HUNTER VALLEY
OPERATIONS

EPBC 2016-7640 ANNUAL COMPLIANCE REPORT 2023

DOCUMENT NUMBER
HVOOC-1797567310-4856

STATUS

VERSION
1.0

EFFECTIVE
31/01/2024

REVIEW

OWNER
Environment and Community Coordinator

Declaration of accuracy

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

Position (please print) Environmental & Community Coordinator

Organisation (please print including ABN/ACN if applicable)

HV Operations Pty Limited (ABN 76 606 478 399)

Date 31 January 2024

Table of Contents

1 | Introduction 7

1.1 | Background 7

1.2 | Landowner Details 10

2 | Condition of Compliance 11

2.1 | EPBC 2016/7640 11

2.2 | Vegetation Clearance Plan 23

3 | New Environmental Risks and Potential threats to Matters of National and State Environmental Significance 25

4 | Summary of Climatic Conditions 27

5 | Management and Monitoring Schedule 27

6 | Management Activities - 2023 30

6.1 | Property Inspections and Activities 30

6.2 | Vertebrate Pest Management 34

6.3 | Hook BA Intensive Weed Management Plan 51

7 | Ecological Monitoring 56

7.1 | Ecological Monitoring 56

7.1.1 | Rapid Condition Assessments 64

7.1.2 | Condition Assessment 64

7.1.3 | Bird assemblage monitoring 76

7.1.4 | Green and Golden Bell Frog Habitat Assessment 80

7.1.5 | Green and Golden Bell Frog Surveys 84

7.1.6 | Mosquito Fish Monitoring 84

8 | Vegetation Clearance Plan 87

9 | Fauna Captured on Camera 88

10 | References 92

11 | Appendix A: Rapid Condition Assessment - Current and Previous Year Tables 93

List of Figures

Figure 3.1. Extent of October 2023 fire at Crescent Head North. 25

Figure 6.1. Backburn (right) prevented bushfire propagation into the Condon View BA (left). 31

Figure 6.3. Pond D within Crescent Head South BA. 32

Figure 6.4. Unauthorised felling of trees within the Mitchelhill West biodiversity area, June 2023. 34

Figure 6.5. Wandewoi BA vertebrate pest management results for the Autumn 2023 programme. 43

Figure 6.6. Wandewoi BA vertebrate pest management locations for the Spring 2023 programme. 43

Figure 6.7. Hook property vertebrate pest management results for the Autumn 2023 programme. 44

Figure 6.8. Hook property vertebrate pest management results for the Spring 2023 programme. 44

Figure 6.9. Mitchelhill East BA vertebrate pest management results for the Autumn 2023 programme. .45

Figure 6.10. Mitchelhill East BA vertebrate pest management results for the Spring 2023 programme. .45

Figure 6.11. Mitchelhill West BA vertebrate pest management results for the Autumn 2023 programme. 46

Figure 6.12. Mitchelhill West BA vertebrate pest management results for the Spring 2023 programme. 46

Figure 6.13. Condon View BA vertebrate pest management results for the Autumn 2023 programme. .47

Figure 6.14. Condon View BA vertebrate pest management results for the Spring 2023 programme. ...47

Figure 6.15. Pig trap locations along the Hunter River at HVO during the autumn 2023 programme. 49

Figure 6.16. Pig trap locations 1 and 2 at Crescent Head South BA during the spring 2023 programme. 50

Figure 6.17. Pig trap location 3 at the waterhole within the Crescent Head North BA during the spring 2023 programme. 50

Figure 6.18. African olive survey results at the Hook BA. 54

Figure 6.19. Areas within the Hook BA where weed control was undertaken within 2023. 55

Figure 7.1. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Wandewoi Biodiversity Area. 57

Figure 7.2. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Mitchelhill (West) Biodiversity Area. 58

Figure 7.3. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Mitchelhill (East) Biodiversity Area. 59

Figure 7.4. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Hook Biodiversity Area. 60

Figure 7.5. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Condon View Biodiversity Area. 61

Figure 7.6. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Crescent Head (North) Biodiversity Area. 62

Figure 7.7. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Crescent Head (South) Biodiversity Area. 63

Figure 7.8. Relative condition scores of Wandewoi plots between 2018 and 2023. 65

Figure 7.9. Relative condition scores for plots in the Mitchelhill West BA. 66

Figure 7.10. Relative condition scores for plots in the Mitchelhill East BA. 67

Figure 7.11. Relative condition scores for plots in the Hook BA. 68

Figure 7.12. Relative condition scores for plots in the Condon View BA. 69

Figure 7.13. Striated pardalote using a small hollow at site W2 at Wandewoi BA. 77

Figure 7.14. Species richness by habitat type for each BA. 77

Figure 7.15. Species richness of woodland birds in woodland and grassland habitats in Condon View BA over three survey years. 78

Figure 7.16. Species richness of woodland birds in woodland and grassland habitats in Hook BA over three survey years. 78

Figure 7.17. Species richness of woodland birds in woodland and grassland habitats in Mitchelhill BA over three survey years. 79

Figure 7.18. Species richness of woodland birds in woodland and grassland habitats in Wandewoi BA over three survey years. 79

Figure 7.19. Change in the percentage vegetation cover over the monitoring period. 81

Figure 9.1. Quoll recorded at the Mitchelhill West BA. 88

Figure 9.2. Common wombat, Vombatus ursinus, at the Mitchelhill West BA. 88

Figure 9.3. Wild dog recorded at the Mitchelhill West BA. 89

Figure 9.4. Common wombat, Vombatus ursinus, photographed during pest management monitoring at Condon View BA. 89

Figure 9.5. Fox photographed during pest management monitoring at Condon View BA. 90

Figure 9.6. Male Lyre Bird, Menura novaehollandiae, photographed during pest management monitoring at Condon View BA. 90

Figure 9.7. Feral cat photographed during pest management monitoring at Condon View BA. 91

Figure 9.8. Sambar Deer, Cervus unicolor, photographed during pest management monitoring at Hook BA. 91

List of Tables

Table 4.1. Rainfall received during 2022 against the average annual rainfall occurring at each of the BAs. 27

Table 5.1. Offset objectives for each BA. 27

Table 5.2.. Desired conservation outcomes for the HVO offset areas as outlined by the proposed HVO Management Plan (HVO 2021). 28

Table 5.3. Monitoring schedule proposed in biodiversity areas management plans and implemented in all BAs. 29

Table 6.1. Overview of activities undertaken within the HVO EPBC 2016/7640 BAs during the reporting period. 30

Table 6.2. Results of 1080 Vertebrate Pest Management Programmes at the Wandewoi BA. 36

Table 6.3. Comparison of Results of all 1080 Vertebrate Pest Management Programmes for HVO Biodiversity Areas (except Crescent Head). 37

Table 6.4. HVO 2023 Pig Control Summary and Results. 48

Table 6.5. Summary of the 2023 African olive survey against the previous survey results. 52

Table 7.1. Ecological monitoring activities completed during the reporting year. 56

Table 7.2. Plant community types within each BA. 71

Table 7.3. Summary of change in condition in plots monitored. 72

Table 7.4. Progress towards performance and completion criteria relevant to the conservation objectives 72

Table 7.5. Progress towards performance and completion criteria relevant to specific management actions. 75

Table 7.6. Progress towards performance and completion criteria for the Green and Golden Bell Frog. 82

Table 7.7. Progress towards performance and completion criteria for managing vegetation in GGBF habitat. 83

Table 7.8. Progress towards performance and completion criteria relevant to the conservation objectives. 85

Table 7.9. Progress towards performance and completion criteria relevant to pond management. 86

1 | INTRODUCTION

Hunter Valley Operations (HVO) became a jointly controlled operation between Glencore (49%) and Yancoal (51%) on 4 May 2018. Certain mining operations at HVO are regulated by Commonwealth approval, EPBC 2016/7640.

This annual compliance report has been prepared in accordance with the Annual Compliance Report Guidelines (Commonwealth of Australia 2023) and addresses compliance with the conditions of the EPBC 2016/7640 approval. The period covered by this report is for the calendar year 2023. For ease of reporting, HVO transitioned the reporting year from the November to October period to the calendar year with the January 2021 extended report submission.

As a result, this report covers the period 1 January 2023 to 31 December 2023 (the reporting period).

1.1 | BACKGROUND

Hunter Valley Operations is located at Lemington, approximately 24 kilometres northwest of Singleton in the Hunter Valley, NSW. The Commonwealth Minister for the Environment, under provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), issued approval EPBC 2016/7640 for the continuation of open cut coal mining operations, within the HVO mine complex, in areas that were previously approved by the State after the commencement of the EPBC Act 1999. Approval was granted on 10 October 2016 and the action commenced on 1 November 2016.

The EPBC 2016/7640 approval (last modified in August 2017), requires various offsets to be established as a result of the impacts upon Matters of National Environmental Significance (MNES). The offsets are required in respect of the following protected matters:

- Central Hunter Valley Eucalypt Forest (CHVEF) - 61ha;
- Swift Parrot (Lathamus discolor) foraging habitat – 68.1ha;
- Regent Honeyeater (Anthochaera phrygia) breeding and foraging habitat – 68.4ha; and
- Green and Golden Bell Frog (Litoria aurea) breeding (2.6ha) and foraging habitat (102.7ha).

The Offset Strategy (Biodiversity Offset Strategy – State Approved Mining (EPBC2016/7640)), approved by the Minister on 23 October 2017, details the offset areas that are to be secured and managed in relation to this approval. The offset areas are summarised below as the:

- Wandewoi Biodiversity Area (BA) – To offset approximately 63% of the action's impacts on Central Hunter Valley Eucalypt Forest (CHVEF) and 100% of the action's impacts on the Swift Parrot.
- Mitchelhill BA - To offset the residual 37% of the action's impacts on CHVEF and 53.9% of the Regent Honeyeater impacts.
- Condon View BA - To offset the remaining 46.1% of the Regent Honeyeater impacts.
- Crescent Head BA - To offset 99.25% of the action's impacts on the Green and Golden Bell Frog (GGBF). The residual 0.75% offset for the GGBF is being provided through other compensatory measures. HVO contributed the residual funds towards a GGBF Habitat Mapping project at Crescent Head which was managed by the Biodiversity & Conservation Division of the NSW Department of Planning, Infrastructure and Environment.

In accordance with the approval, the Wandewoi BA, Mitchelhill BA, Condon View BA and the Crescent Head BA offset sites are to be secured in perpetuity with legally binding agreements.

HVO has been working with Commonwealth and State agencies to finalise the legally binding arrangements that will secure the offset sites in perpetuity in the most appropriate manner. HVO has agreed to the terms of a draft Conservation Agreement pursuant to s305 of the EPBC Act to satisfy the requirement for offset security.

An overview of the consultation that has taken place between HVO and the Department Climate Change, Energy, the Environment and Water (DCCEEW) (or the prior agencies) to finalise this matter is set out in the following chronological timeline:

27 September 2018: An approval variation request was submitted to the DCCEEW. The variation sought to extend the date by which the offsets had to be secured due to the ongoing dialogue with the various State and Commonwealth agencies about the most appropriate mechanism to satisfy the in-perpetuity security requirement in HVO's conditions of approval. DCCEEW officers were in agreement with the request, however, given that HVO was also discussing the proposal to substitute a component of the Wandewoi BA for the Hook property, the DCCEEW asked that the variation request be resubmitted to include all matters being discussed at the time.

18 October 2018: The second variation request was submitted to DCCEEW that proposed to:

- vary the approval to allow for the grassland component of the Wandewoi offset to be swapped for a property that contains the critically endangered Central Hunter Valley eucalypt forest and woodland;
- vary the approval to extend the date by which the offsets must be secured;
- vary the approval to permit the use of a s305 Conservation Agreement under Part 14 the EPBC Act to secure the offset sites in perpetuity; and
- request approval of the Minister for the HVO offset sites to be secured by entering into a s305 Conservation Agreement.

This second variation request required the revision of the Biodiversity Offset Strategy, the existing Biodiversity Areas Management Plans, the EPBC calculations and the preparation of a management plan and a specific weed management plan for the Hook Property. Ecological assessments of the Hook property were supplied to DCCEEW for review and preliminary acceptance of the quality of the proposed offset variation to ensure that the proposed Hook BA met the required quantum of impact.

13 June 2019: New DCCEEW officer allocated.

1 October 2019: New DCCEEW officer allocated.

31 October 2019: HVO provides DCCEEW with revised BOS, revised BOMP, BBAM assessments and offsets assessment calculators for Hook and Wandewoi.

21 November 2019: HVO provides to DCCEEW the GGBF residual impact calculation report and the spreadsheet with the management costs and potential projects as suggested by the NSW Biodiversity and Conservation Division of DPI&E.

25 November 2019: DCCEEW approves the GGBF residual offset liability calculations and proposed projects and requests additional offset calculations for the Hook proposal.

2020: Extensive discussion with DCCEEW officers and legal regarding offset assessment calculations required. Provision of ecological reports justifying the Hook variation proposal.

30 January 2021. DCCEEW agrees that the HVO Offset Strategy, the Biodiversity Areas Management Plan and EPBC calculations are appropriate to send to the Delegate for consideration.

24 June 2021: New DCCEEW officer allocated.

12 July 2021: Following consideration of HVO's second variation request, the draft variation to EPBC 2016/7640 conditions of approval was provided by DCCEEW for HVO to review.

2 August 2021: DCCEEW provides edits required to the BOS and BOMP.

3 August 2021: HVO's response to the proposed conditions of approval was submitted to DCCEEW.

27 October 2021: After addressing the comments provided by DCCEEW, and having regard to the draft conditions of approval that have been provided by DCCEEW, HVO submitted the revised HVO Offset Strategy, the Biodiversity Areas Management Plan and EPBC calculations to DCCEEW for consideration by the Delegate. HVO considers these documents to be in final form, subject to approval by the Delegate.

9 November 2021: DCCEEW provided a draft Conservation Agreement for review by HVO for the purpose of implementing the security arrangement for the HVO offset sites.

17 November 2021: DCCEEW provided a second version of the draft conditions of approval to HVO for its review.

3 December 2021: HVO's feedback on the draft Conservation Agreement and the second draft conditions of approval were provided to DCCEEW.

20 December 2021: HVO and DCCEEW participated in a meeting to discuss HVO's feedback on the draft Conservation Agreement. At the conclusion of that meeting, DCCEEW indicated that it would respond to HVO's feedback in early 2022.

31 January 2022: DCCEEW provided the amended Conservation Agreement to HVO for review.

9 February 2022: HVO proposes separate Conservation Agreements for each BA.

11 March 2022: HVO completes review of amended Conservation Agreement. New DCCEEW officer allocated in March.

17 March 2022: DCCEEW requests HVO provide additional justification why separate Conservation Agreements should be applied to each BA.

21 March 2022: HVO provides justification for separate Conservation Agreements and offers to prepare the separate Agreements using the amended Agreements as a template.

29 March 2022: DCCEEW agrees to separate Agreements and requests separate BOMPs.

20 April 2022: DCCEEW provides draft variation to approval conditions for agreement. New DCCEEW officer allocated.

31 May 2022: HVO provides separate management plans and edited Conservation Agreements to DCCEEW.

9 June 2022: HVO provides DCCEEW updated Biodiversity Offsets Strategy with updated calculations.

30 June 2022: DCCEEW provides BOMP reviews to HVO and requests edits.

7 November 2022: DCCEEW provides HVO with track changed Conservation Agreements for review.

1 February 2023: New DCCEEW officer allocated.

6 February 2023: HVO updated new DCCEEW officer of approval status.

29 May 2023: New DCCEEW officer allocated.

2 June 2023: HVO provides DCCEEW with revised BOMPs.

15 August 2023: DCCEEW provided HVO the varied EPBC conditions.

5 September 2023: HVO accepts the varied EPBC conditions.

18 October 2023: DCCEEW provided edited EPBC conditions.

23 October 2023: HVO accepts the edited EPBC conditions.

27 and 29 November 2023: DCCEEW accepted BOMPs, requests minor edit and provided Conservation Agreement for final review.

8 December 2023: HVO confirms Conservation Agreement. HVO provides final edited BOMPs to remove DoEE/DAWE references and provides boundary shapefiles.

1.2 | LANDOWNER DETAILS

"Interest Holder" for each of the BAs:

HV Operations Pty Limited,
Coal & Allied Operations Pty Limited, and
Anotero Pty Limited

For communications regarding the BAs, the relevant contact details are:

Attn: Manager – Environment and Community
Hunter Valley Operations
PO Box 315,
Singleton, NSW, 2330.

Email: environmentandcommunity@hvo.com.au

2 | CONDITION OF COMPLIANCE

2.1 | EPBC 2016/7640

Condition Number	Condition	Compliance status	Evidence/Comments
1	The **person taking the action** must not clear more than 54.4 hectares of the Central Hunter Valley Eucalypt Forest and woodland (CHVEF) ecological community from the Riverview Pit and 6.6 ha of the CHVEF ecological community from within the West Pit and must limit all vegetation clearing to within the project disturbance boundaries defined at Schedule 1, Figures 1 - 4.	Compliant	Disturbance limited to within project disturbance boundaries through the HVO Ground Disturbance Permit process. From within the EPBC areas, HVO has, in total, cleared less than the specified limit of CHVEF from Riverview Pit and West Pit.
2	The **person taking the action** must prepare and submit a Vegetation Clearance Plan (VCP) for the **Minister's** approval to mitigate impacts of the action on the CHVEF ecological community, the Regent Honeyeater (*Anthochaera phrygia*), Swift Parrot (*Lathamus discolor*) and the Green and Golden Bell Frog (*Litoria aurea*). The VCP must include:	Compliant	Vegetation Clearance Plan (VCP) was submitted to the DCCEEW and approved by the Acting Assistant Secretary 24 October 2016. The VCP was modified in 2020 to clarify the control measures specific to the EPBC areas and correct minor formatting errors. In 2023, a minor edit to the VCP was submitted to DCCEEW but was not approved. Refer to item 14a for further detail.
2a	Clear delineation of vegetation to be cleared, as per the disturbance boundary shown in Schedule 1 Figures 1 - 4, and vegetation that is to be retained.	Compliant	These areas are outlined within Section 2.1 and Chapter 3 of the VCP. The areas to be cleared are first identified and approved within the GDP. In the field, the areas were delineated by a surveyor prior to clearing using flagging tape or a hard boundary, such as a track or existing fencing, where applicable.
2b	Pre-clearance survey methods, which must include but not be limited to the following requirements:		
	i. A **qualified ecologist** must undertake a pre-clearance survey within 24 hours prior to the removal of potential foraging, nesting or breeding habitat for the Regent Honeyeater or foraging habitat for the Swift Parrot in areas identified in Schedule 2, Figures 1 - 5.	Compliant	Chapter 3 of the VCP. All pre-clearance surveys were undertaken by qualified ecologist. No species listed or nests were identified during the surveys.

	ii.	If during pre-clearance surveys, Regent Honeyeater or Swift Parrot individuals are identified within the clearance area the VCP must specify the use of a two stage clearing protocol where **non-habitat trees** are cleared 24 hours prior to any **habitat trees** being cleared, to encourage fauna to move out of a habitat area.	Compliant	Section 3.2 and 3.3 of the VCP. No species listed or nests were identified during the surveys.
	iii.	In the event an **active Regent Honeyeater nest** is identified during pre- clearance surveys, vegetation clearing and overburden removal within 100 m of the active nest should be delayed up until the **Regent Honeyeater nest is no longer actively being used**.	Compliant	Section 3.3 of the VCP. No species listed or nests were identified during the surveys.
	iv.	A qualified ecologist must undertake pre-clearance surveys within a 2 week period prior to the removal of potential breeding habitat for the Green and Golden Bell Frog. Surveys are to be undertaken within all potential breeding habitat areas identified in Schedule 2, Figure 2 as well as a 200m buffer around each potential breeding habitat area.	Compliant	Section 3.3 of the VCP. Ecological pre-clearance surveys undertaken during the reporting year, using the methodology detailed in the Vegetation Clearance Plan. Surveys focussed on waterbodies and any potential habitat trees for the Regent Honeyeater, Swift Parrot and other protected species. No GGBF were found during the survey.
	v.	Pre-clearance survey methods for the Green and Golden Bell Frog must meet the survey effort requirements for the Green and Golden Bell Frog stipulated in the Survey Guidelines for Australia's threatened frog (2010) Commonwealth of Australia	Compliant	Section 3.3 of the VCP. Ecological pre-clearance surveys undertaken during the reporting year, using the methodology detailed in the Vegetation Clearance Plan. Surveys focussed on waterbodies and any potential habitat trees for the Regent Honeyeater, Swift Parrot and other protected species. No GGBF were found during the survey.
	vi.	In the event Green and Golden Bell Frog individuals, metamorphs or tadpoles are located during pre-clearance surveys, they are to be handled and translocated in accordance with the Hygiene protocols for the control of diseases in frogs (2008) Department of Environment and Climate Change (NSW).	Compliant	Section 3.3 of the VCP. No GGBF were observed or heard within the EPBC area during the reporting period.
2c	Include measures to avoid, suppress and control the spread of plant pathogens (such as *Phytophthora cinnamomi*) and *chytrid* fungus that may degrade habitat for **protected matters**. The action must not commence until the Vegetation Clearance Plan, required by Condition 2, has been approved by the **Minister**.		Compliant	Chapter 4 of the VCP. The VCP includes hygiene protocols to manage the spread of potential pathogens. Any machinery used to clear within the extension area relevant to the EPBC 2016/7640 approval will be washed of soil and mud prior to exiting HVO. The VCP also outlines

			measures to avoid the spread of Chytrid fungus from survey equipment, clearing machinery and during frog handling. HVO requires Ground Disturbance Permits (GDP) to be approved prior to any disturbance activities. Applicable GDPs prepared during the reporting year required proponents to comply with the veg clearance procedures required by HVO's EPBC 2016/7640 approval condition 2.
3	The approved Vegetation Clearance Plan must be implemented.	Compliant	Measures required by the VCP have been implemented for disturbance associated with Ground Disturbance Permits (GDP's).
4	To compensate for residual impacts to **protected matters** the **person taking the action** must, under a **legally binding agreement**, secure in perpetuity 405.8 ha at the **Wandewoi Biodiversity Area**, described in 4(a)(b) and (c) within three (3) years from the date of this approval. The **Wandewoi Biodiversity Area** must include:	Non-compliant	Wandewoi Biodiversity Area was required to be secured in perpetuity by 10 October 2019. Due to the drought that occurred up to 2020 impacting the likelihood of success of the required rehabilitation of 230ha at Wandewoi, HVO proposed to substitute the grassland component of the Wandewoi BA for the CHVEF on the Hook property. HVO has been in discussion with DCCEEW regarding a proposed variation to the offsets and the conditions of approval since mid-2018 with a formal request submitted in September 2018. This discussion included the security mechanism to be applied to the offsets and sought an extension to the conditions of approval to permit the offsets to be secured under a s305 conservation mechanism. Subsequent variations requesting the same matters were submitted in October 2018, September 2020 and May 2021. HVO was advised that the variation would not be submitted to the Delegate in isolation. Given that the Department considered that the negotiations at the time were close to being acceptable, a 'package' that comprising a revised management plan, revised Offset Strategy and conditions of approval that included the extension requested by HVO would be sent to the Delegate for their consideration. On several occasions HVO revised and submitted these documents as requested by the Department. With changes in personnel within the Department, the documents were re-reviewed each time and DCCEEW requested additional edits with each personnel change. On several occasions HVO has asked for DCCEEW's response to the requests for the extension and has been told that the submission of the request would be sufficient in the event of an audit. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval, implement a s305 conservation mechanism to

			secure the sites in perpetuity and approve the various draft BOMPs, including the recommended Hook offset swap for sections of the Wandewoi BA. A full timeline of discussions between HVO and DCCEEW is detailed in Section 1.1 of this report.
4a	405.8 hectares of the CHVEF ecological community;	Compliant	The Wandewoi BA that has been agreed with the Department contains 405.8ha of CHVEF. This includes 175.8ha of Grey Box Woodland (CHVEF CEEC) and 230ha of Grey Box Derived Native Grassland (DNG). The revised Wandewoi Biodiversity Area Management Plans that was submitted to the DCCEEW for approval includes detail on the Hook property and proposes the Wandewoi BA to be 234.1ha within the larger 406.3 ha property.
4b	175.8 hectares of foraging habitat for the Swift Parrot; and	Compliant	The Wandewoi BA that has been agreed with the Department contains 175.8ha of foraging habitat for the Swift Parrot, comprising 175.8ha of Grey Box Woodland (CHVEF CEEC). This woodland component at Wandewoi remains unchanged in the revised Wandewoi Biodiversity Areas Management Plan.
4c	40 ha of regenerating foraging habitat for the Swift Parrot.	Compliant	The Wandewoi BA that has been agreed with the Department contains foraging habitat for the Swift Parrot, including 230ha of Grey Box Derived Native Grassland (DNG). Once the variation has been approved by the Delegate, the DNG areas at Wandewoi will be regenerated to CHVEF, including 40 ha of foraging habitat. The revised Wandewoi BA Management Plan propose a larger regenerating foraging habitat area at Wandewoi as a result of the EPBC calculations with the Hook property swap.
5	To compensate for residual significant impacts to 22.7 ha of Class A condition CHVEF from the Riverview Pit extension area the **person taking the action** must identify a **direct offset site** that meets requirements of the **EPBC Act Offset Policy** and secure the offset in perpetuity under a **legally binding agreement** within 12 months from the date of approval of the Offset Strategy at Condition 10.	Non-compliant	Direct offset site at Mitchelhill detailed in Biodiversity Offset Strategy (Condition 10) was to be protected under a legally binding agreement by 23 October 2018. A conservation mechanism to secure the BAs was discussed with the NSW Biodiversity Conservation Trust and the NSW Office of Environment and Heritage. A suitable mechanism could not be agreed upon and the DCCEEW subsequently agreed that a s305 conservation mechanism would be appropriate. HVO submitted an application to extend the date to allow the HVO BAs to be secured under

			a s305 conservation agreement to the DCCEEW on 27 September 2018 and 18 October 2018. The date extension requires an approval variation which the DCCEEW intends to include in the Delegate's submission discussed in Condition 4 above. On several occasions HVO has asked for DCCEEW's response to the requests for the extension and has been told that the submission of the request would be sufficient in the event of an audit. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval, implement a s305 conservation mechanism to secure the sites in perpetuity and approve the various draft BOMPs, including the recommended Hook offset swap for sections of the Wandewoi BA. A full timeline of discussions between HVO and DCCEEW is detailed in Section 1.1 of this report.
6	To compensate for residual significant impacts to 68.4 ha of breeding and foraging habitat for the Regent Honeyeater the **person taking the action** must identify a **direct offset site** that meets requirements of the **EPBC Act Offset Policy** and secure the offset in perpetuity under a **legally binding agreement** within 12 months from the date of approval of the Offset Strategy at Condition 10.	Non-compliant	Direct offset sites at Mitchelhill and Condon View detailed in Biodiversity Offset Strategy (Condition 10) is to be protected under a legally binding agreement by 23 October 2018. A conservation mechanism to secure the BAs was discussed with the NSW Biodiversity Conservation Trust and the NSW Office of Environment and Heritage. A suitable mechanism could not be agreed upon and the DCCEEW subsequently agreed that a s305 conservation mechanism would be appropriate. As noted in Section 1 above, HVO submitted an application to extend the date to allow the HVO BAs to be secured under a s305 conservation agreement to the DCCEEW on 27 September 2018 and 18 October 2018. The date extension requires an approval variation which the DCCEEW intends to include in the Delegate's submission discussed in Condition 4 above. On several occasions HVO has asked for DCCEEW's response to the requests for the extension and has been told that the submission of the request would be sufficient in the event of an audit. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval, implement a s305 conservation mechanism to secure the sites in perpetuity and approve the various draft BOMPs, including the recommended Hook offset swap for sections of the Wandewoi BA.

			A full timeline of discussions between HVO and DCCEEW is detailed in Section 1.1 of this report.
7	To compensate for residual significant impacts to 2.6 ha of breeding habitat and 102.7 ha of foraging habitat for the Green and Golden Bell Frog the person taking the action must identify an **offset package** that meets requirements of the **EPBC Act Offset Policy** and secure a **direct offset site** in perpetuity under a **legally binding agreement** within 12 months from the date of approval of the Offset Strategy at Condition 10	Non-compliant	Direct offset sites at Crescent Head detailed in Biodiversity Offset Strategy (Condition 10) is to be protected under a legally binding agreement by 23 October 2018. A conservation mechanism to secure the BAs was discussed with the NSW Biodiversity Conservation Trust and the NSW Office of Environment and Heritage. A suitable mechanism could not be agreed upon and the DCCEEW subsequently agreed that a s305 conservation mechanism may be appropriate. As noted in Section 1 above, HVO submitted an application to extend the date to allow the HVO BAs to be secured under a s305 conservation agreement to the DCCEEW on 27 September 2018 and 18 October 2018. The date extension requires an approval variation which the DCCEEW intends to include in the Delegate's submission discussed in Condition 4 above. On several occasions HVO has asked for DCCEEW's response to the requests for the extension and has been told that the submission of the request would be sufficient in the event of an audit. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval, implement a s305 conservation mechanism to secure the sites in perpetuity and approve the various draft BOMPs, including the recommended Hook offset swap for sections of the Wandewoi BA. A full timeline of discussions between HVO and DCCEEW is detailed in Section 1.1 of this report.
8	Prior to securing the direct offsets required by Conditions 4, 5, 6 and 7 the **direct offset sites** and **legally binding agreements** must be agreed to by the **Minister**.	Compliant	Direct offset sites have been approved by the Assistant Secretary (DCCEEW) on 23 October 2017 through approval of the Biodiversity Offset Strategy – State Approved Mining (EPBC2016/7640) dated October 2017. The terms of legally binding agreements have also been agreed with DCCEEW.
9	The action cannot continue for more than 12 months from the date of approval of the Offset Strategy at Condition 10, unless the **direct offset sites** required by Conditions 5, 6 and 7 have been secured in perpetuity under a **legally binding agreement** by the **person taking the action**.	Non-compliant	Direct Offset Sites detailed in Biodiversity Offset Strategy (Condition 10) are to be protected under a legally binding agreement by 23 October 2018. The DCCEEW has agreed that a s305 conservation mechanism is appropriate. To facilitate this, a change to the conditions of EPBC 2016/7640 is required and, hence, as noted in Section 1 above, HVO submitted an application to extend the date required to secure the

			BAs on 27 September 2018 and 18 October 2018. Despite extensive correspondence and substantial progress, DCCEEW has not yet finalised the variation. On several occasions HVO has asked for DCCEEW's response to the requests for the extension and has been told that the submission of the request would be sufficient in the event of an audit. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval, implement a s305 conservation mechanism to secure the sites in perpetuity and approve the various draft BOMPs, including the recommended Hook offset swap for sections of the Wandewoi BA. A full timeline of discussions between HVO and DCCEEW are detailed in Section 1.1 of this report.
10	Within six (6) months from the **commencement of the action** the **person taking the action** must prepare and submit an Offset Strategy for the **Minister's** approval. The Offset Strategy must specify the development of the offset package and how **direct offset sites** required by Conditions 5, 6 and 7 will be identified, secured and managed in perpetuity. The Offset Strategy must:	Compliant	Biodiversity Offset Strategy (BOS) – State Approved Mining (EPBC2016/7640) submitted to DCCEEW on 1 May 2017. Approved by the Assistant Secretary (DCCEEW) on 23 October 2017.
10a	Describe the development of the offset package and identify the proposed **direct offset sites** required by Conditions 5, 6 and 7, include a detailed description of the **direct offset sites** and demonstrate how the **direct offset sites** meet the **EPBC Act Offset Policy** and provide an adequate offset for the residual significant impacts to **protected matters**.	Compliant	Chapter 3, 4 and 5 of the BOS.
10b	Include proposed timeframes in which the **direct offset sites** will be secured by a **legal binding agreement** and a detailed description of how the **legally binding agreement** will secure the **direct offset sites** in perpetuity.	Compliant	Section 6 of the BOS. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval and implement a s305 conservation mechanism to secure the sites in perpetuity.
10c	Proposed measures for the long term management of the **direct offset sites**.	Compliant	Section 6 of the BOS.
	The Offset Strategy approved by the **Minister** must be implemented	Compliant	Biodiversity Offset Strategy (BOS) – State Approved Mining (EPBC2016/7640) approved by the Assistant Secretary (DCCEEW) on 23 October 2017.

			Direct Offset sites detailed in the BOS have been purchased and the management activities outlined in the BOS are being implemented at the BAs.
11	For the protection of the CHVEF as well as habitat for the Regent Honeyeater, Swift Parrot and Green and Golden Bell Frog the **person taking the action** must prepare and submit a Biodiversity Offset Management Plan (BOMP) for the **Minister's** approval within 12 months from the date of this approval. At a minimum, the BOMP must:	Compliant	Biodiversity Offset Management Plans for the BAs were submitted to the DCCEEW for approval on the 10 October 2017. Reviews by the Department have requested additional edits to the BOMPs. Discussions regarding the security mechanism and the variation that was submitted to the DCCEEW on 27 September 2018 and 18 October 2018 requires an approval variation. The DCCEEW stated that the varied BOMPs, BOS, s305 conservation agreement and the variation are to be submitted to the Delegate as a package. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval and implement a s305 conservation mechanism to secure the sites in perpetuity.
11a	Clearly identify the **direct offset sites** described in Conditions 4, 5, 6 and 7. This must include **offset attributes, shapefiles**, textual descriptions and maps to clearly define the location and boundaries of the **direct offset sites**.	Compliant	The Wandewoi, Mitchelhill and Hook BOMPs describe the direct offset site for CHVEF and Swift Parrot relevant to Condition 4 and 5 of the approval. The Mitchelhill and Condon View BOMPs describe the direct offset site for the Regent Honeyeater relevant to Condition 6 of the approval. The Crescent Head BOMP describes the direct offset site for Green and Golden Bell Frog relevant to Condition 7 of the approval.
11b	Provide a description of the offset attributes for each **protected matter** and how the offset site meets the offset requirements under Conditions 4, 5, 6 and 7.	Compliant	The Wandewoi, Mitchelhill and Hook BOMPs describe the offset attributes for CHVEF and Swift Parrot relevant to Condition 4 and 5 of the approval. The Mitchelhill and Condon View BOMPs describe the offset attributes for the Regent Honeyeater relevant to Condition 6 of the approval. The Crescent Head BOMP describes the offset attributes for Green and Golden Bell Frog relevant to Condition 7 of the approval.
11c	Provide a survey and description of the current condition (prior to any management activities) of the **direct offset sites** identified in Conditions 4, 5, 6 and 7.	Compliant	The Wandewoi, Mitchelhill, Hook, Condon View and the Crescent Head BOMPs describes the survey results and provides a description of the condition of each BA following the purchase of the properties relevant to Condition 4 and 5 of the approval.

11d	Include detailed management actions, including regeneration and revegetation strategies to be undertaken at the **direct offset sites** to improve the ecological quality of these areas. The BOMP must also include: i. Management actions relating to improving habitat quality for **protected matters** including but not limited to: weed management, feral animal management, erosion and sediment control and fire management. ii. A description and timeframes that management measures would be implemented to improve the condition of CHVEF and habitat for the Regent Honeyeater, Swift Parrot and the Green and Golden Bell Frogs on the **direct offset sites**. iii. Performance and completion criteria for evaluating the management of the **direct offset sites**, and criteria for triggering remedial action. iv. A program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria. v. A description of potential risks to the successful implementation of the plan, a description of the measures that will be implemented to mitigate against these risks and a description of the contingency measures that will be implemented if defined triggers arise. vi. Details of who would be responsible for monitoring, reviewing, and implementing the plan.	Compliant	Chapter 5 of each BOMP describes the detailed management actions, timing, performance criteria and completion criteria relevant to the direct offset site for the CHVEF, Regent Honeyeater, Swift Parrot and GGBF. Chapter 6 of each BOMP describes the monitoring program. Chapter 7 of each BOMP provides a description of potential risks and corrective actions. Chapter 2 of each BOMP provides responsibilities for the MP.
12	The BOMP approved by the **Minister** must be implemented at the **direct offset sites** required to meet the requirements of Conditions 5, 6 and 7 within three (3) months from the date the offsets are secured under a **legally binding agreement**.	Not applicable	Direct Offset Sites required to meet Conditions 5, 6 and 7 are to be protected under a legally binding agreement by 23 Oct 2018. The DCCEEW has agreed that a s305 conservation mechanism is appropriate. A request for an extension to this date to allow the HVO BAs to be secured under a s305 was submitted to the DCCEEW on 27 September 2018 and 18 October 2018. DCCEEW are preparing a submission for the Delegate to vary the conditions of approval and implement a s305 conservation mechanism to secure the sites in perpetuity. Note that the direct offset sites are being managed in accordance with the DCCEEW-reviewed draft management plans.

13	To ensure timely compensation for significant impacts to **protected matters**, the approved BOMP must be implemented at the **Wandewoi Biodiversity Area** within one (1) month from the date the BOMP is approved, regardless if the **Wandewoi Biodiversity Area** has been secured under a **legally binding agreement**.	Compliant	Wandewoi BA Management Plan was originally submitted to DCCEEW for review and approval on the 10 October 2017 and has been updated and resubmitted following Departmental reviews. Management activities outlined in the BOMP are being implemented including: track and fence management, weed spraying and vertebrate pest control.
14	The person taking the action may choose to revise a management plan approved by the **Minister** without submitting it for approval under Section 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 matter** under the conditions of this approval. If the **person taking the action** makes this choice, they must:	Compliant	In 2020, minor edits were made including changes to Section 4.2.2 of the VCP to clarify operational controls related to management of root rot fungus. Other minor changes were made to specify that the protocols in the VCP were restricted to the approved EPBC areas and to remove a duplicate photo and correct figure referencing in the text. In accordance with Condition 14 of the EPBC approval, HVO determined that these minor changes would not be likely to have a new or increased impact on a protected matter, therefore, the revised VCP was not required to be submitted to DCCEEW for approval. These changes have been discussed with DCCEEW and the operational controls related to management of root rot fungus have been changed back to that originally approved. More details are outlined in Section 8.
14a	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;	Compliant	Notification and the revised VCP (version 2.0) was provided to the Department on 6 January 2023. The edits relating to washing clearing equipment prior to coming onto site was rejected by the Department. The VCP is being edited (version 2.1) to require clearing machinery to be washed prior to leaving site and will be provided to the Department in Q1 2024.
14b	Implement the revised management plan from the date that it is submitted to the Department; and	Compliant	The revised management plan (version 2.1) is being implemented. No activities relating to the previous change occurred in 2023.
14c	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.	Compliant	Justification for the decision that 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 has been documented and outlined in the VCP notification letter to the DCCEEW dated 6 January 2023. As stated, this justification was rejected by the Department but the documentation remains.

15	The person taking the action may revoke its choice under Condition 14 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	Compliant	The proposed edits to the VCP that were rejected by the DCCEEW have reverted to that approved by the Department.
16	Condition 14 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 applicable	
17	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:	Not applicable	
17a	Condition 14 does not apply, or ceases to apply, in relation to the revised management plan; and	Not applicable	
17b	The person taking the action must implement the previous management plan most recently approved by the Minister	Not applicable	
	To avoid any doubt, this condition does not affect any operation of conditions 14, 15 and 16 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 14 does not apply for one or more specified plans required under the approval	Not applicable	
18	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 has commenced as per the notified Commencement of Action (1 November 2016).

19	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	Department of Environment and Energy advised by letter dated 9 November 2016 that the action had commenced in accordance with the approved Vegetation Clearance Plan on the 1 November 2016.
20	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 by the **Minister** or being submitted under Condition 14.a	Not applicable	The various Biodiversity Area Management Plans will be published when approved by the Delegate.
21	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 VCP, 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	All disturbance-related activities received prior approval through HVO's GDP process. Records of activities and outcomes are maintained by site personnel and stored within the electronic folders and compliance management system. Activities have been undertaken in accordance with the applicable conditions of approval and HVO's approved policies, plans and strategies.
22	Within three months of every 12 month anniversary of 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 required by this condition with written agreement of the **Minister** to do so.	Compliant	HVO has published on its website compliance reports for the previous compliance reporting years. This compliance report outlines HVO's compliance with the approval conditions for 2023 (1 January 2023 – 31 December 2023). Note that the reporting year was transitioned to the calendar year during the 2020 reporting year. The report submitted 31 January 2021 represented 14 months of activity to account for the additional months following the November commencement of the action.
23	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 applicable	

2.2 | VEGETATION CLEARANCE PLAN

	Commitment	Compliance status	Evidence/Comments
1.	A GDP will be completed and approved prior to any clearance in the extension areas.	Compliant	The GDP process is a mandatory process at HVO prior to any surface disturbance activities. All clearance activities that have occurred within the extension areas have gained prior conditional approval through HVO's GDP process.
2.	Conduct pre-clearance surveys for CHVEF in accordance with Section 3.1.1	Compliant	Pre-clearance surveys have been undertaken prior to all clearance activities within the extension area.
3.	Identify clearance limits on plans and on the ground.	Compliant	Prior to clearing, HVO surveyors peg and delineate the limit of the area to be cleared unless clear boundaries eg. fencelines, identifying the area of impact exist.
4.	Conduct pre-clearance surveys for listed species in accordance with Section 3.3, 3.4 and 3.5.	Compliant	The pre-clearance surveys include targeted surveys for the listed species outlined (GGBF, Regent Honeyeater and Swift Parrot).
5.	Manage listed species during vegetation clearance in accordance with Section 3.3.4, 3.4.4 and 3.5.4.	Compliant	None of the listed species have been identified as occurring within the area during the pre-clearance surveys or clearance activities.
6.	All clearing machinery involved in vegetation and/or topsoil clearance in the extension areas will visit the wash-down facility for cleaning prior to leaving HVO.	Compliant	The Vegetation Clearance Plan was edited to require machinery brought onto site from outside HVO to clear within the EPBC area to be washed of soil and mud prior to entering the West Pit extension area relevant to the EPBC 2016/7640 approval. This change was rejected by DCCEEW in 2023 and the VCP has been edited back to requiring machinery involved in clearing within the EPBC area to be to be washed of soil and mud prior to exiting site. Documentation of washing equipment prior to entering the EPBC area has been documented, but no works requiring these activities prior to leaving site has occurred in 2023 since the edit.
7.	Disinfection measures are implemented in accordance with Section 4.	Compliant	The disinfection procedures in the VCP are followed as required. The disinfection procedures have been outlined in the pre-clearance reports and the applicable GDP folder.

8.	Records will be kept in accordance with Section 5.2.	Compliant	Actions occurring during the pre-clearance surveys have been documented in each pre-clearance survey report. Records of cleaning equipment has been saved with the applicable GDP reports. HVO's GDP process is used to document washdown requirements for earthmoving equipment.
9.	Publish the annual compliance report on the proponent's website.	Compliant	This compliance report will be placed on the HVO public website prior to submission.

3 | NEW ENVIRONMENTAL RISKS AND POTENTIAL THREATS TO MATTERS OF NATIONAL AND STATE ENVIRONMENTAL SIGNIFICANCE

Crescent Head

During October 2023, a fire spread from the adjacent Hat Head National Park into the Crescent Head North biodiversity area. The fire burnt approximately 34ha of the biodiversity area representing approximately 65% of the BA. The water tank and offline pond were not impacted by the fire and remain as habitat refuge for the GGBF. The fencelines adjoining the neighbouring farmland are intact but those adjoining the National Park have been burnt and need replacement. In early 2024 (Q1), the damaged fencelines will be surveyed and replaced, where necessary, with fauna-friendly fences.

Figure 3.1. *Extent of October 2023 fire at Crescent Head North.*

A small patch of Tropical Soda Apple seedlings were found during the assessment of the fire area and the routine inspections of the Crescent Head North biodiversity area. On both occasions, the identified seedlings were carefully hand removed, placed in sealed garbage bags and removed from site for disposal. The identified locations were pegged for further assessment during subsequent inspections.

Mitchelhill West

In June 2023, it was discovered that trespassing occurred onto the Mitchelhill West offset via a rear lane. The chains on two external gates had been tampered with to permit access. One gate had a chain link cut and a new padlock inserted into the chain. The second gate had the chain cut completely. The trespasser had cut and removed two mature trees and felled a third. Timber from two already grounded trees were also partially removed. Police reports were submitted for this activity. The activity was reported to the NSW Police and an Event number created that documented the trespassing, vandalism and theft. Cameras that send images via the 4G network were established within the offset at strategic locations as a result of this trespassing event and are being monitored daily.

To minimise the possibility of future incidents, the chain on the gate was replaced with a braided steel looped end cable to prevent additional locks from being placed in the link. This occurred within two days of discovery of the trespass.

On 18 June 2023, a grassfire entered the Mitchelhill West biodiversity area in two locations as a result of escaped fire from a neighbouring property. The area within the offset that was burnt totalled just under 1ha and damaged the adjoining boundary fence. Temporary repairs have ensured that the fenceline remained intact, and a broader section of the fence that includes the burnt portion is scheduled to be replaced in Q1 2024.

Hook

During the reporting period, two small trees were cut and removed from within the Hook BA. No obvious breaches of the boundary fencelines had occurred to facilitate access and enquiries were undertaken with people who have keys to the locks on the gates. The perpetrator was not identified and the situation is being monitored.

No additional environmental risks or threats to matters of national environmental significance have been identified during the reporting period.

4 | SUMMARY OF CLIMATIC CONDITIONS

Table 4.1 shows the monthly rainfall compared to the long term average for the BAs. The rainfall received during 2023 did not exceed the annual average. At most locations, the decreased rainfall received represented a significant component of the annual average.

Table 4.1. Rainfall received during 2022 against the average annual rainfall occurring at each of the BAs.

Site	Weather station	Annual Rainfall Received (mm)	Annual Average (mm)	Surplus/Deficit (mm)
Condon View	Putty Tea Rooms # 61209	431.2	739.2	-299.7
Crescent Head	Crescent Head # 59047	872.6	1421.3	-548.3
Hook	Elderslie # 61092	664	723.1	-38.2
Mitchelhill	Muswellbrook (Spring Creek) # 61192	434.2	609.5	-175.3
Wandewoi	HVO Corp - North	459	656.2	-197.2

5 | MANAGEMENT AND MONITORING SCHEDULE

Established offset sites at Wandewoi, Mitchelhill, Hook, Condon View and Crescent Head Biodiversity Areas (BAs) offset the impacts on *Lathamus discolor* (Swift Parrot), *Anthochaera phrygia* (Regent Honeyeater), *Litoria aurea* (Green and Golden Bell Frog) (GGBF) and Central Hunter Valley Eucalypt Forest and Woodland (CHVEFW). The Crescent Head offset area is the only site established to offset impacts to GGBF; the monitoring requirements for this BA are discussed separately in this report.

The objectives for each offset are outlined in Table 5.1.

Table 5.1. Offset objectives for each BA.

Offset area	CHVEFW	Swift Parrot	Regent Honeyeater	Green and Golden Bell Frog
Wandewoi BA	Y	Y		
Mitchelhill BA	Y	Y	Y	
Hook BA	Y	Y		
Condon View BA			Y	
Crescent Head BA				Y

The Biodiversity Management Plan for each site identifies the key conservation outcomes of the long-term management and protection of the offset areas. These outcomes are outlined in Table 5.2.

Table 5.2.. Desired conservation outcomes for the HVO offset areas as outlined by the proposed HVO Management Plan (HVO 2021).

Conservation outcome	Wandewoi BA	Mitchelhill BA	Hook BA	Condon View BA
Protection of the BA under a legally binding conservation covenant	X	X	X	X
Protect and improve the ecological quality of CHVEFW at Wandewoi, Mitchelhill and Hook BAs	X	X	X	
Improve the CHVEFW derived grassland areas so they attain the key characteristics of CHVEFW	X	X	X	
Increased condition and extent of suitable habitats for the Regent Honeyeater and Swift Parrot within protected reserves at Wandewoi, Mitchelhill, Hook and Condon View BAs	X	X	X	X
Enhanced landscape connectivity with the surrounding landscape	X	X	X	X
Improved fauna movement and flora dispersal opportunities with the surrounding landscape	X	X	X	X
Enhanced network of protected vegetation within the Hunter Valley	X	X	X	X

The management plan lists the conservation values, key performance indicators, and completion criteria identified for the offset areas. Key performance indicators and completion criteria for foraging habitat and habitat connectivity and condition are being realised through this monitoring program and management response.

The landscape monitoring requires an interpretation of aerial photo images of the BAs over time and is not considered in this compliance report. This report provides a summary of investigations and activities undertaken to address both the ecological and management requirements of HVO's BAs.

Offset monitoring has been ongoing according to the schedule in Table 5.3 since the EPBC approval in 2016 and the subsequent consultation of the draft Biodiversity Areas Management Plans with the DCCEEW.

Table 5.3. Monitoring schedule proposed in biodiversity areas management plans and implemented in all BAs.

Monitoring method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	On
Landscape								
Aerial photo interpretation	X				X			Repeat every 5th year
Ecological								
Condition Assessment	Spring	Spring		Spring		Spring		Repeat from Year 2
Bird Assemblage	Winter	Winter		Winter		Winter		Repeat from Year 2
Green and Golden Bell Frog: threatened species monitoring	Sept - Mar			Sept - Mar				Repeat every 4th year
Green and Golden Bell Frog: habitat assessment	Spring	Spring		Spring		Spring		Biennial
Mosquito Fish monitoring	Biannual			Annual				If required
Management								
Rapid Condition Assessment - CHVEFW		Spring	Spring	Spring	Spring	Spring	Spring	Spring
Rapid Condition Assessment – Swift Parrot and Regent Honeyeater		Winter	Winter	Winter	Winter	Winter	Winter	Winter
Property inspection	Biannual							

6 | MANAGEMENT ACTIVITIES - 2023

Various conservation, monitoring, management and maintenance activities were undertaken within the BAs throughout the reporting period between 1 January 2023 and 31 December 2023. An overview of the various activities that occurred is presented in Table 6.1.

Table 6.1. Overview of activities undertaken within the HVO EPBC 2016/7640 BAs during the reporting period.

Site	Activities undertaken during the reporting period
Condon View	Property inspections, weed control, vertebrate pest management, rapid condition assessment, repair of eroded access track, upgraded signage and five yearly weed survey.
Crescent Head	Slashing of boundary firebreaks and internal access tracks, track management, weed control, pig trapping, frog monitoring, property inspections, upgraded signage, fire suppression and delineation, bushfire assessment and five yearly weed survey.
Hook	Rapid condition assessment, property inspections, African Olive mapping, control and mulching, other species weed management, vertebrate pest management, slashing of existing boundary firebreaks and internal access tracks, installation of extended boundary firebreak, bushfire assessment, upgraded signage and five yearly weed survey.
Mitchelhill	Property inspections, weed management, rapid condition assessment, vertebrate pest management, slashing of existing boundary firebreaks and internal access tracks, bushfire assessment, upgraded signage and five yearly weed survey. **Activities specific to the western BA**: Installation of extended boundary firebreak, repair/replacement of fencelines, survey boundary and updated security mechanisms.
Wandewoi	Slashing of boundary firebreaks and internal access tracks, property inspections, rapid condition assessment, weed control, vertebrate pest management, bushfire assessment, upgraded signage and five yearly weed survey.

6.1 | PROPERTY INSPECTIONS AND ACTIVITIES

Property inspections were undertaken regularly across all the BAs during the reporting period and provided critical advice regarding works that needed to be prioritised. A summary of the condition of each BA based on the property inspection reports is as follows:

Condon View

As per previous years, Condon View has few serious management issues and does not have issues with illegal access. Despite being logged at some point many years ago, the site is well vegetated, has minimal weeds that are primarily located around an old dam, and recruitment of various native species has been observed. During 2023, weed control and vertebrate pest management activities were the main activities that occurred within the BA.

A bushfire, occurring within neighbouring private properties, threatened to enter into the BA during 2023. The Rural Fire Brigade established a backburn along the eastern boundary of the BA on the neighbour's land which prevented the fire occurring within the BA. During this exercise, the erosion occurring along the eastern boundary track was graded allowing ready access. Additional remediation to this track to ensure the longevity of the surface is planned for Q1 2024.

Monitoring within the BA has identified various native fauna species as utilising the offset. This BA has the benefit of being located close to the Wollemi National Park in an area that is well vegetated and did not burn in the bushfires of 2020. The pest management activities will continue in 2024.

***Figure 6.1**. Backburn (right) prevented bushfire propagation into the Condon View BA (left).*

Crescent Head

During October 2023, a bushfire burnt approximately 65% of the BA which removed the fencelines bordering the national park but not those adjoining private land. These fencelines will be surveyed and replaced in Q1 2024. Outside the burnt areas, the Crescent Head BAs are well-vegetated. The area received over 800mm of rain, which is more than 500mm less than the average. Hence, the rainfall experienced during 2023 resulted in all the ground dams being below capacity. The water level within offline ponds remained high as they are topped up from the connected water tank during the inspections should it be required. The tracks were managed to facilitate safe access. Other than the fire in the North BA, no new damage to vegetation was recorded. No trespass events were noted during 2023.

As per previous years, no dog baiting occurred at the Cresent Head offsets due to discussions with the Ranger of the adjacent National Parks indicating that a pure population of dingos exist in the Park that assist to manage the pig population. Should evidence of the dingos potentially impacting the GGBF become available, a dog baiting programme will be implemented within the Crescent Head BAs.

Crescent Head North is in good condition but does have some minor weed issues, particularly at the exposed edges of vegetation where light is greater than beneath the established plants. As it is liable to flooding events, weed incursion and feral aquatic pests have been recorded within low lying areas and aquatic habitats.

Monitoring and mapping of the bushfire, along with a recent property inspection, identified a small patch of the invasive weed, Tropical Soda Apple. The property inspections specifically target this species as it is known to disperse in flood waters and can be readily managed if seed set is prevented. On each occasion, the Tropical Soda Apple individuals within the observed areas were bagged and removed from site for appropriate disposal.

The weeds are being managed within the BA. As with other years, Bitou bush (*Chrysanthemoides monilifera subsp. rotundata*), Goundsel (*Baccharis halimifolia*), Lantana (*Lantana camara*), Small-leaved Privet (*Ligustrum sinense*) and Wild Tobacco (*Solanum mauritianum*) were targetted, however, during 2023, the main weed identified as requiring specific attention in future management activities within the northern BA is Mickey mouse plant (*Ochna serrulata*).

Some minor pig activity has been observed within the northern BA at Crescent Head during 2023 and a pig trapping programme was undertaken. No pigs were caught or observed on the cameras despite the free-feed period, potentially indicating that the pigs were transient and not resident within the BA.

The few existing internal fencelines will be retained to contain any potential stray cattle from adjacent properties. A small number of stacked roofing tiles can be found near Pond 1 at Crescent Head North. Being inert, these are being retained in situ as additional habitat for frogs, such as the GGBF.

During the inspections, the constructed frog ponds and associated water tanks were reported to be in good condition, despite the netting (installed over the pond to provide the frogs protection from bird predation) requiring replacement. No Green and Golden Bell Frogs or tadpoles were photographed within the constructed pond or the grass beneath the pond. Various native fauna were sighted during the inspections and included Lace monitors Red brow finches, Fan tails, Wrens, a Bower bird, Kookaburras, Ducks, Parrots, a Green snake, Wattle birds and various reptiles.

Crescent Head South is also in good condition but requires grass biomass management in areas to reduce the risk of bushfire. The dominant management issue in the reporting period was vegetation management, specifically along access tracks and boundaries, maintaining habitat connectivity, and bushfire management.

Vegetation management occurred during 2023 to maintain the movement corridors between the constructed frog pond and Pond D. In accordance with the draft management plan for the BA, and in line with the *Best Practice Guidelines for Green and Golden Bell Frog Habitat*, tree regrowth within the movement corridors and around the constructed frog pond is prevented to prevent shadowing of the constructed pond and encourage grassy tussock growth between the two sites.

No tadpoles were observed within the artificial frog ponds at the Cresent Head South BA. While no GGBF have been sighted within this BA, native fauna sighted during the inspections included red neck wallabies, lace monitors, a black snake, Eastern spinebills and various other native birds, tadpoles in the front ponds and numerous frogs calling in and around the frog ponds.

Figure 6.3. *Pond D within Crescent Head South BA.*

Hook

The primary management issues within the Hook property is the removal of African Olive (*Olea europaea subspecies cuspidate*) and, to a lesser degree, Lantana, to enable the recruitment of native species consistent with the Central Hunter Valley Eucalypt Forest and Woodland ecological community. With the exception of the African olive and Lantana, exotic weeds are primarily concentrated within the grassland areas. A diverse suite of native species is recruiting across all areas of the site but active management of the exotic grasslands are continuing and will occur through 2024.

During the reporting period, two small trees were cut and removed from within the BA. No obvious breaches of the boundary fencelines had occurred to facilitate access and enquiries were undertaken with people who have been recorded as having the keys to the locks on the gates. The perpetrator was not identified and the situation is being monitored.

Tracks within the BA were slashed and extensive weed control and vertebrate pest management occurred.

In February 2023, the Hook property was surveyed to record the locations of all African olive individuals in accordance with the Hook BA Intensive Weed Management Plan. Weed management services were undertaken over several occasions also targeting the African olive regrowth and lantana occurring within the areas that were mulched last year.

As per previous years, a 24 tonne excavator with a mulching head attachment was used to thin the more dense areas of African olive. These areas have been subsequently treated to reduce regrowth with the stumps being sprayed. The mulched biomass enabled light to reach the ground in these areas which has proven beneficial for native species regrowth.

In the HVO EPBC variation proposal that was submitted to the Delegate, HVO has made a commitment to reduce the extent of African olives on the Hook BA by 30% annually. The effectiveness of the mulching programme to enable HVO to meet the 30% reduction in African olive commitment was encouraging. This commitment is discussed further in Section 6.3.

Mitchelhill

The Mitchelhill West BA is in good condition. During the reporting period, a firebreak was installed to the Rural Fire Service standards around the external boundary. As stated in Section 3, unauthorised trespass had occurred through a locked boundary gate, with an additional lock inserted into the chain permitting access by an external party. Three large trees were felled and some fallen logs also removed (Figures 6.4). To prevent a reoccurrence, the chains securing the gates were upgraded to braided wire to prevent additional locks being added, 4G trail cameras that remotely send images back to HVO were installed across the property and signage on these gates upgraded. An event report documenting the unauthorised entry and theft of timber was filed with the NSW Police.

Since the installation the cameras, no unauthorised entry events have been noted, but the monitors have enabled the route of wild dogs to be tracked and resident native fauna to be identified (Figure 9.1).

In June 2023, the Upper Hunter Weeds Authority inspected the two Mitchelhill offset properties for invasive weeds. *Opuntia tormentosa*, the Velvety Tree Pear, and Pampas grass (Cortaderia species), was found to occur on the Mitchelhill West BA. Weed management has occurred with the major weeds targeted being these identified species along with other Opuntia species, African boxthorn (*Lycium ferocissimum*) and Galenia (*Galenia pubescens*).

To reduce the fire risk coming into summer, the open grassy areas and the planted riplines were slashed between the rows where natural regrowth has not occurred.

Natural recruitment was noted across the BA and, while the planted tubestock in the riplines have established well, supplementary plantings will be required for the larger area at Mitchelhill West. This has been planned in 2023 with consideration of genetic variability of the seeds being used, and is to be implemented in 2024.

A bushfire resulting from a fire on a neighbouring property also impacted just under 1ha of the BA with the vegetation burning along with the fenceline. Although the fenceline remains intact, the fenceline has been surveyed and is scheduled to be replaced and repaired in Q1 2024.

The Mitchelhill East BA is primarily steep country which is why it is predominately vegetated with few cleared areas. The weeds present on the BA are typical of those within agricultural environments and, while these can be found in scattered dense infestations, the majority are located within the lines ripped to facilitate the planted tubestock. Natural regeneration is occurring within the BA extending into the cleared grassland areas. Management of this regrowth and weed competition within the ripped lines will continue throughout 2024.

The identified Aboriginal cultural heritage PAD area fencing is intact and remains in good condition.

***Figure 6.4**. Unauthorised felling of trees within the Mitchelhill West biodiversity area, June 2023.*

Wandewoi

The management of weed growth is the main issue at the Wandewoi BA although the majority of the weed proliferation was in the cleared, previous agricultural areas and gullies. Slashing of the tracks and open areas assisted in managing weed establishment where possible with careful planning to avoid areas of native regrowth.

To assist in fire management, a firebreak was mown along the alluvial flats where the ridgeline commenced. The intention was to slow the progress of any grassfire should it occur on the alluvial areas before it established within the steep country.

Cultural heritage barriers are being maintained and vertebrate pests (pigs and wild dogs) are routinely managed during trapping and baiting programmes. Widespread recruitment of native species has been observed within the woodland along the ridgeline. Weed management within these areas is scheduled to intensify during 2024.

6.2 | VERTEBRATE PEST MANAGEMENT

Vertebrate pest management has been undertaken within all of HVOs EPBC biodiversity areas in conjunction with the Local land Services (LLS), NSW National Parks and Wildlife Services (NPWS) and surrounding landholders. During 2023, HVO participated in a 1080 baiting programme that targeted dogs and foxes, and pig trapping and baiting across the HVO lands and biodiversity offset areas.

The wild dog baiting programme occurred across the Mitchelhill (East and West), Hook, Wandewoi and Condon View BAs. While no dog baiting programmes occurred at the Crescent Head BA, a pig trapping programme was undertaken during 2023 based on evidence of a small number of pigs traversing the property. The property inspection reports at Crescent Head have not indicated a need to undertake wild dog and fox control to manage predation on the GGBF. Discussions around regional dog baiting programmes have occurred with the Kempsey NPWS due to the Crescent Head BAs adjoining the Limeburners Creek and Hat Head National Parks. To date, NPWS officers have indicated a reluctance to

bait for dingos due to a 'pure' population of dingos occurring within Limeburners Creek National Park (pers comm.) and their ability to control pig populations and ensure that the pigs are transient across the area.

1080 Baiting Programme

Wild dog baiting programmes within the BAs occurred during May and October 2023. Ten-eighty (1080) bait stations are selected based on previous baiting station locations, motion camera results from previous programs and sightings of wild dogs and foxes, biodiversity concerns and the location of tracks and trails within the offsets. Stations were either established as Ejector Bait Sites or baited with fresh meat containing sodium fluoroacetate (1080) at a concentration that targeted wild dogs and foxes.

The ground baiting method used aligns with the NSW Code of Practice and Standard Operating Procedures for the Effective and Humane Management of Wild Dogs produced by NSW Department of Primary Industry (DPI) (March 2022).

The location of the baits within each BA for both the autumn/winter and the spring 2023 programmes are shown in figures 6.5 to 6.14.

The spring 2023 vertebrate pest management programme represented the 11th baiting programme undertaken at the Mitchelhill, Hook and Wandewoi BAs, and the 13th undertaken at the Condon View BA. Some of the fauna recorded on the motion sensor cameras during the baiting programmes are shown in Section 9.

A summary of the baiting programmes undertaken at the BAs is outlined in Table 6.3. The row coloured in salmon highlights the baiting programme for the reporting period. The final column entitled 'Baiting efficiency excluding other' removes the non-target species from the calculation and gives a more accurate representation of the efficiency for the target species.

The results at all sites indicate that, with the exception of Mitchelhill East BA, a clear dominance of dogs taking the baits has occurred as opposed to foxes or other non-target species. Based on tracks and photographic evidence, the main non-target species consuming the baits appears to be the lace monitor (*Varanus various*). Quolls (*Dasyurus maculatus*) have been reported within the Mitchelhill East BA. Photographic evidence at the bait stations indicates that the quolls have not been taking the baits.

This outcome is welcomed as although research shows that Australian native fauna are naturally resistant to 1080, and concentrations in the meat bait need to be substantially higher to adversely affect the animals, any native species take is an undesirable outcome for baiting results.

An additional baiting programme was undertaken in Spring 2023 across HVO. This programme included the Wandewoi BA and adjacent lands along the Hunter River. The locations of the baits are shown in Figure 6.6 and the results presented in Table 6.2.

A comparison of the baiting results across all sites between 2018 and 2023 indicates that the baiting programme does not ensure a linear decline in vertebrate pests the following year despite efforts and expenditure. This emphasises the importance of a centralised coordination (LLS in this case) to ensure adjacent landholders participate in the scheme to minimise other properties becoming a source from where recolonisation can occur. The vertebrate pest management programme will continue during 2024.

Table 6.2. Results of 1080 Vertebrate Pest Management Programmes at the Wandewoi BA.

Bait Station Name	Check 1 Species	Check 2 Species	Check 3 Species
350	-	Fox	-
351	Fox	Fox	Wild Dog
352	-	-	Fox
395	Fox	-	-
397	Fox	Fox	Wild Dog
398	Goanna	-	-
399	Feral Pig	-	-
400	Wild Dog	-	Wild Dog

Table 6.3. Comparison of Results of all 1080 Vertebrate Pest Management Programmes for HVO Biodiversity Areas (except Crescent Head).

Baiting Program	No. of Baiting Sites	Baiting opportunities	Baits taken by Dogs	Dog (%)	Baits taken by Foxes	Fox (%)	Baits taken by other (non-target) species	Other (%)	Total No. of Baits Taken	No. Sites where baits taken at least once	Represented as Percentage (%)	No. sites with baits taken on all occasions	No. sites with no baits taken	No. baits Disturbed Not Taken	No. baits taken alternatively by Dog or Fox	Baiting Efficiency %	Baiting efficiency (excl 'other')
Jun 18 LBEL	11	22	7	88%	1	13%	0	0%	8	8	73%	0	3	1	0	36%	36%
Sep 18 LBEL	11	22	7	100%	0	0%	0	0%	7	5	45%	2	6	3	0	32%	32%
May 19 LBEL	11	21	2	67%	1	33%	0	0%	3	3	27%	0	8	0	0	14%	14%
Oct 19 LBEL	11	22	13	65%	5	25%	2	0%	20	9	82%	7	2	0	5	91%	82%
May 20 LBEL	11	22	9	100%	0	0%	0	0%	9	8	73%	1	3	1	0	41%	41%
Oct 20 LBEL	11	22	8	47%	6	35%	3	18%	17	10	91%	8	1	2	2	77%	64%
May 21 LBEL	11	22	9	90%	1	10%	0	0%	10	6	55%	3	5	1	0	45%	45%
Oct 21 LBEL	13	26	11	79%	3	21%	0	0%	14	10	77%	4	3	0	2	54%	54%
May 22 LBEL	13	26	3	100%	0	0%	0	0%	3	2	15%	1	11	0	0	12%	12%
Oct 22 LBEL	11	22	8	100%	0	0%	0	0%	8	6	55%	2	5	1	0	36%	36%

REPORT | EPBC 2016-7640 ANNUAL COMPLIANCE REPORT 2023

Baiting Program	No. of Baiting Sites	Baiting opportunities	Baits taken by Dogs	Dog (%)	Baits taken by Foxes	Fox (%)	Baits taken by other (non-target) species	Other (%)	Total No. of Baits Taken	No. Sites where baits taken at least once	Represented as Percentage (%)	No. sites with baits taken on all occasions	No. sites with no baits taken	No. baits Disturbed Not Taken	No. baits taken alternatively by Dog or Fox	Baiting Efficiency %	Baiting efficiency (excl 'other')
May 23 LBEL	11	22	6	86%	1	14%	0	0%	7	6	55%	1	5	3	0	32%	32%
Oct 23 LBEL	11	22	7	58%	1	8%	4	33%	12	8	73%	6	3	0	0	55%	36%
Jun 18 MITE	6	12	2	50%	2	50%	0	0%	4	4	67%	0	2	0	0	33%	33%
Sep 18 MITE	6	11	1	50%	1	50%	0	0%	2	1	17%	1	5	1	1	18%	18%
May 19 MITE	6	12	2	100%	0	0%	0	0%	2	2	33%	0	4	0	0	17%	17%
Oct 19 MITE	6	12	0	0%	2	100%	0	0%	2	2	33%	0	4	5	0	17%	17%
May 20 MIT E	6	12	2	100%	0	0%	0	0%	2	2	33%	0	4	2	0	17%	17%
May 20 MIT E	6	12	0	0%	1	100%	0	0%	1	1	17%	0	5	0	0	8%	8%
May 21 MIT E	7	14	5	100%	0	0%	0	0%	5	4	57%	1	3	2	0	36%	36%
Oct 21 MIT E	5	10	5	63%	1	13%	2	25%	8	5	100%	3	0	0	0	80%	60%

Baiting Program	No. of Baiting Sites	Baiting opportunities	Baits taken by Dogs	Dog (%)	Baits taken by Foxes	Fox (%)	Baits taken by other (non-target) species	Other (%)	Total No. of Baits Taken	No. Sites where baits taken at least once	Represented as Percentage (%)	No. sites with baits taken on all occasions	No. sites with no baits taken	No. baits Disturbed Not Taken	No. baits taken alternatively by Dog or Fox	Baiting Efficiency %	Baiting efficiency (excl 'other')
May 22 MIT E	6	12	3	75%	1	25%	0	0%	4	3	50%	1	2	2	0	33%	33%
Oct 22 MIT E	6	12	3	60%	2	40%	0	0%	5	4	67%	1	2	0	0	42%	42%
May 22 MIT E	5	10	1	25%	3	75%	0	0%	4	3	60%	1	2	1	0	40%	40%
Oct 23 MIT E	5	10	4	50%	3	38%	1	13%	8	4	80%	4	1	0	2	80%	70%
Jun 18 MITW	11	22	7	78%	2	22%	0	0%	9	6	55%	3	5	0	0	41%	41%
Sep 18 MITW	11	22	9	64%	1	7%	4	29%	14	9	82%	5	2	0	1	64%	45%
May 19 MITW	11	22	8	67%	4	33%	0	0%	12	9	82%	3	2	3	1	55%	55%
Oct 19 MITW	11	22	15	75%	4	20%	1	5%	20	11	100%	9	0	1	2	91%	86%
May 20 MIT W	10	20	7	70%	3	30%	0	0%	10	8	80%	2	2	2	2	50%	50%
Oct 20 MIT W	11	22	11	55%	7	35%	2	10%	20	10	91%	10	1	0	5	91%	82%

Baiting Program	No. of Baiting Sites	Baiting opportunities	Baits taken by Dogs	Dog (%)	Baits taken by Foxes	Fox (%)	Baits taken by other (non-target) species	Other (%)	Total No. of Baits Taken	No. Sites where baits taken at least once	Represented as Percentage (%)	No. sites with baits taken on all occasions	No. sites with no baits taken	No. baits Disturbed Not Taken	No. baits taken alternatively by Dog or Fox	Baiting Efficiency %	Baiting efficiency (excl 'other')
May 21 MIT W	15	27	17	100%	0	0%	0	0%	17	13	87%	4	2	6	0	63%	63%
Oct 21 MIT W	11	22	10	50%	4	20%	6	30%	20	11	100%	9	0	0	3	91%	64%
May 22 MIT W	12	24	11	79%	3	21%	0	0%	14	9	75%	5	3	0	2	58%	58%
Oct 22 MIT W	11	22	8	62%	5	38%	0	0%	13	9	82%	4	2	1	3	59%	59%
May 23 MIT W	11	22	12	75%	4	25%	0	0%	16	10	91%	6	1	1	2	73%	73%
Oct 23 MIT W	12	24	9	60%	1	7%	5	33%	15	9	75%	6	3	0	1	63%	42%
Jun 18 WAN	6	12	7	88%	1	12%	0	0%	8	6	67%	1	2	2	1	67%	67%
Sep 18 WAN	6	12	9	100%	0	0%	0	0%	9	6	100%	3	0	0	0	75%	75%
May 19 WAN	6	12	5	83%	1	17%	0	0%	6	4	67%	2	2	0	1	50%	50%
Oct 19 WAN	6	12	7	88%	0	0%	1	13%	8	5	83%	3	1	2	0	67%	67%

May 20 WAN	6	12	5	71%	2	29%	0	0%	7	4	67%	3	2	1	0	58%	58%
Oct 20 WAN	6	12	6	86%	1	14%	0	0%	7	5	83%	5	1	0	1	58%	58%
May 21 WAN	6	12	8	73%	2	18%	1	9%	11	6	100%	4	0	0	0	92%	83%
Oct 21 WAN	6	12	3	33%	2	22%	4	44%	9	6	100%	3	0	0	1	75%	42%
May 22 WAN	6	12	5	63%	2	25%	0	0%	8	5	83%	2	1	0	2	67%	67%
Oct 22 WAN	6	12	4	57%	0	0%	3	43%	7	5	83%	2	1	0	0	58%	33%
May 23 WAN	6	12	7	70%	0	0%	3	30%	10	6	100%	0	4	0	0	83%	58%
May 17 CON	11	22	11	100%	0	0%	0	0%	11	8	73%	3	3	1	0	50%	50%
Sep 17 CON	11	22	10	56%	1	5%	7	39%	18	11	100%	7	0	0	0	81%	50%
Jun 18 CON	11	22	8	89%	1	11%	0	0%	9	8	73%	1	3	0	0	41%	41%
Sep 18 CON	11	21	9	56%	1	6%	6	38%	16	8	73%	8	3	0	1	76%	48%
May 19 CON	11	21	5	71%	2	29%	0	0%	7	4	36%	3	7	1	2	33%	33%
Oct 19 CON	12	24	13	65%	5	25%	2	10%	20	10	83%	10	2	1	4	83%	75%

Baiting Program	No. of Baiting Sites	Baiting opportunities	Baits taken by Dogs	Dog (%)	Baits taken by Foxes	Fox (%)	Baits taken by other (non-target) species	Other (%)	Total No. of Baits Taken	No. Sites where baits taken at least once	Represented as Percentage (%)	No. sites with baits taken on all occasions	No. sites with no baits taken	No. baits Disturbed Not Taken	No. baits taken alternatively by Dog or Fox	Baiting Efficiency %	Baiting efficiency (excl 'other')
May 20 CON	15	27	9	56%	7	44%	0	0%	16	11	73%	6	4	0	5	59%	59%
Oct 20 CON	15	30	12	50%	2	8%	10	42%	24	14	93%	10	1	0	1	80%	47%
May 21 CON	17	34	13	100%	0	0%	0	0%	13	10	59%	3	7	1	0	38%	38%
Oct 21 CON	18	30	13	45%	9	31%	7	24%	29	18	100%	9	0	1	4	97%	73%
May 22 CON	15	30	6	45%	1	31%	0	24%	7	6	40%	1	9	0	0	23%	23%
Oct 22 CON	13	26	12	86%	1	7%	1	7%	14	9	69%	5	4	3	1	54%	50%
May 23 CON	17	32	13	65%	5	25%	2	10%	20	14	82%	5	2	2	2	63%	56%
Oct 23 CON	16	32	7	27%	3	12%	16	62%	26	15	94%	11	1	0	0	81%	31%

Note

MITE = Mitchelhill East BA
MITW = Mitchelhill West BA
WAN = Wandewoi BA
CON = Condon View BA
LBEL = Lower Belford (Hook) BA

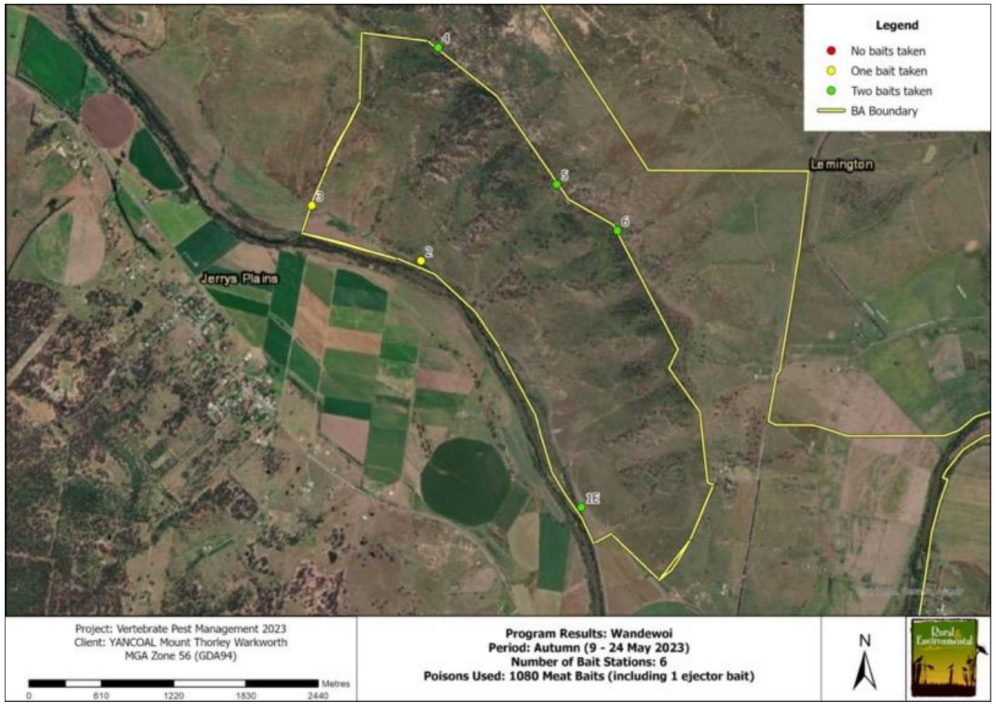

Figure 6.5. *Wandewoi BA vertebrate pest management results for the Autumn 2023 programme.*

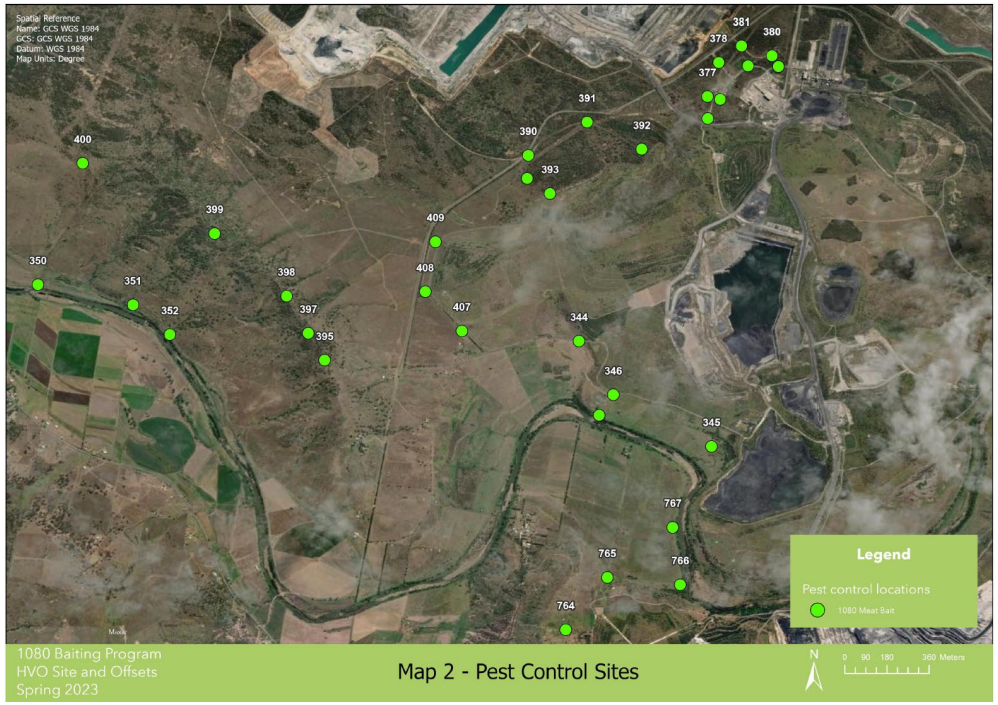

Figure 6.6. *Wandewoi BA vertebrate pest management locations for the Spring 2023 programme.*

Note: The area applicable to EPBC 2016/7640 include the five bait stations along the ridgeline on the western edge of the figure and the three along the Hunter River.

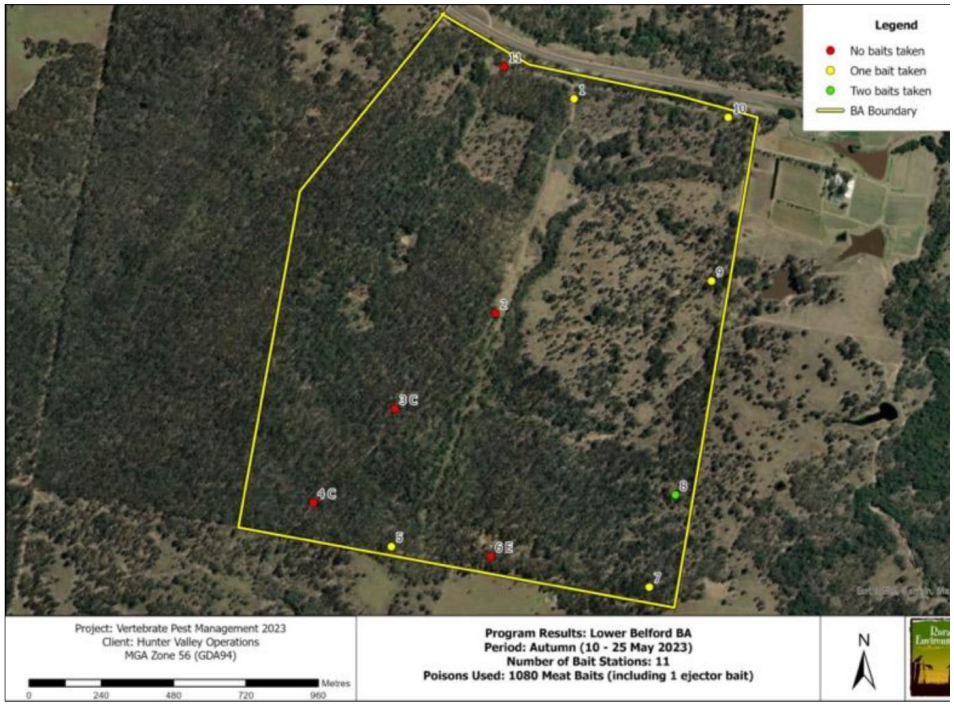

Figure 6.7. *Hook property vertebrate pest management results for the Autumn 2023 programme.*

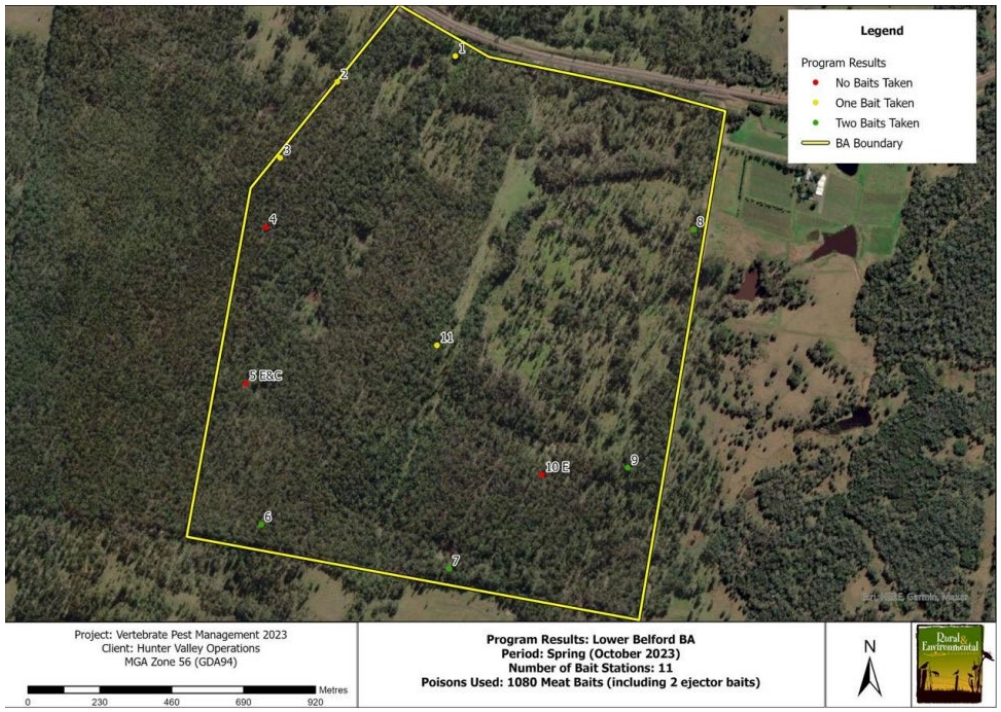

Figure 6.8. *Hook property vertebrate pest management results for the Spring 2023 programme.*

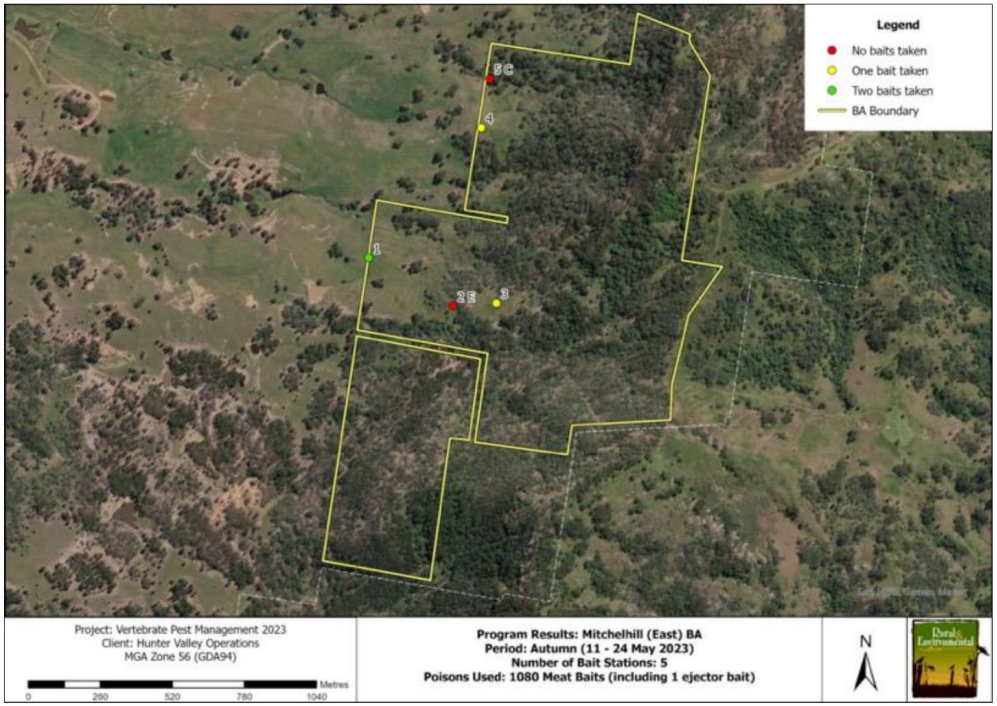

Figure 6.9. *Mitchelhill East BA vertebrate pest management results for the Autumn 2023 programme.*

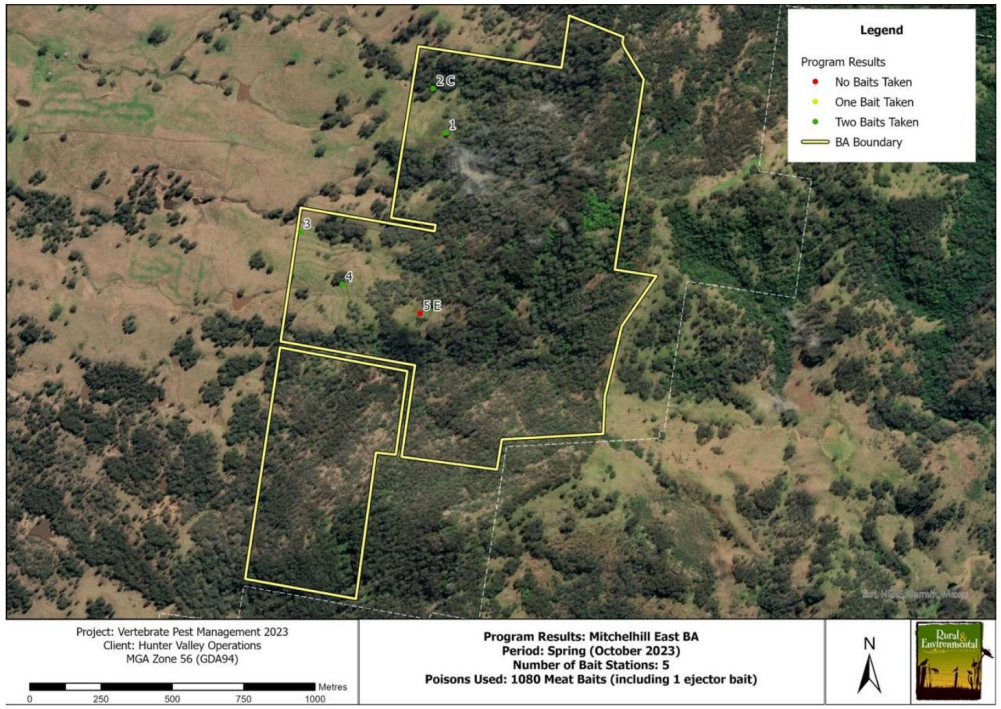

Figure 6.10. *Mitchelhill East BA vertebrate pest management results for the Spring 2023 programme.*

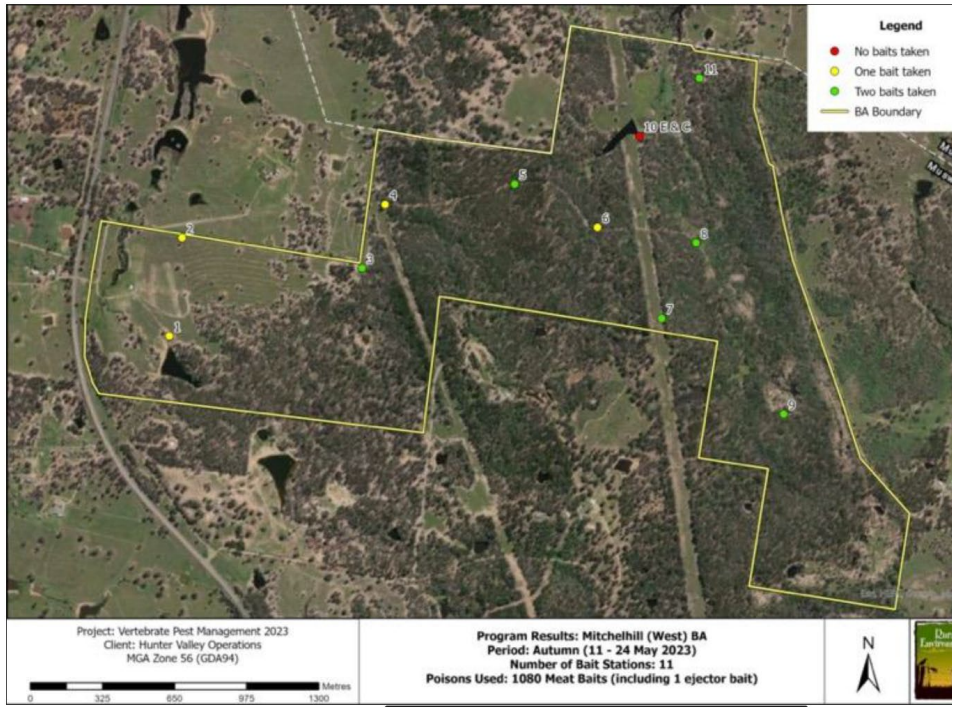

Figure 6.11. *Mitchelhill West BA vertebrate pest management results for the Autumn 2023 programme.*

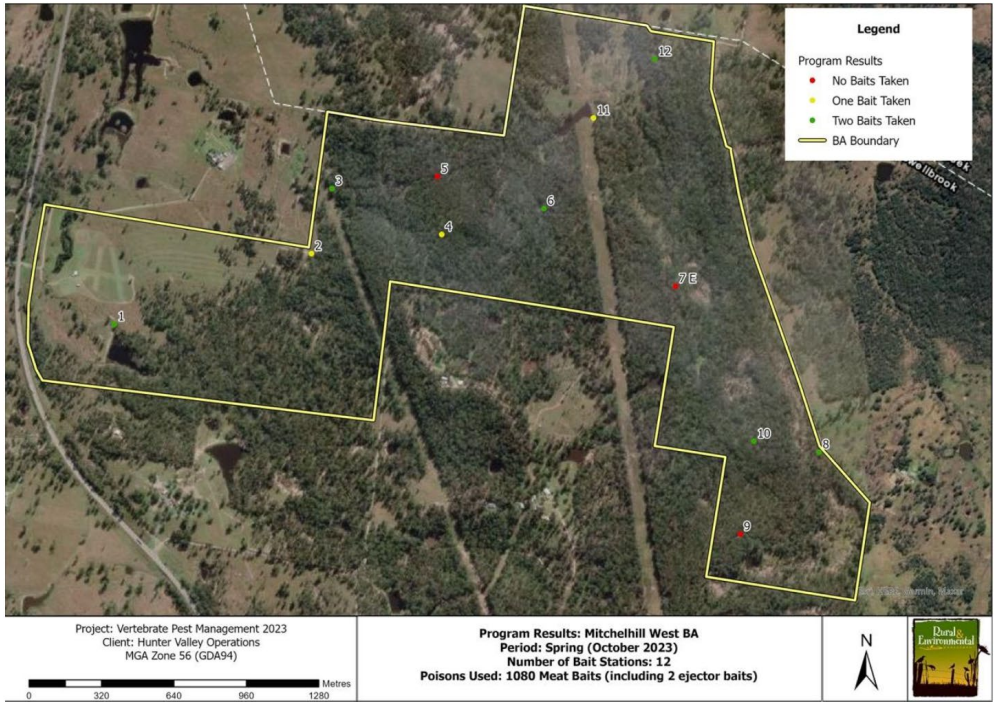

Figure 6.12. *Mitchelhill West BA vertebrate pest management results for the Spring 2023 programme.*

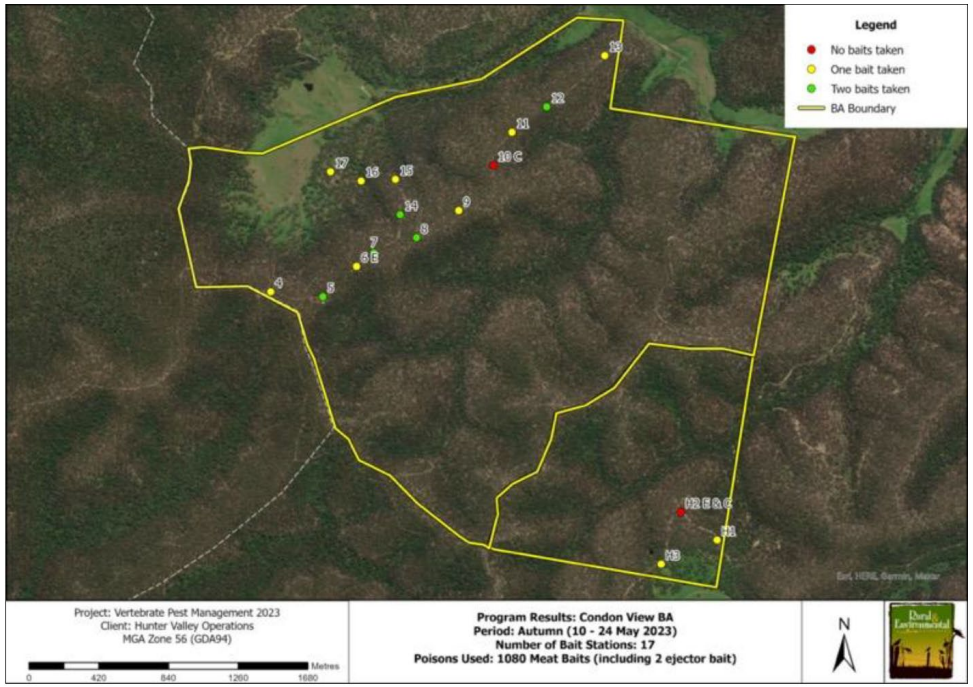

Figure 6.13. *Condon View BA vertebrate pest management results for the Autumn 2023 programme.*

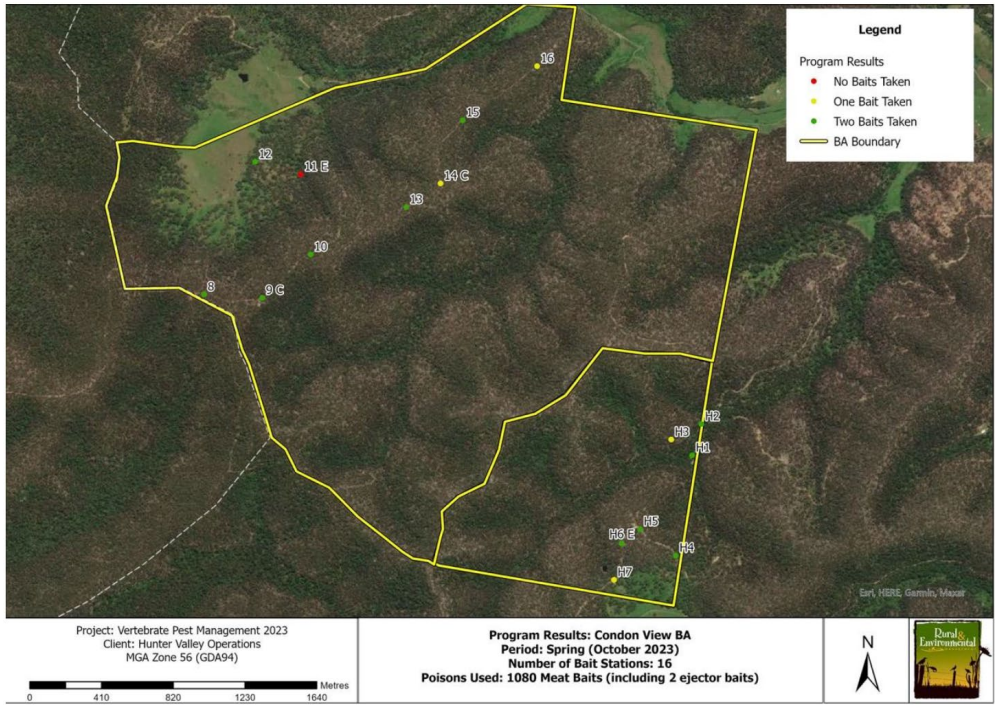

Figure 6.14. *Condon View BA vertebrate pest management results for the Spring 2023 programme.*

Note: these figures for Condon View also include the adjoining State offset for Yancoal's Mount Thorley Warkworth mine. The area applicable to EPBC 2016/7640 are the bait stations in the southern corner.

2023 Pig Trapping Programme

HVO undertook pig baiting and trapping programmes at HVO and the Crescent Head BA during 2023. The programmes were in response to monitoring results and observations that reported pigs traversing the Hunter River and accessing water bodies at the Crescent Head BA.

Baits or traps were established at various locations along the Hunter River, including sites within the Wandewoi BA, and three locations at the Crescent Head BAs. The locations of the control sites can be seen in figures 6.15 to 6.17. Free feed stations were initially provided to encourage visitation by the pigs. Once visitation was determined, the free feed stations were swapped for the sodium nitrite bait stations. Sodium nitrite baits were used as studies have found that the effect on pigs is immediate with little impact on non-target species.

Each trap was baited and monitored with either a live stream HogEye Camera trap system or standard motion sensor camera system. This system allows for remote activation of the trap and aligns with the Code of Practise and Standard Operation Procedures.

Each station was checked daily using the live web based system and visited if required to restock food or access the trap.

The outcome of the trapping programme at HVO can be seen in Table 6.4 below.

Extensive weed management has been undertaken along the Hunter River in 2023 to reduce the cover and habitat for feral animals residing within HVO-owned land. Since this occurrence, the visible populations of feral pigs residing in the area have decreased. It is hoped that the number of pigs controlled in future campaigns would decrease as a result of declining populations, or represent groups that traverse across the area as opposed to breeding within lands at HVO.

No pigs were recorded visiting the trap stations in the Crescent Head BAs during the 2023 programme. This may indicate that the pigs that caused the initial disturbance were transient rather than resident within the areas. If they were present during the baiting programme, it is expected that the pigs would have been observed through the motion sensor camera.

Pig trapping is scheduled again at HVO, which will include the Wandewoi BA again in 2023. A trapping programme will also occur at the Crescent Head BAs should monitoring results indicate that the pigs still traverse the area.

Table 6.4. HVO 2023 Pig Control Summary and Results.

Check Date	Pigs Controlled
Red Point 1 Billabong	14
Red Point 2 Parnell's	1
Red Point 3 Wandewoi	9
Red Point 4 Parnell's	0
Red Point 5 Archerfield	1
Red Point 6 Cheshunt	0
Red Point 7 Carrington	2
Red Point 8 Carrington	4

Note: Red Point 3 is located within the Wandewoi BA.

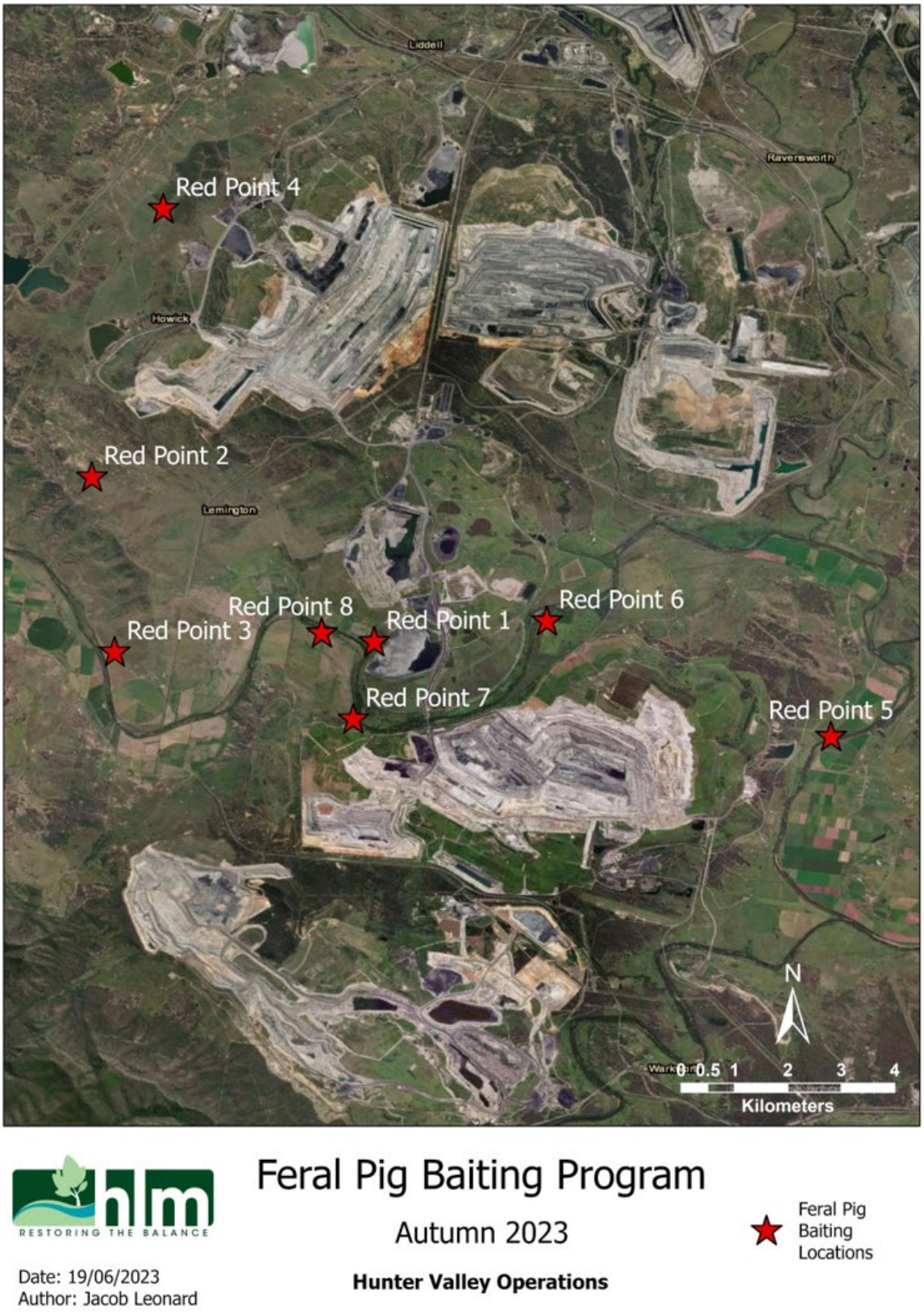

***Figure 6.15**. Pig trap locations along the Hunter River at HVO during the autumn 2023 programme.*

Note: Red Point 3 is located within the Wandewoi BA.

***Figure 6.16**. Pig trap locations 1 and 2 at Crescent Head South BA during the spring 2023 programme.*

***Figure 6.17**. Pig trap location 3 at the waterhole within the Crescent Head North BA during the spring 2023 programme.*

6.3 | HOOK BA INTENSIVE WEED MANAGEMENT PLAN

The Intensive Weed Management Plan for the Hook BA was implemented to reduce the extent of the African olive (*Olea europaea subsp. cuspidata*) population within the Hook BA and, to a lesser extent, Lantana (*Lantana camara*) and prickly pear (*Opuntia species*). The Hook BA Intensive Weed Management Plan was submitted to DCCEEW for approval with the EPBC variation as part of the Hook Biodiversity Offset Management Plan.

Under the *Biosecurity Act 2015*, all landowners have a responsibility to control noxious weeds on their property, known as a General Biosecurity Duty. Landowners or land managers have a "General Biosecurity Duty" to prevent, eliminate or minimise the biosecurity risk posed or likely to be posed by priority weeds. African olive is listed as a priority weed for the Hunter region.

In the Plan, HVO has committed to reducing the extent of African olive within the Hook BA by 30% per year. This exceeds the 20% reduction recommended by the Upper Hunter Weeds Authority General Biosecurity Control Duty Guidelines.

The Plan states that in February each year, the Hook BA will be surveyed to determine the extent and location of African olive individuals.

The fourth African olive survey was undertaken on the BA during 2023; the first being in February 2020. Every second year the portion of the offset surveyed has been selected based on where the majority of the weed treatment has been undertaken. To date, this has generally been concentrated in the western and northern portions of the offset. For these years an entire overview of the offset has been created by superimposing the remaining surveyed area from the previous year. It is considered that the density and distribution of African olives in the untreated areas will remain relatively static due to minimal disturbance. The individual and patch counts for these areas have also been used in calculating final results.

In 2023, only the northern portion of the offset was surveyed where the majority of weed treatment occurred.

Data was collected and mapped according to the following:

- Large plants (individual)
- Medium plants (individual)
- Small plants (individual)
- Seedling (individual)
- Medium to large patch
- Seedling to small patch
- Previously treated areas

Plant size was determined according to the following heights:

- Seedling: up to 12cm
- Small: 12cm to 100cm (1m)
- Medium: Approximately 1m to 3m in height
- Large: Greater than 3m in height

During the survey, individual Lantana and prickly pear plants within the offset are recorded as these weed species are also considered priority for control within the Hook BA. There was no discerning between plant sizes for either Lantana or prickly pear,

Activities that remove African Olive target the more dense areas and areas containing the large mature seeding individuals to reduce the volume of seed being produced within the property. When larger individuals are removed, frequently, a 'carpet' of African olive individuals germinates from the seedbank that was beneath the removed tree. While follow up treatment does occur across these areas as soon as

possible, it does not have to occur immediately as these individuals will not produce seed and the additional time will allow the identified seedlings to grow taller to enable them to be readily identified.

The results from the 2023 survey and the areas targeted for weed control during that year are outlined in Table 6.5 and Figures 6.18 and 6.19.

Table 6.5. Summary of the 2023 African olive survey against the previous survey results.

Categories	2020	2021	2022	2023
	Total No Individuals			
Large (over 3m)	578	440	939	623
Medium (1-3m)	967	762	764	786
Small (12cm-1m)	2209	2068	3322	3886
Seedling (≤12cm)	416	438	640	792
Total	**4170**	**3708**	**5665**	**6087**
Mulched area			3.12	4.9
Patch description	Patch size (ha)			
Medium-large	20.44	18.05	7.92	5.69
Small- seedling	0.88	0.29	0.9	0.51
Treated area incl. mulched	9.32	5.80	4.63	32.07
Total	**30.64**	**24.14**	**13.45**	**38.27**

The 2023 survey recorded 623 large African olive trees, 786 medium trees, 3886 small trees and 792 seedlings. Approximately 5.69 ha of dense infestations (patches) of 'medium to large' African olives present on the offset and 0.51 ha of 'seedling to small' patches were recorded.

Comparing the results of the 2023 survey results against the previous year, there was a decrease in the large tree count while the medium tree count remained relatively static. Both the small tree count and seedlings increased, which is to be expected given the increased germination and growth of seedlings from beneath the larger, removed individuals.

A significant decrease of 316 large trees between last year's survey and this year's survey can be attributed to the 4.9 ha of mulching of predominantly large African olives (individual and medium to large patches) undertaken on the north-western portion of the offset. There was a reduction of the medium-large olive patch from 7.92ha to 5.69ha. The initial 2020 survey recorded 20.44 ha of 'medium to large' dense infestations of African olives were recorded; with a subsequent 14.75ha reduction of this patch size class over four years.

The mulching in these areas not only reduces the outlying individual large trees and previously impenetrable dense infestations, but also allows large trees to be counted as individual rather than

collectively grouped into a patch, which compounds the effect of decreasing patch surveyed areas. The additional benefit of the mulching unit is a reduction in the flammable, impenetrable biomass that would result if these larger trees were cut and allowed to fall without being mulched. Furthermore, if they were to remain, the fallen, large olives would provide protection for recruiting olive individuals enabling them to hide from view and provide difficulty for contractors to treat the sheltering seedlings.

Mulching of the infestations of medium to large African olives using a 24-tonne excavator with a mulching head attachment has proved highly successful in expediting the control process and allowing ease of access to small plants and seedling regrowth. Natural regeneration of native flora at all levels; groundcover, mid and upper story, is regenerating in these previously mulched areas and is indicative of the success of this strategy.

Observations in the field identified some regrowth of the mulched African olives within the mulched area which were subsequently targeted to reduce the regeneration from the mulched stumps. It was also noted that the understorey was regrowing within the mulched areas, the most obvious being species of Gahnia, Pultenaea and Breynia. The use of the mulcher to remove the denser patches of large African olive individuals was shown to be very effective and cost efficient in reducing the olive biomass. This practice will continue in 2024 where the remaining patch size is of sufficient area for the mulching to occur, and of a density that restricts the use of less intrusive cut and paint methods.

Regarding the commitment in the Hook Biodiversity Area Intensive Weed Management Plan to reduce the olive population by 30% per year, management reduced the medium-large stands of African Olive by 28% and the seedling patches by 56% during the reporting period. Although there was a 7% increase in individuals identified, the majority were small, immature plants that do not yet produce seeds and are not able to disperse into new areas.

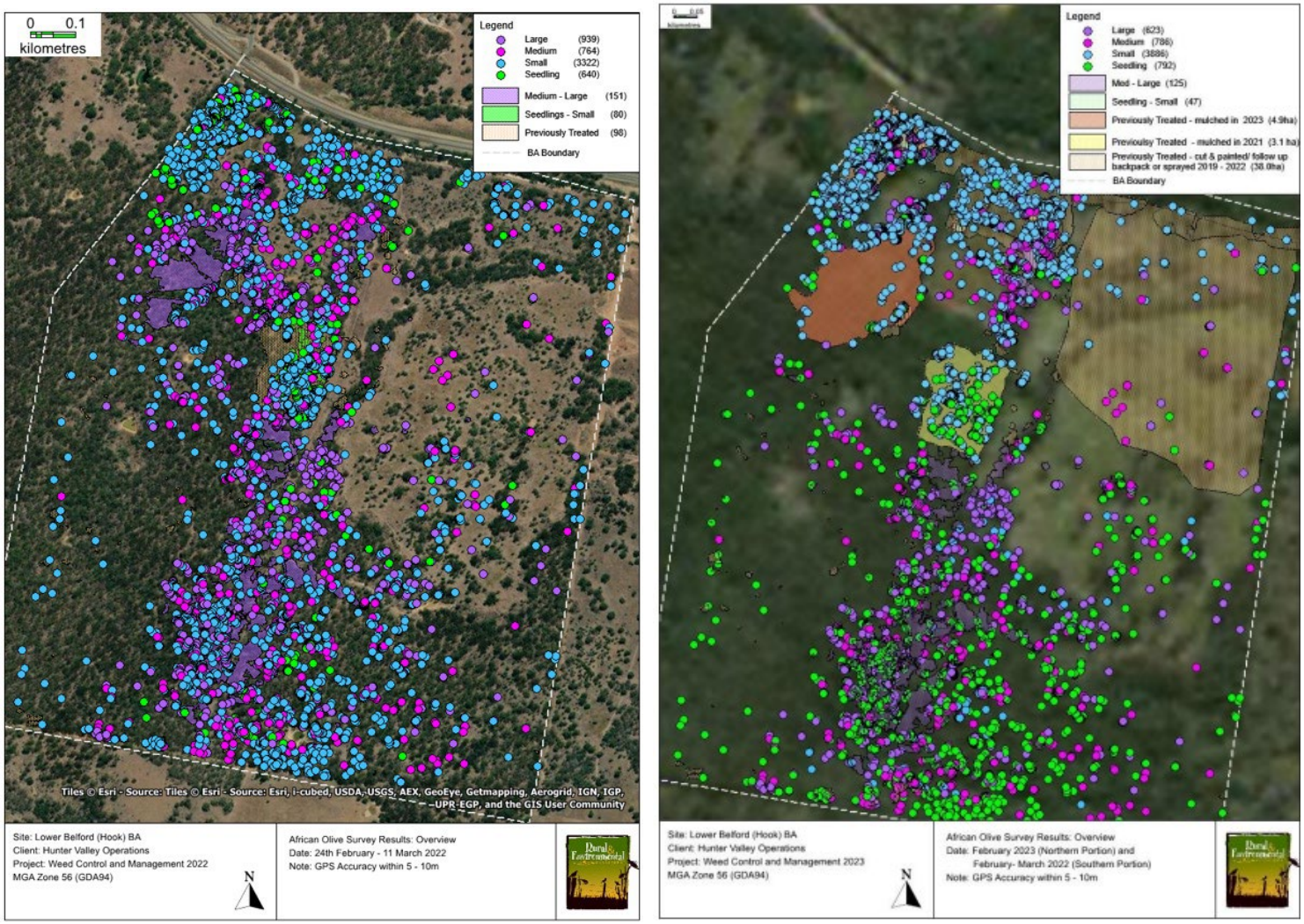

Figure 6.18. *African olive survey results at the Hook BA.*

Note: February 2022 survey (left) and 2023 survey (right) indicating removal activities undertaken during the 2023 reporting year.

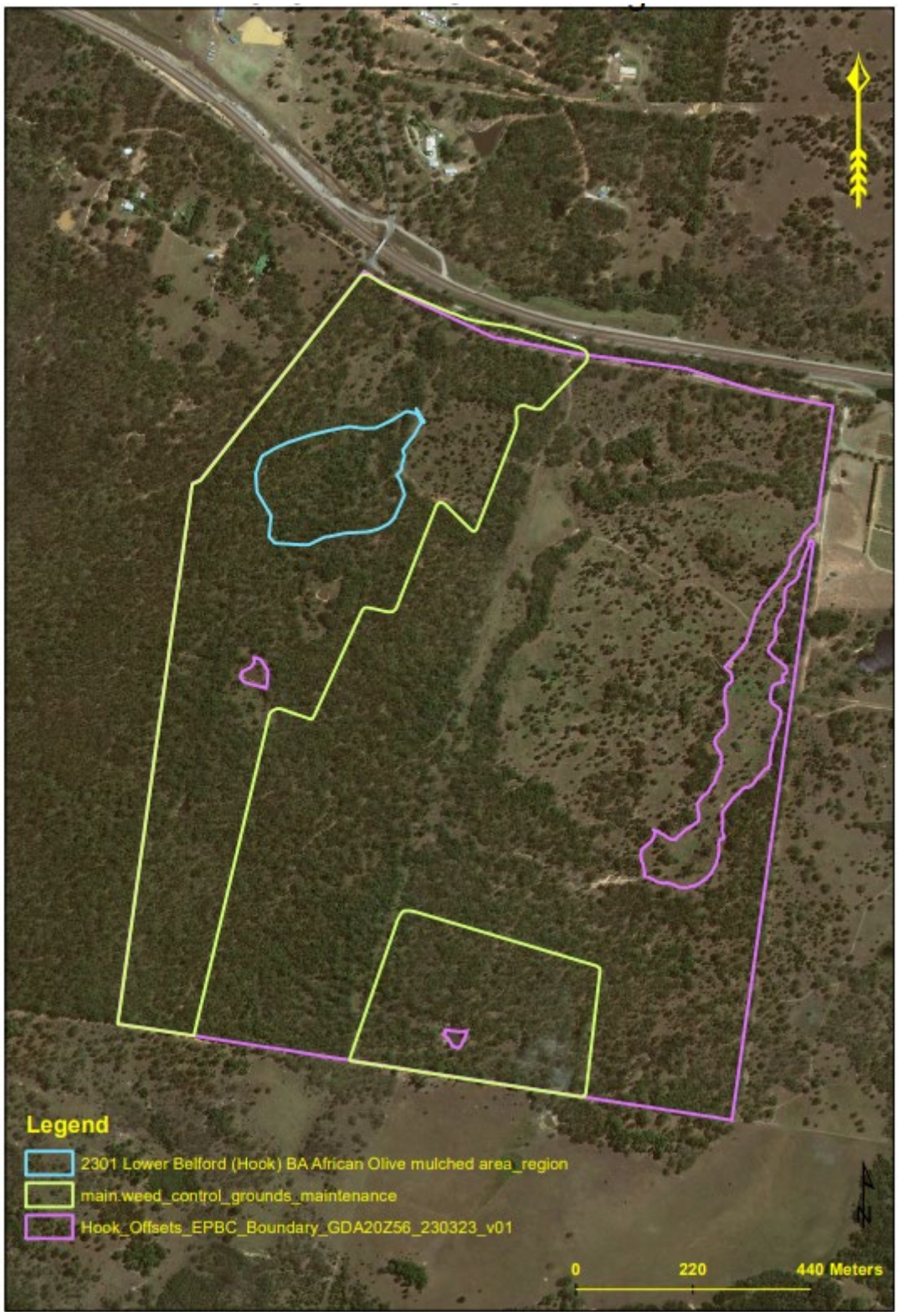

Figure 6.19. *Areas within the Hook BA where weed control was undertaken within 2023.*

7 | ECOLOGICAL MONITORING

Ecological monitoring has been undertaken at each of the BAs as per the monitoring schedule outlined in Table 5.3. The objectives of monitoring is to confirm that the BOMP for each BA is being effectively implemented and the conservation objectives are being achieved.

Each BOMP lists the conservation values, key performance indicators, and completion criteria identified for the offset areas. Key performance indicators and completion criteria for foraging habitat and habitat connectivity and condition are being realised through the monitoring program and management response.

7.1 | ECOLOGICAL MONITORING

The following table provides a summary of the ecological monitoring activities undertaken across the various BAs as outlined in the BOMPs.

The locations of each of the monitoring points and detailed description of each monitoring methodology can be seen in Chapter 6 of each BOMP and Figures 7.1 to 7.7.

Table 7.1. Ecological monitoring activities completed during the reporting year.

Monitoring event	Site	Comments
Condition assessment	Condon View, Hook, Mitchelhill, Wandewoi	Completed – Section 7.1.2
Bird assemblage	Condon View, Hook, Mitchelhill, Wandewoi	Completed – Section 7.1.3
GGBF monitoring	Crescent Head	Not required in 2023 reporting year
GGBF habitat assessment	Crescent Head	Completed – Section 7.1.4
Mosquito Fish monitoring	Crescent Head	Completed – Section 7.1.6
Rapid condition assessment	Condon View, Crescent Head ,Hook, Mitchelhill, Wandewoi	Completed – Section 7.1.1 and Appendix A
Property inspections	Wandewoi	Jan, Feb, Mar, Apr, Jun, Aug, Nov, Dec
	Mitchelhill	Jan, Feb, Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec
	Hook	Jan, Feb, Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec
	Condon View	Jan, Mar, Apr, June, Aug, Oct, Nov, Dec
	Crescent Head	Feb, Apr, June, Aug, Nov

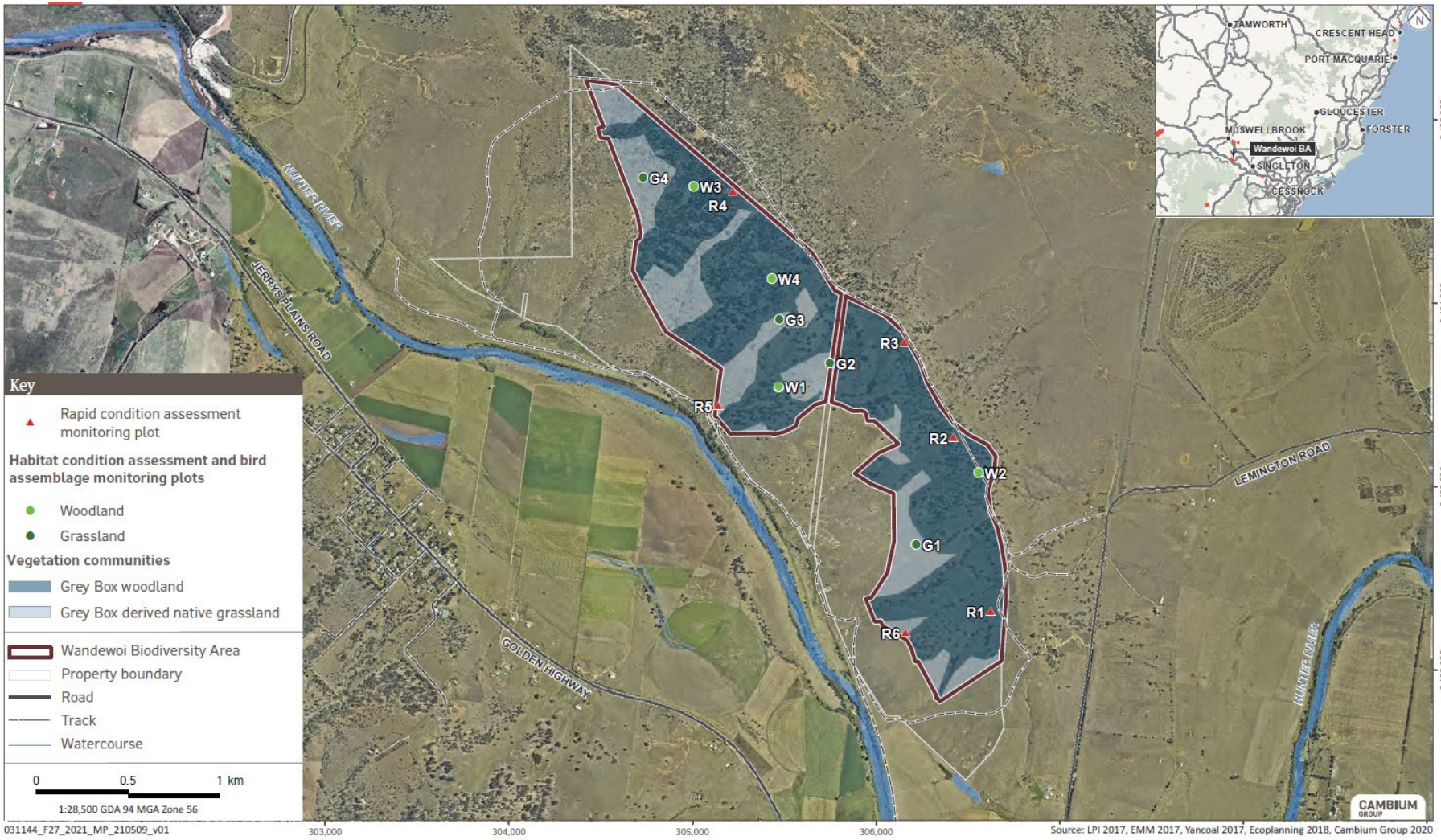

***Figure 7.1**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Wandewoi Biodiversity Area.*

***Figure 7.2**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Mitchelhill (West) Biodiversity Area.*

***Figure 7.3**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Mitchelhill (East) Biodiversity Area.*

***Figure 7.4**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Hook Biodiversity Area.*

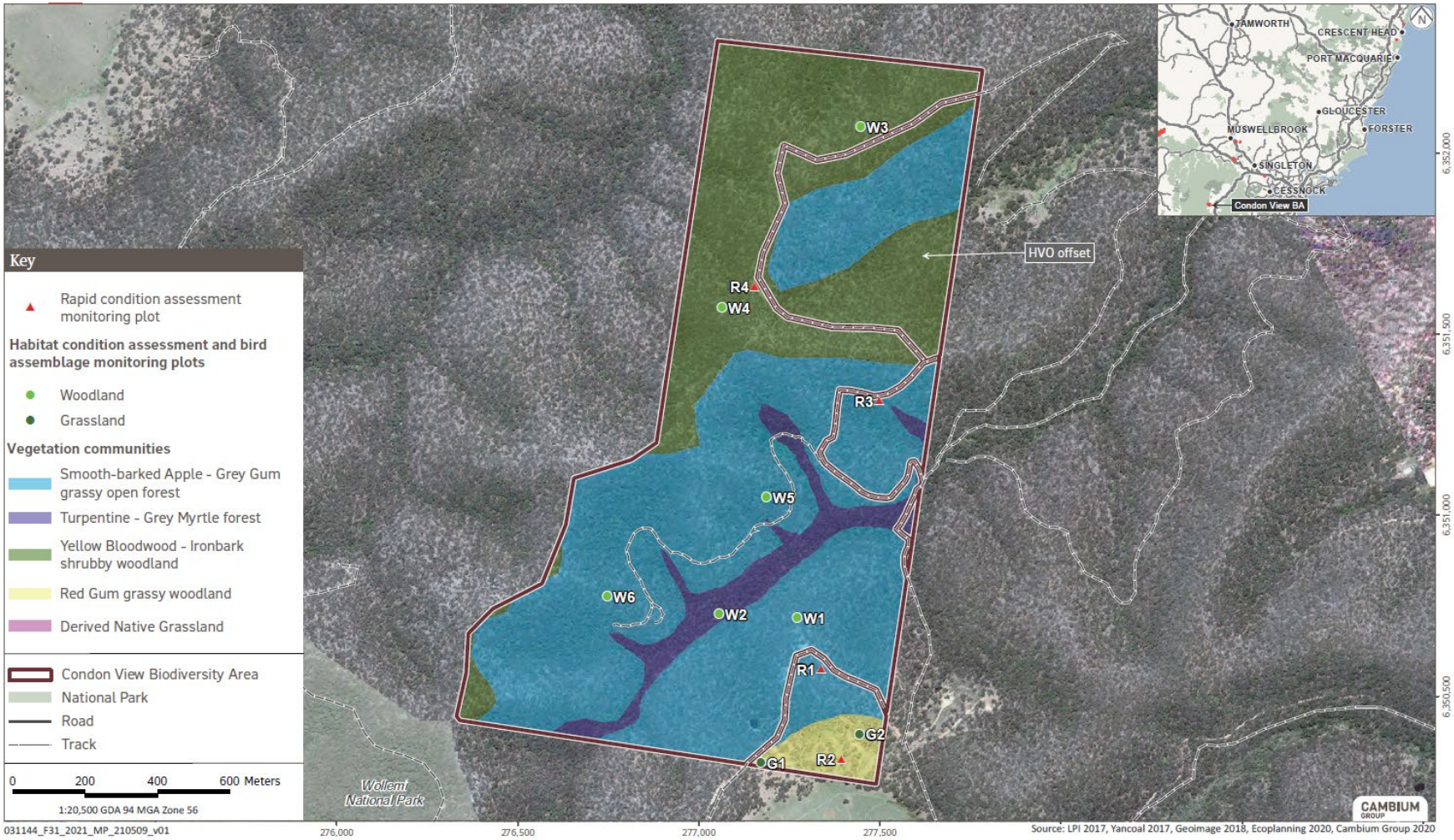

***Figure 7.5**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Condon View Biodiversity Area.*

***Figure 7.6**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Crescent Head (North) Biodiversity Area.*

***Figure 7.7**. Rapid condition assessment, habitat condition assessment and bird assemblage monitoring locations at the Crescent Head (South) Biodiversity Area.*

7.1.1 | RAPID CONDITION ASSESSMENTS

The rapid condition assessments (RCE) are presented in Appendix A and the locations can be seen in figures 7.1 to 7.7. The results from the 2022 and 2023 RCE are presented. The quick examination determined that, overall, there was little change in condition between the years. A more thorough assessment was undertaken with the full ecological assessments below.

7.1.2 | CONDITION ASSESSMENT

The ecological condition assessments were completed in Spring 2023. The information below summaries the findings. More details and tables can be found in the consultant report that can be provided on request.

Wandewoi

Across the eight monitoring plots in the Wandewoi BA (four grassland and four woodland), 125 flora species were recorded, 87 being native and 38 being exotic. No threatened flora species (listed under the BC Act or EPBC Act) were identified during the current survey period.

Common priority weeds and/or WoNS recorded included:

- *Galenia pubescens*
- *Lycium ferocissimum*
- *Opuntia stricta*
- *Opuntia aurantiaca*
- *Senecio madagascariensis*

The highest percent cover of exotic species was found in plot W1 (14.3%), which was primarily due to *Galenia pubescens* (10%) and *Sida rhombifolia* (2%). The cover of exotics has reduced considerably against previous years when exotic cover comprised 81% in G3 and 50% in G1. In 2023, exotic cover comprised 6.6% and 3%, respectively, within these same plots which reflects the climate variability and senescence of the annual weed species that flourished during La Nina and was discussed in the last compliance report.

All plots had a native understorey species richness of >12, which is the minimum requirement to meet EPBC Act condition threshold for CHVEFW. For plots with a canopy cover >10%, when the canopy cover was excluded from the calculation, >50% of the perennial understorey vegetation was native for plots G3, W3 and W4. These plots have sufficient canopy cover, native understorey cover and species richness to have its condition classified as a form of CHVEFW. These plots also satisfied condition “Class A” under the EPBC Act condition threshold assessment.

With regards to the relative condition scores, all plots showed a decrease in condition from 2021 to 2023, apart from plot W4 which increased and plot G1 which remained the same.

Figure 7.8 below, shows the change in relative condition scores from 2018 to 2023 and illustrates that the decrease in scores for most plots was minor apart from Plot W3 which had a condition score of 28 in 2021 which reduced to 19 in 2023. Plot W4 had a slight increase from 25 to 26.

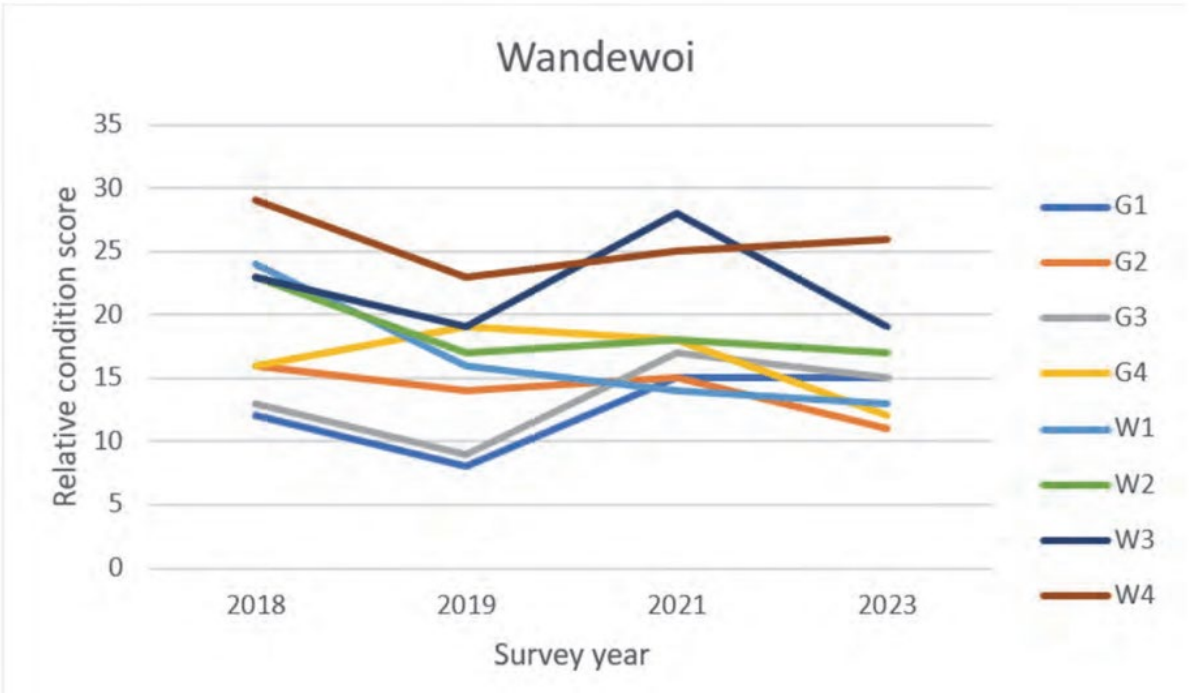

***Figure 7.8**. Relative condition scores of Wandewoi plots between 2018 and 2023.*

Note. Grassland plots were relocated nearby after 2018 due to a misplaced corner peg.

The total percentage weed cover at Wandewoi increased at all grassland sites from 2019 to 2021 but had decreased considerable for all grassland sites in 2023, particularly at G1 and G3. (Note that condition assessments were not required in 2022 as per the monitoring schedule in Table 5.3.) Over the same period, weed cover has remained relatively stable from 2019 to 2021 followed by an increase in weed cover at W1, W2 and W4 in 2023 and a decrease in cover at W3.

All grassland plots recorded trees in 2023 including, *Allocasuarina littoralis*, *Corymbia maculata*, *Eucalyptus crebra* and *Eucalyptus moluccana*. These species have regenerated naturally as active rehabilitation through tree planting or seeding has not commenced within these areas as yet.

Within the woodland sites, there has been a decrease in the average number of small stem size classes and an increase in the average number of trees in the 11-20 cm class which reflects the continued survival of the recruiting species.

Mitchelhill

Across the two Mitchelhill sites (east and west) a total of 167 flora species were identified; 127 identified as native, and 40 as exotic. Common priority weeds, WoNS, and/or high threat exotic species across both offset areas included:

- *Axonopus fissifolius*
- *Bidens pilosa*
- *Briza subaristata*
- *Carthamus lanatus*
- *Heliotropium amplexicaule*
- *Hypericum perforatum*
- *Opuntia aurantiaca*
- *Opuntia stricta*
- *Paspalum dilatatum*
- *Senecio madagascariensis*

The highest percent cover of exotic species was found in plot G3 (48.6%), which had very high cover of *Briza subaristata* (20%).

All plots, except G1, had a native understorey species richness of >12 (Table 3.5), which is the minimum requirement to meet EPBC Act condition threshold for CHVEFW. All woodland plots (W1-W6) met the requirement for >10% canopy cover and >50% native understorey. The woodland plots also scored a condition of Class A, with respect to the CHVEFW condition thresholds. The grassland plots did not meet CHVEFW key diagnostic characteristics at this stage.

The relative condition score for plots at Mitchelhill West were generally lower than 2021 apart from G1 and G2 where there was a slight increase. The total relative scores were higher in woodland plots. Overall there has been no increase in relative condition scores since 2018.

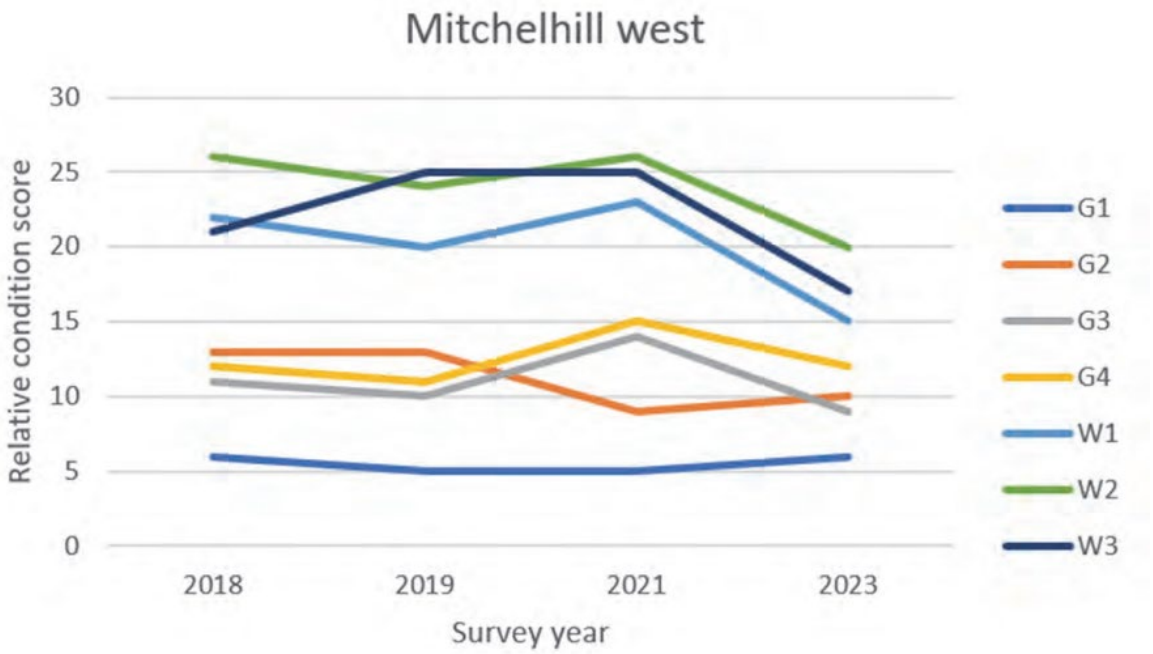

***Figure 7.9**. Relative condition scores for plots in the Mitchelhill West BA.*

The relative condition scores for plots within Mitchelhill East shows a slight increase for W4 and W5, a slight decrease for G5 and W6. The only plot that has increased in relative condition since 2018 is W4, with the other plots remaining at similar levels to 2018.

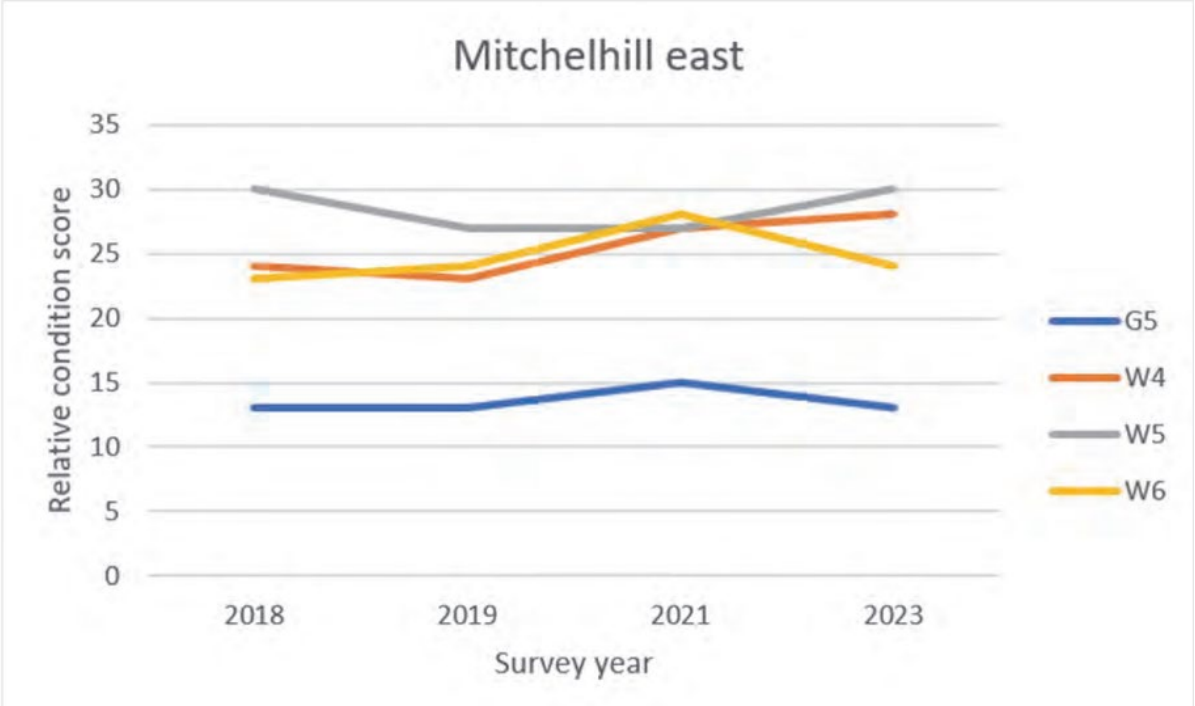

***Figure 7.10**. Relative condition scores for plots in the Mitchelhill East BA.*

The total percentage weed cover has decreased at all sites from 2019 to 2023, apart from at G3 and G5, which have considerably higher cover of weeds in 2023 compared to previous years. The largest decrease in weed cover has occurred at W2 and G1.

There has been a large increase in the average number of trees in the <5 cm stem size within woodland sites. Stem size classes >5cm have remained relatively stable within the grassland sites since 2018 to 2023.

Hook

Across the eight monitoring plots in the Hook BA, 114 flora species were recorded, 82 being native and 32 being exotic. No threatened flora species (listed under the BC Act or EPBC Act) were identified in during the current survey period.

Several priority weeds (DPIE 2023), weeds of national significance (WoNS; Australian Government 2021)), and high threat exotics (BAM 2020) were identified during the current surveys. High threat weeds recorded included:

- *Axonopus fissifolius*
- *Chloris Gayana*
- *Ehrharta erecta*
- *Lantana camara*
- *Opuntia stricta*
- *Olea europaea subsp. cuspidata*
- *Paspalum dilatatum*
- *Senecio madagascariensis*
- *Romulea rosea*

All woodland plots and grassland plot G1 had an overstorey cover of >10%. All plots apart from G2 and G3 had a high ratio of native understorey cover ranging from 90-98% native cover. Plots G2 and G3 had of cover of 66% and 61%, respectively. All plots had a native understorey species richness of >12.

All woodland plots in the Hook BA retained their CHVEFW condition of “Class A”, while only plot G1 from the grasslands attained a CHVEFW threshold, being categorised as “Class A”. This is consistent with 2019 and 2021.

All woodland plots, apart from W3, increased in their relative condition score. For the grassland plots, G1 and G2 increased in condition, but G3 and G4 decreased in condition scores.

There has been a general improvement in relative condition in grassland plots over time, apart from G3 and G4, which have both decreased back to similar relative condition scores recorded in 2018. However, plot G3 was in a slightly different location in 2023 due to the corner pegs having being removed since the previous monitoring event.

For the woodland plots, the relative condition scores for W1 and W4 increased back to their 2018 levels, plot W2 remained relatively stable and W3 decreased from a score of 20 in 2021 to 17 in 2023. The targeted efforts to manage the dense stands of African olive, lantana and other weeds across the site to date, would assist to explain the variation between the location results.

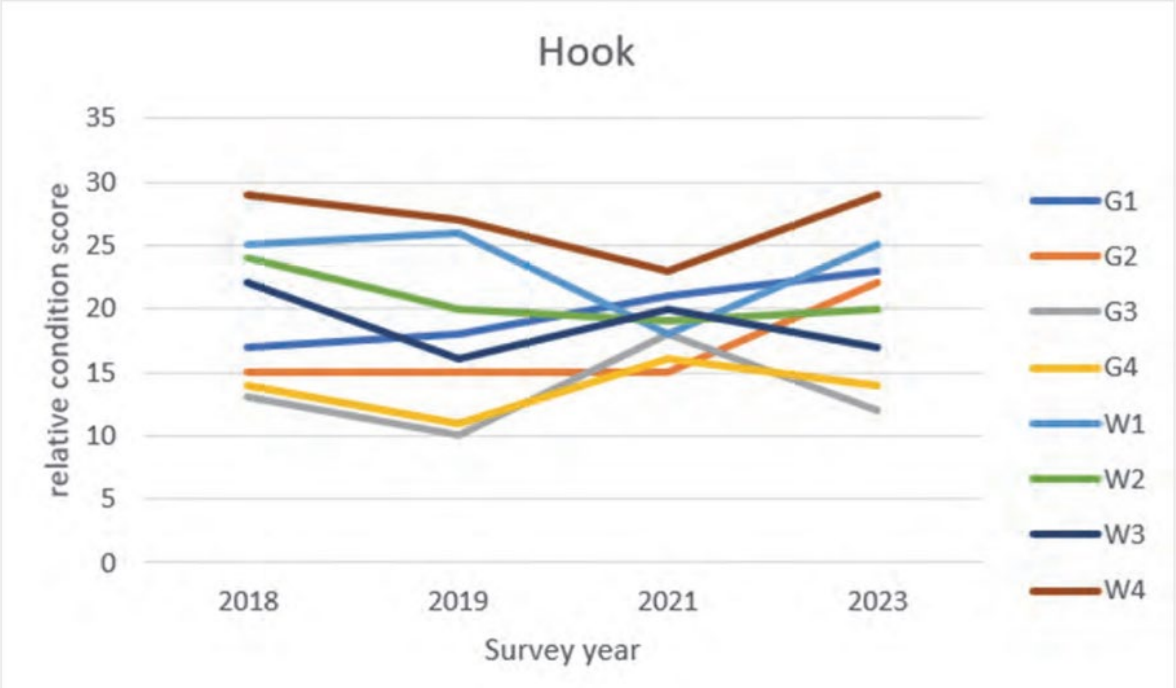

***Figure 7.11**. Relative condition scores for plots in the Hook BA.*

The total percentage weed cover remained relatively stable across all woodland sites from 2021 to 2023. The cover of exotics remained relatively stable across the grassland sites from 2021 to 2023, apart from a large increase in exotic cover at G2, from 1.9% in 2021 to 23% cover in 2023. This was mostly due to a high cover of *Verbena bonariensis* (20%) recorded in 2023.

There has been a considerable increase in the number of stems <5cm diameter at breast height in grassland and woodland sites since 2021 reflecting the management and growing conditions that enabled germination in recent years.

Condon View

Within the Condon View offset area, 144 flora species were recorded within all eight plots, 133 being native and 11 being exotic species. No threatened flora species were recorded at the Condon View BA.

Priority weeds and/or WoNS were not frequently recorded with only *Senecio madagascariensis* and *Rubus fruticosus* recorded in grassland plots.

All plots had high native understorey covers of 95 – 100% cover of natives. All plots had a native species richness of >30, except for G2 and W1 and W2. Highest native species richness was within W6 (43 species) and lowest was within grassland plot G2 (19 species).

Changes in relative condition were consistently reduced for all plots, except for G2 which had an increase in relative condition since 2021. Species richness was generally reduced, particularly for forbs and shrubs. There was also a general reduction in native cover while litter cover increased in most plots.

The relative condition scores for all plots sat in the 20 - 30 range in 2021 but now sit within a narrower range of 18 - 24. The updates to the PCTs and resultant updates to benchmark data is likely to have contributed to this reduction in condition scores.

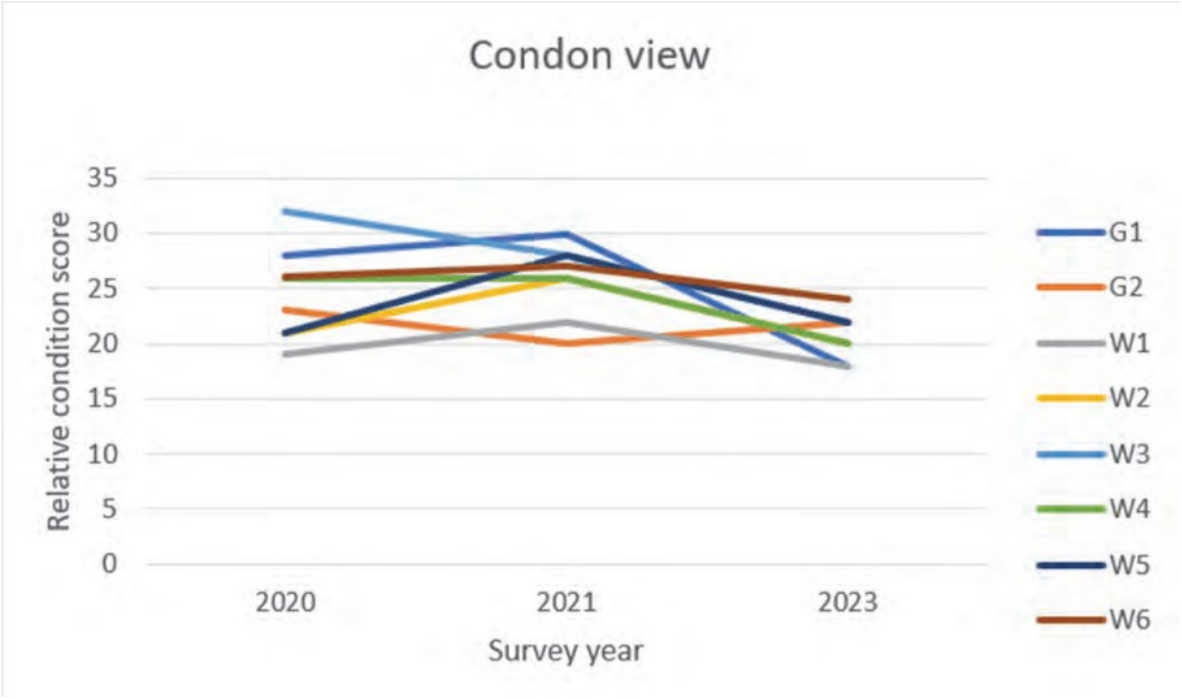

***Figure 7.12**. Relative condition scores for plots in the Condon View BA.*

The total percentage weed cover remained relatively stable across all sites from 2019 to 2023, with weeds continuing to be absent within all woodlands plots apart from W1. Exotic cover within the grassland plots has reduced over time, particularly within G1.

Ecological monitoring discussion

Sources of variation in the data arise from seasonality, climate, observer bias and management practices. Climate is an important factor to consider when interpreting data. Two main influences on the vegetation condition data collected in 2023 are a reduction in rainfall, and updates to the PCTs to align with the State Vegetation Type Map.

The data collected during the 2023 surveys is likely to be the product of below average rainfall following a period of high rainfall in 2021 and early 2022. Beginning in late 2020 and continuing through to 2022, higher rainfall resulted in a flush of vegetative covering in all survey plots for both native and exotic species. By the end of 2023, the below average rainfall and drying out of the landscape appears to have reduced the diversity of both natives and exotics across most plots, particularly for shrubs, forbs and ferns. As a result, litter cover has increased within most plots, as plant material has dried and fallen, and cover of the understorey has reduced.

Despite the general decrease in native species richness and cover, most woodland plots at all offset sites satisfied CHVEFW key diagnostic characteristics and condition threshold “Class A” ranking, with only plots W1 and W2 from Wandewoi not meeting condition thresholds due a canopy <10% cover. Above average

rainfall is likely to have increased leaf growth within the canopy in 2021, but it is also possible that observer bias may have contributed to the score variability between the years.

A key factor for grassland plots not being classified as CHVEFW is a lack of canopy with a cover <10%. Ripping and planting has occurred at several grassland plots in the Mitchelhill and Wandewoi offset areas. While this is likely to increase canopy cover over time, the disturbance caused by ripping has created an opportunity for weeds to colonise. While some of these weeds are annual species, there is potential for them to out-compete native species resulting in a decreased relative condition score. All of the grassland plots at Wandewoi and Mitchelhill meet the minimum number of native understorey species (12), except for G1 at Mitchelhill, which only has a cover of 4% native and five native understorey species.

The PCTs previously used were updated in this report to meet the equivalent updated PCT consistent with the State Vegetation Type Map. Table 7.2 lists the previous and new PCTs within each Biodiversity Area and whether they are equivalent to the CHVEFW Threatened Ecological Community. The results reflect that the relative condition scores have changed not only as a result in data captured, but due to changes in the new benchmarks.

Table 7.2. Plant community types within each BA.

Previous PCT	New PCT	Biodiversity Area	CHVEFW
Spotted Gum - Narrow-leaved Ironbark - Red Ironbark shrub - grass open forest of the central and lower Hunter (PCT 1601)	Central Hunter Ironbark-Spotted Gum Forest (PCT 3315)	Mitchelhill (West) Hook	Yes
Narrow-leaved Ironbark - Grey Box - Spotted Gum shrub - grass woodland of the central and lower Hunter (PCT 1604)	Central Hunter Ironbark-Spotted Gum Forest (PCT 3315)	Mitchelhill (East)	Yes
Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter (PCT 1691)	Central Hunter Slopes Grey Box Forest (PCT 3314)	Wandewoi	Yes
Turpentine - Grey Myrtle forest of sheltered sandstone gullies of the Central Coast hinterland, Sydney Basin Bioregion (PCT 1282)	Hunter Range Turpentine-Grey Myrtle Gully Forest (PCT 3152)	Condon View	No
Yellow Bloodwood - ironbark shrubby woodland of the dry hinterland of the Central Coast, Sydney Basin Bioregion (PCT 1327)	Hunter Range Ironbark Forest (PCT 3605)	Condon View	No
Rough-barked Apple – Grey Gum grassy open forest of the hinterland hills of the Central Coast, Sydney Basin Bioregion (PCT 1385)	Hunter Range Colluvial Apple-Gum Forest (PCT	Condon View	No
Rough-barked Apple - Red Gum grassy woodland of the MacDonald River Valley on the Central Coast, Sydney Basin Bioregion (PCT 1386)	Hunter Range Creekflat Apple-Red Gum Forest (PCT 403	Condon View	No

The maximum score increased from 28 to 29 for woodland plots, and the maximum score for grassland plots increased from 21 to 23. The lowest relative condition score continued to be recorded within the grassland plot G1 at Wandewoi (score of 5 in 2021 and 6 in 2023) which will require focussed attention and active management in future years to to elevate the attribute scores closer to benchmark.

Relative condition scores at Condon View are very similar at grassland and woodland plots ranging from a low of 18 at W1 and G1 to a high of 24 at W5. Grassland plots at Condon View have an open grassy woodland structure, therefore, these plots scored higher in grass and forb richness and cover compared to the woodland plots. The greatest potential attribute with which relative condition could improve is percentage cover native species in each stratum, which was >10-50% of benchmark for most plots and stratum. With an absence of weeds at most woodland plots, percent cover of native species is limited by other factors and is likely to have reduced compared to 2021 due to a below average rainfall in 2023. The active management of weeds at grassland sites could help to increase native species cover.

In relation to the key performance criteria, a summary of the changes in condition for grassland and woodland sites is in Table 7.3, with further comments in Table 7.4. A combination of reduced rainfall and updated benchmarks has resulted in 48% of woodland plots improving in relative condition and 52% declining in relative condition. Similarly, 41% of grassland plots improved their relative condition and 47% declined in relative condition.

A return to typical conditions should enable a clearer understanding of the development status of each BA in future years.

Table 7.3. Summary of change in condition in plots monitored.

Offset Area	Woodland			Grassland		
	Improve	Decline	Stable	Improve	Decline	Stable
Wandewoi	1	3	0	0	3	1
Mitchelhill	2	4	0	2	3	0
Hook	3	3	0	3	0	1
Condon View	4	1	0	2	2	0
Total	10	11	0	7	8	2

Table 7.4. Progress towards performance and completion criteria relevant to the conservation objectives

Red text indicates progress to date.

Conservation value	Key performance criteria	Completion criteria
Central Hunter Valley Eucalypt Forest and Woodland		
CHVEFW	**Wandewoi**: improved condition of 175.8 ha. Condition assessment completed. **Mitchelhill**: improved condition of 183.4 ha. Condition assessment completed.	Observed and measured increase in condition through monitoring in woodland. Condition assessment completed. An assessment of relative condition of plots showed that 37.5% of woodland plots improved in condition since the previous monitoring

	Hook: improved condition of 78.6 ha of woodland and 28.3 ha of regenerating woodland. Condition assessment completed.	period, and 62.5% declined in condition. This result is likely a combination of changes to PCT benchmarks and below average rainfall.
DNG	**Wandewoi**: transition of 59.8 ha of grassland to woodland. Condition assessment completed. **Mitchelhill**: transition of 31.5 ha of grassland to woodland. **Hook**: transition of 2.6 ha of grassland to woodland. Condition assessment completed.	Observed and measured trajectory towards and/or attainment of the key characteristics of CHVEFW or reference site attributes in DNG (measured biannually). Condition assessment completed. An assessment of relative condition of plots showed that 46.2% of grassland plots declined in condition, 38.5% improved and 15.4% remained in a stable condition. This result is likely a combination of changes to PCT benchmarks and below average rainfall.
Swift Parrot habitat	**Wandewoi**: improved condition of 175.8 ha of woodland habitats. Condition assessment completed. **Mitchelhill**: improved condition of 113 ha of woodland habitats. Condition assessment completed. **Hook**: improved condition of 122 ha of woodland habitats. Condition assessment completed.	Observed and measured increase in or maintained condition through monitoring in woodland. Condition assessment completed. An assessment of relative condition of plots showed that 37.5% of woodland plots improved in condition since the previous monitoring period, and 62.5% declined in condition. This result is likely a combination of changes to PCT benchmarks and below average rainfall. Observed and measured trajectory towards and/or attainment of the key characteristics of CHVEFW or reference site attributes in DNG (measured biannually).

		Condition assessment completed. An assessment of relative condition of plots showed that 46.2% of grassland plots declined in condition, 38.5% improved and 15.4% remained in a stable condition. This result is likely a combination of changes to PCT benchmarks and below average rainfall.
Regent Honeyeater habitat	**Mitchelhill**: improved condition of 245 ha of woodland habitats. Condition assessment completed. **Condon View**: improved condition of 168 ha of woodland habitats. Condition assessment completed.	Observed and measured increase in or maintained condition through monitoring in woodland. Condition assessment complete. An assessment of relative condition of plots showed that 54.5% of woodland plots improved in condition since the previous monitoring period, and 45.5% declined in condition. This result is likely a combination of changes to PCT benchmarks and below average rainfall. Observed and measured trajectory towards and/or attainment of the key characteristics of CHVEFW or reference site attributes in DNG (measured biannually). Condition assessment completed. An assessment of relative condition of plots showed that 44.4% of grassland plots improved in condition while 55.6% declined in condition. This result is likely a combination of changes to PCT benchmarks and below average rainfall.

Table 7.5. Progress towards performance and completion criteria relevant to specific management actions.

Red text indicates progress to date.

Actions	Years 1 to 4	Years 5 to 10	Completion criteria
Weed control			
Weed control	At least one control event per year with additional events as required for species listed in the BOMP that are identified as needing control, and any other weeds needing control recording from monitoring activities. All actions to be recorded in the Annual Report. Weed control undertaken as required.	At least one weed control event each year for species listed in the BOMP that are identified as needing control, and any other weeds needing control as recorded from monitoring activities. All actions to be recorded in the Annual Report. Weed control undertaken as required.	Ecological monitoring data indicates a trajectory for reduction in weed plant cover over three consecutive years. Condition assessment completed as required. Olive (Olea europaea) control was evident in parts of Hook. Most sites (51%) decreased in exotic cover from 2019 to 2023, while 17% increased in exotic cover and 31% remained stable.
Monitoring	Complete condition assessment monitoring (7.1.2), rapid condition assessment (7.1.1), and property inspections (6.1). Condition assessment completed as required.	Complete condition assessment monitoring (7.1.2), rapid condition assessment (7.1.1), and property inspections (6.1). Condition assessment completed as required.	Monitoring is completed as per the monitoring schedule. Condition assessment completed as required.

Fire for conservation			
Monitoring	Complete condition assessment monitoring (7.1.2) and property inspections (6.1). Condition assessment completed as required.	Complete condition assessment monitoring (7.1.2) and property inspections (6.1). Condition assessment completed as required.	Monitoring has been completed as per the schedule. Condition assessment completed as required.
Retention of regrowth			
Natural regeneration	Annual weed control, vertebrate pest and fire management actions implemented as per this Plan.	Ecological monitoring demonstrates a trajectory to benchmark values for relevant attributes measured over three consecutive monitoring events (the average of all plots) Condition assessment completed as required. While there are no relevant benchmark values that relate to natural recruitment, the number of canopy species <5cm dbh has been assessed over 3 years. There has been an increase in stems <5cm in woodland and grassland sites at Hook, within woodland sites at Mitchelhill and within Wandewoi grassland sites for the first time since monitoring began. The number of stems in the 11- 20cm range has dramatically increased in Wandewoi woodland sites.	
Monitoring	Complete condition assessment monitoring and property inspections. Condition assessment monitoring completed as required in 2023.		Monitoring has been completed as per monitoring schedule. Condition assessment monitoring completed.

7.1.3 | BIRD ASSEMBLAGE MONITORING

As with the conditions assessments, the bird assemblage monitoring was completed in 2023. The overall objective of this monitoring is to confirm (or otherwise) if the conservation outcomes from the long-term management and protection of the BAs is increasing the condition and extent of suitable habitat for the regent honeyeater (*Anthochaera phrygia*) and swift parrot (*Lathamus discolor*).

In total, 35 sites were sampled during surveys. This included 20 woodland sites and 15 grassland/regenerating woodland sites. The location of the plots sampled can be seen in figures 7.1 – 7.5.

Swift parrot and regent honeyeater were not recorded during incidental and opportunistic surveys. Incidental records of important habitat resources included a striated pardalote using a small hollow at site W2 at Wandewoi (Figure 7.13), and multiple nests (10+) at site G1 at Condon View being used by a grey-crowned babbler family group. The grey-crowned babbler is listed as vulnerable in the BC Act. Almost no trees were flowering during surveys. A single flowering Eucalyptus spp. was seen in the distance from site W5 at Mitchelhill East.

***Figure 7.13**. Striated pardalote using a small hollow at site W2 at Wandewoi BA.*

Species richness was higher in woodland sites than in grassland sites for all areas except Hook (Figure 7.14). Mitchelhill East had the highest overall species richness (offset area total), while Condon View had the lowest overall species richness.

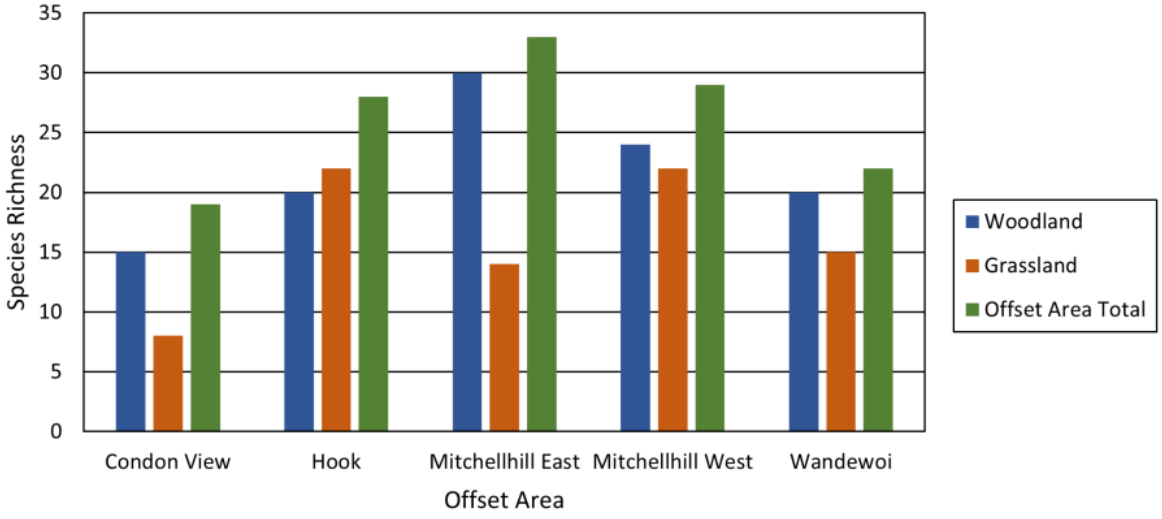

***Figure 7.14**. Species richness by habitat type for each BA.*

The species richness of woodland birds increased for both woodland and grassland sites since surveys in 2021 for Hook, Mitchelhill East and West, and Wandewoi. For Condon View, the species richness of woodland species declined slightly at woodland sites and increased slightly at grassland sites.

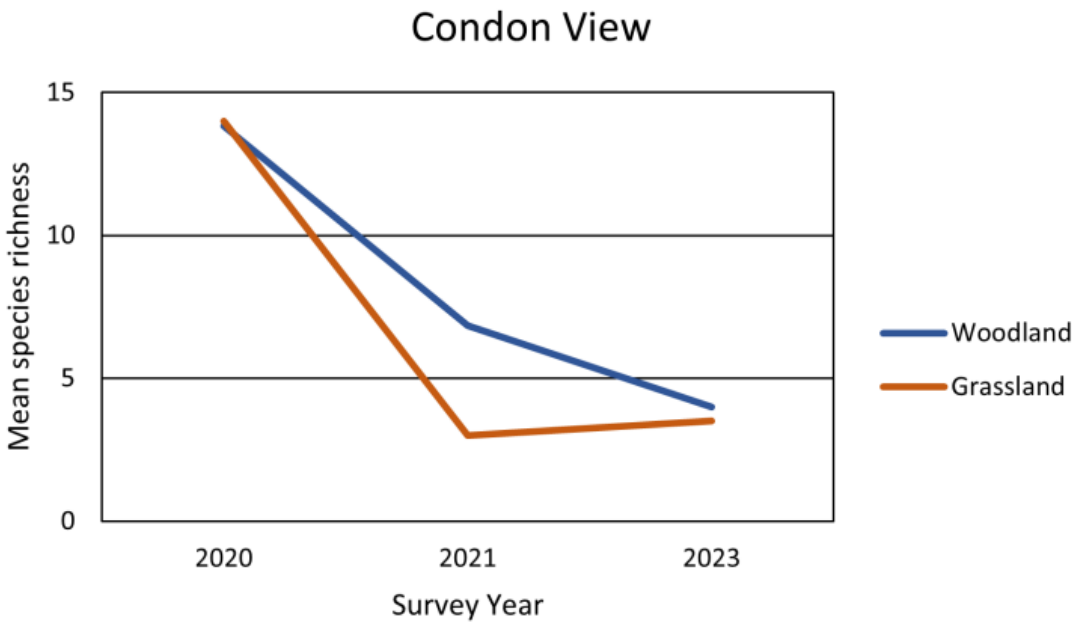

***Figure 7.15**. Species richness of woodland birds in woodland and grassland habitats in Condon View BA over three survey years.*

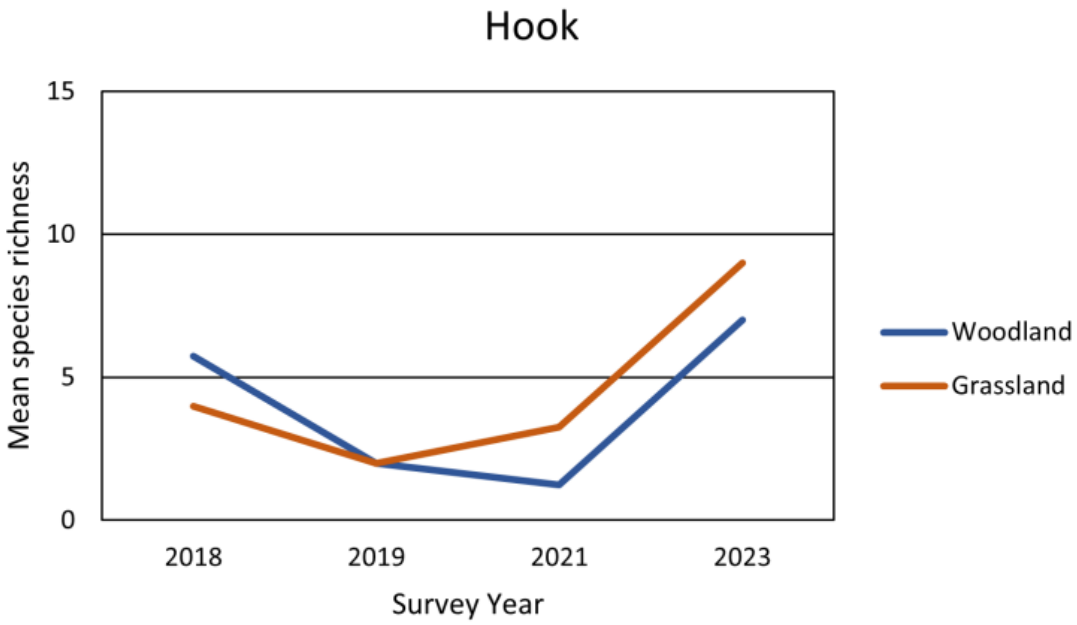

***Figure 7.16**. Species richness of woodland birds in woodland and grassland habitats in Hook BA over three survey years.*

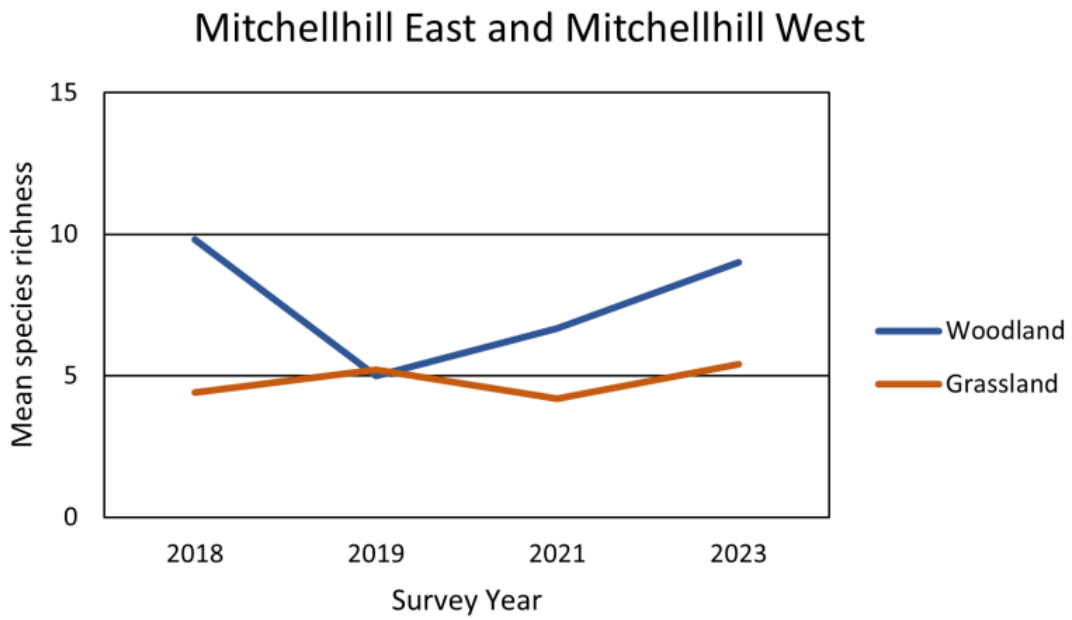

***Figure 7.17**. Species richness of woodland birds in woodland and grassland habitats in Mitchelhill BA over three survey years.*

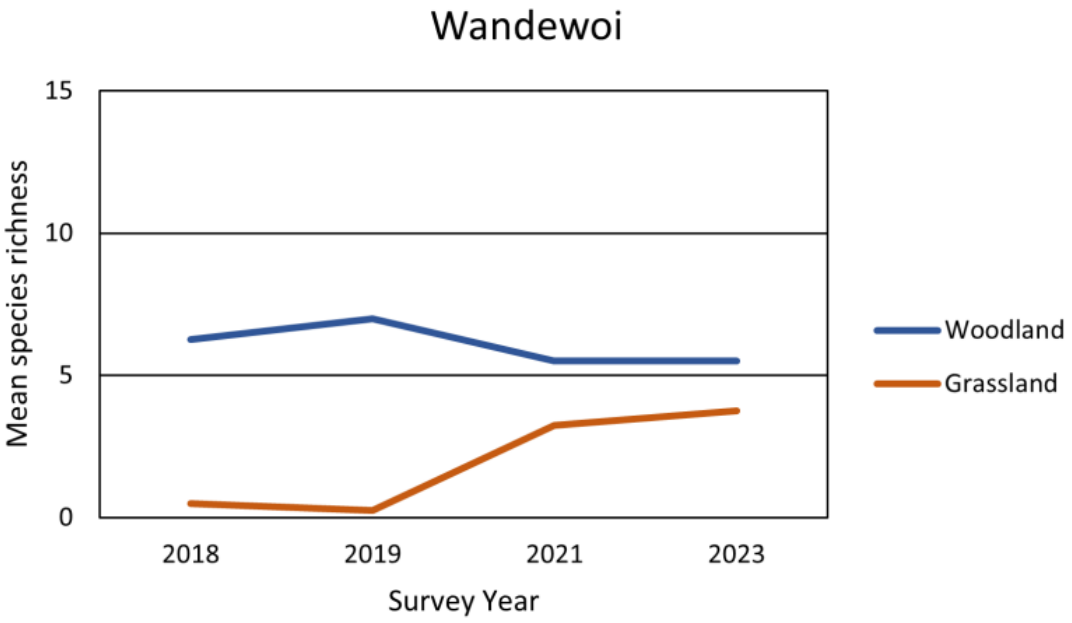

***Figure 7.18**. Species richness of woodland birds in woodland and grassland habitats in Wandewoi BA over three survey years.*

Noisy miners were found in all areas and at 74% of the sites. Noisy miners work together to defend their territory and drive other birds out of their habitat, so their presence may affect the occurrence of swift parrot and regent honeyeaters. Noisy miner aggression is listed as a Key Threatening Process under the BC Act.

The completion criteria for woodland birds requires that the assemblage of species increases or is maintained at the BAs. The assemblage of woodland birds has varied across the BAs over the years of

monitoring. Overall, there appears to be an increase in the relative abundance of woodland bird species in Hook, Mitchelhill East, and Mitchelhill West. The relative abundance of woodland bird species has been maintained in Wandewoi. This achieves the performance criteria for these four BAs. Condon View is the only BA where the relative abundance of woodland bird species has decreased slightly in woodland sites (however, relative abundance increased slightly in grassland sites). Overall, the relative abundance has been maintained, therefore achieving the performance criteria. The previous monitoring report in 2021 suggested that the drop in records in that year could be a lingering effect of the 2020 bushfires, and the populations could still be recovering. Future monitoring will assist to determine if this is the case.

7.1.4 | GREEN AND GOLDEN BELL FROG HABITAT ASSESSMENT

Habitat assessments for the GGBF were undertaken in 2023 as per Table 5.3.

Total rainfall (recorded at Crescent Head) in the months leading up to the survey was below average with 40.8 mm recorded in October (average 84.9 mm), 9.0 mm in September (average 43.1 mm) and 7.0 mm in August (average 45.1 mm).

Data collected constitutes the fourth year of data collection for the monitoring program. Pond 2 and Pond 3 at Crescent Head South were dry at the time of the survey. Water has only been observed in Pond 3 at Crescent Head North in autumn 2021 and baseline data is yet to be collected. While this habitat has the potential to provide useful ephemeral habitat, it appears to require significant rainfall events to fill.

Prior to the commencement of the 2023 November survey, a fire that originated at McGuires Crossing Road at Belmore River, located north of Cresent Head North, spread south. This fire burnt a significant portion of Crescent Head North including ponds 1 and 2 and the vegetation surrounding the offline pond. The impact of this fire of the resident frog population within the BA will be assessed in 2024.

An assessment of the vegetative cover of all ponds determined that the cover increased at Crescent Head North Pond 1 and Crescent Head South Pond 3 since monitoring in 2022 Over the same period, cover has slightly decreased at Crescent Head South Pond 1 and Crescent Head South Pond 2 (Fig 7.19).

Vegetative cover and species composition fluctuates to a minor extent as seasons vary. This is likely to provide a reliable water source to a range of amphibians. Permanent water is not ideal breeding habitat for Green and Golden Bell Frog, but ephemeral pools in the offset areas may provide potential breeding habitat. Green and Golden Bell Frog tadpoles have not been recorded the BA.

All ponds that contained water had extensive areas of open water as preferred by the Green and Golden Bell Frog. A slight decrease in vegetative cover at some ponds could also be attributed to an apparent declining water level. As the inground ponds at Crescent Head North and some of the ponds at the South BA are groundwater-fed, a decrease in rainfall has resulted in the water table dropping with a subsequent influence on the water level expressed at each pond.

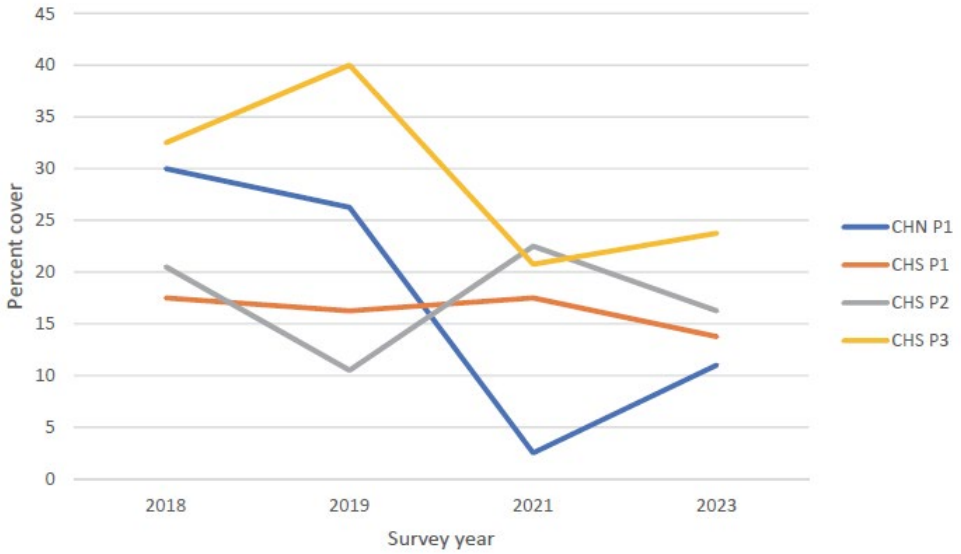

***Figure 7.19**. Change in the percentage vegetation cover over the monitoring period.*

The offline ponds installed lack any vegetative cover; given the lack of an earth substrate, only floating aquatic vegetation has the potential to occur in the short term. This is scheduled to be remediated during 2024.

In assessing the land habitat within the BAs for the GGBF, plots within the movement corridors identified 128 vegetative species across the Crescent Head Biodiversity Area, which included 97 native species, 22 exotic species and seven unknowns. In accordance with the growth forms in DPIE (2020), seven native trees, 27 native shrubs and two exotic shrubs were recorded in the plots that, left unattended over time, could alter the structure of the movement corridors from grassland to shrubland, woodland or forest. Most of these species are low growing following recent slashing of the movement corridors, and some overhang the plot from adjacent vegetation.

The cover of exotic vegetation has decreased over time in plots situated along dispersal pathways, except for Plot T2 at Crescent Head North and a very slight increase at Crescent Head South T2.

Tracks and dispersal pathways have been subject to ongoing management as part of the site fire management and to maintain movement corridors for the GGBF. While woody vegetation is present within the corridors, it predominantly occurs as regrowth or resprouting vegetation. Maintenance of this regrowth is necessary to ensure that the vegetation community does not form a tall, closed canopy. Slashing is successfully reducing the cover in these areas, and the tracks were slashed in the two months prior to monitoring.

A wildfire in the days prior to the site survey at Crescent Head North impacted the results of survey at T1 and T3. As the wildfire impacted a significant portion of the BA, the fire reduced the richness and cover data for vegetation surveys within these areas.

The management plan provides key performance criteria and completion criteria related to the conservations objectives as well as criteria related to specific conservation management actions. The criteria relevant to this habitat assessment are addressed in Table 7.6 and Table 7.7.

Note that there are no performance criteria or completion criteria for offline ponds. Performance and completion criteria are associated with the presence and/or absence of Mosquito Fish and GGBF to determine whether suitable habitat has been established in offline ponds.

Table 7.6. Progress towards performance and completion criteria for the Green and Golden Bell Frog.

Red text indicates progress to date.

Habitat value	Key performance criteria	Completion criteria
Green and Golden Bell Frog habitat	Improved condition of 189.5 ha of Green and Golden Bell Frog habitat over 10 years. 2023 observed a decrease in vegetative cover on Pond 1 and Pond 2 Crescent Head South. An increase in vegetative cover was observed at Pond 3 Crescent Head South and Pond 1 at Crescent Head North. Pond 1 Crescent Head South has remained relatively stable over time. P1 and P2 at Crescent Head South had small changes in cover compared to 2022 data. P1 at Crescent Head North showed a larger change in vegetation cover. There was no vegetative cover on the offline ponds.	Observed and measured increase in or maintained condition through monitoring over 10 years. Data suggests that the condition of ponds was maintained during the survey period.
Existing breeding habitat	Reduction in the Mosquito Fish population in the ponds where control methods are possible. Refer to Section 7.1.6.	Mosquito Fish control trials are completed and their success is evaluated by analysis of monitoring results. Refer to Section 7.1.6.
Supplementary breeding habitat	Provision of suitable supplementary breeding habitat. Offline ponds have been installed at Crescent Head North and South. Green and Golden Bell Frog have been observed at the offline pond at Crescent Head North.	Offline ponds are designed with consideration of breeding habitat principles outlined in Best Practice Guidelines for Green and Golden Bell Frog Habitat (DECC 2008). Offline ponds that address the best practice guidelines have been installed at Crescent Head North and South.

Foraging habitat	Maintenance of existing foraging habitat quality. Foraging habitat has been maintained at Crescent Head Biodiversity Areas.	Foraging habitat is managed with consideration of the principles outlined in Best Practice Guidelines for Green and Golden Bell Frog Habitat (DECC 2008). Habitat has been managed consistent with the guidelines. This includes weed control and monitoring.
Habitat connectivity	Maintenance of connectivity between GGBF habitat components. Dispersal pathways have been maintained to reduce the cover and height of woody vegetation and other vegetation at Crescent Head North and South. Wildfire at Crescent Head North has reduced the woody vegetation cover at T1 and T3.	Open vegetative structure is maintained on existing tracks and fence lines, Maintained during the monitoring period.

Table 7.7. Progress towards performance and completion criteria for managing vegetation in GGBF habitat.

Red text indicates progress to date.

Performance criteria	Year 1 to Year 10	Completion criteria
Management of regowth and remnant vegetation		
Maintenance of aquatic vegetation (i.e. breeding habitat structure in ponds). All ponds have >20% open water or were dry.	Complete annual inspection and manage aquatic vegetation such that 20% of open water is maintained in permanent ponds. Monitoring survey complete. All ponds have >20% open water or were dry.	Annual inspection and aquatic vegetation maintenance are completed. Monitoring completed. Continue to monitor vegetation cover.

Maintenance of movement corridors (i.e. existing open grassed areas along access tracks and lot boundaries). Maintenance of movement corridors undertaken. Ongoing maintenance of movement corridors required where woody plants have re-sprouted.	Complete annual inspection and remove tree and shrub saplings as necessary. Monitoring survey complete. Groundcover maintenance completed as required in 2023. Note that saplings and regrowth have been cut rather than removed.	Annual inspection and groundcover maintenance are completed. Monitoring and ground cover maintenance completed as required in 2023. Ongoing annual inspection and groundcover maintenance required.
Weed control		
Control weeds to maintain a suitable habitat structure in breeding, foraging and dispersal habitat. Weed control undertaken. Evidence of slashing tracks to reduce the cover of woody and herbaceous vegetation in 2023.	Complete weed assessments during habitat monitoring and property inspections. Annual habitat monitoring completed which recorded 22 exotic species.	Habitat monitoring data indicates a trajectory for reduction in cover over three consecutive assessments. Fourth year of monitoring completed. Most plots situated along dispersal pathways recorded a reduction in weed cover over three monitoring periods, except for T2 at Crescent Head North. T3 at Crescent Head South recorded no weeds in the last three monitoring surveys.
Bushfire management		
Prepare and implement a bushfire management plan. The bushfire management plan has been prepared and updated with the 2023 findings.	Complete habitat monitoring and property inspections. Annual habitat monitoring completed.	Habitat monitoring and property inspections have been conducted annually. Third year of monitoring completed.

7.1.5 | GREEN AND GOLDEN BELL FROG SURVEYS

No GGBF surveys were scheduled to occur at the Crescent Head BAs in 2023. In previous years significant rainfall events increased the possibility of finding GGBFs within the BAs, hence opportunistic surveys were undertaken. This opportunity did not occur in 2023.

7.1.6 | MOSQUITO FISH MONITORING

This section documents Mosquito Fish monitoring for the Crescent Head Biodiversity Area over the 2023 monitoring period (which extends from spring 2023 to autumn 2024). This is the sixth year that monitoring of the mosquito fish within the ponds has occurred. Three inground ponds are being monitored at both sites along with the constructed pond at each site. This data has been compared to baseline information from monitoring in 2018 and data collected in previous years.

All ponds contained water at Crescent Head South during the survey. Pond 2 and Pond 3 were dry at Crescent Head North in the November 2023 survey.

Mosquito Fish were present in Pond 1 at Crescent Head North in spring 2023. The numbers of Mosquito Fish sampled at Pond 1 Crescent Head North decreased significantly from 166 in October 2021 and 127 in November 2022 to 18 Mosquito Fish in November 2023.

Mosquito Fish were present at all ponds at Crescent Head South, with abundance decreasing at all three ponds. Pond 3 at Crescent Head South showed the most significant variability in abundance in Mosquito Fish sampled with an increase from 217 in October 2021 to 629 in November 2022 and a considerable decrease to 42 in November 2023. Pond 1 and Pond 2 showed similar variability with Mosquito Fish abundance, with Pond 1 decreasing from to 136 individuals in November 2022 to 55 in November 2023 and Pond 2 decreasing to nine Mosquito Fish from 67 individuals in November 2022 (Appendix A).

The abundance of Mosquito Fish shifts markedly between seasons and years with similar survey effort. While this phenomenon is acknowledged in the literature, the factors that affect change in abundance remain poorly understood (MDBA 2011). It is expected that the below average rainfall leading up to the survey has influenced the decrease in Mosquito Fish abundance in 2023.

In addition to the Mosquito Fish, the native fish that occur within the ponds may also have an influence on the tadpole population. The Firetail Gudgeon, a native species, was recorded at Crescent Head North at Pond 1 and Ponds 1-3 at Crescent Head South. This species is a known predator of GGBF tadpoles (Pyke and White 2000). Numbers of this species are relatively low but should be monitored over the survey period. The Empire Gudgeon was recorded for the first time at Crescent Head South within Pond 2.

A mechanism to remove Mosquito Fish from the ponds is yet to be applied. The majority of the larger inground ponds are fed by groundwater and contain native fish. These inground ponds regularly flood through overland flow and any attempts to remove the Mosquito Fish would have to be repeated. The complete drying of a pond is likely to be the most effective method of removing the species from a pond without applying chemicals. While attempts to drain the ponds may become more achievable throughout 2023 with the end of La Nina oscillations as the year progresses, given the presence of native fish within the ponds, draining of the ponds to rid the Mosquito Fish may present a challenge to regulators. Further, as they are groundwater fed, it is unlikely that draining and drying of the ponds would be successful without significant regional water losses. Success is more likely to focus efforts to develop breeding habitats that are free from Mosquito Fish and are not impacted by flood flows. Should attempts to drain the existing ponds occur, it will be important to restore habitat (i.e. water levels) relatively quickly thereafter if low rainfall is predicted.

The management plan provides key performance criteria and completion criteria related to the conservation objectives as well as criteria related to specific conservation management actions. The criteria relevant to Mosquito Fish monitoring are addressed in Table 7.8 and Table 7.9 for the conservation objectives and specific management actions, respectively.

Table 7.8. Progress towards performance and completion criteria relevant to the conservation objectives.

Red text indicates progress to date

Habitat value	Key performance indicator	Completion criteria
Existing breeding habitat	*Reduction in the Mosquito Fish population in the ponds where control methods are possible.* A notable decrease in Mosquito Fish populations at Pond 1 at Crescent Head North and Ponds 1 - 3 at Crescent Head South	*Mosquito Fish control trials are completed and their success is evaluated by analysis of monitoring results.* Not yet commenced due to ponds being groundwater fed and native fish species recorded.

Table 7.9. Progress towards performance and completion criteria relevant to pond management.

Red text indicates progress to date

Performance criteria	Year 1 to year 10	Completion criteria
Pond management		
Offline ponds	*Complete drainage survey.* *Prepare plan for construction.* *Construct ponds and water capture to fill ponds.* *Review success.* Drainage survey completed, construction of ponds completed.	*Drainage survey completed.* *Ponds have been constructed in accordance with design.* Ponds constructed at Crescent Head North and South
Pond A to F	*Complete drainage survey.* *Prepare plan for pond refurbishment.* *Implement plan.* *Conduct Mosquito Fish control.* *Review success.* Drainage survey completed, Pond refurbishment being planned based on ecological monitoring results.	*Drainage survey completed.* *Ponds refurbished in accordance with plan.* *Mosquito Fish control completed in suitable ponds in accordance with approved methods.* Drainage survey completed. Pond refurbishment not yet commenced due to ponds being groundwater fed and native fish species recorded.
Monitoring	*Monitor number of Mosquito Fish following initial control.* *Monitor for the presence of Green and Golden Bell Frogs.* *Follow-up monitoring and control of Mosquito Fish.* *Monitor for the presence of Green and Golden Bell Frogs.* Monitoring completed as required in 2023.	*Mosquito Fish numbers have declined in Pond A to F where suitable.* *Mosquito Fish are absent from offline ponds.* *Suitable frog habitat has been established within managed areas.* Sixth monitoring period completed for all permanent ponds. Mosquito Fish populations consistently present in Pond 1 at Crescent Head North and Ponds 1-3 at Crescent Head South.

		A notable decrease of Mosquito Fish was detected at all ponds. Offline ponds have been created and Mosquito Fish have not been recorded in these ponds.

8 | VEGETATION CLEARANCE PLAN

The Vegetation Clearance Plan (VCP) documents measures to manage CHVEF, Regent Honeyeater, Swift Parrot and the GGBF during the vegetation clearance for the approved action. The VCP was prepared in accordance with conditions 1, 2, 21 and 22 of EPBC 2016-7640 and was implemented following the Minister's approval of the Plan on 24 October 2016.

Condition 1 of EPBC 2016/7640 states that HVO must not clear more than 54.4 ha of CHVEF from within the Riverview Pit EPBC boundary and 6.6 ha of CHVEF from within the West Pit EPBC boundary. From within the EPBC areas, HVO has, in total, cleared less than the specified limit of CHVEF from Riverview Pit and West Pit.

The VCP is initially managed through HVO's Ground Disturbance Permit process whereby pre-clearance checks and conditions are applied prior to any disturbance or on-ground works. Conditional approvals are applied to each permit which include specific requirements to comply with the surveys and processes outlined in the VCP.

No surveys have recorded the Regent Honeyeater, Swift Parrot or the Green and Golden Bell Frog (adults, metamorphs or tadpoles) as residing or traversing across the EPBC area since the approval was obtained.

In 2020, the VCP was edited to require machinery brought onto site from outside HVO to clear within the EPBC area to be washed of soil and mud prior to entering the West Pit extension area relevant to the EPBC 2016/7640 approval.

Other minor changes were made to specify that the protocols in the VCP were restricted to the approved EPBC areas, to remove a duplicate photo and correct figure referencing in the text.

In 2023, the change relating to washing equipment prior to clearing, and not post, was rejected by DCCEEW. The VCP has been edited back to requiring machinery involved in clearing within the EPBC area to be washed of soil and mud prior to exiting site.

Documentation of washing equipment prior to entering the EPBC area has been documented, but no works requiring these activities prior to leaving site has occurred in 2023 since the edit.

More details are outlined in the compliance table in Section 2.

9 | FAUNA CAPTURED ON CAMERA

Figure 9.1. *Quoll recorded at the Mitchelhill West BA.*

Figure 9.2. *Common wombat, Vombatus ursinus, at the Mitchelhill West BA.*

Figure 9.3. *Wild dog recorded at the Mitchelhill West BA.*

Figure 9.4. *Common wombat, Vombatus ursinus, photographed during pest management monitoring at Condon View BA.*

Figure 9.5. *Fox photographed during pest management monitoring at Condon View BA.*

Figure 9.6. *Male Lyre Bird, Menura novaehollandiae, photographed during pest management monitoring at Condon View BA.*

Figure 9.7. *Feral cat photographed during pest management monitoring at Condon View BA.*

Figure 9.8. *Sambar Deer, Cervus unicolor, photographed during pest management monitoring at Hook BA.*

10 | REFERENCES

Department of Environment and Climate Change (DECC) (2008), *Best practice guidelines for the Green and Golden Bell Frog*, Department of Environment and Climate Change MSW, Sydney.

Department of the Environment (2015) Approved Conservation Advice (including the listing advice) for the Central Hunter Valley eucalypt forest and woodland ecological community. Canberra Department of the Environment. Accessed at http://www.environment.gov.au/biodiversity/threatened/communities/pubs/130-conservationadvice.

Department of Environment, Water, Heritage and the Arts (DEWHA) (2010) Survey Guidelines for Australia's threatened frogs: Guidelines for detecting frogs listed as threatened under the EPBC Act. EPBC Policy Statement.

Ecoplanning (2022). Ecological Monitoring – Bird Assemblage Monitoring 2021– Wandewoi, Mitchelhill, Hook and Condon View Biodiversity Areas, NSW. Prepared for Hunter Valley Operations.

Ecoplanning (2022). Ecological Offsets – Condition Assessment Monitoring– Wandewoi, Mitchelhill, Hook and Condon View Biodiversity Areas, NSW. Prepared for Hunter Valley Operations.

Ecoplanning (2022). Habitat Assessment and Photo Reference Points– Crescent Head Biodiversity Area, NSW. Prepared for Hunter Valley Operations.

Ecoplanning (2022). Mosquito Fish and Green and Golden Bell Frog Monitoring 2021– Crescent Head Biodiversity Area, NSW. Prepared for Hunter Valley Operations.

Hunter Valley Operations (2021). Biodiversity Areas Management Plan. V3.1. Cambium Group. October 2021.

Murray Darling Basin Authority (2011). Gambusia Forum 2011: Small fish…. big problem! MDBA Publication No. 154/11.

NSW Scientific Committee (2013). Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners (*Manorina melanocephala*) – key threatening process listing.

Pyke, G.H. and White, A.W. (2000). Factors influencing predation on eggs and tadpoles of the endangered Green and Golden Bell Frog *Litoria aurea* by the introduced Plague Minnow *Gambusia holbrooki*. Australian Zoologist 31(3): 496-505.

Pyke, G.H. (2005). A review of the biology of *Gambusia affinis* and *G. holbrooki*. Reviews in Fish Biology and Fisheries. 15:339-365.

Saunders, D and Heinsohn, R (2008). Winter habitat use by the endangered, migratory Swift Parrot (*Lathamus discolor*) in New South Wales. Emu 108: 81-89.

11 | APPENDIX A: RAPID CONDITION ASSESSMENT - CURRENT AND PREVIOUS YEAR TABLES

Wandewoi Biodiversity Area

Rapid Condition Assessment - Woodland

Hunter Valley Operations

November 2023

Auditor: Bruce Mullins (Ecoplanning)

Note: True = 1, False = 0

Site ID	WAN R1	WAN R2	WAN R3	WAN R4	WAN R5	WAN R6
Low grazing intensity - never farmed	0	0	0	0	Grassland	Grassland
Tree and shrub regeneration present (<2m)	0	1	1	1		
Infrequent fire regime (<5year intervals)	1	1	1	1		
Healthy mature trees (no dieback)	1	0	1	1		
Little to no evidence of rabbits	1	1	1	1		
Little to no evidence of foxes/cats	1	1	1	1		
Low abundance of weeds (most remnants contain some weeds)	1	0	0	1		
No evidence of firewood collection	1	1	1	1		
No obvious signs of erosion or salinity	1	1	1	1		
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1		
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1		
Few tracks, trails or fence lines	1	1	1	1		
Presence of native shrubs	1	1	1	1		
Presence of large, old growth trees with hollows	1	0	1	0		
Dead timber is left standing	1	1	1	1		
Fallen timber and logs are left on the ground	1	1	1	1		
Abundance of native ground flora	1	1	1	1		
Presence of litter, cryptogams, cracks and rocks	1	1	1	1		
Remnant is large (> 5ha is optimum)	1	1	1	1		
Connected to or in close proximity to other remnant vegetation	1	1	1	1		
Health Rating	**18**	**16**	**18**	**18**		

Rapid Condition Assessment - Woodland

Hunter Valley Operations

Wandewoi Biodiversity Area

November 2022

Auditor: Cambium Group (Emilie Mascarenhas)

Note: True = 1, False = 0

Site ID	WAN R1	WAN R2	WAN R3	WAN R4	WAN R5	WAN R6
Low grazing intensity - never farmed	0	0	0	0	Grassland	Grassland
Tree and shrub regeneration present (<2m)	0	1	1	1		
Infrequent fire regime (<5year intervals)	1	1	1	1		
Healthy mature trees (no dieback)	1	0	1	1		
Little to no evidence of rabbits	1	1	1	1		
Little to no evidence of foxes/cats	1	1	1	1		
Low abundance of weeds (most remnants contain some weeds)	0	0	0	1		
No evidence of firewood collection	1	1	1	1		
No obvious signs of erosion or salinity	1	1	1	1		
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1		
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1		
Few tracks, trails or fence lines	1	1	1	1		
Presence of native shrubs	0	1	1	1		
Presence of large, old growth trees with hollows	1	0	1	1		
Dead timber is left standing	1	1	1	1		
Fallen timber and logs are left on the ground	1	1	1	1		
Abundance of native ground flora	0	0	0	1		
Presence of litter, cryptogams, cracks and rocks	1	1	1	1		
Remnant is large (> 5ha is optimum)	1	1	1	1		
Connected to or in close proximity to other remnant vegetation	1	1	1	1		
Health Rating	**15**	**15**	**17**	**19**		

Mitchelhill (West) Biodiversity Area
Rapid Condition Assessment - Woodland

Hunter Valley Operations

November 2023

Auditor: Bruce Mullins (Ecoplanning)

Note: True = 1, False = 0

Site ID	MIT-W R1	MIT-W R2	MIT-W R3	MIT-W R4	MIT-W R5	MIT-W R6
Low grazing intensity - never farmed	Grassland	1	1	1	1	Grassland
Tree and shrub regeneration present (<2m)		1	1	1	1	
Infrequent fire regime (<5year intervals)		1	1	1	1	
Healthy mature trees (no dieback)		1	1	1	1	
Little to no evidence of rabbits		1	1	1	1	
Little to no evidence of foxes/cats		1	1	1	1	
Low abundance of weeds (most remnants contain some weeds)		1	1	1	1	
No evidence of firewood collection		0	1	1	1	
No obvious signs of erosion or salinity		1	1	1	1	
Not susceptible to fertiliser application, herbicide or pesticide drift		1	1	1	1	
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)		1	1	1	1	
Few tracks, trails or fence lines		1	1	1	1	
Presence of native shrubs		1	1	1	1	
Presence of large, old growth trees with hollows		0	1	1	1	
Dead timber is left standing		1	1	1	1	
Fallen timber and logs are left on the ground		1	1	1	1	
Abundance of native ground flora		1	1	1	1	
Presence of litter, cryptogams, cracks and rocks		1	1	1	1	
Remnant is large (> 5ha is optimum)		1	1	1	1	
Connected to or in close proximity to other remnant vegetation		1	1	1	1	
Health Rating		**18**	**20**	**20**	**20**	

Rapid Condition Assessment - Woodland

Hunter Valley Operations

Mitchelhill (West) Biodiversity Area

November 2022

Auditor: Cambium Group (Emilie Mascarenhas)

Note: True = 1, False = 0

Site ID	MIT-W R1	MIT-W R2	MIT-W R3	MIT-W R4	MIT-W R5	MIT-W R6
Low grazing intensity - never farmed	Grassland	1	1	1	1	Grassland
Tree and shrub regeneration present (<2m)		1	1	1	1	
Infrequent fire regime (<5year intervals)		1	1	1	1	
Healthy mature trees (no dieback)		1	1	1	1	
Little to no evidence of rabbits		1	1	1	1	
Little to no evidence of foxes/cats		1	1	1	1	
Low abundance of weeds (most remnants contain some weeds)		1	1	1	1	
No evidence of firewood collection		1	1	1	1	
No obvious signs of erosion or salinity		1	1	1	1	
Not susceptible to fertiliser application, herbicide or pesticide drift		1	1	1	1	
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)		1	1	1	1	
Few tracks, trails or fence lines		1	1	1	1	
Presence of native shrubs		0	1	1	1	
Presence of large, old growth trees with hollows		0	1	1	1	
Dead timber is left standing		1	1	1	1	
Fallen timber and logs are left on the ground		1	1	1	1	
Abundance of native ground flora		1	1	1	1	
Presence of litter, cryptogams, cracks and rocks		1	1	1	1	
Remnant is large (> 5ha is optimum)		1	1	1	1	
Connected to or in close proximity to other remnant vegetation		1	1	1	1	
Health Rating		**18**	**20**	**20**	**20**	

Mitchelhill (East) Biodiversity Area
Rapid Condition Assessment - Woodland

Hunter Valley Operations

November 2023

Auditor: Bruce Mullins (Ecoplanning)

Note: True = 1, False = 0

Site ID	MIT-E R1	MIT-E R2	MIT-E R3	MIT-E R4	MIT-E R5	MIT-E R6
Low grazing intensity - never farmed	Grassland	1	0	Grassland	0	0
Tree and shrub regeneration present (<2m)		1	1		1	1
Infrequent fire regime (<5year intervals)		1	1		1	1
Healthy mature trees (no dieback)		1	1		1	1
Little to no evidence of rabbits		1	1		1	1
Little to no evidence of foxes/cats		1	1		1	1
Low abundance of weeds (most remnants contain some weeds)		1	1		0	0
No evidence of firewood collection		1	1		1	1
No obvious signs of erosion or salinity		1	1		1	1
Not susceptible to fertiliser application, herbicide or pesticide drift		1	1		1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)		1	1		1	1
Few tracks, trails or fence lines		1	1		1	1
Presence of native shrubs		1	1		1	1
Presence of large, old growth trees with hollows		0	1		0	1
Dead timber is left standing		1	1		1	1
Fallen timber and logs are left on the ground		0	1		1	1
Abundance of native ground flora		1	1		1	1
Presence of litter, cryptogams, cracks and rocks		1	1		0	0
Remnant is large (> 5ha is optimum)		1	1		1	1
Connected to or in close proximity to other remnant vegetation		1	1		1	1
Health Rating		**17**	**19**		**16**	**17**

Rapid Condition Assessment - Woodland

Hunter Valley Operations

Mitchelhill (East) Biodiversity Area

November 2022

Auditor: Cambium Group (Emilie Mascarenhas)

Note: True = 1, False = 0

Site ID	MIT-E R1	MIT-E R2	MIT-E R3	MIT-E R4	MIT-E R5	MIT-E R6
Low grazing intensity - never farmed	Grassland	1	0	Grassland	0	0
Tree and shrub regeneration present (<2m)		1	1		1	1
Infrequent fire regime (<5year intervals)		1	1		1	1
Healthy mature trees (no dieback)		1	1		1	1
Little to no evidence of rabbits		1	1		1	1
Little to no evidence of foxes/cats		1	1		1	1
Low abundance of weeds (most remnants contain some weeds)		1	1		0	0
No evidence of firewood collection		1	1		1	1
No obvious signs of erosion or salinity		1	1		1	1
Not susceptible to fertiliser application, herbicide or pesticide drift		1	1		1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)		1	1		1	1
Few tracks, trails or fence lines		1	1		1	1
Presence of native shrubs		1	1		1	1
Presence of large, old growth trees with hollows		0	0		0	1
Dead timber is left standing		1	1		1	1
Fallen timber and logs are left on the ground		1	1		1	1
Abundance of native ground flora		1	1		1	1
Presence of litter, cryptogams, cracks and rocks		1	1		0	0
Remnant is large (> 5ha is optimum)		1	1		1	1
Connected to or in close proximity to other remnant vegetation		1	1		1	1
Health Rating		**19**	**18**		**16**	**17**

Hook Biodiversity Area

Rapid Condition Assessment - Woodland

Hunter Valley Operations

November 2023

Auditor: Bruce Mullins (Ecoplanning)

Note: True = 1, False = 0

Site ID	HOO R1	HOO R2	HOO R3	HOO R4	HOO R5	HOO R6
Low grazing intensity - never farmed	0	1	1	1	1	0
Tree and shrub regeneration present (<2m)	1	1	1	1	1	1
Infrequent fire regime (<5year intervals)	1	1	1	1	1	1
Healthy mature trees (no dieback)	0	1	1	1	1	1
Little to no evidence of rabbits	1	1	1	1	1	1
Little to no evidence of foxes/cats	1	1	1	1	1	1
Low abundance of weeds (most remnants contain some weeds)	1	1	0	1	1	1
No evidence of firewood collection	1	1	1	1	0	1
No obvious signs of erosion or salinity	1	1	1	1	1	1
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1	1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1	1	1
Few tracks, trails or fence lines	1	0	1	1	1	1
Presence of native shrubs	0	1	1	1	1	1
Presence of large, old growth trees with hollows	0	0	0	0	0	0
Dead timber is left standing	1	1	1	1	1	1
Fallen timber and logs are left on the ground	1	1	1	1	1	1
Abundance of native ground flora	1	1	1	1	1	1
Presence of litter, cryptogams, cracks and rocks	1	1	1	1	1	1
Remnant is large (> 5ha is optimum)	1	1	1	1	1	1
Connected to or in close proximity to other remnant vegetation	1	1	1	1	1	1
Health Rating	**16**	**18**	**18**	**19**	**18**	**18**

Rapid Condition Assessment - Woodland

Hunter Valley Operations

Hook Biodiversity Area

November 2022

Auditor: Cambium Group (Emilie Mascarenhas)

Note: True = 1, False = 0

Site ID	HOO R1	HOO R2	HOO R3	HOO R4	HOO R5	HOO R6
Low grazing intensity - never farmed	0	1	1	1	1	1
Tree and shrub regeneration present (<2m)	1	1	1	1	1	1
Infrequent fire regime (<5year intervals)	1	1	1	1	1	1
Healthy mature trees (no dieback)	0	1	1	1	1	1
Little to no evidence of rabbits	1	1	1	1	1	1
Little to no evidence of foxes/cats	1	1	1	1	1	1
Low abundance of weeds (most remnants contain some weeds)	1	1	0	1	1	1
No evidence of firewood collection	1	1	1	1	1	1
No obvious signs of erosion or salinity	1	1	1	1	1	1
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1	1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1	1	1
Few tracks, trails or fence lines	1	1	1	1	1	1
Presence of native shrubs	1	1	1	1	1	1
Presence of large, old growth trees with hollows	0	0	0	0	1	1
Dead timber is left standing	1	1	1	1	1	1
Fallen timber and logs are left on the ground	1	1	1	1	1	1
Abundance of native ground flora	1	1	1	1	1	1
Presence of litter, cryptogams, cracks and rocks	1	1	1	1	1	1
Remnant is large (> 5ha is optimum)	1	1	1	1	1	1
Connected to or in close proximity to other remnant vegetation	1	1	1	1	1	1
Health Rating	**17**	**19**	**18**	**19**	**20**	**20**

Crescent Head Biodiversity Area
Rapid Condition Assessment - Woodland

Hunter Valley Operations

November 2023

Auditor: Ecoplanning

Note: True = 1, False = 0

Site ID	CRE-S R1	CRE-S R2	CRE-S R3	CRE-S R4	CRE-N R1	CRE-N R2	CRE-N R3	CRE-N R4
Low grazing intensity - never farmed	1	1	1	1	1	1	1	1
Tree and shrub regeneration present (<2m)	1	1	1	1	1	1	1	1
Infrequent fire regime (<5year intervals)	1	1	1	1	1	1	1	1
Healthy mature trees (no dieback)	1	1	1	1	1	1	1	1
Little to no evidence of rabbits	1	1	1	1	1	1	1	1
Little to no evidence of foxes/cats	1	1	1	1	1	1	1	1
Low abundance of weeds (most remnants contain some weeds)	1	1	1	1	1	1	1	1
No evidence of firewood collection	1	1	1	1	1	1	1	1
No obvious signs of erosion or salinity	1	1	1	1	1	1	1	1
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1	1	1	1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1	1	1	1	1
Few tracks, trails or fence lines	1	1	1	1	1	1	1	1
Presence of native shrubs	1	1	1	1	1	1	1	1
Presence of large, old growth trees with hollows	0	0	0	0	0	0	0	1
Dead timber is left standing	1	1	1	1	1	1	1	1
Fallen timber and logs are left on the ground	1	1	1	1	1	1	1	1
Abundance of native ground flora	1	1	1	1	1	1	1	1
Presence of litter, cryptogams, cracks and rocks	1	1	1	1	1	1	1	1
Remnant is large (> 5ha is optimum)	1	1	1	1	1	1	1	1
Connected to or in close proximity to other remnant vegetation	1	1	1	1	1	1	1	1
Health Rating	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**20**

Rapid Condition Assessment - Woodland

Hunter Valley Operations

Crescent Head Biodiversity Area

November 2022

Auditor: Ecoplanning

Note: True = 1, False = 0

Site ID	CRE-S R1	CRE-S R2	CRE-S R3	CRE-S R4	CRE-N R1	CRE-N R2	CRE-N R3	CRE-N R4
Low grazing intensity - never farmed	1	1	1	1	1	1	1	1
Tree and shrub regeneration present (<2m)	1	1	1	1	1	1	1	1
Infrequent fire regime (<5year intervals)	1	1	1	1	1	1	1	1
Healthy mature trees (no dieback)	1	1	1	1	1	1	1	1
Little to no evidence of rabbits	1	1	1	1	1	1	1	1
Little to no evidence of foxes/cats	1	1	1	1	1	1	1	1
Low abundance of weeds (most remnants contain some weeds)	1	1	1	1	1	1	1	1
No evidence of firewood collection	1	1	1	1	1	1	1	1
No obvious signs of erosion or salinity	1	1	1	1	1	1	1	1
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1	1	1	1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1	1	1	1	1
Few tracks, trails or fence lines	1	1	1	1	1	1	1	1
Presence of native shrubs	1	1	1	1	1	1	1	1
Presence of large, old growth trees with hollows	0	0	0	0	0	0	0	1
Dead timber is left standing	1	1	1	1	1	1	1	1
Fallen timber and logs are left on the ground	1	1	1	1	1	1	1	1
Abundance of native ground flora	1	1	1	1	1	1	1	1
Presence of litter, cryptogams, cracks and rocks	1	1	1	1	1	1	1	1
Remnant is large (> 5ha is optimum)	1	1	1	1	1	1	1	1
Connected to or in close proximity to other remnant vegetation	1	1	1	1	1	1	1	1
Health Rating	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**20**

Condon View Biodiversity Area
Rapid Condition Assessment - Woodland

Hunter Valley Operations

November 2023

Auditor: Bruce Mullins

Note: True = 1, False = 0

Site ID*	CON R1	CON R2	CON R3	CON R4
Low grazing intensity - never farmed	1	0	1	1
Tree and shrub regeneration present (<2m)	1	1	1	1
Infrequent fire regime (<5year intervals)	1	1	1	1
Healthy mature trees (no dieback)	1	1	1	1
Little to no evidence of rabbits	1	1	1	1
Little to no evidence of foxes/cats	1	1	1	1
Low abundance of weeds (most remnants contain some weeds)	1	1	1	1
No evidence of firewood collection	1	1	1	1
No obvious signs of erosion or salinity	1	1	1	1
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1
Few tracks, trails or fence lines	1	1	1	1
Presence of native shrubs	1	1	1	1
Presence of large, old growth trees with hollows	1	0	0	1
Dead timber is left standing	1	1	1	1
Fallen timber and logs are left on the ground	1	1	1	1
Abundance of native ground flora	1	0	1	1
Presence of litter, cryptogams, cracks and rocks	1	0	1	1
Remnant is large (> 5ha is optimum)	1	1	1	1
Connected to or in close proximity to other remnant vegetation	1	1	1	1
Health Rating	**20**	**16**	**19**	**20**

*R1 (HVO) = R1 (Yancoal), R2 = new site, R3 (HVO) = R5 (Yancoal), R4 (HVO) = R6 (Yancoal)

Rapid Condition Assessment - Woodland

Condon View Biodiversity Area

Hunter Valley Operations

November 2022

Auditor: Cambium Group (Emilie Mascarenhas)

Note: True = 1, False = 0

Site ID*	CON R1	CON R2	CON R3	CON R4
Low grazing intensity - never farmed	1	0	1	1
Tree and shrub regeneration present (<2m)	1	1	1	1
Infrequent fire regime (<5year intervals)	1	1	1	1
Healthy mature trees (no dieback)	1	1	1	1
Little to no evidence of rabbits	1	1	1	1
Little to no evidence of foxes/cats	1	1	1	1
Low abundance of weeds (most remnants contain some weeds)	1	0	1	1
No evidence of firewood collection	1	1	1	1
No obvious signs of erosion or salinity	1	1	1	1
Not susceptible to fertiliser application, herbicide or pesticide drift	1	1	1	1
Less than 20% trees with Mistletoe (NB some mistletoe is healthy)	1	1	1	1
Few tracks, trails or fence lines	1	1	1	1
Presence of native shrubs	1	1	1	1
Presence of large, old growth trees with hollows	1	0	0	1
Dead timber is left standing	1	1	1	1
Fallen timber and logs are left on the ground	1	1	1	1
Abundance of native ground flora	1	0	1	1
Presence of litter, cryptogams, cracks and rocks	1	0	1	1
Remnant is large (> 5ha is optimum)	1	1	1	1
Connected to or in close proximity to other remnant vegetation	1	1	1	1
Health Rating	**20**	**15**	**19**	**20**

*R1 (HVO) = R1 (Yancoal), R2 = new site, R3 (HVO) = R5 (Yancoal), R4 (HVO) = R6 (Yancoal)