Mt Arthur Coal Extension Project EPBC 2011/5866 and 2014/7377

29 September 2025

Contents

Introduction

Hunter Valley Energy Coal Pty Ltd (ACN 062 894 464) (HVEC) operates the Mt Arthur Coal complex, which consists of approved open cut and underground mining operations, a rail loop and associated rail loading facilities. The operations are located in the Upper Hunter Valley, NSW approximately five kilometres south west of Muswellbrook.

This report has been prepared to address the following conditions in the two approvals issued under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC), held by HVEC:

- Condition 14 of EPBC 2011/5866; and
- Condition 18 of EPBC 2014/7377.

Description of activities

EPBC No.	Project name	Approval holder ACN or ABN	Approved action	Location	Person accepting responsibility for the report	Dates for the reporting period of the report	Date of preparation of the report
2011/5866	Mt Arthur Coal Extension Project	ACN 062 894 464	The development of five new open cut extension areas to uncover additional coal reserves on the existing Mt Arthur Coal Complex	Muswellbrook in the Upper Hunter Valley, NSW	James Nixon	1 July 2024 to 30 June 2025	30 September 2025
2014/7377	Mt Arthur Coal open cut modification	ACN 062 894 464	The continuation of the open cut mining operations of approximately 128 million tonnes of ROM Coal within HVEC's existing mining tenements and application area – ML1487, ML 1358, ML 1548, Sublease CL 229, ML 1655 and ML 1739	Muswellbrook, NSW	James Nixon	1 July 2024 to 30 June 2025	30 September 2025

Compliance table

In accordance with Condition 14 of EPBC 2011/5866 and Condition 18 of EPBC 2014/7377 this report provides an update of HVEC's compliance against the relevant approval conditions.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
EPBC Approval No. 2011/5866				
5866	1	The person taking the action must not clear more than 693.8 ha of the EPBC-listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community (147.8 ha of woodland and 546 ha derived native grassland) within the proposed action areas of the Mt Arthur coal complex (shown in Appendix 1).	Compliant	A total area of 369.8 Ha has been cleared to end of the reporting period, which includes: • 84.03 ha of the EPBC listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland • 285.8 ha of the EPBC listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland Derived Native Grassland
5866	2	The person taking the action must not clear more than 362.7 ha of woodland providing suitable habitat for the EPBC listed Regent Honeyeater and Swift Parrot within the proposed action areas of the Mt Arthur coal complex (shown in Appendix 1). Woodland that provides suitable habitat for these species on this site includes the box-ironbark dominated woodlands and the remaining woodland and forest vegetation types present on the proposed action areas.	Compliant	A total area of 254 ha of woodland providing suitable habitat for the EPBC listed Regent Honeyeater and Swift Parrot has been cleared to end of the reporting period.
5866	3	The person taking the action must register a legally binding conservation covenant over the conservation and offset areas identified in Table 1 (and shown in Appendix 2a and 2b) by 30	Compliant	All conservation areas and offsets were registered on title before 30 December 2017.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		December 2017. The mechanism must provide enduring protection for no less than: a) 707.7 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological Community (Box Gum Woodland); and b) 738.7 ha of suitable habitat for *Anthochaera phrygia* (Regent Honeyeater) and *Lathamus discolor* (Swift Parrot). *Note: Offsetting requirements for Regent Honeyeater and Swift Parrot habitat may be accommodated within the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological Community components if this habitat is verified as present and includes specific habitat requirements for each of these species in accordance with the Department's listing advice, conservation advice and/or recovery plans.*		
5866	4	The person taking the action must commence progressive regeneration of 1915 ha of woodland and forest communities, including 299.20 ha of Box Gum Woodland identified in Table 1, as described in the Preliminary Documentation within 1 year of commencement of construction.	Compliant	Progressive regeneration of woodland and forest communities at Mt Arthur Coal commenced in the mid-1990s. Rehabilitation activities are as per those reported in the Annual Review, published to the BHP Regulatory web page. BHP | Environment | Regulatory information
5866	5	The person taking the action must submit for the Minister's approval the Biodiversity Management Plan (BioMP) for the project by 30 June 2013. The BioMP must reflect the proposed Mt Arthur Coal Complex Biodiversity Offset Strategy as outlined in Table 1 and as generally described in the Preliminary Documentation and focus on the re- establishment and	Compliant	HVEC submitted the BioMP to the Minister for approval on 28 June 2013. The BioMP was approved by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 12 August 2014.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		protection of a minimum of 707.7 ha of Box Gum Woodland and a minimum of 738.7 ha of suitable habitat for Regent Honeyeater and Swift Parrot. The approved BioMP must be implemented.		The BioMP was revised and approved by both the DP&E, on 22 May 2019, and the DCCEEW, on 5 June 2019.
5866	6	The BioMP must describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site and with local and regional corridors, existing conservation areas and existing biodiversity commitments at Mt Arthur Coal.	Compliant	DCCEEW has reviewed the BioMP and found that it meets the requirements of Condition 6. The revised BioMP was approved by the DCCEEW on 5 June 2019.
5866	7	The BioMP must include, but not be limited to, the following information: a) a text description and map to clearly define the location, boundaries and size of the conservation and offset areas and the regeneration area and rehabilitation corridors. This must be accompanied with the offset attributes and a shape file; b) details of the mechanisms, legal instrument, steps and timing for registering a legally binding conservation covenant that provides enduring protection over each nominated conservation and offset area; c) a detailed description of the current condition of the extant vegetation of each conservation and offset area prior to any management activities. This will provide a baseline description of the vegetation condition for the purpose of monitoring; d) details of vegetation communities to be re-established to achieve the 500 ha regeneration area and 1415 ha of rehabilitated corridors:	Compliant	The DCCEEW has reviewed the BioMP and found that it meets the requirements of Condition 6. The revised BioMP was approved by the DCCEEW on 5 June 2019. The management actions undertaken within the rehabilitation corridors and their outcomes are presented in the Annual Review published on BHP Regulatory web page. The assessment of management actions undertaken within the offset areas are presented in the Conservation Agreement Monitoring attached to this report.

Condition Number	Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
	i. timing of progressive regeneration; ii. criteria to determine success of re-establishment of the Box Gum Woodland and other woodland and forest communities; iii. documentation including mapping of current environmental values relevant to MNES of the area; iv. 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 and the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological Community; and the source and provenance of the seed and/or seedlings which will be used. e) details of measures to offset the impacts to the MNES described in conditions 3 and 4 including: i. details of management actions that will improve the condition of a minimum of 707.7 ha within the conservation and offset areas and 299.2 ha regeneration area to 'state 1' consistent with the state and transition model for Box Gum Woodland (Rawlings et al, 2010) and listing advice for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological Community; ii. management schedules for all conservation and offset areas, the regeneration area and the rehabilitation corridors identifying targeted actions for specific areas to		

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		protect and enhance the extent and condition of habitat values of the offset areas, a map showing areas to be managed; iii. type of actions for each conservation and offset area, the regeneration area and rehabilitation corridors and details of methods to be used; iv. timing of management actions for each area; v. performance criteria for each action; vi. a detailed monitoring plan for each action including, but not limited to, control sites, periodic ecological surveys to be undertaken by a qualified ecologist, as agreed to in writing by the Minister, and consistent with survey guidelines for nationally threatened species and communities, to assess the success of the management actions measured against identified milestones and objectives; vii. contingency measures to be implemented if performance criteria are not met; viii. a process to report, to the Department, the progress of management actions undertaken in the conservation and offset areas, regeneration area and rehabilitation corridors and the outcome of those actions, including identifying any need for improved management and actions to undertake such improvement; and ix. details of the various parties responsible for management, monitoring and implementing the		

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		management activities, including their position or status as a separate contractor.		
5866	8	Where strategic grazing is proposed as a management tool, the person undertaking the action must provide, as part of the BioMP identified in condition 5, details of the proposed grazing activities for each management area. This must include: a) objectives b) details of the grazing methods to be used c) timing including seasons in which grazing will occur, period of grazing and rest period d) stocking rate per season e) monitoring of impacts of grazing including any changes in the condition of vegetation, habitat and weed density.	Compliant	The approved BioMP details proposed grazing activities. This is covered in Section 11.1 of the BioMP.
5866	9	Grazing activities must be undertaken in accordance with the guidelines for strategic grazing (Rawlings et al, 2010) and managed so that for each management unit at least 70% of the sward meets a minimum height of 10cm.	Not Applicable	No grazing activities were undertaken during the reporting year.
5866	10	If the person undertaking the action proposes to undertake any action within the conservation and offset areas and regeneration area, other than those management activities related to managing the conservation and offset areas and regeneration area, or as set out in the conditions, approval must be obtained, in writing from the Minister. In seeking the Minister's approval the person undertaking the action must provide a detailed assessment of the area where the action is proposed to take	Compliant	Only activities relating to offset management were undertaken in the offset areas.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		place and an assessment of all associated adverse impacts on MNES. If the Minister agrees to the action within the conservation or offset area, the area identified for the action may be excised from the proposed conservation and offset areas and alternative offsets may be required in relation to the impact on MNES.		
5866	11	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 proponent 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	Records of data collected from conservation and offset area surveys during the reporting period are maintained by Mt Arthur Coal. No requests for survey data were made by the DCCEEW during the reporting period.
5866	12	Within 14 days after the commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement.	Compliant	HVEC commenced the action on 21 May 2012 and advised the DCCEEW of the commencement of the action on 31 May 2012. Notification was made via a letter issued to Ms Adrienne Lea at the DCCEEW.
5866	13	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the Biodiversity Offset Strategy and the Biodiversity Management Plan 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 in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits	Compliant	Accurate records substantiating all activities associated with or relevant to the conditions of approval are maintained by HVEC. No requests for records of activities were made by the DCCEEW during the reporting period.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		will be posted on the Department's website. The results of audits may also be publicised through the general media.		
5866	14	Within three (3) months of the end of each Financial Year (30 June - 1 July) after the commencement of the action, the person taking the action must publish a report on their website addressing compliance with the conditions of this approval, including implementation of any management plans and strategies as specified in the conditions. Documentary evidence providing proof of the date of publication and non- compliance with any conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain on the website for the period this approval has effect. The approval holder may cease preparing and publishing compliance reports required by this condition with written agreement of the Minister to do so.	Compliant	All Annual Compliance Reports are published on the BHP website in September of each year: BHP | Environment | Regulatory information
5866	15	If the person taking the action wishes to carry out any activity otherwise than in accordance with the Biodiversity Offset Strategy and the Biodiversity Management Plan 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 Biodiversity Offset Strategy and the Biodiversity Management Plan. The varied activity shall not commence until the Minister has approved the varied plan in writing. The Minister will not approve a varied plan unless the revised plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised Biodiversity Offset Strategy and the Biodiversity Management Plan, that Biodiversity Offset Strategy and the Biodiversity Management Plan, must be implemented in place of the Biodiversity Offset	Compliant	No varied activities are applicable for the 2024-2025 reporting period.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		Strategy and the Biodiversity Management Plan, originally approved.		
5866	16	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities and listed migratory species to do so, the Minister may request that the person taking the action make specified revisions to the Biodiversity Offset Strategy and the Biodiversity Management Plan, specified in the conditions and submit the revised Biodiversity Offset Strategy and the Biodiversity Management Plan for the Minister's written approval. The person taking the action must comply with any such request. The revised approved Biodiversity Offset Strategy and the Biodiversity Management Plan must be implemented. Unless the Minister has approved the revised Biodiversity Offset Strategy and the Biodiversity Management Plan then the person taking the action must continue to implement the Biodiversity Offset Strategy and the Biodiversity Management Plan originally approved, as specified in the conditions.	Not triggered	No request was received from the Minister to make specified revisions to the BioMP during the reporting year.
5866	17	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within 1 month of being approved.	Compliant	The BioMP is published on the BHP company website BHP | Environment | Regulatory information
EPBC Approval No. 2014/7377				
7377	1	The person taking the action must not clear more than 58.4 ha (within modification areas A-E shown in Appendix A) of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) listed White Box Yellow Box Blakely's Red Gum Grassy	Compliant	Total area of EPBC-listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland critically endangered ecological community cleared to the end of the reporting period is 26.5 ha.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		Woodland and Derived Native Grassland Critically Endangered Ecological Community.		
7377	2	The person taking the action must not clear more than 53.4 ha (within modification areas A-E shown in Appendix A) of woodland that provides suitable habitat for the Regent Honeyeater (Anthochaera phrygia), Swift Parrot (Lathamus discolor) and Grey- headed Flying-fox (Pteropus poliocephalus). Woodland that provides suitable habitat for these species on this site includes the box-ironbark dominated woodlands and the remaining woodland and forest vegetation types present on the referred areas.	Compliant	A total area of 35.4 ha of suitable habitat was cleared by the end of the reporting period.
7377	3	The person taking the action must compensate for the loss of 58.4 ha of the White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community and 53.4 hectares of native woodland which provides foraging and nesting habitat for the Regent Honeyeater (*Anthochaera phrygia*), Swift Parrot (*Lathamus discolor*) and Grey-headed Flying-fox (*Pteropus poliocephalus*) by: a) securing the following offsets, prior to commencement of the action, through a legally binding conservation covenant over the conservation and offset areas: i. 131 ha expansion of the Saddlers Creek Conservation area located approximately 1 km south of the proposed action area; and ii. 410 ha expansion of the Middle Deep Creek Offset area located approximately 70 km north of the Action area.	Compliant	Saddlers Creek Conservation Area and Middle Deep Creek Offset were registered on title on 21 June 2017 and 20 February 2017 respectively.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
7377	4	The person taking the action must submit to the Department, for approval by the Minister, a revised Biodiversity Management Plan (BioMP) for the project by 30 June 2017. The BioMP must reflect the proposed Mt Arthur Coal Complex Biodiversity Offset Strategy as generally described in the Preliminary Documentation for EPBC 2011/5866, and include the additional offsets which are described in the Preliminary Documentation for EPBC 2014/7377. The Preliminary Documentation states: a) the following offsets will be secured to compensate for the removal of the 58.4 ha of Box Gum Woodland CEEC and 53.4 ha of foraging habitat: i. a 410 ha expansion of the existing Middle Deep Creek offset area located approximately 70 km north of the Action area; and ii. a 131 ha expansion of the existing Saddlers Creek offset area located approximately 1 km south of the Action area.	Compliant	A revised Biodiversity Management Plan (BioMP) was submitted to the Department of Energy and the Environment (DOEE, now the Department of Agriculture, Water and the Environment) for approval on 29 June 2017.
7377	5	The BioMP must describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site and with local and regional corridors, existing conservation areas and existing biodiversity commitments at the Mt Arthur Coal mine.	Compliant	The Department has reviewed the BioMP and found that it meets the requirements of Condition 6. The revised BioMP was approved by DCCEEW on 5 June 2019.
7377	6	The revised BioMP must include the additional offsets for the proposed action described in EPBC 2014/7377 and follow the requirements for the BioMP outlined in the conditions in EPBC 2011/5866 described below: a) a text description and map to clearly define the location and boundaries of the conservation and offset areas and	Compliant	The DCCEEW has reviewed the BioMP and found that it meets the requirements of Condition 6. The revised BioMP was approved by the DCCEEW on 5 June 2019.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		regeneration areas. This must be accompanied with the offset attributes and a shape file; b) details of the mechanisms, legal instrument, steps and timing for registering a legally binding conservation covenant that provides enduring protection over each nominated conservation and offset area; c) a detailed description of the current condition of the extant vegetation of each conservation and offset area identified in the Preliminary Documentation for EPBC 2014/7377 prior to any management activities. This will provide a baseline description of the vegetation condition of the additional offset areas for the purpose of monitoring; d) details of measures to offset the impacts to the MNES described in condition 2 and 3 including: i. details of management actions that will improve the condition of a minimum of 541 ha within the offset areas; ii. management schedules for the offset areas identifying targeted actions for specific areas to protect and enhance the extent and condition of habitat values of the offset areas, a map showing areas to be managed; iii. type of management actions for each offset area and details of methods to be used; iv. timing of management actions for each offset area; v. performance criteria for each action;		The management actions undertaken within the rehabilitation corridors and their outcomes are presented in the Annual Review published on BHP Regulatory web page. The assessment of management actions undertaken within the offset areas are presented in the Conservation Agreement Monitoring attached to this report.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		vi. a detailed monitoring plan for each action including, but not limited to: ~ control sites; and ~ periodic ecological surveys to be undertaken by a qualified ecologist, as agreed to in writing by the Minister, and consistent with survey guidelines for nationally threatened species and communities, to assess the success of the management actions measured against identified milestones and objectives; vii. contingency measures to be implemented if performance criteria are not met; viii. a process to report, to the Department, the progress of management actions undertaken in offset areas and the outcome of those actions, including identifying any need for improved management and actions to undertake such improvement; and ix. details of the various parties responsible for management, monitoring and implementing the management activities, including their position or status as a separate contractor.		
7377	7	Where strategic grazing is proposed as a management tool, the person undertaking the action must provide, as part of the BioMP identified in condition 5, details of the proposed grazing activities for each management area. This must include: a) objectives; b) details of the grazing methods to be used;	Compliant	Refer to the response provided for condition 8 of 2011/5866.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		c) timing including seasons in which grazing will occur, period of grazing and rest period; d) stocking rate per season; and e) monitoring of impacts of grazing including any changes in the condition of vegetation, habitat and weed density.		
7377	8	Grazing activities must be undertaken in accordance with the guidelines for strategic grazing in A Guide to Managing Box Gum Grassy Woodlands, Kimberlie Rawlings, David Freudenberger and David Carr, Department of Environment, Water, Heritage and the Arts, Canberra, 2010.	Not Applicable	Refer to the response provided for condition 9 of 2011/5866.
7377	9	If the person undertaking the action proposes to undertake any action within the offset areas, other than those management activities related to managing the offset areas, or as set out in the conditions, approval must be obtained, in writing from the Minister. In seeking the Minister's approval the person undertaking the action must provide a detailed assessment of the area where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Minister agrees to the action within the offset area, the area identified for the action must be excised from the proposed offset areas and alternative offsets secured in relation to the impact on MNES.	Compliant	Only activities relating to offset management were undertaken in the offset areas.
7377	10	The person taking the action may choose to revise a management plan approved by the Minister without submitting it for approval under s.143A of the EPBC Act, if the taking of the action in accordance with the revised management plan would not be likely to have a new or increased impact on a protected	Compliant	Refer to the response provided for condition 15 of 2011/5866.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		matter under the conditions of this approval. If the person taking the action makes this choice, they must: a) notify the Department in writing that the approved management plan has been revised and provide the Department with an electronic copy of the revised management plan; b) implement the revised management plan from the date that it is submitted to the Department; and c) for the life of this approval, maintain a record of the reasons the person taking the action considers that taking the action in accordance with the revised management plan would not be likely to have a new or increased impact on a protected matter under the conditions of this approval.		
7377	11	The person taking the action may revoke its choice under Condition 10 at any time by notice to the Department. If the person taking the action revokes the choice to implement a revised management plan, without approval under Section 143A of the EPBC Act, the management plan approved by the Minister must be implemented.	Not triggered	Noted.
7377	12	Condition 10 does not apply if the revisions to the approved management plan include changes to offsets provided under the management plan in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised management plan would, or would not, be likely to have new or increased impacts.	Not triggered	Noted.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
7377	13	If the Minister gives a notice to the person taking the action that the Minister is satisfied that the taking of the action in accordance with the revised management plan would be likely to have a new or increased impact on a protected matter by the conditions of this approval, then: a) condition 10 does not apply, or ceases to apply, in relation to the revised management plan; and b) the person taking the action must implement the previous management plan most recently approved by the Minister. To avoid any doubt, this condition does not affect any operation of conditions 10, 11 and 12 in the period before the day the notice is given. At the time of giving the notice the Minister may also notify that for a specified period of time that Condition 10 does not apply for one or more specified plans required under the approval.	Not triggered.	No notice provided by the Minister.
7377	14	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.	Compliant	The action commenced during November 2017.
7377	15	Within 30 days after the commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement.	Compliant	Refer to EPBC report dated 28 September 2018.
7377	16	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plans, referred to in these conditions of approval on their website. Each	Compliant	Refer to the response provided for condition 17 of 2011/5866.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		management plan must be published on the website within 1 month of being approved by the Minister or being submitted under Condition 10a.		
7377	17	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the Offset Strategy and Biodiversity Offset Management Plan 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 in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Compliant	Refer to the response provided for condition 13 of 2011/5866.
7377	18	Within three months of the end of each Financial Year (1 July - 30 June) after the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain on the website for the period this approval has effect. The approval holder may cease preparing and publishing compliance reports	Compliant	Refer to the response provided for condition 14 of 2011/5866.

Condition Number		Condition	Compliant/ Non Compliant/ Not Triggered	Evidence/Comments
		required by this condition with written agreement of the Minister to do so.		
7377	19	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Not triggered	No notice provided by the Minister.

New environmental risks

No new environmental risks from the Project were identified during the reporting period.

Approval was received for the Mt Arthur Coal MOD 2 on 16 April 2025.

The consent and associated reports and assessments can be found on the BHP website.

Declaration of accuracys

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

Signed:

Full name (please print): James Nixon

Position (please print): Superintendent Environment

Organisation (please print including ABN/ACN if applicable): Hunter Valley Energy Coal Limited (ACN 062894464)

Date: 29 September 2025

Mt Arthur Coal Conservation Agreement Monitoring Report

January 2024 to December 2024

Middle Deep Creek Conservation Area. Tree thinning trial area – Thick regrowth has been thinned to allow an open box gum grassy woodland to develop.

Contents

Introduction

Hunter Valley Energy Coal Pty Ltd (HVEC) operates the Mt Arthur Coal Complex, which consists of approved open cut and underground mining operations, a rail loop and associated rail loading facilities. The Mt Arthur Coal Mine is located approximately 5 kilometres southwest of Muswellbrook within the Muswellbrook Shire Local Government Area (LGA) in the Upper Hunter Valley of NSW. The Mt Arthur Coal Mine Project includes biodiversity offset areas the purpose of which is to offset the residual biodiversity impacts of the Project.

Conservation Agreements (CA(s)) have been established for each of the biodiversity offsets in accordance with Planning Approval (PA 09_0062) (specifically, Schedule 3, Condition 39), EPBC2011/5866 (specifically, condition 7 (b)), and EPBC2014/7377 (specifically, condition 3(a)). The Conservation Areas are managed to maintain or improve conservation values.

Reporting obligations associated with the following CAs are shown in Table 1:

- Middle Deep Creek and Oakvale Offset Conservation Area;
- Roxburgh Road Conservation Area;
- Thomas Mitchell Drive Onsite Offset Conservation Area;
- Saddlers Creek Conservation Area;
- Mount Arthur Conservation Area; and
- Thomas Mitchell Drive Off-site Offset Conservation Area.

Table 1 CA Reporting Obligations

CA Section	Requirement
Condition 17(b)	Following completion of the Monitoring Program the Owner should (at least every three years), complete a monitoring report, including photo point photos, noting changes occurring in the Conservation Area. This will form the basis for decisions about ongoing management actions for the Conservation Area. A copy of all monitoring reports should be forwarded to OEH.
Annexure C Item 1	Annual reports to be prepared according to specifications in Annexure D Monitoring Program.
Annexure D Clause (c)	After each Monitoring Event, the Owner must produce a monitoring report on the Conservation Area by 30 December of each year, beginning in 2018 (Monitoring Report). The Monitoring Report must be submitted to OEH within 21 days of it being received by the Owner.

Purpose

The purpose of this report is to address the annual reporting requirements outlined in Annexure D Clause (c) of the following CAs:

- Middle Deep Creek CA;
- Roxburgh Road CA;
- Thomas Mitchell Drive On-site Offset CA;
- Saddlers Creek CA;
- Mount Arthur Offset CA; and
- Thomas Mitchell Drive Off-Site Offset CA.

Scope

This report to the Biodiversity Conservation Trust (BCT) outlines the activities conducted as part of the monitoring event for the 2024 calendar year for each CA.

Pursuant to Annexure D Clause (c) of the CAs the monitoring report includes:

i. a description of all completed management actions undertaken in the previous 12 month period;

ii. total cost of all works completed in undertaking the management actions listed in items 1 and 2 of Annexure C to the CA;

iii. completed monitoring data sheets (including photographs) using the template provided in Table 3 of Annexure D to the CA;

iv. a discussion of the changes recorded at monitoring points and quadrats.

v. a summary of quadrat data for each photo point (collected biennially – next collection is 2024)

vi. a discussion of the condition of Conservation Values.

vii. a discussion of effectiveness of any management actions implemented; and

viii. recommendations and proposed management actions to be performed in the following year(s).

Timing of execution of Annexure C relating to management of the Conservation Areas s depends upon the Commencement Year of each particular CA. The Commencement Dates for each CA is provided in Table 2.

Table 2 CA Commencement Dates

CA	Commencement Date
Middle Deep Creek	16 December 2016
Roxburgh Road Conservation Area	20 June 2017
Thomas Mitchell Drive On-site Conservation Area	28 April 2017
Saddlers Creek Conservation Area	21 June 2017
Mount Arthur Conservation Area	3 May 2017
Thomas Mitchell Drive Off-site Conservation Area	2 December 2016

Middle Deep Creek Conservation Area

Conservation Values

Management of the Middle Deep Creek Conservation Area (MDCCA) commenced in December 2016 with 2024 being year 8 of management activities. The conservation area is approximately 1257 hectares. The baseline conservation values or biodiversity values are described in detail in Annexure B the Conservation Agreement. The MDCCA is managed to maintain or improve conservation values by management actions, monitoring and reporting. Baseline monitoring has shown that the MDCCA holds significant biodiversity values.

Cumberland Ecology undertook the annual monitoring event in November 2024. The annual event monitoring report provides an update of Conservation Values (Appendix A). The management actions below will continue to maintain or improve the conservation values.

Management Summary

Table 3 provides details on the management actions undertaken during the calendar year at MDCCA addressing the reporting requirements defined in Annexure D, clause (c) of the CA.

Table 3 Middle Deep Creek Conservation Area (Year 8) management actions

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Weed control across the Conservation Area (focusing on noxious and environmental weeds)	St Johns Wort has been the major focus of weed control during January 2024. As reported last year a campaign to control dense infestations of St Johns Wort was undertaken, Slashing wasn't required as spaying was complete before seed set. Monitoring during spring identified another outbreak of St Johns wort larger than last year but less than 2022 and 2023. Spraying of these outbreaks has occurred in December 2024 and will continue in January 2025.Control of other weeds such as Box Thorn and	$48,000	Significant success in the control of St Johns Wort has been achieved by diligent control of dense infestations using spraying and slashing over the last 4 years. Monitoring during spring and Summer 2024 identified another outbreak of St Johns Wort larger than last year. This outbreak demonstrates the seed dormancy that may exist in the soil seed bank and the ability of this weed to germinate when the right conditions exist even following successful control in previous years. Elimination of St Johns Wort is	Maintain access and monitoring. Implement spraying of sparce areas. Formal event monitoring (November 2024) has identified the presence of St John's Wort and annual weeds in the walk-through assessment These areas will continue to be monitored and controlled. The recommendation for annual weeds is to rely on plantings of canopy species and to slash prior to seed setting when observed in large numbers.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	Prickly Pear were opportunistically treated at the same time.		unlikely and uneconomic in any timeframe.	
Improve the condition of the Conservation Area through revegetation activities	**Seed Collection** No Seeds collected onsite during 2024. Local district seeds have been purchased from a local supplier in 2022. These seeds are currently in controlled storage for a later direct seeding program. **Planting** . Year 5 to 10 plantings commenced in autumn 2022 with over 100 ha planted. These areas include Replacement trees were planted during tree maintenance and straitening of tree guards in 2024. The BCT audit (2022) identified that no further planting was required in the areas planted to year 4grasslands identified by the BCT and areas identified for years 5 to 10 in Annexure B Diagram 7 of the Conservation Agreement. Seedlings have been planted at 30 Eucalypts per hectare.	• Seed collection – $830 storage fee Tree replacement, maintenance, watering and tree guard replacement. $52,000	Seeds stored for direct seeding and tubestock. As reported in 2022 natural regrowth and year 1 to 4 plantings required by Annexure B Diagram B7 of the Conservation Agreement have provided suitable tree densities in these areas. No further planting is required in these locations. Years 5-10 plantings commenced in 2022 along with grassland areas identified by the BCT. Losses experienced by damage from feral deer and feral pigs. Survival was reassessed in 2024 with replacement of trees to ensure target of 15 overstorey trees per hectare.	Continue to ensure seeds available for planting programs. Direct seeding of understory in islands throughout planted areas to be implemented once control of weeds has occurred Direct seeding was rescheduled for Autumn/ winter 2025 following a planned hazard reduction burn for autumn or winter 2025. Replacement of overstorey tubestock occurred in 2024. Slashing between plantings scaled back (as per BCT 2023 audit) and only to be implemented if adaptive management identifies that slashing is required. Continued plantings as per the 5 to10 year planting plan in the CA not required due to natural regeneration (See BCT audit 2024).

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	Tree Regrowth Thinning Trial. A trial to thin eucalypt regrowth in an area identified by the BCT was undertaken using a tree mulcher. Saplings were thinned leaving the larger trees in place. Approximately 1.5ha was thinned.	$36,000	Early results look promising with larger trees now at spacings closer to benchmark.	Continue to monitor. Increase trial area if budget permits.
Pest animal monitoring and control (local co-ordination with Local Land Services and OEH)	Trail camera monitoring has identified the presence of Deer, Pigs and Foxes and low numbers of dogs Two campaigns of monitoring and control were undertaken. Humane control of pigs (120 removed) Deer (134 removed) Foxes (15 removed) and 1 cat removed.	$ 24,000	Cats - low numbers. Deer numbers are lower following humane control program over the last 3 years. Deer are still present. Pig numbers are lower following humane control program over the last 3 years. Many larger breeding stock have been removed. Wild dogs and cats are present but in low densities.	Continued focus on biodiversity threats such as foxes and cats. Continued control of other feral animals. Continue to work with LLS and neighbouring properties on wild dog and fox control program.
Construct and maintain fire breaks and implement fire management hazard reduction burns. **Operate with NSW Rural Fire Service or fire management contractor to implement mosaic or partial area hazard reduction burn.**	Tracks and boundaries were slashed in January, March and November to retain access and maintain firebreaks. No hazard reduction burns were undertaken during the reporting period. Updated burn plans were prepared, submitted and approved by the RFS. Burn areas were identified and hazard reduction firebreaks along the boundaries were prepared. Ignition planned for late winter was delayed due to unsuitable weather conditions. An	$35,000 $15,000	No fires reported. Approval of new plans under Section 100 certificates by the Rural Fires Services achieved. Fireground prepared.	Two hazard reduction burns planned for Autumn 2025. Continue to maintain fire breaks.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	ignition in September wasn't recommended by the RFS. Burns are now planned for Autmn 2025.			
Fencing	Installed approximately 7 km of fauna friendly fencing in 2024. This will complete the boundary fence as fauna friendly. Approximately 1 km where the owner wouldn't engage on fencing remains.	100,000.00	The majority of boundary fencing over 16 km is now complete. One km incomplete due to the inability gain agreement with neighbouring landowner to install fauna friendly fencing.	Continue to remove internal fencing in 2025.
Annual Reports for Monitoring Program	Cumberland Ecology was engaged by Mt Arthur Coal to undertake ecological monitoring surveys at a total of 6 monitoring sites within the conservation area to address (iii) and (iv) of Annexure D, clause (c) of the CAs. Ecological monitoring surveys were undertaken in November 2024. An event monitoring report (Attachment A) has been completed which includes photo and data monitoring (no biometric data as this is only required Biennially), a discussion of changes recorded at monitoring points recommendations for each monitoring point. A walk through assessment was undertaken in November 2024 as part of the program as described in the CA Annexure D Table 3 Monitoring Data Sheet template. Recommendations are also included.	$10,000.00	Reference point monitoring completed and attached. Walk through assessment completed in November 2024 and attached.	Implement monitoring report recommendations.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Threatened species, populations and endangered ecological communities (EEC)	The BCT annual audit and conservation agreement actions guides works to improve the management of threatened species, populations, and endangered communities.	Not applicable	Current program and BCT recommendations aim to improve conditions for threatened Species, populations, and EEC's.	Implementation of BCT audit report recommendations.
Aboriginal places and Aboriginal objects	No risk to Aboriginal Places and Aboriginal Objects during the 12 month monitoring period.	Not applicable	Not applicable	Implement due diligence Cultural Heritage Report of the hazard reduction burn area prior to burning.

Fence removal and thinning of thick regrowth

Photo 1. A key focus at the Middle Deep Creek offset in 2024 has been the removal of internal fencing and the thinning of thick eucalypt regrowth. The below photo shows the benefits of removing internal fencing to allow free movement of fauna. Along with the fence removal thinning of eucalypts has opened the area to present as an open woodland.

Fencing

Photo 2. Installed approximately 7 km of fauna friendly fencing in 2024. This will complete the boundary fence as fauna friendly. Approximately 1 km where the owner wouldn't engage on fencing remains.

Roxburgh Road Conservation Area

Conservation Values

Management of the Roxburgh Road Conservation Area (RRCA) commenced in June 2017 with 2024 being years 5 - 6 of management activities. The conservation area is approximately 109 hectares. The conservation values or biodiversity values are described in detail in Annexure B the Conservation Agreement (CA). The RRCA is managed to maintain or improve conservation values by management actions, monitoring and reporting. Baseline monitoring has shown that the RRCA holds significant biodiversity values.

Cumberland Ecology undertook the annual monitoring event in November 2024. The annual event monitoring report provides an update of Conservation Values (Appendix A). The management actions below will continue to maintain and improve the conservation values.

The management actions below will continue to maintain and improve the conservation values.

Management

Table 4 provides details on the management actions undertaken during the calendar year at RRCA addressing the reporting requirements defined in Annexure D, clause (c) of the CA.

Table 4 Roxburgh Road Conservation Area (Year 6 - 7) management actions

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Weed control across the Conservation Area (focusing on noxious and environmental weeds)	Weed control for 2024 focussed on mechanical slashing of annual weeds in open areas as part of fire hazard reduction. The formal walk through assessment included in the annual monitoring report now includes a detailed weed map to assist with weed management. Most weeds identified are annual weeds located in open areas.	$5,000	Infestations of boxthorn, African olive and prickly pear were successfully controlled across the entire 109 ha of the CA by the end of 2022. These weeds have required maintenance control during 2023 and 2024. Larger box thorn removal was undertaken in December and continues into 2025 Smaller boxthorn and African olive are present and difficult to spot.	Monitor and control of weeds as required. Use weed mapping as a tool to target priority weeds.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
			Total eradication isn't anticipated for this CA.	
Seed collection	No seed collection was required.	$ Nil	Not required.	No changes proposed.
Pest animal monitoring and control (local co-ordination with Local Land Services and OEH)	No significant feral animals located using observations and looking for animal signs along tracks etc. Feral animal numbers are low in this offset. One deer and one pig identified in monitoring.	$2,500	Feral animal numbers are low in this offset	Continue with LLS community Program. Continue with monitoring and observations including traps, scats and footprints, etc and control where required.
Construct and maintain fire breaks and implement fire management hazard reduction burns. **Operate with NSW Rural Fire Service or fire management contractor to implement mosaic or partial area hazard reduction burn.**	Boundaries, firebreaks, and access tracks slashed.	$20,000	Effective hazard reduction burns undertaken in 2023 as planned. No further hazard reduction burns are planned. Firebreaks maintained.	Maintain fire breaks.
Fencing and Infrastructure	500 metres of fencing along the northern boundary near the residences were replaced. Approximately 100 metres of older fencing was left in its current state to conserve ecological values as clearing would be required.	$10,000	Boundary fences have been replaced with fauna friendly fencing over the past 3 Years. No further fencing is planned.	Repair fences of required.
Annual Reports for Monitoring Program	Cumberland Ecology was engaged by Mt Arthur Coal to undertake ecological monitoring surveys at a total of 2 monitoring sites within the conservation area to address (iii) and (iv) of Annexure	$10,000	Reference point data and photo monitoring completed and attached.	N/A

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	D, clause (c) of the CAs. Ecological monitoring surveys were undertaken in November 2024. An event monitoring report (Attachment A) has been completed which includes Data sheets photo monitoring, a discussion of changes recorded at monitoring points recommendations for each monitoring point. A walk through assessment was undertaken in November 2024 as part of the program as described in the CA Annexure D Table 3 Monitoring Data Sheet template. Recommendations are also included.			
Threatened species, populations and endangered ecological communities (EEC)	The BCT audit report 2024 makes recommendations which should be followed improve the management of threatened species, populations and endangered communities.	Not applicable	Current program and BCT recommendations aim to improve conditions for threatened Species, populations and EEC's.	Implementation of BCT audit report recommendations.
Aboriginal places and Aboriginal objects	No risk to Aboriginal Places and Aboriginal Objects during the 12-month monitoring period. A due diligence Cultural Heritage survey has been undertaken for the plan hazard reduction burns	Not applicable	Not applicable	N/A

Feral Animal Monitoring

Photo 1 – Deer at Roxburgh. No significant feral animals located using observations and looking for animal signs along tracks etc. Feral animal numbers are low in this offset. One deer and one pig identified in monitoring.

Thomas Mitchell Drive Onsite Conservation Area

Conservation Values

Management of the Thomas Mitchell Drive Onsite Conservation Area (TMD Onsite CA) commenced in April 2017 with 2024 being years 7- 8 of management activities. The conservation area is approximately 219 hectares. The conservation values or biodiversity values are described in detail in Annexure B the Conservation Agreement. The TMDOCA is managed to restore and protect conservation values by management actions, monitoring and reporting. Baseline monitoring has shown that the TMD Onsite CA holds significant biodiversity values.

Cumberland Ecology undertook the annual monitoring event in November 2024. The annual event monitoring report provides an update of Conservation Values (Appendix A). The management actions below will continue to maintain and improve the conservation values.

Management

Table 5 provides details on the management actions undertaken during the calendar year at TMD Onsite CA addressing the reporting requirements defined in Annexure D, clause (c) of the CA.

Table 5 Thomas Mitchell Drive Onsite Conservation Area (Year 7 - 8) management actions

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Weed control across the Conservation Area (focusing on noxious and environmental weeds)	Coolitai grass is a recognised as a major threat to conservation values due to its ability to invade open areas within bushland. Control of Coolatai grass in areas mapped as exotic grassland in diagram B7 of the CA has been the focus of weed control in 2024. Areas invaded withing the powerline easements on the southern end of the CA and adjacent areas where Coolatai was present were also targeted. Both boom spraying and hand spraying techniques were used.	$ 24,000	Coolatai grass is likely to be an ongoing target in areas where spaying has occurred this year. St Johns Wort control successful following consistent control over several years. Outbreak densities continue to be significant but are sparse when compared to 2021 and 2022 seasons. Spot spraying of Prickly Pear occurred in January – February	Cumberland ecology and the 2024 BCT audit recommends no spraying of weeds within 200m of locations of the tiger donkey orchid locations. This recommendation needs to be reconsidered as the coolatai grass treat may dominate areas if control isn't undertaken. Spraying using non residual glyphosate within 50metres when the orchids are below ground during late autumn April to July may provide a solution.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	St Johns Wort and prickly Pear were also targets this year. The formal walk through assessment include in the annual monitoring report now includes a detailed weed map to assist with weed management. Most weeds identified are annual weeds located in open areas.		2024 and has reduced this weeds numbers.	Monitor and control of weeds as required. Use weed mapping as a tool to target priority weeds.
Improve the condition of the Conservation Area through revegetation activities	**Seed Collection** No Seeds collected onsite during 2024. campaign. Understory seed was used for a second round of direct seeding seeding in islands throughout the planted areas. **Planting** Tree maintenance and replacement dead seedlings was undertaken. Tree guards were removed from maturing trees. **Tree Thinning** Mulching of Bull Oak lock out regrowth undertaken in an area approximately 1	• Seed Storage $ 400 Tubestock, ground preparation, planting, tree guards and maintenance $ 20,000 $ 31,980	Seeds used direct seeding. Direct seeding results have been disappointing with minimal germination. Another round of direct seeding may be required in the coming years. CA planting plan completed in 2023.	Monitor and maintain plantings. Infill plant if required. Direct seed in the future. The BCT audit identified that a further round of canopy and understory tubestock would improve the conservation outcome especially at the northern end of the CA. Plantings are planned for winter 2025. Expand tree thinning if budget allows.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	ha leaving other native trees in place. This trail recommended by the BCT is to thin bull oak allowing for the reestablishment of box gum woodland		Tree thinning successful with the area opened and resembling box gum woodland.	
Pest animal monitoring and control (local co-ordination with Local Land Services and OEH)	Local Land Services risk assessments prevent baiting within 2 km of residential areas of Muswellbrook. Control of dogs, cats and foxes for this offset was undertaken by a regional baiting program on the mine site to the west of the TMD onsite CA and in the southern end of TMD onsite CA during June 2024. The baiting work is programmed to coordinate with the regional baiting program coordinated by the Local Land Service (LLS). Monitoring by cameras, observation and tracks and signs of animal.	Covered by larger regional programme at the adjacent mine and surrounding properties. $ 2,500	No records of animals removed in 2024.	Ongoing participation in regional LLS program. Continue monitoring using cameras, observations and scat identification. Implement control as required.
Construct and maintain fire breaks and implement fire management hazard reduction burns. **Operate with NSW Rural Fire Service or fire management contractor to implement mosaic or partial area hazard reduction burn.**	Slashing as described in the weeds section has reduced the fire hazard. No hazard reduction burns were undertaken during the reporting period. Strategic prescribed burn hazard reduction program developed with burning no planned for the next 2 years.	$ 25,000 slashing	Slashing used to reduce fire risk.	No changes proposed.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Fencing	2km of fauna friendly fencing was undertaken on the northern end of the offset along Thomas Mitchell Drive and Denman Road.	$ 20,000	N/A	No new fencing is proposed at this stage.
Annual Reports for Monitoring Program	Cumberland Ecology was engaged by Mt Arthur Coal to undertake ecological monitoring surveys at a total of 4 monitoring sites to address (iii) and (iv) of Annexure D, clause (c) of the CAs. Ecological monitoring surveys were undertaken November 2024. An event monitoring report (Attachment A) has been completed which includes photo monitoring, a discussion of changes recorded at monitoring points recommendations for each monitoring point. A walk through assessment was undertaken in November 2024 as part of the program as described in the CA Annexure D Table 3 Monitoring Data Sheet template. Recommendations are also included. Regeneration monitoring not required until 4 years after planting/revegetation has been undertaken (estimated commencement 2025)	$ 10,000	Reference point monitoring and walk through assessment completed and attached.	See report.
Threatened species, populations and endangered ecological communities (EEC)	The BCT audit report 2024 makes recommendations which should be followed improve the management of threatened species, populations and endangered communities.	Not applicable	Current program and BCT recommendations aim to improve conditions for threatened Species, populations and EEC's.	Implementation of BCT audit report recommendations.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Aboriginal places and Aboriginal objects	No risk to Aboriginal Places and Aboriginal Objects during the 12 month monitoring period.	Not applicable	Not applicable	No changes proposed.

Bull Oak Thinning.

Photo 1 A trial of Bull Oak thinning was undertaken in February 2024. The thinning is designed to open the area to allow box gum woodland to regenerate.

Saddlers Creek Conservation Area

Conservation Values

Management of the Saddlers Creek Conservation Area (SCCA) commenced in June 2017 with 2024 being year 7 - 8 of management activities. The conservation area is approximately 431.3 hectares. The conservation values or biodiversity values are described in detail in Annexure B the Conservation Agreement. The SCCA is managed to restore and protect conservation values by management actions, monitoring and reporting. Baseline monitoring has shown that the SCCA holds significant biodiversity values.

Cumberland Ecology undertook the annual monitoring event in November 2024. The annual event monitoring report provides an update of Conservation Values (Appendix A). The management actions below will continue to maintain and improve the conservation values.

Management

Table 6 provides details on the management actions undertaken during the calendar year at (SCCA) addressing the reporting requirements defined in Annexure D, clause (c) of the CA.

Table 6 Saddlers Creek Conservation Area (Year 7 - 8) Completed management actions

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Weed control across the Conservation Area (focusing on noxious and environmental weeds)	Weed control focused on spot spaying of Mother of Millions along Saddlers Creek and a campaign to control St John's Wort during November and December 2024. The formal walk through assessment included in the annual monitoring report now includes a detailed weed map to assist with weed management. Most weeds identified are annual weeds located in open areas.	$ 64,000	Weed control has been ongoing. This year saw outbreaks of St Johns Wort in areas where successful control had been previously successful. Other weeds noted in the annual monitoring report still require follow up control.	Prickly pear will be the focus for early 2025 and minimising the spread of Coolatai grass will also be a focus along with regular control of other weed species. Monitor and control of weeds as required. Use weed mapping as a tool to target priority weeds.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Improve the condition of the Conservation Area through revegetation activities	**Seed Collection** No Seeds collected onsite during 2024. Another round of understory seed was used for direct seeding in islands throughout the planted areas. **Planting** Tree maintenance and replacement dead seedlings was undertaken. Tree guards were removed from maturing trees.	Seed Storage $ 400 Maintenance and replacement plantings. $ 32,000	Large areas planted that will require monitoring, mortality replacement and understory species.	Monitor and maintain plantings. Infill plant if required.
Pest animal monitoring and control (local co-ordination with Local Land Services and OEH)	1080 baiting programs were undertaken in June and July for eradication of cats, foxes and dogs. The baiting work is programmed to fit in with the regional baiting program coordinated by the Local Land Service (LLS). A round of humane control of pigs, wild dogs, rabbits, foxes and cats was undertaken in late November and early December.	$ 10,500 spent on pig control and cat and fox trapping program	Human control of 18 Pigs, 2 foxes 30 rabbits and 1 wild. Pig and dog numbers lower than previous years	Continue with regional program and monitoring.
Construct and maintain fire breaks and implement fire management hazard reduction burns. **Operate with NSW Rural Fire Service or fire management contractor to implement mosaic or partial area hazard reduction burn.**	Boundaries, firebreaks, and access tracks slashed.	$ 56 000	Fire breaks have been maintained.	Continue to monitor the CA for bushfire risk. Maintain firebreaks and access for emergency control.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Fencing	No fencing undertaken in 2024	Not applicable	Fencing requirement from CA met with fencing program completed in 2023.	No changes proposed.
Annual Reports for Monitoring Program	Cumberland Ecology was engaged by Mt Arthur Coal to undertake ecological monitoring surveys at a total of 11 monitoring sites to address (iii) and (iv) of Annexure D, clause (c) of the CAs. Ecological monitoring surveys were undertaken in November 2024. An event monitoring report (Attachment A) has been completed which includes photo and data monitoring, a discussion of changes recorded at monitoring points recommendations for each monitoring point. A walk through assessment was undertaken in November 2024 as part of the program as described in the CA Annexure D Table 3 Monitoring Data Sheet template. Recommendations are also included.	$10,000	Reference point monitoring completed and attached. Walk through assessment completed in November 2024.	Implement recommendations from report.
Threatened species, populations and endangered ecological communities (EEC)	The BCT audit report 2024 makes recommendations which should be followed to improve the management of threatened species, populations and endangered communities.	Not applicable	Current program and BCT recommendations aim to improve conditions for threatened Species, populations and EEC's.	Implementation of BCT audit report recommendations.
Aboriginal places and Aboriginal objects	No risk to Aboriginal Places and Aboriginal Objects during the 12 month monitoring period.	Not applicable	Not applicable	No changes proposed.

Weed Control

Photo 1. St Johns Wort. Weed control has been ongoing. This year saw outbreaks of St Johns Wort in areas where successful control had been previously successful. Other weeds noted in the annual monitoring report still require follow up control

Mt Arthur Conservation Area

Conservation Values

Management of the Mt Arthur Conservation Area (MACA) commenced in May 2017 with 2024 being year 7 - 8 of management activities. The conservation area is approximately 101 hectares. The conservation values or biodiversity values are described in detail in Annexure B the Conservation Agreement. The MACA is managed to restore and protect conservation values by management actions, monitoring and reporting. Baseline monitoring has shown that the MACA holds significant biodiversity values.

Cumberland Ecology undertook the annual monitoring event in November 2024. The annual event monitoring report provides an update of Conservation Values (Appendix A). The management actions below will continue to maintain and improve the conservation values.

Management

Table 7 provides details on the management actions undertaken during the calendar year at the MACA addressing the reporting requirements defined in Annexure D, clause (c) of the CA.

Table 7 Mt Arthur Conservation Area (Year 7 - 8) management actions

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Weed control across the Conservation Area (focusing on noxious and environmental weeds)	The prevalence of weeds in the bushland areas is low. Most weeds occur in the small areas of open grasslands (approximately 4 hectares). Weed control in 2024 focused on the cleared areas for the control of boxthorn and prickly pear. The formal walk through assessment included in the annual monitoring report now includes a detailed weed map to assist with weed management. Most weeds identified are annual weeds located in open areas.	$10,000.00	Control of targeted weeds effective. Follow up control is required.	Focus on weed in open grasslands including Prickly Pear, Cotton Bush and Galenia. Monitor and control of weeds as required. Use weed mapping as a tool to target priority weeds.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Improve the condition of the Conservation Area through revegetation activities	**Seed Collection** No Seeds collected onsite during 2024. **Planting** 5 ha of hand direct seeding was undertaken in November 2022. The seeding consisted of eucalyptus overstorey and a mixture of understorey species. No seedlings noted during 2023 or 2024.	• Seed collection – $ Nil • Tubestock – $ Nil	No success with direct seeding.	Apply another round of direct seeding and add tubestock in areas outlined in the CA.
Pest animal monitoring and control (local co-ordination with Local Land Services and OEH)	Control of dogs, foxes and pigs for this offset was undertaken by a regional baiting program on the minesite and within the offset during June 2024. The baiting work is programmed to fit in with the regional baiting program coordinated by the Local Land Service (LLS). A second round of monitoring using was undertaken in December 2024	Covered by regional programme at the adjacent mine. Covered by regional programme at the adjacent mine. Approximately $2000 apportioned to this offset. $2000 on monitoring in December.	No records of animals removed in 2024. 1 dog identified in monitoring was controlled in adjacent Saddlers Creek offset in December.	Continue monitoring and implementation of regional program.
Construct and maintain fire breaks and implement fire management hazard reduction burns.	Terrain makes slashing of boundaries and fire breaks impossible. The offset relies on the surrounding mines bushfire management.	$ Nil	No fires reported.	No changes proposed.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Operate with NSW Rural Fire Service or fire management contractor to implement mosaic or partial area hazard reduction burn.	Strategic prescribed burn hazard reduction program developed.			
Fencing	No new fences in 2024. Approximately 955 metres of fauna friendly fences installed during 2020. Conservation signs placed on accessible boundaries where fencing is impractical in 2020.	$ Nil	Fencing program effective.	Fencing complete. No further fencing at this stage.
Annual Reports for Monitoring Program	Cumberland Ecology was engaged by Mt Arthur Coal to undertake ecological monitoring surveys at a total of 14 monitoring sites to address (iii) and (iv) of Annexure D, clause (c) of the CAs. Ecological monitoring surveys were undertaken November 2024. An event monitoring report (Attachment A) has been completed which includes photo and data monitoring, a discussion of changes recorded at monitoring points recommendations for each monitoring point. A walk through assessment was undertaken in November 2024 as part of the program as described in the CA Annexure D Table 3 Monitoring Data Sheet template. Recommendations are also included.	$10,000	Reference point monitoring completed and attached. Walk through assessment completed in December 2022 and attached	Continue monitoring and reporting.
Threatened species, populations and endangered ecological communities (EEC)	The BCT audit report 2024 makes recommendations which should be followed improve the management of	Not applicable	Current program and BCT recommendations aim to improve	Implementation of BCT audit report recommendations.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	threatened species, populations and endangered communities.		conditions for threatened Species, populations and EEC's.	
Aboriginal places and Aboriginal objects	No risk to Aboriginal Places and Aboriginal Objects during the 12 month monitoring period.	Not applicable	Not applicable	No changes proposed.

Feral Animal Control

Photo 1. This wild dog identified in monitoring was controlled in adjacent Saddlers Creek offset in December.

Thomas Mitchell Drive Offsite Conservation Area

Conservation Values

Management of the Thomas Mitchell Drive Offsite Conservation Area (TMD Offsite CA) commenced in December 2016 with 2024 being year 7 of management activities. The conservation area is approximately 492 hectares. The conservation values or biodiversity values are described in detail in Annexure B the Conservation Agreement. The TMD Offsite CA is managed to restore and protect conservation values by management actions, monitoring and reporting. Baseline monitoring has shown that the TMD Offsite CA holds significant biodiversity values.

Cumberland Ecology undertook the annual monitoring event in November 2024. The annual event monitoring report provides an update of Conservation Values (Appendix A). The management actions below will continue to maintain and improve the conservation values.

Management

Table 38 provides details on the management actions undertaken during the calendar year at TMD Offsite CA addressing the reporting requirements defined in Annexure D, clause (c) of the CA.

Table 8 Thomas Mitchell Drive Offsite Conservation Area (Year 7) management actions

Management action	Description	Approximate Spend	Effectiveness	Recommendations
Weed control across the Conservation Area (focusing on noxious and environmental weeds)	Prickly pear was controlled across the offset in January. St Johns Wort was controlled during November and December. A 20 Hectare square area mapped in the CA as exotic grassland and planned for planting was sprayed twice with roundup to remove the exotic grasses. About 10 Hectares of the area was direct seeded with eucalypts and acacia species in August.	$ 43,000.	Targeted weeds controlled however follow up control is required. No germination from direct seeding occurred.	Ongoing monitoring and weed control across CA required. Monitor and control of weeds as required. Use weed mapping as a tool to target priority weeds.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	The formal walk through assessment included in the annual monitoring report now includes a detailed weed map to assist with weed management. Most weeds identified are annual weeds located in open areas.			
Improve the condition of the Conservation Area through revegetation activities	**Seed Collection** No Seeds collected onsite during 2024. **Planting** Replacement trees were planted during tree maintenance and straitening of tree guards in 2024.	Seed Storage $ 400 Tube stock and maintenance $ 61,000	Survival monitoring of plantings is above 50% target.	Much of the remaining areas (50 ha approx.) of the year 5 to 10 areas shown in Annexure B Diagram 5 of the CA are showing signs of natural regeneration and the need for planting will be assessed in 2025. Monitoring and maintenance of plantings to continue.
Pest animal monitoring and control (local co-ordination with Local Land Services and OEH)	Feral animal monitoring continued. No significant numbers of feral animals noted.	• $ 7,000	Humane control of 2 wild dogs, 15 rabbits, 1 fox and 1 cat.	Continue monitoring using observations and scat identification. Implement control as required. Rotational trail camera programme being continued to look at all pest species throughout the area
Construct and maintain fire breaks and implement fire management hazard reduction burns. **Operate with NSW Rural Fire Service or fire**	Boundaries slashed to maintain firebreaks.	• $ 36,000	Boundaries required slashing to maintain firebreaks. Burning programme identified in CA agreement completed in 2021.	No further burns proposed.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
management contractor to implement mosaic or partial area hazard reduction burn.				
Fencing	Over 8.4 km of fauna friendly boundary fencing installed	$85, 000	Fencing program effective.	No Fencing is planned for 2025.
Annual Reports for Monitoring Program	Cumberland Ecology was engaged by Mt Arthur Coal to undertake ecological monitoring surveys at a total of 6 monitoring sites to address (iii) and (iv) of Annexure D, clause (c) of the CAs. Ecological monitoring surveys were undertaken November 2024. An event monitoring report (Attachment A) has been completed which includes photo and data monitoring, a discussion of changes recorded at monitoring points recommendations for each monitoring point. A walk through assessment was undertaken in November 2024 as part of the program as described in the CA Annexure D Table 3 Monitoring Data Sheet template. Recommendations are also included.	$10,0000	Reference point monitoring completed and attached. Walk through assessment completed in November 2024 also attached. Monitoring report includes monitoring on one planting location.	Continue monitoring and reporting.
Threatened species, populations and endangered ecological communities (EEC)	The BCT audit report 2024 makes recommendations which should be followed improve the management of threatened species, populations and endangered communities.	Not applicable	Current program and BCT recommendations aim to improve conditions for threatened Species, populations and EEC's.	Implementation of BCT audit report recommendations.
Aboriginal places and Aboriginal objects	No risk to Aboriginal Places and Aboriginal Objects during the 12 month monitoring period. Due diligence surveys	Not Applicable	No impact recorded.	No changes proposed.

Management action	Description	Approximate Spend	Effectiveness	Recommendations
	prior to and following hazard reduction burns to assess protection of artifacts.			

Fencing,

Photo 1 – Over 8.4 km of fauna friendly boundary fencing installed

Appendix 1
Ecological Monitoring Surveys

18 December 2024

Mark Nolan
Approvals Principal
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Muswellbrook NSW 2333

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Mt Arthur Conservation Agreement Monitoring

Dear Mark,

Cumberland Ecology was engaged by Mount Arthur Coal to undertake ecological monitoring surveys at a total of 43 monitoring sites within six conservation areas to meet monitoring requirements identified in the Conservation Agreement (CA) for each conservation area. Ecological monitoring surveys were undertaken within all six conservation areas in October - November 2024.

The purpose of this letter is to present the findings of the monitoring surveys of the six conservation areas undertaken in 2024, in accordance with Annexure D of each conservation area's CA.

The results of the monitoring surveys for each conservation area are provided in the following appendices:

- **Appendix A** - Roxburgh Road Offset Conservation Area;
- **Appendix B** - Saddlers Creek Offset Conservation Area;
- **Appendix C** - Mount Arthur Offset Conservation Area;
- **Appendix D** - Thomas Mitchell Drive On-site Offset Conservation Area;
- **Appendix E** - Thomas Mitchell Drive Off-site Offset Conservation Area; and
- **Appendix F** – Middle Deep Creek and Oakvale Offset Conservation Area.

Supporting figures for each conservation area are provided at the end of this letter.

If you have any questions or require further information, please don't hesitate to contact me in our Sydney office on (02) 9868 1933.

Yours sincerely,

Mikael Peck
Principal Ecologist
mikael.peck@slrconsulting.com

APPENDIX A :

Roxburgh Road Offset Conservation Area

A.1. Description and Monitoring Photographs

A.1.1. RX1: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site RX1 is located in an area of Plant Community Type (PCT) 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter, and is dominated by a canopy of *Eucalyptus crebra* (Narrow-leaved Ironbark) and a native shrub layer of *Notelaea microcarpa* (Native Olive), *Acacia paradoxa* (Kangaroo Thorn), *Solanum cinereum* (Narrawa Burr), *Bursaria spinosa* (Native Blackthorn) and *Maireana microphylla* (Small-leaf Bluebush). Native groundcovers included *Rytidosperma fulvum* (Wallaby Grass), *Anthosachne scabra* (Wheatgrass), *Austrostipa scabra* (Speargrass), *Chloris ventricosa* (Tall Chloris) and *Cymbopogon refractus* (Barbed Wire Grass). The total number of native species recorded at RX1 was 57, with an estimated cover of 127% (greater than 100% as it includes ground, shrub and canopy layers). Weed coverage is very low and includes scattered *Senecio madagascariensis* (Fireweed) and *Lycium ferocissimum* (African Boxthorn). The total number of exotic species recorded at RX1 was 11, with an estimated cover of 2%.

North

East

South

West

A.1.2. RX2: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site RX2 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter in derived native grassland (DNG) form. It contains no canopy or shrub layer. Native groundcovers include *Lomandra filiformis* subsp. *filiformis*, *Aristida ramosa* (Purple Wiregrass), *Chloris ventricosa* (Tall Chloris), *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichelachne micrantha* (Shorthair Plumegrass) and *Sporobulus creber* (Slender Rat's Tail Grass). The total number of native species recorded at RX2 was 42, with an estimated cover of 109%.

Weed coverage is low to moderate, with *Verbena bonariensis* (Purpletop) and *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) being the most prevalent. The total number of exotic species recorded at RX2 was 28, with an estimated cover of 31%.

North

East

South

West

A.2. Comparison to Benchmark Values and Previous Years' Data

Table 1 Roxburgh: Comparison between 2019, 2020, 2022 and 2024 data, and benchmark values

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
RX1 (19)	3	5	8	12	1	1	41.2	0.6	65.3	2.2	0.1	0.1	50	0	4.5	70
RX1 (20)	3	4	9	12	1	3	41.1	0.5	32.3	1.5	0.1	0.3	50	0	8.5	69
RX1 (22)	3	5	14	22	2	1	41.2	7.9	110	5.5	0.3	0.1	50	0	5.3	40
RX1 (24)	**5**	**6**	**11**	**30**	**1**	**4**	**43.8**	**17.1**	**55.5**	**9.7**	**0.1**	**0.6**	**50**	**0**	**10.5**	**48**
RX2 (19)	0	2	6	5	1	2	0	1.2	91.2	0.6	0.1	0.2	50	0	0	63
RX2 (20)	0	2	10	10	1	1	0	0.3	43.0	2.2	0.1	0.1	50	0	0	51
RX2 (22)	0	0	7	5	1	1	0	0	77.1	0.9	0.1	0.1	50	0	0	67
RX2 (24)	**1**	**2**	**15**	**19**	**1**	**4**	**0.5**	**1.0**	**99.9**	**6.9**	**0.2**	**0.4**	**50**	**0**	**0**	**15**

A.3. Discussion of Changes at Monitoring Points

The following PCT was assessed within the Roxburgh Road Offset Conservation Area:

- PCT 1691: 2 monitoring sites (RX1 and RX2).

PCT 1691 is assessed at one monitoring site in woodland and one monitoring site in grassland. For the woodland site (RX1), the biometric data is at or above benchmark values for tree/forb richness and shrub/forb/litter cover. In comparison to previous years' monitoring, there has been a steady increase in forb/shrub cover.

For the grassland site (RX2), the biometric data is at or above benchmark values for grass and grasslike/forb richness and grass and grasslike cover. In comparison to previous years' monitoring, there was a significant increase in grass and grasslike/forb richness as well as the presence of regenerating canopy recorded for the first time, but a decrease in leaf litter. An ecological burn of the area was conducted in the previous year, which appears to have resulted in the presence of regenerating canopy species within previous treeless areas.

A.4. Walk-through Assessment

Opportunistic observations made while walking/driving through the conservation area are identified in **Figure 1** and **Table 2** below.

Table 2 Opportunistic observations

Figure Label	Observation Type	Species/Notes
2	Weed Infestation	*Verbena bonariensis, Carthamus lanatus, Hypericum perforatum* and *Gomphocarpus fruticosus*
8	Weed Infestation	*Verbena bonariensis*
10	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
11	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
26	Weed Infestation	*Carthamus lanatus* and *Gomphocarpus fruticosus*
37	Weed Infestation	*Lycium ferocissimum*
43	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
56	Weed Infestation	*Verbena bonariensis*
63	Weed Infestation	*Verbena bonariensis*
66	Weed Infestation	*Verbena bonariensis*
68	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
77	Weed Infestation	*Verbena bonariensis*
82	Weed Infestation	*Verbena bonariensis* and *Gomphocarpus fruticosus*
85	Weed Infestation	*Verbena bonariensis*
86	Weed Infestation	*Verbena bonariensis*

Figure Label	Observation Type	Species/Notes
89	Weed Infestation	*Hyparrhenia hirta*
99	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
100	Weed Infestation	*Carthamus lanatus, Sida rhombifolia, Verbena bonariensis, Gomphocarpus fruticosus* and *Galenia pubescens*
101	Weed Infestation	*Verbena bonariensis*
103	Weed Infestation	*Verbena bonariensis*
109	Weed Infestation	*Verbena bonariensis*
116	Weed Infestation	*Verbena bonariensis, Carthamus lanatus* and *Lycium ferocissimum*
119	Weed Infestation	*Verbena bonariensis*
122	Weed Infestation	*Carthamus lanatus*
129	Weed Infestation	*Verbena bonariensis*
130	Weed Infestation	*Verbena bonariensis*
136	Weed Infestation	*Verbena bonariensis*
139	Weed Infestation	*Verbena bonariensis*
142	Weed Infestation	*Verbena bonariensis*
143	Weed Infestation	*Verbena bonariensis*
149	Weed Infestation	*Verbena bonariensis and Carthamus lanatus*
156	Weed Infestation	*Verbena bonariensis*
159	Weed Infestation	*Verbena bonariensis, Carthamus lanatus* and *Lycium ferocissimum*
166	Weed Infestation	*Verbena bonariensis*
171	Weed Infestation	*Verbena bonariensis*
176	Weed Infestation	*Lycium ferocissimum* and *Galenia pubescens*
182	Weed Infestation	*Verbena bonariensis*
185	Canopy Regeneration	*Eucalyptus crebra*
188	Weed Infestation	*Carthamus lanatus*
190	Weed Infestation	*Carthamus lanatus, Verbena bonariensis* and *Gomphocarpus fruticosus*
193	Weed Infestation	*Verbena bonariensis* and *Gomphocarpus fruticosus*
195	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
197	Weed Infestation	*Carthamus lanatus, Verbena bonariensis* and *Gomphocarpus fruticosus*
201	Weed Infestation	*Verbena bonariensis*
214	Weed Infestation	*Verbena bonariensis*
215	Weed Infestation	*Verbena bonariensis* and *Carthamus lanatus*
221	Weed Infestation	*Carthamus lanatus, Verbena bonariensis* and *Gomphocarpus fruticosus*

Figure Label	Observation Type	Species/Notes
-	European Bee Nest	-

A.5. Discussion and Recommendations

A.5.1. Discussion of Conservation Values

Overall, the Roxburgh Road Offset Conservation Area is considered to be in moderate to good condition. Opportunistic observations made while walking/driving through the conservation area identified the following (refer to **Figure 1** and **Table 2**):

- Easily accessible access tracks;
- One European Bee nest;
- No signs of rubbish dumping;
- Natural regeneration of canopy species within areas previously burned; and
- Substantial weed infestations of *Verbena bonariensis* (Purpletop), *Carthamus lanatus* (Saffron Thistle), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush), *Hyparrhenia hirta* (Coolatai Grass), *Lycium ferossimum* (Boxthorn), *Galenia pubescens* (Galenia) and *Sida rhombifolia* (Cobbler's Pegs) within open areas.

A.5.2. Recommendations

Recommendations include continued weed management targeting any high threat exotics (e.g. *Carthamus lanatus, Lycium ferocissimum, Hyparrhenia hirta*) as a priority, as well as all other management actions identified in the CA. Although large infestations of weeds not classified as high threat exotics were observed, targeted control of these species is not considered to be economical or that beneficial as a result of the likely high soil seed bank of these species already present. Therefore, it is recommended that the best way to reduce coverage of these species in the long-term is to undertake additional plantings of appropriate canopy species (i.e. plant the same species as nearby woodland) in open-grassland areas as the prevalence of these weeds observed within wooded areas was very low (i.e. conditions under canopy trees is not conducive for the substantial growth of the weed species observed in the conservation area). Any plantings should be made within open areas that do not contain large amounts of natural regeneration.

Prior to undertaking any slashing works, any naturally regenerating or planted eucalypts should be clearly demarcated to ensure that individuals aren't accidentally removed during the slashing works. Further to this, slashing works should be undertaken prior to the flowering of the most problematic weeds (e.g. *Carthamus lanatus*), to ensure they do not set seed.

Any tree plantings made within open areas should be protected with tree guards and the surrounding exotic vegetation routinely targeted through spot-spraying to increase plantings' chances of survival (i.e. reduce competition from surrounding environmental weeds).

A.6. Datasheets

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	RX1	Date	7/11/24
Vegetation Community			
1. Site Photo(s)Taken	6297 - 6300.		
2. Floristic BioMetric attributes			
Native cover	126.4		
Overstorey:	28.8		
Midstorey:	15%		
Groundcover(grass):	55.5		
Groundcover (shrub):	17.1		
Groundcover (other):	10		
Native species richness:	55		
Proportion of canopy species regenerating	100		
Exotic cover	1.4		
Number of trees with hollows	0		
Total length of fallen logs	10.5		

3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	~	~	~
Threatened species sightings	~	~	~
Fire event/fuel	~	~	Moderate
Weeds	~	~	~ No infestations
Pest animals	~	~	~
Visitor impact/vehicles	~	~	~
Rubbish dumping	~	~	~

Initials DRS

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	Rx 2	**Date**	7/11/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6287-6290		
2. Floristic BioMetric attributes			

Native cover	105.9
Overstorey:	0%
Midstorey:	0%
Groundcover(grass):	99.9
Groundcover (shrub):	1.0
Groundcover (other):	4.5
Native species richness:	41
Proportion of canopy species regenerating	100
Exotic cover	30.9
Number of trees with hollows	0
Total length of fallen logs	0

3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	surrounds of plot	6291	Some regeneration around existing woodland
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Low - grassland
Weeds	open area around plot	see next photos	Verbena bonariensis, Carthamus lanatus - saffron thistle + Gomphocarpus fruticosus.
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

APPENDIX B :
Saddlers Creek Offset Conservation Area

B.1. Description and Monitoring Photographs

B.1.1. SC1: PCT 116 Weeping Myall – Coobah – Scrub Wilga shrubland of the Hunter Valley

Monitoring site SC1 is located an area of PCT 116 Weeping Myall – Coobah – Scrub Wilga shrubland of the Hunter Valley, and is dominated by a canopy of *Acacia pendula* (Weeping Myall), and a shrub layer of *Maireana microphylla* (Small-leaf Bluebush), *Atriplex semibaccata* (Creeping Saltbush) and *Sclerolaena muricata* var. *villosa* (Black Rolypoly). Native groundcovers included *Austrostipa verticillata* (Slender Bamboo Grass), *Aristida ramose* (Purple Wiregrass), *Carex inversa* (Knob Sedge) and *Cymbopogon refractus* (Barbed Wire Grass). The total number of native species recorded at SC1 was 22, with an estimated cover of 57%.

Weed cover is very high with the ground layer dominated by *Galenia pubescens* (Galenia), *Bromus catharticus* (Prairie Grass) and *Solanum nigrum* (Black-berry Nightshade). The total number of exotic species recorded at SC1 was 24, with an estimated cover of 58%.

North

East

South

West

B.1.2. SC2: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site SC2 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey box grassy woodland of the central and upper Hunter in DNG form. Native species present include *Aristida ramosa* (Purple Wiregrass), *Dichanthium sericeum* (Queensland Bluegrass), *Microlaena stipoides var. stipoides* (Weeping Grass) and *Panicum effusum* (Hairy Panic) and *Cymbopogon refractus* (Barbed Wire Grass). The total number of native species recorded at SC2 was 31, with an estimated cover of 76%.

Weed cover is high and includes *Hypericum perforatum* (St. John's Wort) and *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush). The total number of exotic species recorded at SC2 was 26, with an estimated cover of 52%.

North

East

South

West

B.1.3. SC3: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site SC3 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey box grassy woodland of the central and upper Hunter, and is dominated by a canopy of *Eucalyptus albens* x *moluccana*, and a shrub layer of *Bursaria spinosa* (Native Blackthorn), *Acacia falcata*, *Dodonaea viscosa subsp. angustifolia*, *Myoporum montanum* (Western Boobialla) and *Maireana microphylla* (Small-leaf Bluebush). Native groundcovers include *Aristida ramosa* (Purple Wiregrass), *Microlaena stipoides var. stipoides* (Weeping Grass), *Cymbopogon refractus* (Barbed Wire Grass), *Austrostipa scabra* (Speargrass) and *Eragrostis leptostachya* (Paddock Lovegrass). The total number of native species recorded at SC3 was 61, with an estimated cover of 139%.

Weed cover is very low with *Chloris gayana* (Rhodes grass), *Bryophyllum delagoense* (Mother-of-millions) and *Lycium ferocissimum* (African Boxthorn) occurring as small, scattered patches throughout. The total number of exotic species recorded at SC3 was 18, with an estimated cover of 13%.

North

East

South

West

B.1.4. SC4: PCT 1692 Bull Oak grassy woodland of the central Hunter Valley

Monitoring site SC4 is located in an area of PCT 1692 Bull Oak grassy woodland of the central Hunter Valley, and is dominated by a canopy of *Allocasuarina luehmannii* (Bulloak), and a shrub layer of *Eremophila debilis* (Amulla) and *Maireana microphylla* (Small-leaf Bluebush). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Chloris ventricosa* (Tall Chloris), *Cyperus gracilis* (Slender Flat-sedge), *Aristida ramosa* (Purple Wiregrass) and *Austrostipa scabra* (Speargrass). The total number of native species recorded at SC4 was 29, with an estimated cover of 79%.

Weed cover is moderate with scattered occurrences of *Bryophyllum delagoense* (Mother-of-millions), *Opuntia stricta* (Common Prickly Pear) and *Senecio madagascariensis* (Fireweed) recorded. The total number of exotic species recorded at SC4 was 6, with an estimated cover of 41%.

North

East

South

West

B.1.5. SC5: PCT 1692 Bull Oak grassy woodland of the central Hunter Valley

Monitoring site SC5 is located in area of PCT 1692 Bull Oak grassy woodland of the central Hunter Valley in DNG form. It contains no canopy species. Native shrubs include *Eremophila debilis* (Amulla), *Dodonaea viscosa* subsp. *angustifolia*, *Maireana microphylla* (Small-leaf Bluebush) and *Solanum cinereum* (Narrawa Burr). Native groundcovers include *Aristida ramosa* (Purple Wiregrass), *Chloris ventricosa* (Tall Chloris), *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichanthium sericeum* (Quennsland Bluegrass) and *Anthosachne scabra* (Wheatgrass). The total number of native species recorded at SC5 was 45, with an estimated cover of 117%.

Weed cover is moderate and includes *Hyparrhenia hirta* (Coolatai Grass), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush), *Hypericum perforatum* (St. Johns Wort) and *Cirsium vulgare* (Spear Thistle). The total number of exotic species recorded at SC5 was 18, with an estimated cover of 32%.

North

East

South

West

B.1.6. SC6: PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley

Monitoring site SC6 is located in an area of PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley, and is dominated by a canopy of *Casuarina glauca* (Swamp Oak), and a shrub layer of *Acacia salicina* (Cooba) and *Eremophila debilis* (Amulla). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Austrostipa verticillata* (Slender Bamboo Grass), *Einadia trigonos* (Fishweed), *Cayratia clematidea* (Native Grape), *Glycine tabacina* (Variable Glycine) and *Oxalis perennans*. The total number of native species recorded at SC6 was 15, with an estimated cover of 99%.

Weed cover is high and includes *Bromus catharticus* (Prairie Grass), *Galenia pubescens* (Galenia) and *Galium aparine* (Goosegrass), with scattered patches of *Lycium ferocissimum* (African Boxthorn). The total number of exotic species recorded at SC6 was 20, with an estimated cover of 47%.

North

East

South

West

B.1.7. SC7: PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley

Monitoring site SC7 is located in an area of PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley, and is dominated by a canopy of *Casuarina glauca* (Swamp Oak). Native shrubs present include *Teucrium junceum*, and native groundcovers include *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Schoenoplectus mucronatus*, *Austrostipa verticillata* (Slender Bamboo Grass), *Plectranthus parviflorus* and *Einadia trigonos* (Fishweed). The total number of native species recorded at SC7 was 31, with an estimated cover of 166%.

Weed cover is moderate includes *Bromus catharticus* (Prairie Grass), *Solanum nigrum* (Black-berry Nightshade) and *Sida rhombifolia* (Paddy's Lucerne) infestations. The total number of exotic species recorded at SC7 was 28, with an estimated cover of 29%.

North

East

South

West

B.1.8. SC8: PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Monitoring site SC8 is located in an area of PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley in DNG form. No canopy or shrub layer is present. Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Sporobolus creber* (Slender Rat's Tail Grass), *Cymbopogon refractus* (Barbed Wire Grass) and *Bothriochloa decipiens* var. *decipiens* (Pitted Bluegrass). The total number of native species recorded at SC8 was 25, with an estimated cover of 69%.

Weed cover is very high and includes *Paspalum dilatatum* (Paspalum), *Bromus mollis* (Soft Brome) and *Hyparrhenia hirta* (Coolatai Grass). The total number of exotic species recorded at SC8 was 31, with an estimated cover of 85%.

North

East

South

West

B.1.9. SC9: PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Monitoring site SC9 is located in an area of PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley, and is dominated by a canopy of *Eucalyptus albens* x *moluccana*, *Eucalyptus blakelyi* (Blakely's Red Gum) and scattered *Allocasuarina luehmannii* (Bulloak). Native shrubs include *Bursaria spinosa* (Native Blackthorn) and *Solanum cinereum* (Narrawa Burr). Native groundcovers include *Themeda triandra* (Kangaroo Grass), *Sorghum leiocladum* (Wild Sorghum), *Chloris ventricosa* (Tall Chloris) and *Aristida ramosa* (Purple Wiregrass). The total number of native species recorded at SC9 was 57, with an estimated cover of 142%.

Weed cover is very low and includes scattered occurrences of *Pavonia hastata, Cirsium vulgare* (Spear Thistle) and *Senecio madagascariensis* (Fireweed). The total number of exotic species recorded at SC9 was 14, with an estimated cover of 2%.

North

East

South

West

B.1.10. SC10: PCT 1737 Typha rushland

Monitoring site SC10 is located an area of PCT 1737 Typha rushland, and is dominated by *Juncus acutus* (Sharp Rush), but also includes the natives *Phragmites australis* (Common Reed), *Aristida ramosa* (Purple Wire Grass), *Dichelachne micrantha* (Shorthair Plumegrass), *Cynodon dactylon* (Couch) and *Sporobolus creber* (Slender Rat's Tail Grass). The total number of native species recorded at SC10 was 21, with an estimated cover of 90%.

Weed cover is high and includes *Juncus acutus* (Sharp Rush) dominating the creek line, as well as *Paspalum dilatatum* (Paspalum) and *Cirsium vulgare* (Spear Thistle). The total number of exotic species recorded at SC10 was 18, with an estimated cover of 51%.

North

East

South

West

B.1.11. SC11: PCT 1737 Typha rushland

Monitoring site SC11 is located in an area of PCT 1737 Typha rushland, and is dominated by *Juncus acutus* (Sharp Rush) within the creek line itself, but includes a high cover of natives further upslope including *Cynodon dactylon* (Common Couch) and *Schoenoplectus mucronatus* and *Microlaena stipoides var. stipoides* (Weeping Grass). The total number of native species recorded at SC11 was 8, with an estimated cover of 80%.

Weed cover is moderate and includes *Juncus acutus* (Sharp Rush) dominating the creek line. Other weeds present include *Paspalum dilatatum* (Paspalum), *Bromus mollis* (Soft Brome) and *Cirsium vulgare* (Spear Thistle). The total number of exotic species recorded at SC11 was 22, with an estimated cover of 24%.

North

East

South

West

B.2. Comparison to Benchmark Values and Previous Years' Data

Table 3 Saddlers Creek: Comparison between 2019, 2020, 2022 and 2024 data, and benchmark values

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
116 Weeping Myall - Coobah - Scrub Wilga shrubland of the Hunter Valley																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
SC1 (19)	1	3	6	7	0	1	15	10.3	37.1	1.1	0	0.1	50	0	19.5	33.4
SC1 (20)	1	5	11	7	0	1	20.0	4.5	83.4	0.9	0	0.1	50	0	16	40
SC1 (22)	1	3	13	2	0	1	15	1.8	52.1	0.3	0	0.1	50	0	19	14
SC1 (24)	**1**	**6**	**7**	**6**	**0**	**2**	**20.0**	**13.2**	**20.2**	**3.6**	**0.0**	**0.3**	**50**	**0**	**33.5**	**17**
1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
SC2 (19)	0	2	4	12	0	3	0	0.3	66.1	3.6	0	0.3	50	0	0	34
SC2 (20)	0	2	6	18	1	2	0	0.2	74.0	2.9	0.1	0.2	50	0	0	41
SC2 (22)	0	1	15	7	1	1	0.0	0.2	85.1	3.4	0.1	0.1	50	0	0	14
SC2 (24)	**0**	**2**	**10**	**16**	**0**	**3**	**0.0**	**0.4**	**72.2**	**3.0**	**0.0**	**0.3**	**50**	**0**	**0**	**7**
SC3 (19)	3	3	10	8	1	1	20.45	0.8	39	0.9	0.1	0.1	50	0	0.5	83
SC3 (20)	2	7	15	25	2	4	30.3	1.8	72.1	4.0	0.2	0.4	50	1	8	78

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
SC3 (22)	4	10	15	26	1	3	20.7	3.1	98.9	3.8	0.1	0.4	50	0	16.5	62
SC3 (24)	**4**	**10**	**18**	**21**	**2**	**6**	**34.1**	**3.7**	**95.4**	**5.1**	**0.2**	**0.8**	**50**	**1**	**16.5**	**74**
1692 Bull Oak grassy woodland of the central Hunter Valley																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
SC4 (19)	2	4	7	4	0	1	45.25	0.4	2.5	0.4	0	0.1	50	0	11	86
SC4 (20)	1	4	9	17	2	3	40.0	1.0	6.8	2.7	0.2	0.3	50	0	11	90
SC4 (22)	2	3	8	13	2	2	65.5	0.9	5.2	1.4	0.2	0.2	50	0	16	79
SC4 (24)	**2**	**2**	**10**	**12**	**1**	**2**	**65.5**	**1.5**	**9.7**	**1.7**	**0.1**	**0.2**	**50**	**0**	**23**	**68**
SC5 (19)	1	3	8	10	2	3	0.5	0.45	86.4	1.2	0.2	0.3	50	0	0	46
SC5 (20)	1	2	12	17	2	3	1.0	0.3	94.2	3.3	0.2	0.3	50	0	0	50
SC5 (22)	0	2	13	16	1	2	0.0	0.3	108.4	2.8	0.2	0.3	50	0	0	16
SC5 (25)	**0**	**4**	**15**	**22**	**1**	**3**	**0.0**	**1.8**	**106.7**	**7.9**	**0.3**	**0.4**	**50**	**0**	**0**	**19**
1731 Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley																
Bench-mark values	**4**	**9**	**7**	**6**	**2**	**5**	**27**	**19**	**51**	**3**	**2**	**3**	**50**	**5**	**44**	**44**
SC6 (19)	4	4	5	4	0	1	32.65	0.6	11.35	10.45	0	0.1	50	0	11.5	71
SC6 (20)	4	3	4	10	0	1	32.8	0.8	41.3	7.7	0	0.2	50	0	12.5	73
SC6 (22)	3	0	3	2	0	3	21	0	40.1	0.4	0	0.5	50	0	24	10

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
SC6 (24)	**4**	**1**	**2**	**6**	**0**	**2**	**32.8**	**0.2**	**65.0**	**1.0**	**0.0**	**0.4**	**50**	**0**	**24.5**	**14**
SC7 (19)	3	5	8	9	0	2	60.1	1.7	12	32.8	0	0.3	50	0	9.5	82
SC7 (20)	3	4	8	15	0	5	65.5	1.5	41.9	10.2	0	0.7	50	0	9.5	82
SC7 (22)	1	0	6	9	2	3	50	0	65.6	16.2	0.3	0.4	50	0	9.5	38
SC7 (24)	**2**	**1**	**8**	**14**	**2**	**4**	**60.5**	**1.0**	**91.8**	**11.4**	**0.3**	**1.4**	**50**	**0**	**12**	**23**
42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley																
Bench-mark values	**4**	**9**	**9**	**10**	**3**	**4**	**38**	**10**	**35**	**6**	**1**	**1**	**50**	**4**	**36**	**24**
SC8 (19)	0	1	11	7	1	2	0	0.1	78.6	0.7	0.1	0.2	50	0	0	46
SC8 (20)	0	0	12	12	1	2	0	0.0	73.1	1.6	0.1	0.2	50	0	0	56
SC8 (22)	0	0	15	3	1	0	0	0	13	0.8	0.1	0	50	0	0	52
SC8 (24)	**0**	**0**	**14**	**9**	**1**	**1**	**0.0**	**0.0**	**67.7**	**1.0**	**0.1**	**0.1**	**50**	**0**	**0**	**25**
SC9 (19)	4	2	11	13	0	4	35.75	1.1	83.3	1.8	0	0.5	50	2	16	85
SC9 (20)	4	5	14	28	2	5	42.5	4.7	83.0	3.2	0.2	0.6	50	2	16	84
SC9 (22)	5	5	18	28	1	3	41.1	1.9	82.5	3.6	0.1	0.3	50	2	16.8	58
SC9 (24)	**5**	**4**	**18**	**24**	**0**	**6**	**41.0**	**1.5**	**95.8**	**3.2**	**0.0**	**0.7**	**50**	**2**	**16**	**66**
1737 Typha rushland																
Bench-mark values	**1**	**2**	**4**	**4**	**1**	**1**	**0**	**0**	**102**	**2**	**0**	**0**	**30**	**2**	**60**	**25**

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
SC10 (19)	0	1	9	5	1	2	0	0.5	51.9	0.65	0.1	0.2	30	0	0	11.4
SC10 (20)	0	1	14	7	0	3	0	0.1	66.3	0.7	0	0.3	30	0	0	11
SC10 (22)	0	1	13	3	0	2	0	0.3	69.4	0.3	0	0.2	30	0	0	3.4
SC10 (24)	**0**	**1**	**12**	**6**	**0**	**2**	**0.0**	**2.0**	**86.4**	**0.9**	**0.0**	**0.2**	**50**	**0**	**0**	**8**
SC11 (19)	0	0	1	3	0	0	0	0	40	1.2	0	0	30	0	0	8
SC11 (20)	0	0	6	4	0	0	0	0	43.5	0.4	0	0	30	0	0	9
SC11 (22)	0	0	6	1	0	1	0	0	15.1	0.1	0	0.1	30	0	0	2
SC11 (24)	**0**	**0**	**6**	**2**	**0**	**0**	**0.0**	**0.0**	**77.7**	**2.1**	**0.0**	**0.0**	**50**	**0**	**0**	**8**

B.3. Discussion of Changes at Monitoring Points

The following PCTs were assessed within the Saddlers Creek Offset Conservation Area:

- PCT 116: 1 monitoring site (SC1);
- PCT 1691: 2 monitoring sites (SC2 and SC3);
- PCT 1692: 2 monitoring sites (SC4 and SC5);
- PCT 1731: 2 monitoring sites (SC6 and SC7);
- PCT 42: 2 monitoring sites (SC8 and SC9); and
- PCT 1737: 2 monitoring sites (SC10 and SC11).

PCT 116 is assessed at one monitoring site (SC1) in shrubland. For this site, the biometric data is below benchmark for all values. In comparison to the previous years' monitoring, there was an increase in shrub/forb/other richness and cover, but a decline in grass and grass-like species richness and cover.

PCT 1691 is assessed at one monitoring site in grassland (SC2) and one in woodland (SC3). For the grassland site, the biometric data is at or above benchmark values for forb richness, and grass and grass like species cover. In comparison to previous years' monitoring, there was an increase in shrub cover, while all other attributes were relatively similar. For the woodland site, the biometric data is at or above benchmark for all richness values, as well as grass and grass like species cover and litter cover. In comparison to previous years' monitoring, there was an increase in richness for grass and grass like species, fern and other, as well as covers for trees, shrubs, forbs, ferns and others. All other attributes were relatively similar..

PCT 1692 is assessed at one monitoring site in woodland (SC4) and one in grassland (SC5). For the woodland site, the biometric data is at or above benchmark values for tree cover and litter cover. In comparison to the previous year's monitoring, all attributes were relatively similar. For the grassland site, the biometric data is at or above benchmark for grass and grass like/forb richness and grass and grass like cover. In comparison to the previous year's monitoring, all attributes are relatively similar.

PCT 1731 is assessed at two monitoring sites (SC6 and SC7), both of which are in riparian forest. For SC6, the biometric data is at or above benchmark for tree richness/cover, and grass and grass like cover. In comparison to the previous years' monitoring, all attributes were relatively similar. For SC7, the biometric data is at or above benchmark values for forb/fern richness, and tree/grass and grass like/forb cover. In comparison to previous years' monitoring, there was a significant increase in grass and grass like cover, while all other attributes were relatively similar.

PCT 42 is assessed at one monitoring site in grassland (SC8), and one in woodland (SC9). For the grassland site, the biometric data is at or above benchmark values for grass and grass like richness/cover and litter cover. In comparison to the previous years' monitoring, all attributes are relatively similar, with the exception of a significant decline in grass and grass like cover recorded in FY22. For the woodland site, the biometric data is at or above benchmark values for tree/grass and grass like/forb/other richness, tree/grass and grass like cover, and litter cover. In comparison to the previous years' monitoring, all attributes are relatively similar.

PCT 1737 is assessed at two monitoring sites for Typha rushland (SC10 and SC11). For SC10, the biometric data is at or above benchmark values for grass and grass like/forb/other richness. In comparison to the previous years' monitoring, all attributes are relatively similar. For SC11, the biometric data is at or above benchmark values for grass and grass like richness. In comparison to the previous years' monitoring, there has been a significant increase in grass and grass like cover, while all other attributes have remained relatively similar.

B.4. Walk-through Assessment

Opportunistic observations made while walking/driving through the conservation area are identified in **Figure 2** and **Table 4** below.

Table 4 Opportunistic observations

Figure Label	Observation Type	Species/Notes
1	Weed Infestation	*Hyparrhenia hirta*
5	Plantings	*Eucalyptus* spp.
7	Weed Infestation	*Moderate Carthamus lanatus* and *scattered Hypericum perforatum* (lots sprayed)
9	Weed Infestation	*Hypericum perforatum*
12	Weed Infestation	*Paspalum dilatatum, Bromus molliformis* and *Carthamus lanatus*
13	Weed Infestation	*Scattered Hypericum perforatum* and *Hyparrhenia hirta*
14	Weed Infestation	*Carthamus lanatus*
15	Weed Infestation	*Scattered Carthamus lanatus* and *Hypericum perforatum*
18	Weed Infestation	*Paspalum dilatatum, Bromus molliformis, Cirsium vulgare* and *Verbena bonariensis*
19	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticosus* and *Verbena bonariensis*
21	Weed Infestation	*Paspalum dilatatum* and *Bromus molliformis*
23	Weed Infestation	*Carthamus lanatus* and *Cirsium vulgare*
25	Weed Infestation	*Hypericum perforatum*
29	Weed Infestation	*Carthamus lanatus* and *Cirsium vulgare*
30	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticosus, Carthamus lanatus* and *Hyparrhenia hirta*
31	Canopy Regeneration	*Eucalyptus albens x moluccana* and *Eucalyptus blakelyi*
32	Plantings	*Eucalyptus* spp.
35	Weed Infestation	*Hypericum perforatum*
39	Weed Infestation	*Paspalum dilatatum, Bromus molliformis, Cirsium vulgare* and *Verbena bonariensis*
47	Mature Plantings	*Eucalyptus* spp.

Figure Label	Observation Type	Species/Notes
49	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticosus, Verbena bonariensis* and *Carthamus lanatus*
51	Weed Infestation	*Scattered Hypericum perforatum*
55	Weed Infestation	*Paspalum dilatatum,Bromus molliformis* and *Carthamus lanatus*
59	Plantings	*Eucalyptus* spp.
61	Canopy Regeneration	*Eucalyptus* spp.
67	Weed Infestation	*Paspalum dilatatum, Bromus molliformis, Cirsium vulgare* and *Verbena bonariensis*
70	Canopy Regeneration	*Eucalyptus* spp.
76	Weed Infestation	*Hypericum perforatum* and *Gomphocarpus fruticosus*
79	Mulched/woodchipped woody material	-
80	Weed Infestation	*Scattered Carthamus lanatus* and *Hypericum perforatum*
84	Acacia pendula	Endangered population - BC Act, regrowth patch, previously burned
88	Mature Plantings	*Eucalyptus* spp.
91	Weed Infestation	*Verbena bonariensis*
95	Canopy Regeneration	*Eucalyptus* spp.
96	Plantings	*Eucalyptus* spp.
97	Canopy Regeneration	*Eucalyptus* spp.
98	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticosus, Verbena bonariensis* and *Carthamus lanatus*
110	Weed Infestation	*Hypericum perforatum* and *Verbena bonariensis*
111	Weed Infestation	*Cirsium vulgare*
117	Acacia pendula	Regrowth
123	Plantings	*Eucalyptus* spp.
125	Acacia pendula	Endangered population - BC Act
126	Weed Infestation	*Hyparrhenia hirta*
127	Weed Infestation	*Verbena bonariensis*
132	Weed Infestation	*Hypericum perforatum* and *Verbena bonariensis*
134	Weed Infestation	*Hyparrhenia hirta* and *Hypericum perforatum*
135	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticose* and *Carthamus lanatus*
141	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticose* and *Carthamus lanatus*
150	Weed Infestation	*Paspalum dilatatum*

Figure Label	Observation Type	Species/Notes
151	Plantings	*Eucalyptus* spp.
153	Weed Infestation	*Carthamus lanatus*
154	Weed Infestation	Scattered *Hypericum perforatum*
157	Weed Infestation	Scattered *Gomphocarpus fruticosus*
160	Weed Infestation	*Hyparrhenia hirta*
163	Weed Infestation	*Hypericum perforatum* and *Verbena bonariensis*
164	Weed Infestation	*Paspalum dilatatum, Bromus molliformis, Cirsium vulgare* and *Verbena bonariensis*
167	Mature Plantings	*Eucalyptus* spp.
169	Weed Infestation	*Carthamus lanatus, Hypericum perforatum* and *Gomphocarpus fruticosus*
170	Weed Infestation	*Hyparrhenia hirta*
172	Weed Infestation	*Hypericum perforatum*
173	Acacia pendula	Endangered population - BC Act, regrowth
174	Weed Infestation	*Cirsium vulgare* and *Carthamus lanatus*
178	Weed Infestation	*Paspalum dilatatum, Bromus molliformis* and *Carthamus lanatus*
179	Weed Infestation	*Hypericum perforatum* and *Verbena bonariensis*
180	Weed Infestation	*Paspalum dilatatum* and *Bromus molliformis*
181	Weed Infestation	Scattered *Hypericum perforatum*
183	Weed Infestation	*Hypericum perforatum* and *Verbena bonariensis*
187	Weed Infestation	Scattered *Hypericum perforatum*
191	Weed Infestation	*Cirsium vulgare*
194	Weed Infestation	*Galenia pubescens*
196	Weed Infestation	*Hypericum perforatum*
204	Weed Infestation	*Hypericum perforatum, Gomphocarpus fruticosus* and *Carthamus lanatus*
209	Plantings	*Eucalyptus* spp.
210	Mature Plantings	*Eucalyptus* spp.
211	Plantings	*Eucalyptus* spp.
213	Weed Infestation	*Verbena bonariensis* and *Hypericum perforatum*
-	Feral Pig	Observed outside of conservation area
-	Feral Pig Disturbance	-
-	Feral Rabbit Seen	-
-	Feral Rabbit Scats	-
-	Feral Rabbit Warren	-

B.5. Discussion and Recommendations

B.5.1. Discussion of Conservation Values

Overall, the Saddlers Creek Offset Conservation Area is considered to be in moderate to good condition. Opportunistic observations made while walking/driving through the conservation area identified the following (refer to **Figure 2** and **Table 4**):

- Signs of feral animals (in relatively low numbers), including the European Rabbit (*Oryctolagus cuniculus*) and Feral Pig (*Sus scrofa*);
- No signs of rubbish dumping;
- Natural regeneration of canopy species, including areas of *Acacia pendula* (Weeping Myall) previously burned;
- Mulched areas resulting in the thinning of the canopy;
- Significant plantings of canopy species; and
- Substantial weed infestations of *Bryophyllum delagoense* (Mother-of-millions), *Hypericum perforatum* (St. John's Wort), *Carthamus lanatus* (Saffron Thistle), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush), *Bromus molliformis* (Soft Brome), *Cirsium vulgare* (Spear Thistle), *Verbena bonariensis* (Purpletop), *Galenia pubescens* (Galenia), *Paspalum dilatatum* (Paspalum), *Juncus acutus* (Sharp Rush), and *Hyparrhenia hirta* (Coolatai Grass).

With the exception of *Bryophyllum delagoense* (Mother-of-millions), weed infestations recorded were largely restricted to open grassland areas that have a high soil seed back of exotic species as a result of historical agricultural practices.

B.5.2. Recommendations

Recommendations include continued weed management targeting any high threat exotics (e.g. *Bryophyllum delagoense*, *Carthamus lanatus, Hypericum perforatum*, *Galenia pubescens, Juncus acutus*) as a priority, as well as all other management actions identified in the CA. Although large infestations of exotic species not classified as high threat exotics were observed within open areas, targeted control of these species is not considered to be economical or that beneficial as a result of the likely high soil seed bank of these species already present. Therefore, it is recommended that the best way to reduce coverage of these species in the long-term is to undertake additional plantings of appropriate canopy (i.e. plant the same species as nearby woodland) in open-grassland areas as the prevalence of these weeds within wooded areas is very low (i.e. conditions under canopy trees is not conducive for the substantial growth of weed species observed in the conservation area). Any plantings should be made within open areas that do not contain large amounts of natural regeneration. It is noted that substantial plantings have already occurred to address previous recommendations made.

Any additional tree plantings made within open areas should be protected with tree guards and the surrounding exotic vegetation routinely targeted through spot-spraying to increase plantings chances of survival (i.e. reduce competition from surrounding environmental weeds).

Prior to undertaking any slashing works, any naturally regenerating or planted eucalypts should be clearly demarcated to ensure that individuals aren't accidentally removed during the slashing works. Further to this, slashing works should be undertaken prior to the flowering of the most problematic weeds, to ensure they do not set seed.

It is also recommended that targeted feral animal control be implemented at the feral animal observation locations identified in **Figure 2** to minimise their spread to additional areas of the conservation area.

B.6. Datasheets

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC1	Date	5/11/24
Vegetation Community	PCT 116		
1. Site Photo(s)Taken	6214 - 6217		
2. Floristic BioMetric attributes			
Native cover	57.2		
Overstorey:	20		
Midstorey:	2%		
Groundcover(grass):	20.2		
Groundcover (shrub):	13.2		
Groundcover (other):	3.8		
Native species richness:	21		
Proportion of canopy species regenerating	100		
Exotic cover	58.4		
Number of trees with hollows	0		
Total length of fallen logs	33.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	See map	6221 ~~6218~~	Acacia pendula regrowth in adjacent areas
Threatened species sightings	See map	photo monitoring	Acacia pendula TEC
Fire event/fuel	–	–	moderate
Weeds	Surrounding plot See figure	–	Dense Galenia pubescens within plot. Scattered Hypericum perforatum surrounds
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC2	Date	5/11/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6222 - 6225		
2. Floristic BioMetric attributes			
Native cover	75.8		
Overstorey:	0		
Midstorey:	0%		
Groundcover(grass):	72.2		
Groundcover (shrub):	0.4		
Groundcover (other):	3.2		
Native species richness:	30		
Proportion of canopy species regenerating	6		
Exotic cover	52		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	6m north of plot	see monitoring photos	~~5~~ some regen of Eu sp.
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Low - grassland
Weeds	open areas around plot	see monitoring photos	Dense Hypericum perforatum; Gomphocarpus fruticosus, Cirsium vulgare throughout open areas
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC3	Date	6/11/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6244 - 6247		
2. Floristic BioMetric attributes			
Native cover	138.3		
Overstorey:	24.1%		
Midstorey:	10%		
Groundcover(grass):	95.4		
Groundcover (shrub):	3.7		
Groundcover (other):	5.1		
Native species richness:	60		
Proportion of canopy species regenerating	100		
Exotic cover	13.3		
Number of trees with hollows	1		
Total length of fallen logs	16.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Moderate
Weeds	around plot	–	patches of Mother-of-millions around plot
Pest animals	East of plot	6259 6260	Feral pig diggings/scats
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC4	Date	6/11/24
Vegetation Community	PCT 1692		
1. Site Photo(s)Taken	6261 - 6264		
2. Floristic BioMetric attributes			
Native cover	78.7		
Overstorey:	55.5		
Midstorey:	10.3		
Groundcover(grass):	9.7		
Groundcover (shrub):	1.5		
Groundcover (other):	2		
Native species richness:	29		
Proportion of canopy species regenerating	100		
Exotic cover	41.1		
Number of trees with hollows	0		
Total length of fallen logs	23		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	/	/	/
Threatened species sightings	/	/	/
Fire event/fuel	/	/	Moderate
Weeds	within/surrounding plot	see monitoring photos	Mother of millions throughout area
Pest animals	/	/	/
Visitor impact/vehicles	/	/	/
Rubbish dumping	/	/	/

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC5	Date	6/11/24
Vegetation Community	PCT 1692		
1. Site Photo(s)Taken	6270 - 6273		
2. Floristic BioMetric attributes			
Native cover	111.9		
Overstorey:	0		
Midstorey:	Ø 30		
Groundcover(grass):	101.7		
Groundcover (shrub):	1.8		
Groundcover (other):	8.4		
Native species richness:	42		
Proportion of canopy species regenerating	0		
Exotic cover	31.4		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	–	–	✓
Threatened species sightings	✓	–	✓
Fire event/fuel			Low grassland
Weeds	in/around plot	See plot photos	Hypericum perforatum, Gomphocarpus fruticosus, Cirsium vulgare, Cocklebur grass surrounding areas
Pest animals	–	–	✓
Visitor impact/vehicles	–	–	✓
Rubbish dumping	–	–	✓

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SL6	Date	5/11/24
Vegetation Community	PCT 1731		
1. Site Photo(s)Taken	6200 - 6203		
2. Floristic BioMetric attributes			
Native cover	99.2		
Overstorey:	27.8		
Midstorey:	5.3		
Groundcover(grass):	65		
Groundcover (shrub):	0.2		
Groundcover (other):	1.2		
Native species richness:	31		
Proportion of canopy species regenerating	100		
Exotic cover	42.4		
Number of trees with hollows	2		
Total length of fallen logs	24.5		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel			Low-Moderate
Weeds	around plot	see mapping photos	Dense Galenia throughout banks of creek. Scattered Boxthorn
Pest animals	within plot	—	European rabbit warren
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC7	**Date**	5/11/24
Vegetation Community	PCT 1731		
1. Site Photo(s)Taken	6228 - 6231		
2. Floristic BioMetric attributes			
Native cover	161.1		
Overstorey:	50.5		
Midstorey:	10.70		
Groundcover(grass):	86.8		
Groundcover (shrub):	1		
Groundcover (other):	12.8		
Native species richness:	27		
Proportion of canopy species regenerating	100		
Exotic cover	28.9		
Number of trees with hollows	1		
Total length of fallen logs	12		

3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	-	-	-
Threatened species sightings	-	-	-
Fire event/fuel	-	-	Low - adjacent to creek
Weeds	/	-	-
Pest animals	within and around ~~along~~ creek plot ~~north of plot~~	6232	~~pigs~~ Evidence of pigs in area - diggings present
Visitor impact/vehicles	-	-	-
Rubbish dumping	-	-	-

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC8	Date	4/11/24
Vegetation Community	PCT 42		
1. Site Photo(s)Taken	6190 - 6193		
2. Floristic BioMetric attributes			
Native cover	66.7		
Overstorey:	0		
Midstorey:	∅		
Groundcover(grass):	65.7		
Groundcover (shrub):	0		
Groundcover (other):	1		
Native species richness:	52		
Proportion of canopy species regenerating	0		
Exotic cover	85.3		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	–	–	some plantings of Eucs in surrounds
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Low-grassland
Weeds	surrounds of plot	see monitoring photos	Dense areas of Cocksfoot grass w/ patchy distribution of Hypericum perforatum
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC9	**Date**	5/11/24
Vegetation Community	PCT 1737		
1. Site Photo(s)Taken	6195 – 6198		
2. Floristic BioMetric attributes			
Native cover	142.1		
Overstorey:	36		
Midstorey:	5.0		
Groundcover(grass):	95.8		
Groundcover (shrub):	1.5		
Groundcover (other):	3.8		
Native species richness:	56		
Proportion of canopy species regenerating	100		
Exotic cover	2.4		
Number of trees with hollows	5		
Total length of fallen logs	16		

3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Low
Weeds	Saddlers Creek adjacent to plot	6211	Galenia pubescens in nearby creek line.
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC10	Date	4/11/24
Vegetation Community	PCT 1737		
1. Site Photo(s)Taken	6195 - 6198		
2. Floristic BioMetric attributes			
Native cover	89.2		
Overstorey:	0		
Midstorey:	0%		
Groundcover(grass):	86.4		
Groundcover (shrub):	2		
Groundcover (other):	0.8		
Native species richness:	19		
Proportion of canopy species regenerating	100%		
Exotic cover	~~100%~~ 48.4		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	–	–	–
Fire event/fuel			Low - creekline
Weeds			Galenia, saffron thistle, Gomphocarpus fruticosus patches within and surrounding plot. Juncus acutus in creek
Pest animals	See figure - around plot	–	Rabbit scats around plot - see figure
Visitor impact/vehicles	~	~	~
Rubbish dumping	~	–	~

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	SC11	Date	4/11/24
Vegetation Community	PCT 1737		
1. Site Photo(s)Taken	6185 ~ 6188		
2. Floristic BioMetric attributes			
Native cover	77.8		
Overstorey:	0		
Midstorey:	0		
Groundcover(grass):	77.7		
Groundcover (shrub):	0		
Groundcover (other):	0.1		
Native species richness:	7		
Proportion of canopy species regenerating	0		
Exotic cover	23.9		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	n/l	n/l	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Low - Cracking
Weeds	Surrounds of plot	see monitoring photos	Juncus acutus throughout most of creek
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

APPENDIX C :

Mt Arthur Offset Conservation Area

C.1. Description and Monitoring Photographs

C.1.1. MA1: PCT 1543 Rusty Fig - Native Quince - Native Olive dry rainforest of the Central Hunter Valley

Monitoring site MA1 is located in an area of PCT 1543 Rusty Fig – Native Quince – Native Olive dry rainforest of the Central Hunter Valley, and is dominated by a canopy of *Ficus rubiginosa* (Port Jackson Fig), with *Clerodendrum tomentosum* (Hairy Clerodendrum), *Angophora floribunda* (Rough-barked Apple) and *Brachychiton populneus* (Kurrajong) also present. Native shrubs include *Teucrium junceum*, *Solanum brownii* (Violet Nightshade), *Breynia oblongifolia* (Coffee Bush) and *Olearia elliptica* (Sticky Daisy-bush). Native groundcovers include *Cissus antarctica* (Water Vine), *Oplismenus imbecillis* and *Adiantum aethiopicum* (Common Maidenhair). The total number of native species recorded at MA1 was 28, with an estimated cover of 144%. Weed cover is low, with moderate occurrences of *Parietaria judaica* (Pellitory), *Bidens Pilosa* (Cobbler's Pegs) and *Conyza sumatrensis* (Tall Fleabane). The total number of exotic species recorded at MA1 was 5, with an estimated cover of <1%.

North

East

South

West

C.1.2. MA2: PCT 1586 White Box -Sticky Daisy Bush - Bead Bush shrubby woodland with semi - evergreen vine thicket elements of the Central Hunter Valley

Monitoring site MA2 is located in an area of PCT 1586 White Box – Sticky Daisy Bush – Bead Bush shrubby woodland with semi – evergreen vine thicket elements of the Central Hunter Valley, and a canopy of *Eucalyptus albens x moluccana* and the small trees/shrubs *Acacia salicina* (Cooba), *Notelaea microcarpa* var. *microcarpa*, *Teucrium junceum*, *Olearia elliptica* (Sticky Daisy-bush) and *Acacia decora* (Western Silver Wattle). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Austrostipa scabra* (Speargrass), *Rytidosperma setaceum* (Small-flowered Wallaby-grass), *Dichelachne micrantha* (Shorthair Plumegrass) and *Chloris ventricosa* (Tall Chloris). The total number of native species recorded at MA2 was 68, with an estimated cover of 175%.

Weed cover at MA2 is very low with minor occurrences of *Senecio madagascariensis* (Fireweed), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) and *Bidens pilosa* (Cobbler's Pegs) recorded. The total number of exotic species recorded at MA2 was 7, with an estimated cover of 1%.

North

East

South

West

C.1.3. MA3: PCT 1586 White Box -Sticky Daisy Bush - Bead Bush shrubby woodland with semi - evergreen vine thicket elements of the Central Hunter Valley

Monitoring site MA3 is located in an area of White Box – Sticky Daisy Bush – Bead Bush shrubby woodland with semi – evergreen vine thicket elements of the Central Hunter Valley and includes the canopy species *Allocasuarina luehmannii* (Bulloak) and *Eucalyptus blakelyi* (Blakely's Red Gum). Native small trees/shrubs include *Notelaea macrocarpa* var. *microcarpa*, *Acacia implexa* (Hickory Wattle), *Teucrium junceum*, *Myoporum montanum* (Western Boobialla) and *Bursaria spinosa* (Native Blackthorn). Native groundcovers include *Dichelachne micrantha* (Shorthair Plumegrass), *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass) and *Poa sieberiana* (Snowgrass). The total number of native species recorded at MA3 was 62, with an estimated cover of 180%.

Weed cover at MA3 was very low with minor occurrences of *Lysimachia arvensis* (Scarlet Pimpernel), *Senecio madagascariensis* (Fireweed) and *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) recorded. The total number of exotic species recorded at MA3 was 21, with an estimated cover of 4%.

North

East

South

West

C.1.4. MA4: PCT 1604 Narrow-leaved Ironbark -Grey Box - Spotted Gum shrub - grass open forest of the central and lower Hunter

Monitoring site MA4 is located in an area of PCT 1604 Narrow-leaved Ironbark – Grey Box – Spotted Gum shrub – grass open forest of the central and lower Hunter, and is dominated by a canopy of *Corymbia maculata* (Spotted Gum), with *Eucalyptus blakelyi* (Blakely's Red Gum) and *Brachychiton populneus* subsp. *populneus* also present. Native shrubs include *Notelaea microcarpa* var. *microcarpa, Myoporum montanum* (Western Boobialla), *Teucrium junceum*, *Maireana microcarpa* and *Solanum brownii* (Violet Nightshade). Native groundcovers include *Austrostipa scabra* (Speargrass), *Aristida ramosa* (Purple Wiregrass), *Microlaena stipoides var. stipoides* (Weeping Grass), *Lomandra filiformis* subsp. *filiformis* and *Rytidosperma setaceum* (Small-flowered Wallaby-grass). The total number of native species recorded at MA4 was 62, with an estimated cover of 140%.

Weed cover at MA4 was very low with minor occurrences of *Lycium ferocisimum* (African Boxthorn), *Senecio madagascariensis* (Fireweed) and *Opuntia stricta* (Common Prickly Pear) recorded. The total number of exotic species recorded at MA4 was 15, with an estimated cover of 2%.

North

East

South

West

C.1.5. MA5: PCT 1604 Narrow-leaved Ironbark -Grey Box - Spotted Gum shrub - grass open forest of the central and lower Hunter

Monitoring site MA5 is located in an area of PCT 1604 Narrow-leaved Ironbark – Grey Box – Spotted Gum shrub – grass open forest of the central and lower Hunter in DNG form. No canopy species are present. Native shrub species include *Notelaea microcarpa* var. *microcarpa*, *Myoporum montanum* (Western Boobialla), *Atriplex semibaccata* (Creeping Saltbush), *Teucrium junceum* and *Maireana microcarpa*. The native understorey includes *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichelachne micrantha* (Shorthair Plumegrass), *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass) and *Poa sieberiana* (Snowgrass). The total number of native species recorded at MA5 was 35, with an estimated cover of 137%.

Weed cover at MA5 is low with *Lysimachia arvensis* (Scarlet Pimpernel), *Plantago lanceolata* (Lamb's Tongue) and *Briza minor* (Shivery Grass) recorded. The total number of exotic species recorded at MA5 was 19, with an estimated cover of 11%.

North

East

South

West

C.1.6. MA6: PCT 1606 White Box - Narrow-leaved Ironbark - Blakely's Red Gum shrubby open forest of the central and upper Hunter

Monitoring site MA6 is located in an area of PCT 1606 White Box - Narrow-leaved Ironbark – Blakely's Red Gum open forest of the central and lower Hunter, and is dominated by a canopy of *Eucalyptus albens* x *moluccana* and *Eucalyptus blakelyi* (Blakely's Red Gum) as well as *Brachychiton populneus* subsp. *populneus*. Native shrubs include *Teucrium junceum*, *Notelaea microcarpa* var. *microcarpa*, *Olearia elliptica* (Sticky Daisy-bush), *Solanum brownii* (Violet Nightshade) and *Cassinia quinquefaria*. Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Rytidosperma setaceum* (Small-flowered Wallaby-grass), *Aristida ramosa* (Purple Wiregrass) and *Austrostipa scabra* (Speargrass). The total number of native species recorded at MA6 was 62, with an estimated cover of 202%.

Weed cover at MA6 is very low with minor occurrences of *Senecio madagascariensis* (Fireweed), *Conyza sumatrensis* (Tall Fleabane) and *Sonchus oleraceus* (Common Sowthistle) recorded. The total number of exotic species recorded at MA6 was 13, with an estimated cover of 2%.

North

East

South

West

C.1.7. MA7: PCT 1606 White Box - Narrow-leaved Ironbark - Blakely's Red Gum shrubby open forest of the central and upper Hunter

Monitoring site MA7 is located in an area of PCT 1606 White Box – Narrow-leaved Ironbark – Blakely's Red Gum open forest of the central and lower Hunter in DNG form. *Eucalyptus blakelyi* (Blakely's Red Gum) is the only canopy species present. Native shrub species include *Solanum brownii* (Violet Nightshade), *Maireana microphylla* (Small-leaf Bluebush), *Myoporum montanum* (Western Boobialla), *Solanum cinereum* (Narrawa Burr) and *Hibbertia acicularis*. Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichelachne micrantha* (Shorthair Plumegrass), *Aristida ramosa* (Purple Wiregrass), *Themeda triandra* and *Poa labillardierei* var. *labillardierei* (Tussock). The total number of native species recorded at MA7 was 48, with an estimated cover of 130%.

Weed cover at MA7 is moderate with *Senecio madagascariensis* (Fireweed), *Verbena officinalis* (Common Verbena), *Cirsium vulgare* (Spear Thistle) and *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) recorded. The total number of exotic species recorded at MA7 was 15, with an estimated cover of 21%.

North

East

South

West

C.1.8. MA8: PCT 1608 Grey Box - Grey Gum - Rough-barked Apple - Blakely's Red Gum grassy open forest of the central Hunter

Monitoring site MA8 is located in an area of PCT 1608 Grey Box – Grey Gum – Rough-barked Apple – Blakely's Red Gum grassy open forest of the central Hunter, and is dominated by a canopy of *Eucalyptus blakelyi* (Blakely's Red Gum) as well as scattered *Allocasuarina luehmannii* (Bulloak). Native shrub species present include *Notelaea microcarpa* var. *macrocarpa, Teucrium junceum*, *Solanum brownii* (Violet Nightshade), *Myoporum montanum* (Western Boobialla), *Acacia decora* (Western Silver Wattle) and *Acacia implexa* (Hickory Wattle). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass), *Cymbopogon refractus* (Barbed Wire Grass) and *Rytidosperma setaceum* (Small-flowered Wallaby-grass). The total number of native species recorded at MA8 was 57, with an estimated cover of 177%. Weed cover at MA8 was very low with minor occurrences of *Hypochaeris radicata* (Catsear), *Opuntia stricta* (Common Prickly Pear) and *Sonchus oleraceus* (Common Sowthistle) recorded. The total number of exotic species recorded at MA8 was 4, with an estimated cover of <1%.

North

East

South

West

C.1.9. MA9: PCT 1608 Grey Box - Grey Gum - Rough-barked Apple - Blakely's Red Gum grassy open forest of the central Hunter

Monitoring site MA9 is located in an area of PCT 1608 Grey Box – Grey Gum – Rough-barked Apple – Blakely's Red Gum grassy open forest of the central Hunter, and is dominated by a canopy of *Angophora floribunda* (Rough-barked Apple), with *Brachychiton populneus* (Kurrajong) also present. Native shrub species include *Notelaea microcarpa* var. *microcarpa*, *Teucrium junceum*, *Solanum brownii* (Violet Nightshade), *Myoporum montanum* (Western Boobialla), *Bursaria spinosa* (Native Blackthorn) and *Acacia implexa* (Hickory Wattle). Native groundcovers include *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Austrostipa scabra* (Speargrass), *Poa sieberiana* (Snowgrass), *Dichelachne micrantha* (Shorthair Plumegrass), *Eragrostis leptostachya* (Paddock Lovegrass) and *Scutellaria humilis* (Dwarf Skullcap). The total number of native species recorded at MA9 was 44, with an estimated cover of 204%.

Weed cover at MA9 was very low with minor occurrences of *Lysimachia arvensis* (Scarlet Pimpernel), *Bidens pilosa* (Cobbler's Pegs) and *Conyza sumatrensis* (Tall Fleabane) recorded. The total number of exotic species recorded at MA9 was 8, with an estimated cover of 4%.

North

East

South

West

C.1.10. MA10: PCT 1654 Narrow-leaved Ironbark - Grey Gum shrubby open forest on sandstone ranges of the upper Hunter Valley

Monitoring site MA10 is located in an area of PCT 1654 Narrow-leaved Ironbark – Grey Gum shrubby open forest on sandstone ranges of the upper Hunter Valley, and is dominated by a canopy of *Callitris endlicheri* (Black Cyperus Pine) and *Eucalyptus albens x moluccana,* with *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Brachychiton populneus* subsp. *populneus* also present. Native shrubs include *Notelaea microcarpa* var. *microcarpa*, *Olearia elliptica* (Sticky Daisy-bush), *Teucrium junceum*, *Solanum brownii* (Violet Nightshade) and *Myoporum montanum* (Western Boobialla). Native groundcovers include *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass), *Rytidosperma setaceum* (Small-flowered Wallaby-grass), *Microlaena stipoides var. stipoides* (Weeping Grass) and *Chloris ventricosa* (Tall Chloris). The total number of native species recorded at MA10 was 64, with an estimated cover of 180%. Weed cover at MA10 is very low with minor occurrences of *Hyparrhenia hirta* (Coolatai Grass), *Senecio madagascariensis* (Fireweed) and *Conyza sumatrensis* (Tall Fleabane) recorded. The total number of exotic species recorded at MA10 was 12, with an estimated cover of 2%.

North

East

South

West

C.1.11. MA11: PCT 1654 Narrow-leaved Ironbark - Grey Gum shrubby open forest on sandstone ranges of the upper Hunter Valley

Monitoring site MA11 is located in an area of PCT 1654 Narrow-leaved Ironbark – Grey Gum shrubby open forest on sandstone ranges of the upper Hunter Valley in DNG form. It comprises regrowth *Brachychiton populneus* subsp. *populneus* as well as the native shrubs *Notelaea macrocarpa* var. *macrocarpa*, *Olearia elliptica* (Sticky Daisy-bush), *Teucrium junceum*, *Solanum brownii* (Violet Nightshade), *Bursaria spinosa* (Native Blackthorn) and *Solanum brownii* (Violet Nightshade). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichelachne micrantha* (Shorthair Plumegrass), *Aristida ramosa* (Purple Wiregrass), *Poa sieberiana* (Snowgrass), *Chloris ventricosa* (Tall Chloris) and *Swainsona galegifolia* (Smooth Darling Pea). The total number of native species recorded at MA11 was 42, with an estimated cover of 150%.

Weed cover at MA11 is low with *Briza minor* (Shivery Grass), *Lolium perenne* (Perennial Ryegrass) and *Verbena bonariensis* (Purpletop) recorded. The total number of exotic species recorded at MA11 was 16, with an estimated cover of 16%.

North

East

South

West

C.1.12. MA12: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site MA12 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter in DNG form. Native shrub/small tree species include *Acacia salicina* (Cooba) and *Notelaea microcarpa* var. *microcarpa*, *Maireana microcarpa*, *Myoporum montanum* (Western Boobialla), *Acacia falcata*, *Solanum brownii* (Violet Nightshade) and *Eremophila debilis* (Amulla). Native groundcovers include *Aristida ramosa* (Purple Wiregrass), *Cymbopogon refractus* (Barbed Wire Grass), *Austrostipa scabra* (Speargrass) and *Lomandra filiformis* subsp. *filiformis*. The total number of native species recorded at MA12 was 55, with an estimated cover of 109%.

Weed cover at MA12 is low with minor occurrences of *Senecio madagascariensis* (Fireweed), *Cirsium vulgare* (Spear Thistle) and *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) recorded. The total number of exotic species recorded at MA12 was 20, with an estimated cover of 5%.

North

East

South

West

C.1.13. MA13: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site MA13 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter, and is dominated by a canopy of *Eucalyptus albens x moluccana* as well as scattered *Eucalyptus blakelyi* (Blakely's Red Gum) and *Allocasuarina luehmannii* (Bulloak). Native shrubs include *Notelaea microcarpa* (Native Olive), *Solanum brownii* (Violet Nightshade), *Teucrium junceum*, *Psydrax odorata* (Shiny-leaved Canthium) and *Acacia decora* (Western Silver Wattle). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Poa sieberiana* (Snowgrass), *Austrostipa scabra* (Speargrass) and *Chloris ventricosa* (Tall Chloris). The total number of native species recorded at MA13 was 55, with an estimated cover of 188%.

Weed cover at MA13 is very low with minor occurrences of *Cirsium vulgare* (Spear Thistle), *Lysimachia arvensis* (Scarlet Pimpernel) and *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) recorded. The total number of exotic species recorded at MA13 was 12, with an estimated cover of 4%.

North

East

South

West

C.1.14. MA14: PCT 1692 Bull Oak grassy woodland of the central Hunter Valley

Monitoring site MA14 is located in an area of PCT 1692 Bull Oak grassy woodland of the central Hunter Valley, and is dominated by a canopy of *Allocasuarina luehmannii* (Bull Oak) with *Angophora floribunda* (Rough-barked Apple) also present. Native shrubs include *Notelaea macrocarpa* var. *microcarpa*, *Myoporum montanum* (Western Boobialla), *Solanum brownii* (Violet Nightshade), *Acacia decora* (Western Silver Wattle) and *Teucrium junceum*. Native groundcovers include *Rytidosperma setaceum* (Small-flowered Wallaby-grass), *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass), *Microlaena stipoides var. stipoides* (Weeping Grass) and *Lomandra multiflora* subsp. *multiflora* (Many-flowered Mat-rush). The total number of native species recorded at MA14 was 41, with an estimated cover of 101%.

Weed cover at MA14 is very low with minor occurrences of *Opuntia stricta* (Common Prickly Pear), *Solanum nigrum* (Black-berry Nightshade) and *Senecio madagascariensis* (Fireweed). The total number of exotic species recorded at MA14 was 8, with an estimated cover of 1%.

North

East

South

West

C.2. Comparison to Benchmark Values and Previous Years' Data

Table 5 Mount Arthur: Comparison between 2019, 2020, 2022 and 2024 data, and benchmark values

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
1543 Rusty Fig - Native Quince - Native Olive dry rainforest of the Central Hunter Valley																
Bench-mark values	**8**	**13**	**5**	**7**	**6**	**11**	**58**	**83**	**5**	**3**	**16**	**17**	**50**	**4**	**59**	**70**
MA1 (19)	5	1	0	2	1	7	84	1	0	0.35	0.1	20.5	50	0	8	43
MA1 (20)	5	3	5	18	2	9	74.0	1.2	6.4	3.4	0.4	16.4	50	0	8	33
MA1 (22)	5	5	5	7	3	6	73	5.9	25.4	0.9	5.2	40.5	50	0	9	64
MA1 (24)	**4**	**4**	**2**	**7**	**3**	**8**	**70.0**	**1.6**	**13.0**	**1.3**	**15.2**	**43.3**	**50**	**0**	**10**	**49**
1586 White Box -Sticky Daisy Bush - Bead Bush shrubby woodland with semi - evergreen vine thicket elements of the Central Hunter Valley																
Bench-mark values	**6**	**13**	**10**	**13**	**2**	**5**	**68**	**49**	**30**	**8**	**1**	**3**	**50**	**3**	**53**	**50**
MA2 (19)	4	5	7	6	1	1	7	35.1	48.1	0.7	0.1	0.1	50	0	4	23
MA2 (20)	3	6	16	23	1	5	15.5	15.3	84.2	18.3	0.1	0.5	50	0	5	11
MA2 (22)	2	9	13	28	2	4	23	17.4	114.5	5.7	0.2	0.4	50	0	6.5	12
MA2 (24)	**4**	**14**	**15**	**27**	**1**	**7**	**25.1**	**46.1**	**98.1**	**4.6**	**0.2**	**0.8**	**50**	**0**	**7**	**17**
MA3 (19)	5	7	7	11	1	1	22.1	3.65	77.6	1.5	0.1	0.1	50	0	0	64

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
MA3 (20)	4	8	13	27	1	7	18.8	14.1	88.8	2.9	0.1	0.7	50	0	0	64
MA3 (22)	2	9	13	25	1	4	15.8	29.3	93.4	4.4	0.1	0.4	50	0	6.8	15
MA3 (24)	**4**	**8**	**13**	**29**	**2**	**6**	**17.0**	**47.6**	**107.1**	**7.1**	**0.4**	**1.2**	**50**	**0**	**10.5**	**19**
1604 Narrow-leaved Ironbark -Grey Box - Spotted Gum shrub - grass open forest of the central and lower Hunter																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
MA4 (19)	4	6	5	9	0	5	40.3	2.4	46.5	2	0	0.65	50	0	5.5	49
MA4 (20)	3	8	11	18	0	8	40.5	2.7	58.3	2.3	0	0.8	50	0	5	52
MA4 (22)	3	7	19	24	1	3	45.3	4.8	56.6	5.7	0.1	0.3	50	2	6	78
MA4 (24)	**4**	**10**	**13**	**27**	**1**	**7**	**54.3**	**15.6**	**65.4**	**3.7**	**0.1**	**0.8**	**50**	**2**	**6**	**65**
MA5 (19)	0	4	11	11	0	3	0	0.9	68.4	2.4	0	0.3	50	0	0	11
MA5 (20)	0	3	15	22	1	3	0	1.1	90.8	2.9	0.1	0.5	50	0	0	11
MA5 (22)	1	4	12	8	0	1	0.2	1.1	110.3	0.8	0	0.1	50	0	0	15
MA5 (24)	**1**	**3**	**12**	**18**	**0**	**1**	**0.3**	**1.1**	**132.1**	**3.7**	**0.0**	**0.1**	**50**	**0**	**0**	**16**
1606 White Box - Narrow-leaved Ironbark - Blakely's Red Gum shrubby open forest of the central and upper Hunter																
Bench-mark values	**6**	**13**	**10**	**13**	**2**	**5**	**68**	**49**	**30**	**8**	**1**	**3**	**50**	**3**	**53**	**50**
MA6 (19)	4	4	7	7	0	4	58	15.2	7.4	0.7	0	0.5	50	0	12.5	60

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
MA6 (20)	4	7	9	24	2	9	90.0	13.6	51.2	3.4	0.2	1.2	50	0	12.5	60
MA6 (22)	4	7	10	25	1	7	50.4	12.2	96.5	5.7	0.3	1	50	0	13.5	22
MA6 (24)	**4**	**6**	**13**	**30**	**2**	**7**	**73.0**	**32.0**	**90.6**	**4.4**	**0.3**	**1.6**	**50**	**0**	**13**	**51**
MA7 (19)	2	6	6	14	1	3	3	2	56.65	1.9	0.1	0.3	50	0	0	49
MA7 (20)	2	4	7	24	1	2	7.0	1.8	96.2	4.6	0.1	0.2	50	0	0	48
MA7 (22)	1	6	15	28	1	5	0.1	7	100.9	12.1	0.1	0.7	50	0	0.5	19
MA7 (24)	**1**	**5**	**13**	**24**	**1**	**4**	**0.1**	**11.5**	**109.6**	**7.9**	**0.1**	**0.4**	**50**	**0**	**0.5**	**21**
1608 Grey Box - Grey Gum - Rough-barked Apple - Blakely's Red Gum grassy open forest of the central Hunter																
Bench-mark values	**5**	**12**	**11**	**11**	**2**	**5**	**56**	**34**	**66**	**8**	**1**	**4**	**50**	**3**	**45**	**65**
MA8 (19)	4	7	8	10	1	2	44	5.55	50.6	1.3	0.1	0.2	50	0	0	57.6
MA8 (20)	4	5	15	27	2	6	38.1	3.7	94.7	4.1	0.2	0.6	50	0	0	67
MA8 (22)	4	6	15	28	1	3	49.1	7.9	88.6	3.8	0.1	0.3	50	1	2.5	34
MA8 (24)	**3**	**7**	**12**	**31**	**0**	**4**	**36.0**	**18.4**	**117.6**	**4.4**	**0.0**	**0.4**	**50**	**0**	**2**	**34**
MA9 (19)	3	7	9	14	0	3	37.5	14.05	54.8	1.6	0	0.3	50	0	22.5	64
MA9 (20)	3	7	14	22	0	6	40.8	24.3	64.3	17.5	0	1.1	50	0	22.5	73
MA9 (22)	3	6	12	23	1	4	38.2	24.1	100.6	5.3	0.1	0.4	50	0	16.3	25

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
MA9 (24)	**3**	**5**	**13**	**19**	**1**	**3**	**50.5**	**21.5**	**118.2**	**12.4**	**0.1**	**1.4**	**50**	**0**	**15.5**	**42**
1654 Narrow-leaved Ironbark - Grey Gum shrubby open forest on sandstone ranges of the upper Hunter Valley																
Bench-mark values	**5**	**17**	**9**	**9**	**2**	**3**	**69**	**70**	**22**	**6**	**1**	**1**	**50**	**1**	**55**	**63**
MA10 (19)	4	7	9	6	0	2	30.1	6.8	28.45	0.7	0	0.2	50	0	8	43
MA10 (20)	4	9	12	21	1	4	25.1	9.7	44.7	4.9	0.1	0.4	50	0	8	61
MA10 (22)	6	6	17	22	1	1	48.1	16.7	86.5	4.2	0.2	0.1	50	0	29.5	47
MA10 (24)	**5**	**9**	**18**	**26**	**2**	**4**	**52.1**	**29.9**	**93.6**	**3.3**	**0.4**	**0.4**	**50**	**0**	**38.5**	**59**
MA11 (19)	2	3	4	11	1	3	10	6.1	72.2	1.2	0.1	0.3	50	0	3	35
MA11 (20)	2	5	12	31	1	3	20.0	3.8	98.6	8.9	0.1	0.5	50	0	3	39
MA11 (22)	2	5	8	23	1	5	15	2.4	105.3	6	0.1	0.5	50	0	3.3	14
MA11 (24)	**2**	**4**	**9**	**21**	**1**	**5**	**6.0**	**5.8**	**124.5**	**13.0**	**0.1**	**0.5**	**50**	**0**	**3.5**	**13**
1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
MA12 (19)	1	7	8	18	0	3	0.1	2	72.2	2	0	0.3	50	0	0	14
MA12 (20)	1	4	15	27	0	5	0.3	1.2	99.8	3.4	0	0.6	50	0	0	25
MA12 (22)	2	6	14	23	0	4	2.3	1.1	99.3	2.8	0	0.4	50	0	3.3	11

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
MA12 (24)	**2**	**4**	**10**	**34**	**1**	**4**	**6.0**	**7.0**	**83.1**	**12.2**	**0.1**	**0.4**	**50**	**0**	**3.5**	**24**
MA13 (19)	5	5	6	5	1	2	39.5	3	37.45	0.7	0.1	0.2	50	1	13	94.6
MA13 (20)	4	4	12	24	2	4	40.0	2.3	81.3	2.8	0.2	0.4	50	1	22.5	93
MA13 (22)	4	7	13	26	1	3	47	4.8	92.3	3.5	0.2	0.3	50	1	15.5	14
MA13 (24)	**6**	**7**	**12**	**25**	**1**	**4**	**53.1**	**7.7**	**121.5**	**5.0**	**0.1**	**0.4**	**50**	**1**	**16**	**34**
1692 Bull Oak grassy woodland of the central Hunter Valley																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
MA14 (19)	5	4	6	1	0	1	62.5	0.9	1.5	0.1	0	0.5	50	0	5	61
MA14 (20)	5	7	8	16	0	6	45.8	1.1	2.4	1.6	0	1.3	50	0	5	52
MA14 (22)	5	8	11	21	1	3	76.1	1.8	38.4	2.8	0.1	0.4	50	3	10	71
MA14 (24)	**3**	**7**	**7**	**22**	**0**	**2**	**66.0**	**6.1**	**24.7**	**3.6**	**0.0**	**0.3**	**50**	**3**	**10**	**78**

C.3. Discussion of Changes at Monitoring Points

The following PCTs were assessed within the Mount Arthur Offset Conservation Area:

- PCT 1543: 1 monitoring site (MA1);
- PCT 1586: 2 monitoring sites (MA2 and MA3);
- PCT 1604: 2 monitoring sites (MA4 and MA5);
- PCT 1606: 2 monitoring sites (MA6 and MA7);
- PCT 1608: 2 monitoring sites (MA8 and MA9);
- PCT 1654: 2 monitoring sites (MA10 and MA11);
- PCT 1691: 2 monitoring sites (MA12 and MA13); and
- PCT 1692: 1 monitoring site (MA14).

PCT 1543 is assessed at one monitoring site (MA1) in dry rainforest. For this site, the biometric data is at or above benchmark values for forb richness and tree/grass and grass like/other cover. In comparison to previous years' monitoring, there has been a significant increase in fern cover, while all other attributes have been relatively similar.

PCT 1586 is assessed at two monitoring sites in woodland (MA2 and MA3). For MA2, the biometric data is at or above benchmark values for shrub/grass and grass like/forb/other richness, and grass and grass like cover. In comparison to the previous years' monitoring, all attributes have been relatively similar. For MA3, the biometric data is at or above benchmark values for grass and grass like/forb/fern/other richness and grass and grass like cover. In comparison to the previous years' monitoring, there has been a steady increase inn shrub and grass and grasslike covers, as well as length of logs, while all other attributes have been relatively similar.

PCT 1604 is assessed at one monitoring site in woodland (MA4) and one in grassland (MA5). For the woodland site, the biometric data is at or above benchmark values for shrub/grass and grass like/forb/other richness and litter cover. In comparison to the previous years' monitoring, there has been a steady increase in shrub/forb richness and tree/shrub/grass and grasslike cover, while all other attributes have been relatively similar. For the grassland site, the biometric data is at or above benchmark values for grass and grass like/forb richness and grass and grass like cover. In comparison to the previous years' monitoring, there has been a steady increase in grass and grass like cover, while all other attributes have been relatively similar.

PCT 1606 is assessed at one monitoring site in open forest (MA6) and one in grassland (MA7). For the open forest site, the biometric data is at or above benchmark values for grass and grass like/forb/fern/other richness and tree/grass and grass like/litter cover. In comparison to the previous years' monitoring, there has been a steady increase in grass and grasslike/forb richness while all other attributes have been relatively similar. For the grassland site, the biometric data is at or above benchmark values for grass and grass like/forb richness and grass and grass like cover. In comparison to the previous years' monitoring, there has been a steady increase in shrub/grass and grasslike cover, while all other attributes have been relatively similar.

PCT 1608 is assessed at two monitoring sites in open forest (MA8 and MA9). For MA8, the biometric data is at or above benchmark values for grass and grass like/forb richness and grass and grass like cover. In comparison to previous years' monitoring, there has been a steady increase in shrub cover, while all other attributes have been relatively similar. For MA9, the biometric data is at or above benchmark values for grass and grass like/forb richness and grass and grass like/forb cover. In comparison to previous years' monitoring there has been a steady increase in grass and grass like cover, while all other attributes have been relatively similar..

PCT 1654 is assessed at one monitoring site in open forest (MA10) and one in grassland (MA11). For the open forest site, the biometric data is at or above benchmark values for tree/grass and grass like/forb/fern/other richness and grass and grass like cover. In comparison to the previous years' monitoring, there has been a steady increase in grass and grass like/forb cover and tree/shrub/grass and grass like cover, while all other attributes have been relatively similar. For the grassland site, the biometric data is at or above benchmark values for grass and grass like/forb/other richness and grass and grass like/forb cover. In comparison to the previous years' monitoring, there has been a steady increase in grass and grass like cover, while all other attributes have been relatively similar..

PCT 1691 is assessed at one monitoring site in grassland (MA12) and one in woodland (MA13). For the grassland site, the biometric data is at or above benchmark values for forb richness and grass and grass like/forb cover. In comparison to the previous year's monitoring, there has been a steady increase in shrub cover while all other attributes have been relatively similar. For the woodland site, the biometric data is at or above benchmark values for tree/grass and grass like/forb richness, and tree/grass and grass like cover. In comparison to the previous years' monitoring, there has been a steady increase in tree cover and grass and grass like/forb richness, while all other attributes have been relatively similar.

PCT 1692 is assessed at one monitoring site in woodland (MA14). For this site, the biometric data is at or above benchmark values for tree/forb richness, tree cover, number of large trees and litter cover. In comparison to the previous years' monitoring, there has been a steady increase in forb richness and shrub/forb cover, while all other attributes have been relatively similar.

C.4. Walk-through Assessment

Opportunistic observations made while walking/driving through the conservation area are identified in **Figure 3** and **Table 6** below.

Table 6 Opportunistic observations

Figure Label	Observation Type	Species/Notes
57	Weed Infestation	*Verbena bonariensis*
102	Weed Infestation	*Hyparrhenia hirta*
108	Weed Infestation	*Senecio madagascariensis* and *Gomphocarpus fruticosus*
203	Weed Infestation	*Gomphocarpus fruticosus*
-	Feral Dog	Two locations

C.5. Discussion and Recommendations

C.5.1. Discussion of Conservation Values

Overall, the Mt. Arthur Offset Conservation Area is considered to be in good condition. Opportunistic observations made while walking/driving through the conservation area identified the following (refer to **Figure 3** and **Table 6**):

- Presence of the Feral Dog (*Canis familiaris*) at two separate locations were observed;
- No signs of rubbish dumping; and
- Substantial weed infestations of *Hyparrhenia hirta* (Coolatai Grass), *Senecio madagascariensis* (Fireweed), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) and *Verbena bonariensis* (Purpletop) at a few locations within open areas.

C.5.2. Recommendations

Recommendations include continued weed management targeting any high threat exotics (e.g. *Hyparrhenia hirta* and *Senecio madagascariensis*) as a priority, as well as all other management actions identified in the CA. Although infestations of *Verbena bonariensis* and *Gomphocarpus fruticosus* were observed, targeted control of this species is not considered to be economical or that beneficial as a result of the likely high soil seed bank of these species already present. Therefore, it is recommended that the best way to reduce coverage of this weed species, as well as others in the long-term is to undertake additional plantings of appropriate canopy species (i.e. plant the same species as nearby woodland) in open-grassland areas as the prevalence of weeds observed within wooded areas was very low (i.e. conditions under canopy trees is not conducive for the substantial growth of weed species observed in the conservation area). Any plantings should be made within open areas that do not contain large amounts of natural regeneration.

Any tree plantings made within open areas should be protected with tree guards and the surrounding exotic vegetation routinely targeted through spot-spraying to increase plantings' chances of survival (i.e. reduce competition from surrounding environmental weeds).

It is also recommended that targeted feral animal control for the Feral Dog be implemented at the locations identified in **Figure 3** to minimise their spread to additional areas of the conservation area.

C.6. Datasheets

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA1	Date	23/10/24
Vegetation Community	PCT 1543		
1. Site Photo(s)Taken	6053 - 6056		
2. Floristic BioMetric attributes			
Native cover	144.4		
Overstorey:	35		
Midstorey:	35 3o		
Groundcover(grass):	13		
Groundcover (shrub):	1.6		
Groundcover (other):	60.7		
Native species richness:	28		
Proportion of canopy species regenerating	100 3o		
Exotic cover	0.6		
Number of trees with hollows	0		
Total length of fallen logs	10		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	no disturbed areas
Threatened species sightings	–	–	–
Fire event/fuel	–	–	moderate
Weeds	–	–	no infestations
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA2	Date	23/10/24
Vegetation Community	PCT 1586		
1. Site Photo(s)Taken	6031-6034		
2. Floristic BioMetric attributes			
Native cover	174.9		
Overstorey:	25.1		
Midstorey:	0%		
Groundcover(grass):	98.1		
Groundcover (shrub):	46.1		
Groundcover (other):	5.6		
Native species richness:	68		
Proportion of canopy species regenerating	100%		
Exotic cover	1.1		
Number of trees with hollows	0		
Total length of fallen logs	7		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Moderate
Weeds	—	—	No significant weeds - see figure 5- CA mapping
Pest animals	—	—	
Visitor impact/vehicles	—	—	
Rubbish dumping	—	—	

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA3	Date	4/11/24
Vegetation Community	PCT 1586		
1. Site Photo(s)Taken	6177 - 6180		
2. Floristic BioMetric attributes			
Native cover	180.4		
Overstorey:	7		
Midstorey:	10%		
Groundcover(grass):	107.1		
Groundcover (shrub):	47.6		
Groundcover (other):	8.7		
Native species richness:	62		
Proportion of canopy species regenerating	100%		
Exotic cover	3.5		
Number of trees with hollows	0		
Total length of fallen logs	10.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel			moderate
Weeds	see figure	—	no major weed infestations
Pest animals	n.l	n.l	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA4	Date	24/12/24
Vegetation Community	PCT 1604		
1. Site Photo(s)Taken	6090 - 6093		
2. Floristic BioMetric attributes			
Native cover	139.9		
Overstorey:	49.3		
Midstorey:	5%		
Groundcover(grass):	65.4		
Groundcover (shrub):	15.6		
Groundcover (other):	4.6		
Native species richness:	62		
Proportion of canopy species regenerating	100%		
Exotic cover	1.7		
Number of trees with hollows	0		
Total length of fallen logs	6		

3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	✓	—	—
Fire event/fuel	—	—	Moderate
Weeds	—	—	No significant weed infestations
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA5	Date	24/10/24
Vegetation Community	PCT 1604		
1. Site Photo(s)Taken	6083 - 6086		
2. Floristic BioMetric attributes			
Native cover	137.3		
Overstorey:	0.3		
Midstorey:	0		
Groundcover(grass):	132.1		
Groundcover (shrub):	1.1		
Groundcover (other):	3.8		
Native species richness:	35		
Proportion of canopy species regenerating	0		
Exotic cover	11		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	surrounding plot	see monitoring photos	Regenerating Acacias in surrounds
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Low
Weeds	—	—	no significant infestations
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA6	Date	23/10/24
Vegetation Community	PCT 1606		
1. Site Photo(s)Taken	6024-6027		
2. Floristic BioMetric attributes			
Native cover	201.4		
Overstorey:	68		
Midstorey:	53%		
Groundcover(grass):	90.6		
Groundcover (shrub):	32		
Groundcover (other):	5.8		
Native species richness:	61		
Proportion of canopy species regenerating	100%		
Exotic cover	1.2		
Number of trees with hollows	0		
Total length of fallen logs	13		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	moderate
Weeds	—	—	generally weed free - see figure for mapping
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA7	Date	23/10/24
Vegetation Community	PCT 1606		
1. Site Photo(s)Taken	6037 - 6046		
2. Floristic BioMetric attributes			
Native cover	127.6		
Overstorey:	0.1		
Midstorey:	0%		
Groundcover(grass):	109.6		
Groundcover (shrub):	11.5		
Groundcover (other):	6.4		
Native species richness:	47		
Proportion of canopy species regenerating	0%		
Exotic cover	20.7		
Number of trees with hollows	0		
Total length of fallen logs	0.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	no disturbed areas
Threatened species sightings	–	–	
Fire event/fuel	–	–	Low
Weeds			No significant weeds. Minor Gomphocarpus fruticosus/ Senecio madagascariensis occurring
Pest animals	✓	✓	
Visitor impact/vehicles	✓	✓	
Rubbish dumping	✓	✓	

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA8	Date	24/10/24
Vegetation Community	1608		
1. Site Photo(s)Taken			
2. Floristic BioMetric attributes			
Native cover	176.8		
Overstorey:	31		
Midstorey:	5%		
Groundcover(grass):	117.6		
Groundcover (shrub):	18.4		
Groundcover (other):	4.8		
Native species richness:	57		
Proportion of canopy species regenerating	100%		
Exotic cover	0.4		
Number of trees with hollows	1		
Total length of fallen logs	2		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Moderate
Weeds	–	–	No Significant weed infestations
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA9	Date	24/10/24
Vegetation Community	PCT 1608		
1. Site Photo(s)Taken	6112 - 6115		
2. Floristic BioMetric attributes			
Native cover	204.1		
Overstorey:	49.5		
Midstorey:	130		
Groundcover(grass):	118.2		
Groundcover (shrub):	21.5		
Groundcover (other):	13.9		
Native species richness:	44		
Proportion of canopy species regenerating	100%		
Exotic cover	1.1		
Number of trees with hollows	1		
Total length of fallen logs	15.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Moderate
Weeds	—	—	no significant weed infestations
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA10	Date 23/10/24	MP
Vegetation Community	PCT 1654		
1. Site Photo(s)Taken	6045 - 6048		
2. Floristic BioMetric attributes			
Native cover	179.7		
Overstorey:	17.1		
Midstorey:	35%		
Groundcover(grass):	93.6		
Groundcover (shrub):	29.9		
Groundcover (other):	4.1		
Native species richness:	64		
Proportion of canopy species regenerating	100%		
Exotic cover	1.5		
Number of trees with hollows	0		
Total length of fallen logs	38.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	✓	no disturbed areas
Threatened species sightings	–	✓	–
Fire event/fuel	✓	–	moderate-low
Weeds	✓	–	no significant weeds
Pest animals	✓	✓	–
Visitor impact/vehicles	–	✓	–
Rubbish dumping	–	✓	✓

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA11	Date	23/10/24
Vegetation Community	PCT 1654		
1. Site Photo(s)Taken	6060 - 6063		
2. Floristic BioMetric attributes			
Native cover	149.9		
Overstorey:	6		
Midstorey:	0 %		
Groundcover(grass):	124.5		
Groundcover (shrub):	5.8		
Groundcover (other):	13.6		
Native species richness:	42		
Proportion of canopy species regenerating	0 %		
Exotic cover	15.6		
Number of trees with hollows	0		
Total length of fallen logs	3.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	n.l
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Low
Weeds	—	—	no major infestations, Verbena, boneseed in surrounds refer to Figure
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA12	Date	24/10/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6075 – 6078		
2. Floristic BioMetric attributes			
Native cover	108.8		
Overstorey:	6		
Midstorey:	0 %		
Groundcover(grass):	83.1		
Groundcover (shrub):	7		
Groundcover (other):	12.7		
Native species richness:			
Proportion of canopy species regenerating	100 %		
Exotic cover	55		
Number of trees with hollows	0		
Total length of fallen logs	3.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	adjacent to plot	see monitoring report photo	regeneration of Acacia salicina & Eucalypts in surrounds
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Low
Weeds	adjacent to plot	see monitoring photo	Minor Gomphocarpus fruticosus & Senecio madagascariensis
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA13	Date	24/10/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6107-6110		
2. Floristic BioMetric attributes			
Native cover	187.8		
Overstorey:	38.1		
Midstorey:	15.8		
Groundcover(grass):	121.5		
Groundcover (shrub):	7.7		
Groundcover (other):	5.5		
Native species richness:	55		
Proportion of canopy species regenerating	100%		
Exotic cover	1.7		
Number of trees with hollows	1		
Total length of fallen logs	16		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Mature
Weeds	–	–	n- weed infestations
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MA14	Date	24/10/24
Vegetation Community	PCT 1692		
1. Site Photo(s)Taken	6101 - 6104		
2. Floristic BioMetric attributes			
Native cover	100.7		
Overstorey:	31		
Midstorey:	35%		
Groundcover(grass):	24.7		
Groundcover (shrub):	6.1		
Groundcover (other):	3.9		
Native species richness:	41		
Proportion of canopy species regenerating	100%		
Exotic cover	1.3		
Number of trees with hollows	3		
Total length of fallen logs	10		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Moderate
Weeds	—	—	n- mod infestations
Pest animals	—	6106	[redacted] Feral dog scat
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

APPENDIX D :

Thomas Mitchell Drive On-site Offset Conservation Area

D.1. Description and Monitoring Photographs

D.1.1. TMON1: PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter

Monitoring site TMON1 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter (DNG), and includes isolated canopy species of *Eucalyptus albens x moluccana*. Native shrubs present include *Acacia parvipinnula* (Silver-stemmed Wattle), *Atriplex semibaccata* (Creeping Saltbush) and *Enchylaena tomentosa* (Ruby Saltbush). Native groundcovers include *Chloris truncata* (Windmill Grass), *Chloris ventricosa* (Tall Chloris), *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Sporobolus creber* (Slender Rat's Tail Grass), *Panicum effusum* (Hairy Panic), *Austrostipa scabra* (Speargrass) and *Austrostipa aristiglumis* (Plains Grass). The total number of native species recorded at TMON1 was 23, with an estimated cover of 109%.Weed cover is low and includes *Carthamus lanatus* (Saffron Thistle), *Senecio madagascariensis* (Fireweed), *Plantago lanceolata* (Lamb's Tongues) and *Lysimachia arvensis* (Scarlet Pimpernel). The total number of exotic species recorded at TMON1 was 29, with an estimated cover of 49%.

North

East

South

West

D.1.2. TMON2: PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter

Monitoring site TMON2 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter, and is dominated by a canopy of *Eucalyptus blakelyi* (Blakely's Red Gum) as well as scattered occurrences of *Eucalyptus albens* x *moluccana*. Native shrubs include *Acacia salicina* (Cooba), *Teucrium junceum*, *Solanum cinereum* (Narrawa Burr), *Eremophilia debilis* (Amulla) and *Cassinia quinquefaria*. Native groundcovers include *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass), *Cymbopogon refractus* (Barbed Wire Grass) and *Lomandra filiformis* subsp. *filiformis*. The total number of native species recorded at TMON2 was 49, with an estimated cover of 127%.

Weed cover is low and includes *Eragrostis curvula* (African Lovegrass), *Lysimachia arvensis* (Scarlet Pimpernel) and *Bryophyllum delagoense* (Mother-of-millions). The total number of exotic species recorded at TMON2 was 20, with an estimated cover of 6%.

North

East

South

West

D.1.3. TMON3: PCT 1692 Bull Oak grassy woodland of the central Hunter Valley

Monitoring site TMON3 is located an area of PCT 1692 Bull Oak grassy woodland of the central Hunter Valley in DNG form. The native canopy includes scattered *Allocasuarina luehmannii* (Bulloak), *Angophora floribunda* (Rough-barked Apple), with *Acacia decora* (Western Silver Wattle) present in the shrub layer. Native groundcovers include *Cynodon dactylon* (Common Couch), *Cymbopogon refractus* (Barbed Wire Grass), *Aristida ramosa* (Purple Wire Grass), *Panic effusum* (Hairy Panic), *Microlaena stipoides* var. *stipoides* (Weeping Grass) and *Lomandra filiformis* subsp. *filiformis*. The total number of native species recorded at TMON3 was 32, with an estimated cover of 99%.

Weed cover is very high and includes *Axonopus fissifolius* (Narrow-leaved Carpet Grass), *Eragrostis curvula* (African Lovegrass), *Senecio madagascariensis* (Fireweed) and *Paspalum dilatatum* (Paspalum). The total number of exotic species recorded at TMON3 was 31, with an estimated cover of 75%.

North

East

South

West

D.1.4. TMON4: PCT 1692 Bull Oak grassy woodland of the central Hunter Valley

Monitoring site TMON4 is located in an area of PCT 1692 Bull Oak grassy woodland of the central Hunter Valley, and is dominated by a canopy of *Allocasuarina luehmannii* (Bull Oak). The area has been previously mulched resulting in a significant thinning of the canopy. Native shrubs include *Sclerolaena birchii* (Galvanised Burr), *Eremophila debilis* (Amulla) and *Enchylaena tomentosa* (Ruby Saltbush). Native groundcovers include *Aristida ramosa* (Purple Wiregrass), *Austrostipa scabra* (Speargrass), *Cymbopogon refractus* (Barbed Wire Grass) and *Microlaena stipoides* var. *stipoides* (Weeping Grass). The total number of native species recorded at TMON4 was 35, with an estimated cover of 41%.

Weed cover is moderate and includes *Cirsium vulgare* (Spear Thistle), *Senecio madagascariensis* (Fireweed), *Opuntia stricta* (Common Prickly Pear) and *Galenia pubescens* (Galenia). The total number of exotic species recorded at TMON4 was 21, with an estimated cover of 22%.

North

East

South

West

D.2. Comparison to Benchmark Values and Previous Years' Data

Table 7 Thomas Mitchell Drive On-site: Comparison between 2019, 2020, 2022 and 2024 data, and benchmark values

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
TMON1 (19)	1	2	6	4	1	2	4	0.35	17.1	0.5	0.1	0.2	50	0	0	29
TMON1 (20)	1	2	9	8	2	2	4	0.4	57.2	0.8	0.2	0.2	50	0	0	42.5
TMON1 (22)	1	3	15	9	1	0	8	1	106.3	1.4	0.1	0	50	0	0	19
TMON1 (24)	**1**	**3**	**9**	**9**	**0**	**1**	**10.0**	**4.3**	**88.0**	**6.2**	**0.0**	**0.1**	**50**	**0**	**0**	**17**
TMON2 (19)	2	5	7	8	1	1	35	1	57.2	0.95	0.1	0.1	50	0	0	77
TMON2 (20)	3	4	10	20	3	3	35.2	0.8	23.9	4.3	0.5	0.3	50	0	0	51
TMON2 (22)	3	6	13	21	2	3	40.2	1.3	86	5	1	0.3	50	0	15.3	55
TMON2 (24)	**3**	**4**	**10**	**26**	**2**	**4**	**45.5**	**2.2**	**73.0**	**5.8**	**0.4**	**0.4**	**50**	**0**	**17.5**	**66**
1692 Bull Oak grassy woodland of the central Hunter Valley																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
TMON3 (19)	1	1	8	10	1	1	0.25	0.1	67.1	1.55	0.2	0.1	50	0	0	62
TMON3 (20)	0	0	13	9	1	0	0	0	84.2	2.7	0.1	0	50	0	0	52
TMON3 (22)	1	1	17	13	1	2	4	0.3	69.5	2.9	0.1	0.2	50	0	0	17
TMON3 (24)	**2**	**1**	**11**	**15**	**1**	**2**	**5.4**	**0.3**	**87.0**	**6.2**	**0.2**	**0.2**	**50**	**0**	**0**	**44**
TMON4 (19)	2	4	5	1	1	1	50.25	0.6	1.05	0.1	0.1	1	50	0	0	76
TMON4 (20)	2	2	9	6	2	3	50.5	2.3	7	0.7	0.2	1.2	50	0	0	83
TMON4 (22)	2	4	11	8	2	3	70.5	0.6	16.9	0.8	0.2	0.5	50	0	0	97
TMON4 (24)	**1**	**3**	**12**	**13**	**2**	**4**	**15.0**	**1.2**	**21.3**	**2.5**	**0.3**	**0.6**	**50**	**0**	**2**	**57**

D.3. Discussion of Changes at Monitoring Points

The following PCTs were assessed within the Thomas Mitchell Drive On-site Offset Conservation Area:

- PCT 1691: 2 monitoring sites (TMON1 and TMON2); and
- PCT 1692: 2 monitoring sites (TMON3 and TMON4).

PCT 1691 is assessed at two monitoring sites in woodland (TMON1 and TMON2). For TMON1, the biometric data is at or above benchmark values for grass and grass like cover. In comparison to the previous years' monitoring, all attributes have remained relatively similar with a slight increase in tree cover observed. For TMON2, the biometric data is at or above benchmark values for forb/fern richness, grass and grass like/litter cover. In comparison to the previous years' monitoring, there has been a steady increase in forb/other richness and tree cover, while all other attributes are relatively similar.

PCT 1692 is assessed at one monitoring site in grassland (TMON3) and one in woodland (TMON4). For the grassland site, the biometric data is at or above benchmark values for grass and grass like/litter cover. In comparison to the previous years' monitoring, all attributes are relatively similar. For the woodland site, the biometric data is at or above benchmark values for litter cover. In comparison to the previous years' monitoring, there was a significant decrease in tree cover as a result of mulching/thinning of canopy recently undertaken and a steady increase in grass and grass like/forb cover. All other attributes have remained relatively similar.

D.4. Walk-through Assessment

Opportunistic observations made while walking/driving through the conservation area are identified in **Figure 4** and **Table 8** below.

Table 8 Opportunistic observations

Figure Label	Observation Type	Species/Notes
3	Weed Infestation	*Hyparrhenia hirta*
27	Weed Infestation	*Hyparrhenia hirta*
34	Mulched/woodchipped woody material	*Allocasuarina luehmannii*
36	Weed Infestation	*Carthamus lanatus*
45	Weed Infestation	*Hypericum perforatum*
50	*Acacia pendula*	Endangered population - BC Act
53	Weed Infestation	*Carthamus lanatus*
54	Weed Infestation	*Carthamus lanatus*
60	Weed Infestation	*Hypericum perforatum*
62	Weed Infestation	*Carthamus lanatus*
69	Weed Infestation	*Hyparrhenia hirta*
72	Canopy Regeneration	*Allocasuarina luehmannii* and *Eucalyptus blakelyi*

Figure Label	Observation Type	Species/Notes
73	Weed Infestation	*Hyparrhenia hirta*
78	Mulched/woodchipped woody material	*Allocasuarina luehmannii*
81	Weed Infestation	*Hypericum perforatum*
83	Weed Infestation	*Hyparrhenia hirta*
90	Weed Infestation	*Hyparrhenia hirta* and *Hypericum perforatum*
93	Weed Infestation	*Hypericum perforatum*
94	*Acacia pendula*	Endangered population - BC Act
106	Weed Infestation	*Hyparrhenia hirta*
107	Weed Infestation	*Hypericum perforatum, Hyparrhenia hirta* and *Verbena bonariensis*
112	*Acacia pendula*	Endangered population - BC Act
120	Plantings	*Eucalyptus* spp.
121	Weed Infestation	*Hyparrhenia hirta* and *Hypericum perforatum*
128	Weed Infestation	*Hyparrhenia hirta*
131	Plantings	*Eucalyptus* spp.
133	Weed Infestation	*Lycium ferocissimum*
145	Plantings	*Eucalyptus* spp.
146	Weed Infestation	*Hypericum perforatum*
147	Weed Infestation	*Carthamus lanatus*
152	Weed Infestation	*Hyparrhenia hirta*
155	Weed Infestation	*Hyparrhenia hirta*
161	Weed Infestation	*Carthamus lanatus*
175	Plantings	*Eucalyptus* spp.
184	Weed Infestation	*Senecio madagascariensis*
186	Weed Infestation	*Hyparrhenia hirta*
199	Weed Infestation	*Carthamus lanatus*
202	Weed Infestation	*Hyparrhenia hirta* and *Hypericum perforatum*
205	Plantings	*Eucalyptus* spp.
207	Weed Infestation	*Hyparrhenia hirta*
208	Weed Infestation	*Carthamus lanatus*
217	Plantings	*Eucalyptus* spp.
219	*Acacia pendula*	Endangered population - BC Act
222	Weed Infestation	*Carthamus lanatus*
224	Weed Infestation	*Bryophyllum delagense*

D.5. Discussion and Recommendations

D.5.1. Discussion of Conservation Values

Overall, the Thomas Mitchell Drive On-site Conservation Area is considered to be in moderate condition. Opportunistic observations made while walking/driving through the conservation area identified the following (refer to **Figure 4** and **Table 8**):

- No signs of rubbish dumping or feral animals;
- Natural regeneration of canopy species;
- Significant planting of canopy species;
- Thinning/mulching of canopy at two separate areas resulting in the thinning of the canopy;
- Presence of *Acacia pendula* (Weeping Myall); and
- Substantial weed infestations of *Hyparrhenia hirta* (Coolatai Grass), *Hypericum perforatum* (St. John's Wort), *Plantago lanceolata* (Lamb's Tongues) and *Verbena bonariensis* (Purpletop) (refer to **Table 8**).

Weed infestations recorded were largely restricted to open grassland areas and included the environmental weeds *Hyparrhenia hirta* (Coolatai Grass), *Hypericum perforatum* (St. John's Wort), *Carthamus lanatus* (Saffron Thistle), *Senecio madagascariensis* (Fireweed), *Bryophyllum delagense* (Mother-of-millions) and *Verbena bonariensis* (Purpletop). Their prevalence is considered to be a result of high levels of seed in the soils as a result of historical agricultural land uses, and not management within the conservation area. Significant plantings and slashing was observed within the conservation area.

D.5.2. Recommendations

Recommendations include continued weed management targeting any high threat exotics (e.g. *Hypericum perforatum*, *Hyparrhenia hirta, Senecio madagascariensis, Bryophyllum delagense, Carthamus lanatus*) as a priority, as well as all other management actions identified in the CA. It is noted that the conservation area contains a known population of the threatened species *Diuris tricolor* (Donkey Orchid). The known occurrences of this species have been well documented through ongoing monitoring surveys. No weed spraying within 200m of any previously mapped occurrences of the species should occur. Further to this, any slashing undertaken within, or nearby mapped occurrences of the species should be undertaken outside of the species' flowering period (September to October).

Although large infestations of weeds not classified as high threat exotics were observed, targeted control of these species is not considered to be economical or that beneficial as a result of the likely high soil seed bank of these species already present. Therefore, it is recommended that the best way to reduce coverage of these species (as well as other species) in the long-term is to undertake additional plantings of appropriate canopy species (i.e. plant the same species as nearby woodland) in open-grassland areas as the prevalence of weeds observed within wooded areas was very low (i.e. conditions under canopy trees is not conducive for the substantial growth of weed species observed in the conservation area). Any plantings should be made within open areas that do not contain large amounts of natural regeneration.

Any additional tree plantings made within open areas should be protected with tree guards and the surrounding exotic vegetation routinely targeted through spot-spraying to increase plantings chances of survival (i.e. reduce competition from surrounding environmental weeds).

Prior to undertaking any slashing works, any naturally regenerating or planted eucalypts should be clearly demarcated to ensure that individuals aren't accidentally removed during the slashing works. Further to this, slashing works should be undertaken prior to the flowering of the most problematic weeds, to ensure they do not set seed.

D.6. Datasheets

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMON1	Date	25/10/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6129 - 6132		
2. Floristic BioMetric attributes			
Native cover	108.1		
Overstorey:	10		
Midstorey:	0%		
Groundcover(grass):	88		
Groundcover (shrub):	4.3		
Groundcover (other):	6.1		
Native species richness:	21		
Proportion of canopy species regenerating	100%		
Exotic cover	49.2		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	no regeneration, but plantings present.
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Low
Weeds	within + surrounds of plot	see plot monitoring photos	Extensive Saffron Thistle
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMOBW2	Date	22/10/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	6001 - 6004		

2. Floristic BioMetric attributes	
Native cover	127
Overstorey:	30.5
Midstorey:	15%
Groundcover(grass):	73
Groundcover (shrub):	2.2
Groundcover (other):	6.3
Native species richness:	48
Proportion of canopy species regenerating	100%
Exotic cover	6
Number of trees with hollows	0
Total length of fallen logs	17.5

3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	~	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Moderate
Weeds	within/adjacent to plot	6006	see figure - Bryophyllum - mother of millions
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMON3	**Date**	25/10/24
Vegetation Community	PCT 1692		
1. Site Photo(s)Taken	6136 - 6139		
2. Floristic BioMetric attributes			

Native cover	99
Overstorey:	3.4
Midstorey:	2%
Groundcover(grass):	87
Groundcover (shrub):	0.3
Groundcover (other):	6.3
Native species richness:	30
Proportion of canopy species regenerating	100%
Exotic cover	73.5
Number of trees with hollows	0
Total length of fallen logs	0

3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	around plot	see monitoring photos	Some regeneration of All. leuhmannii + E. blakelyi in surrounds
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Low
Weeds	surrounds of plot	6139	Coolatai grass, Senecio madagascariensis + Verbena rigida in surrounds
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMON4	Date	25/10/24
Vegetation Community	PCT 1692		
1. Site Photo(s)Taken	6146 - 6149		
2. Floristic BioMetric attributes			
Native cover	39.9		
Overstorey:	15		
Midstorey:	0%		
Groundcover(grass):	20.3		
Groundcover (shrub):	1.2		
Groundcover (other):	0.6		
Native species richness:	34		
Proportion of canopy species regenerating	100%		
Exotic cover	16.5		
Number of trees with hollows	0		
Total length of fallen logs	2		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	Area previously mulched - see monitoring photos
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Mulch
Weeds	–	–	Senecio madagascariensis + Rhytidosperma setaceum coming up
Pest animals	–	–	–
Visitor impact/vehicles	–	–	Mulching
Rubbish dumping	–	–	

* Area mulched *

APPENDIX E :

Thomas Mitchell Drive Off-site Offset Conservation Area

E.1. Description and Monitoring Photographs

E.1.1. TMOF1: PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter

Monitoring site TMOF1 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter in DNG form. It includes canopy and shrub species planted greater than five years ago and includes *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Acacia salicina* (Cooba), *Acacia implexa* (Hickory Wattle) and *Acacia falcata* that appear to be in good health/condition. Native groundcovers include *Aristida ramosa* (Purple Wire Grass), *Cymbopogon refractus* (Barbed Wire Grass), *Dicantheum sericeum* (Queensland Bluegrass) and *Chloris ventricosa* (Tall Chloris). The total number of native species recorded at TMOF1 was 43, with an estimated cover of 147%.

Weed cover is low with minor occurrences of *Plantago lanceolata* (Lamb's Tongue), *Hypericum perforatum* (St. Johns Wart) and *Senecio madagascariensis* (Fireweed) recorded. The total number of exotic species recorded at TMOF1 was 31, with an estimated cover of 13%.

North

East

South

West

E.1.2. TMOF2: PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter

Monitoring site TMOF2 is located in an area of PCT 1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter, and is dominated by a canopy of *Eucalyptus crebra* (Narrow-leaved Ironbark). Native shrubs include *Solanum cinereum* (Narrawa Burr), *Eremophila debilis* (Amulla) and *Notelaea macrocarpa* var. *microcharpa*. Native groundcovers include of *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wire Grass), *Austrostipa scabra* (Wheatgrass) and *Cymbopogon refractus* (Barbed Wire Grass). The total number of native species recorded at TMOF2 was 44, with an estimated cover of 159%

Weed cover is low with minor occurrences of *Senecio madagascariensis* (Fireweed), *Lolium perenne* (Perennial Ryegrass) and *Lysimachia arvensis* (Scarlet Pimpernel) recorded. The total number of exotic species recorded at TMOF2 was 22, with an estimated cover of 5%.

North

East

South

West

E.1.3. TMOF3: PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley

Monitoring site TMOF3 is located in an area of PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley and is dominated by a canopy of *Casuarina glauca* (Swamp Oak). Native groundcovers include *Microlaena stipoides* var. *stipoides* (Weeping Grass) and *Austrostipa verticillata* (Slender Bamboo Grass). The total number of native species recorded at TMOF3 was 5, with an estimated cover of 95%.

Weed cover is moderate with *Bromus catharticus* (Prairie Grass), *Galium aparine* (Goosegrass) and *Rapistrum rugosum* (Turnip Weed) were recorded. The total number of exotic species recorded at TMOF3 was 11, with an estimated cover of 30%.

North

East

South

West

E.1.4. TMOF4: PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley

Monitoring site TMOF4 is located in an area of PCT 1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley, and is dominated by a canopy of *Casuarina glauca* (Swamp Oak) and *Eucalyptus blakelyi* (Blakely's Red Gum), with the native shrub *Maireana microphylla* (Small-leaf Bluebush) also recorded. Native groundcovers include *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Austrostipa verticillata* (Slender Bamboo Grass), *Cynodon dactylon* (Common Couch) and *Commelina cyanea* (Native Wandering Jew). The total number of native species recorded at TMOF4 was 18, with an estimated cover of 151%.

Weed cover is high with significant infestations of *Lycium ferocissimum* (African Boxthorn), *Bromus catharticus* (Praire Grass) and *Ehrharta erecta* (Panic Veldtgrass) recorded. The total number of exotic species recorded at TMOF4 was 22, with an estimated cover of 41%.

North

East

South

West

E.1.5. TMOF5: PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Monitoring site TMOF5 is located in an area of PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley, and is dominated by a canopy of *Eucalyptus blakelyi* (Blakely's Red Gum) as well as scattered *Eucalyptus crebra* (Narrow-leaved Ironbark) and. Native shrubs include *Cassinia Sifton*, *Eremophila debilis* (Amulla) and *Solanum cinereum* (Narrawa Burr). Native groundcovers include *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Cymbopogon refractus* (Barbed Wire Grass), *Eragrostis leptostachya* (Paddock Lovegrass) and *Chloris ventricosa* (Tall Chloris). The total number of native species recorded at TMOF5 was 42, with an estimated cover of 161%.

Weed cover is low to moderate with minor occurrences of *Lolium perenne* (Perennial Ryegrass), *Paspalum dilatatum* (Paspalum), *Senecio madagascariensis* (Fireweed) and *Opuntia stricta* (Common Prickly Pear) recorded. The total number of exotic species recorded at TMOF5 was 25, with an estimated cover of 24%.

North

East

South

West

E.1.6. TMOF6: PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley

Monitoring site TMOF6 is located in an area of PCT 42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley, and is dominated by a canopy of *Eucalyptus blakelyi* (Blakely's Red Gum). Native shrubs include *Acacia salicina* (Cooba) and *Maireana microphylla* (Small-leaf Bluebush). Native groundcovers include *Microlaena stipoides var. stipoides* (Weeping Grass), *Cynodon dactylon* (Couch), *Aristida ramosa* (Purple Wiregrass), *Carex inversa* (Knob Sedge) and *Cyperus gracilis* (Slender Flat-sedge). The total number of native species recorded at TMOF6 was 21, with an estimated cover of 91%.

Weed cover at TMOF6 is high with infestations of *Galenia pubescens* (Galenia) with *Bromus catharticus* (Prairie Grass), *Lycium ferocissimum* (African Boxthorn) and *Lolium perenne* (Perennial Ryegrass) also recorded. The total number of exotic species recorded at TMOF6 was 21, with an estimated cover of 51%.

North

East

South

West

E.2. Comparison to Benchmark Values and Previous Years' Data

Table 9 Thomas Mitchell Drive Off-site: Comparison between 2019, 2020, 2022 and 2024 data, and benchmark values

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
1691 Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
TMOF1 (19)	2	5	9	11	1	2	0.9	0.75	94.2	1.2	0.1	0.2	50	0	2	50
TMOF1 (20)	2	4	12	11	1	4	1.2	0.8	76.6	1.6	0.1	0.5	50	0	2	52
TMOF1 (22)	3	2	14	10	1	3	3.6	0.8	88.4	14.3	0.5	0.4	50	0	0	16
TMOF1 (24)	**3**	**3**	**16**	**17**	**1**	**3**	**6.0**	**0.9**	**131.4**	**7.8**	**0.2**	**0.4**	**50**	**0**	**0**	**12**
TMOF2 (19)	0	4	13	10	1	3	0	0.8	51.6	1.2	0.1	0.3	50	0	8.5	57
TMOF2 (20)	1	3	16	23	1	4	30.0	0.7	70.2	2.9	0.2	0.4	50	0	8.5	81
TMOF2 (22)	1	2	11	16	1	3	30	0.6	74.4	2.1	0.2	0.3	50	0	9	28
TMOF2 (24)	**2**	**2**	**15**	**21**	**1**	**3**	**30.2**	**0.3**	**123.4**	**4.3**	**0.2**	**0.4**	**50**	**0**	**12**	**55**
1731 Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley																

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
Bench-mark values	**4**	**9**	**7**	**6**	**2**	**5**	**27**	**19**	**51**	**3**	**2**	**3**	**50**	**5**	**44**	**44**
TMOF3 (19)	2	1	4	5	0	0	19	0.1	90.1	0.7	0	0	50	0	16	68
TMOF3 (20)	2	0	3	3	0	1	18	0.0	97.0	0.5	0	0.1	50	0	17.5	70
TMOF3 (22)	2	0	2	2	0	0	12	0	100	0.5	0	0	50	0	30.5	2
TMOF3 (24)	**1**	**0**	**2**	**2**	**0**	**0**	**15.0**	**0.0**	**80.0**	**0.2**	**0.0**	**0.0**	**50**	**0**	**34**	**9**
TMOF4 (19)	2	1	8	4	0	0	62	0.5	58.3	1.3	0	0	50	1	12.5	73
TMOF4 (20)	3	1	12	8	0	1	31.2	0.2	85.6	1.0	0	0.1	50	0	11	71
TMOF4 (22)	2	0	4	2	0	0	40.3	0	76.2	0.7	0	0	50	1	14.5	13
TMOF4 (24)	**2**	**1**	**5**	**9**	**0**	**1**	**66.0**	**0.5**	**83.1**	**1.2**	**0.0**	**0.1**	**50**	**1**	**16.5**	**35**
42 River Red Gum / River Oak riparian woodland wetland in the Hunter Valley																
Bench-mark values	**4**	**9**	**9**	**10**	**3**	**4**	**38**	**10**	**35**	**6**	**1**	**1**	**50**	**4**	**36**	**24**
TMOF5 (19)	3	2	11	7	2	3	40.25	1.5	69.2	0.7	0.2	0.3	50	0	18.5	81
TMOF5 (20)	4	3	13	17	1	2	40.7	0.8	65.9	2.1	0.1	0.2	50	1	24.5	85
TMOF5 (22)	3	2	17	12	0	3	35.7	1.1	97.2	4.4	0	0.3	50	3	29	36
TMOF5 (24)	**2**	**3**	**15**	**18**	**1**	**3**	**35.0**	**1.7**	**121.1**	**2.6**	**0.2**	**0.5**	**50**	**3**	**30**	**50**

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
TMOF6 (19)	1	1	6	4	0	0	30	2	50.3	1.4	0	0	50	1	24.5	73
TMOF6 (20)	2	1	9	10	1	2	26	0.8	81.4	4.7	0.1	0.2	50	2	26	74
TMOF6 (22)	2	0	3	4	0	0	41	0	30.1	2.4	0	0	50	3	35	9
TMOF6 (24)	**2**	**1**	**7**	**9**	**0**	**2**	**37.0**	**0.5**	**52.6**	**1.1**	**0.0**	**0.2**	**50**	**2**	**32.5**	**34**

E.3. Discussion of Changes at Monitoring Points

The following PCTs were assessed within the Thomas Mitchell Drive Off-site Offset Conservation Area:

- PCT 1691: 2 monitoring sites (TMOF1 and TMOF2);
- PCT 1731: 2 monitoring sites (TMOF3 and TMOF4); and
- PCT 42: 2 monitoring sites (TMOF5 and TMOF6).

PCT 1691 is assessed at one monitoring site in grassland (TMOF1) and one in woodland (TMOF2). For the grassland site (TMOF1), the biometric data is at or above benchmark for grass and grass like/forb richness and grass and grass like cover. In comparison to previous years' monitoring, there has been a steady increase in grass and grass like richness and a significant increase in grass and grass like cover from FY22 to FY24. For the woodland site, the biometric data is at or above benchmark for grass and grass like/forb richness and grass and grasslike/litter cover. In comparison to previous years' monitoring, there has been a steady increase in grass and grass like/forb cover, while all other attributes have remained relatively similar.

PCT 1731 is assessed at two monitoring sites, both of which are in riparian forest (TMOF3 and TMOF4). For TMOF3, the biometric data is at or above benchmark values for grass and grass like cover. In comparison to previous years' monitoring, all attributes have remained relatively similar. For TMOF4, the biometric data is at or above benchmark values for forb richness and tree/grass and grass like cover. In comparison to previous years' monitoring, all attributes have remained relatively similar.

PCT 42 is assessed at two monitoring sites, both of which are in woodland (TMOF5 and TMOF6). For TMOF5, the biometric data is at or above benchmark for grass and grass like/forb richness and grass and grass like/litter cover. In comparison to previous years' monitoring, there has been an increase in grass and grass like cover, while all other attributes have remained relatively similar. For TMOF6, the biometric data is at or above benchmark for grass and grass like/litter cover. In comparison to previous years' monitoring, all attributes have remained relatively similar.

E.4. Walk-through Assessment

Opportunistic observations made while walking/driving through the conservation area are identified in **Figure 5** and **Table 10** below.

Table 10 Opportunistic observations

Figure Label	Observation Type	Species/Notes
6	Canopy Regeneration	*Eucalyptus crebra*
17	Weed Infestation	*Carthamus lanatus*
20	Weed Infestation	*Verbena bonariensis*
22	Plantings	*Eucalyptus* spp.
28	Canopy Regeneration	*Eucalyptus crebra*

Figure Label	Observation Type	Species/Notes
33	Plantings	*Eucalyptus* spp.
38	Weed Infestation	*Verbena bonariensis*
40	Canopy Regeneration	*Eucalyptus crebra*
41	Canopy Regeneration	*Eucalyptus crebra*
42	Canopy Regeneration	*Eucalyptus crebra*
44	Canopy Regeneration	*Eucalyptus crebra*
46	Weed Infestation	*Senecio madagascariensis* and *Opuntia stricta*
48	Plantings	*Eucalyptus* spp.
58	Canopy Regeneration	*Eucalyptus blakelyi*
64	Canopy Regeneration	*Eucalyptus crebra* and *Eucalyptus blakelyi*
65	Plantings	*Eucalyptus* spp.
71	Weed Infestation	*Verbena bonariensis*
74	Plantings	*Eucalyptus* spp.
75	Canopy Regeneration	*Eucalyptus* spp.
92	Canopy Regeneration	*Eucalyptus crebra*
104	Weed Infestation	*Galenia pubescens*
105	Weed Infestation	*Hypericum perforatum*
113	Canopy Regeneration	*Eucalyptus* spp.
118	Plantings	*Eucalyptus* spp.
124	Canopy Regeneration	*Eucalyptus crebra*
137	Plantings	*Eucalyptus spp.*
140	Canopy Regeneration	*Eucalyptus blakelyi* and *Eucalyptus albens x moluccana*
144	Weed Infestation	*Hypericum perforatum*
158	Weed Infestation	*Lycium ferocissimum*
162	Weed Infestation	*Galenia pubescens* and *Opuntia stricta*
165	Plantings	*Eucalyptus* spp.
168	Mature Plantings	*Eucalyptus albens x moluccana, Eucalyptus crebra* and *Eucalyptus blakelyi*
177	Weed Infestation	*Verbena bonariensis* and *Senecio madagascariensis*
189	Plantings	*Eucalyptus* spp.
192	Canopy Regeneration	*Eucalyptus crebra*
198	Canopy Regeneration	*Eucalyptus crebra* and *Eucalyptus blakelyi*
200	Canopy Regeneration	*Casurina glauca* and *Eucalyptus blakelyi*
216	Canopy Regeneration	*Eucalyptus* spp.
218	Weed Infestation	*Hypericum perforatum*

Figure Label	Observation Type	Species/Notes
220	Weed Infestation	*Galenia pubescens*
223	Canopy Regeneration	*Eucalyptus* spp.
-	Feral Rabbit Warren	-
-	Feral Hare	-

E.5. Discussion and Recommendations

E.5.1. Discussion of Conservation Values

Overall, the Thomas Mitchell Drive Off-site Offset Conservation Area is considered to be in moderate to good condition. Opportunistic observations made while walking/driving through the conservation area identified the following (refer to **Figure 5** and **Table 10**):

- Signs of feral animals limited to the presence of a European Rabbit (*Oryctolagus cuniculus*) warren and one European Hare (*Lepus europaeus*) recorded;
- No signs of rubbish dumping;
- Substantial plantings (both new and mature) of canopy species throughout previously cleared areas;
- Substantial areas of natural regeneration of canopy species within previously cleared areas; and
- Weed infestations of *Hypericum perforatum* (St. John's Wort), *Galenia pubescens* (Galenia), *Carthamus lanatus* (Saffron Thistle), *Verbena bonariensis* (Purpletop), *Opuntia stricta* (Common Prickly Pear), *Senecio madagascariensis* (Fireweed) and *Lycium ferocissimum* (Boxthorn).

With the exception of *Lycium ferocissimum, Opuntia stricta* and *Galenia pubescens* within some woodland areas, weed infestations recorded were largely restricted to open grassland areas that have a high soil seed bank of exotic species as a result of historical agricultural practices.

E.5.2. Recommendations

Recommendations include continued weed management targeting any high threat exotics (e.g. *Lycium ferocissimum*, *Hypericum perforatum*, *Galenia pubescens*, *Carthamus lanatus* and *Senecio madagascariensis*) as a priority, as well as all other management actions identified in the CA. Although large infestations of environmental weeds not classified as high threat exotics were observed, targeted control of these species is not considered to be economical or that beneficial as a result of the likely high soil seed bank of these species already present. Therefore, it is recommended that the best way to reduce coverage of these species in the long-term is to undertake additional plantings of appropriate canopy species (i.e. plant the same species as nearby woodland) in open-grassland areas as the prevalence of these weeds within wooded areas is very low (i.e. conditions under canopy trees is not conducive for the weed species recorded). Any plantings should be made within open areas that do not contain large amounts of natural regeneration.

Any additional tree plantings made within open areas should be protected with tree guards and the surrounding exotic vegetation routinely targeted through spot-spraying to increase plantings chances of survival (i.e. reduce competition from surrounding environmental weeds).

Prior to undertaking any slashing works, any naturally regenerating or planted eucalypts should be clearly demarcated to ensure that individuals aren't accidentally removed during the slashing works. Further to this, slashing works should be undertaken prior to the flowering of the most problematic weeds, to ensure they do not set seed.

It is also recommended that targeted feral animal control be implemented at the locations identified in **Figure 5** to minimise their spread to additional areas of the conservation area.

E.6. Datasheets

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	THOF1	Date	17/10/24
Vegetation Community	~~1843~~ 1691		
1. Site Photo(s)Taken	5935 – 5938		
2. Floristic BioMetric attributes			
Native cover	136.4		
Overstorey:	6		
Midstorey:	~~6~~ 9%		
Groundcover(grass):	12.4		
Groundcover (shrub):	0.9		
Groundcover (other):	~~1~~ 8.1		
Native species richness:	39		
Proportion of canopy species regenerating	100%		
Exotic cover	13.4		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	see figure
Threatened species sightings	\	\	\
Fire event/fuel	\	\	\ low
Weeds	~~\~~	~~1~~	see figure
Pest animals	\	\	
Visitor impact/vehicles	\	\	\
Rubbish dumping	\	\	\

Note: Site includes mature plantings that are in good health. See plot data for species listed.

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMOF2	Date	22/10/24
Vegetation Community	PCT 1691		
1. Site Photo(s)Taken	5987 - 5998		
2. Floristic BioMetric attributes			
Native cover	157.6		
Overstorey:	20.2		
Midstorey:	10%		
Groundcover(grass):	122.4		
Groundcover (shrub):	0.3		
Groundcover (other):	4.7		
Native species richness:	41		
Proportion of canopy species regenerating	100%		
Exotic cover	5.3		
Number of trees with hollows	6		
Total length of fallen logs	12		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Moderate
Weeds			See plot data + figure
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMOF3	**Date**	22/10/24
Vegetation Community	PCT 1731		
1. Site Photo(s)Taken	5994 – 5997		
2. Floristic BioMetric attributes			
Native cover	95		
Overstorey:	13		
Midstorey:	2%		
Groundcover(grass):	80		
Groundcover (shrub):	0		
Groundcover (other):	0		
Native species richness:	3		
Proportion of canopy species regenerating	100%		
Exotic cover	30.2		
Number of trees with hollows	2		
Total length of fallen logs	34		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	–	–	–
Fire event/fuel	–	–	Moderate
Weeds			See figure
Pest animals	–	–	
Visitor impact/vehicles	–	–	
Rubbish dumping	–	–	

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet

Monitoring Point Number	TMOF4	Date 22/10/24	
Vegetation Community	PCT 1731		
1. Site Photo(s)Taken	5974 - 5977		

2. Floristic BioMetric attributes

Native cover	145.6
Overstorey:	56
Midstorey:	10%
Groundcover(grass):	78.1
Groundcover (shrub):	0.5
Groundcover (other):	1
Native species richness:	14
Proportion of canopy species regenerating	100%
Exotic cover	41
Number of trees with hollows	1
Total length of fallen logs	16.5

3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	See map/figure
Threatened species sightings	/	/	
Fire event/fuel	—	—	moderate
Weeds	in plot	see monitoring photos	Boxthorn, Galenia ph 5979
Pest animals	in plot		See map/figure - rabbit warren
Visitor impact/vehicles	/	/	
Rubbish dumping	/	/	

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMOF5	Date	18/10/24
Vegetation Community	PCT 42		
1. Site Photo(s)Taken	5961 - 5964		
2. Floristic BioMetric attributes			
Native cover	150.8		
Overstorey:	30		
Midstorey:	5%		
Groundcover(grass):	111.1		
Groundcover (shrub):	1.7		
Groundcover (other):	3		
Native species richness:	38		
Proportion of canopy species regenerating	100%		
Exotic cover	24.1		
Number of trees with hollows	2		
Total length of fallen logs	30		

3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	✓	✓	
Fire event/fuel	✓	✓	moderate
Weeds	–	–	see figure
Pest animals	✓	–	
Visitor impact/vehicles	–	–	
Rubbish dumping	✓	✓	

Initials

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	TMOF6	Date	22/10/24
Vegetation Community	PCT 42		
1. Site Photo(s)Taken	5980 - 5983		
2. Floristic BioMetric attributes			
Native cover	86.2		
Overstorey:	37		
Midstorey:	0 %		
Groundcover(grass):	47.6		
Groundcover (shrub):	0.5		
Groundcover (other):	1.1		
Native species richness:	18		
Proportion of canopy species regenerating	100%		
Exotic cover	50.7		
Number of trees with hollows	3		
Total length of fallen logs	32.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	within plot	—	natural regen of E. blakelyi
Threatened species sightings	—	—	—
Fire event/fuel	—	—	moderate
Weeds	—		galenia - ~~scattered~~
Pest animals	within plot	—	rabbit warren
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

APPENDIX F :

Middle Deep Creek and Oakvale Offset Conservation Area

F.1. Description and Monitoring Photographs

F.1.1. MDC1: PCT 281 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

Monitoring site MDC1 is located an area of PCT 281 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, and is dominated by a canopy of *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus melliodora* (Yellow Box) and *Eucalyptus albens* (White Box), as well as a few *Notelaea macrocarpa* (Native Olive). Common native groundcover species includes, *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Echinopogon caespitosus* (Bushy Hedgehog-grass), *Poa labillardierei* (Tussock), *Sorghum leiocladum* (Wild Sorghum), *Elymus scaber* (Wheatgrass) and *Aristida ramosa* (Purple Wiregrass). The total number of native species recorded at MDC1 is 41, with an estimated cover of 115%. Weed cover is moderate and includes *Lolium perenne* (Perennial Ryegrass), *Bidens pilosa* (Cobbler's Pegs) and *Trifolium arvense* (Haresfoot Clover). The total number of exotic species recorded at MDC1 is 16, with an estimated cover of 21%.

North

East

South

West

F.1.2. MDC2: PCT 618 White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Monitoring site MDC2 is located in an area of PCT 618 White Box x Grey Box – Red Gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley, and is dominated by a canopy of *Eucalyptus albens* (White Box) and *Eucalyptus blakelyi* (Blakely's Red Gum). The shrub layer includes regrowth canopy species as well as *Cassinia quinquefaria, Bursaria spinosa* (Native Blackthorn) and *Olearia elliptica* (Sticky Daisy-bush). Common native groundcovers includes *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichelachne micrantha* (Shorthair Plumegrass), *Aristida ramosa* (Purple Wiregrass), *Rytidosperma pallidum* (Redanther Wallaby Grass) and *Bothriochloa macra* (Red Grass). The total number of native species recorded at MDC2 was 42, with an estimated cover of 104%.

Weed cover is high and includes *Lolium perenne* (Perennial Ryegrass), *Trifolium campestre* (Hop Clover) and *Bromus molliformis* (Soft Brome). The total number of exotic species recorded at MDC2 was 17, with an estimated cover of 31%.

North

East

South

West

F.1.3. MDC3: PCT 1684 Silvertop Stringybark - Rough-barked Apple - Bundy open forest of the Liverpool Ranges and Northern Tablelands escarpment

Monitoring site MDC3 is located in an area of PCT 1684 Silvertop Stringybark – Rough-barked Apple – Bundy open forest of the Liverpool Ranges and Northern Tablelands escarpment, and is dominated by a canopy of *Eucalyptus albens* (White Box) with *Eucalyptus goniocalyx* (Bundy), *Eucalyptus laevopinea* (Silver-top Stringybark) and *Brachychiton populneus* (Kurrajong) also present. The midstory/shrub layer includes regrowth canopy species as well as *Notelaea microcarpa* (Native Olive), *Cassinia quinquefaria*, *Bursaria spinosa* (Native Blackthorn), *Olearia elliptica* (Sticky Daisy-bush) and *Acacia implexa* (Hickory Wattle). Common native groundcover species include *Microlaena stipoides var. stipoides* (Weeping Grass), *Dichelachne micrantha* (Shorthair Plumegrass), *Poa sieberiana* (Snowgrass), *Aristida ramosa* (Purple Wiregrass) and *Bothriochloa macra* (Red Grass). The total number of native species recorded at MDC3 was 45, with an estimated cover of 102%.

Weed cover is moderate and includes *Lolium perenne* (Perennial Ryegrass), *Briza minor* (Shivery Grass), *Crepis capillaris* (Smooth Hawksbeard) and *Nasella trichotoma* (Serrated Tussock). The total number of exotic species recorded at MDC3 was 20, with an estimated cover of 19%.

North

East

South

West

F.1.4. MDC4: PCT 1684 Silvertop Stringybark - Rough-barked Apple - Bundy open forest of the Liverpool Ranges and Northern Tablelands escarpment

Monitoring site MDC4 is located in an area of PCT 1684 Silvertop Stringybark – Rough-barked Apple – Bundy open forest of the Liverpool Ranges and Northern Tablelands escarpment in DNG form. No canopy or shrub species present. Common groundcover species present include *Microlaena stipoides var. stipoides* (Weeping Grass), *Elymus scaber* (Wheatgrass), *Hydrocotyle laxiflora* (Stinking Pennywort), *Rytidosperma pallidum* (Redanther Wallaby Grassy) and *Rytidosperma setaceum* (Small-flowered Wallaby-grass). The total number of native species recorded at MDC4 was 20, with an estimated cover of 45%.

Weed cover is very high with the most common exotics being *Lolium perenne* (Perennial Ryegrass), *Cirsium vulgare* (Spear Thistle) and *Hypericum perforatum* (St. Johns Wort). The total number of exotic species recorded at MDC4 was 21, with an estimated cover of 60%.

North

East

South

West

F.1.5. MDC5: PCT 281 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

Monitoring site MDC5 is located in an area of PCT 281 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, and is dominated by a canopy of *Eucalyptus melliodora* (Yellow Box) and *Eucalyptus blakelyi* (Blakely's Red Gum). The midstorey/shrub layer includes regrowth canopy species as well as *Notelaea microcarpa* (Native Olive), *Acacia paradoxa* (Kangaroo Thorn), *Solanum cinereum* (Narrawa Burr) and *Bursaria spinosa* (Native Blackthorn). Common native groundcovers include, *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Austrostipa verticillata* (Slender Bamboo Grass), *Elymus scaber* (Wheatgrass) and *Sigesbeckia orientalis* (Indian Weed). The total number of native species recorded at MDC5 was 48, with an estimated cover of 109%. Weed cover is moderate and includes *Lolium perenne* (Perennial Ryegrass), *Cirsium vulgare* (Spear Thistle) and *Bromus catharticus* (Praire Grass). The total number of exotic species recorded at MDC5 was 25, with an estimated cover of 29%.

North

East

South

West

F.1.6. MDC6: PCT 618 White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley

Monitoring site MDC6 is located in an area of PCT 618 White Box x Grey Box – Red Gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley in DNG form. No canopy or shrub species are present. Common native groundcovers include *Aristida ramosa* (Purple Wiregrass), *Poa labillardierei* (Tussock), *Microlaena stipoides* var. *stipoides* (Weeping Grass) and *Elymus scaber* (Wheatgrass). The total number of native species recorded at MDC6 was 32, with an estimated cover of 109%.

Weed cover is moderate to high and includes *Lolium perenne* (Perennial Ryegrass), *Briza minor* (Shivery Grass), *Trifolium arvense* (Haresfoot Clover) and *Trifolium campestre* (Hop Clover). The total number of exotic species recorded at MDC6 was 25, with an estimated cover of 38%.

North

East

South

West

F.2. Comparison to Benchmark Values and Previous Years' Data

Table 11 Middle Deep Creek and Oakvale: Comparison between 2019, 2020 and 2022 data, and benchmark values

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
1684 Silvertop Stringybark - Rough-barked Apple - Bundy open forest of the Liverpool Ranges and Northern Tablelands escarpment																
Bench-mark values	**6**	**17**	**7**	**12**	**3**	**8**	**41**	**62**	**18**	**5**	**9**	**11**	**80**	**3**	**65**	**61**
MDC4 (19)	0	0	3	5	0	1	0	0	3.1	20.6	0	0.1	80	0	5.5	23
MDC4 (20)	0	1	7	7	0	1	0	0.2	19.8	1.0	0	0.1	80	0	5.5	24
MDC4 (22)	0	0	6	8	0	0	0	0	17.2	10.6	0	0	80	0	2.5	20
MDC4 (24)	**0**	**0**	**10**	**9**	**0**	**1**	**0**	**0**	**34**	**10.1**	**0**	**0.4**	**80**	**0**	**3**	**12**
MDC3 (19)	4	3	6	4	0	3	18.5	0.4	2.6	0.5	0	0.3	80	1	64	62
MDC3 (20)	5	2	14	24	0	4	32.1	0.3	19.1	3.1	0	0.4	80	1	65	59
MDC3 (22)	4	3	7	20	0	2	40.8	1.2	46.5	14.6	0	0.3	80	0	61.5	12
MDC3 (24)	**5**	**4**	**10**	**21**	**0**	**5**	**43.1**	**3**	**42.8**	**10.9**	**0**	**2.0**	**80**	**1**	**64.5**	**30**
281 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																
Bench-mark values	**4**	**6**	**10**	**13**	**1**	**3**	**21**	**5**	**45**	**8**	**0**	**1**	**50**	**2**	**34**	**35**

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
MDC5 (19)	3	2	10	7	0	2	18	0.2	12.4	0.8	0	0.2	50	2	58	59
MDC5 (20)	2	2	11	19	0	3	35.0	0.5	18.0	2.3	0	0.3	50	3	60	52
MDC5 (22)	3	4	7	20	0	2	48	1	44	23.2	0	0.5	50	2	56	7
MDC5 (24)	**3**	**3**	**12**	**25**	**0**	**5**	**45**	**1.6**	**42.8**	**17.8**	**0**	**1.4**	**50**	**3**	**56.5**	**12**
MDC1 (19)	4	0	7	4	1	1	26.1	0	21.6	0.4	0.1	0.1	50	0	12.2	53
MDC1 (20)	2	2	11	18	1	2	28.0	0.4	33.9	2.1	0.1	0.4	50	1	18.3	59
MDC1 (22)	3	0	8	18	0	2	48	0	57.2	19	0	0.6	50	0	21.8	9
MDC1 (24)	**4**	**0**	**12**	**22**	**0**	**3**	**50.4**	**0**	**51.6**	**10.5**	**0**	**2.7**	**50**	**1**	**46.5**	**39**
618 White Box x Grey Box - Red Gum - Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley																
Bench-mark values	**5**	**8**	**12**	**14**	**2**	**5**	**53**	**16**	**58**	**9**	**1**	**4**	**50**	**3**	**40**	**40**
MDC6 (19)	0	0	6	4	1	1	0	0	51.5	0.8	0.2	0.1	50	0	0	21
MDC6 (20)	0	0	13	13	2	3	0	0	73.8	1.8	0.3	0.3	50	0	0	24
MDC6 (22)	0	0	10	26	1	1	0	0	24.7	79.8	0.1	0.1	50	0	0	10
MDC6 (24)	**0**	**0**	**11**	**18**	**1**	**2**	**0**	**0**	**78.6**	**28.5**	**0.6**	**1.4**	**50**	**0**	**0**	**13**
MDC2 (19)	3	4	8	4	1	2	19	1.2	15.7	0.5	0.1	0.2	50	0	48	56
MDC2 (20)	3	4	11	15	1	2	22.2	0.9	39.0	2.3	0.1	0.3	50	0	51	30

Site ID (Monitoring Year)	Tree Richness	Shrub Richness	Grass and Grass like Richness	Forb Richness	Fern Richness	Other Richness	Tree Cover	Shrub Cover	Grass and Grass Like Cover	Forb Cover	Fern Cover	Other Cover	Large Tree Threshold Size	Number of Large Trees	Total Length Fallen Logs	Litter Cover
MDC2 (22)	2	3	6	13	0	3	25	6	42.2	10	0	0.7	50	0	73.3	14
MDC2 (24)	**3**	**3**	**14**	**19**	**0**	**3**	**30.6**	**10.6**	**49.1**	**11.8**	**0**	**1.8**	**50**	**0**	**74**	**26**

F.3. Discussion of Changes at Monitoring Points

The following PCTs have been assessed within the Middle Deep Creek and Oakvale Offset Conservation Area:

- PCT 1684: 2 monitoring sites (MDC3 and MDC4);
- PCT 281: 2 monitoring sites (MDC5 and MDC1); and
- PCT 618: 2 monitoring sites (MDC2 and MDC6).

PCT 1684 is assessed at one monitoring site in forest (MDC3) and one monitoring site in grassland (MDC4). For the forest site the biometric data is at or above benchmark values for grass and grass like/forb richness and tree/grass and grass like/forb cover. In comparison to previous years' monitoring, there has been a steady increase in tree cover, while all other attributes have remained relatively similar. For the grassland site the biometric data is at or above benchmark for grass and grass like richness and grass and grass like/forb cover. In comparison to previous years' monitoring, all attributes have remained relatively similar.

PCT 281 is assessed at two monitoring sites within woodland (MDC5 and MDC1). At MDC5, the biometric data is at or above benchmark for grass and grass like/forb/other richness and tree/forb/other cover, number of large trees and length of fallen logs. In comparison to previous years' data, there has been a steady increase in forb richness and shrub/other cover, while all other attributes have remained relatively similar. At MDC1, the biometric data is at or above benchmark for tree/grass and grass like/forb/other richness and tree/grass and grass like/forb/other/litter cover and total length of fallen logs. In comparison to previous years' data, there has been a steady increase in tree/other cover and length of fallen logs, while all other attributes have remained relatively similar.

PCT 618 is assessed at one monitoring site in forest (MDC2) and one monitoring site in grassland (MDC6). For MDC2, the biometric data is at or above benchmark for grass and grass like/forb richness and forb cover, as well as length of fallen logs. In comparison to previous years' monitoring, there has been a steady increase in tree/grass and grass like/forb/other cover, while all other attributes have remained relatively similar. For MDC6, the biometric data is at or above benchmark for forb richness and grass and grass like/forb cover, while all other attributes have remained relatively similar.

F.4. Walk-through Assessment

Opportunistic observations made while walking/driving through the conservation area are identified in **Figure 6** and **Table 12** below.

Table 12 Opportunistic observations

Figure Label	Observation Type	Species/Notes
225	Weed infestation	*Verbena bonariensis, Hypericum perforatum* and *Carthamus lanatus*
226	Plantings	*Eucalyptus* spp.
228	Weed infestation	*Hypericum perforatum*

Figure Label	Observation Type	Species/Notes
230	Weed infestation	*Plantago lanceolota, Cirsium vulgare, Hypericum perforatum* and *Verbena bonariensis*
231	Weed infestation	*Hypericum perforatum*
232	Weed infestation	*Gomphocarpus fruticosus, Cirsium vulgare* and *Hypericum perforatum*
234	Weed infestation	*Hypericum perforatum, Cirsium vulgare, Conyza sumatrensis* and *Opuntia stricta*
237	Weed infestation	*Hypericum perforatum*
238	Weed infestation	*Plantago lanceolota* and *Carthamus lanatus*
240	Weed infestation	*Hypericum perforatum, Cirsium vulgare* and *Carthamus lanatus*
242	Plantings	*Eucalyptus* spp.
243	Weed infestation	*Hypericum perforatum*
244	Weed infestation	*Hypericum perforatum*
245	Weed infestation	*Cirsium vulgare* and *Carthamus lanatus*
246	Weed infestation	*Hypericum perforatum*
250	Plantings	*Eucalyptus* spp.
251	Weed infestation	*Hypericum perforatum*
252	Weed infestation	*Hypericum perforatum*
253	Canopy Regeneration	*Eucalyptus albens*
259	Weed infestation	*Hypericum perforatum*
261	Weed infestation	*Hypericum perforatum* and *Cirsium vulgare*
262	Canopy Regeneration	*Eucalyptus albens* and *Eucalyptus blakelyi*
263	Weed infestation	*Hypericum perforatum, Cirsium vulgare* and *Carthamus lanatus*
264	Weed infestation	*Hypericum perforatum*
265	Weed infestation	*Gomphocarpus fruticosus, Carthamus lanatus, Cirsium vulgare* and *Hypericum perforatum*
267	Weed infestation	*Hypericum perforatum*
268	Plantings	*Eucalyptus* spp.
269	Plantings	*Eucalyptus* spp.
271	Weed infestation	*Hypericum perforatum*
272	Plantings	*Eucalyptus* spp.
273	Weed infestation	*Hypericum perforatum*

Figure Label	Observation Type	Species/Notes
278	Canopy Regeneration	*Eucalyptus blakelyi and Eucalyptus albens*
283	Plantings	*Eucalyptus* spp.
285	Weed infestation	*Hypericum perforatum*
287	Weed infestation	*Hypericum perforatum*
288	Weed infestation	*Hypericum perforatum* and *Carthamus lanatus*
291	Regeneration	*Eucalyptus albens*
293	Weed infestation	*Gomphocarpus fruticosus, Carthamus lanatus* and *Hypericum perforatum*
294	Plantings	*Eucalyptus* spp.
295	Canopy Regeneration	*Eucalyptus albens*
296	Weed infestation	*Hypericum perforatum*
297	Weed infestation	*Carthamus lanatus* and *Gomphocarpus fruticosus*
298	Weed infestation	*Sida rhombifolia, Hypericum perforatum, Gomphocarpus fruticosus* and *Carthamus lanatus*
299	Weed infestation	*Cirsium vulgare, Hypericum perforatum, Carthamus lanatus* and *Sida rhombifolia*
302	Weed infestation	*Hypericum perforatum*
304	Weed infestation	*Hypericum perforatum* and *Carthamus lanatus*
306	Weed infestation	*Carthamus lanatus* and *Hypericum perforatum*
308	Weed infestation	*Plantago lanceolota, Cirsium vulgare, Hypericum perforatum* and *Verbena bonariensis*
-	Feral Deer	Two separate locations
	Feral Deer Antler	Two separate locations
-	*Cymbidium canaliculatum*	Two separate locations - endangered population BC Act
-	Koala	One adult - endangered BC Act/EPBC Act
-	Diamond Firetail	One individual - vulnerable BC Act/EPBC Act

F.5. Discussion and Recommendations

F.5.1. Discussion of Conservation Values

Overall, the Middle Deep Creek and Oakvale Offset Conservation Area is considered to be in moderate to good condition. Opportunistic observations made while walking/driving through the conservation area identified the following (refer to **Figure 6** and **Table 12**):

- Signs of feral animals including two feral deer at two locations (species could not be confirmed), as well as 'shed' antlers from the Fallow Deer (*Dama dama*) at two locations;
- No signs of rubbish dumping;
- Presence of *Cymbidium canaliculatum* (Tiger Orchid) that is listed as an endangered population under the NSW *Biodiversity Conservation Act 2016* (BC Act) at two separate locations, one Diamond Firetail (*Stagonopleura guttata*) that is listed as Vulnerable under the BC Act, as well as one Koala (*Phascolarctos cinereus*) that is listed as Endangered under the BC Act and EPBC Act;
- Evidence of significant plantings of canopy species within open areas;
- Natural regeneration of native canopy species; and
- Weed infestations of *Hypericum perforatum* (St. John's Wort), *Verbena bonariensis* (Purpletop), *Carthamus lanatus* (Saffron Thistle), *Conyza sumatrensis* (Tall Fleabane), *Cirsium vulgare* (Spear Thistle), *Plantago lanceolota* (Lamb's Tongues), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush) and *Sida rhombifolia* (Cobber's Pegs).

F.5.2. Recommendations

Recommendations include continued weed management targeting any high threat exotics (e.g. *Hypericum perforatum* and *Carthamus lanatus*) as a priority, as well as all other management actions identified in the CA. Although large infestations of weeds not classified as high threat exotics were observed, targeted spraying of these species is not considered to be economical or that beneficial as a result of the likely high soil seed bank of these species already present. Therefore, it is recommended that the best way to reduce coverage of these species in the long-term is to slash these species prior to flowering and setting seed when they are observed in large numbers. Further to this, it is recommended that additional plantings of appropriate canopy (i.e. plant the same species as nearby woodland) in open-grassland areas be undertaken as the prevalence of weeds within wooded areas is relatively low (i.e. conditions under canopy trees is not conducive for the substantial growth of weed species observed in the conservation area). Any plantings should be made within open areas that do not contain large amounts of natural regeneration.

Any additional tree plantings made within open areas should be protected with tree guards and the surrounding exotic vegetation routinely targeted through spot-spraying to increase plantings chances of survival (i.e. reduce competition from surrounding environmental weeds).

Prior to undertaking any slashing works, any naturally regenerating or planted eucalypts should be clearly demarcated to ensure that individuals are not accidentally removed during the slashing works.

It is also recommended that targeted feral animal control continues to be implemented for feral deer species to minimise their spread to additional areas of the conservation area.

F.6. Datasheets

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MDC 1	Date	19/11/24
Vegetation Community	PCT 281		
1. Site Photo(s)Taken	6399 - 6402		
2. Floristic BioMetric attributes			

Native cover	115.3
Overstorey:	30.4
Midstorey:	26%
Groundcover(grass):	51.6
Groundcover (shrub):	0
Groundcover (other):	13.2
Native species richness:	41
Proportion of canopy species regenerating	100
Exotic cover	21.3
Number of trees with hollows	1
Total length of fallen logs	46.5

3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	–	–	–
Threatened species sightings	See figure ~50 s of plot	6403 6408	– Koala & Diamond Firetail
Fire event/fuel	–	–	Moderate
Weeds	–	–	– No significant infestations in surrounds
Pest animals	–	–	–
Visitor impact/vehicles	–	–	–
Rubbish dumping	–	–	–

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MDC2	Date	19/11/24
Vegetation Community	PCT 618		
1. Site Photo(s)Taken	6392 - 6395		
2. Floristic BioMetric attributes			
Native cover	103.9		
Overstorey:	25.6		
Midstorey:	5%		
Groundcover(grass):	49.1		
Groundcover (shrub):	10.6		
Groundcover (other):	13.6		
Native species richness:	42		
Proportion of canopy species regenerating	100		
Exotic cover	31.4		
Number of trees with hollows	0		
Total length of fallen logs	74		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	~	~	~
Threatened species sightings	See figure	6391 6396	Cynoglossum australe (1) - Two seperate individuals (2) " " - new
Fire event/fuel	-	-	Moderate
Weeds	See figure	-	Hypericum perforatum throughout open area
Pest animals	-	-	-
Visitor impact/vehicles	-	-	-
Rubbish dumping	-	-	-

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MDC3	Date	19/11/24
Vegetation Community	PCT 1684		
1. Site Photo(s)Taken	6383 - 6386		
2. Floristic BioMetric attributes			
Native cover	101.8		
Overstorey:	28.1		
Midstorey:	[illegible]		
Groundcover(grass):	42.8		
Groundcover (shrub):	3		
Groundcover (other):	12.9		
Native species richness:	45		
Proportion of canopy species regenerating	100		
Exotic cover	19.1		
Number of trees with hollows	1		
Total length of fallen logs	64.5		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	North of plot	See photos	Regenerating Eucs north of plot
Threatened species sightings	—	—	—
Fire event/fuel	—	—	matcals
Weeds	North of plot	—	Hypericum perforatum in adjoining open areas
Pest animals	—	—	—
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

Initials [illegible]

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MDC4	Date	19/11/24
Vegetation Community	PCT 1684		
1. Site Photo(s)Taken	6374 - 6377		
2. Floristic BioMetric attributes			
Native cover	—	44.5	
Overstorey:	—	0	
Midstorey:	—	0	
Groundcover(grass):		34	
Groundcover (shrub):		0	
Groundcover (other):		10.5	
Native species richness:		20	
Proportion of canopy species regenerating		0	
Exotic cover		59.8	
Number of trees with hollows		0	
Total length of fallen logs		3	
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Low - grassland
Weeds	within/around plot see figure	see mont photos	Hypericum perforatum, Carthamus lanatus + Cirsium vulgare infestation within + surrounding plot
Pest animals	—	—	✓
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	✓	✓

Initials

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MDC 5	Date	18/11/24
Vegetation Community	PCT 281		
1. Site Photo(s)Taken	6355 - 6358		
2. Floristic BioMetric attributes			
Native cover	108.6		
Overstorey:	40		
Midstorey:	5%		
Groundcover(grass):	42.8		
Groundcover (shrub):	1.6		
Groundcover (other):	19.2		
Native species richness:	48		
Proportion of canopy species regenerating	100		
Exotic cover	28.6		
Number of trees with hollows	2		
Total length of fallen logs	56.5		
3. Opportunistic observations	**GPS coordinates**	**Photo number**	**Observations**
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	✓	—	Low-moderate - logs
Weeds	surrounding plot	6354	Hypericum perforatum around plot - see figure
Pest animals	See figure	6360	Deer antler
Visitor impact/vehicles	—	—	—
Rubbish dumping	—	—	—

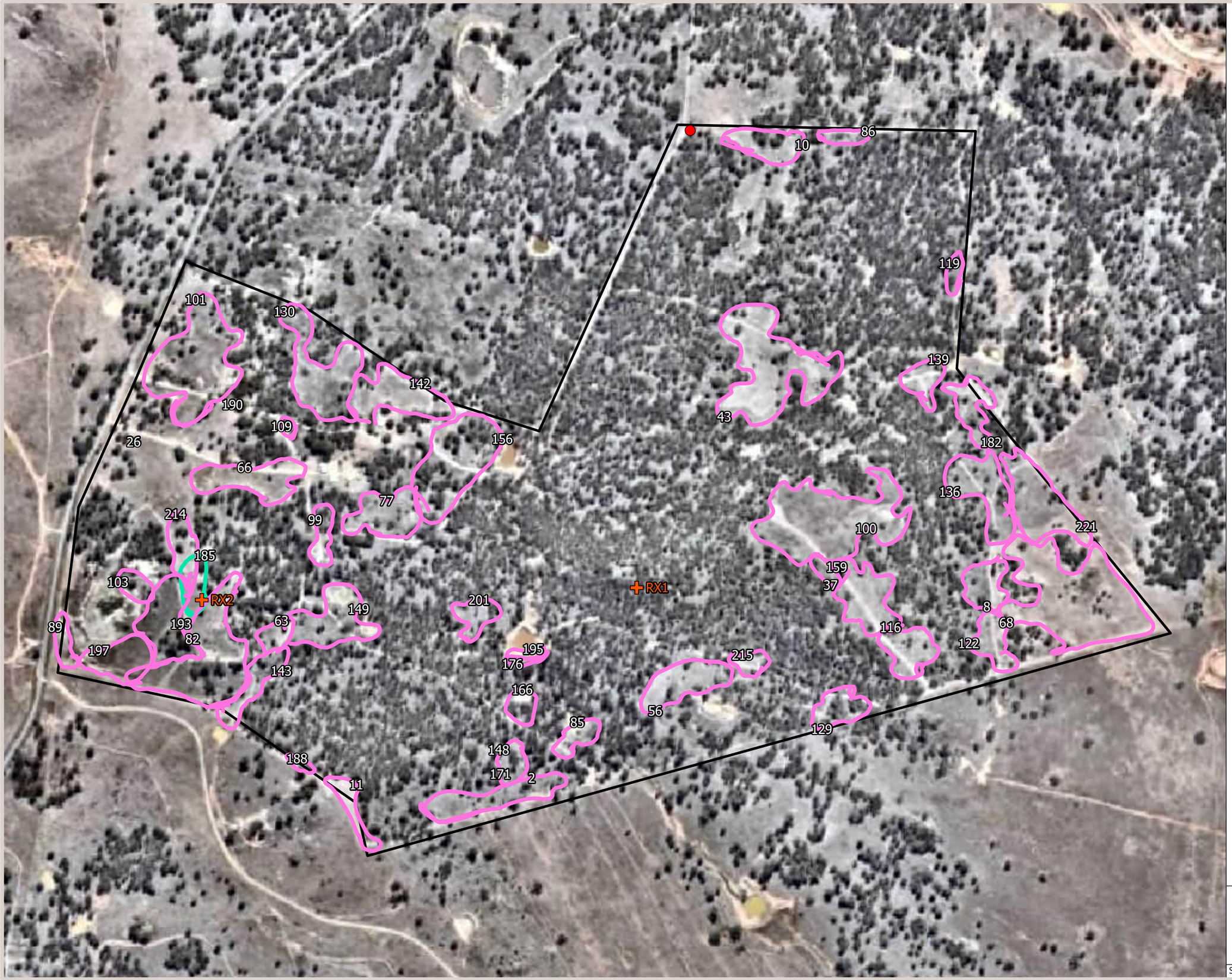
Initials

ANNEXURE D TABLE 3 - MONITORING DATA SHEET

Monitoring Data Sheet			
Monitoring Point Number	MDC6	Date	18/11
Vegetation Community	PCT 618		
1. Site Photo(s)Taken	6348 - 6351		
2. Floristic BioMetric attributes			
Native cover	109.1		
Overstorey:	0		
Midstorey:	0		
Groundcover(grass):	78.6		
Groundcover (shrub):	0		
Groundcover (other):	30.5		
Native species richness:	25		
Proportion of canopy species regenerating	0		
Exotic cover	38.1		
Number of trees with hollows	0		
Total length of fallen logs	0		
3. Opportunistic observations	GPS coordinates	Photo number	Observations
Natural regeneration of disturbed areas	—	—	—
Threatened species sightings	—	—	—
Fire event/fuel	—	—	Low
Weeds	around plot	See mapping	Hypericum perforatum in swales - see figure
Pest animals	—	~~See~~ —	~~Deer Antler~~
Visitor impact/vehicles	—	—	
Rubbish dumping	—	—	

Initials

FIGURES



Legend

- Roxburgh Offset Area
- Conservation Agreement Monitoring Plots

Observation Type

- Canopy Regeneration
- Weed Infestation
- European Bee Nest

Image Source: Nearmap © (2024) Dated: 6/3/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services NSW Department of Customer Services

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Spatial Reference: GDA 1994 MGA Zone 56

0 20 40 80 120 160 m

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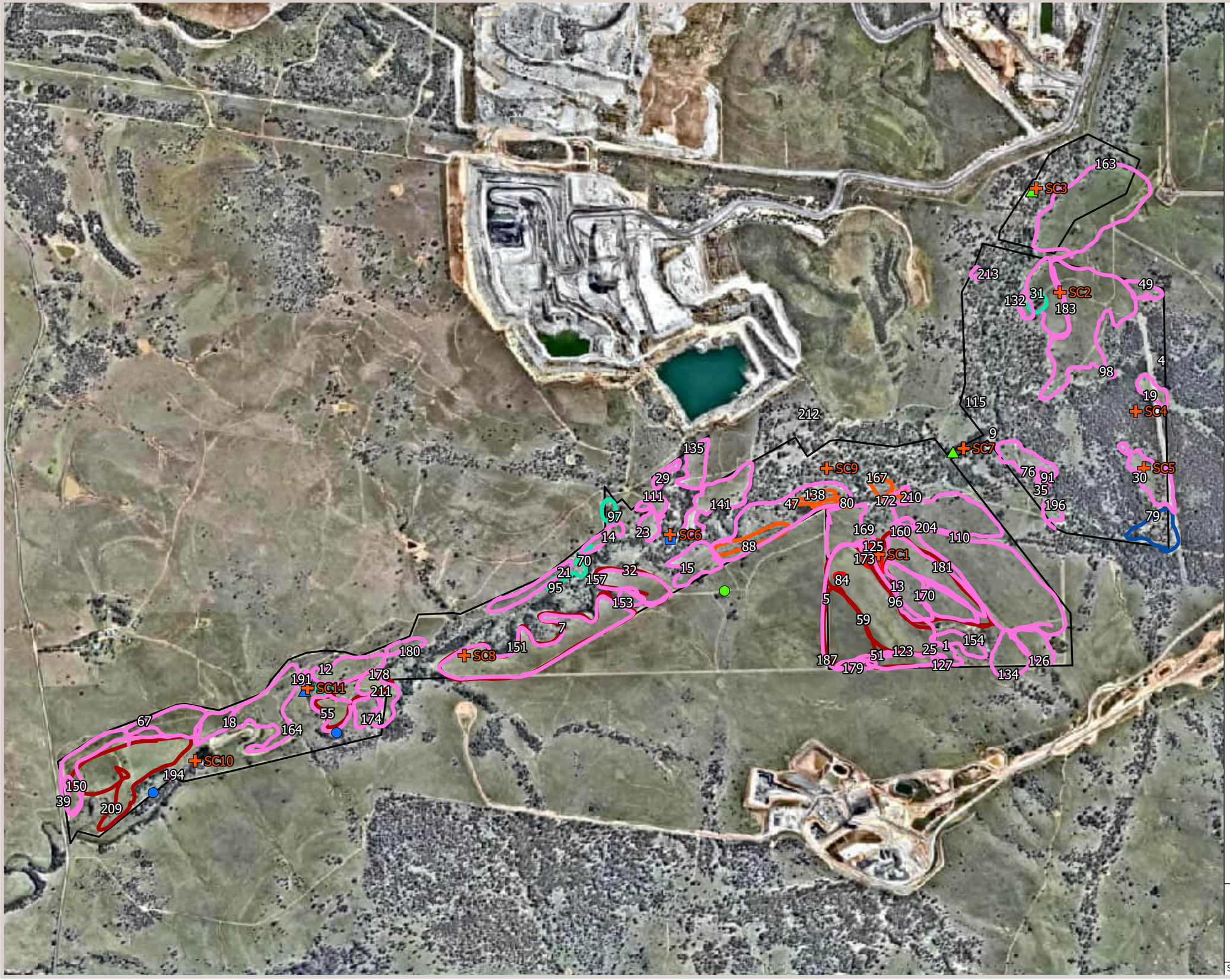
Figure 1. Roxburgh Road Offset Conservation Area



Legend

- Saddlers Creek Conservation Area
- Conservation Agreement Monitoring Plots

Observation Type

- Acacia pendula
- Canopy Regeneration
- Mature Plantings
- Mulched/woodchipped woody material
- Plantings
- Weed Infestation
- Feral Pig
- Feral Pig Disturbance
- Feral Rabbit Seen
- Feral Rabbit Scats
- Feral Rabbit Warren

Image Source: Nearmap © (2024) Dated: 6/3/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services
NSW Department of Customer Services

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Spatial Reference: GDA 1994 MGA Zone 56

0 100 200 400 600 800 m

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Figure 2. Saddlers Creek Offset Conservation Area

Legend

Mt Arthur Conservation Area

Conservation Agreement Monitoring Plots

Observation Type

Weed Infestation

Feral Dog

Image Source: Nearmap © (2024) Dated: 6/3/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services NSW Department of Customer Services

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Spatial Reference: GDA 1994 MGA Zone 56

0 25 50 100 150 200 m

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Figure 3. Mount Arthur Offset Conservation Area

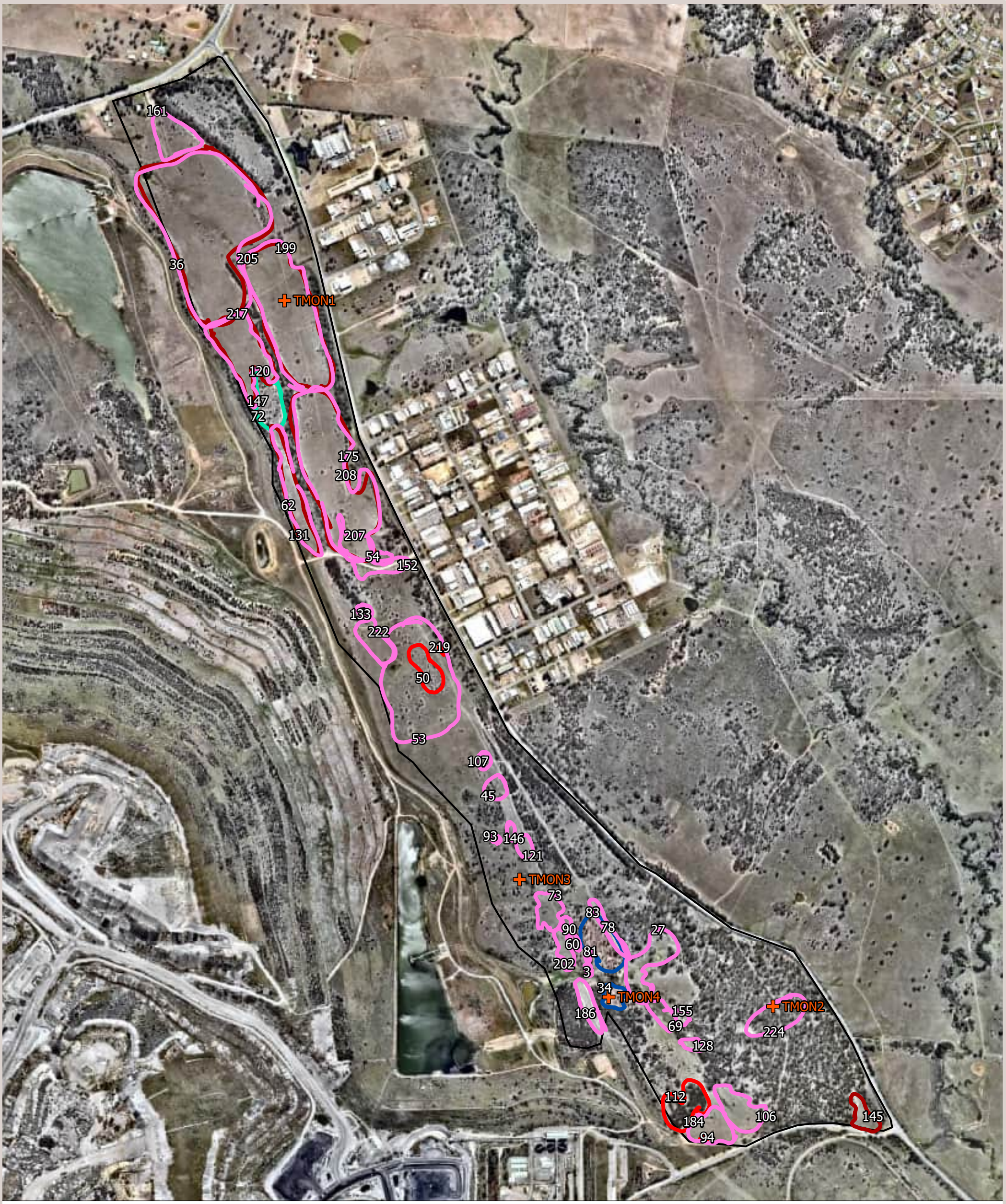


Figure 4. Thomas Mitchell Drive On-site Offset Conservation Area

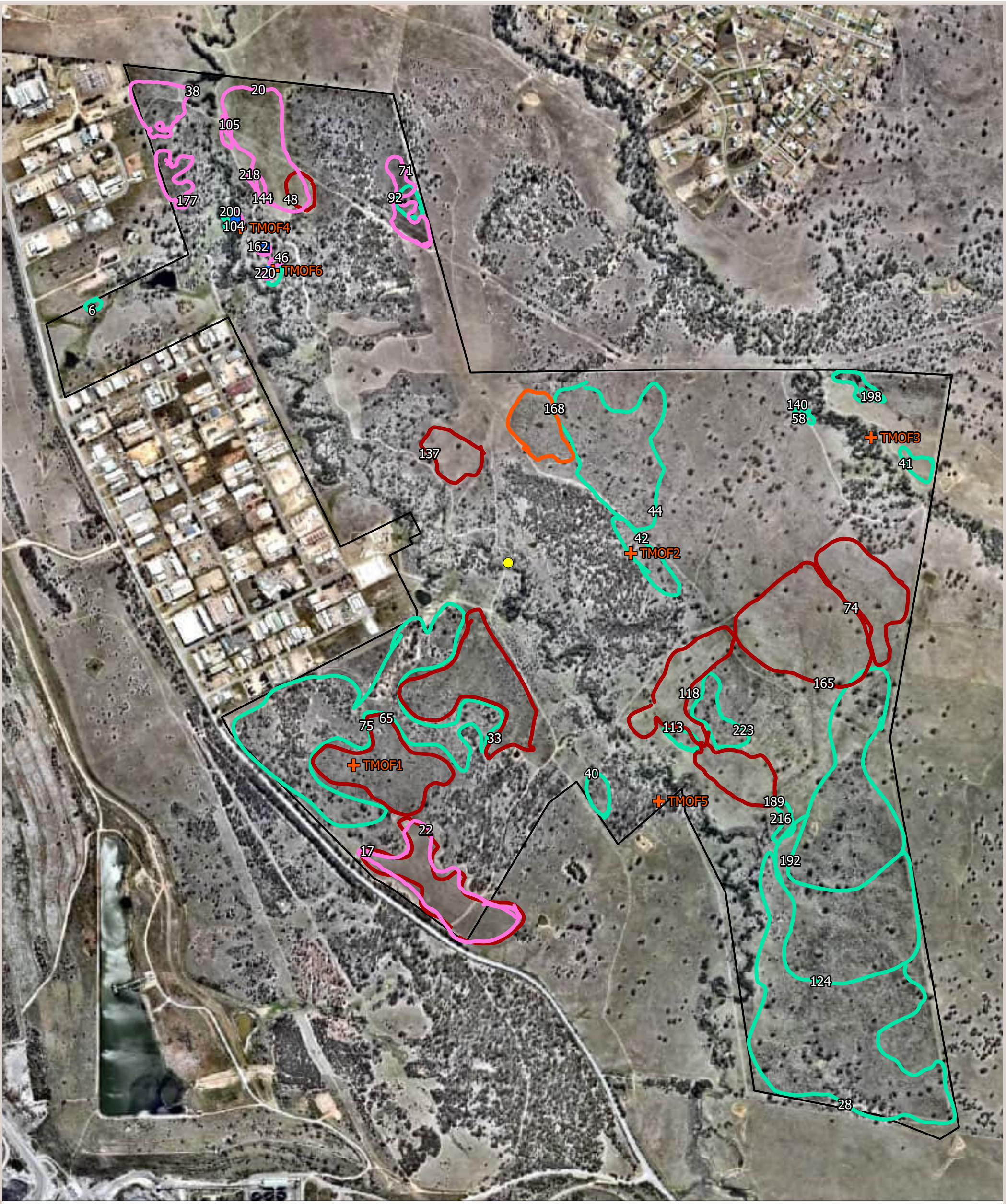
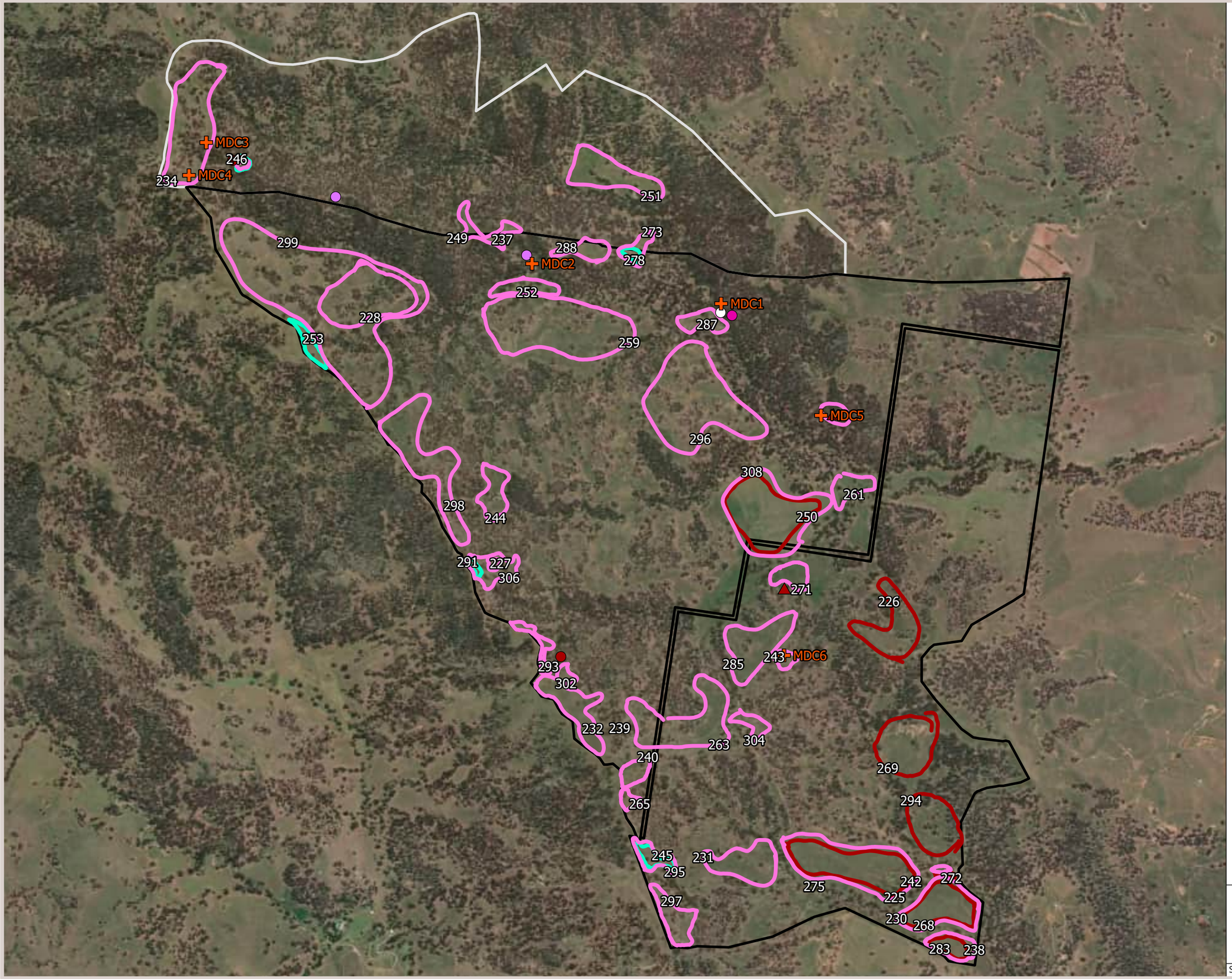


Figure 5. Thomas Mitchell Drive Off-site Offset Conservation Area



Legend

- Oakvale Offset Area
- Timor Offset Area
- Conservation Agreement Monitoring Plots

Observation Type

- Plantings
- Canopy Regeneration
- Weed infestation
- Cymbidium canaliculatum
- Diamond Firetail
- Feral Deer
- Feral Deer Antler
- Koala

Data Source: Sixmaps Clip & Ship, DCS Spatial Services
NSW Department of Customer Services

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Spatial Reference: GDA 1994 MGA Zone 56

0 100 200 400 600 800 m

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Figure 6. Middle Deep Creek and Oakvale Offset Conservation Area