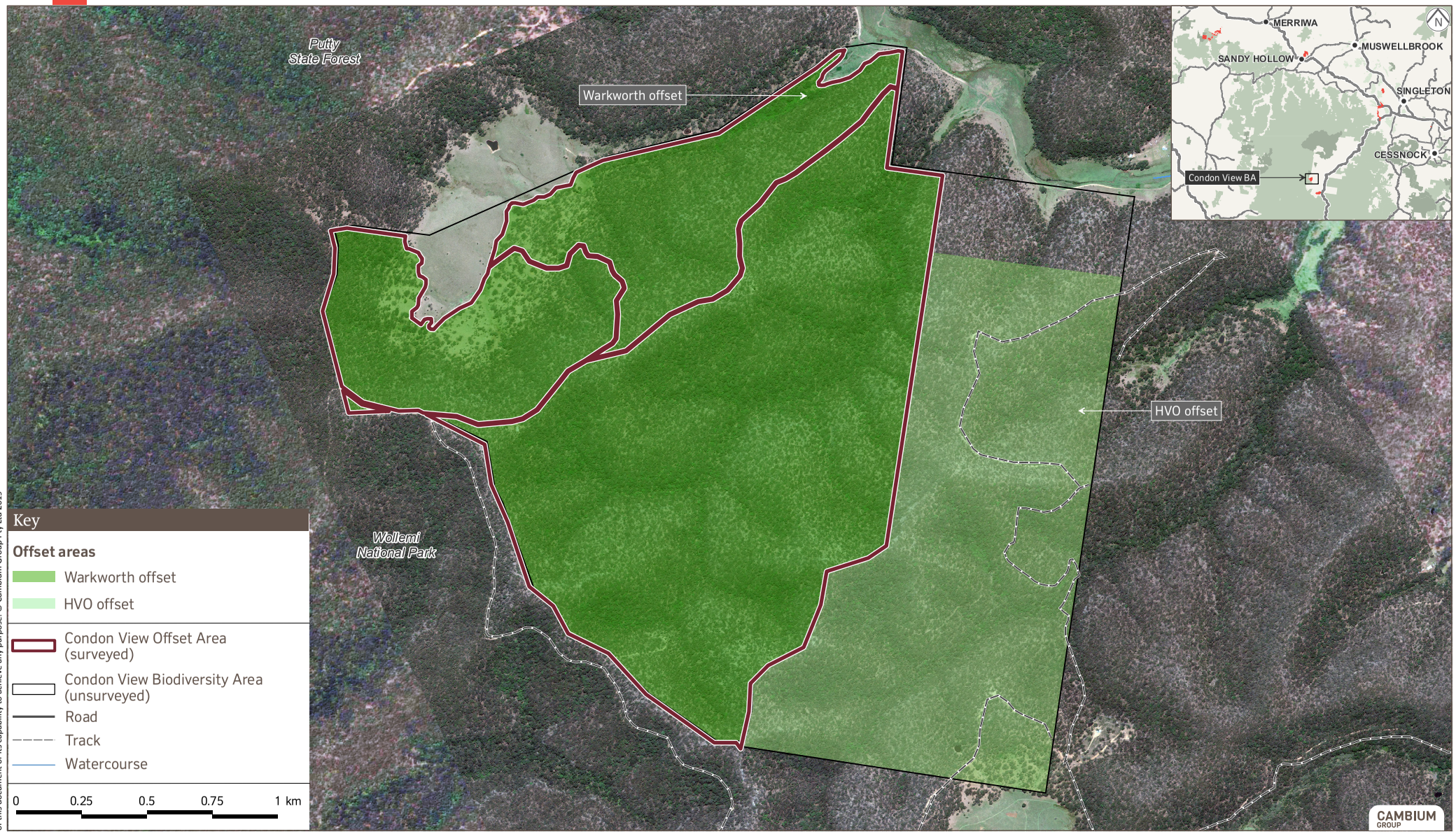
Figure 2



Offset areas at the Condon View Biodiversity Area

Annual Compliance Report

Figure 3



3 SUMMARY OF ACTIVITIES – 2018

Table 3 provides a summary of the activities undertaken during the reporting period (year 2) and the progress in attaining the Performance Criteria for the key Conservation Management Strategies in the management plans.

3.1 Summary of climatic conditions

Figure 4 shows the monthly actual rainfall compared to the long term average for the regional Biodiversity Areas for the reporting period. In 2018, rainfall was well below average in January, April, May and July. The Putty region received 517mm which was 84mm below the long term average. North Rothbury received 605mm, 2mm below the long term average. Sandy Hollow received 411mm which was 154mm below the long term average and the Merriwa region received 477mm, 110mm below the long term average.

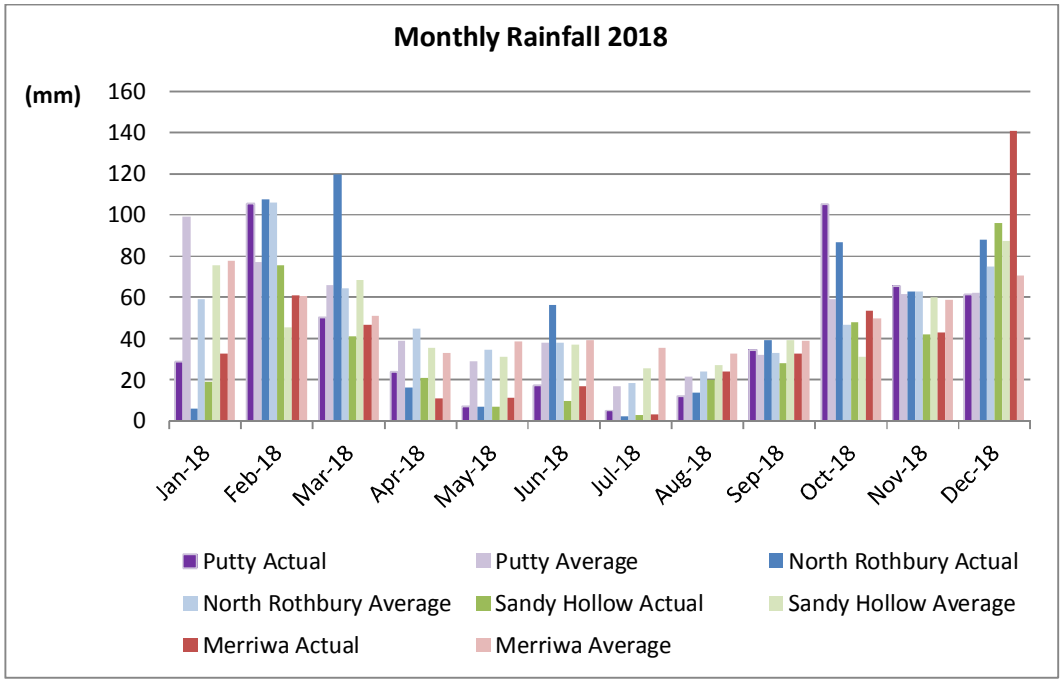


FIGURE 4 MONTHLY RAINFALL - 2018

Table 3 Summary of progress against Performance Criteria (PC)

Conservation Actions	Year 1 to Year 4 (2018 is Year 2)	Year 5 to Year 10	Completion Criteria	Actions 2019
ACTIVE RESTORATION				
Goulburn River BA Yellow Box – Grey Box – Red Gum grassy woodland (21.5ha) and River Oak riparian woodland (24.2ha)				
PC	*Collection of seed. Plant propagation. Tubestock planted.* *Completed survival assessment.*		*Planting achieves above 70% survival.*	
Activity / Progress	Seed collection was undertaken at the Goulburn River BA in 2018.			Collect seed and propagate plants. Undertake survival assessments. Undertake planting of 21.5ha of Yellow Box – Grey Box – Red Gum grassy woodland and 24.2ha of River Oak riparian woodland in the Goulburn River BA.
All Regional BAs				
PC	*Review monitoring data to identify areas that require re-planting.* *If re-planting is identified, develop a re-establishment plan and implement within 12 months*			
Activity / Progress	No re-planting identified from ecological monitoring results/recommendations.			
PASSIVE RESTORATION				
Weed control and monitoring				
PC	*At least two weed control events each year for species listed in Table 14 of Management Plans and other weeds recorded from monitoring activities.* *Complete Rapid Condition Assessment and Property Inspections.*	*At least one weed control event each year for species listed in Table 14 of Management Plans and other weeds recorded from monitoring activities.* *Complete Rapid Condition Assessment and Property Inspections.*	*Ecological monitoring data indicates a trajectory for reduction in exotic plant cover over three consecutive assessments.*	

Conservation Actions	Year 1 to Year 4 (2018 is Year 2)	Year 5 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Weed contractor engaged to undertake weed control activities in Autumn and Spring 2018 across all Regional BAs to control noxious species and stop weeds spreading into previously un-infested areas. In2018 weed control targeted the following species: Blackberry (*Rubus fruticosus*), Bridal creeper *(Asparagus asparagoides),* Caltrop or cat heads (*Tribulus terrestris*), Fireweed *(Scenecio madagascariensis)* , Green cestrum *(Cestrum parqui),* Lamb's ear *(Stachys byzantine),* Lamb's tongue or Mullein (*Verbascum thapsus*), Lavender scallops (*Bryophyllum fedtschenkoi),* Narrow leaf cotton bush (*Gomphocarpus fructicosus),* Prickly pear (*Opuntia stricta*), Scotch thistle (*Onopordum acanthium),* Stinging nettle (*Urtica dioica*), Tiger pear (*Optunia aurantiaca),* Variegated thistle *(Silybum marianum),* and Willow *(Salix spp).* Rapid Condition Assessment and Property Inspections were completed in 2018.			Control noxious species and stop weeds spreading into previously un-infested areas. Undertake Rapid Condition Assessment. Undertake Property Inspections.
Pest control and monitoring				
PC	*At least two control events each year for species listed in Management Plans, and any other species recorded from monitoring activities.* *All actions recorded in the Annual Report.* *Active participation in programme coordinated by HLLS, this may include local control actions.* *Complete Rapid Condition Assessment and Property Inspections.*	*At least one control event each year for species listed in Management Plans, and any other species recorded from monitoring activities.* *All actions recorded in the Annual Report.* *Active participation in programme coordinated by HLLS, this may include local control actions.* *Complete Rapid Condition Assessment and Property Inspections.*	*No observed vertebrate pest or damage.* *Ecological monitoring demonstrates a trajectory to benchmark values for all attributes measured over three consecutive assessments (the average of all plots).*	

Conservation Actions	Year 1 to Year 4 (2018 is Year 2)	Year 5 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	In 2018 a vertebrate pest contractors engaged to undertake programmes across all Regional BAs. Two 1080 ground baiting programmes targeting wild dogs and foxes were undertaken in autumn and spring. Aerial baiting was undertaken by LLS/Hunter Valley Combined Wild Dog Association across the Goulburn River BA in November to support the 1080 ground baiting programme. An aerial shoot was also undertaken by LLS over the Goulburn River BA area in November targeting feral pigs, wild dogs, deer and goats. A Noisy Miner ground shoot was undertaken at the Goulburn River BA in August to assist the survivability of the Regent Honeyeater: 365 Noisy Miners controlled under NPWS Section 120/121. Participation in HLLS Wild Dog Association programme. Shooting for other vertebrate pests was undertaken across the BAs. Rapid Condition Assessment and Property Inspections were completed in 2018.			Participate in HLLS Aerial Baiting/shooting programmes. Participate in HLLS Wild Dog Association programme. Undertake shooting, baiting and trapping programmes. Undertake a control programme for noisy miners in the Regent Honeyeater breeding area at GRBA Undertake Rapid Condition Assessment. Undertake Property Inspections.
Grazing				
PC	*Grazing is conducted in accordance with the Management Plan.* *Boundary fences maintained.* *Complete Rapid Condition Assessment and Property Inspections.*			
Activity / Progress	Cattle excluded from all BAs. Rapid Condition Assessment and Property Inspections were completed in 2018.			Undertake Rapid Condition Assessment. Undertake Property Inspections.

Conservation Actions	Year 1 to Year 4 (2018 is Year 2)	Year 5 to Year 10	Completion Criteria	Actions 2019
Regional BA Bushfire Management Plan (BFMP) and monitoring				
PC	*Actions implemented.* *Review and revise if required.* *Complete Rapid Condition Assessment and Property Inspections*	*Actions implemented.* *Review and revise if required.* *Complete Rapid Condition Assessment and Property Inspections.* *Completed ecological fire management plan.*	*All required actions of BFMP have been implemented.* *BFMP has been reviewed annually and revised if required.*	
Activity / Progress	BFMP reviewed. Rapid Condition Assessment and Property Inspections were completed in 2018.			Review BFMP.
Erosion monitoring inspections and reports				
PC	*Complete Rapid Condition Assessment and Property Inspections*			
Activity / Progress	No significant erosion issues identified during monitoring.			Undertake Rapid Condition Assessment. Undertake Property Inspections.
Dam conversion and rehabilitation and monitoring				
PC	*Prepare dam conversion plan.* *Dam conversion complete and rehabilitation has stabilised the site.* *Property inspections.*	*Observed natural flow regime and no erosion.* *Property inspections.*	*All works completed.*	
Activity / Progress	Property inspections undertaken in 2018.			Prepare a dam conversion plan. Undertake Property Inspections.
Natural Regeneration and monitoring				
PC	*Annual weed control, vertebrate pest and fire management actions implemented as per management plans.* *Complete Rapid Condition Assessment and Property Inspections.*		*Ecological monitoring demonstrates a trajectory to benchmark values for all attributes measured over three consecutive assessments (the average of all plots).*	

Conservation Actions	Year 1 to Year 4 (2018 is Year 2)	Year 5 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Rapid Condition Assessment and Property Inspections undertaken in 2018. Actions implemented as per management plans – see above.			Implement actions as per Management plans. Undertake Rapid Condition Assessment. Undertake Property Inspections.
Controlled Activities				
PC	*No reported incidents of prohibited actions undertaken Yancoal, contractors, consultants or other agents of Yancoal.* *Any clearing of vegetation reported in Annual Report.* *Signage and locks (where required) maintained.* *Complete risk assessment for any recreation activities.* *All occupants of residents compliant with requirements of the MP.* *No Cultural Heritage sites knowingly disturbed and any protective barricading maintained.* *Damaged and unwanted fences removed.* *All Property Inspections completed.*			
Activity / Progress	No reported incidents of prohibited actions undertaken in 2018. Regular property inspections were undertaken in 2018.			Undertake Property Inspections.

4 MONITORING ACTIVITIES

The following table provides a summary of the monitoring activities undertaken as detailed in the management plans. Monitoring reports and results are available on the Biodiversity Offset Portal.

Table 4 Monitoring Activity Summary

Monitoring	2018	Date/s	Completed by
Bird Assemblage	X	September 2018, next due July – August 2020	Niche Environment and Heritage
Habitat Restoration	X	September – November 2018, next due September – November 2020	Niche Environment and Heritage
Rapid Condition Assessment	X	September – November 2018, next due September – November 2019	Advisor – Land Management
Property Inspection	X	April/November 2018, next due April/November 2019	Rural and Environmental Management

4.1 Bird assemblages monitoring 2018

A total of 125 species of birds were recorded throughout the eight Biodiversity Areas (BAs) in early spring 2018. An additional nine bird species were recorded during this monitoring period compared with the 2016 surveys which in turn recorded more species than the 2014 baseline survey (on a reduced number of BAs). Twelve threatened species were recorded, however, the Regent Honeyeater and Swift Parrot (target species) were not detected during the surveys. All eight BAs were considered to provide potential habitat for both the Regent Honeyeater and Swift Parrot, though at the time of surveying there was minimal flowering of feeding resources except at the Condon View, Putty and North Rothbury BAs.

Grazing pressure at Bowditch and Goulburn River BAs appear to have been addressed in accordance with the Offset Management Plan (OMP), however, recent rainfall deficits mean that the vegetation in those BAs still shows the signs of heavy grazing pressure. Replanting of Yellow Box in Management Zone D at Goulburn River would further improve the habitat potential for both the Regent Honeyeater and Swift Parrot. Active restoration is also recommended at Seven Oaks BA to speed-up rehabilitation of some patches of derived native grassland where low diversity has been consistently recorded due to simplified vegetation structure. Ongoing feral animal control is recommended, as outlined in the OMPs. Rabbits, foxes and pigs were the most commonly detected feral animals throughout the BAs.

The bird census design used in this study has the advantages that each site is located in such a way that it can be treated as independent for statistical purposes. The 2018 survey added a 50-metre radius sub-plot and counts for all bird species rather than just threatened and aggressive species. These two features will improve the data for future time series comparisons. However, there is no capacity within the data for assessing the power to detect change over time as there is no replication across all sites to determine variability. To determine variability, at least three replicates per site would be needed. The benefits of being able to determine the data power would be the capacity to apply statistical testing to aspects of the data. When we see massive change in bird population

composition we would then be able to see if the result is just a function of chance or a function of real change.

The following are the recommendations and discussion summaries.

Goulburn River BA
Goulburn River BA supported the highest diversity of birds of any of the BAs surveyed in this study. The BA has the widest array of habitats. Recent management of the BA has focused on controlling Noisy Miners (with some apparent success). Bird diversity was highest on one site where the Noisy Miners were no longer detected. Monitoring of these sites should continue and if Noisy Miner numbers climb, similar control actions should be considered again.

Noisy Miners may become less of a problem if the riparian vegetation could be increased to expand those woodland patches and reduce the amount of woodland edge in relation to the patch volume. Planting adjacent to the riparian vegetation, it should be possible for trees to grow rapidly and reduce the edge effects in this important Regent Honeyeater habitat.

Seven Oaks BA
The Seven Oaks BA has large areas of cleared land. Some of those areas are showing little sign of recovering woody vegetation. Other areas that were also cleared have regenerated with a strong shrub-layer of *Cassinia.* While the shrub layer lacks floristic diversity, it provides structure lacking on the open grassy sites. As a result, a threatened species, the Hooded Robin is able to find food and shelter on this BA. While these shrubby areas are supporting this threatened species, any actions to increase the floristic diversity of the vegetation should be weighed against the risk of causing the habitat quality to decline for Hooded Robin.

Bowditch BA
The 2018 survey of Bowditch found that bird diversity on the creek flats was generally poor. It is not possible to determine if this is a long-term trend or simply the effect of an extended dry period. The continued presence of Noisy Miners as a substantial portion of the bird population on a couple of sites indicates that there may be ongoing problems with threatened woodland birds utilising that part of the BA.

Putty BA
The Putty BA appears to be regenerating well under the passive management system. The diversity of trees and shrubs support the kind of bird diversity expected in this environment. It can be expected that the list of birds present here will expand with each additional survey.

Condon View BA
Condon View BA has few serious management issues. However, the growth of Blackberry on the creek flats will need to be monitored. Cattle were present on the creek flats during the bird surveys. These will be impacting on regeneration of trees and shrubs in that environment.

North Rothbury BA
North Rothbury BA has a diverse vegetation structure and supports a similarly diverse array of birds. While there was not much tree flowering occurring on site during the surveys, Spotted Gums seemed to have recently flowered and Broadleaf Ironbark was in

bud about to flower. There were a number of nectar foraging birds present but in low numbers. The main management issue for this BA will be to remain vigilant for weed invasion from the surrounding disturbed landscape.

Because the numbers of large hollows in trees is low, application of nest boxes in this BA may help to increase the use of the BA by hollow nesting birds.

4.2 Habitat restoration monitoring 2018

This habitat restoration study completes the third monitoring event and second post baseline for Goulburn River and Bowditch BAs and the second monitoring event and first post baseline for all the other Regional BAs.

The findings of this monitoring report support implementation of management activities, including passive and active restoration strategies, as outlined in the OMPs, to meet the conservation objectives.

The conclusion and recommendations from the 2018 habitat restoration monitoring report were:

Goulburn River BA

- Weed management should continue in the regenerating woodland to prevent exotics from increasing during favourable years.
- Analysis of the results for the grasslands and riparian vegetation in Goulburn River indicated intensive management would be needed to assist in native regeneration. Natural regeneration in these areas is considered unlikely to occur given the very low native species diversity.
- Management should continue in the grassland and riparian areas, and include intensive weed management (spraying), followed by planting or direct seeding of local native species.

Seven Oaks BA

- Trends show an increase in regenerating canopy species and canopy cover, however they remain sparse. It is considered likely that canopy species will continue to regenerate over time given the nearby seed source (mature eucalypts). Native grasses, shrubs and other continue to be well represented in the ground stratum. These results continue to indicate good regenerative capacity.
- The reduction in exotic species cover indicates that weed management practices are effective. Management intervention involving ongoing weed management should be undertaken to prevent weed incursions impacting on vegetation within or near benchmark condition.

Bowditch BA

- Analysis of the results indicates a decrease in exotic cover. Management intervention involving on-going weed management should be undertaken to prevent weed incursions impacting on vegetation within or near benchmark condition.

- Trends show an increase in native canopy cover and number of native trees, indicating good regenerative capacity. A decrease in native species diversity is likely to be a result of climate and seasonal variability, rather than an actual decrease.

Putty BA

- Analysis of the results indicates a decrease in exotic cover. Management intervention involving on-going weed management should be undertaken to prevent weed incursions impacting on vegetation within or near benchmark condition.
- Trends show an increase in native species diversity and native canopy cover and number of native trees, indicating good regenerative capacity.

Condon View BA

- The regenerating woodlands continue to show potential for high regenerative capacity with implementation of passive restoration techniques (e.g. weed and feral animal control, excluding grazing or strategic grazing where appropriate, infrastructure management).
- The grasslands generally have a limited capacity to regenerate naturally and active revegetation (such as planting) will be required to restore these areas.

North Rothbury BA

- Exotic species cover is consistently low. Management intervention involving ongoing weed management should be undertaken to prevent weed incursions impacting on vegetation within or near benchmark condition.
- Regenerating canopy species are abundant throughout monitoring plots in both woodland types and native grasses are common in the ground stratum, indicating good regenerative capacity.

Habitat restoration monitoring involves the measurement of 27 key variables every two years to track change in vegetation and habitat condition. The monitoring aims to demonstrate the regeneration trajectory of the grassland area and the improvement in woodland condition, by collecting data from a series of Transition (grassland) and Reference (woodland) sites. Analysis of this data set will demonstrate the trajectory of the transition sites to the reference site and towards the benchmark description for the vegetation community.

As additional data are collected from subsequent monitoring events, statistical analyses will be conducted incorporating temporal variation (i.e. changes over time) in vegetation condition to assess the magnitude and direction of change in vegetation communities. Statistical analysis was limited to temporal comparisons between the baseline and the present survey (Year) for transition and reference sites (Treatment) for each community (where there were three or more sites). Comparison of site values with benchmark values is intended to provide a broader context for interpreting the restoration pathway and the trajectory of change as management measures are implemented

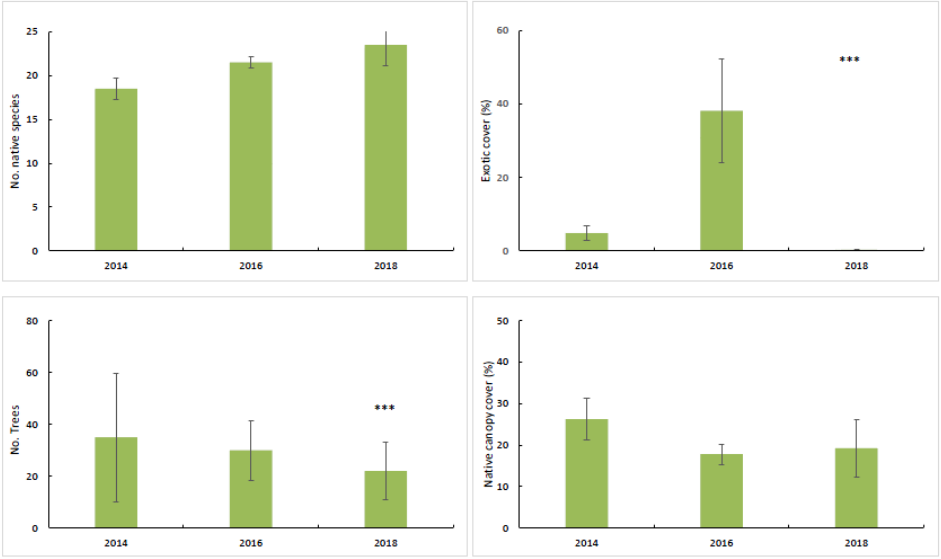
The following sections present summary data for comparison of the 2016 to 2018 monitoring data and the benchmark descriptions for the vegetation community.

Table 5 Goulburn River BA – Comparison of monitoring data with benchmark values

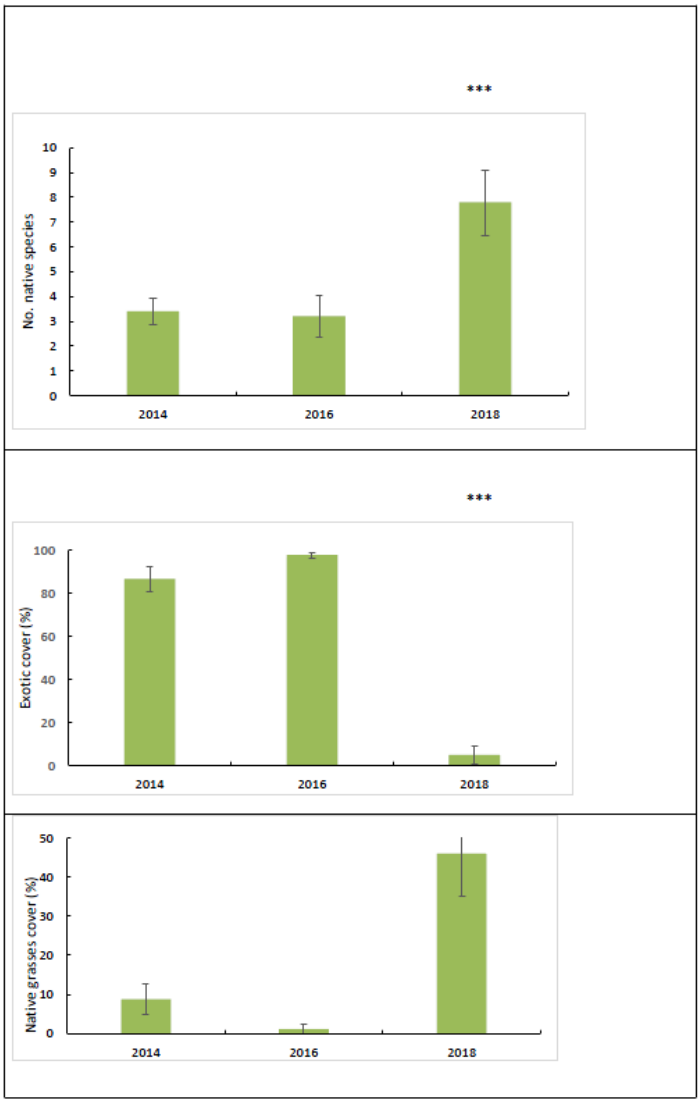
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
HU714 Rough-barked Apple -Red Gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion										
Benchmark	min	25	10	2	20	2	5	<5	>30	>2
	max		50	15	60	10	40			
Regenerating woodland										
GRM1 (2018)		21	36.5	0	20	0	2.5	0	125	0
GRM2 (2018)		24	5	0	5	0.25	2.75	0	55.5	0
GRM3 (2018)		19	23	0	32	0	1	1	6	1
GRM5 (2018)		30	12.5	0	50	0	4.75	0.25	54.5	0
Average		*23.5*	*19.3*	*0.0*	*26.8*	*0.1*	*2.8*	*0.3*	*60.3*	*0.3*
GRM1 (2016)		22	16.83	0	23.75	0	13.75	65	54	2
GRM2 (2016)		20	11.83	12.5	35	1.75	30	15	63	0
GRM3 (2016)		23	23.83	1.25	18.75	0.5	27.5	60	6	2
GRM5 (2016)		21	18.83	0	22.5	22.5	10	12.5	17	0
Average		*21.5*	*17.83*	*3.44*	*25*	*6.19*	*20.31*	*38.13*	*35*	*1*
Grassland										
GRM6 (2018)		6	0	0	36.25	0	0.13	1.9	0	0
GRM7 (2018)		7	0	0	15	0	0.25	3	0	0
GRM8 (2018)		7	0	0	65	0	0	0	1.5	0
GRM9 (2018)		13	0	0	76.25	0	0.75	0.5	0	0
GRM10 (2018)		6	0.8	0	37.5	0	0.75	20	6	6
Average		*7.8*	*0.2*	*0.0*	*46.0*	*0.0*	*0.4*	*5.1*	*1.5*	*1.2*
GRM6 (2016)		3	0	0	6	0	0	93.25	0	0
GRM7 (2016)		4	0	0	0	0	0.5	98.5	0	0
GRM8 (2016)		6	0	0	0	0	0.5	98.75	0	0
GRM9 (2016)		2	0	0	0	0	1	99	0	0
GRM10 (2016)		1	0	0	0	0	0.25	100	0	0
Average		*3.2*	*0*	*0*	*1.2*	*0*	*0.45*	*97.9*	*0*	*0*
HU618 Slaty Box - Grey Gum shrubby woodland on foot-slopes of the upper Hunter Valley, Sydney Basin Bioregion										
Benchmark	min	25	20	10	5	5	5	<5	>66	>0.8
	max		50	60	15	10	15			
Regenerating woodland										
GRM4 (2018)		24	26	0	17.5	11.25	0.75	0	8	0
GRM4 (2016)		28	5.5	10	9.25	4	6.25	1	22.5	1
HU712 River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)										
Benchmark	min	38	10	10	20	1	10	<5	>10	>0.1
	max		50	50	60	5	30			
Riparian										
GRM11 (2018)		16	5.5	0	63.8	0	0.6	1.75	0	0
GRM12 (2018)		11	20.2	0	31.3	0	0.5	20	0	0
Average		*13.5*	*12.8*	*0*	*47.5*	*0*	*0.6*	*10.9*	*0*	*0*
GRM11 (2016)		8	0	0	0	0	1	99	0	0
GRM12 (2016)		8	16.33	0	5	0	5	90	0	0
Average		*8*	*8.17*	*0*	*2.5*	*0*	*3*	*94.5*	*0*	*0*

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR Native plant species richness
NOS Native overstorey % cover
NMS Native midstorey % cover
NGCG Native ground cover (grass) % cover
NGCS Native ground cover (shrubs) % cover
NGCO Native ground cover (other) % cover
EPC Exotic plant cover % cover
Logs (m) Length of logs (m)
Hollows No. trees with hollows



Comparison of key attributes for regenerating woodland (HU714)



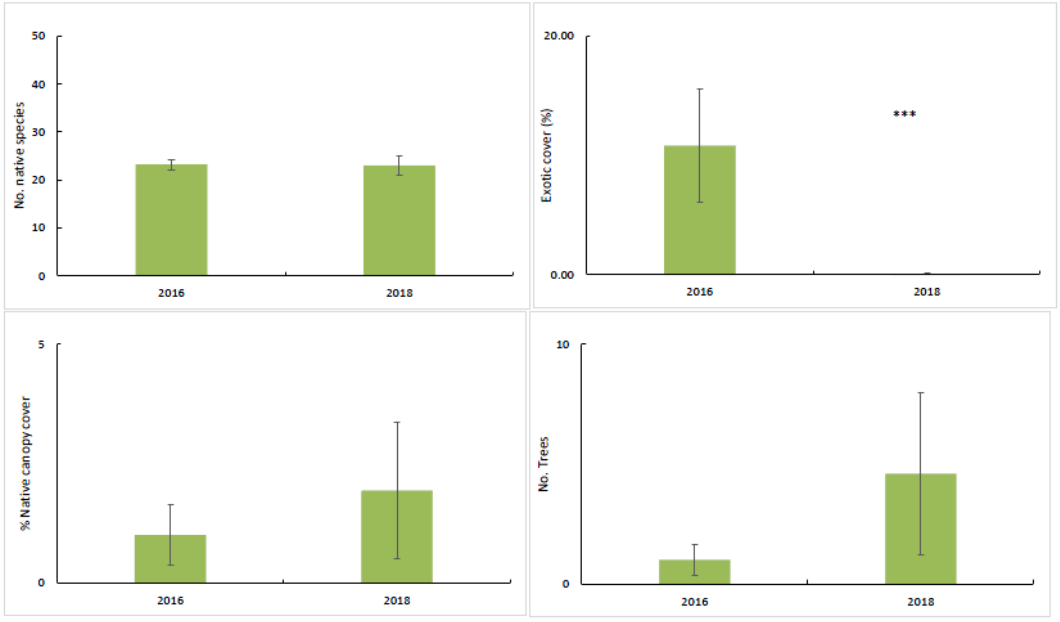
Comparison of key attributes for grasslands HU714

Table 6 Seven Oaks BA – Comparison of monitoring data with benchmark values

HU 875 Narrow-leaved Ironbark - Black Pine - Sifton Bush heathy open forest on sandstone ranges of the upper Hunter and Sydney Basin										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	25	20	10	5	5	5	0	66	0.8
	max		50	60	15	10	15			
SM1 (2018)		18	0	0	40	10	2.25	0	6	0
SM2 (2018)		24	0	0	35	42.5	1.25	0	0	0
SM3 (2018)		24	7.33	5	16.25	42.5	6.25	0	71	0
SM4 (2018)		19	2.33	0	3.5	85	1	0	17	0
SM5 (2018)		30	0.00	0	70	2	1.75	0.25	46	0
average (2018)		23	1.93	1	32.95	36.4	2.5	0.05	28	0
SM1 (2016)		21	0	37.5	5	2.5	21.25	21.25	0	0
SM2 (2016)		22	0	63.5	32.5	3.75	33.75	13.75	0	0
SM3 (2016)		23	2	67.5	40	37.5	10	1	0	0
SM4 (2016)		23	3	7	2.75	2.5	3.5	0.5	5	0
SM5 (2016)		27	0	5.5	26.25	2	65	17.5	0	0
average (2016)		*23.2*	*1*	*36.2*	*21.3*	*9.65*	*26.7*	*10.8*	*1*	*0*

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness	NGCO	Native ground cover (other) % cover
NOS	Native overstorey % cover	EPC	Exotic plant cover % cover
NMS	Native midstorey % cover	Logs (m)	Length of logs (m)
NGCG	Native ground cover (grass) % cover	Hollows	No. trees with hollows
NGCS	Native ground cover (shrubs) % cover		



Comparison of key attributes for regenerating woodland HU814

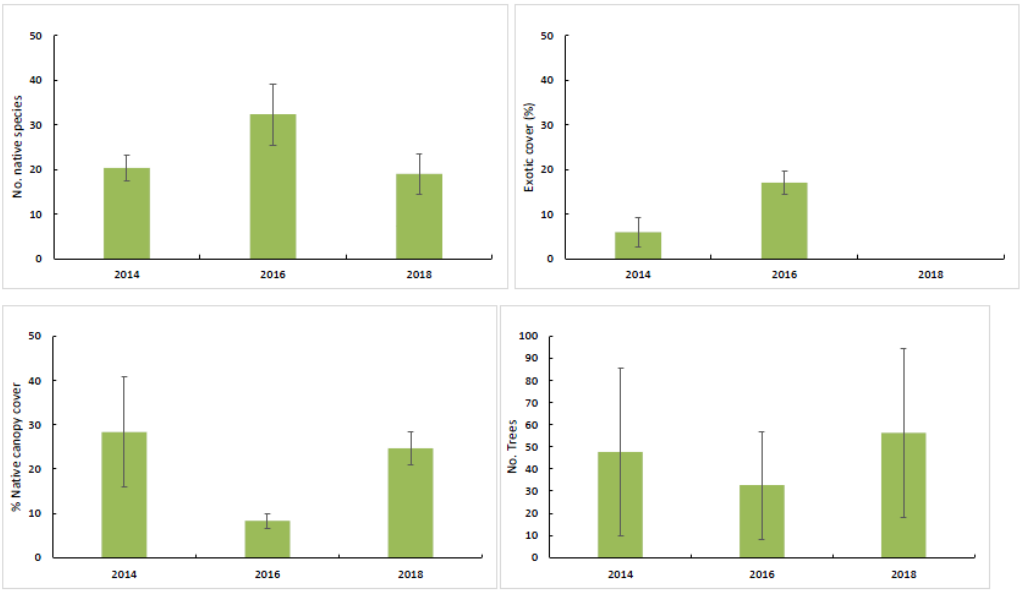
Mean (±SE) 2014, 2016 and 2018 quadrat data (n = 3). Statistically significant difference *** $p < 0.05$

Table 7 Bowditch BA - Comparison of monitoring data with benchmark values

		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
HU702 - Grey Gum – Narrow-leaved Ironbark Woodland										
Benchmark	**min**	**31**	**5**	**2**	**2**	**2**	**2**	**<5**	**>30**	**>2**
	max		**50**	**35**	**30**	**40**	**25**			
Regenerating woodland										
BM2 (2018)		28	27	0	10	6.25	2.5	0.25	20	0
BM4 (2018)		26	26.8	0	25	7	2	0.5	138	0
Average		27	26.9	0	17.5	6.63	2.25	0.375	79	0
BM2 (2016)		29	8.2	3	45	2	45	5	10	2
BM4 (2016)		36	14.73	12.5	70	3.75	12.5	10	130	0
Average		*32.5*	*11.47*	*7.75*	*57.5*	*2.88*	*28.75*	*7.5*	*70*	*1*
HU821 - Red Gum – Rough-barked Apple Woodland										
Benchmark	**min**	**35**	**25**	**11**	**5**	**5**	**5**	**<5**	**>73**	**>3**
	max		**40**	**50**	**45**	**30**	**20**			
Regenerating woodland										
BM1 (2018)		10	32	0	1	0	3.25	0	162	0
BM3 (2018)		24	19.3	1	12.5	30	0.5	0	81	0
BM5 (2018)		23	22.7	7.5	17.5	9.25	1.5	0	9	0
Average (2018)		19	24.67	2.83	10.33	13.08	1.75	0	84	0
BM1 (2016)		25	7.9	0	5	0	37.5	18.5	94.5	5
BM3 (2016)		46	5.5	62.5	55	17.25	13.75	11.25	64	1
BM5 (2016)		26	11.5	22.5	80	16.25	7.5	21.25	28	0
Average (2016)		*32.33*	*8.3*	*28.33*	*46.67*	*11.17*	*19.58*	*17*	*62.17*	*2*

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness	NGCO	Native ground cover (other) % cover
NOS	Native overstorey % cover	EPC	Exotic plant cover % cover
NMS	Native midstorey % cover	Logs (m)	Length of logs (m)
NGCG	Native ground cover (grass) % cover	Hollows	No. trees with hollows
NGCS	Native ground cover (shrubs) % cover		



Comparison of key attributes for regenerating woodland HU821

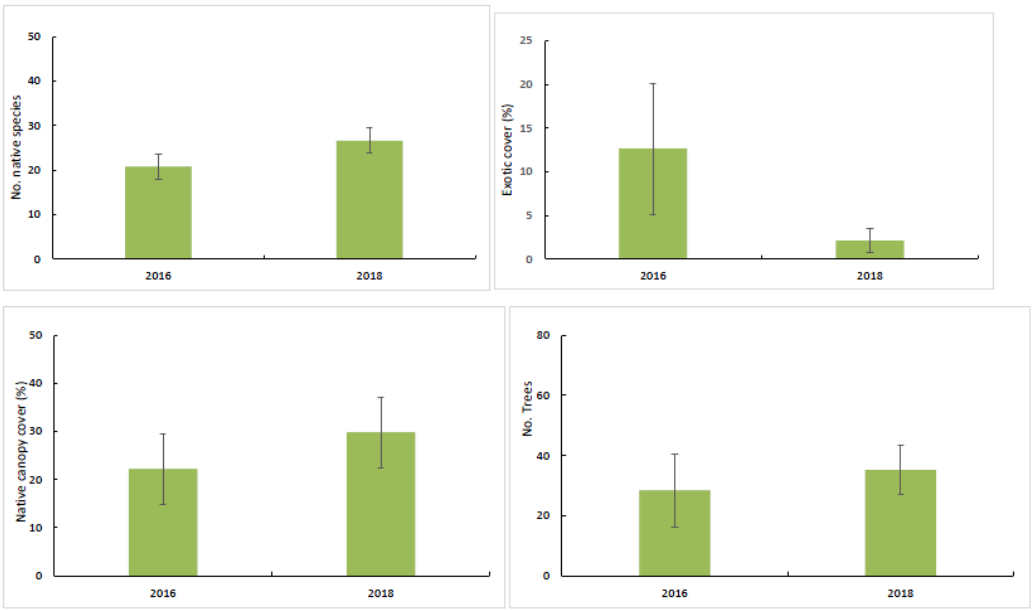
Mean (±SE) 2014, 2016 and 2018 quadrat data (n = 3). Statistically significant difference *** $p < 0.05$

Table 8 Putty BA - Comparison of monitoring data with benchmark values

BVT HN553: Mountain Blue Gum - Thin-leaved Stringybark open forest on river flat alluvium in the Sydney Basin Bioregion										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	33	31.5	20.0	29.75	0.0	29.75	0.0	0.0	0
	max		46.5	40.0	37.75	10.0	37.75			
PM1 (2018)		17	18	2	81.25	2.25	2.75	4.75	0	0
PM2 (2018)		33	7	3.75	17.5	26.25	3.5	0	4	0
PM3 (2018)		32	38	7.75	23.75	4.25	1.5	0	74	0
PM4 (2018)		25	40	5	18.75	12.5	1	0.25	51	0
PM5 (2018)		27	46	0.25	57.5	0	3	5.5	35	0
average (2018)		*26.6*	*29.8*	*3.75*	*39.75*	*9.05*	*2.35*	*2.1*	*32.8*	*0*
PM1 (2016)		14	10	2.5	82.5	0	1.75	10.5	0	0
PM2 (2016)		24	1	35	37.5	7.5	5	8.75	0	0
PM3 (2016)		23	32	0.25	67.5	0.75	11	3.25	53	0
PM4 (2016)		28	41	10.5	67.5	6.75	5.5	2	19	0
PM5 (2016)		15	27	7.5	62.5	0	8	38.75	32	0
average (2016)		*20.8*	*22.2*	*11.15*	*63.5*	*3*	*6.25*	*12.65*	*20.8*	*0*

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness
NOS	Native overstorey % cover
NMS	Native midstorey % cover
NGCG	Native ground cover (grass) % cover
NGCS	Native ground cover (shrubs) % cover
NGCO	Native ground cover (other) % cover
EPC	Exotic plant cover % cover
Logs (m)	Length of logs (m)
Hollows	No. trees with hollows



Comparison of key attributes for HN553

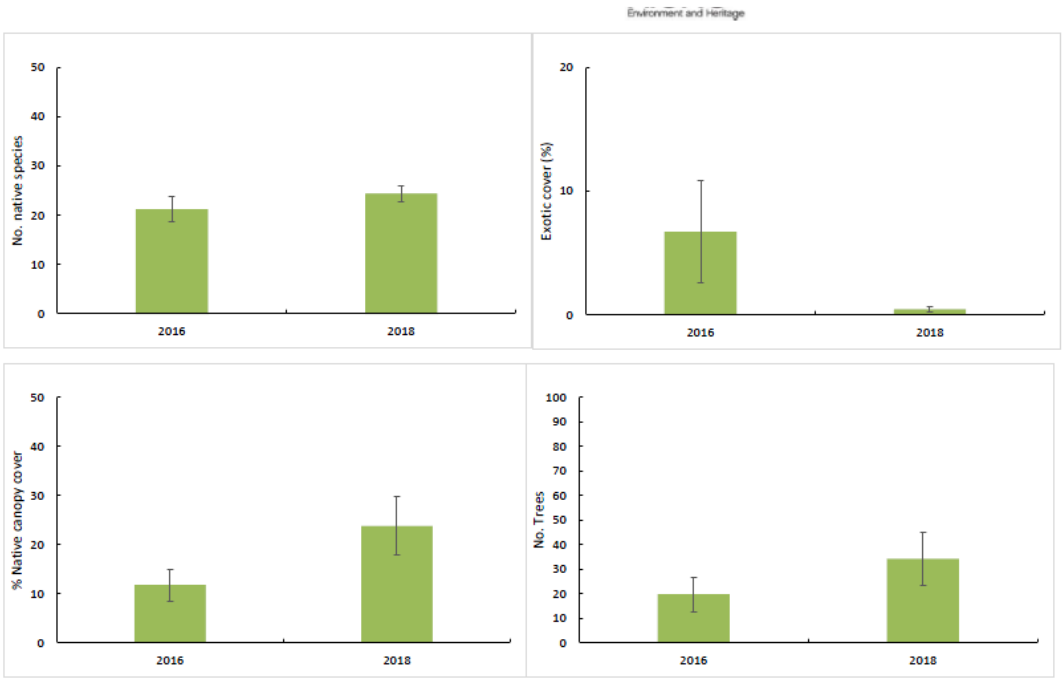
Mean (±SE) 2016 and 2018 quadrat data ($n = 5$). Statistically significant difference *** $p < 0.05$

Table 9 Condon View BA - Comparison of monitoring data with benchmark values

BVT HU578: Rough-barked Apple - red gum grassy woodland of the MacDonald River Valley on the Central Coast, Sydney Basin Bioregion										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	31	31.5	20.0	29.75	0.0	29.75	0.0	50.0	0
	max		46.5	40.0	37.75	10.0	37.75			
C M1 (2018)		25	42.8	5.8	17.5	0.8	1	0	58	0
C M2 (2018)		19	9	0.5	87.5	0.3	1.3	1	120	0
C M3 (2018)		29	26.8	0	73.8	0.3	1.3	0.3	86	0
C M4 (2018)		26	26.8	0	60	0	1.8	0.3	17	0
C M5 (2018)		23	13.5	4.3	57.5	0	32.5	0.8	39	0
Average		*24.4*	*23.8*	*2.1*	*59.3*	*0.3*	*7.6*	*0.5*	*64*	*0*
C M1 (2016)		31	17.0	5.5	65	2.0	2.0	0.0	54.0	0.0
C M2 (2016)		18	2.0	0.0	96.5	0.25	1.75	2.0	55.0	0.0
C M3 (2016)		18	13.0	0.0	98	0.0	7.0	9.5	40.0	0.0
C M4 (2016)		20	20.0	0.0	99	0.0	2.5	2.0	15.0	1.0
C M5 (2016)		19	7.0	6.25	86.25	3.5	5.0	20.0	17.0	0.0
Average		*21.2*	*11.8*	*2.35*	*88.95*	*1.15*	*3.65*	*6.7*	*36.2*	*0.2*

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness	NGCO	Native ground cover (other) % cover
NOS	Native overstorey % cover	EPC	Exotic plant cover % cover
NMS	Native midstorey % cover	Logs (m)	Length of logs (m)
NGCG	Native ground cover (grass) % cover	Hollows	No. trees with hollows
NGCS	Native ground cover (shrubs) % cover		



Comparison of key attributes for regenerating woodland (HU578)

Table 10 North Rothbury BA - Comparison of MZ1 monitoring data with benchmark values

BVT HU814 – Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	38	15	4	30	3	10	0	10	1.2
	max		40	40	60	15	25			
RM1(2018)		29	7.17	1.75	22.50	2.25	10.00	0.00	10	0
RM4 (2018)		32	9.83	3.75	5.75	5.00	4.50	0.25	4	0
RM5 (2018)		39	7.17	4.25	22.50	8.00	7.50	0.00	9	0
Average (2018)		33.33	8.06	3.25	16.92	5.08	7.33	0.08	7.67	0
RM1(2016)		35	15	1.25	90	1.25	6.5	0	20	0
RM4 (2016)		35	25	0.75	60	4.25	4	0.25	10	0
RM5 (2016)		42	16	3	76.25	2	1	0	23	0
Average (2016)		*37.3*	*18.7*	*1.7*	*75.4*	*2.5*	*3.8*	*0.08*	*17.6*	*0*

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10-50% or 150-200% of benchmark (33-66% cover for EPC)
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NPSR	Native plant species richness	NGCO	Native ground cover (other) % cover
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NMS	Native midstorey % cover	Logs (m)	Length of logs (m)
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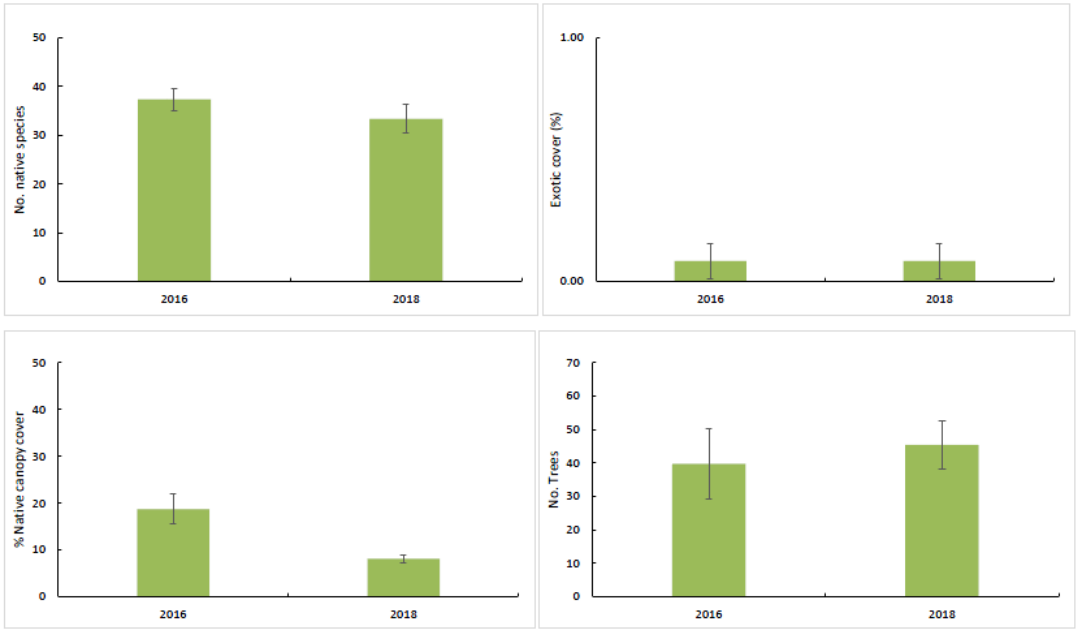


Comparison of key attributes for regenerating woodland HU814

Mean (±SE) 2014, 2016 and 2018 quadrat data (n = 3). Statistically significant difference *** $p < 0.05$

Table 11 North Rothbury BA – Comparison of MZ2 monitoring data with benchmark values

BVT HU812 – Forest Red Gum grassy open forest on floodplains of the lower hunter										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	15	15	0	0	1	2	0	10	0.8
	max		65	50	90	15	90			
NM2 (2018)		40.00	5.00	0.00	33.75	2.00	13.75	0.25	10.00	0
NM3 (2018)		34.00	6.33	1.50	35.00	2.25	38.75	0.50	15.50	0
Average (2018)		37	5.67	0.75	34.38	2.13	26.25	0.38	12.75	0
NM2 (2016)		34	7	1.25	60	7.5	1	1	0	0
NM3 (2016)		32	10	2	82.5	6.25	6.25	1	11	0
Average (2016)		*33*	*8.5*	*1.6*	*71.25*	*6.9*	*3.6*	*1*	*5.5*	*0*

	0-10% or >200% of benchmark (>66% cover for EPC)
	10-50% or 150-200% of benchmark (33-66% cover for EPC)
	50-100% or 100-150% of benchmark (5-33% cover for EPC)
	within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness
NOS	Native overstorey % cover
NMS	Native midstorey % cover
NGCG	Native ground cover (grass) % cover
NGCS	Native ground cover (shrubs) % cover
NGCO	Native ground cover (other) % cover
EPC	Exotic plant cover % cover
Logs (m)	Length of logs (m)
Hollows	No. trees with hollows

5 PROGRESS IN ATTAINING CONSERVATION OBJECTIVES AGAINST KEY PERFORMANCE INDICATORS

The primary conservation objectives for the Regional BAs are to:

- enhance landscape connectivity within the surrounding landscape;
- improve fauna movement and flora dispersal opportunities within the surrounding landscape;
- increased condition and area of suitable habitats for threatened fauna species within protected reserves, specifically for the Regent Honeyeater and Swift Parrot;
- provide refuge and habitat for local fauna populations and transient species, particularly threatened species; and
- enhance network of protected vegetation within the Hunter Valley.

Table 3 details the progress in attainment of the long-term conservation objectives. The baseline data presented is from the first monitoring completed in 2014. The Rapid Condition Assessment (RCA) monitoring results indicate that the vegetation and habitat health is being maintained in comparison to the baseline data Table 12 – Table 17.

Table 12 Goulburn River BA: Biodiversity Values and KPIs

Biodiversity Value	Nested Conservation Value(s)	Description and baseline metric	KPI	Progress comment
Woodland (MZ2, MZ3, MZ4, MZ5 and MZ7)		Total area: 1,169ha RCA Average Health rating 19.1/20	Maintain or increase area, connectivity and habitat condition over 10 years	RCA Average health rating 2015 – 17/20 2016 – 17.1/20 2017 – 17.1/20 2018 - 18.1/20 Area and health maintained refer to Table 5.
	Fauna Habitat	Moderate potential habitat for Swift Parrot and Regent Honeyeater	improved habitat condition over 10 years	

Table 13 Bowditch BA: Biodiversity Values and KPIs

Biodiversity Value	Nested Conservation Value(s)	Description and baseline metric	KPI	Progress comment
Woodland (MZ1, MZ2 and MZ4)		Total area: 602ha RCA Average Health rating 17.8/20	Observed and measured increase or maintained RCA scores over 10 years	RCA Average Health rating 2015 – 18/20 2016 – 18.4/20 2017 – 17.1/20 2018 – 17.7/20 Area and health maintained refer to Table 7.
	Fauna Habitat	Moderate potential habitat for Swift Parrot and Regent Honeyeater	Maintain or increase the condition and extent of habitat and bird usage over 10 years	

Table 14 Seven Oaks BA: Biodiversity Values and KPIs

Biodiversity Value	Nested Conservation Value(s)	Description and baseline metric	KPI	Progress comment
Woodland (MZ3, MZ4 and MZ5)		Total area: 519ha RCA Average Health rating 17.6/20	Observe an increase in area, connectivity and habitat condition over 10 years	RCA Average Health rating 2016 – 18/20 2017 – 17.3/20 2018 – 17.6/20 Area and health maintained refer to Table 6.
	Fauna Habitat	Moderate potential habitat for Swift Parrot and Regent Honeyeater	Maintain or increase the condition and extent of habitat and bird usage over 10 years	

Table 15 Condon View BA: Biodiversity Values and KPIs

Biodiversity Value	Nested Conservation Value(s)	Description and baseline metric	KPI	Progress comment
Woodland (MZ2 and MZ4)		Total area: 515ha RCA Average Health rating 19.1/20	Maintain or increase area, connectivity and habitat condition over 10 years	RCA Average Health rating 2016 – 20/20 2017 – 18.2/20 2018 – 18.6/20 Area and health maintained refer to Table 9.
	Fauna Habitat	Moderate potential habitat for Swift Parrot and Regent Honeyeater	Maintain or increase the condition and extent of habitat and bird usage over 10 years	

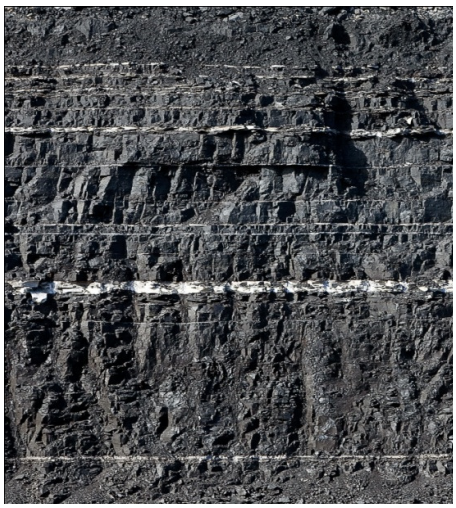
Table 16 Putty BA: Biodiversity Values and KPIs

Biodiversity Value	Nested Conservation Value(s)	Description and baseline metric	KPI	Progress comment
Woodland (MZ2, MZ3 and MZ4)		Total area: 383ha RCA Average Health rating 17.4/20	Observe an increase in area, connectivity and habitat condition over 10 years	RCA Average Health rating 2016 – 17.3/20 2017 – 17.6/20 2018 – 17.8/20 Area and health maintained refer to Table 8.
	Fauna Habitat	Moderate potential habitat for Swift Parrot and Regent Honeyeater	Maintain or increase the condition and extent of habitat and bird usage over 10 years	

Table 17 North Rothbury BA: Biodiversity Values and KPIs

Biodiversity Value	Nested Conservation Value(s)	Description and baseline metric	KPI	Progress comment
Woodland (MZ1 and MZ2)		Total area: 41ha RCA Average Health rating 18/20	Observe an increase in area, connectivity and habitat condition over 10 years	RCA Average Health rating 2016 – 18/20 2017 – 18.2/20 2018 – 19/20 Area and health maintained refer to Table 10 and 11.
	Fauna Habitat	Moderate potential habitat for Swift Parrot and Regent Honeyeater	Maintain or increase the condition and extent of habitat and bird usage over 10 years	

ATTACHMENT B: Local Offset Management Plan Annual Report 2018



Local Biodiversity Areas

Annual Report 2018

3 May 2019

Annual report for the period from January to December 2018, for activities described in the Management Plans for all Local Warkworth Mining Limited offsets including:

- Southern Biodiversity Area (including the Putty Road Offset Area)
- Northern Biodiversity Area

Table of Contents

1 INTRODUCTION

This annual report is a requirement of the management plans for all Local Warkworth Mining Limited offsets for the 2018 reporting period from 1 January through to 31 December 2018.

The report provides a summary of the key management activities completed across the biodiversity offset located within the Southern (includes the Putty Road Offset Area) and Northern Biodiversity Areas (BAs).

The management plans describe the conservation management strategies and monitoring to achieve and measure improvement and protection of the offsets biodiversity values. It is a compliance requirement of the Commonwealth and NSW environmental approvals to implement the management plans.

The Local OMP (November 2014) was prepared to satisfy the consent requirements for the New South Wales (NSW) Warkworth Mine Development Approval (DA 300-9-2002i) and replaces the former *Flora and Fauna Management Plan* and *Warkworth Sands Woodland (WSW) Offset Area OMP*. In November 2015 the NSW Warkworth Continuation Project Approval (SSD-6464) was granted providing both NSW and Commonwealth approval for the same disturbance area. Phase 2 of the EPBC2009/5081 action also commenced on 16 February 2016. In response to the granting of these new approvals, new Management Plans for the Southern and Northern BA have been prepared to satisfy the Commonwealth approval EPBC2009/5081 and the NSW consent (SSD-6464), replacing both the Local and Putty Road OMPs.

The Biodiversity Offset Portal contains the supporting documentation for this report, including photo point monitoring. Access to the portal is restricted, relevant regulators have been provided with login details; please contact Mount Thorley Warkworth should you require assistance.

2 LOCATION AND LANDHOLDER DETAILS

The locations of the local BAs are shown in Figure 1, Figure 2 and Figure 3, details are provided in Table 1.

Table 1 Local Biodiversity Areas

Biodiversity Area	Land Owner	Area (ha)	Offset Area (ha)	Location
Northern BA	Coal & Allied Operations Pty Ltd	344	341	Approximately 7km north of the Warkworth Mining Lease and in close proximity to the Hunter Valley Operations. Accessed via Comleroi Road.
Southern BA (including the Putty Road Offset)	Coal & Allied Operations Pty Ltd Miller Pohang Coal Company Pty Ltd Warkworth Mining Limited	1,023	986	Immediately west and north of Warkworth Mine. Intersected by Putty Road in the south, and Wallaby Scrub Road and the Golden Highway in the north.

YANCOAL 兖煤澳大利亚有限公司

Location of the Warkworth Mining Limited Biodiversity Areas

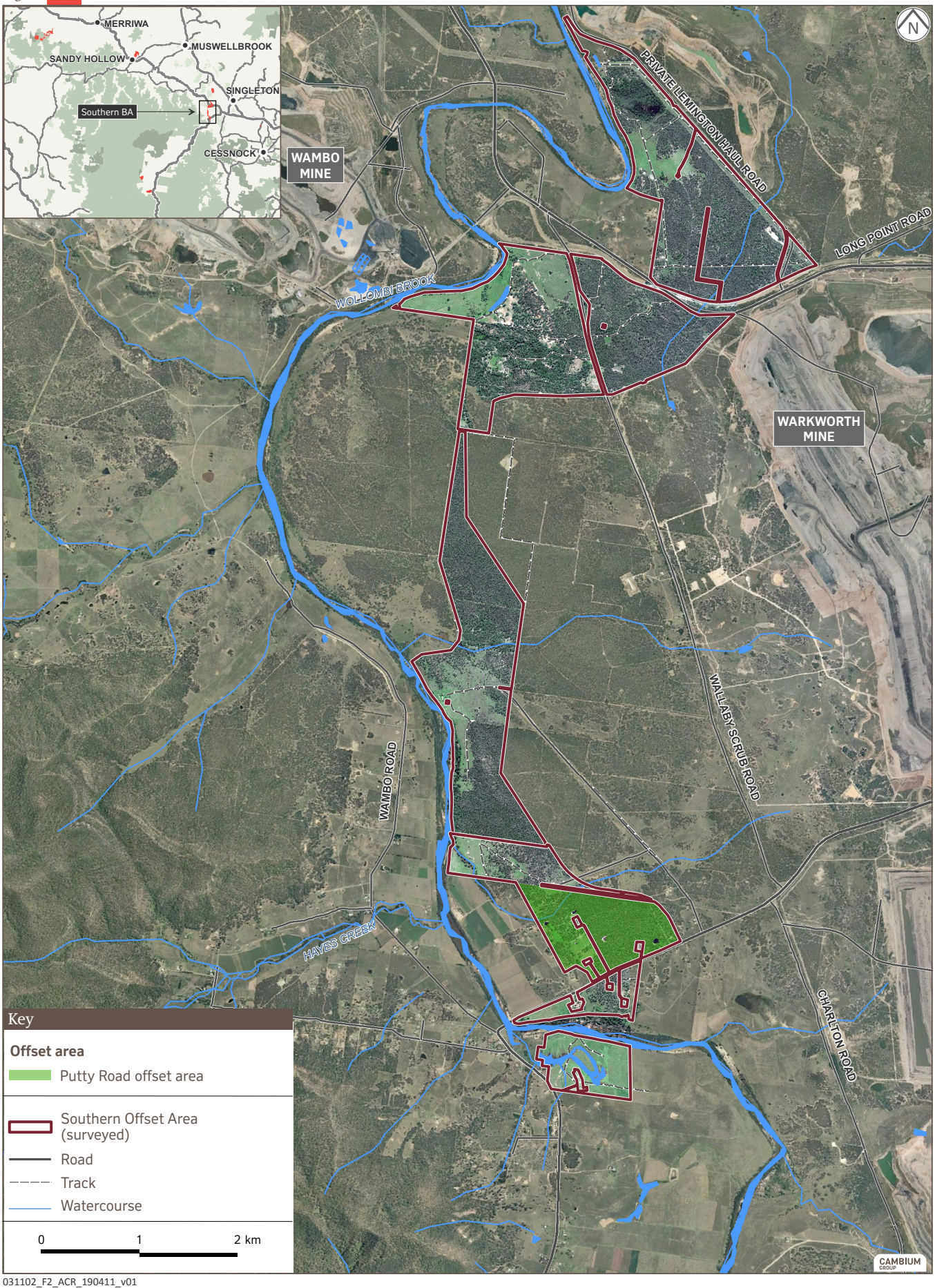
Annual Compliance Report

Figure 1

Southern Biodiversity Area - Putty Road offset area

Annual Compliance Report

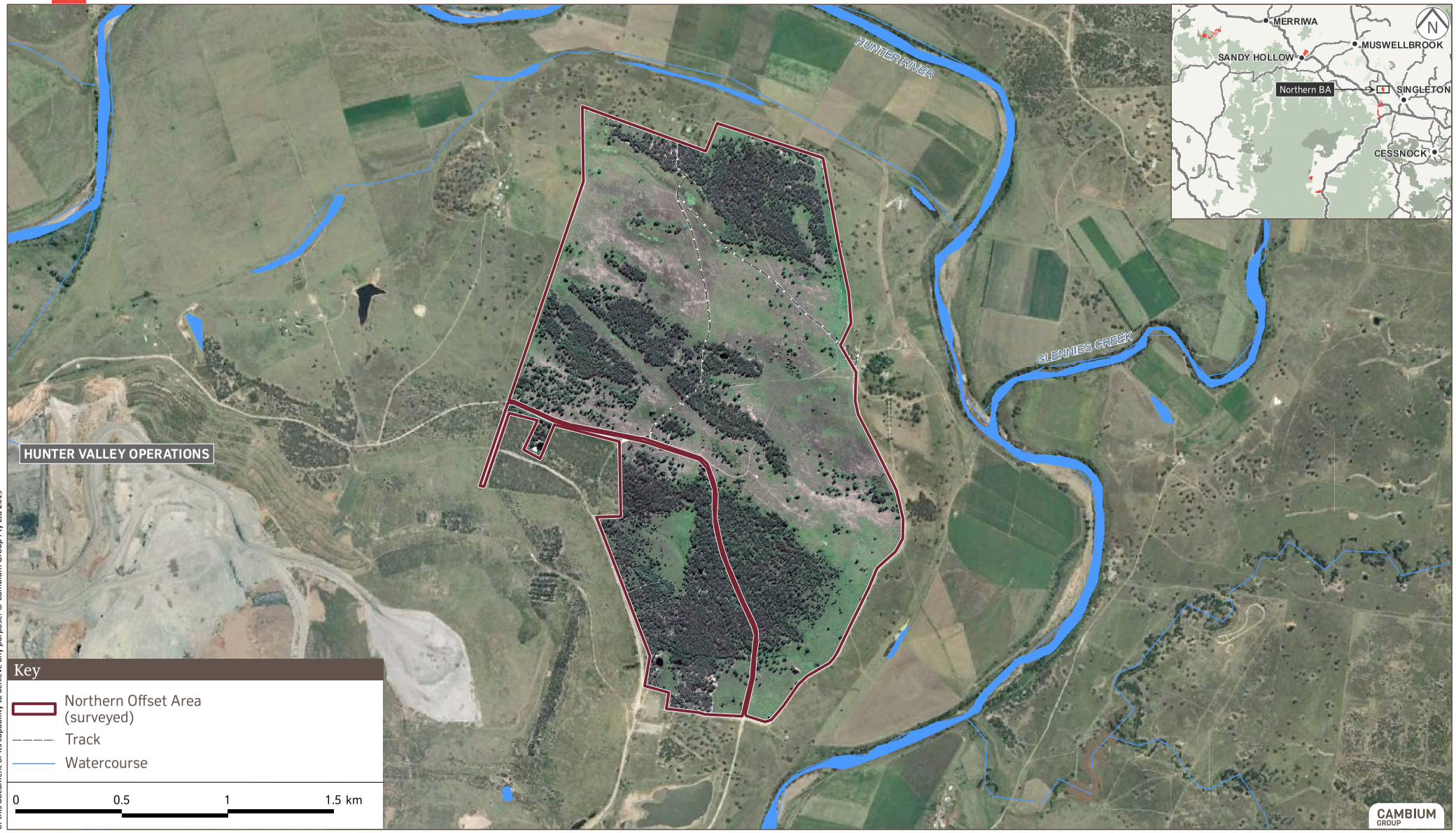
Figure 2



Northern Biodiversity Area

Annual Compliance Report

Figure 3



3 SUMMARY OF ACTIVITIES – 2018

Table 2 provides a summary of the activities undertaken during the reporting period (year 2) and the progress in attaining the Performance Criteria for the key Conservation Management Strategies in the management plans.

3.1 Summary of climatic conditions

Figure 4 and Figure 5 show the monthly actual rainfall compared to the long term average for the Northern BA and Southern BA for the reporting period. In 2018 rainfall was well below average in January, April, May and July. The Southern BA received 397mm of rainfall which was 136mm below the long term average and the Northern BA received 434mm which was 84mm below the long term average. The low rainfall was a significant factor in the survival of the Central Hunter Grey Box – Ironbark Woodland tubestock planted in July and August 2018.

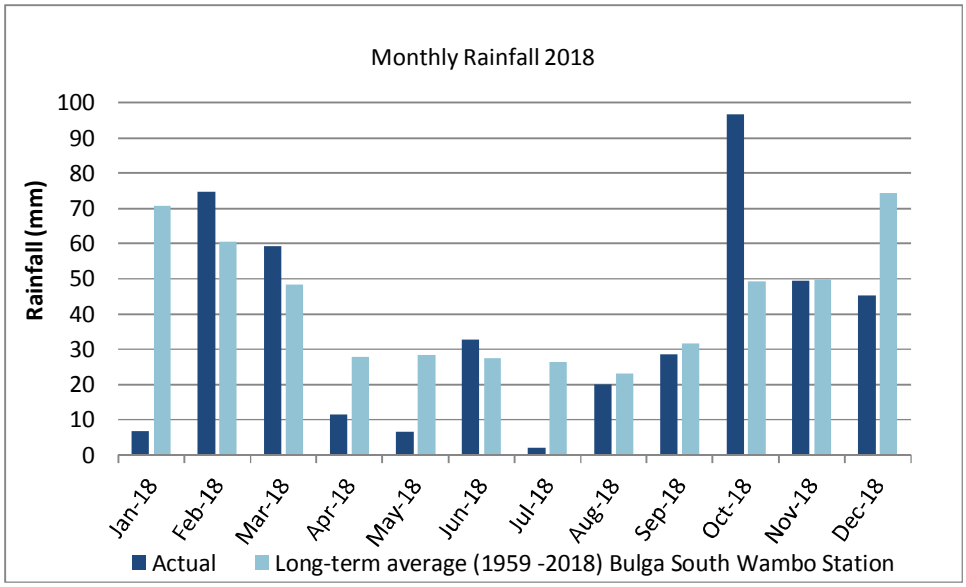


FIGURE 4 MONTHLY RAINFALL – NORTHERN BA

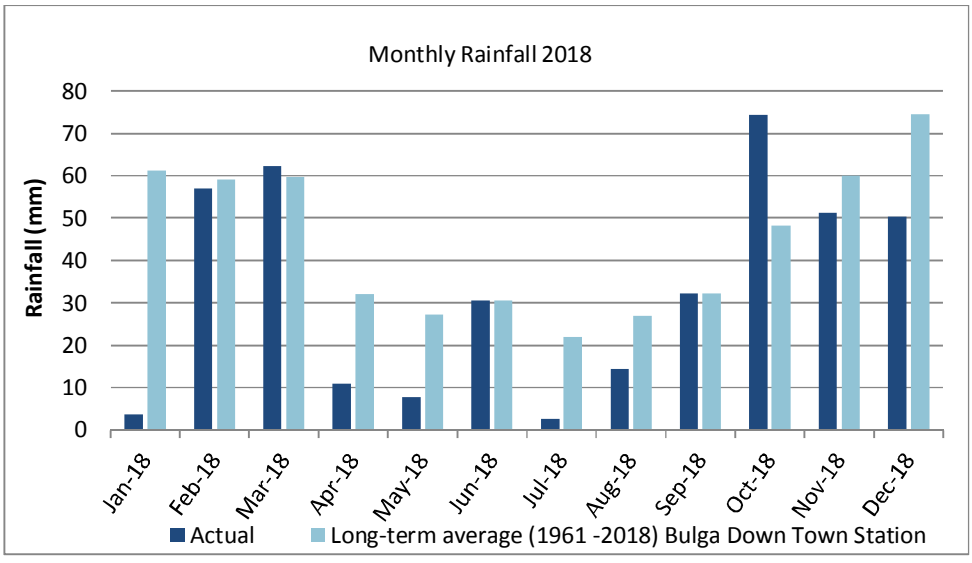


FIGURE 5 MONTHLY RAINFALL –SOUTHERN BA

Table 2 Summary of progress against Performance Criteria (PC)

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
ACTIVE RESTORATION				
Southern BA WSW planting (40ha)				
PC	*Collection of seed. Plant propagation. Tubestock planted.* *Completed survival assessment.*	*Ecological monitoring completed*	*Ecological monitoring demonstrates a trajectory toward the reference site or the benchmark values for HU872 for all attributes measured over the three consecutive assessments (the average of all plots).*	
Activity / Progress	Seed collection and plant propagation was undertaken. In 2017 1ha of WSW tubestock was planted in the Southern BA. In 2018 14 ha of WSW Tubestock planted in the Southern BA including replanting the sand quarry and old orchard areas. Survival Assessments were completed for all planting areas. Ecological monitoring was undertaken in 2018.			Collect seed and propagate plants. Undertake survival assessments. Undertake infill planting to restore Warkworth Sands Woodland in the Southern BA.
Southern BA CHGBIW planting (240ha)				
PC	*Collection of seed. Plant propagation. Tubestock planted.* *Completed survival assessment.*	*Ecological monitoring completed.*	*Ecological monitoring demonstrates a trajectory toward the reference site or the NSW Biometric HU817 for all attributes measured over three consecutive assessments (the average of all plots).*	

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Seed collection and plant propagation was undertaken. Restoration activities included tubestock planting of Central Hunter Grey Box – Ironbark Woodland in the Southern BA. In 2017, 89 ha of the Southern BA was planted with over 13,000 tubestock planted into rip lines. . In 2018 118 ha of the Southern BA was planted with over 20,000 tubestock planted into rip lines. The site preparation for these sites included ripping by dozer and weed control. To mimic nature the tree species were planted at a spacing of 5 -10m and shrubs species planted in clumps as commonly found with understory species within this vegetation type. All plants were watered, fertilised and protected with a tree guard. Ecological monitoring was undertaken in 2018. Survival Assessments were completed for all planting areas.			Collect seed and propagate plants. Undertake survival assessments. Undertake infill planting of 118ha of Central Hunter Grey Box – Ironbark Woodland in the Southern BA.
Southern BA ROF planting (26ha)				
PC	*Collection of seed. Plant propagation. Tubestock planted.* *Completed survival assessment.*		*Survival assessment greater than 70%*	

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Seed collection and plant propagation was undertaken. Restoration activities included planting River Oak Forest in the Southern BA. In 2018, 11ha of the Southern BA was planted with over 2,000 tubestock planted into rip lines. The site preparation for this site included ripping by dozer and weed control. To mimic nature the tree species were planted at a spacing of 5 -10m and shrubs species planted in clumps as commonly found with understory species within this vegetation type. All plants were watered, fertilised and protected with a tree guard. Ecological monitoring was undertaken in 2018.Survival Assessments were completed for all planting areas.			Collect seed and propagate plants. Undertake survival assessments. Undertake infill planting of 11ha of River Oak Forest in the Southern BA.
Northern BA WSW planting (195ha)				
PC	*Collection of seed. Plant propagation. Tubestock planted.* *Completed survival assessment.*	*Ecological monitoring completed.*	*Ecological monitoring demonstrates a trajectory toward the reference site or the benchmark values for HU872 for all attributes measured over three consecutive assessments (the average of all plots).*	

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Seed collection and plant propagation was undertaken. Restoration activities included planting Warkworth Sands Woodland in the Northern BA. In 2014 work commenced to restore over 80 hectares of Warkworth Sands Woodland, this involved the planting of seedlings and the relocation of sand salvaged ahead of mining activities. In 2017, 10,800 tubestock were planted into 44 50x50m patches. Topsoil from ahead of mining operations at MTW was salvaged and hauled to the Biodiversity Area prior to planting commencing. In total Ten patches received 50mm of topsoil over the whole patch, two received 50mm of topsoil over half the patch, 12 received 25mm of topsoil over the patch and ten received no topsoil. Holes were dug for tubestock, either by hand or auger and all plants were watered, fertilised and protected with a tree guard. In 2018 maintenance of planting areas was undertaken and included infill planting of over 8,000 tubestock. Ecological monitoring was undertaken in 2018. Survival Assessments were completed for all planting areas			Collect seed and propagate plants. Undertake survival assessments Undertake planting of 7ha of Warkworth Sands Woodland in the Northern BA. Salvage 7ha of topsoil from ahead of mining operations at MTW and haul to the 2019 Northern BA planting area.
Northern BA CHGBIW planting (23ha)				
PC	*Collection of seed. Plant propagation. Tubestock planted.* *Completed survival assessment.*	*Ecological monitoring completed.*	*Ecological monitoring demonstrates a trajectory toward the reference site or the NSW Biometric HU817 for all three attributes measured over three consecutive assessments (the average of all plots).*	

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Restoration activities included tubestock planting of Central Hunter Grey Box – Ironbark Woodland in the Northern BA. In 2017, 6ha of the Northern BA was planted with 2,780 tubestock planted into rip lines. The site preparation for this site included ripping by dozer and weed control. To mimic nature the tree species were planted at a spacing of 5 -10m and shrubs species planted in clumps as commonly found with understory species within this vegetation type. All plants were watered, fertilised and protected with a tree guard. In 2018 maintenance of planting areas was undertaken and included infill planting. Ecological monitoring was undertaken in 2018. Survival Assessments were completed for all planting areas			Collect seed and propagate plants. Undertake survival assessments. Undertake infill planting of Central Hunter Grey Box – Ironbark Woodland in the Northern BA.
PASSIVE RESTORATION				
Weed control and monitoring				
PC	*At least two weed control events each year for species listed in Table 14 of Management Plans and other weeds recorded from monitoring activities.* *All actions recorded in Annual Report.* *Complete Rapid Condition Assessment and Property Inspections.*	*At least one weed control event each year for species listed in Table 14 of Management Plans and other weeds recorded from monitoring activities.* *All actions recorded in Annual Report.* *Complete Rapid Condition Assessment and Property Inspections.*	*Ecological monitoring data indicates a trajectory for reduction in exotic plant cover over three consecutive assessments.*	

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	Weed contractor engaged to undertake weed control activities at the Northern and Southern BA throughout the year. In2018 weed control targeted the following species: African boxthorn *(Lycium ferocissimum),* African lovegrass *(Eragrostis curvulva),* African olive *(Olea europaea subsp. Cuspidate),* Balloon vine *(Cardiospermum grandiflora),* Blue heliotrope *(Heliotropium amplexicaule),* Castor oil plant *(Ricinus communis),* Couch grass *(Cynodon dactylon),* Fireweed *(Scenecio madagascariensis),* Galenia *(Galenia pubescens),* Green cestrum *(Cestrum parqui),* Lantana *(Lantana camara),* Moth vine *(Arujuia sericifera),* Mother of millions *(Bryophyllum delagonese),* Natal grass *(Melinis repens),* Paterson's curse *(Echium plantagineum),* Prickly pear *(Opuntia stricta),* Tree of heaven *(Ailanthus altissima),* Tiger pear *(Optunia aurantiaca),* Tree pear *(Optunia tomentose),* Turkey rhubarb *(Acetosa sagittata),* and Twiggy mullein *(Verbascum virgatum).* Rapid Condition Assessment and Property Inspections were completed in 2018.			Control noxious species and stop weeds spreading into previously un-infested areas. Undertake Rapid Condition Assessment. Undertake Property Inspections.
Pest control and monitoring				
PC	*At least two control events each year for species listed in Table 20 of Management Plans, and any other species recorded from monitoring activities.* *Active participation in programme coordinated by HLLS, this may include local control actions.* *Complete biannual inspection and report all works completed and actions for next year.*	*At least one control events each year for species listed in Table 17 of Management Plans, and any other species recorded from monitoring activities.* *Active participation in programme coordinated by HLLS, this may include local control actions.* *Complete biannual inspection and report all works completed and actions for next year.*	*No observed vertebrate pest or damage.* *Ecological monitoring demonstrates a trajectory to benchmark values for all attributes measured over three consecutive assessments (the average of all plots).*	

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Activity / Progress	In 2018 a vertebrate pest contractor was engaged to undertake programmes across the Southern and Northern BA. Three 1080 ground baiting programmes were undertaken targeting wild dogs and foxes in summer, autumn and spring. One feral pig 1080 baiting programme was carried out in spring in conjunction with a HLSS coordinated program, 31 feral pigs were poisoned. Shooting of vertebrate pests undertaken throughout the year. Biannual property inspections were undertaken in 2018.			Undertake vertebrate pest management including 1080 ground baiting programmes scheduled for autumn and spring to target wild dogs and foxes. Undertake Property Inspections.
Grazing				
PC	*Grazing is conducted in accordance with the Management Plan.* *Boundary fences maintained.* *Complete Rapid Condition Assessment and Property Inspections.*			
Activity / Progress	Boundary fence installation in SBA5 in 2017 to exclude cattle. No strategic grazing was undertaken in the BAs in 2018. Property Inspections and Rapid Condition Assessment were undertaken in 2018.			Undertake Property Inspections. Undertake Rapid Condition Assessment. Maintain boundary fences.
Bushfire Management Plan (BFMP), Ecological burn and monitoring				
PC	*Actions implemented.* *Review and revise if required.* *Complete Rapid Condition Assessment and Property Inspections.*	*Actions implemented.* *Review and revise if required.* *Complete Rapid Condition Assessment and Property Inspections.* *Completed ecological fire management plan for MZ1, MZ3, MZ5, MZ7, MZ8 and MZ9.*	*All required actions of BFMP have been implemented.* *BFMP has been reviewed annually and revised if required.*	
Activity / Progress	BFMP reviewed. Property Inspections and Rapid Condition Assessment were undertaken in 2018.			Review BFMP. Undertake Property Inspections. Undertake Rapid Condition Assessment.

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Infrastructure Improvements and monitoring				
PC	*Completed GDP for all infrastructure improvement actions.* *Maintenance of tracks and fences completed at least every 3 years.* *Property Inspections undertaken.*			.
Activity / Progress	GDP completed for new boundary fence at Southern and Northern BAs in 2017. Boundary fences maintained and Property Inspections undertaken in 2018.			Maintain boundary fences. Undertake Property Inspections
Erosion monitoring inspections and reports				
PC	*Complete Rapid Condition Assessment and Property Inspections*			
Activity / Progress	Rapid Condition Assessment and Property Inspections undertaken No significant erosion issues identified at either BA			Undertake Rapid Condition Assessment. Undertake Property Inspections.
Dam conversion and rehabilitation and monitoring				
PC	*Prepare dam conversion plan.* *Dam conversion complete and rehabilitation has stabilised the site.* *Property inspections.*	*Observed natural flow regime and no erosion.* *Property inspections.*	*All works completed.*	
Activity / Progress	Property inspections undertaken in 2018.			Prepare a dam conversion plan. Undertake Property Inspections.
Natural Regeneration and monitoring				
PC	Annual weed control, vertebrate pest and fire management actions implemented as per management plans. *Complete Rapid Condition Assessment and Property Inspections.*		*Ecological monitoring demonstrates a trajectory to benchmark values for all attributes measured over three consecutive assessments (the average of all plots).*	
Activity / Progress	All actions implemented in 2018 as per management plans. Rapid Condition Assessment and Property Inspections undertaken in 2018.			Undertake Property Inspections. Undertake Rapid Condition Assessment.

Conservation Actions	Year 1 to Year 5 (2018 is Year 2)	Year 6 to Year 10	Completion Criteria	Actions 2019
Controlled Activities				
PC	*No reported incidents of prohibited actions undertaken Yancoal, contractors, consultants or other agents of Yancoal.* *Any clearing of vegetation reported in Annual Report.* *Signage and locks (where required) maintained.* *Complete risk assessment for any recreation activities.* *All occupants of residents compliant with requirements of the MP.* *No Cultural Heritage sites knowingly disturbed and any protective barricading maintained.* *Damaged and unwanted fences removed.* *All Property Inspections completed.*			
Activity / Progress	In 2017 trespassing and illegal tree clearing and timber getting within the Southern Biodiversity Area resulted in felling approximately 40 full sized trees and 100 small trees. This unauthorised activity was reported to both Department of Environment and Energy and Department of Planning and Environment in October 2017. Internal fences and waste were removed from the Southern BA areas to be planted in 2018 and sections of boundary fence at the Northern BA and Southern BA were repaired and replaced where needed. New Biodiversity Area signs were installed in 2017. Regular property inspections were undertaken in 2017 and 2018. In 2018 there were no reported incidents or prohibited actions undertaken on the Biodiversity Areas.			Undertake Property Inspections.

4 MONITORING ACTIVITIES

The following table provides a summary of the monitoring activities undertaken as detailed in the MP. Monitoring reports and results are available on the Biodiversity Offset Portal.

Table 3 Monitoring Activity Summary

Monitoring	2018	Date/s	Completed by
Bird Assemblage	X	September 2018, next due July – August 2020	Niche Environment and Heritage
Habitat Restoration	X	November 2018, next due September – November 2020	Niche Environment and Heritage
Rapid Condition Assessment	X	November 2018 next due September – November 2019	Advisor – Land Management
Property Inspection	X	April/November 2018, next due April/November 2019	Advisor – Land Management

4.1 Bird assemblages monitoring 2018

A total of 125 species of birds were recorded throughout the eight Biodiversity Areas (BAs) in early spring 2018. An additional nine bird species were recorded during this monitoring period compared with the 2016 surveys which in turn recorded more species than the 2014 baseline survey (on a reduced number of BAs). Twelve threatened species were recorded, however, the Regent Honeyeater and Swift Parrot (target species) were not detected during the surveys. All eight BAs were considered to provide potential habitat for both the Regent Honeyeater and Swift Parrot, though at the time of surveying there was minimal flowering of feeding resources.

The following are the recommendations and discussion summaries for the Northern and Southern Biodiversity Areas (BAs).
The Northern BA contained the lowest diversity of birds due to previous heavy habitat fragmentation, with historical clearing for grazing. Restoration has commenced in a number of areas and combined with the removal of grazing pressure and large areas of tubestock planted, some areas are showing signs of recovery. However, the regrowth is still too young to be benefiting most woodland bird species and most of the records of woodland birds were from established areas of trees. The *Opuntia* cactus problem present on this site may not strongly impact birds, but will impact other terrestrial wildlife and compete with native plant species.

Revegetation works on the Southern BA are progressing better than the Northern BA and woodland birds are starting to utilise planted areas. Grey-crowned Babbler and Speckled Warbler along with mixed flocks of other woodland birds were seen using areas with trees less than a metre high.

The Warkworth Sands Woodland had low bird diversity and the highest numbers of Noisy Miners. It is unclear why this is the case. However, it is possible that Noisy Miners are using the old forest as a drought refuge and driving other birds away (or reducing their detectability).

Ongoing feral animal control is recommended, as outlined in the OMPs. Rabbits, foxes and pigs were the most commonly detected feral animals throughout the BAs.

The bird census design used in this study has the advantages that each site is located in such a way that it can be treated as independent for statistical purposes. The 2018 survey added a 50-metre radius sub-plot and counts for all bird species rather than just threatened and aggressive species. These two features will improve the data for future time series comparisons. However, there is no capacity within the data for assessing the power to detect change over time as there is no replication across all sites to determine variability. To determine variability, at least three replicates per site would be needed. The benefits of being able to determine the data power would be the capacity to apply statistical testing to aspects of the data. When we see massive change in bird population composition we would then be able to see if the result is just a function of chance or a function of real change.

4.2 Habitat restoration monitoring

This study completes the third round of habitat restoration monitoring for the Southern and Northern BAs and the second since baseline. The findings of this monitoring report support implementation of management activities, including passive and active restoration strategies.

The conclusion and recommendations from the 2018 habitat restoration monitoring report were:

- There is a high level of variability in the condition of the Central Hunter Grey Gum Ironbark Grassland and Warkworth Sands Grassland (Management Zones 2 and 4). Parts of these communities have little biodiversity value and negligible recovery potential. Consequently, it is recommended that a more finely detailed assessment of management zones be undertaken in order to target management works appropriately.

- The Warkworth Sands Woodland, Central Hunter Grey Gum Ironbark Woodland and Hunter Lowland Red Gum Woodland were found to generally be in near benchmark condition, despite not meeting benchmark for some parameters. There is some variability in condition of these remnants and condition mapping would assist in targeting management works appropriately.

- An assessment of the canopy recruitment at each transition site should be undertaken to determine if further planting or seeding is required. The addition of canopy would assist by providing competition with annual and pasture weeds and grasses and provide a microclimate and protection for native shrubs and forbs.

- Targeting management works to areas of higher resilience would be advantageous.

- Restoration techniques should be continued in accordance with the Northern and Southern MP to ensure continued improvement in the condition of the vegetation at the Northern and Southern Biodiversity Area.

Habitat restoration monitoring involves the measurement of 27 key variables every two years to track change in vegetation and habitat condition. The monitoring aims to demonstrate the regeneration trajectory of the grassland area and the improvement in woodland condition, by collecting data from a series of Transition (grassland) and Reference (woodland) sites. Analysis of this data set will demonstrate the trajectory of the transition sites to the reference site and towards the benchmark description for the vegetation community.

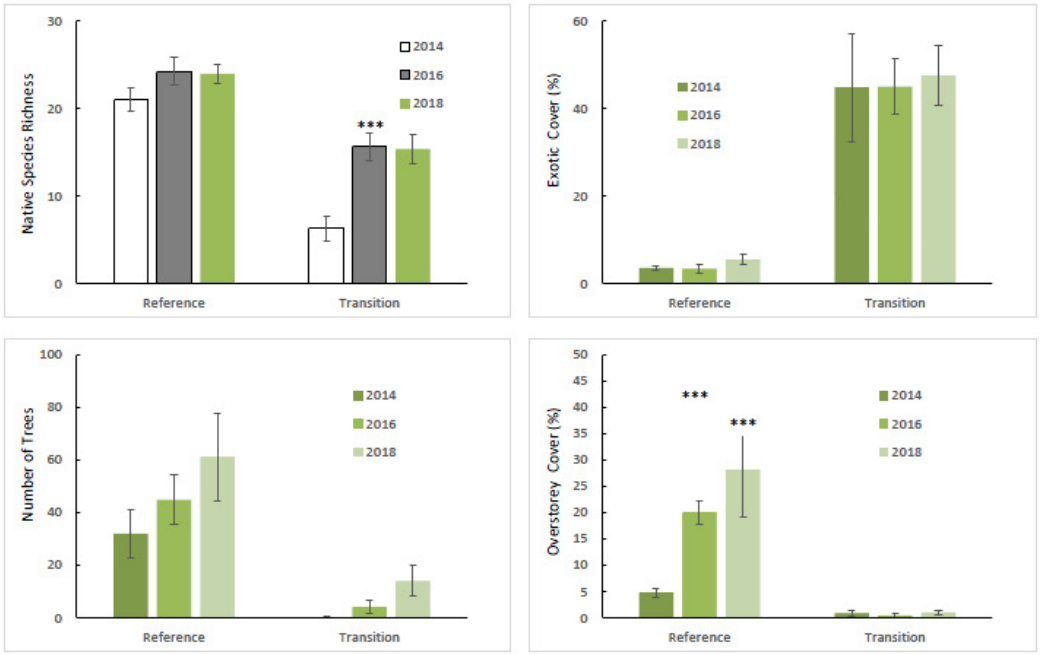
The following sections present the summary data for comparison of the 2016 to 2018 monitoring data and the benchmark descriptions for vegetation community across the Reference (Ref) and Transition (Trans) plots.

Table 4 Warkworth Sands Woodland - Comparison of monitoring data with benchmark values

Mapped community: Warkworth Sands Woodland BVT HU872: Rough-barked Apple - Narrow-leaved Ironbark - Blakely's Red Gum - Bull Oak - Coast Banksia woodland on sands of the Warkworth area										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	26	13.0	10.0	4.0	5.0	5.0	<5	20.0	0.8
	max		40.0	50.0	15.0	30.0	25.0			
Ref 1 (2018)		21	28.2	4.8	6.3	16.8	6.3	3.5	0	3
Ref 2 (2018)		18	37.7	0.0	56.3	2.5	5.8	1.8	30	0
Ref 3 (2018)		25	30.3	4.5	8.8	10.0	8.8	3.8	7	0
Ref 4 (2018)		20	20.3	0.8	13.8	5.8	8.8	12.5	21	0
Ref 5 (2018)		23	31.3	6.8	26.3	1.8	30.0	6.5	27	0
Ref 6 (2018)		25	27.7	11.3	20.0	5.0	7.5	4.8	32	0
Ref 7 (2018)		32	24.3	5.0	11.3	6.3	21.3	10.0	11	0
Ref 8 (2018)		23	25.2	4.3	7.5	6.8	27.5	8.0	53	0
Ref 9 (2018)		24	29.7	0.5	15.0	5.8	33.8	2.8	10	0
Ref 10 (2018)		27	27.2	1.8	37.5	3.5	23.8	2.5	51	0
Average (2018)		**23.8**	**28.2**	**4.0**	**20.3**	**6.4**	**17.3**	**5.6**	**24.2**	**0.3**
Ref 1 (2016)		23	23.8	0.5	15	8.8	0.8	0	2.0	1.0
Ref 2 (2016)		23	24.7	0.0	65.0	0.5	0.0	1.0	9.0	0.0
Ref 3 (2016)		28	26.7	1.3	40.0	3.5	0.0	4.3	6.0	0
Ref 4 (2016)		15	24.2	0.00	63.8	2.8	0.0	4.0	13.0	0.0
Ref 5 (2016)		22	17.3	5.5	52.5	4.3	9.3	0.0	33.0	1.0
Ref 6 (2016)		25	18.8	8.0	26.3	18.8	3.8	6.3	26.0	0.0
Ref 7 (2016)		25	16.7	10.0	40.0	7.5	10.0	11.3	8.0	1.0
Ref 8 (2016)		26	16.7	1.5	17.5	10.0	32.5	0.0	62.0	3.0
Ref 9 (2016)		21	27.8	0.5	47.0	3.0	0.0	3.0	3.5	0.0
Ref 10 (2016)		35	4.0	0.5	38.3	1.8	14.0	5.0	12.0	0.0
Average (2016)	**2016**	***24.3***	***20.1***	***2.8***	***40.5***	***6.1***	***7.0***	***3.5***	***17.5***	***0.6***
Average	2014	*21*	*4.8*	*2.9*	*39.7*	*6.9*	*18.3*	*3.7*	*17.5*	*0.1*
Trans 1 (2018)		21	3.7	0.0	10.0	4.8	17.5	48.8	2	3
Trans 2 (2018)		14	0.0	0.0	12.5	2.3	16.3	37.5	11	0
Trans 3 (2018)		24	0.0	1.3	16.3	22.5	12.5	12.5	31	0
Trans 4 (2018)		8	0.0	0.0	5.0	0.0	10.0	67.5	0	0
Trans 5 (2018)		11	0.0	1.8	5.0	0.0	11.8	72.5	14	0
Trans 6 (2018)		11	0.0	0.0	6.3	0.0	8.3	73.8	0	0
Trans 7 (2018)		20	3.8	3.5	8.8	0.3	37.5	35.0	5	0
Trans 8 (2018)		11	0.0	0.0	3.3	0.0	16.3	60.0	1	0
Trans 9 (2018)		16	0.0	2.0	7.8	1.3	7.5	52.5	0	0
Trans 10 (2018)		18	2.7	2.3	26.3	0.3	15.3	16.3	9	0
Average	**2018**	**15.4**	**1.0**	**1.1**	**10.1**	**3.2**	**15.3**	**47.6**	**7.3**	**0.3**
Trans 1 (2016)		14	0.0	0.0	17.5	3.8	3.8	75	5.0	7.0
Trans 2 (2016)		8	0.0	0.0	15.0	1.0	5.0	50	9.0	0.0
Trans 3 (2016)		18	0.0	0.0	20.0	0.0	5.0	70.0	27.0	0.0
Trans 4 (2016)		15	0.0	5.0	32.5	0.5	0.0	47.5	0.0	0.0
Trans 5 (2016)		14	0.0	0.0	97.0	1.0	0.0	3.0	7.0	0.0
Trans 6 (2016)		21	0.0	0.0	18.0	35.5	0.3	30.0	0.0	0.0
Trans 7 (2016)		21	0.0	2.5	34.8	1.0	10	37.5	4.0	0.0
Trans 8 (2016)		10	0.0	0.0	10.0	5.0	0.0	50.0	0.0	0.0
Trans 9 (2016)		13	0.0	0.0	5.0	5.0	0.0	42.5	0.0	0.0
Trans 10 (2016)		23	4.0	0.0	47.5	0.0	0.0	45.0	12.0	1.0
Average (2016)	**2016**	***15.7***	***0.4***	***0.8***	***29.7***	***5.3***	***2.4***	***45.1***	***6.4***	***0.8***
Average	2014	*6.4*	*0.9*	*0.0*	*30.4*	*2.0*	*4.4*	*44.9*	*6.1*	*0.1*

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness	NGCO	Native ground cover (other) % cover
NOS	Native overstorey % cover	EPC	Exotic plant cover % cover
NMS	Native midstorey % cover	Logs (m)	Length of logs (m)
NGCG	Native ground cover (grass) % cover	Hollows	No. trees with hollows



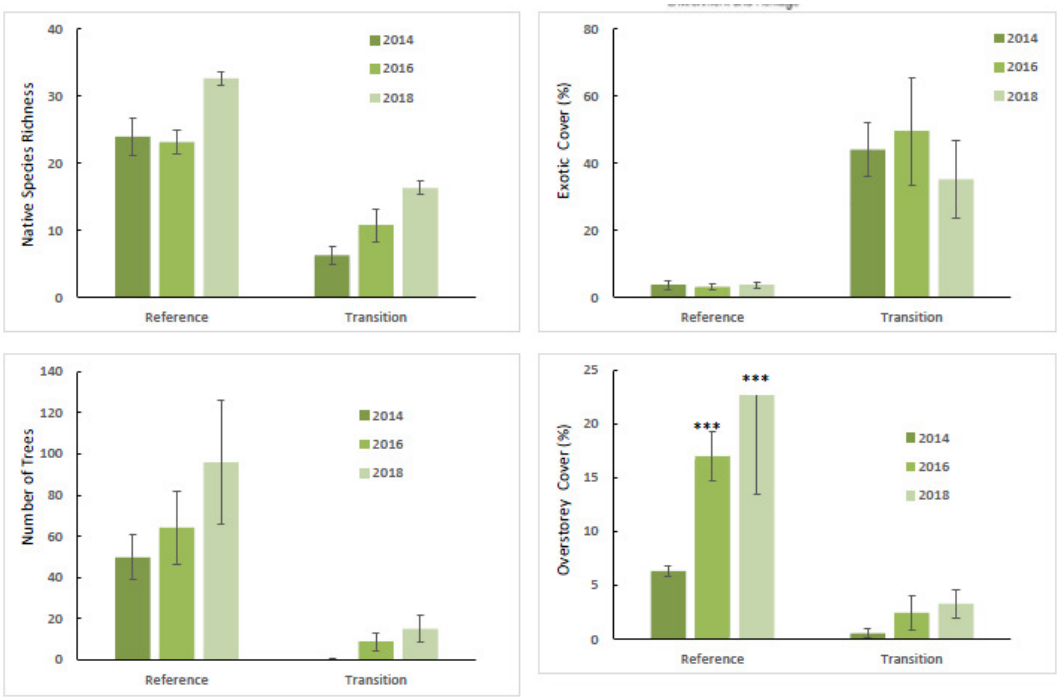
Mean (±SE) 2014 (n = 8) and 2016, 2018 (n = 10) quadrat data. Statistically significant difference *** $p < 0.05$

Table 5 Central Hunter Grey Box – Ironbark Woodland comparison of monitoring data with benchmark values

Mapped community: Central Hunter Grey Box - Ironbark Woodland BVT HU701: Narrow-leaved Ironbark +/- Grey Box grassy woodland of the upper Hunter Valley, mainly Sydney Basin Bioregion										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	41	15	5	30	5	20	<5	5	3
	max		40	20	50	10	40			
Ref 1 (2018)		27	21.3	2.0	27.5	0.0	10.0	2.8	72	0
Ref 2 (2018)		25	30.5	0.5	23.8	13.8	4.3	4.5	0	0
Ref 3 (2018)		37	31.2	13.0	17.5	11.0	6.3	6.3	66.5	0
Ref 4 (2018)		40	21.7	3.5	25.0	3.0	17.5	5.0	35.5	0
Ref 5 (2018)		32	20.0	7.5	18.8	1.5	10.0	0.5	25.5	0
Ref 6 (2018)		35	12.2	5.5	23.8	11.8	6.8	4.3	9	2
Average (2018)	2018	32.7	22.8	5.3	22.7	6.9	9.2	3.9	34.8	0.3
Ref 1 (2016)		20	19.3	0.0	70.0	0.0	0.0	5	2	0
Ref 2 (2016)		17	20.8	0.0	84.0	1.0	0.0	5	0	7
Ref 3 (2016)		21	24.3	11.8	12.5	0.00	0.0	2	12	0
Ref 4 (2016)		28	10.3	2.0	44.5	1.0	2.0	1.0	19	0
Ref 5 (2016)		27	16.5	2.0	30.0	2.0	1.0	1.0	8	0
Ref 6 (2016)		26	10.7	0.0	26.3	13.8	1.5	2.5	6	1
Average (2016)	2016	23.2	17.0	2.6	44.6	3.0	0.8	2.8	7.8	1.3
Average	2014	24	6.3	0.9	45.1	3.1	6.1	3.8	28	0
Trans 1 (2018)		23	8.2	2.3	31.3	2.8	27.5	6.8	28	0
Trans 2 (2018)		9	0.0	0.0	13.8	0.0	28.8	50.0	0	0
Trans 3 (2018)		23	0.0	1.3	5.0	0.0	23.8	51.3	3	0
Trans 4 (2018)		20	9.3	1.3	17.5	1.0	4.0	6.3	0	0
Trans 5 (2018)		17	2.2	12.5	17.5	2.5	15.0	20.0	0	0
Trans 6 (2018)		6	0.0	0.0	6.0	0.0	2.8	77.5	0	0
Average (2018)	2018	16.3	3.3	2.9	15.2	1.1	17.0	35.3	5.2	0.0
Trans 1 (2016)		19	3.0	5.0	32.5	0.5	0	47.5	6	0
Trans 2 (2016)		4	0	0.3	32.5	0.5	0.0	97.5	6	0
Trans 3 (2016)		11	0.7	2.5	45.0	0	2.5	50.0	2	0
Trans 4 (2016)		15	10.0	1.0	60.0	0	5.5	1.0	0	0
Trans 5 (2016)		12	1.0	1.0	79.0	1.0	7.0	12.0	0	0
Trans 6 (2016)		4	0	0	10.0	0	0	90.0	0	0
Average (2016)	2016	*10.8*	*2.5*	*1.6*	*43.1*	*0.3*	*2.5*	*49.7*	*2.3*	*0*
Average	2014	6.3	0.5	0.1	39.1	0.2	6.6	44.1	2.5	0.2

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness	NGCO	Native ground cover (other) % cover
NOS	Native overstorey % cover	EPC	Exotic plant cover % cover
NMS	Native midstorey % cover	Logs (m)	Length of logs (m)
NGCG	Native ground cover (grass) % cover	Hollows	No. trees with hollows
NGCS	Native ground cover (shrubs) % cover		



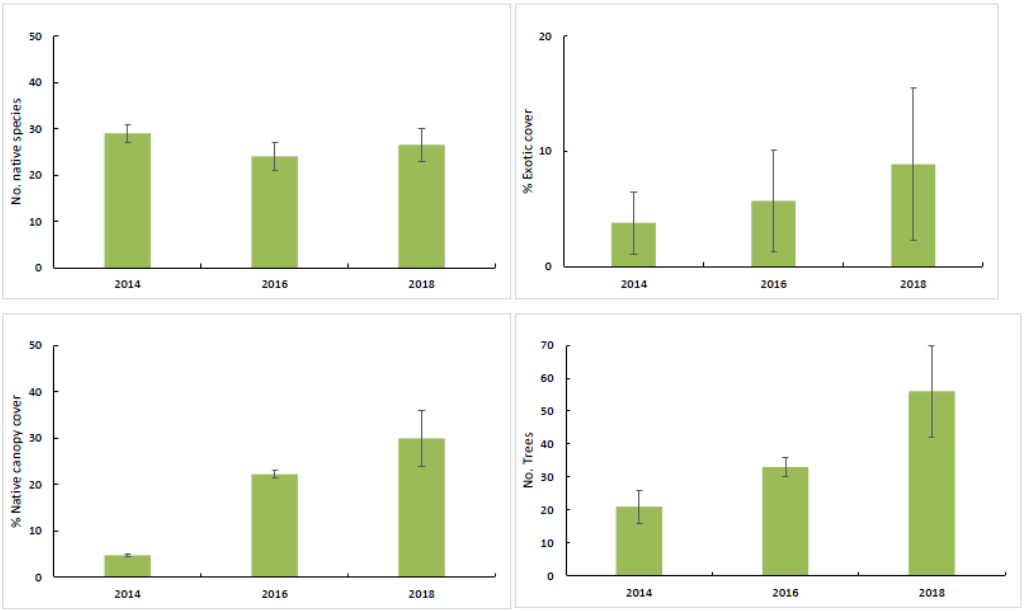
Mean (±SE) 2014, 2016 and 2018 (n = 6) quadrat data. Statistically significant difference *** $p < 0.05$

Table 6 Hunter Lowland Redgum Forest Comparison of monitoring data with benchmark values

Mapped community: Hunter Lowland Red Gum Forest BVT HU910: Blakeley's Red Gum - Rough-barked Apple shrubby woodland of central and upper Hunter										
		NPSR	NOS	NMS	NGCG	NGCS	NGCO	EPC	Logs (m)	Hollows
Benchmark	min	41	15	5	30	5	20	<5	5	3
	max		40	20	50	10	40			
HLRG 1		30	35.8	8.0	6.3	13.8	25.0	2.3	45	0
HLRG 2		23	23.9	2.0	5.0	8.8	41.3	15.5	151	0
Average	*2018*	*26.5*	*29.9*	*5.0*	*5.7*	*11.3*	*33.2*	*8.9*	*98.0*	*0.0*
HLRG 1		27	21.3	1.8	23.8	3.5	0.0	1.3	21	0
HLRG 2		21	23.0	1.5	60.5	2.0	0.0	10.0	40	5
Average	*2016*	*24*	*22.2*	*1.65*	*42.2*	*2.75*	*0.0*	*5.7*	*30.5*	*2.5*
Average	**2014**	*29.0*	*4.7*	*1.3*	*42.7*	*7.7*	*8.3*	*3.8*	*26.0*	0.0

0-10% or >200% of benchmark (>66% cover for EPC)
10-50% or 150-200% of benchmark (33-66% cover for EPC)
50-100% or 100-150% of benchmark (5-33% cover for EPC)
within benchmark or > benchmark for NPSR, Hollows and Logs (0-5% cover for EPC)

NPSR	Native plant species richness
NOS	Native overstorey % cover
NMS	Native midstorey % cover
NGCG	Native ground cover (grass) % cover
NGCS	Native ground cover (shrubs) % cover
NGCO	Native ground cover (other) % cover
EPC	Exotic plant cover % cover
Logs (m)	Length of logs (m)
Hollows	No. trees with hollows



Mean (±SE) 2014, 2018 and 2018 (n = 2) quadrat data. Statistically significant difference *** $p < 0.05$

5 PROGRESS IN ATTAINING CONSERVATION OBJECTIVES AGAINST KEY PERFORMANCE INDICATORS

The primary conservation objectives for the local offset areas (including the Putty Road Offset) are to:

- enhance biodiversity values across the BAs;
- protect the WSW Offset Area and Putty Road Offset Area under a legally binding conservation covenant;
- increase the condition of WSW and Ironbark EECs and observe a transition from grassland to woodland;
- enhance habitat and foraging opportunities for the woodland birds; and
- contribute to and enhance the existing network of protected vegetation within the Hunter Valley.

Table 7 indicates the progress in attainment of the long-term conservation objectives, the ecological monitoring data supports the continued implementation of the conservation management strategies.

6 ADAPTIVE MANAGEMENT

No new environmental risks have been identified during the reporting period.

Table 7 Local Offset Areas Biodiversity Values and Key Performance Indicators

Area	Biodiversity Value	Description and baseline metric	KPI	Progress comment
Southern BA	Ironbark Woodland	Total area: 446.7ha RCA Average Health rating 18.1/20 (MZ1)	Extent and condition of woodland over 10 years.	RCA results: 2014 – 18/20 2015 – 18/20 2016 – 18/20 2017 – 18.5/20 2018 – 18.5/20 Area and health maintained refer to Table 5.
	Ironbark Grassland	Total area: 258.4ha	Transition of grassland to woodland.	2018 monitoring supports continued implementation of the conservation management strategies refer to Table 5.
	WSW	Total area: 137ha RCA Average Health rating17.2 /20 (MZ3)	Extent and condition of woodland over 10 years.	RCA results: 2014 – 16/20 2015 – 18/20 2016 – 17/20 2017 – 18/20 2018 – 19/20 Area and health maintained refer to Table 4.
	WS Grassland	Total area:40.3ha	Transition of grassland to woodland.	
	Hunter Lowland Red Gum Forest	Total area: 32.4ha RCA Average Health rating 18.5/20 (MZ5)	Extent and condition over 10 years.	RCA results: 2014 – 17/20 2015 – 19/20 2016 – 19/20 2017 – 19/20 2018 – 18.5/20 Area and health maintained refer to Table 6.
	Fauna Habitat	Low potential habitat	Observe maintenance or increase habitat condition rating over 10 years	2018 monitoring supports continued implementation of the conservation management strategies refer to Table 6.

Area	Biodiversity Value	Description and baseline metric	KPI	Progress comment
Northern BA	Ironbark Woodland	Total area: 103.6ha RCA Average Health rating 18.8/20 (MZ1)	Extent and condition of woodland over 10 years.	RCA results: 2014 – 18/20 2015 – 18.5/20 2016 – 19.5/20 2017 – 19.5/20 2018 – 18/20 Area and health maintained refer to Table 5.
	Ironbark Grassland	Total area: 23.1ha	Transition of grassland to woodland.	
	WSW	Total area: 19.5ha RCA Average Health rating 18.3/20 (MZ3)	Maintain woodland extent over 10 years.	RCA results: 2014 – 17.5/20 2015 – 18/20 2016 – 19/20 2017 – 19/20 2018 – 18.5/20 Area and health maintained refer to Table 4.
	WS Grassland	Total area: 194.5	Transition of grassland to woodland	2018 monitoring supports continued implementation of the conservation management strategies, refer to Table 4.
	Fauna Habitat		Observe maintenance or increase habitat condition rating over 10 years	2018 monitoring supports continued implementation of the conservation management strategies, refer to Table 4.

ATTACHMENT C: EPBC 2009/5081 Compliance Register (Condition 17)

EPBC 2009/5081 Compliance Register (Condition 17)

Condition	Documents	Date due (as per Approval)	Date submitted	Date approved	Date Plan on website	Date DoEE notified	Date review due
2	Putty Road Offset Management Plan	13-Apr-14	14-Apr-14	04-Jul-14	31-Jul-14	31-Jul-14	within 12 months of the approval of the Phase 2 Offset (refer Condition 5)
5	Southern BA Management Plan	17-Feb-2017	15-Feb-2017 14-Dec-2017 (revised version)	30-Apr-18	28 –Feb-19	N/A	N/A
6	Re-Establishment Management Plan	03-Feb-15	02-Feb-15	Not yet received	N/A	N/A	within 12 months of the Commencement of Construction of Phase 2
7	Putty, Seven Oaks, Goulburn River, Bowditch and North Rothbury Biodiversity Area Management Plans	17-Feb-2017	15-Feb-2017 14-Dec-2017 (revised versions)	16-Feb-2018 (DoEE) 30-Apr-2018 (DPE)	28–May - 18	N/A	N/A
	Northern Management Plan		15-Feb-2017 14-Dec-2017 (revised version)	16-Feb-18 (DoEE) 25-Sep-18 (DPE)	27–Sep-18	N/A	N/A
	Condon View Biodiversity Area Management Plan		15-Feb-2017 10-Oct-2017 (revised version)	26-Jun-17 (DPE) Not yet received (DoEE)	N/A	N/A	N/A
8	Water Management Plan	03-Aug-14	15-Sep-14 (following approval by NSW regulator 10-Sep-14)	10-Sep-14 (DPE)	15-Sep-14	15-Sep-14	N/A
11	Mine Site Rehabilitation Plan (Phase 1)	03-Feb-15	02-Feb-15	Not yet received	N/A	N/A	within 12 months of the Commencement of Construction of Phase 2
	Mine Site Rehabilitation Plan (Phase 2)	17-Feb-2017	23-Jan-19 (following approval by NSW regulator 14-Dec-18)	14-Dec-18 (DPE) Not yet received (DoEE)	N/A	N/A	N/A
12	Mine Closure Plan	6 months prior to mine closure	N/A	N/A	N/A	N/A	N/A
15	Compliance Report	3/05/2015 (and annually thereafter)	28/04/2015	N/A	28/04/2015	28/04/2015	03-May-16
		3/05/2016	3/05/2016	N/A	3/05/2016	3/05/2016	03-May-17
		3/05/2017	01/06/2017	N/A	10/06/2017	01/06/2017	03-May 18

	3/05/2018	3/05/2018	N/A	3/05/2018	3/05/2018	03-May 19
	3/05/2019	3/05/2019	N/A	3/05/2019	3/05/2019	03 -May 20