Offset Management Plan for the Black-breasted Button-quail (*Turnix melanogaster*)

EPBC 2021/8999: Meandu Mine King 2 East

Project TEC Coal Pty Ltd

Document date: 7/08/2025
Prepared by: Ausecology Pty Ltd

Table of Contents

Tables

Figures

1 Introduction

1.1 Background

TEC Coal Pty Ltd (TEC Coal), a wholly owned subsidiary of Stanwell Corporation Limited (Stanwell) is seeking approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2021/8999) for the King 2 East Project (the K2E Project). The Meandu Mine, and the K2E Project, provides the coal that fuels the adjacent Tarong and Tarong North power stations (Tarong power stations). The K2E Project involves an increase to the approved surface rights area within the Meandu Mine Mining Lease (ML) 6674 by an additional 186 hectares (ha) to enable progression of the existing K2E pit to the east. An additional 1.6 ha of Hoop Pine plantation and 0.2 ha of juvenile mixed hardwood plantation outside of the K2E additional surface area (ASA) will also require clearing to enable construction of the perimeter fence. The K2E Project reflects Stanwell's strategy for delivering the Life of Mine (LOM) Plan for the Meandu Mine.

1.2 Offset package

The offset package comprises a land-based environmental habitat offset, which provides for the protection and management of 103.4 ha. The package is consistent with the EPBC Act *Environmental Offset Policy* (Australian Government, 2012) as it delivers an offset that has been tailored specifically to compensate for impacts on the protected matter, that is, 'like-for-like' habitat for the Black-breasted Button-quail. It also includes an area that will be rehabilitated to connect existing and create future habitat for the Black-breasted Button-quail, compatible with the *Nature Positive Plan* (Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2022).

A land-based environmental offset of 103.4 ha is provided to compensate for the residual loss of 20.9 ha of Black-breasted Button-quail habitat associated with the K2E Project. This will be delivered on the Semgreens Road offset site (Semgreens Offset).

This Offset Management Plan (OMP) has been prepared to deliver the Black-breasted Button-quail offset over a 20-year management timeframe or until completion criteria for the Offset Area is met.

1.3 Relevant EPBC approval conditions

Note. This section has intentionally been left blank and will be completed post-approval.

1.4 Maintenance for the duration of the offset

TEC Coal is committed to the active protection and management of the proposed offset site as a conservation area over a 20-year management timeframe or until completion criteria for the offset is met. The offset will initially be secured under a Voluntary Declaration under section 19E of the *Vegetation Management Act 1999* (VMA) prior to substantial commencement of the K2E Project. Subsequently, a covenant will be established under the *Land Titles Act 1994* to protect the offset in perpetuity.

1.5 Qualifications and experience of contributors to this OMP

The qualifications and experience of the key contributors to the preparation of this OMP are listed in Table 1.1.

Table 1-1 Contributors to the OMP

Name	Position	Role	Qualifications	Yrs of exp.
Offset Area Assessment				
Lainie Grigg	Ausecology – Offsets Technical Manager	Project management Offsets technical lead OMP technical review	Bachelor of Science (Molecular Biology) Certificate III in Conservation and Land Management	20
Andrew Dawson	Ausecology – Principal Ecologist	Field verification of offset values BioCondition and habitat quality survey	Master of Wildlife Conservation Bachelor of Science in Biodiversity and Conservation	15
Maxine Little	Ausecology - Senior Environmental Consultant	Offset calculations Final impact area calculations Primary author of OMP Field verification of offset values	Master of Conservation Science Bachelor of Science (Zoology) Graduate Certificate of Spatial Science Technology	5
Tim Shields	Ausecology - Lead Senior Ecologist	Offset calculations OMP technical advice	Bachelor of Environmental Management	12
Impact Area Assessment				
Rob Harrison	WSP - Principal Ecologist (Zoology)	Technical lead Field verification of offset values Targeted Black-breasted Button-quail survey Preliminary impact area calculations	Master of Environmental Management Bachelor of Ecological Agriculture Certificate in Bushland Regeneration and Weed Control	18
Allan Richardson	WSP - Associate Ecologist (Ornithology)	Technical ornithological advice Field verification of offset values Targeted Black-breasted Button-quail survey	Bachelor of Environmental Science (Honours Class II Division I) President, Hunter Bird Observers Club Records Appraisal Committee, Hunter Bird Observers Club Ornithological Records Appraisal Committee Member – NSW	20
Steve Lyngcoln	WSP - Principal Ecologist (Botany)	Field verification of offset values BioCondition and habitat quality survey lead	Master of Business Administration Master of Environmental Science Graduate Diploma in Natural Resources Bachelor of Applied Science (Protected Area Management) Diploma in Applied Science (Nature Conservation)	21

Name	Position	Role	Qualifications	Yrs of exp.
Doug Mohr	WSP - Senior Ecologist (Botany)	Field verification of offset values BioCondition and habitat quality survey	PhD candidate (Vegetation Ecology) Diploma of Conservation and Land Management Bachelor of Arts	20
Allison Rushton	WSP - Principal Environmental Scientist	Project management Technical review and offset policy compliance	Graduate Diploma in Environmental Science Bachelor of Economics (Honours)	28
Terri-Ann English	WSP - Principal Ecologist	Technical review and offset policy compliance	Bachelor of Applied Science (Environmental Science)	24

2 Impact Area

The K2E Project will result in residual impacts on 20.9 ha of habitat that supports a population of the Black-breasted Button-quail (*Turnix melanogaster*), a Matter of National Environmental Significance (MNES), listed as Vulnerable under the EPBC Act. The 20.9 ha impacted habitat comprises:

- 17.7 ha of remnant low vine forest and semi-evergreen vine thicket and dry rainforest habitat that supports viable foraging, sheltering, nesting, breeding resources and dispersal opportunities for the Black-breasted Button-quail. The impacted habitat is associated with:
    - 16.7 ha of Endangered regional ecosystem (RE) 12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii;* and
    - 1.0 ha of Least Concern RE 12.11.11 – Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics, usually in southern half of bioregion.
- 3.2 ha within the Hoop Pine plantation buffer zone that is adjacent to low vine forest and semi-evergreen vine thicket and dry rainforest habitat with a vine forest/vine thicket understory (referred to hereafter as Hoop Pine plantation buffer zone), and which is associated with a land use change impact. Although this 3.2 ha of Hoop Pine plantation buffer zone only provides marginal supplementary foraging/refuge habitat for the species, it has been conservatively added to the 17.7 ha significant residual impact to Black-breasted Button-quail habitat (recognised as habitat critical to the survival of the species), resulting in the identified overall residual Impact Area of 20.9 ha for which an offset will be provided by TEC Coal.

3 Offset Area

3.1 Land parcels

Table 2.1 lists the land parcels on which the land-based offset is located. All land parcels are freehold land tenure and were acquired by Stanwell between 2007 and 2011.

Five easement parcels (AFY2769, AAP8799, AAP8837, AAP8838 and AAP8835) in favour of Ergon Energy are also within the lots on which the offset is located. A residential power line also crosses the Offset Area.

Table 3-1 Semgreens Offset land parcel summary

Offset area (ha)	Properties (Lot on Plan)	Easement rights
103.4 ha	137FTZ37418	AFY2769
	15FTZ37457	AAP8838
	121FTZ37332	AAP8837
	122FTZ37310	AAP8835
	159FTZ37456	n/a
	1RP170278	n/a
	110FY69	n/a
	7RP907215	AAP8799
	8RP907215	n/a
	2RP170278	n/a

3.2 Offset site description

The Semgreens Offset comprises 103.4 ha (refer Figure 2.1).

The Semgreens Offset is located on a mixture of agricultural grazing land and native vegetation. The terrain is undulating and hilly with moderate to steep slopes and elevation ranging between 360 m Australian Height Datum (AHD) in the south, and up to 490 m AHD in the north, giving the combined properties a southerly aspect. The property also contains a Stream Order 1 and 2 watercourse that flow in a southerly direction, and several relatively small farm dams.

The Semgreens Offset contains large patches of native vegetation, all of which have been subject to past and current land use disturbances, such as clearing, grazing, timber harvesting, inappropriate fire regimes and firewood collection. This has left the patches of native regrowth and remnant vegetation within the properties in varying states with variable levels of understorey disturbance, weed infestations and flora and fauna species diversity.

A review of the information available on purchase of the land (2007-2011) and discussions with the previous owners have confirmed that past land uses were a mix of cattle grazing, cultivation and piggery and that remnant or regrowth vegetation across the properties has never been fenced to exclude livestock. Grazing has been the continuing land use for the property.

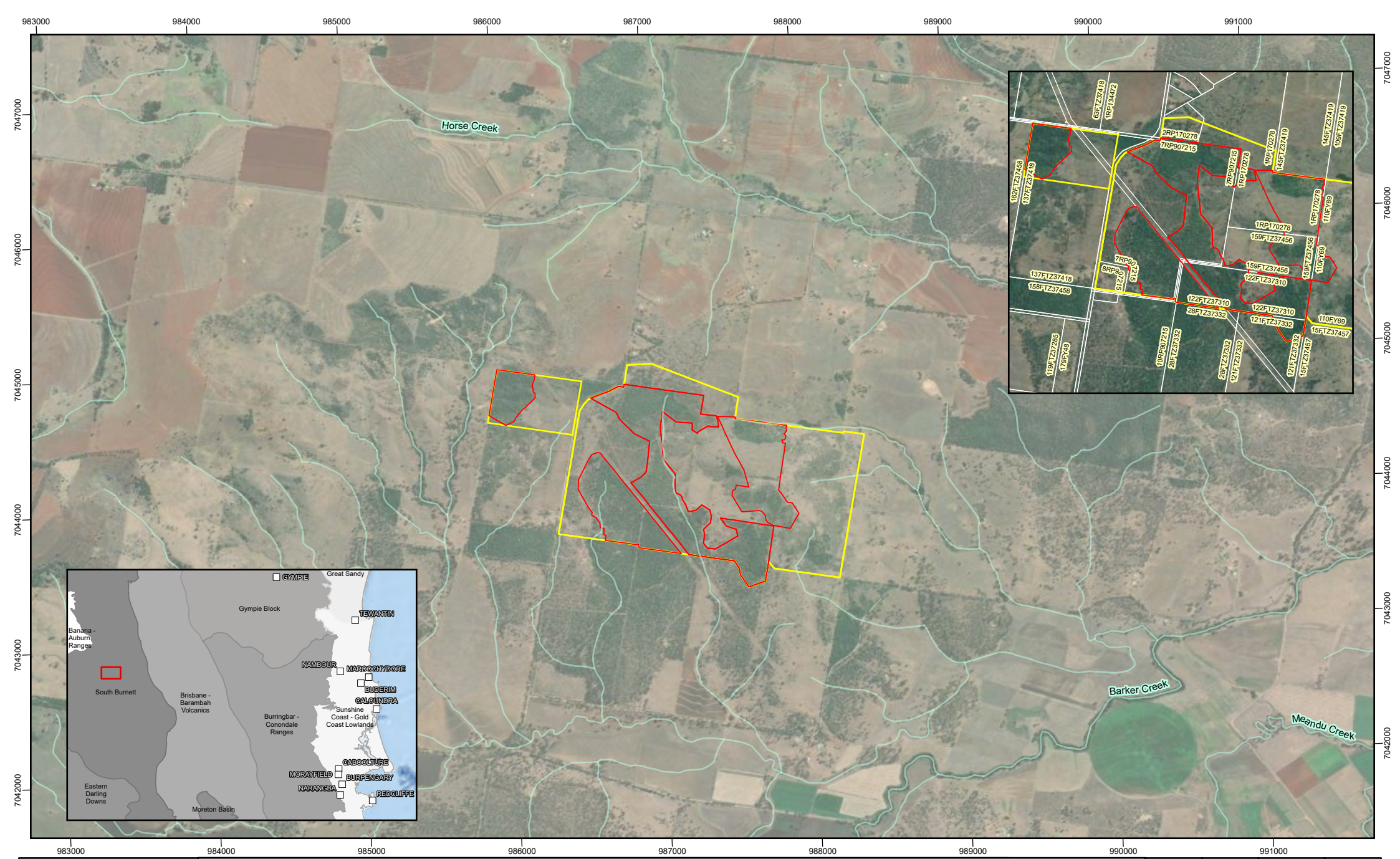
In broad terms, the vegetation communities across the Semgreens Offset, include:

- low vine forest and semi-evergreen vine thicket represented as remnant and regrowth RE 12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria*

cunninghamii

- vine forest, represented as the following regional ecosystems:
    - remnant RE 12.8.13 – Araucarian complex microphyll vine forest on Cainozoic igneous rocks
    - remnant and regrowth RE 12.8.21 – Semi-evergreen vine thicket with *Brachychiton rupestris* on Cainozoic igneous rocks, usually in southern half of bioregion
    - remnant and regrowth RE 12.11.11 – Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics, usually in southern half of bioregion
- Eucalypt forests with vine thicket understorey represented as remnant RE 12.11.18x (undescribed regional ecosystem), which most closely aligns with RE 12.11.18 – *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics
- regenerating Acacia dominated forest with minor occurrences of low vine forest and semi-evergreen vine thicket and vine forest habitat elements, represented as the following regional ecosystems:
    - Non-remnant 12.5.13 Microphyll to notophyll vine forest +/- *Araucaria cunninghamii*
    - Non-remnant 12.5.13a Microphyll to notophyll vine forest +/- *Araucaria cunninghamii*
- open exotic pasture grasslands with scattered shrubs and trees.

Targeted surveys confirmed the presence of Black-breasted Button-quail, via visual identification and platelets, in vine thicket and dry rainforest habitat within the Semgreens Offset area, as shown on Figure 2.2. The low vine forest and semi-evergreen vine thicket, vine forest, Eucalypt forests with vine thicket understorey, and (to a lesser degree) the regenerating Acacia forest within the Semgreens Offset, provide foraging, roosting, sheltering, breeding and dispersal habitat for the resident population of Black-breasted Button-quail. These habitats also support other species of flora and fauna, with baseline surveys recording the presence of koala within the Offset Area (refer Figure 3-2).



Ausecology
a Niche company

Figure 3-1:

Overview Map - Semgreens Offset

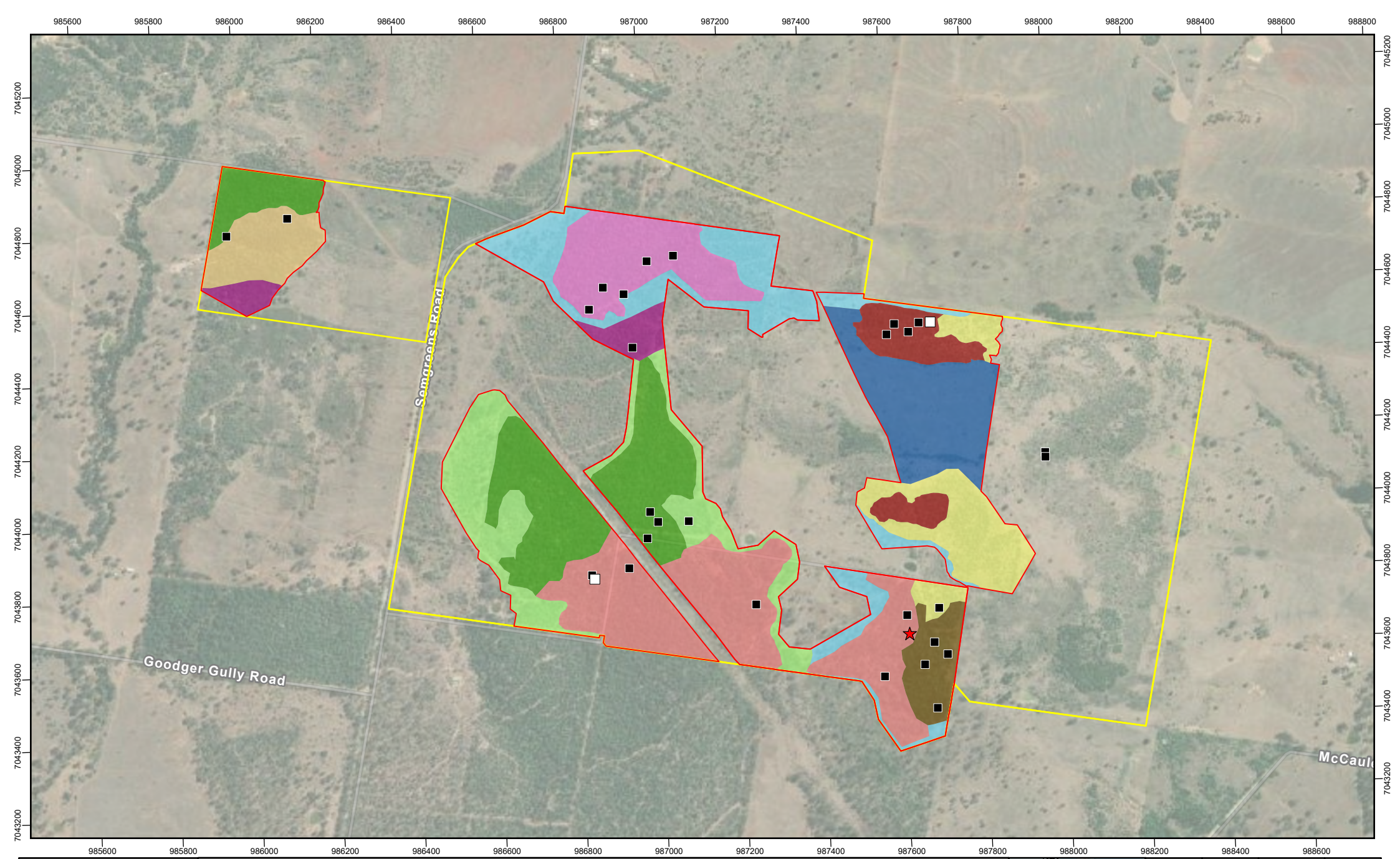
- Offset Boundary
- Property Boundary
- Land Parcels
- Watercourses

REVISION	AUTHOR	REVIEWER	DATE
0	BD	ML	28/04/2025

GCS GDA 1994
Scale: 1:35,000

N

0 500 1,000
Metres



Ausecology
a Niche company

Figure 3-2:

Black-breasted Button-quail records
Semgreens Offset

Property Boundary
Offset Boundary
Koala Record

BBBQ Records
Platelets
Sighting

Assessment Units
AU1
AU3
AU4
AU5
AU6
AU7
AU10
AU11
AU12
AU13
AU14 (Planting)

REVISION	AUTHOR	REVIEWER	DATE
0	BD	ML	28/04/2025
1	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

4 Field surveys

4.1 Site condition and habitat assessments

Site condition and habitat assessments were undertaken to determine the presence, extent and quality of habitat for the Black-breasted Button-quail throughout the Offset Area. These assessments were conducted in accordance with *BioCondition - A Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual* (Eyre et al., 2015) and the Queensland Government's *Guide to determining terrestrial habitat quality* (Habitat Quality Guideline) (v. 1.2) (Department of Environment and Heritage Protection (DEHP), 2017). Mapped locations of site condition (BioCondition) and habitat assessments are depicted in Figure 4-1.

4.2 Targeted Black-breasted Button-quail surveys

Targeted surveys were undertaken to determine Black-breasted Button-quail presence within the offset area. Surveys included:

- Stationary bird surveys
- Call playback

Presence was determined by sightings of individuals and/or presence of platelets.

4.3 Weed surveys

A grid-based weed distribution survey was conducted across the Semgreens Offset to determine the baseline density and distribution of weed species. The Offset Area was overlayed with a 100m x 100m grid system with a total of 159 grids, each with a unique identifier. Each grid was surveyed on foot at a random meander. In each 100 m x 100 m grid square, the following information was recorded for the weed species showing a significant level of infestation:

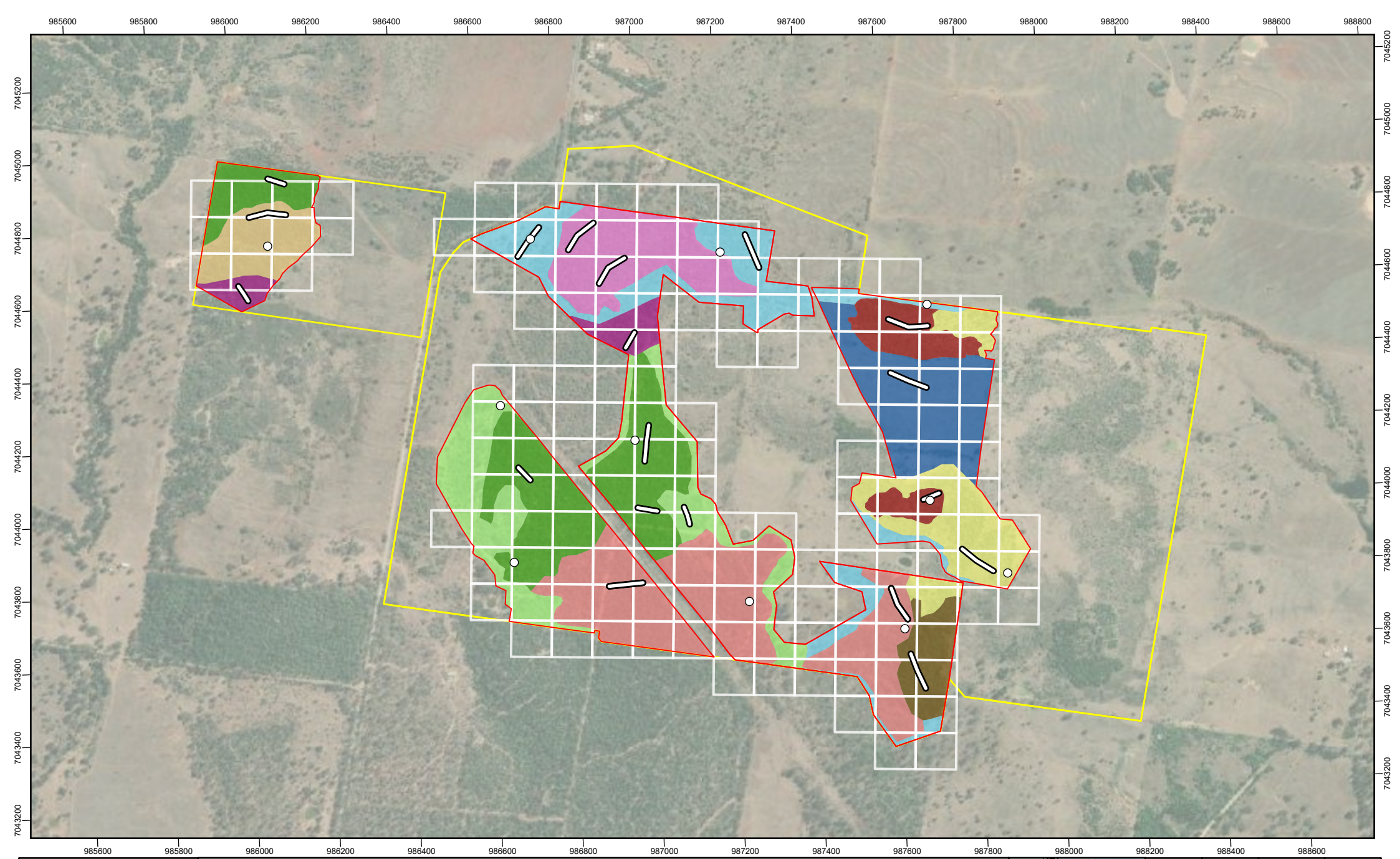
- Species name
- Level of infestation: 1-9 specimens, 10-50 specimens or 50+ specimens
- Coverage: 1-10%, 11-25%, 26-50%, 51-75%, 76-100% (assessed in the strata of growth)
- Maturity: seeding, flowering, mature, seedling

4.4 Pest fauna surveys

Baseline pest fauna surveys were conducted to determine which pest fauna are currently present on site. A total of 11 permanent pest fauna camera trap survey sites were selected throughout the Semgreens Offset. Sites were placed to be spatially representative and positioned to adequately capture target pest fauna. The sites were not baited to prevent bias in the numbers of detections.

At each site, a star picket was installed and the GPS location recorded to allow for the redeployment of cameras in identical locations for follow up studies. Camera traps were deployed on the star pickets at a height of 0.5m. Vegetation in front of the cameras was trimmed to reduce the number of false triggers and maximise animal detectability. Cameras were set to continuous detection day and night, high passive infrared sensitivity and three captures per motion trigger so as to provide a series of photos to aid identification of each animal. Cameras remained deployed for one month.

All captures were reviewed and identified (where possible) to species level and number of individuals.



Ausecology
a Niche company

Figure 4-1:

Baseline Field Survey
Semgreens Offset

- Property Boundary
- Offset Boundary
- Weed Grid Surveys (100mx100m)
- BioCondition/ Habitat Assessment Transects
- Pest Fauna Camera

Assessment Units

- AU1
- AU3
- AU4
- AU5
- AU6
- AU7
- AU10
- AU11
- AU12
- AU13
- AU14 (Planting)

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	JS	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

5 Habitat quality scoring

Habitat quality is assessed to ensure that an offset site is of a suitable quality and can achieve a gain in habitat quality sufficient to compensate for a significant residual impact at the impact site. The same scoring methodology was utilised for the offset site as for the Impact Area to ensure comparable results. Habitat quality scoring was undertaken in accordance with the Commonwealth Government's *Modified QLD Habitat Quality Assessment* (MHQA) and Queensland Government's Habitat Quality Guideline) (v.1.2) (DEHP, 2017).

Habitat quality scores for threatened species are determined in the MHQA using three key indicators:

- site condition: a general condition assessment of vegetation compared to a benchmark
- site context: an analysis of the site in relation to the surrounding environment
- species stocking rate (SSR): the value of both the site and the species population.

Each indicator is scored and weighted in accordance with the MHQA, namely Site Condition (30%), Site Context (30%), and SSR (40%). The sum of the weighted scores determines the final habitat quality score for the site.

In order to determine habitat quality scores, Assessment Units (AUs) were first defined. An AU is comprised of one or more patches of relatively homogenous vegetation that is one RE type in one broad condition state. Sampling sites were selected in each AU for site condition and habitat assessments.

5.1 Site condition scoring

Site condition for each AU was determined by comparing the data collected in BioCondition assessments to the benchmark[1] values for each respective regional ecosystem (RE) (Qld Herbarium, 2025) and the BioCondition scoring matrix (Eyre et al., 2015) (refer to Table 5-1). Species habitat indices, including quality and availability of food and foraging habitat and quality and availability of shelter, are included within the site condition scoring. These attributes were determined using the scoring guide in the Habitat Quality Guideline (v.1.2) (DEHP, 2017) (refer to Section 5.3) for further details).

The site condition scoring for all AUs in the Semgreens Offset is presented within the MHQA calculations in Attachment A.

Table 5-1 BioCondition scoring matrix

Benchmark scoring	Scoring matrix			
Recruitment of woody perennial species (EDL)	<20%	≥20 – 75%	≥75%	–
	0	3	5	–
Native plant species richness – trees	<25%	≥25 – 90%	≥90%	–
	0	2.5	5	–
Native plant species richness – shrubs	<25%	≥25 – 90%	≥90%	–
	0	2.5	5	–
	<25%	≥25 – 90%	≥90%	–

[1] In the absence of benchmark values for a particular RE, an analogous benchmark was selected as a surrogate

Benchmark scoring	Scoring matrix			
Native plant species richness – grasses	0	2.5	5	–
Native plant species richness – forbs	<25%	≥25 – 90%	≥90%	–
	0	2.5	5	–
Tree canopy height (emergent, canopy & sub- canopy)	<15%	≥25 – 70%	≥70%	–
	0	3	5	–
Tree canopy cover (%) (emergent, canopy & sub-canopy)	<10%	≥10 – <50%	≥50 – ≤200%	>200%
	0	2	5	3
Shrub canopy cover (%)	<10%	>/= 10 – 50% or >200%	≥50 – ≤200%	–
	0	3	5	–
Native grass cover (%)	<10%	≥10 – 50%	≥50 – 90%	≥90%
	0	1	3	5
Organic litter (%)	<10%	≥10 – 50% or >200%	≥50 – ≤200%	–
	0	3	5	–
Large trees (eucalypt plus non-eucalypt)	Nil	0 – 50%	≥50 – 100%	≥ benchmark
	0	5	10	15
Coarse woody debris (m/ha)	<10%	>/= 10 – 50% or >200%	≥50 – ≤200%	–
	0	3	5	–
Non-native plant cover (%)	>50%	≥25 – 50%	≥5 – 25%	<5%
	0	3	5	10

5.2 Site context scoring

Site context attributes were assessed and scored using GIS data and spatial analysis. As both the impact and offset sites are located within a fragmented subregion in Queensland, the four attributes outlined in Table 5-2 were assessed. Species habitat indices, including threats to species, role of the site location for the population in the state and species mobility capacity, are also included within the site context component. These attributes were determined using the scoring guide in the *Habitat Quality Guideline* (v.1.2) (DEHP, 2017) (refer to Section 5.3 for further details).

The site context scoring of all AUs in the Semgreens Offset is presented within the MHQA calculations in Attachment A.

Table 5-2 Site context assessment attributes and scoring parameters

Parameter	Method	Scoring parameters
Size of patch	GIS spatial analysis	0, 2, 5, 7 and 10
Connectedness (of patch)	GIS spatial analysis	0, 2, 4 and 5
Context (of patch)	GIS spatial analysis	0, 2, 4 and 5
Ecological corridors	GIS spatial analysis	0, 4 and 6

5.3 Species habitat indices and species stocking rate

Species habitat indices provide an indication of the ability of the site to support a species and contributes to site condition and site context scores for each AU. These have been assessed for each AU in accordance with the *Habitat Quality Guideline* (v.1.2). Table 5-3 provides a summary of the approach applied to assess each species habitat indices.

A species stocking rate is an additional component scored as part of the Commonwealth Government's MHQA. The species stocking rate has been calculated on a whole-of-site basis, utilising field survey data and spatial analyses. Table 5-4 and Table 5-5 (sub-table to Table 5-4) provide a summary of the approach applied to assess each attribute comprising the species stocking rate.

The habitat quality monitoring scores for all AUs in the Semgreens Offset is presented within the MHQA calculations in Attachment A.

Table 5-3 Species habitat indices and scoring

Species habitat indices					
Attribute	Approach & method applied[2]	Scoring matrix			
Quality and availability of food and foraging habitat	Assessed with consideration of the essential habitat requirements for the Black-breasted Button-quail. These attributes should realistically reflect how much of a sustainable population of a species could be supported. Data from habitat assessments, field survey observations and BioCondition results were utilised to score this attribute. Leaf litter depth, leaf litter cover and in-situ plant species' leaf litter diversity indicate subsequent diversity of macro-invertebrate prey species for the Black-breasted Button-quail within the site.	Poor	Moderate	High	
		1	5	10	
Quality and availability of shelter	Assessed with consideration of the relative abundance and condition of habitat features that could be used as shelter by the Black-breasted Button-quail at the site. Data from habitat assessments, field survey observations and BioCondition results were utilised to score this attribute. Vegetation structural layers and cover (canopy, emergent and shrub layers) were key attributes, whereby greater cover and structural layer integrity increases the availability and suitability of shelter.	Poor	Moderate	High	
		1	5	10	
Threats to species	Assessed with consideration of the number and severity of threatening processes observed at or adjacent to the site. Data from habitat assessments, pest fauna surveys, weed surveys, and field survey observations were utilised to score this attribute.	High	Moderate	Low	
		1	7	15	
Species mobility capacity	Assessed with consideration of the presence and severity of barriers to movement that would contribute to a reduction in the mobility of the species. Data from habitat assessments, field survey observations and spatial analyses were utilised to score this attribute.	Poor	Low	Moderate	High
		1	4	7	10

[2] All species habitat indices were assessed using the criteria detailed within GTDHQ (v1.2) (DES, 2017).

Table 5-4 Species stocking rate scoring

Species Stocking Rate					
Attribute	Approach & method applied	Scoring matrix			
Presence detected on or adjacent to site	Results from targeted surveys to visually record the Black-breasted Button-quail within the site via stationary bird surveys and call playback, and previous records in the local area.	No	Yes – adjacent	Yes – on site	
		0	5	10	
Species usage of the site (habitat type & evidenced usage)	Results from targeted surveys to visually record the presence and abundance of Black- breasted Button-quail platelets within the site.	Not habitat	Dispersal	Foraging	Breeding
		0	5	10	15
Approximate density (per ha)	The survey findings for *'presence detected on or adjacent to site'* and *'species usage of the site'*, to estimate the approximate density per hectare of Black-breasted Button-quail within the site. Due to the Black-breasted Button-quail being a cryptic species, both individual sightings and platelets were utilised to determine approximate density.	0 birds/ha	>0 - 0.49 birds/ha	≥0.5-0.99 birds/ha	≥1 birds/ha
		0	10	20	30
Role/importance of species population on site	Refer to Table 5-5	0	0 – 15	20 – 35	40 – 45
		0	5	10	15

Table 5-5 Species stocking rate supplementary scoring matrix

Species stocking rate scoring for role/importance of species population on site			
Attribute	Method applied	Scoring matrix	
Key source population for breeding	Confirmed presence of the Black-breasted Button-quail within the site and the suitability of understorey vegetation to support nesting / breeding sites, to determine whether the existing population is, or can become, a key source population for breeding.	No	Yes/Possibly
		0	10
Key source population for dispersal	Confirmed presence of the Black-breasted Button-quail within the site and the connectivity to nearby habitats to facilitate dispersal of juveniles from breeding habitat, to determine whether the existing population is, or can become, a key source population for dispersal.	No	Yes/Possibly
		0	5
Necessary for maintaining genetic diversity	Evaluation of the current population per hectare, extent of habitat usage and carrying capacity of the habitats within the site, and viability of population increases over time, which are necessary for improving and maintaining genetic diversity.	No	Yes/Possibly
		0	15
Near the limit of the species range	Spatial desktop assessment of the known distribution of the Black-breasted Button-quail in reference to the location of the site.	No	Yes
		0	15

6 Offset acquittal

6.1 Impact Area score

The K2E Project will result in residual impacts to 20.9 ha of Black-breasted Button-quail habitat. The habitat quality score for the impact site was calculated to be 7 (out of 10) (refer Attachment A). The Impact Area values used to determine offset acquittal requirements in the EPBC Act Offset Assessment Guide (OAG) which is summarised in Table 6-1 (see Attachment B for complete OAG spreadsheets). The impact habitat quality score has informed the target habitat quality score for the Semgreens Offset.

Table 6-1 Impact Area OAG inputs

Impact Area (ha)	Habitat quality score	Total quantum of impact (adjusted ha)
20.9	7	14.63

6.2 Target quality score for Offset Area

The Semgreens Offset area contains 103.4 ha of Black-breasted Button-quail habitat. The baseline habitat quality score for the Offset Area was calculated to be 5 (out of 10). This is the sum of weighted quality scores derived from the *Modified QLD Habitat Quality spreadsheet – template* for each AU. The overall score out of 10 is the quality score input in the OAG (refer Attachment B).

The target quality score improvement for the Offset Area is to take it from a baseline average quality score of 5 for all assessment units combined, to a quality score of 7, resulting in a two (2) point increase out of 10. To ensure stable and resilient improvement, improvement delivery will occur over a 20-year management timeframe or until the completion criteria has been met. As required by the *EPBC Act Environmental Offsets Policy* (Australian Government, 2012), the habitat offset target quality score of 7 reflects the quality score derived for the 20.9 ha of habitat impacted by the K2E Project. Table 6-2 provides a summary of OAG inputs, demonstrating that the 2-point gain will acquit 116.37% of the impact (see Attachment B for complete OAG spreadsheets).

Table 6-2 Offset area OAG inputs

Start area (ha)	Start quality score	Future quality without offset	Future quality with offset	% of impact offset
103.4	5	5	7	116.37

In order to demonstrate how the overall two-point gain in habitat quality score will be achieved, predicted changes for each habitat quality scoring attribute as a result of management actions were modelled (refer Attachment C). Resulting target quality scores for each individual assessment unit across the 20-year management timeframe are presented in Table 6-3. These interim targets will be utilised for tracking progress towards completion. Table 6-4 provides a summary of key attributes where improvements in score are expected over the 20-year timeframe. Refer to Section 10 for further details on proposed management actions for the Semgreens Offset.

Table 6-3 Target habitat quality scores

Assessment unit	Baseline	Year 5	Year 10	Year 15	Year 20
AU1	5.51	5.82	6.28	6.59	7.05
AU3	4.45	4.79	5.12	5.61	5.80
AU4	5.63	5.99	6.50	6.87	7.38
AU5	5.51	5.83	6.30	6.62	7.09
AU6	5.54	5.84	6.29	6.58	7.03
AU7	6.08	6.08	6.35	7.05	7.47
AU10	4.79	5.15	5.50	5.85	6.20
AU11	4.87	5.18	5.49	5.97	6.12
AU12	4.37	4.68	4.99	5.29	5.60
AU13	4.35	4.70	5.05	5.41	5.76
AU14	3.30	3.82	4.35	4.88	5.40
Weighted total HQS	5.06	5.34	5.72	6.16	6.53
Rounded HQS	5	5	6	6	7

Table 6-4 Attributes predicted to improve at Semgreens Offset

Attribute	Justification
Site Condition Score	
Recruitment of woody perennial species in EDL	Recruitment is expected to increase throughout most sites as a result of management of threats and particularly weed control. It is expected that removal of weeds and in particular *Lantana camara* will open up the shrub stratum to colonization by recruiting canopy trees thus increasing scores for this attribute.
Native plant species richness – trees, shrubs, grasses, and forbs	Native plant species richness varies between assessment units and life forms. Increases in species richness are expected particularly in regrowth and non-remnant vegetation communities as intensive weed control and fire management reduce competition by non-natives and allows for natural regeneration. Revegetation within MU3 will contribute considerably to species richness in this area and adjacent vegetation through natural recruitment.
Tree canopy height	Heights and cover of emergent, canopy and sub-canopy trees and shrubs are expected to continue to increase as trees mature in remnant and regrowth communities over the life of the offset. Management actions including weed control and livestock exclusion will reduce competition allowing for better growth opportunities. Conservative increases in score have been attributed as growth can be influenced by climatic conditions outside of the scope of management actions.
Tree canopy cover	
Shrub canopy cover	The shrub stratum (<2m) is heavily dominated by *Lantana camara* particularly in regrowth and non-remnant areas. It is expected that removal of *Lantana camara* (and other prevalent non-native species) through targeted weed control will open this stratum to colonization by native shrub species and recruiting canopy trees (<2m tall) thus increasing scores for this attribute.
Native grass cover	Exclusion of livestock and weed control throughout the Offset Area will reduce competition from non-native grasses and allow native grass cover to regenerate naturally.

Attribute	Justification
Organic litter	Organic litter derives from fallen leaves, twigs and branches and is correlated with canopy cover. Increased scores for this attribute may occur within regrowth or non-remnant areas where there is currently little to no canopy cover. The removal of heavy infestations of *Lantana camara* from regrowth and non-remnant sites will also result in increased litter as the groundcover will no longer be dominated by the weed.
Large trees (eucalypt plus non-eucalypt)	The number of large trees is expected to increase in remnant and regrowth communities as canopy trees mature, and a greater number of individual trees reach the diameter at breast height benchmarks for each regional ecosystem. This growth will be aided by weed management actions which will reduce competition and improve growth opportunities.
Non-native plant cover	Non-native plant cover is highest throughout regrowth and non-remnant areas of the Offset. Weed control is a key management action in the Offset Area and non-native plant cover will be monitored through both site condition monitoring and comprehensive weed grid surveys. Poor baseline scores for non-native plant cover will drive weed management prioritisation and non-native plant cover across the Offset Area will decrease as a direct result of targeted weed management. Pest management including livestock exclusion will further aid in reducing the spread of non-native weeds throughout the Offset Area.
Quality and availability of food and foraging habitat	Improved quality and availability of food and foraging habitat for the Black-breasted Button-quail is driven by an increase in canopy and shrub cover and diversity, and consequently increased leaf litter providing good prey diversity. Management actions including weed control and livestock exclusion will aid in improving canopy and shrub cover and species richness. The exclusion of cattle will protect the understorey from trampling and improve prey resources. It is expected that this attribute will improve for most sites as a result of these management actions. An additional 10 ha of foraging habitat will be provided through revegetation, significantly improving the score for this attribute in the associated area.
Quality and availability of shelter	Improved quality and availability of shelter for the Black-breasted Button-quail is driven by increased canopy and shrub cover. Management actions including weed control and livestock exclusion will aid in improving canopy and shrub cover. It is expected that this attribute will improve for most sites as a result of these management actions.
Site Context	
Threats to the species	Threats to the species are expected to decline as a result of management actions including weed control, livestock exclusion, pest fauna control and fire management.
Species mobility capacity	Improved quality of vegetation communities within the Offset Area and revegetation are expected to increase the level of connectivity within the Offset Area and consequently improve species mobility throughout the site.
Species Stocking Rate	
Approximate density (per ha)	The density of the Black-breasted Button-quail is expected to increase as habitat improves as a result of management actions and through the creation of 10 ha of additional habitat in the revegetation area.

7 Risk and threat management

7.1 Potential threats to the Offset Area

The key threatening processes for the species recognised under the EPBC Act and *National recovery plan for the Turnix melanogaster (Black-breasted Button-quail)* (Commonwealth of Australia, 2022) (National Recovery Plan) include:

- extreme weather events such as drought
- pest animal predation and degradation of habitat
- habitat degradation caused by unauthorised livestock access
- timber harvesting and unplanned clearing
- bushfire and unplanned burns
- weed invasion and infestation.

Baseline surveys have been conducted within the Offset Area to quantify the current threat level of weeds and pests.

7.1.1 Pest animal predation and degradation of habitat

Being ground-nesters, the Black-breasted Button-quail can become subject to predation by cats, foxes and pigs, although this may only pose a minor risk for the species (Commonwealth of Australia, 2022). Feral pigs residing in or periodically accessing the offset site could lead to the long-term degradation of the Offset Area. Native tree and shrub seedlings and groundcover species within Black-breasted Button-quail habitat are highly susceptible to livestock grazing and trampling (Commonwealth of Australia, 2022). Reduction or removal of understorey structure (e.g., native shrubs, herbs, and grasses) can reduce foraging prey resources (reduced leaf litter diversity and reduced invertebrate prey species diversity), nesting sites and shelter sites, and subsequently increase the risk of predation (Olsen et al., 2005). Livestock grazing can also exacerbate weed spread through seed dispersal, soil and vegetation disturbance, and nutrient enrichment (Martine and Alan, 2005). Pest animals and cattle residing in or periodically accessing the offset sites could therefore lead to long-term declines in populations of the Black-breasted Button-quail and other native fauna.

Baseline pest fauna surveys captured a total of 55 records, including the following species:

- black rat (*Rattus rattus*)
- feral pig (*Sus scrofa*)
- European red fox (*Vulpes vulpes*)
- wild dog/dingo (*Canis lupus familiaris*)
- domestic cattle (*Bos taurus*)

Table 7-1 provides a summary of pest fauna captures per camera site and Figure 7-1 indicates the location of survey sites and records in the Offset Area. Foxes and wild dogs/dingos were most frequently recorded, with wild dogs recorded at 46% of sites. PF19 recorded the most pest fauna captures, the majority of captures were foxes which shows that this pest is very active at the site. Cattle were recorded at two sites, accessing quite dense vine forest habitat. At three sites (PF11, PF12, PF14), no pest fauna were recorded by the cameras. Photo 7-1 to Photo 7-6 provide examples of

fauna recorded across the sites. Pest fauna cameras also incidentally recorded a koala (*Phascolarctos cinereus*) within the Offset Area.

Table 7-1 Number of pest fauna captures per site

Pest fauna site ID	Black rat	Feral pig	Fox	Wild dog/dingo	Domestic cattle	Total per site
PF13		1		1		2
PF15		1			7	8
PF16					3	3
PF17		1	2	1		4
PF18			1			1
PF19	2	5	19	5		31
PF20				1		1
PF21				5		5
Total per species	2	17	26	24	10	55

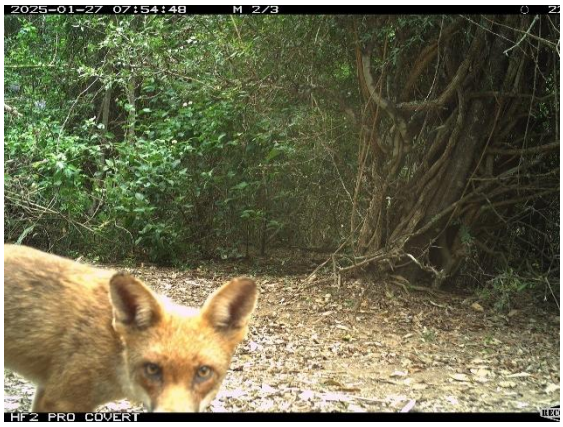


Photo 7-1 European red fox (Vulpes vulpes)

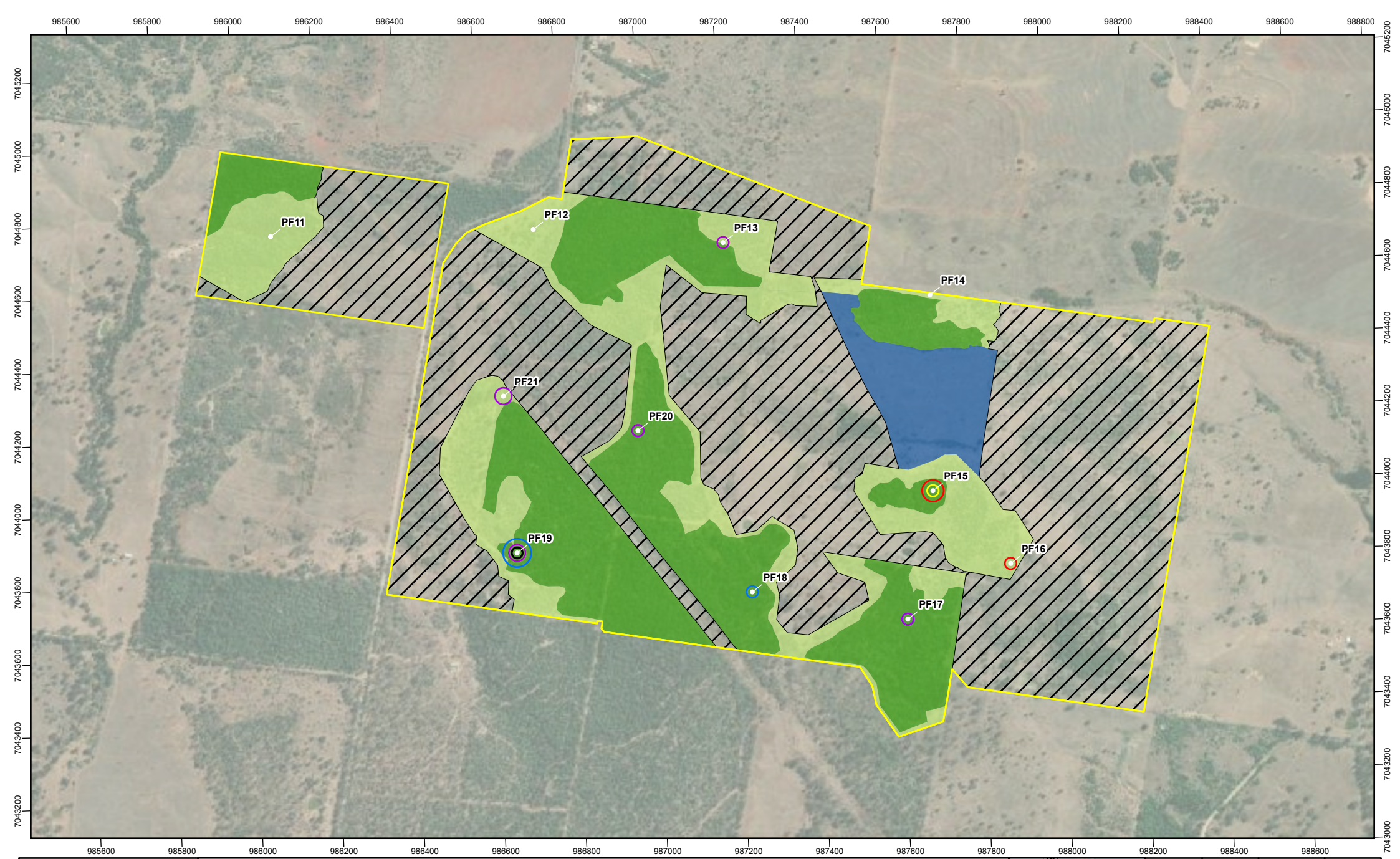
Photo 7-2 Black rat (Rattus rattus)

Photo 7-3 Wild dog/dingo (Canis lupus familiaris)

Photo 7-4 Pack of wild dogs

Photo 7-5 Domestic cattle (Bos taurus)

Photo 7-6 Feral pig (Sus scrofa)



Ausecology
a Niche company

Figure 7-1:

Pest fauna survey sites and records - Semgreens Offset

Property Boundary

Pest Fauna Camera

Management Unit (Ausecology)

- MU01
- MU02
- MU03
- Operational Area

Species

- Black Rat
- Cattle (domestic)
- Feral Pig
- Fox
- Wild Dog / Dingo

Count

- 1-3
- 4-6
- 7-9
- 10-19

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	JS	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

7.1.2 Weed invasion and infestation

Invasive weeds typically change the floristic and structural characteristics of habitat, thereby changing resource availability (French & Zubovic, 1997). Some weeds may also increase the flammability of habitat, amplifying bushfire risk (Salvo Aires, 2014). Heavy weed infestations can significantly reduce habitat values for the Black-breasted Button-quail through reduced leaf litter diversity and subsequent reduction in foraging value.

The table below indicates all weed species identified in the Offset Area. Six weeds listed as Restricted Matter under the Queensland *Biosecurity Act 2014* (Biosecurity Act) were recorded. Four of these are also listed as Weeds of National Significance (WoNS).

Table 7-2 Weed species recorded in the Offset Area

Scientific Name	Common Name	Biosecurity Act Status	WoNS
Amaranthus viridis	Green Amaranth	-	-
Anredera cordifolia	Madeira Vine	Cat. 3 Restricted Matter	✓
Araujia sericifera	Moth Vine	-	-
Baccharis halimifolia	Groundsel Bush	Cat. 3 Restricted Matter	-
Bidens pilosa	Cobbler's Pegs	-	-
Cardiospermum grandiflorum	Balloon Vine	Cat. 3 Restricted Matter	-
Chloris gayana	Rhodes Grass	-	-
Cirsium vulgare	Spear Thistle	-	-
Crassocephalum crepidioides	Thickhead	-	-
Dolichandra unguis-cati	Cat's Claw Creeper	Cat. 3 Restricted Matter	✓
Eragrostis curvula	African Lovegrass	-	-
Erigeron bonariensis	Flaxleaf Fleabane	-	-
Erigeron sumatrensis	Tall Fleabane	-	-
Glandularia aristigera	Mayne's Pest	-	-
Gomphocarpus fruticosus	Narrow-Leaved Cotton Bush	-	-
Gomphocarpus physocarpus	Balloon Cotton Bush	-	-
Heliotropium amplexicaule	Blue Heliotrope	-	-
Lantana camara	Lantana	Cat. 3 Restricted Matter	✓
Macroptilium atropurpureum	Siratro	-	-
Malvastrum americanum	Spiked Mallow	-	-
Malvastrum coromandelianum	Prickly Malvastrum	-	-
Megathyrsus maximus	Green Panic Grass	-	-
Melinis repens	Red Natal Grass	-	-
Opuntia tomentosa	Velvety Tree Pear	Cat. 3 Restricted Matter	✓
Physalis angulata	Ground Cherry	-	-
Phytolacca octandra	Inkweed	-	-
Rivina humilis	Coral Berry	-	-
Senna occidentalis	Coffee Senna	-	-
Sida cordifolia	Flannelweed	-	-
Sida rhombifolia	Common Sida	-	-
Sida spinosa	Spiny Sida	-	-
Solanum mauritianum	Wild Tobacco	-	-
Solanum nigrum	Blackberry Nightshade	-	-

Scientific Name	Common Name	Biosecurity Act Status	WoNS
Solanum seaforthianum	Brazilian Nightshade	-	-
Symphyotrichum subulatum	Wild Aster	-	-
Tagetes erecta	-	-	-
Tagetes minuta	Stinking Roger	-	-
Verbena bonariensis	Purpletop	-	-
Xanthium occidentale	Noogoora Burr	-	-

Of the 39 weed species recorded across the offset site, six have been determined to present a direct threat to Black-breasted Button-quail habitat, including Cat's Claw Creeper (*Dolichandra unguis-cati*), Madeira Vine (*Anredera cordifolia*), Green Panic Grass (*Megathyrsus maximus*), Coral Berry (*Rivina humilis*), Lantana (*Lantana camara*), and Brazilian nightshade (*Solanum seaforthianum*).

Cat's Claw Creeper, Madeira Vine, Green Panic Grass, and Coral Berry are identified in the National Recovery Plan, as weeds that can degrade the native vegetation that provides core Black-breasted Button-quail habitat. Cat's Claw Creeper has also been identified as a priority threat to Black-breasted Button-quail in the *Action Plan for Australian Birds 2020* (Webster et al., 2021). Lantana, while being identified as providing suitable habitat for the Black-breasted Button-quail, is also noted as a priority for restoration in the National Recovery Plan. Although Brazilian Nightshade is not specified as a threat to the Black-breasted Button-quail, it occurs at high frequencies and densities across the Offset Area and presents a similar threat to the species' habitat as other invasive vine species noted above.

Priority weeds for management at the Semgreens Offset will include the seven identified as threats to Black-breasted Button-quail, in addition to all Restricted weeds and WoNS – see Table 7-3 for further details and Figure 7-2 to Figure 7-10 for mapped survey results.

Table 7-3 Summary of priority weeds at the Semgreens Offset

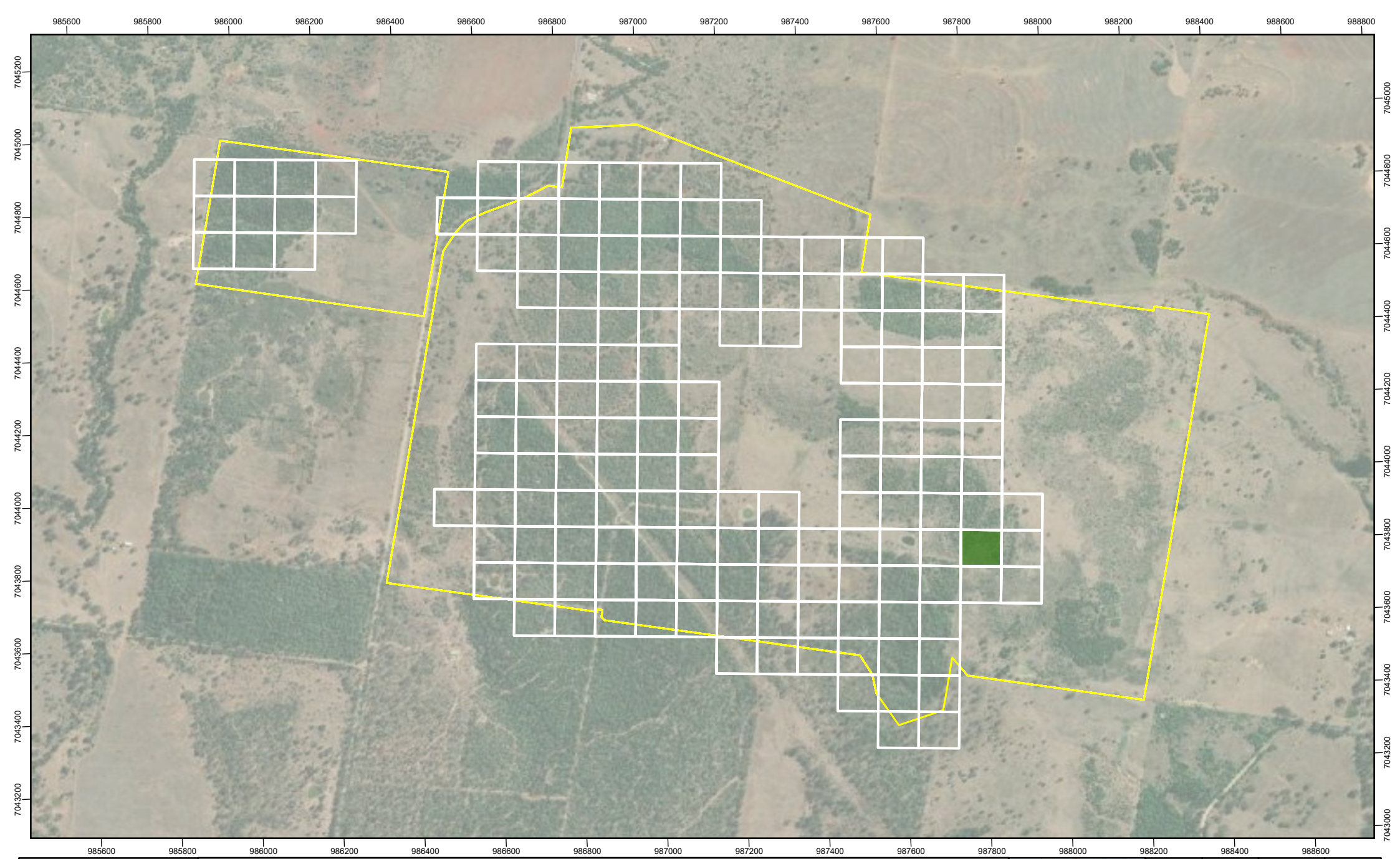
Scientific name	% Grid Squares Affected	Severity Score[3]	Justification
Balloon Vine (*Cardiospermum grandiflorum*)	1%	Low	Balloon Vine is a Category 3 restricted matter under the Biosecurity Act. Balloon Vine infestations smother and kill other plants (DAF, 2024). Forest edges are likely sites for invasion, with vines growing right into the canopy of the trees (DAF, 2024). The weight of the vines can also contribute to canopy collapse and ecosystem destruction (BCC, 2024). Four infestations were recorded within the Offset Area. Given the current level of infestation, the threat is likely to only slightly degrade or reduce Black-breasted Button-quail habitat in the Offset Area. It is therefore given a severity score of Low.
Brazilian Nightshade (*Solanum seaforthianum*)	28%	High	Brazilian Nightshade is not regulated under any Act, however it is an environmental weed associated with vine thickets (Healthy Land and Water, 2024). A fast-growing creeper, Brazilian Nightshade can smother native plants (NSW DPI, 2024). This is likely to change the floristic and structural characteristics of the areas it invades, thereby changing resource availability for the Black-breasted Button-quail. Brazilian Nightshade was the second most frequently recorded weed across the Offset Area. Based on its pervasiveness throughout the Offset Area and tendency to smother the habitats it invades, it is likely to seriously degrade or reduce Black-breasted Button-quail habitat in the Offset Area if current circumstances and trends continue, and therefore receives a severity score of High.
Cat's Claw Creeper (*Dolichandra unguis-cati*)	<1%	Low	Cat's Claw Creeper is a Category 3 restricted matter under the Biosecurity Act . Cat's Claw Creeper is identified as a priority threat to the Black-breasted Button-quail in the National Recovery Plan and in the Action Plan for Australian Birds 2020 (Webster et al., 2021). The invasive creeper can smother mature trees, removing foraging habitat and increasing light which allows for greater incursion of weeds (Commonwealth of Australia, 2022). Forming a dense above-ground mat and numerous underground reproductive tubers, the creeper impedes the Black-breasted Button-quail's ability to forage and renders habitat unsuitable (Commonwealth of Australia, 2022). Dense infestations of Cat's Claw Creeper are very difficult to control due to the numerous lianas, abundant seed and ability to resprout from tubers (Commonwealth of Australia, 2022). Despite its propensity to alter habitat, only two small infestations were recorded at this offset with each patch containing less than 50 specimens, with low (<10%) cover. Cat's Claw Creeper does not currently present a large threat to Black-breasted Button-quail habitat at this offset and is not expected to destroy or reduce the species' habitat significantly, given the continuation of current circumstances and trends. The severity of Cat's Claw Creeper is therefore scored as Low.

[3] Severity scores have been assessed for each weed species to allow for further prioritisation

Scientific name	% Grid Squares Affected	Severity Score[3]	Justification
Coral Berry (*Rivina humilis*)	9%	Medium	Coral Berry is identified in the National Recovery Plan as a weed that degrades Black-breasted Button-quail habitat. Coral Berry grows readily in shaded areas, forming dense thickets that dominate the understorey, reducing native plant diversity (DAF, 2024). This is likely to impact on foraging habitat for the Black-breasted Button-quail. Coral Berry was recorded across much of the Offset Area, particularly in areas of semi-intact canopy. Based on the pervasiveness of Coral Berry infestations across the Offset Area and its ability to dominate the understorey in shaded areas such as the vine thicket communities, it is considered likely to moderately degrade or reduce Black-breasted Button-quail habitat in the Offset Area and therefore receives a severity score of Medium.
Green Panic Grass (*Megathyrsus maximus*)	16%	Very High	Green Panic Grass is identified in the National Recovery Plan as a weed that degrades Black-breasted Button-quail habitat. Within the Offset Area, Green Panic Grass is the third most common weed. Infestations are predominantly in open areas between habitat patches and on the edges of vegetated patches. Fire-sensitive habitat, such as the vine thickets that provide habitat for the Black-breasted Button-quail, is at a greater risk from invasive high-biomass grasses such as Green Panic Grass (DES, 2022). Green Panic Grass tolerates semi-shaded conditions under a broken tree canopy and becomes highly flammable when dry resulting in a higher risk of fire frequency and intensity (Healthy Land and Water, 2024). The bare ground and loss of canopy cover resulting from fire provide an opportunity for further incursion and establishment of the grass. The increased fire fuel load and associated risk in areas dominated by Green Panic Grass indicates that it is likely to destroy or reduce the Black-breasted Button-quail habitat in the Offset Area if current circumstances and trends continue, and therefore receives a severity score of Very High.
Groundsel Bush (*Baccharis halimifolia*)	<1%	Low	Groundsel Bush is a Category 3 restricted matter under the Biosecurity Act. Groundsel Bush rapidly colonises disturbed areas, especially overgrazed pastures. In native Melaleuca wetlands, groundsel bush can form a dense understorey, suppressing growth of native sedges and interfering with the natural ecosystem. Groundsel Bush can become abundant in the vegetation along watercourses and in coastal woodlands and forest areas if not controlled. Only one infestation of Groundsel Bush was recorded in the offset, on the boundary between cleared grassland and wooded area. Given the current level of infestation, the threat is likely to only slightly degrade or reduce Black-breasted Button-quail habitat in the Offset Area. It is therefore given a severity score of Low.
Lantana (*Lantana camara*)	84%	Very High	Lantana is a Category 3 restricted matter under the Biosecurity Act.. Lantana and other weeds adjoining or within dry rainforests can provide suitable habitat for Black-breasted Button-quail by providing dense low cover and good leaf litter for foraging (Commonwealth of Australia, 2022). Lantana is a major environmental weed as it spreads readily, tolerates shade, and can form dense

Scientific name	% Grid Squares Affected	Severity Score[3]	Justification
			mono-specific thickets that exclude native species (Healthy Land and Water, 2024). Lantana typically invades where there are significant breaks or gaps in forest canopies or on the edges of forests (Weeds Australia, 2024). Lantana can persist in the dense shade of the vine forest but reduces its vigour and resilience (Healthy Land and Water, 2024). As lantana is a woody shrub that has thin, combustible canes, its presence can increase the chance and severity of fire in plant communities such as dry rainforest (DAF, 2023; Commonwealth of Australia, 2022). Too frequent fire may contribute to Black-breasted Button-quail decline through: increased weed invasion following fire; loss of woody debris; reduction in leaf litter; and decline in invertebrate abundance (Commonwealth of Australia, 2022). Lantana was the most widely distributed weed throughout the Offset Area, recorded in 91% of all survey grids. Platelets indicating foraging by the Black-breasted Button-quail were recorded within lantana thickets in the offset. While lantana may provide suitable habitat for the Black-breasted Button-quail within the Offset Area, the reduced flora diversity and increased fire risk from the weed still poses a threat to the species and its habitat. It is considered likely to destroy or significantly reduce the Black-breasted Button-quail habitat in the Offset Area if current circumstances and trends continue, and therefore receives a severity score of Very High.
Madeira Vine (*Anredera cordifolia*)	<1%	Medium	Madeira vine is a Category 3 restricted matter under the Biosecurity Actand is listed as a WoNS. Madeira Vine is identified in the National Recovery Plan as a weed that degrades Black-breasted Button-quail habitat. Madeira Vine is an invasive, South American vine that blankets and smothers trees, shrubs and understory species (DAF, 2024). It grows prolifically at rates of up to one metre per week and the weight of the vine can cause canopy collapse of mature native trees (DAF, 2024). It produces large numbers of subterranean and aerial reproductive tubers that persist in the environment and make effective management difficult (DAF, 2024). The impacts of Madeira Vine can be so severe that it causes irreversible damage to the invaded ecosystem, leading to its categorisation as a transformer species (DAF, 2024). A single infestation was recorded in the offset. Although Madeira Vine is not currently posing a threat within the offset, it has the potential to proliferate and modify habitats. It is considered likely to moderately degrade or reduce Black-breasted Button-quail habitat in the Offset Area and therefore receives a severity score of Medium.
Velvety Tree Pear (*Opuntia tomentosa*)	13%	Very Low	Velvety Tree Pear is a Category 3 restricted matter under the Biosecurity Act. The Velvety Tree Pear prefers hot, semi-arid environments but may grow in a variety of environments. (DAF, 2024). Dense infestations compete with native vegetation, limiting the growth of small shrubs and groundcover species. The weed has been partially controlled since the late 1920's by the introduction of a biological control agent *Cactoblastis cactorum* and more recently the cochineal bug, *Dactylopius opuntiae* (DAF, 2024))

Scientific name	% Grid Squares Affected	Severity Score[3]	Justification
			Velvety Tree Pear was recorded across much of the Offset Area, occurring as individuals or in small groups. The densities observed in the offset are not expected to increase considerably, and the species is likely to have a negligible effect or degrade Black-breasted Button-quail habitat in the Offset Area and therefore receives a severity score of Very Low.



Ausecology
a Niche company

Figure 7-2:

Restricted Weed Cover -
Cardiospermum grandiflorum
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

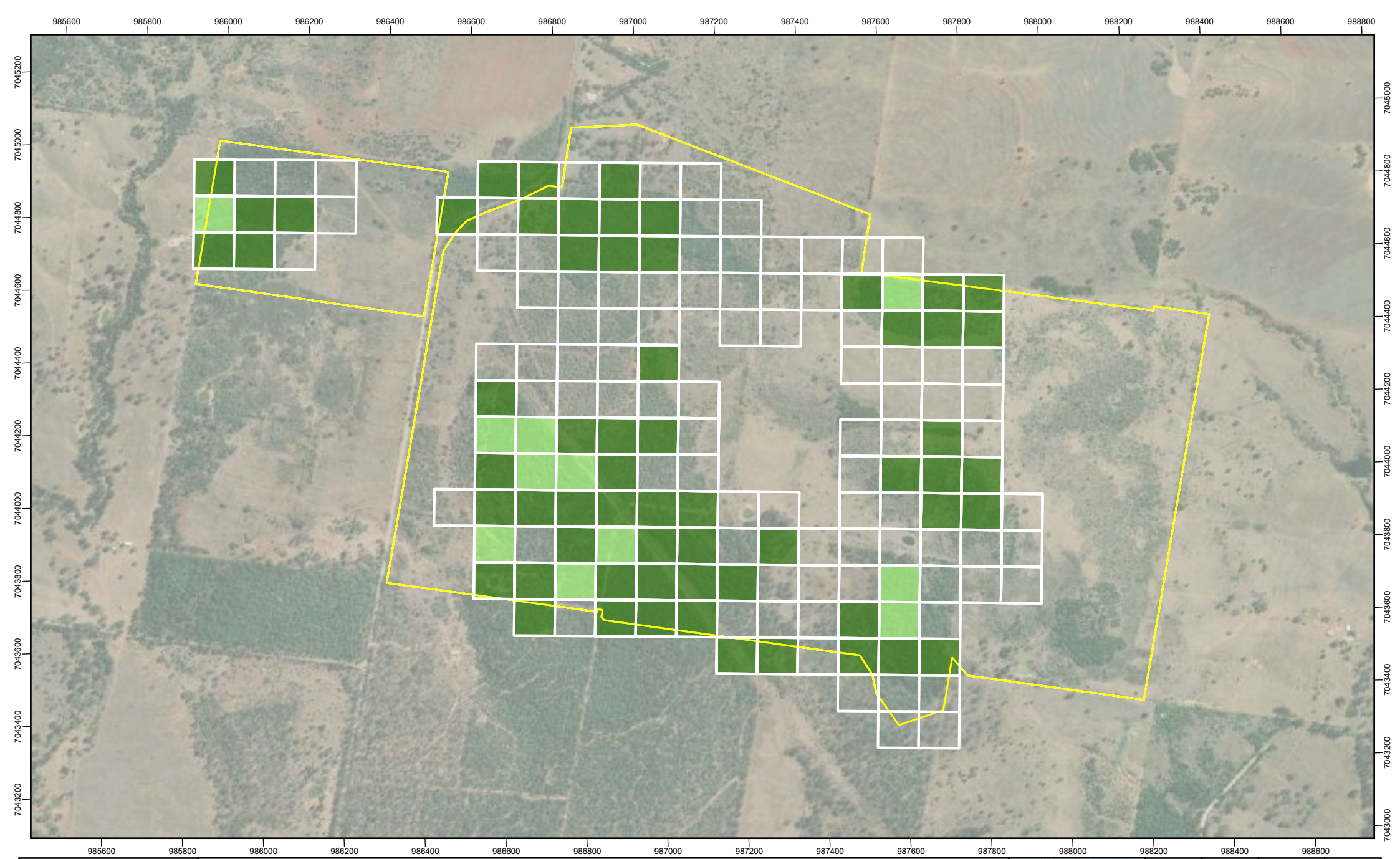
76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-3:

Restricted Weed Cover -
Solanum seaforthianum
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

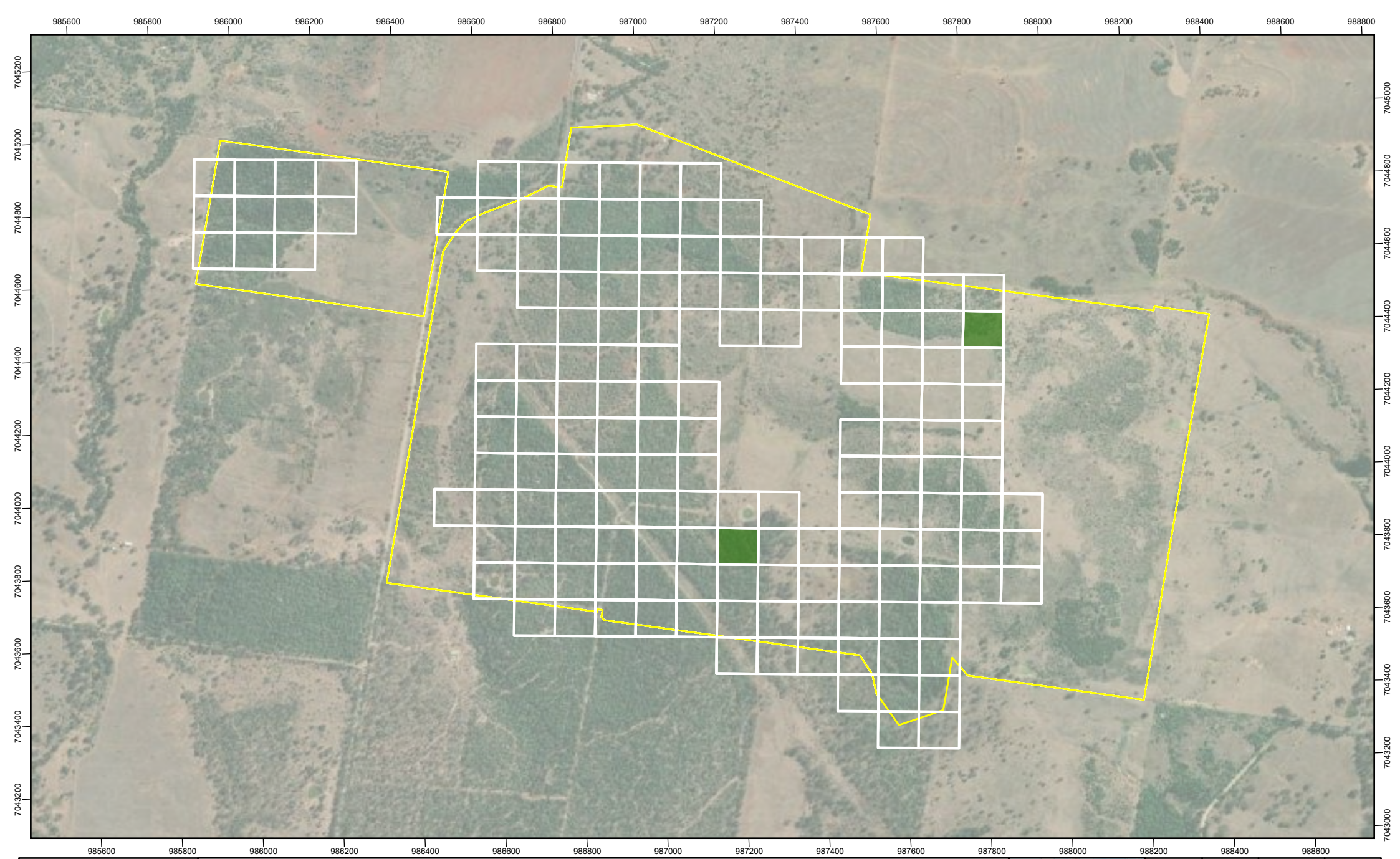
76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-4:

Restricted Weed Cover -
Dolichandra unguis-cati
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

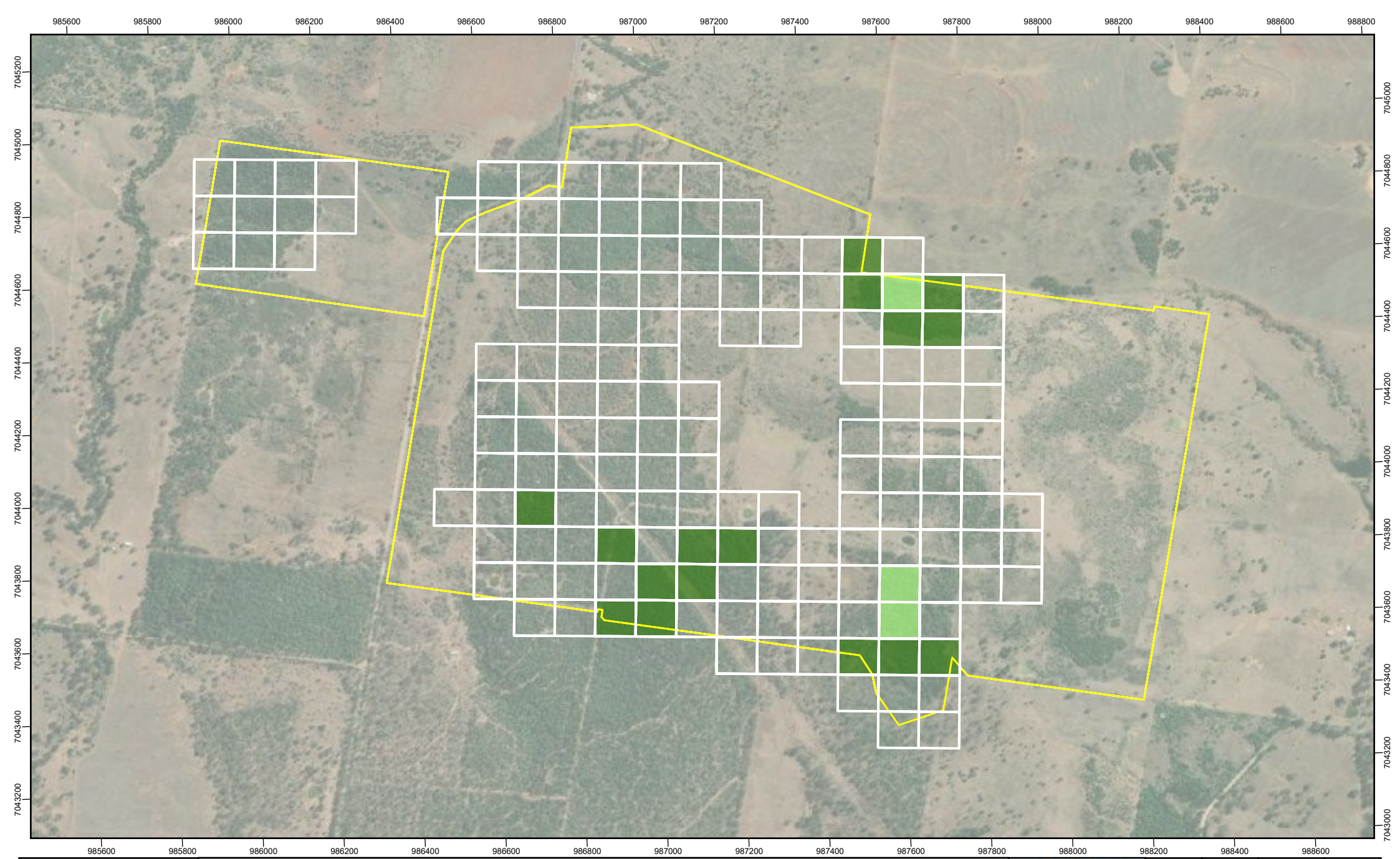
76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-5:

Restricted Weed Cover -
Rivina humilis
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

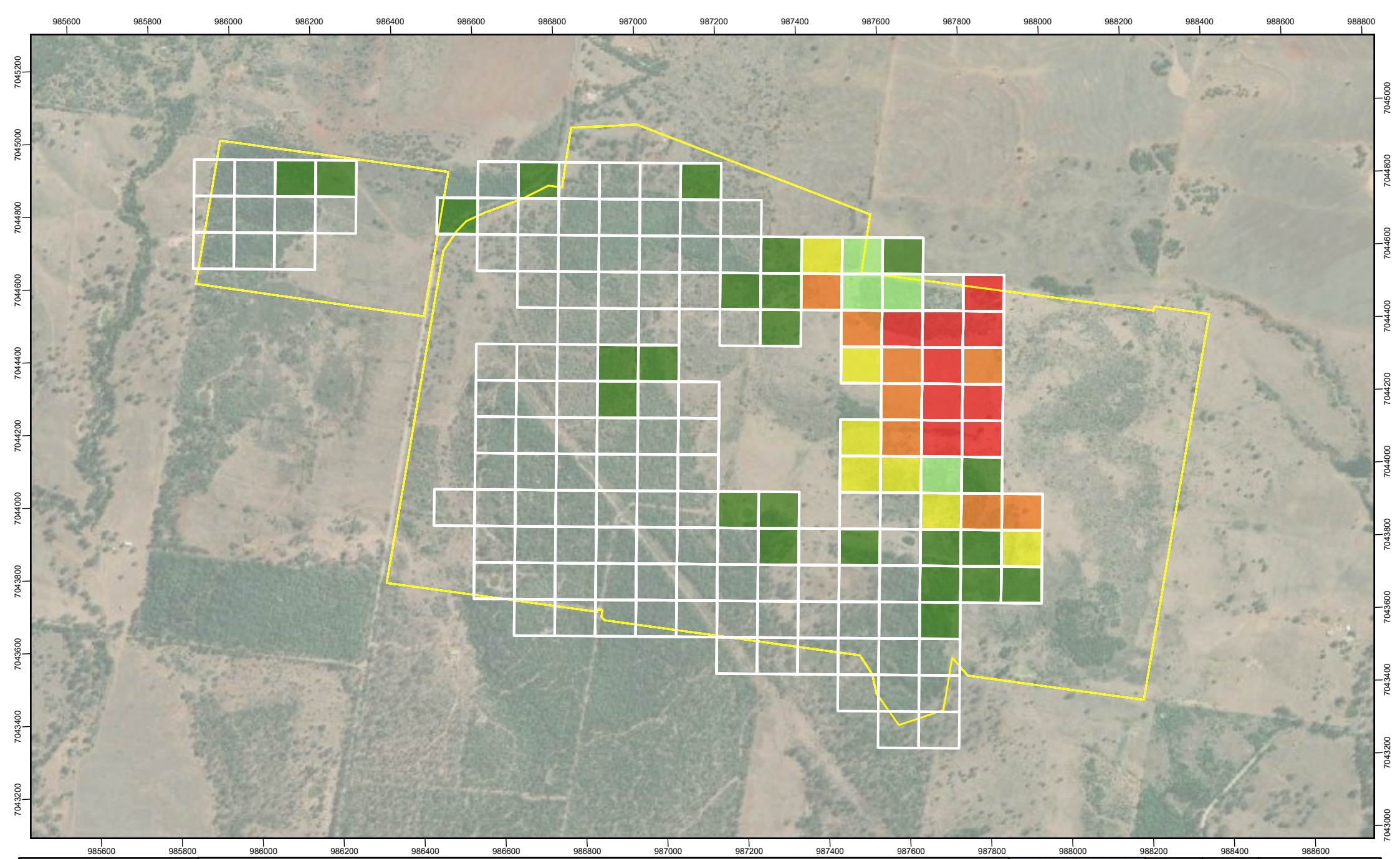
76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-6:

Restricted Weed Cover -
Megathyrsus maximus
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

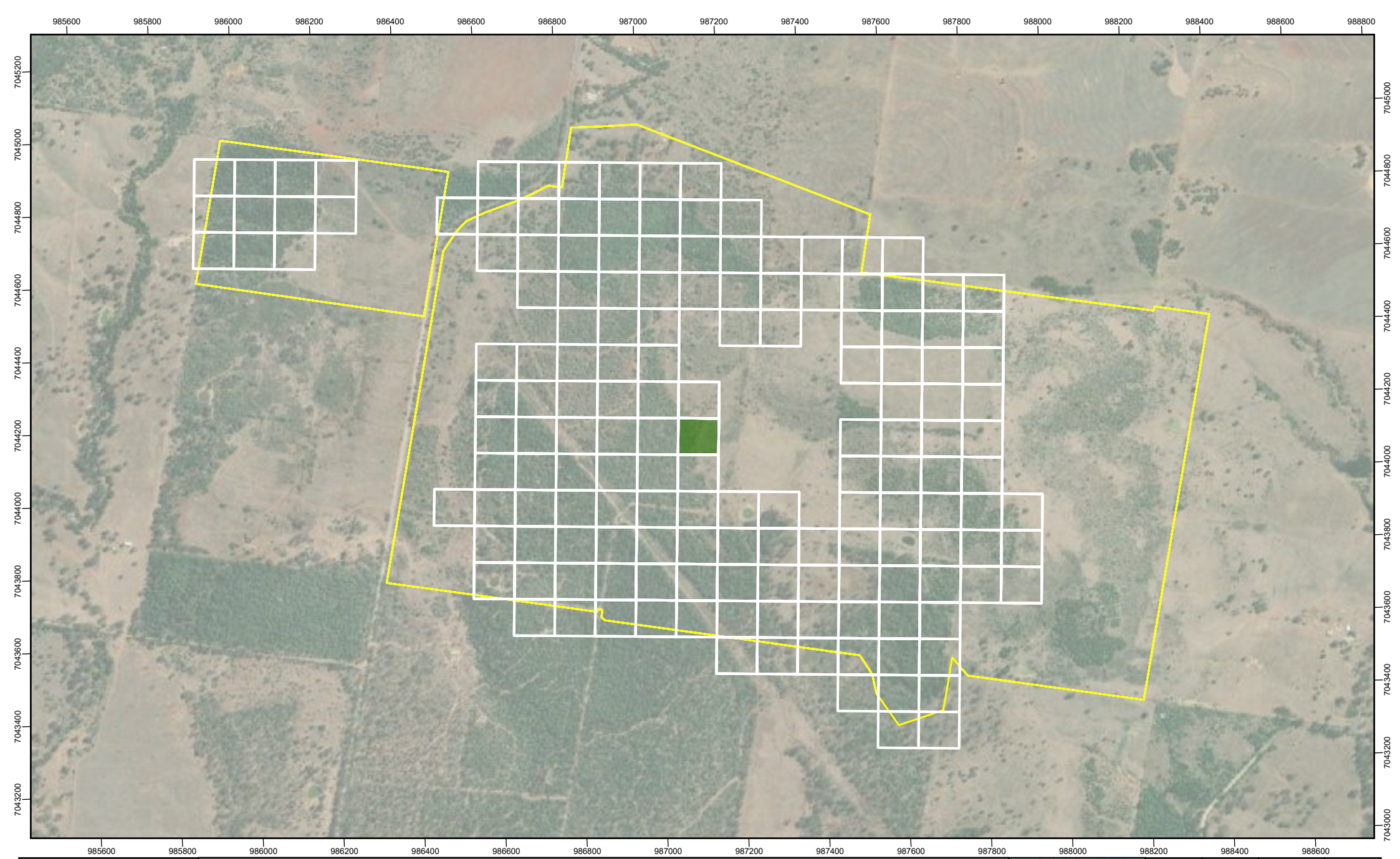
76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-7:

Restricted Weed Cover -
Baccharis halimifolia
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

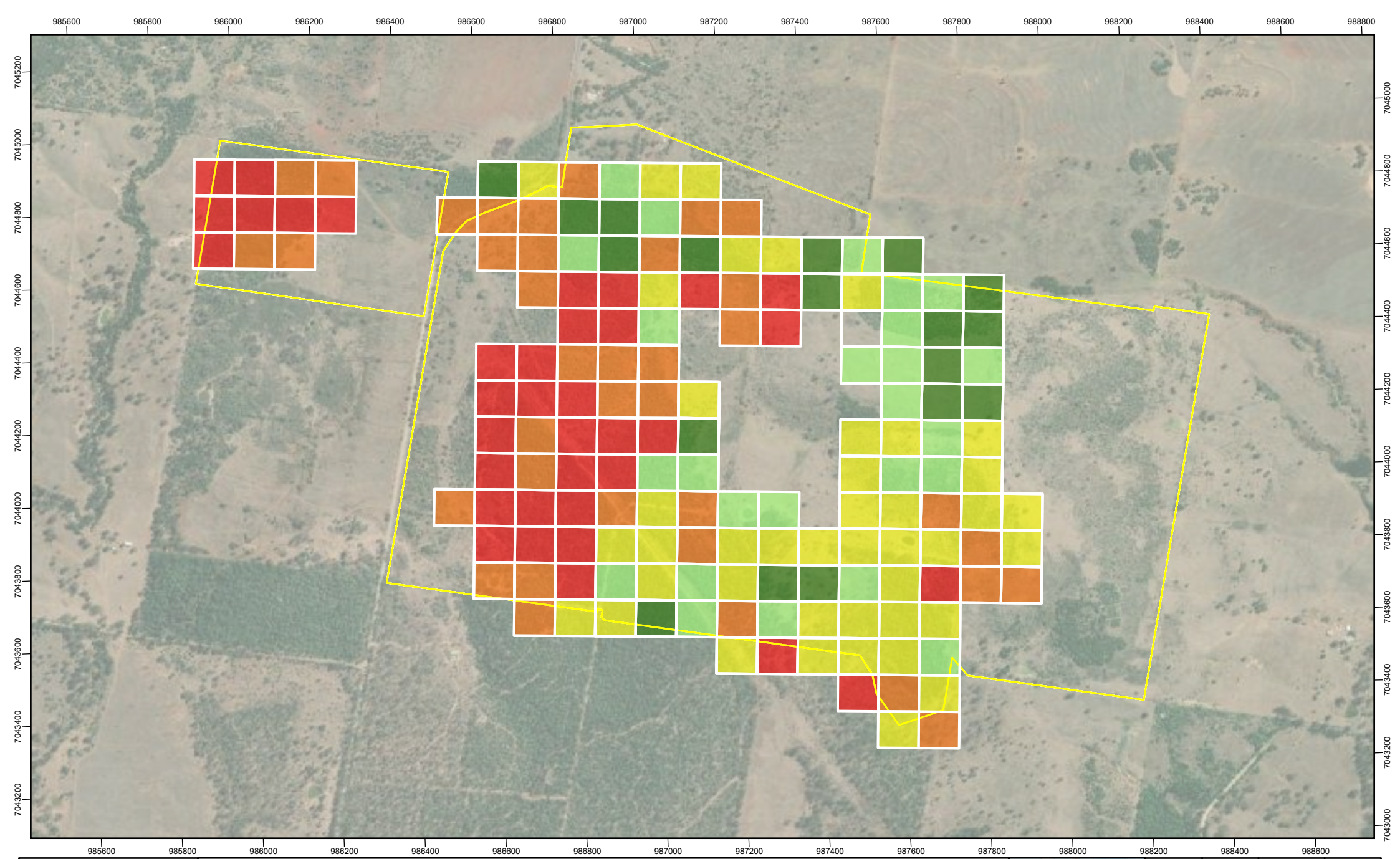
76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-8:

Restricted Weed Cover -
Lantana camara
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

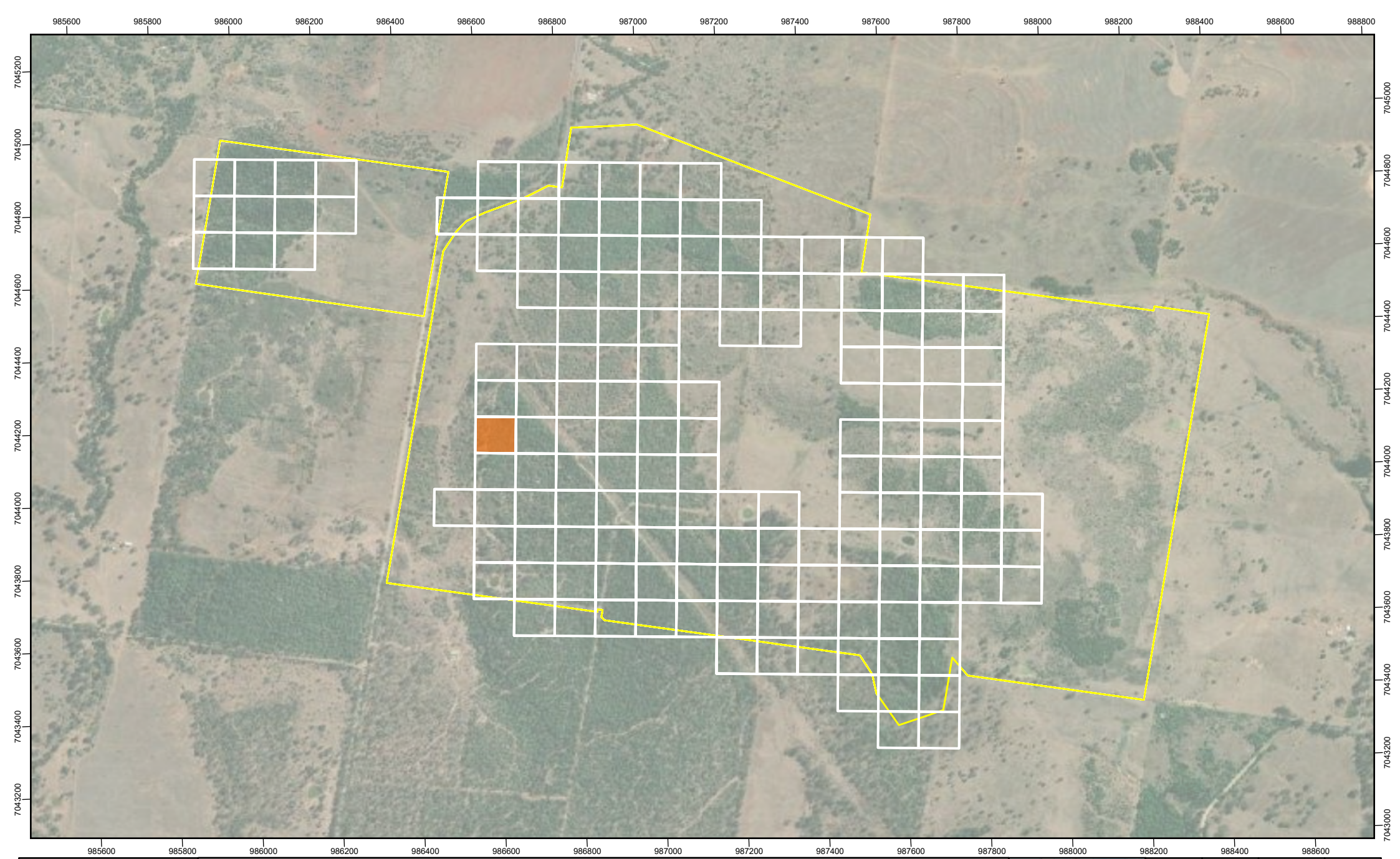
- 1-10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-9:

Restricted Weed Cover -
Anredera cordifolia
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

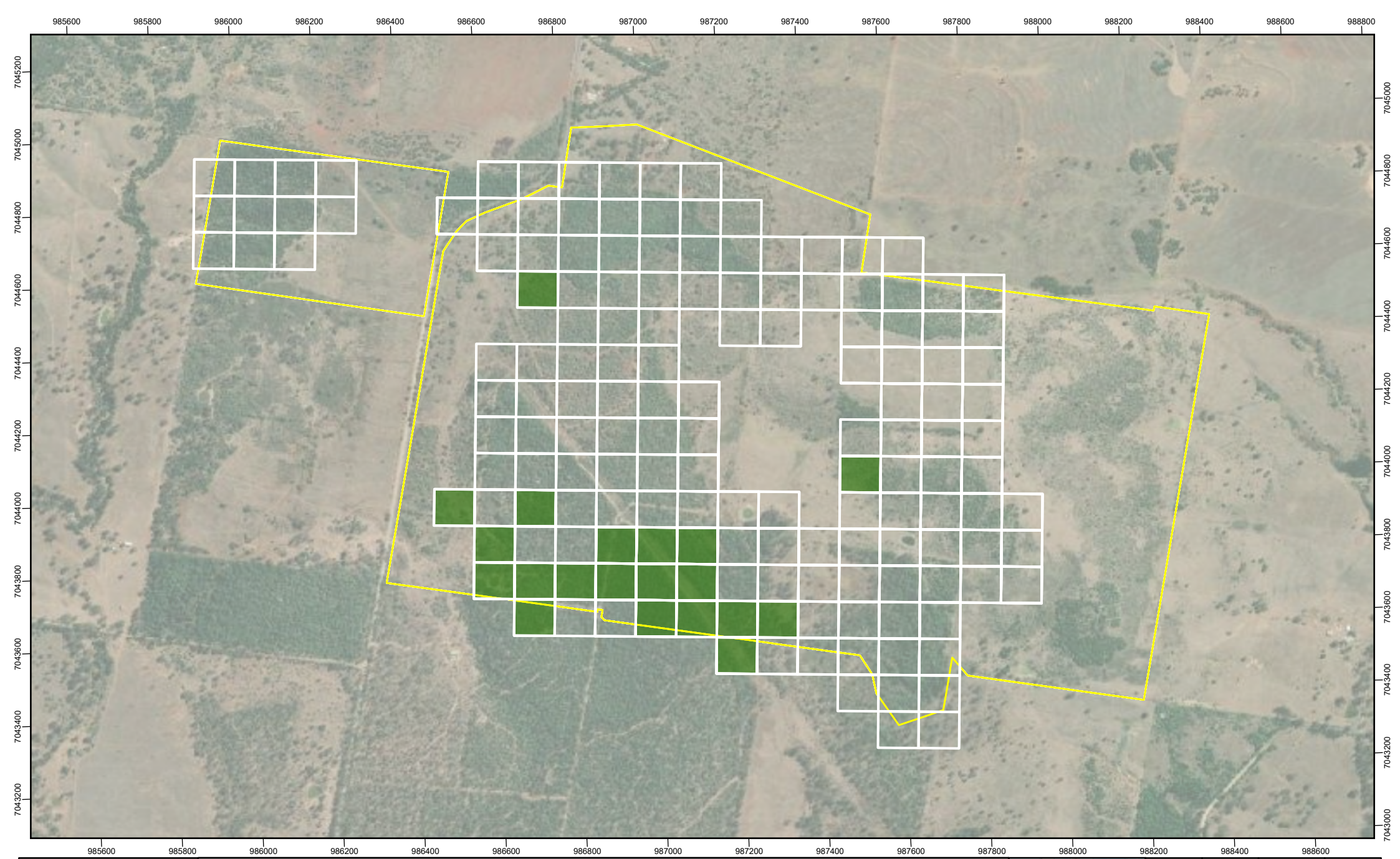
- 1-10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres



Ausecology
a Niche company

Figure 7-10:

Restricted Weed Cover -
Opuntia tomentosa
Semgreens Offset

Property Boundary

Weed Survey Grids 100mx100m

Coverage

1-10%

11-25%

26-50%

51-75%

76-100%

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	BD	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

7.2 Risk management of threatening processes

The likelihood and consequence of each identified risk to the successful protection and enhancement of the offset sites was assessed (refer Table 7-4). This risk assessment included the assessment of the likelihood and consequence of each identified risk as per the risk matrix derived from the Commonwealth *Environmental Management Plan Guidelines* (DCCEEW, 2024). Key risks will be managed and mitigated via the implementation of specific management actions and associated measures specifically directed to the potential risks posed by each identified key threat. The effective management of these risks is discussed further in Sections 9 and 10 of this OMP.

RISK MATRIX	
Qualitative measure of likelihood – how likely is it that this event will occur after management activities are implemented	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences – what will be the consequence if the issue does occur	
Minor	Minor incident of environmental damage that can be reversed (*e.g. short term delays to achieving plan objectives, implementing low-cost, well-characterised corrective actions*)
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts (*e.g. short-term delays to achieving plan objectives, implementing well-characterised, high-cost/effort corrective actions*)
High	Substantial instances of environmental damage that could be reversed with intensive efforts (*e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective actions*)
Major	Major loss of environmental amenity and real danger of continuing (*e.g. plan objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies*)
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage (*e.g. plan objectives are unable to be achieved, with no evidenced mitigation strategies*)

		Consequence				
Likelihood		Minor	Moderate	High	Major	Critical
	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Table 7-4 Semgreens Offset risk assessment (L = Likelihood, C = Consequence, R = Risk)

Risk	Threats	Initial risk ranking			Management measures/actions	Residual risk ranking		
		L	C	R		L	C	R
Drought	▪ Increase in the likelihood of unplanned and uncontrolled fire. ▪ Reduced growth levels of native species flora growth. ▪ Increased risk of native flora dieback. ▪ Increase in bare ground and therefore increase in ability of invasive species to capitalise after rainfall event.	Likely	Moderate	Medium	- Property-wide fire management strategy. - Firebreak construction & maintenance. - Increased native flora health via exclusion of livestock and pest fauna management.	Likely	Moderate	Medium
Pest fauna predation and Black-breasted Button-quail mortality	- Predation of Black-breasted Button-quail by pest fauna (e.g. foxes, cats, dogs, pigs). - Reduced population of Black-breasted Button-quail within offset.	Likely	Minor	Low	▪ Pest fauna monitoring and management throughout the Offset Area.	Possible	Minor	Low
Livestock grazing in property and/or Offset Area	▪ Loss of native vegetation; shrub cover, ground cover, flora species richness etc. - Loss of regenerating flora.	Highly likely	Major	High	▪ Exclusion of livestock from Offset Area. ▪ Installation and maintenance of offset boundary fence. ▪ Twice yearly boundary fence quality inspection and maintenance as required. ▪ Pest fauna camera trap monitoring as per monitoring schedule.	Unlikely	Moderate	Low

Risk	Threats	Initial risk ranking			Management measures/actions	Residual risk ranking		
		L	C	R		L	C	R
Timber harvesting	- Timber harvesting within the Offset Area.	Likely	Major	High	▪ Legal protection of vegetation. ▪ Installation/maintenance and management of property boundary fence. ▪ Installation of signage and locked gates at all property entry points. ▪ Signage identifying the Offset Area as an environmental offset and "no unauthorised access signs at entrance".	Rare	High	Low
Unplanned and/or uncontrolled fire in Offset Area	▪ Loss of native vegetation; canopy cover, ground cover, coarse woody debris etc. ▪ Damage to infrastructure; fencing, gates etc. ▪ Spread into adjacent vegetation, outside of the Offset Area.	Likely	Critical	High	- Property-wide fire management strategy including prescribed burn plan. - Ecological burns in optimal time of year. - Firebreak construction & maintenance.	Possible	High	Medium
Additional weed species introduced into Offset Area	▪ Potential significant deterioration in native vegetation within the offset site.	Possible	High	Low	- Weed control plan including biosecurity measures and targeted and incidental weed monitoring and management to be conducted throughout lifetime of the offset. - Exclusion of livestock. - Restricted access to offset site.	Unlikely	Minor	Low

Risk	Threats	Initial risk ranking			Management measures/actions	Residual risk ranking		
		L	C	R		L	C	R
Expansion of existing weed infestations within and/or into the Offset Area	▪ Potential significant deterioration in native vegetation within the offset site.	Possible	High	High	- Weed control plan including biosecurity measures and targeted and incidental weed monitoring and management to be conducted throughout lifetime of the offset. - Exclusion of livestock. - Restricted access to offset site.	Unlikely	High	Low
Pest fauna damage to vegetation	▪ Potential deterioration in native vegetation within the offset site. ▪ Spread of weed species throughout offset site.	**Highly likely**	High	High	▪ Pest fauna camera trap monitoring as per monitoring schedule. ▪ Implementation of pest fauna control strategy. ▪ Exclusion of livestock from Offset Area. ▪ Installation and maintenance of offset boundary fence.	**Unlikely**	**Moderate**	**Low**

8 Alignment with National Recovery Plan objectives

The National Recovery Plan identifies the following three overarching Recovery Objectives and how the Recovery Plan sets out to achieve them:

1. *'By 2032, maintain and improve the extent, condition and connectivity of habitat of the Black-breasted Button-quail.*
2. *By 2032, demonstrably reduce the severity of identified anthropogenic threats across the extent of the species' range.*
3. *By 2032, achieve, measure and sustain a positive population trend (assessed by new baseline counts) in the number of mature individuals of the Black-breasted Button-quail.*

The above Recovery Objectives will be achieved by implementing the actions set out in this Recovery Plan that minimise threats while protecting and enhancing the species' habitat throughout its range, adequately monitoring the species, generating new knowledge to guide recovery and increasing public awareness.'

The National Recovery Plan identifies five Specific Strategies to achieve the above overarching Recovery Objectives, which are designed to be actioned by proponents, government departments and educational institutions, including:

1. *'Implement management strategies to reduce threats to the Black-breasted Button-quail and its habitat.*
2. *Enhance protection, improve the quality and increase the extent of suitable habitat for the Black-breasted Button-quail.*
3. *Improve knowledge of the distribution, biology and ecology of the Black-breasted Button-quail and implement a monitoring strategy to identify and measure population trends.*
4. *Increase stakeholder participation in Black-breasted Button-quail conservation and management.*
5. *Coordinate, review and report on recovery progress.*

In summary, this OMP addresses the National Recovery Plan objectives and strategies by:

- Securing the land-based offset initially via the establishment of a Voluntary Declaration under the VMA and subsequently, a covenant under the *Land Titles Act 1994* and applying long-term active management aimed at habitat improvement and re-establishment of connectivity in the Offset Area. This addresses Recovery Objectives 1 and 2, and Specific Strategies 1 and 2.
- Establishing and maintaining bushfire protection fuel breaks and livestock exclusion fencing, and active weed control and pest fauna control, which are designed to restore habitat and mitigate recognised threats to the Black- breasted Button-quail. This addresses Recovery Objective 2 and Specific Strategy 1.
- The offset site will be monitored and reported to document the management measures and any adaptive management required, this will help with Recovery Objective 5 and Specific Strategy 1.

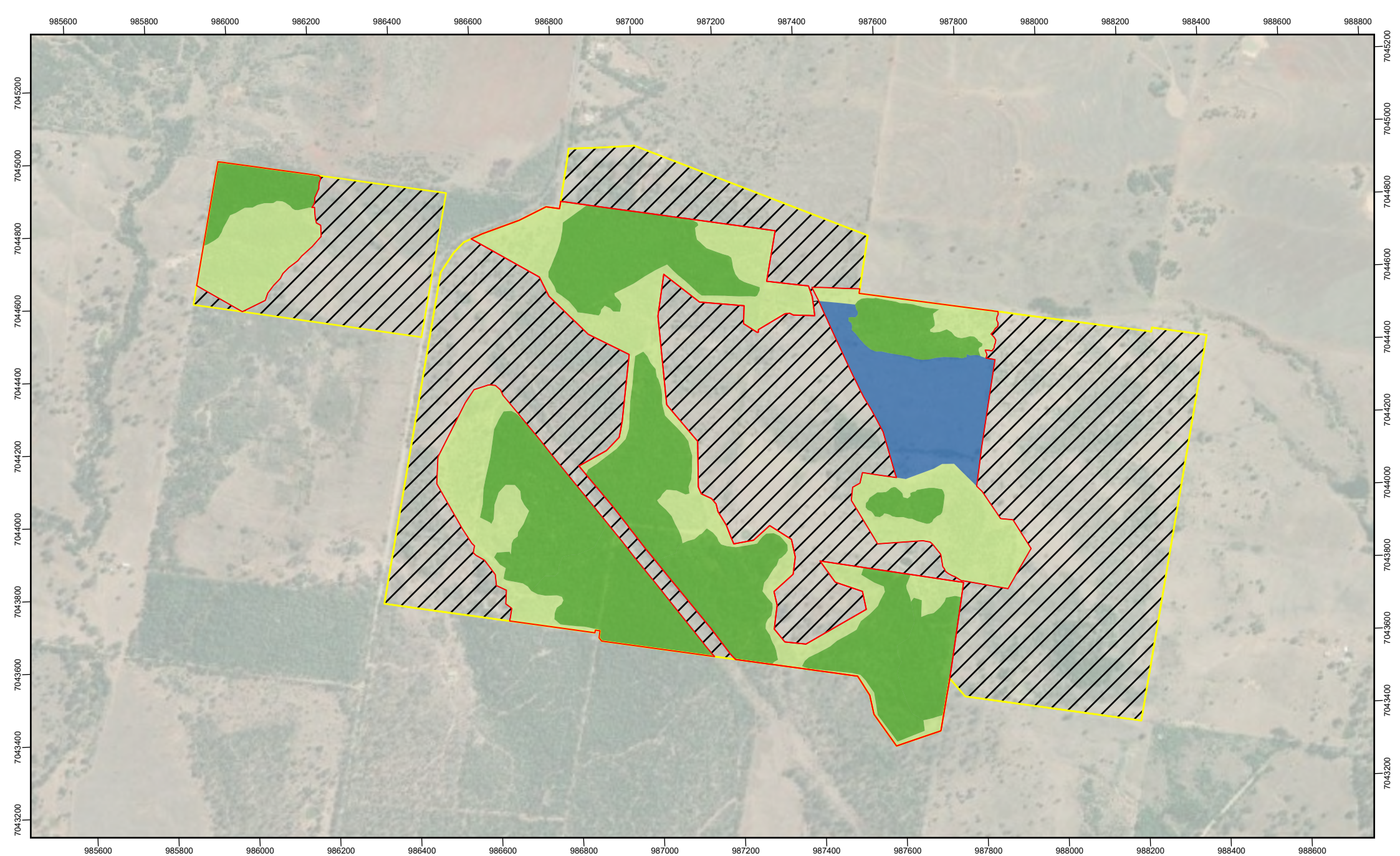
9 Offset management

9.1 Management units

For the purpose of management of the offset, the Offset Area has been divided into three Management Units (MU). The MUs have been defined based on the ecological values of the areas, existing threats and proposed management actions. A description of each MU relevant to the offset is provided in Table 9-1 and mapping of management units is presented in Figure 9-1. It should be noted that there are operational areas outside of the Offset Area that comprise large areas of open grasslands dominated by pasture grasses and mixed regrowth vegetation. These areas will be managed where required to provide a buffer to mitigate threats to Black-breasted Button-quail habitat in the Offset Area MUs however they do not form part of the habitat and do not contribute to the overall Offset Area score. Further information on specific management actions is provided in Section 9.2 and Table 9-3.

Table 9-1 Management unit descriptions

Management Unit	Description
MU1	MU1 comprises a mix of remnant vine thicket communities. These areas will be managed to support and improve the quality of existing habitat for the Black-breasted Button-quail including fire management, strategic weed management, pest fauna control and cattle exclusion.
MU2	MU2 comprises degraded habitat adjacent to MU1. These areas will be managed to provide additional habitat for the Black-breasted Button-Quail including fire management, intensive weed management, pest fauna control and cattle exclusion.
MU3	MU3 comprises non-remnant areas dominated by pasture grasses and non-native vegetation. These areas will be managed specifically as planting areas to provide additional habitat for the Black-breasted Button-quail and improve connectivity to existing habitat. Management actions specific to this area will include removing the existing weedy vegetation and installing a mass planting of species consistent with regional ecosystem types within the offset sites and within the impacted habitat for which the offset is provided (see Section 9.2.1).



Ausecology
a Niche company

Figure 9-1:

Management Units
Semgreens Offset

Property Boundary
Offset Boundary

Management Unit
MU01
MU02
MU03

Operational Area

REVISION	AUTHOR	REVIEWER	DATE
0	BD	ML	28/04/2025
1	JS	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

9.2 Management actions

The success of the land-based environmental offset depends on the effective establishment and implementation of the management actions, not only to mitigate potential risks to offset delivery, but also to provide additionality and no net loss for the impacted Black-breasted Button-quail habitat.

The key threats and risks (outlined in Section 7) to the successful protection and enhancement of the land-based environmental offset will be managed via the implementation of specific management actions and associated measures, to mitigate the potential risks posed by each of the identified key threats. This is outlined in the following sections.

9.2.1 Revegetation

To provide additional habitat for the Black-breasted Button-quail and improve connectivity to existing habitat, mass planting will occur in MU3. A planting plan will be developed and implemented within one year of commencement of the offset, including details on species composition, planting technique, and maintenance requirements and frequency (e.g. watering and weed control).

Prior to planting occurring, existing non-native vegetation (predominantly pasture grasses and weeds) will be treated. Planting is to be undertaken by suitably qualified and experienced tree planting contractors[4]. An indicative list of plant species (refer Table 9-2) has been derived in part from the flora species recorded at the offset site and the regional ecosystem types within the impacted habitat for which the offset is provided. Species selection will also need to consider the availability of species at the time of the planting from native plant nurseries, with selection focusing on the available species.

The revegetation planting will involve low-impact planting techniques, such as individual holes and mulching for each plant. Planting will be undertaken in rows to provide adequate weed control and watering in the initial establishment period when weed incursion and desiccation are a significant threat. A mix of species from different structural layers will be distributed throughout the planting to more closely mimic the natural complexity of the vine thicket communities providing habitat for the Black-breasted Button-quail.

Revegetation planting may include direct seeding or alternative methods if there is contemporary evidence from successful revegetation projects or trials to support the implementation of alternative techniques.

Plant selection will focus on a diversity of hardier species that are similar or the same as those found in the surrounding vegetation communities. The indicative species listed in Table 9-2 are more adapted to higher light conditions, frost and can withstand wind. They are also more likely to grow quickly and create a closed vine forest habitat as preferred by the Black-breasted Button-quail.

The establishment of these plants will be supported by regular weed control maintenance. Over time, ongoing weed control is expected to improve the complexity and diversity of native species throughout MU3, via natural recruitment and regenerative processes and seed dispersal from the more intact surrounding vegetation communities.

Revegetation is to be undertaken in accordance with the management measures prescribed by Action 1 in Table 9-3.

[4] Holding a relevant TAFE Certificate or higher qualification.

Table 9-2 Indicative flora species list for planting in MU3

Scientific name	Common name	Lifeform	Structural layer	Recorded in Impact Area	Recorded in Offset Area
Acacia disparrima subsp. *disparrima*	Hickory Wattle	Small tree	Sub-canopy (T2)	✓	✓
Acacia maidenii	Maiden's Wattle	Small tree	Sub-canopy (T2)	✓	✓
Acronychia laevis	Hard Aspen	Small tree	Sub-canopy (T2)	✓	✓
Alchornea ilicifolia	Native Holly	Small tree/ shrub	Upper shrub layer (S1)	✓	✓
Alectryon tomentosus	Wolly Bird's Eye	Small tree	Sub-canopy (T2)		
Alphitonia excelsa	Soap Tree	Small tree	Sub-canopy (T2)	✓	✓
Alstonia constricta	Bitterbark	Small tree	Sub-canopy (T2)	✓	✓
Alyxia ruscifolia	Chain Fruit	Shrub	Shrub layer (S2)	✓	✓
Araucaria cunninghamii var. *cunninghamii*	Hoop Pine	Tree	Canopy (T1)	✓	✓
Auranticarpa rhombifolia	Diamond Laurel	Tree	Canopy (T1)	✓	✓
Brachychiton discolor	Lacebark	Small tree	Sub-canopy (T2)		✓
Breynia oblongifolia	Coffee Bush	Shrub	Shrub layer (S2)		✓
Bursaria incana	Prickly Pine	Small tree/ shrub	Upper shrub layer (S1)	✓	✓
Capparis arborea	Native Pomegranate	Small tree/ shrub	Upper shrub layer (S1)	✓	✓
Cupaniopsis parvifolia	Small Leaved Tuckeroo	Small tree	Sub-canopy (T2)	✓	✓
Drypetes deplanchei	Grey Boxwood	Small tree	Sub-canopy (T2)		✓
Ficus rubiginosa forma *rubiginosa*	Rusty Fig	Tree	Canopy (T1)		✓
Flindersia australis	Crow's Ash	Tree	Canopy (T1)	✓	✓
Jagera pseudorhus var. *pseudorhus*	Foambark	Small tree	Sub-canopy (T2)	✓	✓
Mallotus philippensis	Red Kamala	Small tree	Sub-canopy (T2)		✓
Melicope micrococca	White Melicope	Tree	Canopy (T1)		✓
Polyscias elegans	Celery Wood	Tree	Canopy (TI)		✓

Note: Species list is indicative and both plant selection and planting locations will be subject to availability of tube stock and the most appropriate plants taking into consideration topography, existing infrastructure and soil properties in the different parts of MU3.

9.2.2 Weed control

Habitat restoration and reducing the fragmentation of vegetation types suitable to the Black-breasted Button-quail is considered a high priority to assist the recovery of this species. Weeds that bind the soil, prevent the germination of native plants, and reduce development of leaf litter and foraging opportunities are considered a high risk to habitat quality for the species. Although some weed species (such as Lantana (*Lantana camara*)) may increase the density of understorey vegetation, which is of some benefit to the Black-breasted Button-quail in the short-term, they are detrimental to long-term viability of habitat and plant diversity, thereby reducing the availability of a complex forest structure and foraging opportunities for the species.

Restricted invasive plant species (weeds) listed under the Biosecurity Act and WoNS have been recorded within the offset sites (refer Section 7.1.2). Weed control is to be undertaken in accordance with the management measures prescribed by Action 2 in Table 9-3 and driven by the results of the weed monitoring described in Section 10.4.

The objectives for weed control include:

1. control and suppress existing weed populations
2. limit re-invasion and re-establishment during revegetation activities
3. assist the natural recruitment and regeneration of native flora species.

Weed control must be applied in a systematic and sensitive manner and give consideration to the requirements of each MU in a way that ensures weeds are replaced with native species rather than by other weeds. Promoting the germination and growth of native species following weed control is paramount to the success of any restoration project. To ensure weeds are replaced by native species, it is important that each work area is managed and weed regrowth has stabilised before activities progress to the next work area. It is essential to the restoration process that previously worked areas receive timely, systematic and accurate follow up and weed control maintenance. To assist this process, and to ensure resources are spent efficiently, weed control should be undertaken in the following stages:

1. primary weed control
2. secondary weed control or follow up
3. maintenance of the zone and/or site.

The intensity and frequency of weed control required will vary by for each MU. A detailed weed control plan will be developed within six months of offset commencement.

9.2.3 Livestock exclusion fencing

Restricting access (including unauthorised livestock access) will limit the spread of weeds, reduce erosion risks and damage to the biodiversity values that are being maintained or enhanced.

Fencing and gates surrounding the Offset Area will be installed, or improved where fencing already exists, and will be designed and maintained to exclude livestock from the Offset Area. Any new fencing will comprise single strand plain wire. This will reduce the risk of fence entanglement for native fauna whilst ensuring effective livestock exclusion from the Offset Area.

Existing internal fencing within the Offset Area that is not required for livestock exclusion will be removed to reduce the risk of fence entanglement for native fauna including the Black-breasted Button-quail. Figure 9-2 depicts existing and proposed fencing across the Offset Area and internal fencing that is proposed to be removed.

Livestock exclusion fencing, and maintenance is to be undertaken in accordance with the management measures prescribed by Action 3 in Table 9-3.

9.2.4 Pest fauna management

Pest fauna which are known to or assumed to pose a threat to the Black-breasted Button-quail and its habitat have been recorded within the Semgreens Offset (refer to Section 7.1.1). Target pest fauna (feral pigs, foxes, cats and cattle) will be controlled in line with industry best practice for target species including baiting, trapping and biological control. All control methods will be undertaken in a humane manner.

Pest fauna control is to be undertaken in accordance with the management measures prescribed by Action 4 in Table 9-3 and driven by the pest fauna monitoring described in Section 10.5.

9.2.5 Bushfire management

Bushfire mitigation and management involves the establishment and maintenance of strategically placed fuel breaks within and along the boundaries of the offset sites, to protect the offset sites and Black-breasted Button-quail from bushfire or uncontrolled burns that may access the offset sites from adjacent landholdings.

The fuel breaks will be predominantly located outside of the fenced Offset Area, forming an additional buffer between the existing agricultural land use and the offset sites. Figure 9-2 depicts existing access tracks and proposed access tracks/fuel breaks in the Offset Area. Bushfire mitigation and management is to be undertaken in accordance with the management measures prescribed by Action 5 in Table 9-3.

9.2.6 Access tracks

Access tracks throughout the Semgreens Offset will be installed, or improved where already existing, and will be designed and maintained to allow for safe access to the Offset Area and to reduce erosion and sediment risks.

Access tracks and fuel breaks are to be established by applying soil conservation practices where appropriate and practicable, which may include installing 'whoa boys', micro sediment traps (small sediment fences) and table drains, while avoiding perpendicular alignments.

Access tracks are to be installed and maintained in accordance with the management measures prescribed by Action 6 in Table 9-3.

9.2.7 Site security

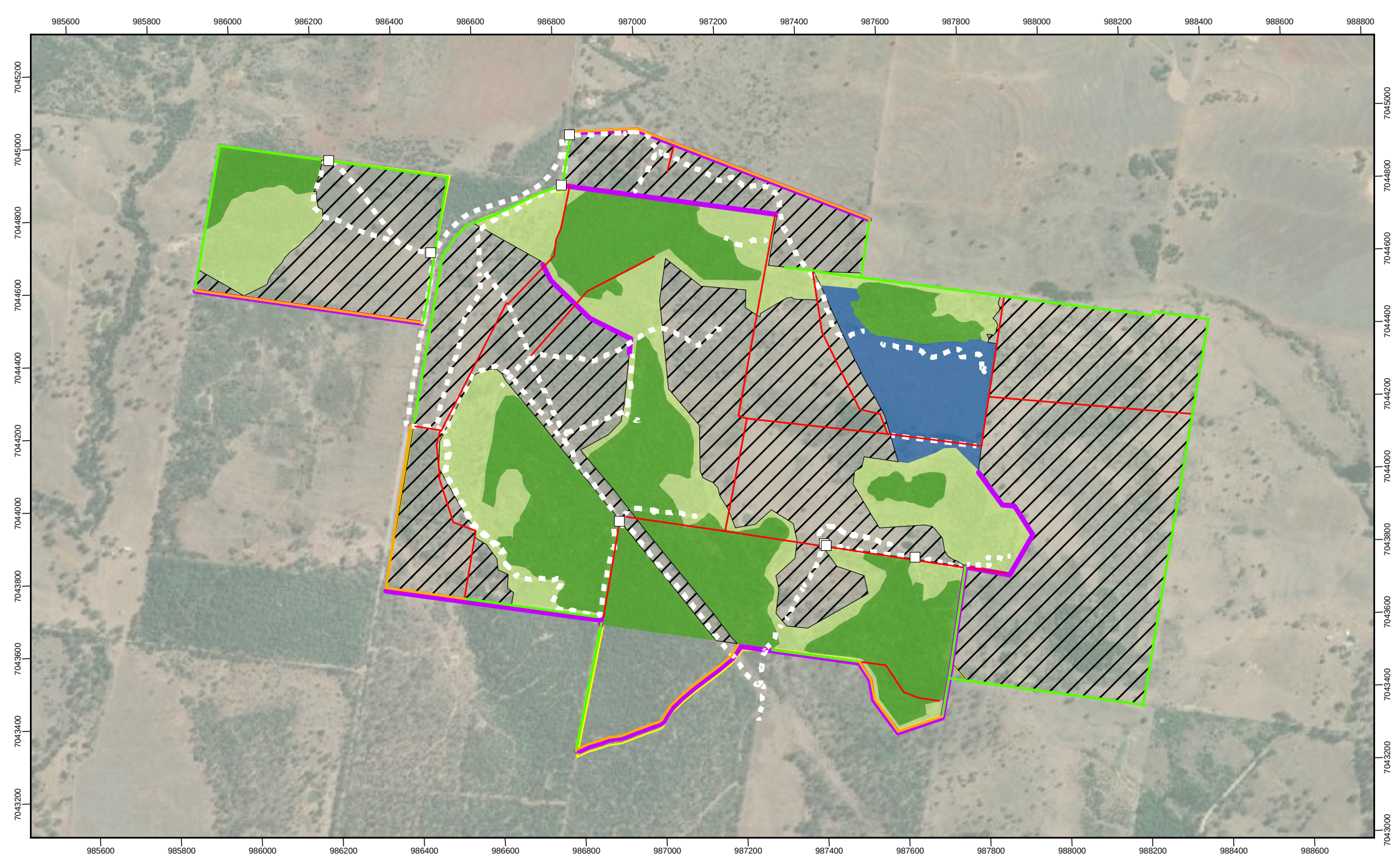
The objectives of site security are to protect the offset site from unauthorised access which will limit the spread of weeds and risk of damage to the biodiversity values that are being maintained or enhanced. Access to the offset sites will be restricted to persons authorised by TEC Coal, persons required to access for safety reasons (i.e. emergency response) and persons with existing legal access rights (e.g. electricity authorities within the transmission easement/corridor at the Semgreens Offset).

Restricted access is to be undertaken in accordance with the management measures prescribed by Action 7 in Table 9-3.

Table 9-3 Management actions and measures to be applied to the offsets and management units

Management Objective	Management Actions	Frequency	Timing	Location	Trigger/s	Corrective Action/s
1. **Revegetation**	Develop planting plan by suitably qualified person	Initial	Within year 1	MU3	Planting plan not developed within timeframe.	Develop planting plan within 2 months of trigger.
	Implementation of planting plan	Initial	Within year 1	MU3	Planting plan not implemented within timeframe.	Implement planting plan within 2 months of trigger.
	Maintenance of planting	>7 maintenance visits per year for five years.	Years 1 – 5	MU3	Species richness and native plant cover targets not met.	Within 2 months of trigger, investigate potential causes, such as seasonal or climatic conditions or surveying variation, and undertake additional management (e.g. watering; additional planting of tubestock).
2. **Weed control**	Weed control plan developed by suitably qualified person.	Initial	Within 6 months of commencement of offset	Offset-wide with actions tailored to MUs	Weed control plan not developed within timeframe.	Develop weed control plan within 2 months of trigger.
	Implementation of weed control plan	Monthly during growing season or as required.	During summer/autumn when weeds are actively growing and/or in response to monitoring identifying a need for weed control.	Offset-wide with actions tailored to MUs	Weed cover target not achieved. Site condition score target not achieved.	Investigate cause of weed cover increase. Review the weed control measures, to evaluate effectiveness and revise the measures accordingly. Increase the intensity and/or frequency of the weed control measures. Re-perform site condition assessment in affected areas within 1 year to determine effectiveness of corrective measures. If corrective actions are proving unsuccessful, adaptive management measures should be investigated and appropriate measures applied.
3. **Livestock exclusion**	Initial assessment of existing fencing	Initial	Within 6 months of commencement of offset	Offset-wide	Initial assessment of existing fencing not completed within timeframe.	Assess existing fencing within 2 months of trigger.
	Internal fence removal	Initial	Within 6 months of commencement of offset	All internal fencing (refer to Figure 9-2)	Removal of internal fencing not completed within timeframe.	Commence removal of internal fencing within 2 months of trigger.
	Repair and upgrade of boundary fencing	Initial	Within 6 months of commencement of offset	Boundary fencing (refer to Figure 9-2)	Repair and upgrade of boundary fencing not completed within timeframe.	Commence repair and upgrade of boundary fencing within 2 months of trigger.
	Monitor fencing	Bi-annually or after extreme weather events	Autumn & Spring (maintenance inspections)	Boundary fencing (refer to Figure 9-2)	Fence monitoring not conducted within timeframe. Incursion of cattle into the Offset Area.	Undertake fence monitoring within 2 months of missed monitoring event. Maintenance of fence lines which have been identified as potential unauthorised access points for livestock will be undertaken within 1 month of detection.
4. **Pest fauna management**	Baseline assessment of pest fauna in offset	Initial	Within completion of year 1 (Note completed in Q1 2025)	Offset-wide	Baseline assessment of pest fauna not conducted within timeframe.	Undertake baseline pest fauna assessment within 2 months of trigger.
	Develop pest fauna control strategy	Initial	Within completion of year 1	Offset-wide	Pest fauna strategy not developed within timeframe.	Develop pest fauna strategy within 2 months of trigger.
	Implementation of pest fauna control strategy	As required	Year 1 onwards	Offset-wide	Pest fauna abundance target not achieved.	Investigate cause of increased pest fauna populations. Review and audit the pest fauna control strategy to evaluate effectiveness and revise accordingly.

Management Objective	Management Actions	Frequency	Timing	Location	Trigger/s	Corrective Action/s
						If corrective actions are proving unsuccessful, adaptive management measures are to be investigated and appropriate measures applied.
5. Bushfire management	Property-wide fire management strategy developed by suitably qualified person.	Initial	Within 6 months of commencement of offset	Offset-wide	Property-wide fire management strategy not developed within timeframe.	Develop property-wide fire management strategy within 2 months of trigger.
	Implement fire management strategy	As required	Year 2 onwards	Offset-wide	Uncontrolled bushfire detected in the offset. Fuel load assessment targets not met.	Complete an investigation within 1 month to determine the cause of the bushfire and extent of damage to the Offset Area. Review and audit the fire management strategy to evaluate effectiveness and areas for improvement. If corrective actions are proving unsuccessful, adaptive management measures are to be investigated and appropriate measures applied.
	Fuel load assessment prior to burning conducted by suitably qualified person.	Annually	Winter	In line with fire management strategy.	Fuel load assessment not completed.	Fuel load assessment to inform the annual prescribed burn plan, prior to the commencement of any ecological burns.
	Prescribed burn plan developed by suitably qualified person.	Annually	Winter		Prescribed burn plan not developed within timing.	Prescribed burn plan done to inform the annual prescribed burn plan, prior to the commencement of the fire season each year.
	Implement prescribed burn plan	Annually	Winter	In line with prescribed burn plan	Prescribed burn not occurring as per plan.	Investigate cause for burn not occurring and update burn plan and property-wide burn strategy as required, within 3 months of trigger.
	Firebreak construction	Initial	Within 6 months of commencement of offset	Offset-wide (refer to Figure 9-2)	Firebreaks not constructed within timeframe.	Construct firebreaks within 2 months of trigger.
	Firebreak maintenance	Annually	Winter	Offset-wide	Excessive fuel loads are reported during monitoring.	Undertake firebreak maintenance within 6 months of trigger.
6. Access tracks	Repair and upgrade existing access tracks	Initial	Within 6 months of commencement of offset	Offset-wide (refer to Figure 9-2)	Existing access tracks not upgraded within timeframe.	Undertake upgrades of existing access tracks within 2 months of trigger.
	Maintain access tracks	As required	Year 1 onwards	Offset-wide	Access tracks not accessible by vehicle. Noticeable erosion on access tracks. Sediment deposition from access tracks observed.	Remediate affected areas within 6 months of trigger and review frequency of access track maintenance.
	Monitor access tracks	Annually	Autumn & Spring (maintenance inspections)	Offset-wide		
7. Site security	Installation of signage and locks on gates	Initial	Within 6 months of commencement of offset	Offset-wide	Signage and locks not installed on gates within timeframe.	Install signage and locks on gates within 2 months of trigger.
	Maintenance of signage and locks	As required	Year 1 onwards	Offset-wide	Evidence of unauthorised access/timber harvesting/ collection. Damage to fence lines or gates (e.g. broken locks and cut wire), which have been identified as potential unauthorised access points for trespassing.	Revise unauthorised access and site security measures within 6 months of trigger.
	Monitor signage and locks	Bi-annually	Autumn & Spring (maintenance inspections)	Offset-wide		



Ausecology
a Niche company

Figure 9-2:

Management Actions
- Semgreens Offset

Property Boundary

Gate
- Existing
- Access Tracks

Fencelines
- Proposed Removal
- Retain
- Proposed installation

Firebreaks and Access Tracks
- Proposed Firebreak

Management Unit
- MU01
- MU02
- MU03
- Operational Area

REVISION	AUTHOR	REVIEWER	DATE
2	JS	ML	12/06/2025
3	JS	ML	30/07/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

10 Offset monitoring

The monitoring methodologies outlined in the following sections are designed to track the performance of Black-breasted Button-quail habitat in Offset Area over time, are scientifically robust, proven and already completed for certain transects as part of baseline surveys in the offset sites. They reflect best practice and are designed to track the effectiveness and success of risk management measures, such as bushfire minimisation and weed and pest animal control, and the progression to completion criteria.

10.1 Habitat quality scoring and monitoring

Baseline site condition and habitat quality assessments were undertaken in accordance with the Queensland Government's *Guide to determining terrestrial habitat quality – Methods for assessing habitat quality under the Queensland Environmental Offset Policy Version 1.2 April 2017* (Habitat Quality Guideline) (former Department of Environment and Heritage Protection (DEHP) 2017)) and the Commonwealth Government's *Modified QLD Habitat Quality spreadsheet – template* (no date) (refer Attachment A).

The baseline site condition and habitat quality assessments involved establishing permanent monitoring plots within habitat areas (MU1 and MU2) and planting areas (MU3) to enable repeat monitoring at a consistent location. The transect centrepoint locations for site condition monitoring and habitat quality monitoring relevant to each assessment unit are presented in Table 10-1 with transect locations shown on Figure 10-1.

Table 10-1 Waypoints of permanent monitoring transects for each assessment unit (AU)

Assessment Unit	Regional ecosystem	Transect ID	Transect waypoints	
			Easting	Northing
AU1	RE 12.5.13c (remnant)	AU1-1	389288	7053603
		AU1-2	389361	7053509
AU3	RE 12.8.21 (regrowth)	AU3-1	390279	7052715
AU4	RE 12.8.13 (remnant)	AU4-1	390135	7052411
AU5	RE 12.8.21 (remnant)	AU5-1	390099	7053358
		AU5-2	390164	7052892
AU6	RE12.11.11 (remnant)	AU6-1	389160	7052944
		AU6-2	389465	7052850
		AU6-3	389460	7053031
AU7	RE 12.11.18x (remnant)	AU7-1	389414	7052643
		AU7-2	390084	7052593
AU10	RE 12.5.13c (regrowth)	AU10-1	388518	7053655
AU11	RE 12.11.11 (non-remnant)	AU11-1	388540	7053741
		AU11-2	389563	7052834
AU12	RE 12.5.13a (non-remnant)	AU12-1	389162	7053582
		AU12-2	389716	7053561
AU13	RE 12.5.13 (non-remnant)	AU13-1	388463	7053433

Assessment Unit	Regional ecosystem	Transect ID	Transect waypoints	
			Easting	Northing
		AU13-2	389418	7053314
AU14 (revegetation area)	RE 12.8.21 (non-remnant)	AU14-1	390104	7053209

10.1.1 Site condition monitoring

Site condition monitoring (BioCondition variant) is conducted in accordance with the Habitat Quality Guideline (DEHP 2017). The parameters, *quality and availability of food and foraging habitat* and *quality and availability of shelter*, are additional parameters to the Habitat Quality Guideline, which are required by DCCEEW as scoring inputs to the 'Modified QLD Habitat Quality' calculator spreadsheet.

Site condition surveys will be conducted at the permanent transect monitoring locations used for the baseline assessments within MU1, MU2 and MU3 (Figure 10-1). At each permanent monitoring transect, the following parameters will be measured:

- recruitment of woody perennial species in ecologically dominant layer (%)
- native plant species richness:
    - trees
    - shrubs
    - grasses
    - forbs
- tree canopy height (average of emergent, canopy and sub-canopy)
- tree canopy cover (average of emergent, canopy and sub-canopy)
- shrub canopy cover (%)
- native grass cover (%)
- organic litter (%)
- large trees (eucalypts plus non-eucalyptus) / ha
- coarse woody debris (m/ha)
- non-native plant cover.

The schedule for site condition monitoring is presented in Table 10-2 (refer Activity 1).

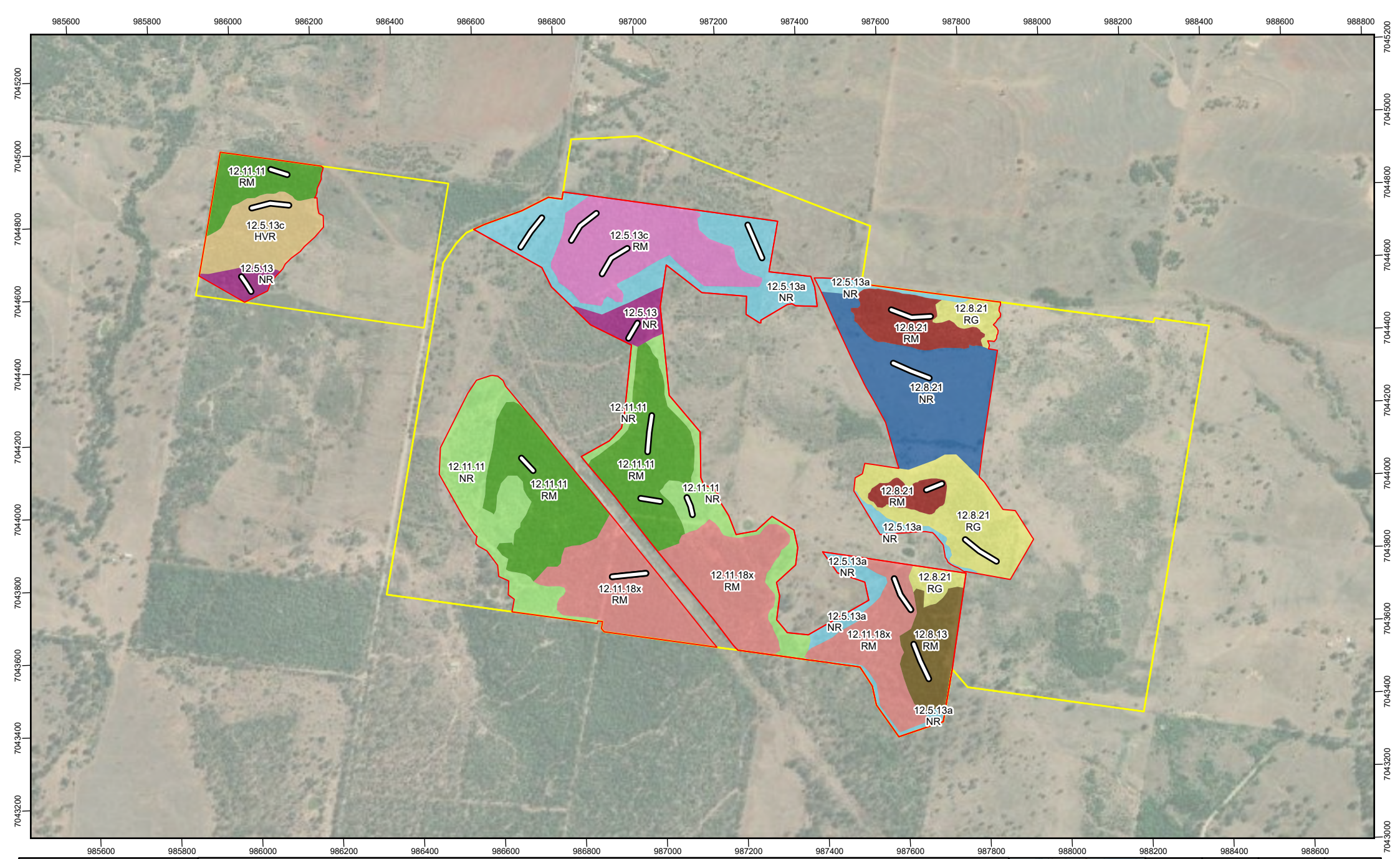
10.1.2 Fauna habitat quality monitoring

The species habitat index measures and scores the capacity of a location to support a species and requires a wholistic qualitative based assessment within the 100 m x 50 m site condition transects. At the location of the permanent monitoring transects (Figure 10-1) the following qualitative parameters will be assessed:

- quality and availability of food and foraging habitat
- quality and availability of shelter
- species stocking rate indices, including:
    - presence detected on or adjacent to site
    - species usage of the site (habitat type and evidenced usage)
    - approximate density (per ha)

- role/importance of species population on site, derived from:
    - key source population for breeding
    - key source population for dispersal
    - necessary for maintaining genetic diversity
    - near the limit of the species range.

The schedule for fauna habitat quality monitoring is presented in Table 10-2 (refer Activity 2). Fauna habitat quality monitoring may be undertaken at the same time as the site condition monitoring (refer Activity 1 of Table 10-2).



Ausecology

Figure 10-1:

Monitoring Locations
Semgreens Offset

- Property Boundary
- Offset Boundary
- BioCondition/ Habitat Assessment Transects

Assessment Units

- AU1
- AU3
- AU4
- AU5
- AU6
- AU7
- AU10
- AU11
- AU12
- AU13
- AU14 (Planting)

REVISION	AUTHOR	REVIEWER	DATE
0	BD	ML	01/04/2025
0	JS	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

10.2 Black-breasted Button-quail monitoring surveys

The Black-breasted Button-quail survey aims to confirm the species' continued presence in the Offset Area and to track the species stocking rate over time, as a completion criteria target.

The Black-breasted Button-quail surveys will utilise the same grid system as developed for the weed surveys (Figure 10-2). Within each 100 m x 100 m grid, searches will be conducted for platelets and Black-breasted Button-quail individuals. Each grid will be given a presence/absence status for either platelets or individuals. Abundance across the offset will be determined as a percentage of grid squares with positive records.

Any observations of individuals during platelet surveys or incidentally will be recorded with a GPS point, including number of females and males, any observed young, size of individuals, time of day, survey site location, habitat/regional ecosystem type.

The monitoring schedule for Black-breasted Button-quail surveys is presented in Table 10-2 (refer Activity 4). Black-breasted Button-quail surveys will be undertaken at the same time as weed monitoring (refer Activity 5 of Table 10-2).

10.3 Photo point monitoring

Photo point monitoring will be applied during site condition monitoring for the purpose of tracking improvements and changes within the revegetation areas (MU3) for the duration of the management commitment.

At the location of the permanent monitoring transects within the revegetation areas (MU3), photo point monitoring will be undertaken as follows:

- stand at 50 m centre point of 100 m site condition monitoring transect:
    - at head height take directional photos (north, east, south and west)
- stand at two permanently marked outer perimeter corner points:
    - at head height take one photo at each corner point looking into the offset
    - have previous year photos to ensure correct zoom and aspect for photo.

The schedule for photo point monitoring is presented in Table 10-2 (refer Activity 3). Photo point monitoring will be undertaken at the same time as site condition monitoring (refer Activity 1 of Table 10-2).

10.4 Weed monitoring

Weed surveys are to be conducted to identify and map existing and any new infestations of restricted invasive plants and/or WoNS within MU1, MU2 and MU3. The weed monitoring will track the effectiveness of weed control measures to reduce the invasion, presence, and abundance of restricted invasive plants.

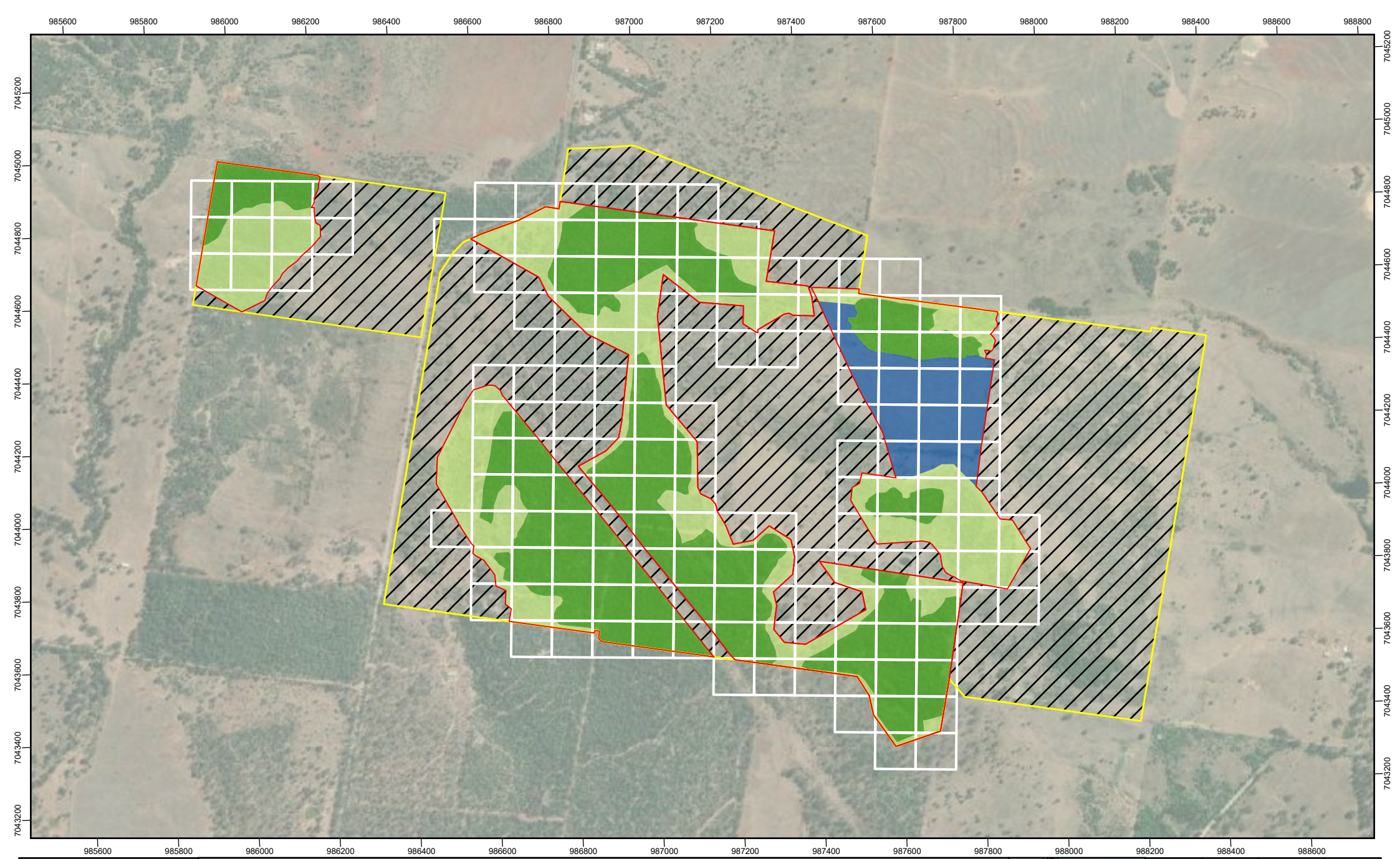
Weed surveys will be undertaken in the grid system overlaying the Offset Area (Figure 10-2) developed during the baseline surveys (refer to Section 7.1.2). Grid surveys will be performed in the following manner:

- Each 100 m X 100 m grid square surveyed on foot at a random meander.
- In each grid square, the following information recorded for weed species:
    - Species name

    - Level of infestation: 1-9 specimens, 10-50 specimens or 50+ specimens
    - Coverage: 1-10%, 11-25%, 26-50%, 51-75%, 76-100% (assessed in the strata of growth)
    - Maturity: seeding, flowering, mature, seedling
- Each priority species will be given an average cover percentage for the Offset Area to determine the efficacy of weed control measures and provide comparison between monitoring periods.

Each of the 159 grids has a unique identifier. This allows for comparison to be made between weed monitoring events on an individual grid level as well as across the Offset Area. Section 7.1.2 provides further details on the weed monitoring method implemented in the baseline surveys and to be utilised at future monitoring events.

The schedule for weed monitoring is presented in Table 10-2 (refer Activity 5). Weed monitoring will be undertaken at the same time as the Black-breasted Button-quail surveys (refer Activity 4 of Table 10-2).



Ausecology
a Niche company

Figure 10-2:

Grid overlay for weed and Blackbreasted Button-quail surveys Semgreens Offset

- Property Boundary
- Offset Boundary
- Weed Grid Surveys

Management Unit

- MU01
- MU02
- MU03
- Operational Area

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	JS	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

10.5 Pest fauna monitoring

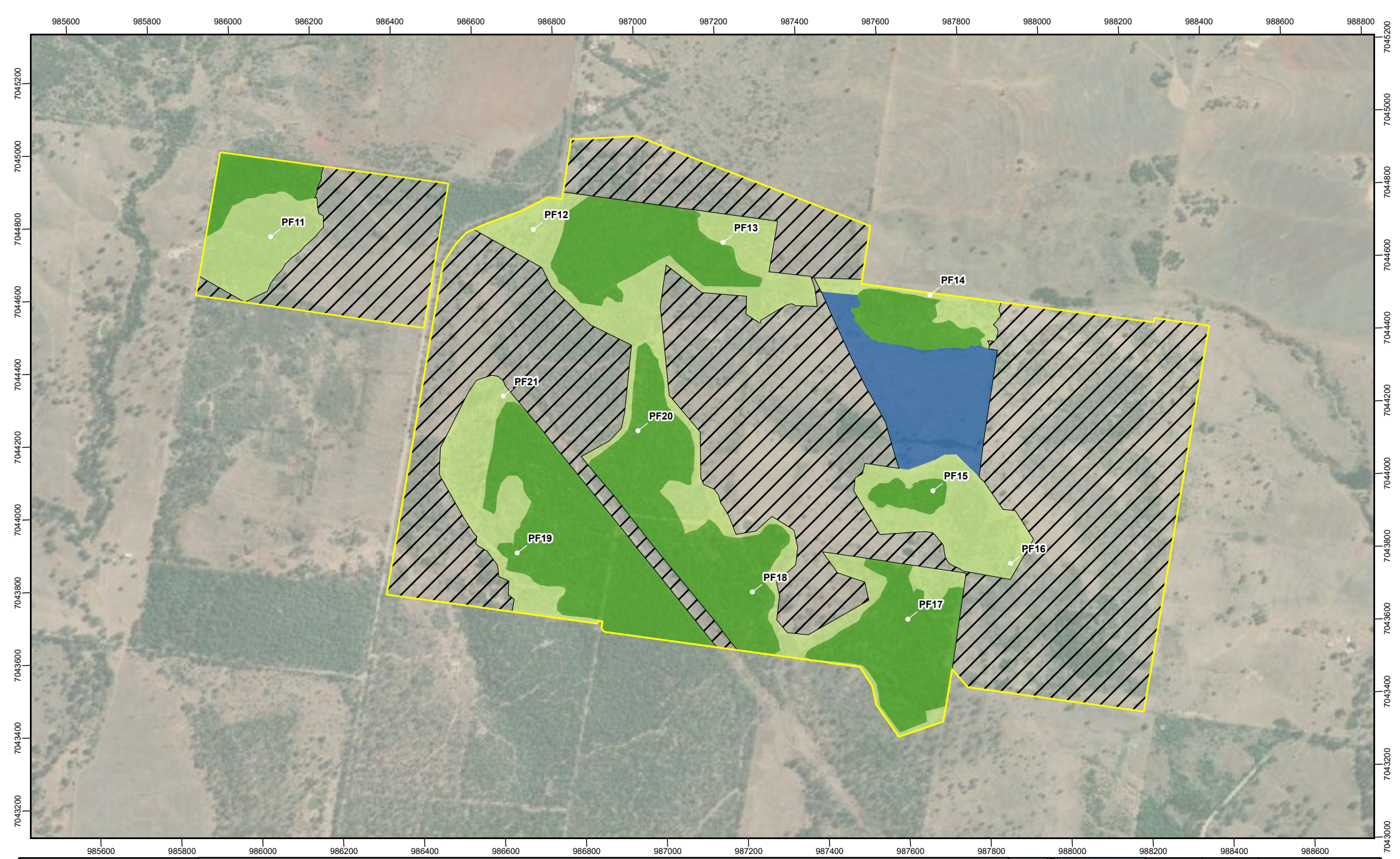
Pest fauna monitoring will be conducted across the offset sites and track the effectiveness of pest fauna control measures to reduce the presence and abundance of pest animal species. Pest fauna monitoring will occur at permanent monitoring points (Figure 10-3) developed during baseline surveys (refer Section 4.4) throughout the Offset Area.

At each permanent monitoring point the following procedure will be followed:

- A camera trap will be deployed at a height of 0.5m
- Vegetation in front of the cameras will be trimmed to reduce the number of false triggers and maximise animal detectability
- Cameras will be set to continuous detection day and night, high passive infrared sensitivity and three captures per motion trigger to provide a series of photos to aid identification of each animal.

Cameras will remain deployed for 1 month. All captures will be reviewed and identified (where possible) to species level and number of individuals.

The schedule for pest fauna monitoring is presented in Table 10-2 (refer Activity 6). Pest animal monitoring can be undertaken at the same time as the fauna habitat quality monitoring (refer Activity 2 of Table 10-2).



Ausecology
a Niche company

Figure 10-3:

Permanent pest fauna monitoring locations
Semgreens Offset

Property Boundary

Pest Fauna Camera

Management Unit (Ausecology)

- MU01
- MU02
- MU03
- Operational Area

REVISION	AUTHOR	REVIEWER	DATE
1	BD	ML	27/05/2025
2	JS	ML	12/06/2025

GCS GDA 1994
Scale: 1:13,000

N

0 250 500
Metres

10.6 Offset protection monitoring

Offset protection monitoring involves visually inspecting the offset protection measures. Identified issues requiring maintenance will be recorded using GIS and presented in compliance reporting that will be provided to the administering authority. Any non-compliances and maintenance requirements identified during monitoring will be scheduled for corrective action as soon as practicable. The following monitoring procedures and parameters apply when undertaking offset protection monitoring:

- fuel load accumulation along fuel breaks
- ensure fuel break width is adequate
- signs of erosion along fuel breaks/access tracks
- signs of livestock breaches of boundary fence lines
- damage to restricted/authorised access signage
- identified issues must have GPS waypoints taken along with photographs and field notes
- all maintenance issues must be reported to TEC Coal upon completion of monitoring and presented in compliance reporting
- all maintenance requirements must be scheduled for remediation or repairs as soon as possible after monitoring has identified issues.

Offset protection monitoring can be undertaken at the same time as the site condition monitoring (Activity 1).

10.7 Schedule of monitoring activities

The monitoring program and procedures for each monitoring activity to be undertaken at the Semgreens Offset, together with timing, frequency and duration, performance indicators, corrective actions and roles and responsibilities, is presented in Table 10-2.

The monitoring schedule reflects the need to monitor during seasonal conditions for each of the required monitoring activities to ensure optimal periods for data collection and consideration of seasonal risk periods (e.g. wet season and fire danger season).

Monitoring activities 1–6 of Table 10-2 must be undertaken by suitably qualified ecologists. Activity 7 of Table 10-2 can be undertaken by suitably qualified ecologists or suitably qualified and experienced TEC Coal nominated staff.

Monitoring of these activities (in Table 10-2) must not be undertaken by the tree planning contractor (Activity 1), weed control contractor (Activity 5) or pest animal control contractor (Activity 6).

Table 10-2 Monitoring program

Activity	Monitoring procedures	Management Unit/s	Timing, frequency and duration	Performance indicators and trigger thresholds	Corrective actions	Suitably qualified responsible person(s)
1. Site condition monitoring	Perform site condition monitoring as described in Section 10.1.1	MU1, MU2, MU3	January to April. MU1 & MU2: Baseline (year 1) assessments Three-yearly for years 3, 6, 9, 12 and 15. Five-yearly from year 15 or until completion criteria met (if required) MU3: Annually for years 1 – 3. Three yearly for years 6, 9, 12 and 15. Five-yearly from year 15 or until completion criteria met (if required)	**Performance indicator:** Habitat quality score for site maintained or increased compared to previous score. **Trigger:** Habitat quality score for site >5% lower than previous score	Within 1 month of site condition assessments, identify attributes contributing to score decrease (e.g. recruitment, canopy cover) and revise management actions accordingly. Re-perform site condition assessment in affected sites within 1 year to determine effectiveness of corrective measures.	Suitably qualified ecologists
2. Fauna habitat quality monitoring	Perform fauna habitat quality monitoring as described in Section 10.1.2	MU1, MU2, MU3	January to April. MU1 & MU2: Baseline (year 1) Three-yearly for years 3, 6, 9, 12 and 15. Five-yearly from year 15 or until completion criteria met (if required) MU3: Baseline (year 1) then annually for years 2 – 3. Three yearly for years 6, 9, 12 and 15. Five-yearly from year 15 or until completion criteria met (if required)	**Performance indicator:** Habitat quality score maintained or increased compared to previous score. **Trigger:** Habitat quality score >5% lower than previous score	Within 1 month of habitat quality assessments, identify attributes contributing to score decrease and revise management actions accordingly. Re-perform fauna habitat quality assessment in affected areas within 1 year to determine effectiveness of corrective measures.	Suitably qualified ecologists
3. Photo point monitoring	Perform photo point monitoring as described in Section 10.3.	MU3	January to April. MU3: Baseline (year 1) then annually for years 2 – 3. Three yearly for years 6, 9, 12 and 15. Five-yearly from year 15 or until completion criteria met (if required)	n/a	n/a	Suitably qualified ecologists

Activity	Monitoring procedures	Management Unit/s	Timing, frequency and duration	Performance indicators and trigger thresholds	Corrective actions	Suitably qualified responsible person(s)
4. Black-breasted Button-quail surveys	Conduct Black-breasted Button-quail surveys following the procedure described in Section 10.2.	MU1, MU2, MU3	January to April. **MU1 & MU2:** Baseline (year 1) then five-yearly. **MU3:** Year 5 then five-yearly.	**Performance indicator:** Maintain or increase baseline abundance. **Trigger:** decrease in abundance of greater than 10% (calculated as proportion of grid squares)	Within 1 month of Black-breasted Button-quail surveys, investigate potential causes such as increased predator (pest fauna) incidence, changes to habitat. Within 1 year of Black-breasted Button-quail surveys, undertake additional surveys including: - Targeted stationary bird surveys within known habitat areas for 30 minutes sitting entirely still and in front of a tree base or dense vegetation to increase cover - Deployment of wildlife cameras about 30 cm above the ground in the direction of platelets and GPS locate. Collect wildlife cameras at least four weeks after deployment. If additional survey results do not find records, adaptive management measures are to be investigated and appropriate measures applied.	Suitably qualified ecologists
5. Weed monitoring	Conduct weed surveys following the procedure described in Section 10.4. Any significant weed infestations identified incidentally will be recorded with notes, GPS waypoints. Weeds will also be identified, and data collected when undertaking site condition monitoring.	MU1, MU2, MU3	January to April. **MU1, MU2 & MU3** Baseline assessments Three-yearly for years 3, 6, 9, 12 and 15. Five-yearly from year 15 or until completion criteria met (if required)	**Performance indicator:** Average weed cover for each priority weed species* is as follows: - Baseline (Year 1): Baseline weed density determined per species and grid squares - Year 3: Average weed density per species 50% of baseline[5] or less AND no increase in number of affected grid squares per species - Year 6: Average weed density per species 25% of baseline[5] or less AND no increase in number of affected grid squares - Year 9 onwards: Average weed density per species 10% of baseline[5] or less AND no increase in number of affected grid squares per species **Trigger:** average weed density for any priority species higher than performance indicator OR increase in number of affected grid squares for any priority species. *Excluding *Lantana camara* as this species	Within 6 months of weed surveys: - Investigate cause of increased weed populations - Review the weed control measures, to evaluate effectiveness and revise the measures accordingly - Increase the intensity and frequency of the weed control measures. If corrective actions are proving unsuccessful, adaptive management measures should be investigated and appropriate measures applied.	Suitably qualified ecologists

[5] Average weed density per species of 50%, 25% and 10% of baseline is equivalent to a score of 1 (high threat level), 7 (moderate threat level), and 15 (low threat level) respectively for the weighted component of the 'Threats to the species' score for habitat quality scoring.

Activity	Monitoring procedures	Management Unit/s	Timing, frequency and duration	Performance indicators and trigger thresholds	Corrective actions	Suitably qualified responsible person(s)
				is currently providing habitat for the Black-breasted Button-quail, weed control will be more gradual and adaptive.		
6. Pest fauna monitoring	Perform pest fauna monitoring as described in Section 10.5. Pest animal presence or evidence of presence (e.g. footprints, scats, pig diggings or dead fauna displaying signs of predation) will also be collected when undertaking habitat quality monitoring or incidentally during site maintenance visits, including notes, GPS waypoints and photographs.	Refer to Figure 10-3 for location of permanent pest fauna monitoring points.	January to April. Baseline (year 1) then six-monthly for years 1-3. Annually for years 3-15. Every 5 years after year 15 or until completion criteria is met (if required).	**Performance indicator:** Total abundance across the Offset Area for target pest fauna (feral pigs, foxes, cats, and cattle) as follows: - Baseline (Year 1): Baseline pest fauna abundance determined per species - Years 1-5: Total abundance per target pest fauna species 75% of baseline[6] or less AND no new pest fauna species recorded. - Years 6-15: Total abundance per target pest fauna species 50% of baseline[6] or less AND no new pest fauna species recorded. - Year 20: Total abundance per target pest fauna species 25% of baseline[6] or less AND no new pest fauna species recorded **Trigger:** Total abundance for any target pest fauna species higher than performance indicator OR new pest fauna species recorded.	Within 6 months of pest fauna monitoring: - Investigate cause of increased or new pest fauna populations - Review and audit the pest fauna control measures, to evaluate effectiveness and revise accordingly - Increase the intensity and frequency of the pest fauna control measures. If corrective actions are proving unsuccessful, adaptive management measures are to be investigated and appropriate measures applied.	Suitably qualified ecologists
7. Offset protection monitoring	Undertake offset protection monitoring procedures as described in Section 10.6	Property-wide	Twice a year (Autumn & Spring).	**Performance indicators:** - Fuel breaks adequately maintained (vegetative cover and width) - No significant increase in average fuel load accumulation of >10% over time, since previous monitoring event, as evidenced by previous photographic records of fuel accumulation - No increase in relative abundance of weeds along fuel breaks - No unauthorised cattle access and no damage to the understorey vegetation within the offset sites	Within 2 months of offset protection monitoring: - Investigate feasibility of installing additional fuel breaks - Maintenance of fence lines which have been identified as potential unauthorised access points for livestock will be undertaken within 1 month of detection (prevailing weather conditions dependant) - Improve fencing and signage and inform landholder of incident - Revise fence line structure type (e.g. add extra strands of wire) - Revise unauthorised access and site security measures.	Suitably qualified ecologists or suitably qualified and experienced TEC Coal nominated staff

[6] Total abundance per pest fauna species of 75%, 50% and 25% of baseline is equivalent to a score of 1 (high threat level), 7 (moderate threat level), and 15 (low threat level) respectively for the weighted component of the 'Threats to the species' score for habitat quality scoring.

Activity	Monitoring procedures	Management Unit/s	Timing, frequency and duration	Performance indicators and trigger thresholds	Corrective actions	Suitably qualified responsible person(s)
				from grazing and trampling - No incidences or evidence of unauthorised access. Triggers: - Evidence of unauthorised access to offset sites - Evidence of incursion of cattle into offset - Fire fuel load accumulation >10% since previous monitoring event	If corrective actions are proving unsuccessful, adaptive management measures should be investigated and appropriate measures applied.	

11 Compliance reporting

Compliance reporting will occur following completion of each scheduled year of monitoring over the 20-year management timeframe or until the completion criteria has been met. Compliance reporting will be provided for all three management units. The scheduled compliance report will be provided to the Commonwealth Government's administering authority between 1 June and 31 August. The first compliance report will be provided to the administering authority after the first round of monitoring, and after each scheduled offset monitoring event (i.e. site condition and fauna survey monitoring), as outlined for each monitoring activity presented in Table 10-2.

The compliance report will clearly present the findings of relevant monitoring activities, and reasons as to why any management actions may or may not be meeting performance indicators (i.e. drought or wet weather). Management and maintenance issues will also be identified along with proposed corrective actions or adaptive management measures.

12 References

Australian Government (2012), *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offset Policy, Department of Sustainability, Environment, Water, Population and Communities, October 2012.

Brisbane City Council (BCC) (2024) Balloon Vine - Cardiospermum grandiflorum. Weed Identification Tool. Available from: https://weeds.brisbane.qld.gov.au/weeds/balloon-vine

Centre for Invasive Species Solutions (2011). *Wild dog risks to threatened wildlife: Fact sheet*. Accessed on 1 Nov 2021. Available at: https://pestsmart.org.au/toolkit-resource/wild-dog-risks-to-threatened-wildlife accessed 31-10-2021

Colding J. (2007). 'Ecological land-use complementation' for building resilience in urban ecosystems. Landscape and Urban Planning 81 (2007) 46-55.

Commonwealth of Australia (2022). *National Recovery Plan for Black-breasted Button-quail (Turnix melanogaster)*. Department of Climate Change, Energy, the Environment and Water (DCCEEW), Canberra, ACT.

Department of Agriculture and Fisheries (DAF) (2023*) Lantana Lantana camara*. The State of Queensland, Department of Agriculture and Fisheries. Available from: https://www.daf.qld.gov.au/__data/assets/pdf_file/0009/62010/lantana.pdf

Department of Agriculture and Fisheries (DAF) (2024) *Baby pepper or coral berry (Rivinia humilis) fact sheet*. The State of Queensland, Department of Agriculture and Fisheries. Available from: https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/639dbd2f-9044-4e0c-82f5-a374ccd9add5/baby-pepper.pdf?ETag=2fc119444693e076129cc2cf929f200d

Department of Agriculture and Fisheries (DAF) (2024) Balloon vine Cardiospermum grandiflorum fact sheet. The State of Queensland, Department of Agriculture and Fisheries. Available from: https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/5329aae8-5902-4ed9-ab36-7738a307fbbc/balloon-vine.pdf?ETag=14b950f50164b0d73e9db0e2405c30a3

Department of Agriculture and Fisheries (DAF) (2024) Groundsel bush Baccharis halimifolia fact sheet. The State of Queensland, Department of Agriculture and Fisheries. Available from: https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/335f178d-8604-426f-ab57-116c1e11608a/groundsel-bush.pdf?ETag=741e48550bf13cf61718f8126aef6be3

Department of Agriculture and Fisheries (DAF) (2024) Velvety tree pear Opuntia tomentosa fact sheet. The State of Queensland, Department of Agriculture and Fisheries. Available from: https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/6e48c456-deb9-4df7-882e-f1676ab797a7/velvety-tree-pear.pdf?ETag=5ff19d3b894180227cd8c8e0603a11cf

Department of Environment and Science (DES) (2022). *Queensland Parks and Wildlife Service Planned Burn Guidelines: Southeast Queensland bioregion of Queensland*. Queensland Parks and Wildlife Service. Queensland Government.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2022). *Nature Positive Plan: better or the environment, better for business*. Department of Climate Change, Energy, the Environment and Water. Canberra. December. CC BY 4.0.

Department of Climate Change, Energy, the Environment and Water (DCCEEW)(2023). *Conservation Advice for Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions*. Canberra: Department of Climate Change, Energy, the Environment and Water. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/24-conservation-advice.pdf

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2023), *Species Profile and Threats Database: Turnix melanogaster – Black-breasted Button-quail*. Department of the Environment, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=923.

Department of Environment and Heritage Protection (DEHP) (2017). *Guide to determining terrestrial habitat quality A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy,* Version 1.2., April 2017. Queensland Government.

Eyre T. J. et. al., (2015). *BioCondition Assessment Manual – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland Version 2.2*. Queensland Herbarium, Department of Environment and Science, Brisbane, Queensland.

Evans J.P., Argueso D, Olson R & Di Luca A (2017). *Bias-corrected regional climate projections of extreme rainfall in south-east Australia*. Theoretical and Applied Climatology 130, 1085–1098.

Fischer J., Lindenmayer D.B., & Manning A.D. (2006). Biodiversity, ecosystem function, and resilience: ten guiding principles for commodity production landscapes. Ecol Environ, 2006; 4(2): 80-86
Flower P, Hamley T, Smith GC, Corben C, Hobcroft D and Kehl J (1995). *Black-breasted Button-quail Turnix melanogaster (Gould) in Queensland*. DPI Forest Service, Internal Report, Fauna Conservation and Ecology Section, Queensland Forest Research Institute, Indooroopilly.

Healthy Land and Water (no date). '*Revelling in the Dry': Dry Rainforests and Semi-evergreen Vine Thickets of South East Queensland*.

Healthy Land and Water (2024) *Factsheet: Regional Ecosystems Dry Vine Forest*. Available from: https://www.hlw.org.au/resources/downloads/seq-ecosystems/180-factsheet-regional-ecosystems-dry-vine-forest-12-5-13/file

Hradsky B, Mildwaters C, Ritchie E, Christie F, Di Stefano J (2017). *Responses of invasive predators and native prey to a prescribed forest fire*. Journal of Mammalogy 98, 3, 835–847.

Hradsky BA (2020). Conserving Australia's threatened native mammals in predator-invaded, fire-prone landscapes. Wildlife Research 47, 1–15.

Hughes P & Hughes B (1991). Notes on the Black-breasted Button-quail at Widgee, Queensland. *Australian Bird Watcher* 14, 113–118.

Lees, N. and Smith G.C., 2000. Use of mature hoop pine plantation by the vulnerable black-breasted button-quail (Turnix melanogaster), *Australian Forestry,* 62(4), 330-335.

Marchant, S., & P. J. Higgins (Eds) 1993. *Handbook of Australian, New Zealand and Antarctic Birds. Volume 2: Raptors to Lapwings*. Oxford University Press, Melbourne.

Martine M and Alan L (2005). The influence of livestock grazing and weed invasion on habitat use by birds in grassy woodland remnants. *Biological Conservation* 124, 439–450.

NSW Department of Primary Industry [DPI] (2024) *Brazilian nightshade (Solanum seaforthianum*. NSW WeedWise. Available from: https://weeds.dpi.nsw.gov.au/Weeds/Braziliannightshade

Olsen P, Weston M, Tzaros C and Silcocks A (2005). The state of Australia's birds 2005. Wingspan 15, 4, supplementary document.

Salvo Aires F (2014). *Effects of woody weeds on fire behaviour in Eastern Australian forests and woodlands*. PhD thesis, University of Sydney, Sydney.

Smith GC, Aridis J & Lees N (1998). Radio-tracking revealed home ranges of black-breasted button-quail Turnix melanogaster in remnant vine scrub between hoop pine plantation and agriculture. *Emu* 98, 171–177.

Smyth A.K., Noble D & Wiley C (2001). Black-breasted button-quail in open eucalypt forest in southeastern Queensland. *Australian Birdwatcher* 19, 45–47.

Sonter L.J.; Metcalfe D.J. and Mayfield M. M (2011). *Assessing rainforest restoration: the value of buffers strips for the recovery of rainforest remnants in Australia's Wet Tropics*. Pacific Conservation Biology. Vol. 16. Pp 274-288, Surrey Beatty & Sons, Sydney 2011.

Vegetation Matters (2022). In brief, *Pictorial works report: Quail en Rouge June 2022, Maidenwell-Upper Yarraman Road, Neumgna*. Prepared for Stanwell Corporation Limited.

Weeds Australia (2024) *Weeds Australia profile* (multiple species). Available from: https://weeds.org.au/profiles/

Willson A and Bignall J (2009). *Regional recovery plan for threatened species and ecological communities of Adelaide and the Mount Lofty Ranges*, South Australia. Department for Environment and Heritage, South Australia.

Woinarski JCZ, Woolley LA, Garnett ST, Legge SM, Murphy BP, Lawes MJ, Comer S, Dickman CR, Doherty TS, Edwards G, Nankivell A, Palmer R & Paton D (2017). Compilation and traits of Australian bird species killed by cats. *Biological Conservation* 216, 1–9.

Attachment A – Modified QLD habitat quality calculation

MHQA Scoring - Impact Area - Black-breasted Button-quail

Assessment Unit - Regional Ecosystem	AU 1 - RE 12.5.13c											
Site Reference	Benchmark	AU1-1			AU1-2			AU1-3			Average % benchmark	Average Score
	11.5.15	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score		
Recruitment of woody perennial species in EDL	100	75	75%	3	75	75%	3	50	50%	3	67%	3.0
Native plant species richness - trees	21	10	48%	2.5	14	67%	2.5	6	29%	2.5	48%	2.5
Native plant species richness - shrubs	29	15	52%	2.5	22	76%	2.5	18	62%	2.5	63%	2.5
Native plant species richness - grasses	2	1	50%	2.5	1	50%	2.5	1	50%	2.5	50%	2.5
Native plant species richness - forbes	17	4	24%	0	2	12%	0	4	24%	0	20%	0.0
Tree canopy height (average of emergent, canopy, sub-canopy)	14	8	56%	3.0	9	63%	3.0	8	56%	3.0	58%	3.0
Tree canopy cover (average of emergent, canopy, sub-canopy)	27	77	285%	3.0	86	319%	3.0	83	307%	3.0	304%	3.0
Shrub canopy cover	34	38	111%	5	45	132%	5	48	141%	5	128%	5.0
Native grass cover	5	17	340%	5	0	0%	0	0	0%	0	113%	1.7
Organic litter	52	50.0	96%	5	79	152%	5	62	119%	5	122%	5.0
Large trees (euc plus non-euc)	78	78	100%	10	80	103%	15	80	103%	15	102%	13.3
Coarse woody debris	942	1350	143%	5	870	92%	5	810	86%	5	107%	5.0
Non-native plant cover	0	1%	1%	10	0%	0%	10	10%	10%	5	4%	8.3
Quality and availability of food and foraging habitat	-	-	-	10	-	-	10	-	-	10	-	10.0
Quality and availability of shelter	-	-	-	10	-	-	10	-	-	10	-	10.0
Site Condition Score				76.5			76.5			71.5		75
MAX Site Condition Score				*100*			*100*			*100*		*100*
Site Condition Score - out of 3				**2.30**			**2.30**			**2.15**		**2.25**
Site Context												
Size of patch	-	-	-	10	-	-	0	-	-	0	-	3.3
Connectedness	-	-	-	2	-	-	0	-	-	0	-	0.7
Context	-	-	-	4	-	-	4	-	-	2	-	3.3
Ecological Corridors	-	-	-	0	-	-	0	-	-	0	-	0.0
Role of site location to species overall population in the state	-	-	-	4	-	-	4	-	-	4	-	4.0
Threats to the species	-	-	-	7	-	-	7	-	-	7	-	7.0
Species mobility capacity	-	-	-	7	-	-	7	-	-	7	-	7.0
Site Context Score				34			22			20		25
MAX Site Context Score				*56*			*56*			*56*		*56*
Site Context Score - out of 3				**1.82**			**1.18**			**1.07**		**1.36**

Species Stocking Rate (SSR)							
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0		5		**10**	
		No		Yes - adjacent		**Yes - on site**	
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10		**15**	
		Not habitat	Dispersal	Foraging		**Breeding**	
Approximate density (per ha)	Score	0	10	**20**		30	
		0 x birds / ha	>0 - 0.49 x birds / ha	**≥0.5-0.99 x bird / ha**		≥1x birds / ha	Nine individuals recorded in 17.7 ha of habitat = 0.5 birds/ha
Role/importance of species population on site*	Score	0	5		**10**	15	
		0	**5 - 15**	20 - 35		40 - 45	
Total SRR score (out of 70)				**55**			
SRR Score (out of 4)				**3.14**			

***SSR Supplementary Table**			
*Key source population for breeding	Score	0	**10**
		No	**Yes/ Possibly**
*Key source population for dispersal	Score	0	**5**
		No	**Yes/ Possibly**
*Necessary for maintaining genetic diversity	Score	0	**15**
		No	Yes/ Possibly
*Near the limit of the species range	Score	**0**	15
		No	Yes

Total
30

Final habitat quality score (weighted)	**AU1**
Site Condition score (out of 3)	2.25
Site Context Score (out of 3)	1.36
Species Stocking Rate Score (out of 4)	3.14
Habitat Quality score (out of 10)	6.75
Assessment Unit area (ha) in disturbance footprint	20.9
Total impact area (ha) for this MNES	20.9
Size Weighting	1.00
Weighted Habitat Quality Score	***6.75***
Rounded score	**7**

MHQA Scoring - Semgreens Offset Area - Black-breasted Button-quail

Assessment Unit - Regional Ecosystem	AU1 - RE 12.5.13c (Remnant)									AU3 - RE 12.8.21 (Regrowth)				AU4 - RE 12.8.13 (Remnant)				AU5 - RE 12.8.21 (Remnant)							
Site Reference	Benchmark	AU-1			AU-2			Average % benchmark	Average Score	Benchmark	AU3-1			Benchmark	AU4-1			Benchmark	AU5-1			AU5-2			Average % benchmark	Average Score
	11.5.15	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score			12.8.21	Raw Data	% Benchmark	Score	12.8.13	Raw Data	% Benchmark	Score	12.8.21	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score		
Site Condition																										
Recruitment of woody perennial species in EDL	100	50	50%	3	32	32%	3	41%	3	100	100	100%	5	100	43	43%	3	100	30	30%	3	24	24%	3	27%	3
Native plant species richness - trees	21	18	86%	2.5	22	105%	5	95%	4	17	36	212%	5	23	14	61%	2.5	17	10	59%	2.5	21	124%	5	91%	4
Native plant species richness - shrubs	29	17	59%	2.5	12	41%	2.5	50%	3	13	11	85%	2.5	20	17	85%	2.5	13	6	46%	2.5	13	100%	5	73%	4
Native plant species richness - grasses	2	2	100%	5	2	100%	5	100%	5	2	0	0%	0	1	0	0%	0	2	0	0%	0	0	0%	0	0%	0
Native plant species richness - forbs	17	6	35%	2.5	8	47%	2.5	41%	3	10	8	80%	2.5	21	14	67%	2.5	10	8	80%	2.5	8	80%	2.5	80%	3
Tree canopy height (average of emergent, canopy, sub-canopy)	14	7	49%	3	8	53%	3	51%	3	12	5	43%	3	16	11	69%	3	12	12	104%	5	10	87%	5	96%	5
Tree canopy cover (average of emergent, canopy, sub-canopy)	27	81	300%	3	87	322%	3	311%	3	49	17	36%	2.5	30	36	119%	5	49	24	49%	2	37	76%	5	62%	4
Shrub canopy cover	34	13	38%	3	18	53%	5	46%	4	50	5	10%	3	17	9	53%	5	50	2	4%	0	14	28%	3	16%	2
Native grass cover	5	0	0%	0	0	0%	0	0%	0	8	0	0%	0	1	0	0%	0	8	0	0%	0	0	0%	0	0%	0
Organic litter	52	67	129%	5	42	81%	5	105%	5	44	16	36%	3	79	53	67%	5	44	43	98%	5	45	102%	5	100%	5
Large trees (euc plus non-euc)	78	14	18%	5	14	18%	5	18%	5	30	0	0%	0	55	34	62%	10	30	40	133%	15	2	7%	5	70%	10
Coarse woody debris	942	85	9%	0	110	12%	2	10%	1	1080	5	0%	0	614	1940	316%	2	1080	80	7%	0	1435	133%	5	70%	3
Non-native plant cover	0	5	5%	5	3	3%	10	4%	8	0	50	50%	3	0	5	5%	5	0	3	3%	10	30	30%	3	17%	7
Quality and availability of food and foraging habitat	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	5	n/a	n/a	n/a	5	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5
Quality and availability of shelter	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	5	n/a	n/a	n/a	5	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5
Site Condition Score				49.50			61.00		55				39.5				55.5				57.5			56.5		57
MAX Site Condition Score				*100*			*100*		*100*				*100*				*100*				*100*			*100*		*100*
Site Condition Score - out of 3				**1.49**			**1.83**		**1.66**				**1.19**				**1.67**				**1.73**			**1.70**		**1.71**
Site Context																										
Size of patch				2			2		2				0				2				0			2		1
Connectedness				2			2		2				2				4				2			2		2
Context				2			2		2				2				2				2			2		2
Ecological Corridors				0			0		0				0				0				0			0		0
Role of site location to species overall population in the state				4			4		4				4				4				4			4		4
Threats to the species				7			7		7				1				7				7			7		7
Species mobility capacity				7			7		7				4				7				7			7		7
Site Context Score				24			24		24				13				26				22			24		23
MAX Site Context Score				*56*			*56*		*56*				*56*				*56*				*56*			*56*		*56*
Site Context Score - out of 3									**1.29**				**0.70**				**1.39**									**1.23**

Assessment Unit - Regional Ecosystem	AU6 - RE 12.11.11 (Remnant)												AU7 - RE 12.11.18x (Remnant)									AU10 - RE 12.5.13c (HVR)			
Site Reference	Benchmark	AU6-1			AU6-2			AU6-3			Average % benchmark	Average Score	Benchmark	AU7-1			AU7-2			Average % benchmark	Average Score	Benchmark	AU10-1		
	12.11.11	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score			12.11.18	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score			11.5.15	Raw Data	% Benchmark	Score
Site Condition																									
Recruitment of woody perennial species in EDL	100	53	53%	3	80	80%	5	41	41%	3	58%	4	100	81	81%	5	57	57%	3	69%	4	100	70	70%	3
Native plant species richness - trees	44	15	34%	2.5	15	34%	2.5	17	39%	2.5	36%	3	5	16	320%	5	14	280%	5	300%	5	21	16	76%	2.5
Native plant species richness - shrubs	37	10	27%	2.5	18	49%	2.5	12	32%	2.5	36%	3	5	21	420%	5	18	360%	5	390%	5	29	5	17%	0
Native plant species richness - grasses	2	0	0%	0	1	50%	2.5	2	100%	5	50%	3	6	1	17%	0	2	33%	2.5	25%	1	2	3	150%	5
Native plant species richness - forbs	19	9	47%	2.5	16	84%	2.5	15	79%	2.5	70%	3	16	19	119%	5	16	100%	5	109%	5	17	2	12%	0
Tree canopy height (average of emergent, canopy, sub-canopy)	16	12	77%	5	6	38%	3	5	32%	3	49%	4	19	17	89%	5	18	95%	5	92%	5	14	6	42%	3
Tree canopy cover (average of emergent, canopy, sub-canopy)	48	26	54%	5	34	71%	5	37	77%	5	67%	5	33	52	158%	5	68	206%	3	182%	4	27	31	115%	5
Shrub canopy cover	30	9	30%	3	10	33%	3	7	23%	3	29%	3	10	8	80%	5	6	60%	5	70%	5	34	25	74%	5
Native grass cover	n/a	n/a	n/a	0	n/a	n/a	0	n/a	n/a	0	n/a	0	30	0	0%	0	0	0%	0	0%	0	5	14	280%	5
Organic litter	72	69	96%	5	84	117%	5	74	103%	5	105%	5	48	86	179%	5	81	169%	5	174%	5	52	71	137%	5
Large trees (euc plus non-euc)	80	24	30%	5	48	60%	10	30	38%	5	43%	7	29	6	21%	5	32	110%	15	66%	10	78	24	31%	5
Coarse woody debris	314	1060	338%	2	960	306%	2	2230	710%	2	451%	2	716	3010	420%	2	1620	226%	2	323%	2	942	590	63%	5
Non-native plant cover	0	5	5%	5	20	20%	5	15	15%	5	13%	5	0	2	2%	10	1	1%	10	2%	10	0	55	55%	0
Quality and availability of food and foraging habitat	n/a	n/a	n/a	5	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	1
Quality and availability of shelter	n/a	n/a	n/a	5	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	1
Site Condition Score				50.5			58			53.5		54				67			75.5		71.3				45.5
MAX Site Condition Score				*95*			*95*			*95*		*95*				*100*			*100*		*100*				*100*
Site Condition Score - out of 3				**1.59**			**1.83**			**1.69**		**1.71**				**2.01**			**2.27**		**2.14**				**1.37**
Site Context																									
Size of patch				5			2			2		3				5			2		3.5				0
Connectedness				2			0			0		1				2			2		2				2
Context				2			2			2		2				2			2		2				2
Ecological Corridors				0			0			0		0				0			0		0				0
Role of site location to species overall population in the state				4			4			4		4				4			4		4				4
Threats to the species				7			7			7		7				7			7		7				7
Species mobility capacity				7			7			7		7				7			7		7				1
Site Context Score				27			22			22		24				27			24		25.5				16
MAX Site Context Score				*56*			*56*			*56*		*56*				*56*			*56*		*56*				*56*
Site Context Score - out of 3												**1.27**									**1.37**				**0.86**

Assessment Unit - Regional Ecosystem	AU11 - RE 12.11.11 (Non-remnant)									AU12 - RE 12.5.13a (Non-remnant)									AU13 - RE 12.5.13 (Non-Remnant)								
Site Reference	Benchmark	AU11-1			AU11-2			Average % benchmark	Average Score	Benchmark	AU12-1			AU12-2			Average % benchmark	Average Score	Benchmark	AU13-1			AU13-2			Average % benchmark	Average Score
	12.11.11	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score			12.5.13a	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score			12.5.13a	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score		
Site Condition																											
Recruitment of woody perennial species in EDL	100	100	100%	5	100	100%	5	100%	5	100	100	100%	5	100	100%	5	100%	5	100	100	100%	5	0	0%	0	50%	3
Native plant species richness - trees	44	28	64%	2.5	16	36%	2.5	50%	3	22	2	9%	0	10	45%	2.5	27%	1	22	19	86%	2.5	8	36%	2.5	61%	3
Native plant species richness - shrubs	37	5	14%	0	10	27%	2.5	20%	1	24	1	4%	0	7	29%	2.5	17%	1	24	9	38%	2.5	6	25%	2.5	31%	3
Native plant species richness - grasses	2	4	200%	5	4	200%	5	200%	5	1	5	500%	5	2	200%	5	350%	5	1	5	500%	5	3	300%	5	400%	5
Native plant species richness - forbs	19	16	84%	2.5	13	68%	2.5	76%	3	13	7	54%	2.5	4	31%	2.5	42%	3	13	18	138%	5	9	69%	2.5	104%	4
Tree canopy height (average of emergent, canopy, sub-canopy)	16	5	35%	2	6	44%	2	40%	2	17	3	20%	2	4	22%	2	21%	2	17	4	22%	2	4	26%	2	24%	2
Tree canopy cover (average of emergent, canopy, sub-canopy)	48	12	25%	1.3	38	78%	2.3	52%	2	33	14	43%	2	21	63%	2	53%	2	33	37	110%	3	26	79%	1.7	94%	3
Shrub canopy cover	30	7	23%	3	0	0%	0	12%	2	31	0	0%	0	0	0%	0	0%	0	31	0	0%	0	0	0%	0	0%	0
Native grass cover	n/a	37	n/a	n/a	8	n/a	n/a	n/a	0	1	4	400%	5	25	2480%	5	1440%	5	1	21	2100%	5	0.4	40%	1	1070%	3
Organic litter	72	30.2	42%	3	62.4	87%	5	64%	4	80	40	50%	3	30	38%	3	44%	3	80	38	48%	3	35.4	44%	3	46%	3
Large trees (euc plus non-euc)	80	12	15%	5	4	5%	5	10%	5	79	0	0%	0	0	0%	0	0%	0	79	0	0%	0	20	25%	5	13%	3
Coarse woody debris	314	3371	1074%	2	32	10%	2	542%	2	1038	0	0%	0	45	4%	0	2%	0	1038	146	14%	2	0	0%	0	7%	1
Non-native plant cover	0	50	50%	3	35	35%	3	43%	3	0	55	55%	0	80	80%	0	68%	0	0	45	45%	3	80	80%	0	63%	2
Quality and availability of food and foraging habitat	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5
Quality and availability of shelter	n/a	n/a	n/a	5	n/a	n/a	5	n/a	5	n/a	n/a	n/a	1	n/a	n/a	5	n/a	3	n/a	n/a	n/a	1	n/a	n/a	5	n/a	3
Site Condition Score				44.30			46.80		46				30.20			39.80		35				44.30			35.20		40
MAX Site Condition Score				*95*			*95*		*95*				*100*			*100*		*100*				*100*			*100*		*100*
Site Condition Score - out of 3				**1.40**			**1.48**		**1.44**				**0.91**			**1.19**		**1.05**				**1.33**			**1.06**		**1.19**
Site Context																											
Size of patch				0			2		1				0			0		0				0			0		0
Connectedness				4			4		4				0			0		0				0			0		0
Context				0			4		2				2			2		2				2			2		2
Ecological Corridors				0			0		0				0			0		0				0			0		0
Role of site location to species overall population in the state				4			4		4				4			4		4				4			4		4
Threats to the species				1			1		1				1			7		4				1			1		1
Species mobility capacity				4			4		4				4			4		4				4			4		4
Site Context Score				13			19		16				11			17		14				11			11		11
MAX Site Context Score				*56*			*56*		*56*				*56*			*56*		*56*				*56*			*56*		*56*
Site Context Score - out of 3									**0.86**									**0.75**									**0.59**

Assessment Unit - Regional Ecosystem	AU14 - RE 12.8.21 (Non-Remnant)			
Site Reference	Benchmark	AU14-1		
	12.8.21	Raw Data	% Benchmark	Score
Site Condition				
Recruitment of woody perennial species in EDL	100	0	0%	0
Native plant species richness - trees	17	1	6%	0
Native plant species richness - shrubs	13	2	15%	0
Native plant species richness - grasses	2	0	0%	0
Native plant species richness - forbs	10	6	60%	2.5
Tree canopy height (average of emergent, canopy, sub-canopy)	12	1	11%	0
Tree canopy cover (average of emergent, canopy, sub-canopy)	49	0	0%	0
Shrub canopy cover	50	0	0%	0
Native grass cover	8	0	0%	0
Organic litter	44	4	9%	0
Large trees (euc plus non-euc)	30	0	0%	0
Coarse woody debris	1080	0	0%	0
Non-native plant cover	0	70	70%	0
Quality and availability of food and foraging habitat	n/a	n/a	n/a	1
Quality and availability of shelter	n/a	n/a	n/a	1
Site Condition Score				4.5
MAX Site Condition Score				*100*
Site Condition Score - out of 3				**0.14**
Site Context				
Size of patch				0
Connectedness				0
Context				2
Ecological Corridors				0
Role of site location to species overall population in the state				4
Threats to the species				1
Species mobility capacity				4
Site Context Score				11
MAX Site Context Score				*56*
Site Context Score - out of 3				**0.59**

Species Stocking Rate (Offset Site-Based Scoring)

Species Stocking Rate (SSR)						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		**10**	
		No	Yes - adjacent		**Yes - on site**	
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	**15**	
		Not habitat	Dispersal	Foraging	**Breeding**	
Approximate density (per ha)	Score	0	**10**	20	30	
		0 x birds / ha	**>0 - 0.49 x birds / ha**	≥0.5-0.99 x bird / ha	≥1x birds / ha	
Role/importance of species population on site*	Score	0	5	**10**	15	
		0	5 - 15	**20 - 35**	40 - 45	
Total SRR score (out of 70)			**45**			
SRR Score (out of 4)			**2.57**			

32 records = 4 individual birds and 28 platelet sightings counted as one bird on site

***SSR Supplementary Table**				
*Key source population for breeding	Score	0	**10**	
		No	**Yes/ Possibly**	
*Key source population for dispersal	Score	0	**5**	
		No	**Yes/ Possibly**	
*Necessary for maintaining genetic diversity	Score	**0**	**15**	
		No	**Yes/ Possibly**	
*Near the limit of the species range	Score	**0**	15	**Total**
		No	Yes	**30**

Final habitat quality score (weighted)	**AU1**	**AU3**	**AU4**	**AU5**	**AU6**	**AU7**	**AU10**	**AU11**	**AU12**	**AU13**	**AU14**	**Average/Final**
	Remnant	**Regrowth**	**Remnant**	**Remnant**	**Remnant**	**Remnant**	**HVR**	**Non-remnant**	**Non-remnant**	**Non-remnant**	**Non-remnant**	
Site Condition score (out of 3)	1.66	1.19	1.67	1.71	1.71	2.14	1.37	1.44	1.05	1.19	0.14	*1.39*
Site Context Score (out of 3)	1.29	0.70	1.39	1.23	1.27	1.37	0.86	0.86	0.75	0.59	0.59	*0.99*
Species Stocking Rate Score (out of 4)	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	*2.57*
Habitat Quality score (out of 10)	*5.51*	*4.45*	*5.63*	*5.51*	*5.54*	*6.08*	*4.79*	*4.87*	*4.37*	*4.35*	*3.30*	*4.95*
Assessment Unit area (ha)	8.8	8.69	3.59	4.77	17.83	19.12	4.62	11.57	11.57	2.88	10.00	***103.4***
Total offset area (ha) for this MNES	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	103.4	*103.4*
Size Weighting	0.09	0.08	0.03	0.05	0.17	0.18	0.04	0.11	0.11	0.03	0.10	***1.00***
Weighted Habitat Quality Score	***0.47***	***0.37***	***0.20***	***0.25***	***0.96***	***1.12***	***0.21***	***0.54***	***0.49***	***0.12***	***0.32***	***5.06***
											Rounded score	**5**

Attachment B – EPBC Offset Assessment Guide calculator

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Black-breasted Button-quail
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	**0.2%**

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
Ecological communities						
Area of community	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes		**Area**	20.9	Hectares	WSP Impact Assessment
			Quality	**7**	Scale 0-10	
			Total quantum of impact	14.63	Adjusted hectares	
Protected matter attributes	**Attribute relevant to case?**	**Description**	**Quantum of impact**		**Units**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost ($ total)	Information source
Ecological Communities																				
Area of community	No				**Risk-related time horizon (max. 20 years)**		**Start area (hectares)**		**Risk of loss (%) without offset**		**Risk of loss (%) with offset**									
									Future area without offset (adjusted hectares)	0.0	**Future area with offset (adjusted hectares)**	0.0								
					Time until ecological benefit		**Start quality (scale of 0-10)**		**Future quality without offset (scale of 0-10)**		**Future quality with offset (scale of 0-10)**									
Threatened species habitat																				
Area of habitat	Yes	14.63	Adjusted hectares	Semgreens Offset	**Time over which loss is averted (max. 20 years)**	20	**Start area (hectares)**	103.4	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.33	85%	0.28	0.27	17.02	116.37%	Yes	
									Future area without offset (adjusted hectares)	103.1	**Future area with offset (adjusted hectares)**	103.4								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	**5**	**Future quality without offset (scale of 0-10)**	**5**	**Future quality with offset (scale of 0-10)**	**7**	2.00	85%	1.70	1.63				
Protected matter attributes	**Attribute relevant to case?**	**Total quantum of impact**	**Units**	**Proposed offset**	**Time horizon (years)**		**Start value**		**Future value without offset**		**Future value with offset**		**Raw gain**	**Confidence in result (%)**	**Adjusted gain**	**Net present value**	**% of impact offset**	**Minimum (90%) direct offset requirement met?**	**Cost ($ total)**	**Information source**
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Threatened species																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary

Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost ($)		
					Direct offset ($)	Other compensatory measures ($)	Total ($)
Birth rate	0				$0.00		$0.00
Mortality rate	0				$0.00		$0.00
Number of individuals	0				$0.00		$0.00
Number of features	0				$0.00		$0.00
Condition of habitat	0				$0.00		$0.00
Area of habitat	14.63	17.02	116.37%	**Yes**	$0.00	N/A	$0.00
Area of community	0				$0.00		$0.00
					$0.00	**$0.00**	**$0.00**

Attachment C – Projected Habitat Quality Scores

	AVERAGE SCORE					
AU1 - RE 12.5.13c (Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	41%	3.00	3.50	4.00	4.50	**5.00**
Native plant species richness - trees	95%	3.75	4.06	4.38	4.69	**5.00**
Native plant species richness - shrubs	50%	2.50	2.50	2.50	2.50	2.50
Native plant species richness - grasses	100%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - forbs	41%	2.50	2.50	2.50	2.50	2.50
Tree canopy height (average of emergent, canopy, sub-canopy)	51%	3.00	3.00	3.00	3.00	3.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	311%	3.00	3.00	3.00	3.00	3.00
Shrub canopy cover	46%	4.00	4.25	4.50	4.75	**5.00**
Native grass cover	0%	0.00	0.25	0.50	0.75	**1.00**
Organic litter	105%	5.00	5.00	5.00	5.00	5.00
Large trees (euc plus non-euc)	18%	5.00	5.00	5.00	5.00	5.00
Coarse woody debris	10%	1.00	1.00	1.00	1.00	1.00
Non-native plant cover	4%	7.50	8.13	8.75	9.38	**10.00**
Total BioCondition Score	n/a	**45.25**	**47.19**	**49.13**	**51.06**	**53.00**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	7.50	7.50	**10.00**
Quality and availability of shelter	n/a	5.00	5.00	7.50	7.50	**10.00**
Site Condition Score	n/a	55.25	57.19	64.13	66.06	73.00
Site Condition Score - out of 3		**1.66**	**1.72**	**1.92**	**1.98**	**2.19**
Site Context						
Size of patch	n/a	2.00	2.00	2.00	2.00	2.00
Connectedness	n/a	2.00	2.00	2.00	2.00	2.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	7.00	9.00	11.00	13.00	**15.00**
Species mobility capacity	n/a	7.00	7.00	7.00	7.00	7.00
Site Context Score	n/a	24.00	26.00	28.00	30.00	32.00
Site Context Score - out of 3		**1.29**	**1.39**	**1.50**	**1.61**	**1.71**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**5.51**	**5.82**	**6.28**	**6.59**	**7.05**

	AVERAGE SCORE					
AU3 - RE 12.8.21 (Regrowth)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	100%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - trees	212%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - shrubs	85%	2.50	3.13	3.75	4.38	**5.00**
Native plant species richness - grasses	0%	0.00	0.63	1.25	1.88	**2.50**
Native plant species richness - forbs	80%	2.50	3.13	3.75	4.38	**5.00**
Tree canopy height (average of emergent, canopy, sub-canopy)	43%	3.00	3.00	3.00	3.00	3.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	36%	2.50	3.13	3.75	4.38	**5.00**
Shrub canopy cover	10%	3.00	3.00	3.00	3.00	3.00
Native grass cover	0%	0.00	0.25	0.50	0.75	**1.00**
Organic litter	36%	3.00	3.50	4.00	4.50	**5.00**
Large trees (euc plus non-euc)	0%	0.00	0.00	0.00	0.00	0.00
Coarse woody debris	0%	0.00	0.00	0.00	0.00	0.00
Non-native plant cover	50%	3.00	3.50	4.00	4.50	**5.00**
Total BioCondition Score	n/a	**29.50**	**33.25**	**37.00**	**40.75**	**44.50**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	5.00	7.50	5.00
Quality and availability of shelter	n/a	5.00	5.00	5.00	7.50	5.00
Site Condition Score	n/a	39.50	43.25	47.00	55.75	54.50
Site Condition Score - out of 3		**1.19**	**1.30**	**1.41**	**1.67**	**1.64**
Site Context						
Size of patch	n/a	0.00	0.00	0.00	0.00	0.00
Connectedness	n/a	2.00	2.00	2.00	2.00	2.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	1.00	2.50	4.00	5.50	**7.00**
Species mobility capacity	n/a	4.00	4.00	4.00	4.00	4.00
Site Context Score	n/a	13.00	14.50	16.00	17.50	19.00
Site Context Score - out of 3		**0.70**	**0.78**	**0.86**	**0.94**	**1.02**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**4.45**	**4.79**	**5.12**	**5.61**	**5.80**

	AVERAGE SCORE					
AU4 - RE 12.8.13 (Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	43%	3.00	3.50	4.00	4.50	**5.00**
Native plant species richness - trees	61%	2.50	2.50	2.50	2.50	2.50
Native plant species richness - shrubs	85%	2.50	3.13	3.75	4.38	**5.00**
Native plant species richness - grasses	0%	0.00	0.63	1.25	1.88	**2.50**
Native plant species richness - forbs	67%	2.50	2.50	2.50	2.50	2.50
Tree canopy height (average of emergent, canopy, sub-canopy)	69%	3.00	3.50	4.00	4.50	**5.00**
Tree canopy cover (average of emergent, canopy, sub-canopy)	119%	5.00	5.00	5.00	5.00	5.00
Shrub canopy cover	53%	5.00	5.00	5.00	5.00	5.00
Native grass cover	0%	0.00	0.25	0.50	0.75	**1.00**
Organic litter	67%	5.00	5.00	5.00	5.00	5.00
Large trees (euc plus non-euc)	62%	10.00	10.00	10.00	10.00	10.00
Coarse woody debris	316%	2.00	2.00	2.00	2.00	2.00
Non-native plant cover	5%	5.00	6.25	7.50	8.75	**10.00**
Total BioCondition Score	n/a	**45.50**	**49.25**	**53.00**	**56.75**	**60.50**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	7.50	7.50	**10.00**
Quality and availability of shelter	n/a	5.00	5.00	7.50	7.50	**10.00**
Site Condition Score	n/a	55.50	59.25	68.00	71.75	80.50
Site Condition Score - out of 3		**1.67**	**1.78**	**2.04**	**2.15**	**2.42**
Site Context						
Size of patch	n/a	2.00	2.00	2.00	2.00	2.00
Connectedness	n/a	4.00	4.00	4.00	4.00	4.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	7.00	9.00	11.00	13.00	**15.00**
Species mobility capacity	n/a	7.00	7.00	7.00	7.00	7.00
Site Context Score	n/a	26.00	28.00	30.00	32.00	34.00
Site Context Score - out of 3		**1.39**	**1.50**	**1.61**	**1.71**	**1.82**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**5.63**	**5.99**	**6.50**	**6.87**	**7.38**

	AVERAGE SCORE					
AU5 - RE 12.8.21 (Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	27%	3.00	3.50	4.00	4.50	**5.00**
Native plant species richness - trees	91%	3.75	3.75	3.75	3.75	3.75
Native plant species richness - shrubs	73%	3.75	3.75	3.75	3.75	3.75
Native plant species richness - grasses	0%	0.00	0.63	1.25	1.88	**2.50**
Native plant species richness - forbs	80%	2.50	2.81	3.13	3.44	**3.75**
Tree canopy height (average of emergent, canopy, sub-canopy)	96%	5.00	5.00	5.00	5.00	5.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	62%	3.50	3.50	3.50	3.50	3.50
Shrub canopy cover	16%	1.50	1.88	2.25	2.63	**3.00**
Native grass cover	0%	0.00	0.25	0.50	0.75	**1.00**
Organic litter	100%	5.00	5.00	5.00	5.00	5.00
Large trees (euc plus non-euc)	70%	10.00	10.00	10.00	10.00	10.00
Coarse woody debris	70%	2.50	2.50	2.50	2.50	2.50
Non-native plant cover	17%	6.50	6.75	7.00	7.25	**7.50**
Total BioCondition Score	n/a	**47.00**	**49.31**	**51.63**	**53.94**	**56.25**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	7.50	7.50	**10.00**
Quality and availability of shelter	n/a	5.00	5.00	7.50	7.50	**10.00**
Site Condition Score	n/a	57.00	59.31	66.63	68.94	76.25
Site Condition Score - out of 3		**1.71**	**1.78**	**2.00**	**2.07**	**2.29**
Site Context						
Size of patch	n/a	1.00	1.00	1.00	1.00	1.00
Connectedness	n/a	2.00	2.00	2.00	2.00	2.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	7.00	9.00	11.00	13.00	**15.00**
Species mobility capacity	n/a	7.00	7.00	7.00	7.00	7.00
Site Context Score	n/a	23.00	25.00	27.00	29.00	31.00
Site Context Score - out of 3		**1.23**	**1.34**	**1.45**	**1.55**	**1.66**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**5.51**	**5.83**	**6.30**	**6.62**	**7.09**

	AVERAGE SCORE					
AU6 - RE 12.11.11 (Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	58%	3.67	4.00	4.33	4.67	**5.00**
Native plant species richness - trees	36%	2.50	2.50	2.50	2.50	2.50
Native plant species richness - shrubs	36%	2.50	2.50	2.50	2.50	2.50
Native plant species richness - grasses	50%	2.50	2.71	2.92	3.13	**3.33**
Native plant species richness - forbs	70%	2.50	2.92	3.33	3.75	**4.17**
Tree canopy height (average of emergent, canopy, sub-canopy)	49%	3.67	3.67	3.67	3.67	3.67
Tree canopy cover (average of emergent, canopy, sub-canopy)	67%	5.00	5.00	5.00	5.00	5.00
Shrub canopy cover	29%	3.00	3.00	3.00	3.00	3.00
Native grass cover	n/a	n/a	n/a	n/a	n/a	0.00
Organic litter	105%	5.00	5.00	5.00	5.00	5.00
Large trees (euc plus non-euc)	43%	6.67	6.67	6.67	6.67	6.67
Coarse woody debris	451%	2.00	2.00	2.00	2.00	2.00
Non-native plant cover	13%	5.00	5.42	5.83	6.25	**6.67**
Total BioCondition Score	n/a	**44.00**	**45.38**	**46.75**	**48.13**	**49.50**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	7.50	7.50	**10.00**
Quality and availability of shelter	n/a	5.00	5.00	7.50	7.50	**10.00**
Site Condition Score	n/a	54.00	55.38	61.75	63.13	69.50
Site Condition Score - out of 3		**1.71**	**1.75**	**1.95**	**1.99**	**2.19**
Site Context						
Size of patch	n/a	3.00	3.00	3.00	3.00	3.00
Connectedness	n/a	0.67	0.67	0.67	0.67	0.67
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	7.00	9.00	11.00	13.00	**15.00**
Species mobility capacity	n/a	7.00	7.00	7.00	7.00	7.00
Site Context Score	n/a	23.67	25.67	27.67	29.67	31.67
Site Context Score - out of 3		**1.27**	**1.38**	**1.48**	**1.59**	**1.70**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**5.54**	**5.84**	**6.29**	**6.58**	**7.03**

	AVERAGE SCORE					
AU7 - RE 12.11.18x (Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	69%	4.00	4.25	4.50	4.75	**5.00**
Native plant species richness - trees	300%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - shrubs	390%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - grasses	25%	1.25	1.56	1.88	2.19	**2.50**
Native plant species richness - forbs	109%	5.00	5.00	5.00	5.00	5.00
Tree canopy height (average of emergent, canopy, sub-canopy)	92%	5.00	5.00	5.00	5.00	5.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	182%	4.00	4.00	4.00	4.00	4.00
Shrub canopy cover	70%	5.00	5.00	5.00	5.00	5.00
Native grass cover	0%	0.00	0.25	0.50	0.75	**1.00**
Organic litter	174%	5.00	5.00	5.00	5.00	5.00
Large trees (euc plus non-euc)	66%	10.00	10.00	10.00	10.00	10.00
Coarse woody debris	323%	2.00	2.00	2.00	2.00	2.00
Non-native plant cover	2%	10.00	10.00	10.00	10.00	10.00
Total BioCondition Score	n/a	**61.25**	**62.06**	**62.88**	**63.69**	**64.50**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	7.50	7.50	**10.00**
Quality and availability of shelter	n/a	5.00	5.00	7.50	7.50	**10.00**
Site Condition Score	n/a	71.25	72.06	77.88	78.69	84.50
Site Condition Score - out of 3		**2.14**	**2.16**	**2.34**	**2.36**	**2.54**
Site Context						
Size of patch	n/a	3.50	3.50	3.50	3.50	3.50
Connectedness	n/a	2.00	2.00	2.00	2.00	2.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	7.00	9.00	11.00	13.00	**15.00**
Species mobility capacity	n/a	7.00	7.00	7.00	7.00	7.00
Site Context Score	n/a	25.50	27.50	29.50	31.50	33.50
Site Context Score - out of 3		**1.37**	**1.47**	**1.58**	**1.69**	**1.79**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**6.08**	**6.35**	**6.77**	**7.05**	**7.47**

	AVERAGE SCORE					
AU10 - RE 12.5.13c (HVR)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	70%	3.00	3.50	4.00	4.50	**5.00**
Native plant species richness - trees	76%	2.50	3.13	3.75	4.38	**5.00**
Native plant species richness - shrubs	17%	0.00	0.63	1.25	1.88	**2.50**
Native plant species richness - grasses	150%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - forbs	12%	0.00	0.63	1.25	1.88	**2.50**
Tree canopy height (average of emergent, canopy, sub-canopy)	42%	3.00	3.00	3.00	3.00	3.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	115%	5.00	5.00	5.00	5.00	5.00
Shrub canopy cover	74%	5.00	5.00	5.00	5.00	5.00
Native grass cover	280%	5.00	5.00	5.00	5.00	5.00
Organic litter	137%	5.00	5.00	5.00	5.00	5.00
Large trees (euc plus non-euc)	31%	5.00	5.00	5.00	5.00	5.00
Coarse woody debris	63%	5.00	5.00	5.00	5.00	5.00
Non-native plant cover	55%	0.00	1.25	2.50	3.75	**5.00**
Total BioCondition Score	n/a	**43.50**	**47.13**	**50.75**	**54.38**	**58.00**
Quality and availability of food and foraging habitat	n/a	1.00	2.00	3.00	4.00	**5.00**
Quality and availability of shelter	n/a	1.00	2.00	3.00	4.00	**5.00**
Site Condition Score	n/a	45.50	51.13	56.75	62.38	68.00
Site Condition Score - out of 3		**1.37**	**1.53**	**1.70**	**1.87**	**2.04**
Site Context						
Size of patch	n/a	0.00	0.00	0.00	0.00	0.00
Connectedness	n/a	2.00	2.00	2.00	2.00	2.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	7.00	7.00	7.00	7.00	7.00
Species mobility capacity	n/a	1.00	1.75	2.50	3.25	**4.00**
Site Context Score	n/a	16.00	16.75	17.50	18.25	19.00
Site Context Score - out of 3		**0.86**	**0.90**	**0.94**	**0.98**	**1.02**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**4.79**	**5.15**	**5.50**	**5.85**	**6.20**

	AVERAGE SCORE					
AU11 - RE 12.11.11 (Non-remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	100%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - trees	50%	2.50	2.50	2.50	2.50	2.50
Native plant species richness - shrubs	20%	1.25	1.56	1.88	2.19	**2.50**
Native plant species richness - grasses	200%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - forbs	76%	2.50	3.13	3.75	4.38	**5.00**
Tree canopy height (average of emergent, canopy, sub-canopy)	40%	2.00	2.00	2.00	2.00	2.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	52%	1.80	2.60	3.40	4.20	**5.00**
Shrub canopy cover	12%	1.50	1.88	2.25	2.63	**3.00**
Native grass cover	n/a	n/a	n/a	n/a	n/a	0.00
Organic litter	64%	4.00	4.25	4.50	4.75	**5.00**
Large trees (euc plus non-euc)	10%	5.00	5.00	5.00	5.00	5.00
Coarse woody debris	542%	2.00	2.00	2.00	2.00	2.00
Non-native plant cover	43%	3.00	3.50	4.00	4.50	**5.00**
Total BioCondition Score	n/a	**35.55**	**38.41**	**41.28**	**44.14**	**47.00**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	5.00	7.50	5.00
Quality and availability of shelter	n/a	5.00	5.00	5.00	7.50	5.00
Site Condition Score	n/a	45.55	48.41	51.28	59.14	57.00
Site Condition Score - out of 3		**1.44**	**1.53**	**1.62**	**1.87**	**1.80**
Site Context						
Size of patch	n/a	1.00	1.00	1.00	1.00	1.00
Connectedness	n/a	4.00	4.00	4.00	4.00	4.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	1.00	2.50	4.00	5.50	**7.00**
Species mobility capacity	n/a	4.00	4.00	4.00	4.00	4.00
Site Context Score	n/a	16.00	17.50	19.00	20.50	22.00
Site Context Score - out of 3		**0.86**	**0.94**	**1.02**	**1.10**	**1.18**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**4.87**	**5.18**	**5.49**	**5.97**	**6.12**

	AVERAGE SCORE					
AU12 - RE 12.5.13a (Non-remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	100%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - trees	27%	1.25	1.56	1.88	2.19	**2.50**
Native plant species richness - shrubs	17%	1.25	1.56	1.88	2.19	**2.50**
Native plant species richness - grasses	350%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - forbs	42%	2.50	2.50	2.50	2.50	2.50
Tree canopy height (average of emergent, canopy, sub-canopy)	21%	2.00	2.00	2.00	2.00	2.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	53%	2.00	2.75	3.50	4.25	**5.00**
Shrub canopy cover	0%	0.00	0.75	1.50	2.25	**3.00**
Native grass cover	1440%	5.00	5.00	5.00	5.00	5.00
Organic litter	44%	3.00	3.50	4.00	4.50	**5.00**
Large trees (euc plus non-euc)	0%	0.00	0.00	0.00	0.00	0.00
Coarse woody debris	2%	0.00	0.00	0.00	0.00	0.00
Non-native plant cover	68%	0.00	1.00	2.00	3.00	**4.00**
Total BioCondition Score	n/a	**27.00**	**30.63**	**34.25**	**37.88**	**41.50**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	5.00	5.00	5.00
Quality and availability of shelter	n/a	3.00	3.50	4.00	4.50	**5.00**
Site Condition Score	n/a	35.00	39.13	43.25	47.38	51.50
Site Condition Score - out of 3		**1.05**	**1.17**	**1.30**	**1.42**	**1.55**
Site Context						
Size of patch	n/a	0.00	0.00	0.00	0.00	0.00
Connectedness	n/a	0.00	0.00	0.00	0.00	0.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	4.00	4.75	5.50	6.25	**7.00**
Species mobility capacity	n/a	4.00	4.00	4.00	4.00	4.00
Site Context Score	n/a	14.00	14.75	15.50	16.25	17.00
Site Context Score - out of 3		**0.75**	**0.79**	**0.83**	**0.87**	**0.91**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**4.37**	**4.68**	**4.99**	**5.29**	**5.60**

	AVERAGE SCORE					
AU13 - RE 12.5.13 (Non-Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	50%	2.50	3.13	3.75	4.38	**5.00**
Native plant species richness - trees	61%	2.50	2.81	3.13	3.44	**3.75**
Native plant species richness - shrubs	31%	2.50	2.50	2.50	2.50	2.50
Native plant species richness - grasses	400%	5.00	5.00	5.00	5.00	5.00
Native plant species richness - forbs	104%	3.75	4.06	4.38	4.69	**5.00**
Tree canopy height (average of emergent, canopy, sub-canopy)	24%	2.00	2.00	2.00	2.00	2.00
Tree canopy cover (average of emergent, canopy, sub-canopy)	94%	2.50	3.13	3.75	4.38	**5.00**
Shrub canopy cover	0%	0.00	0.75	1.50	2.25	**3.00**
Native grass cover	1070%	3.00	3.00	3.00	3.00	3.00
Organic litter	46%	3.00	3.50	4.00	4.50	**5.00**
Large trees (euc plus non-euc)	13%	2.50	2.50	2.50	2.50	2.50
Coarse woody debris	7%	1.00	1.00	1.00	1.00	1.00
Non-native plant cover	63%	1.50	2.13	2.75	3.38	**4.00**
Total BioCondition Score	n/a	**31.75**	**35.50**	**39.25**	**43.00**	**46.75**
Quality and availability of food and foraging habitat	n/a	5.00	5.00	5.00	5.00	5.00
Quality and availability of shelter	n/a	3.00	3.50	4.00	4.50	**5.00**
Site Condition Score	n/a	39.75	44.00	48.25	52.50	56.75
Site Condition Score - out of 3		**1.19**	**1.32**	**1.45**	**1.58**	**1.70**
Site Context						
Size of patch	n/a	0.00	0.00	0.00	0.00	0.00
Connectedness	n/a	0.00	0.00	0.00	0.00	0.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	1.00	2.50	4.00	5.50	**7.00**
Species mobility capacity	n/a	4.00	4.00	4.00	4.00	4.00
Site Context Score	n/a	11.00	12.50	14.00	15.50	17.00
Site Context Score - out of 3		**0.59**	**0.67**	**0.75**	**0.83**	**0.91**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**4.35**	**4.70**	**5.05**	**5.41**	**5.76**

	AVERAGE SCORE					
AU14 - RE 12.8.21 (Non-Remnant)	**Baseline**		**Year 5**	**Year 10**	**Year 15**	**Year 20**
	% Benchmark	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition						
Recruitment of woody perennial species in EDL	0%	0.00	0.00	0.00	0.00	0.00
Native plant species richness - trees	6%	0.00	1.25	2.50	3.75	**5.00**
Native plant species richness - shrubs	15%	0.00	1.25	2.50	3.75	**5.00**
Native plant species richness - grasses	0%	0.00	1.25	2.50	3.75	**5.00**
Native plant species richness - forbs	60%	2.50	3.13	3.75	4.38	**5.00**
Tree canopy height (average of emergent, canopy, sub-canopy)	11%	0.00	0.75	1.50	2.25	**3.00**
Tree canopy cover (average of emergent, canopy, sub-canopy)	0%	0.00	0.00	0.00	0.00	0.00
Shrub canopy cover	0%	0.00	0.75	1.50	2.25	**3.00**
Native grass cover	0%	0.00	0.25	0.50	0.75	**1.00**
Organic litter	9%	0.00	0.75	1.50	2.25	**3.00**
Large trees (euc plus non-euc)	0%	0.00	0.00	0.00	0.00	0.00
Coarse woody debris	0%	0.00	0.00	0.00	0.00	0.00
Non-native plant cover	70%	0.00	1.25	2.50	3.75	**5.00**
Total BioCondition Score	n/a	**2.50**	**10.63**	**18.75**	**26.88**	**35.00**
Quality and availability of food and foraging habitat	n/a	1.00	2.00	3.00	4.00	**5.00**
Quality and availability of shelter	n/a	1.00	2.00	3.00	4.00	**5.00**
Site Condition Score	n/a	4.50	14.63	24.75	34.88	45.00
Site Condition Score - out of 3		**0.14**	**0.44**	**0.74**	**1.05**	**1.35**
Site Context						
Size of patch	n/a	0.00	0.00	0.00	0.00	0.00
Connectedness	n/a	0.00	0.00	0.00	0.00	0.00
Context	n/a	2.00	2.00	2.00	2.00	2.00
Ecological Corridors	n/a	0.00	0.00	0.00	0.00	0.00
Role of site location to species overall population in the state	n/a	4.00	4.00	4.00	4.00	4.00
Threats to the species	n/a	1.00	2.50	4.00	5.50	**7.00**
Species mobility capacity	n/a	4.00	4.00	4.00	4.00	4.00
Site Context Score	n/a	11.00	12.50	14.00	15.50	17.00
Site Context Score - out of 3		**0.59**	**0.67**	**0.75**	**0.83**	**0.91**
Species Stocking Rate						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	n/a	10.00	10.00	10.00	10.00	10.00
Species usage of the site (habitat type & evidenced usage)	n/a	15.00	15.00	15.00	15.00	15.00
Approximate density (per ha)	n/a	10.00	12.50	15.00	17.50	20.00
Role/importance of species population on site*	n/a	10.00	10.00	10.00	10.00	10.00
Species Stocking Rate Score - out of 4		**2.57**	**2.71**	**2.86**	**3.00**	**3.14**
Total Habitat Quality Score - out of 10		**3.30**	**3.82**	**4.35**	**4.88**	**5.40**