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OFFSET AREA MANAGEMENT PLAN

Moranbah North & Grosvenor Mines rail and pipeline realignment (EPBC2023/09489)

Version	*Date*	*Description*	*Author*	*Approved*
A	26 June 2025	Draft	GB	KS
B	11 August 2025	Draft – updated	GB	KS
C	19 November 2025	Draft – updated	GB	KS
D	8 December 2025	Draft – updated	GB	KS

DECLARATION OF ACCURACY

I declare that:

1. To the best of my knowledge, all the information contained in, or accompanying this Moranbah North & Grosvenor Mines rail and pipeline realignment - Offset Management Plan (Revision A) is complete, current and correct.

2. I am the designated proponent or the approval holder for this action.

3. I am aware that:

   a. Section 490 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.

   b. Section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth) where the person knows the information or document is false or misleading.

   c. The above offences are punishable on conviction by imprisonment, a fine or both.

_____

Signed

Katy Steele

_____

Full name (please print)

Anglo American

_____

Organisation (please print)

Date 11 /12 / 2025

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1. Introduction

This Offset Area Management Plan (**OAMP**) describes how Anglo American proposes to secure and manage biodiversity offsets for the Moranbah North & Grosvenor Mines rail and pipeline realignment (the Project) as part of the approval (**EPBC 2023/09489**) issued under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) on [XX Month YEAR].

This OAMP describes how a conservation gain will be achieved for Matters of National Environmental Significance (**MNES**) consistent with the *EPBC Act Environmental Offsets Policy* and the EPBC Act approval for the project (EPBC 2023/09489).

The OAMP utilises ecological mapping and condition of the impacted site and the findings of the ecological assessments undertaken at the proposed offset area to outline how the offset obligations under the approval are addressed.

1.1. Responsible Party

The proponent for the Project is Anglo Coal (Moranbah North Management) Pty Limited (ACN 069 603 587) (Anglo Coal). Anglo Coal is the manager of the Moranbah North Coal Joint Venture and operates the Moranbah North Mine and Grosvenor Mine on behalf of the joint venture participants who at the date of this OAMP are Moranbah North Coal Pty Ltd, NS Moranbah North Pty Ltd, NS Coal (Moranbah North) Pty Ltd, Mitsui Moranbah North Investment Pty Ltd, JFEMA Moranbah North Pty Ltd and Shinsho Moranbah Coal Pty Ltd. Anglo Coal is owned by Anglo American. Anglo American is an experienced coal mine operator with five operating mines in Queensland (Moranbah North, Grosvenor, Capcoal, Aquila and Dawson).

Anglo Coal and its successors and assigns, commit to the implementation of this OAMP.

1.2. The Project

Anglo Coal operates on behalf of the Moranbah North Coal Joint Venture, two underground metallurgical coal mines north of the Moranbah township in central Queensland – Moranbah North Mine and Grosvenor Mine. An existing rail line known as the North Goonyella Branch rail line (owned by DTMR and operated by Aurizon) and a water pipeline owned and operated by Whitehaven Coal (Braeside West Water Pipeline) traverse the surface areas of both mines and overlie the coal resource. To maximise mining of the coal resource, sections of the rail line and water pipeline are proposed to be relocated (collectively the Project). The Project is located in Central Queensland, approximately 8 km north of Moranbah, with Emerald lying approximately 180 km to the south, and Mackay 150 km to the north east (Figure 1).

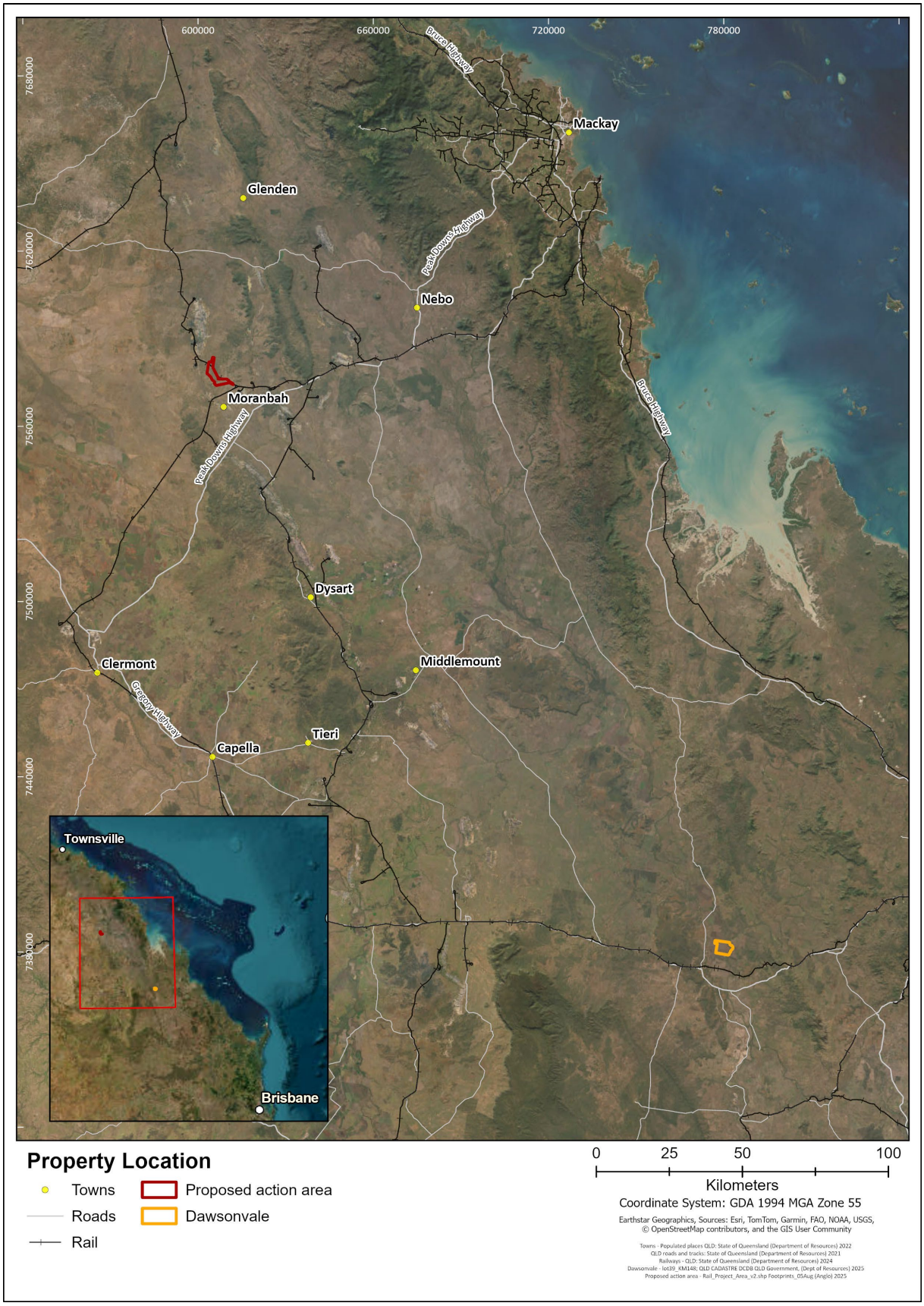

Figure 1: Property Location

1.3. Purpose and objectives of this management plan

The purpose of this OAMP is to provide details on how a conservation gain for Matters of National Environmental Significance (**MNES**) will be achieved consistent with the *EPBC Act Environmental Offsets Policy* and the EPBC Act approval for the Project (EPBC 2023/09489) dated [XX Month YEAR]. It demonstrates compliance with the Preliminary Documentation (**PD**) Guidelines issued for the Project assessment and outlines the management requirements that will ensure a conservation gain for MNES. Specifically, the OAMP:

- Describes the Project's offset area, including values, existing condition and threatening processes
- Demonstrates the Project's compliance with the *EPBC Act Environmental Offsets Policy* (DSEWPaC 2012) including the degree of conservation gain and legal securement of the offset
- Assesses the offset against the offset requirements of the Project in accordance with the Offsets Assessment Guide (**OAG**)
- Determines the overall suitability of the Project's offset and anticipated environmental outcome, accounting for risk management
- Details the required management, monitoring and reporting actions to achieve the desired conservation outcomes.

The environmental outcomes of this OAMP are specific improvements in ecological habitat values for each of the matters requiring offsets. These improvements are defined in detail in **Section 4.1** of this document (including offset completion criteria and performance targets).

The offset requirements from the EPBC Act approval for the Project are provided in Table 1-1.

Table 1-1: Offset requirements of the EPBC Act Approval

Condition	OAMP Section
[placeholder]	[placeholder]

1.4. MNES within the proposed action area

The Project is located in central Queensland within the Brigalow Belt North Bioregion. Field studies and vegetation mapping were undertaken in the proposed action area during the assessment and approval of the Project, identifying five threatened species and one Threatened Ecological Community (**TEC**) with potential to occur in the proposed action area. A detailed impact assessment using relevant policy guidance has been undertaken as part of the PD for all relevant MNES.

The significant impact assessment undertaken as part of the PD concluded that there will be no significant residual impacts on MNES. However, the Commonwealth Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) has determined that environmental offsets are required as a condition of approval for one MNES:

- Brigalow (*Acacia harpophylla* dominant and codominant) Threatened Ecological Community (Brigalow TEC) - Endangered

Table 1-2 below presents the Project impacts for Brigalow TEC, which are required to be offset.

Table 1-2: Summary of impacts to MNES

MNES	Presence in the proposed action area	Impact area (ha of habitat)	Habitat quality
Brigalow TEC	Known	7.8	5

1.5. Area for offset acquittal

To meet the conditions of the EPBC Act approval for the Project, one property has been selected to acquit the offset requirements:

1. **Dawsonvale** – located approximately 260 km south-east of the proposed action area, will provide the offset for Brigalow TEC.

The location of this property in relation to the proposed action area are shown in Figure 1.

2. EPBC Act Environmental Offsets Policy and framework

This section describes how the offset area meets the relevant requirements of the *EPBC Act Environmental Offsets Policy*, plans and guidelines.

2.1. Policy principles

The *EPBC Act Environmental Offsets Policy* sets out eight key overarching principles to determine the suitability of offsets. Table 2-1 outlines each of the policy principles and how it has been considered in the OAMP, with a reference to the relevant OAMP section.

Table 2-1: EPBC Act Environmental Offset Policy principles

Policy principle	Project offsets
Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matters.	The offset will deliver a conservation outcome for Brigalow TEC by protecting and improving an area of Brigalow TEC. The habitat will be managed to improve the habitat quality for this MNES by 1 point over a 20 year period. A Voluntary Declaration (**VDec**) under the Vegetation Management Act 1999 (Qld) (**VMA**) will ensure legal protection of the offset area.
Suitable offsets must be built around direct offsets but may include other compensatory measures.	100% of the Project's MNES offset obligations will be acquitted by the proposed direct land-based offsets.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter.	The status of the impacted threatened community has been accounted for through the use of the OAG when calculating the offset area requirements.
Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter.	The extent of the offset has been calculated using ecological reports that include both flora and fauna surveys, for both the impact and offset site to inform inputs into the OAG.
Suitable offsets must effectively account for and manage the risks of the offset not succeeding.	The risks associated with the offset have been assessed (Section 6) and mitigation and appropriate management actions proposed in the Offset Area Management Measures provided in Section 8. In addition, uncertainty, and therefore risk, associated with achieving a net gain in habitat quality are factored in to the OAG calculations.
Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs.	The offset area is not currently protected from timber harvesting, the inappropriate use of hot fires or the under-sowing of exotic pasture species through either the VMA or the EPBC Act due to exemptions within the legislative frameworks for the continuing use of the land. Securing the offset area (via a VDec that has its head of power under the VMA) will add additional protection for biodiversity values from clearing. The offset area is currently managed to meet the general requirements for biosecurity. Additional management will be in place for the offset, including a commitment to manage weeds and pests to reduce abundance below baseline levels, fire management, and access restriction.
Suitable offsets must be efficient, timely, transparent, scientifically robust and reasonable	The proposed offset will be efficient and timely as the offset will be established, and implementation commenced as soon as this OAMP is approved and, and prior to the commencement of the Project. Conservation benefits to be provided by the offset will be realised within 20 years from implementation of the offset. The offset will be legally secured via vDec, as soon as possible after the approval of this OAMP, however timeframes depend on the Queensland government's processes. Anglo American has the right to access to the land as an offset and legally secure the offset. The scale and suitability of the offset are transparent, and the offsets are based on the terrestrial ecology reports prepared by suitably qualified ecologists. The proposed area has been determined using the EPBC Act OAG inputs and calculator.

Policy principle	Project offsets
Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	The offset area was surveyed in 2025, providing the baseline habitat quality assessment and these scores have been compared against the relevant bio-condition benchmarks for attributes relevant to the protected matter. Habitat quality assessments were conducted in accordance with the Commonwealth Government Modified Habitat Quality Assessment (MHQA) method. These habitat assessment measurements will be repeated periodically in accordance with this plan during its implementation phase. Anglo American has arrangements in place for the landowner to undertake management actions stipulated in this OAMP. Anglo American has the right to access the offset to undertake inspections and audits to ensure the implementation and compliance. Monitoring and reporting are detailed in the Offset Area Management Measures outlined in Section 8, and the monitoring schedule and reporting schedule are shown in Section 9. The offset will be protected from clearing and secured via a VDec that has its head of power under the VMA.

2.2. Addressing relevant EPBC plans and advice

The *EPBC Act Environmental Offsets Policy* states that an offset should address key priority actions for the impacted MNES in any approved recovery plans, threat abatement plans, conservation advice, ecological character description or approved Commonwealth Management Plan. Table 2-2 summarises how this plan addresses the relevant Conservation Advices and Threat Abatement Plans.

Table 2-2: Conservation Advice and Threat Abatement Plans addressed in the OAMP

Document	Key threats	Presence on offset property	Comment
Brigalow TEC Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (DoE 2013)	Clearing	The offset area is largely intact remnant vegetation with minimal fragmentation. However, the surrounding area has been cleared for cropping.	The offset area will be legally secured under a VDec and registered as Category A vegetation, where clearing is prohibited under State legislation. Clearing within the offset area will only be allowed within those areas required for maintaining fencing and fire control lines.
	Fire	Threat exists across the landscape / region. The offset area comprises open forest adjacent to a riparian corridor and open cropping land. Current bushfire risk is considered low to moderate (ERM 2025).	Fire risk will be controlled through weed control and fire management, including maintaining firebreaks along all external boundaries of the offset area.
	Weeds	Weeds including *Parkinsonia aculeata* are present within the offset area.	Weed cover will be reduced to less than 5% of total cover. Weed management program will include weed control (e.g. spraying), and weed hygiene measures.
	Pest animals	Pest animals including feral cats, wild pigs, and wild dogs are present within the offset area.	The presence of feral animals will be monitored and control of existing populations of feral animals (feral cats, wild dogs and pigs) will be undertaken within the offset area to reduce abundance below baseline.
	Inappropriate grazing regimes	The offset area is not currently grazed	Grazing will not be permitted within the offset area
	Climate change	Threat exists across the landscape / region.	At a property level climate change is best addressed through the building or resilience within natural ecosystems. A key element of this is protecting and managing larger areas of good condition native vegetation and habitat as intended under this OAMP. The offset site was selected for its potential to provide a substantial increase to the habitat, connectivity and other ecological values within the surrounding area.
Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by **cane toads** (DSEWPaC 2011)	**Lethal toxic ingestion of cane toads** (applies to Brigalow TEC)	Cane toads are likely abundant within the landscape	No specific measures proposed

3. Offset property

3.1. Overview of the offset property – 'Dawsonvale'

The selected property for the offset area is Dawsonvale (Lot 39 on KM148). This property is located approximately 260 km south-east of the proposed action area within the Brigalow Belt North Bioregion (Figure 1).

The property was selected for its suitability, including:

- Proximity to state biodiversity corridors or linking to other areas of conservation – a state biodiversity corridor runs through Dawsonvale (Figure 2)
- Field verified biodiversity values present on the property (Figure 3, detailed in Section 4 below)
- The potential to locate future offsets on the same properties for other projects thus creating larger areas of biodiversity offsets and achieving a better environmental outcome.

Dawsonvale is primarily used for cropping. It is likely that further areas within this property will be proposed and used for other biodiversity offsets by Anglo American.

3.2. Offset configuration

The offset area is located adjacent to the Dawson River within the Dawsonvale property and covers an area of 60 ha (Figure 4). The offset area comprises remnant Brigalow woodland which was field verified to meet the key diagnostic criteria and condition thresholds for Brigalow TEC.

3.3. Connectivity

The offset area is contiguous patch of remnant vegetation along the Dawson River. This vegetation is mapped as a state riparian corridor (Figure 2). The ground verified regional ecosystems are illustrated in Figure 3.

3.4. Threats

While the offset area comprises largely contiguous remnant vegetation, a number of threats are present within the landscape, as described in Table 3-1. It should be noted that uncontrolled fires and droughts are not within Anglo Coal's control, however climatic variation will be accounted for in the management of the offset where practicable.

Table 3-1: Summary of threats within Dawsonvale

Threat	Evidence within Dawsonvale
Feral animals	Feral animals, including feral cats, wild pigs, and wild dogs are present within the offset area.
Weeds	Weeds including parkinsonia (*Parkinsonia aculeata*), guinea grass (*Megathyrsus maximus*), velvet prickly-pear (*Opuntia tomentosa*), harrisia cactus (*Harrisia spp.*), buffel grass (*Cenchrus ciliaris*) red natal grass (*Melinis repens*), and rubber vine (*Cryptostegia grandiflora*) are present within the offset area.
Fire	Threat exists across the landscape / region. The offset area is primarily open forest adjacent to a riparian corridor and open cropping land.Current bushfire risk is considered low to moderate.
Clearing and fragmentation	The offset area is predominantly remnant vegetation. However, adjacent land has been cleared for agricultural purposes, including cropping and grazing.
Drought	Threat exists on a landscape level, independent of activities within the offset area

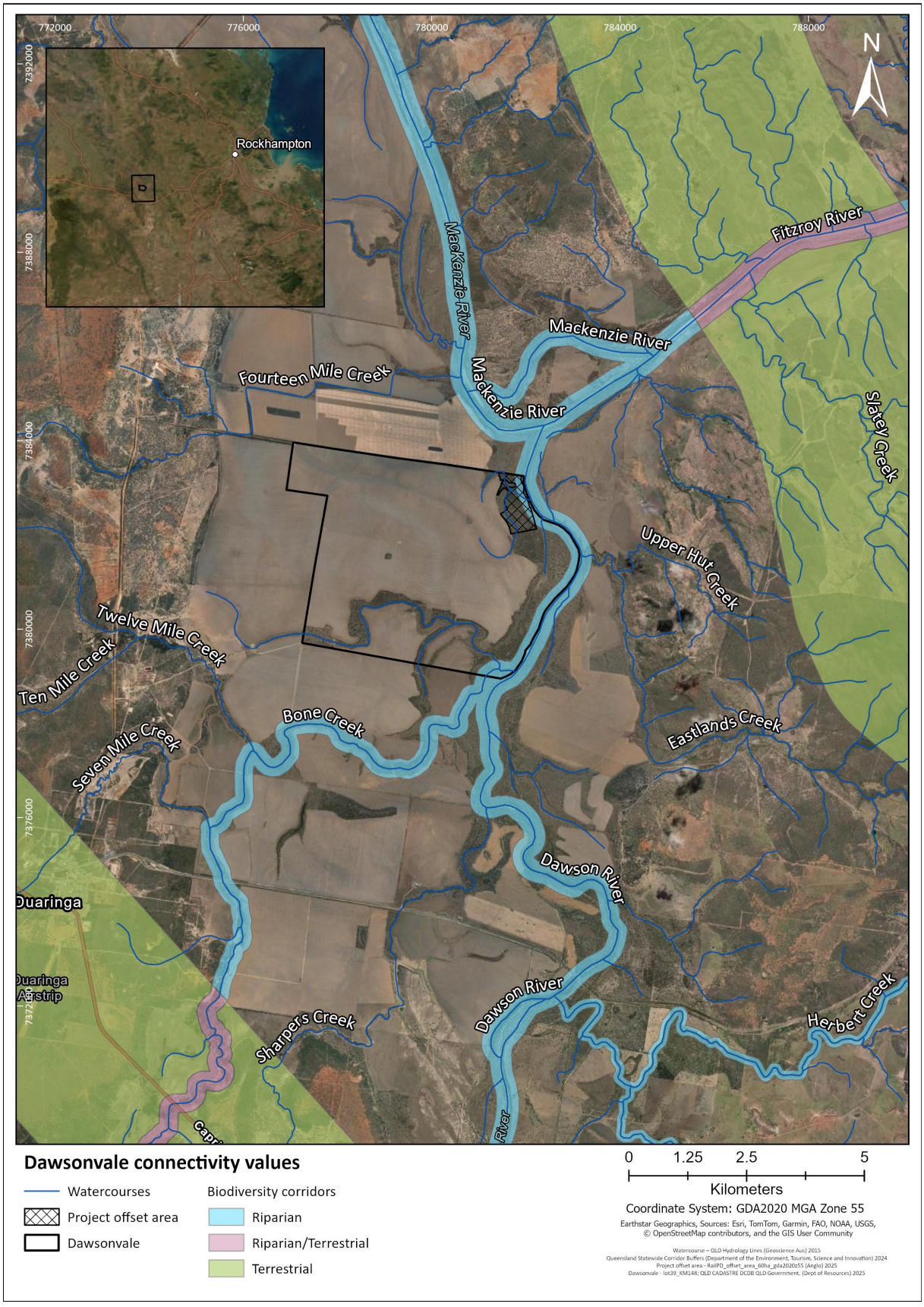

Figure 2: Dawsonvale connectivity values

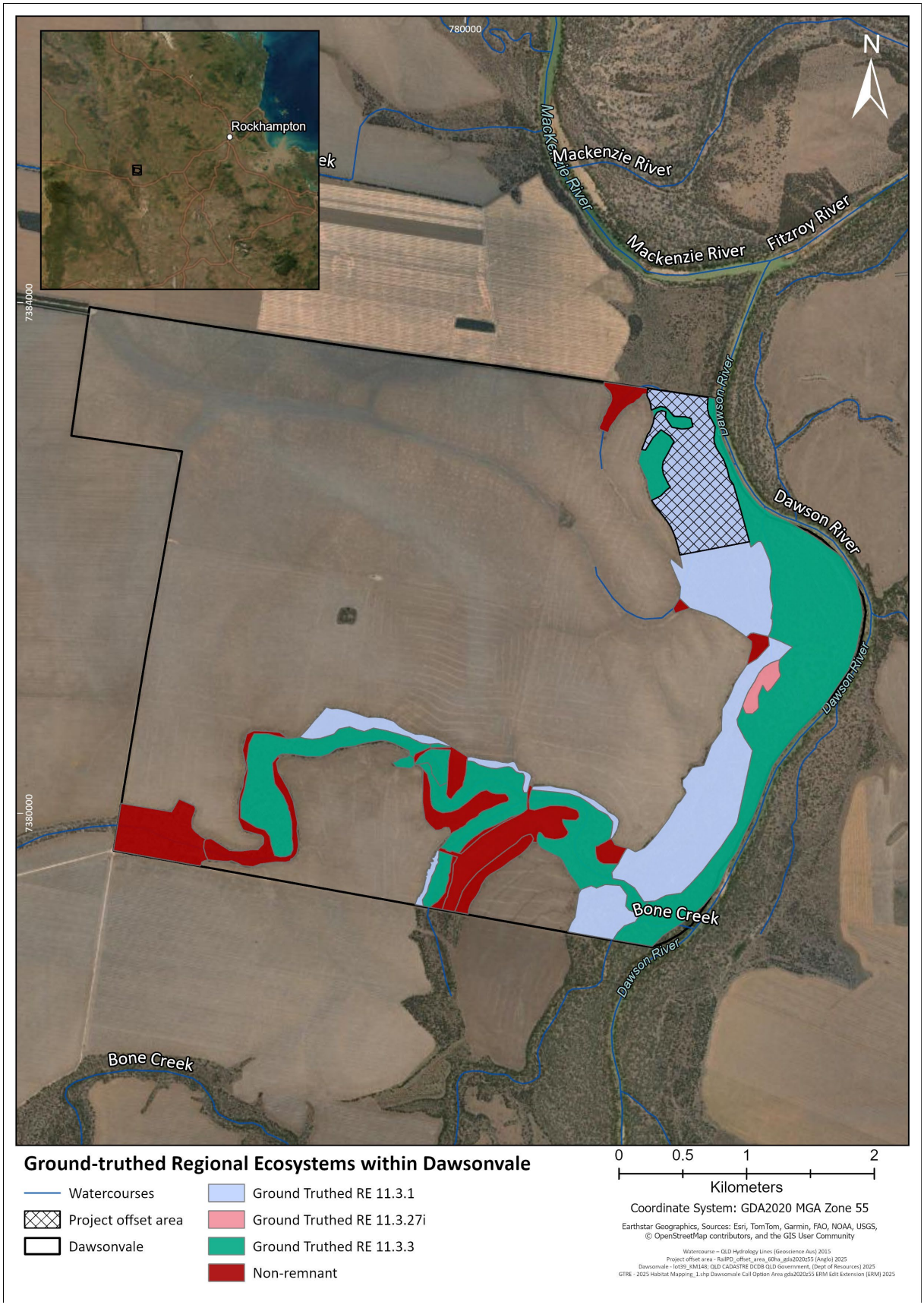

Figure 3: Ground-truthed Regional Ecosystems within Dawsonvale

4. Offset site biodiversity values

4.1. Site assessment methodology to determine ecological values

A baseline field survey of Dawsonvale was conducted by ERM from 30 September – 2 October 2025. This field survey included:

- A desktop review of available vegetation mapping and environmental database records
- Ground-truthing of RE mapping in accordance with the Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (Neldner et al. 2020)
- BioCondition assessments in accordance with the BioCondition Assessment Manual (Eyre et al. 2015)
- Habitat quality assessments in accordance with the MHQA method (Appendix B)
- Weed surveys recording presence and abundance of weeds within BioCondition plots
- Pest fauna surveys using baited camera traps deployed for 30 days to assess species richness and frequency of occurrence
- Observations regarding the ecological function and suitability of vegetation communities as an offset site.

The ecological survey report is provided in Appendix A.

4.2. General description and values present

Vegetation on Dawsonvale comprises a mix of remnant and regrowth vegetation, and non-remnant areas primarily used for cropping. Remnant vegetation includes:

- Regional ecosystem (RE) 11.3.1 - *Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains
- RE 11.3.3 – *Eucalyptus coolabah* woodland on alluvial plains
- RE 11.3.27i – Freshwater wetland

RE 11.3.1 within Dawsonvale was confirmed to meet key diagnostic criteria for Brigalow TEC during field survey.

4.3. Offset area start quality

4.3.1. Brigalow TEC

Proposed offset area: 60.0 ha
Start quality: 7

To be considered as part of the TEC, patches of Brigalow (*Acacia harpophylla*) vegetation within the Brigalow Belt Bioregion in Queensland must meet the following key diagnostic characteristics and condition thresholds (DoE 2013):

1. The presence of *Acacia harpophylla* as one of the most abundant tree species in the patch. *A. harpophylla* is either dominant in the tree layer, or co-dominant with other species (notably *Casuarina cristata*, other species of *Acacia*, or species of *Eucalyptus*). AND
2. The patch meets the description of one of the following REs, as described by the Queensland Herbarium (2013): REs 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14 and 11.12.21; AND/OR The vegetation in the patch is brigalow regrowth with species composition and structural elements broadly typical of one of the identified REs. This can be assumed to be the case where it has been at least 15 years since it was last comprehensively cleared (not just thinned); unless direct evidence proves otherwise.
3. The patch is 0.5 ha or more in size; AND

4. Exotic perennial plants comprise less than 50% of the total vegetation cover of the patch, as assessed over a minimum sample area of 0.5 ha (100 m by 50 m), that is representative of the patch.

All vegetation comprising RE11.3.1 within Dawsonvale has been assessed during field survey to meet the above key diagnostic criteria and condition thresholds for Brigalow TEC (ERM 2025). The area to be used as an offset for Brigalow TEC is part of the larger 212 ha of Brigalow TEC mapped within Dawsonvale. Adjacent areas also provide potential offset values for other MNES, as well as additional patches of Brigalow TEC which are likely to be utilised for offsets by Anglo American in the future, leading to the entire area being protected and managed for its biodiversity values.

The start (baseline) habitat quality of Brigalow TEC was measured in the proposed offset area using the Commonwealth MHQA method, with a score of 7 from a maximum of 10.

Lower BioCondition scores (relative to benchmark) for specific indicators were generally attributed to:

- Low ground-layer native species richness
- Low native grass cover
- High organic litter cover
- Low abundance of large trees
- Low coarse woody debris cover
- Presence of weeds

A number of threats are also impacting the quality of Brigalow TEC within the offset area:

- Presence of feral animals, particularly pigs (*Sus scrofa*), which has negatively impacted native herbaceous growth and the survival of smaller native fauna
- Scattered infestation of Harrisia cactus, which show signs of increasing in area, threaten the condition of vegetation if not treated
- Infestations of Parkinsonia in the surrounding area are likely to encroach on the offset area, reducing the size of the TEC over time if not treated.

The offset area will be managed to increase the quality of Brigalow TEC habitat by:

- Control of feral animals including wild pigs
- Reduction in weed cover
- Protection from clearing and fire.

Management of weeds and feral animals throughout the offset area will improve understorey condition over time, increasing overall habitat quality and condition for environmental values present.

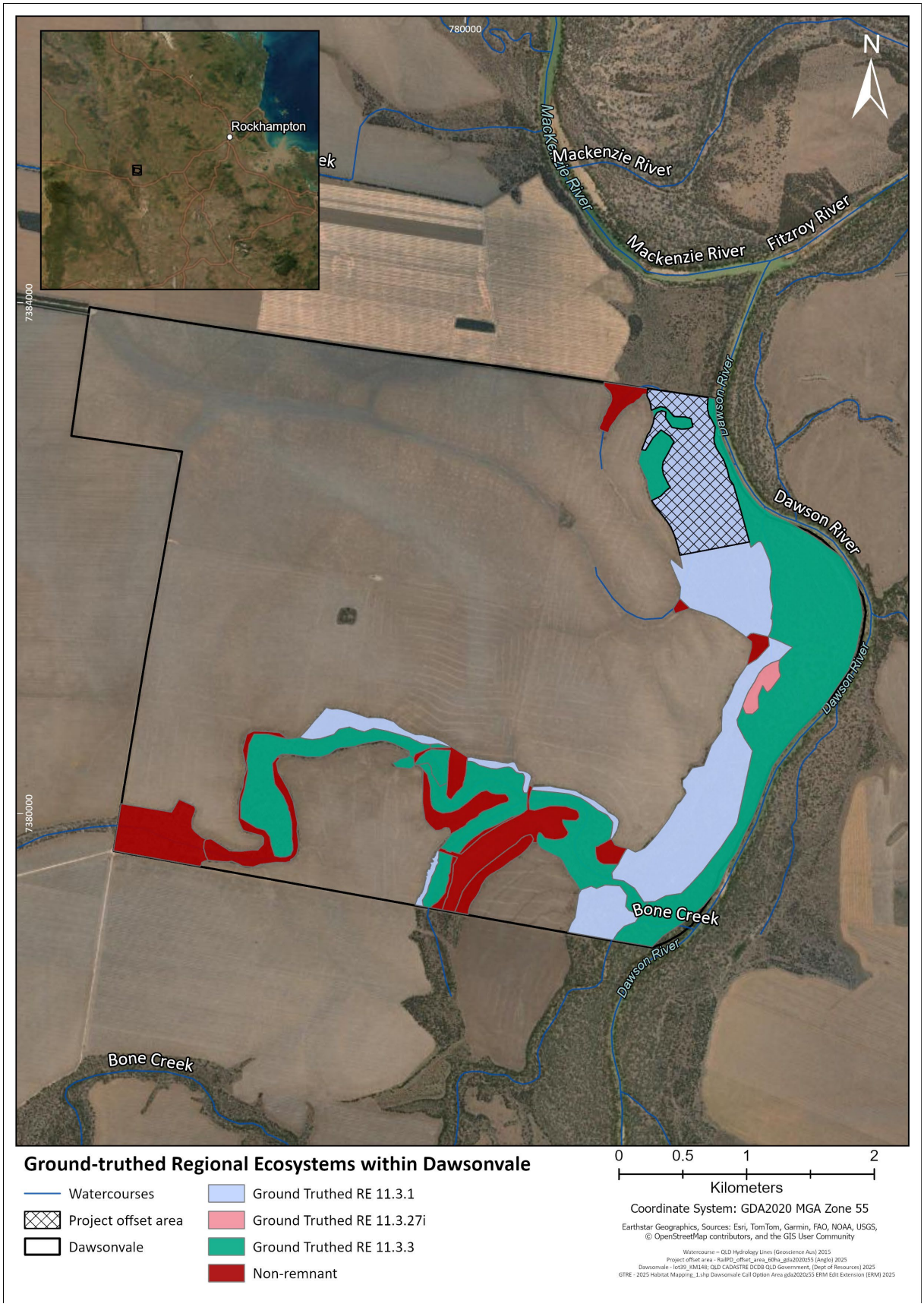

Figure 4: Brigalow TEC within Dawsonvale and Project offset area

5. Completion criteria and performance targets

5.1. Completion Criteria

Offset completion criteria have been determined for Brigalow TEC based on an understanding of specific habitat, connectivity and other ecological values (Table 5-1). These criteria were initially derived from detailed ecology survey information of the offset area utilising an approach specified within the *Guide to determining terrestrial habitat quality* (DES, 2020). The targeted habitat quality meets guidelines published by ANZECC (2000), stating completion criteria should be:

- Specific enough to reflect unique set of environmental, social and economic circumstances
- Flexible enough to adapt to changing circumstances without compromising objectives
- Include environmental indicators suitable for demonstrating that rehabilitation trends are heading in the right direction
- Undergo periodic review resulting in modification if required due to changed circumstances or improved knowledge
- Based on targeted research which results in more informed decisions.

Over the course of the management period a set number of interim completion criteria have been proposed to track the trajectory of habitat quality improvement towards the desired final completion criteria. The timing for these interim targets corresponds with the 5 yearly habitat quality surveys and detailed ecological condition monitoring reports in years 2031, 2036, 2041 and 2046[1].

Interim targets were derived by identifying the attributes expected to increase over the period of the approval. The target values were determined by differentiating between specific attributes, nothing the majority were longer term targets (e.g. for indictors such as species richness, tree canopy cover, number of large trees), while some indicators are more conducive to a benefit that could be realised early through management (e.g. non-native plant cover).

The completion of management actions identified in Section 7 will enable the offset site to improve and achieve the interim and completion target scores required, thus meeting and maintaining the completion criteria required of the offset. The annual reports will provide transparency regarding how the site management actions are being implemented, and where relevant, identify any *force majeure* events impacting the offset site, and any non-compliance with the management plan.

[1] Assumes that OAMP is approved in late 2025.

Table 5-1: Interim targets and completion criteria

Metric	Assessment Sites	Regional Ecosystems	Habitat start quality score	Interim performance targets			Completion criteria
				Year 5	Year 10	Year 15	
Brigalow TEC habitat quality	1, 2, 7, 8	11.3.1	7	Overall habitat quality score across offset area = 7/10, based on: • Native plant species richness (shrubs, grasses, and forbs) equal to or greater than baseline • Native grass cover equal to or greater than baseline • Large trees equal to or greater than baseline • Coarse woody debris equal to or greater than baseline • Weed cover ≤ 5%	Overall habitat quality score across offset area = 7.5/10, based on: • Native plant species richness (shrubs, grasses, and forbs) equal to or greater than baseline • Native grass cover equal to or greater than baseline • Large trees equal to or greater than baseline • Coarse woody debris equal to or greater than baseline • Weed cover ≤ 5%	Overall habitat quality score across offset area = 8/10, based on: • Native plant species richness (shrubs, grasses, and forbs) ≥ 90% of benchmark • Native grass cover ≥ 90% of benchmark • Large trees ≥ 75% of benchmark • Coarse woody debris ≥ 75% of benchmark • Weed cover ≤ 5%	Overall habitat quality score across offset area = 8/10, based on: • Native plant species richness (shrubs, grasses, and forbs) ≥ 90% of benchmark • Native grass cover ≥ 90% of benchmark • Large trees ≥ 75% of benchmark • Coarse woody debris ≥ 75% of benchmark • Weed cover ≤ 5%

Table 5-2 provides justification for the expected improvement in condition scores for various indicators within the offset area in response to management actions. Exact scores vary between assessment sites. Progress towards completion criteria should therefore be assessed based on increase in overall (i.e. average) habitat quality scores as presented in Table 5-1 above and improvement in individual scores at each assessment site relative to baseline. Management measures including protection from clearing, fire management, pest animal management (in particular pigs), and weed management will increase habitat quality by decreasing threats to Brigalow TEC.

Table 5-2: Justification for improvement in site condition

Site Condition indicators	Justification for improvement
Recruitment of woody perennial species in EDL	Recruitment of woody perennial species is meeting benchmark at all sites at baseline. No improvement or decline is anticipated.
Native plant species richness - trees	Native tree species richness is meeting benchmark at all sites. No improvement or decline is anticipated.
Native plant species richness - shrubs	Native plant species richness (shrubs, grasses, forbs) is anticipated to naturally increase over time as a result of: • increased protection and decreased disturbance • management of pest animals in particular pigs which can negatively impact native plant growth within the offset area • management of weeds which outcompete native species
Native plant species richness - grasses	
Native plant species richness - forbs	
Tree canopy height (average of emergent, canopy, sub-canopy)	Tree canopy height is exceeding benchmark at all sites at baseline. The offset area will be protected from clearing and fire. No decline is anticipated.
Tree canopy cover (average of emergent, canopy, sub-canopy)	Tree canopy cover is meeting or exceeding benchmark at all sites. No improvement is anticipated, however ecological thinning of suckers may improve cover if deemed required.
Shrub canopy cover	Shrub canopy cover is low across the offset area, with all sites below benchmark. No specific management measures are proposed.
Native grass cover	Native grass cover is low at all sites within the offset area. Native grass cover is anticipated to increase over time as a result of: • management of pest animals in particular pigs which can negatively impacted native plant growth within the offset area • management of weeds which outcompete native species
Organic litter	Organic litter is significantly above benchmark scores at all sites, negatively impacting habitat quality. Organic litter cover will decrease as native grass cover increases.
Large trees (euc plus non-euc)	The number of large trees is below benchmark at all sites. Large trees are anticipated to increase over time as a result of: • protection from clearing and fire • management of weeds which outcompete native species • ecological thinning of suckers if required
Coarse woody debris	Coarse woody debris is significantly below benchmark and is anticipated to increase due to protection of the offset area from clearing, including the removal of woody debris.
Non-native plant cover	Non-native plant cover is anticipated to improve as a result of weed management measures.

6. Analysis of risks to achieving management objectives and offset completion criteria

Potential risks to achieving the management objectives and outcomes have been considered in preparation of this OAMP. Risks have been assessed against the risk matrix that was supplied by the DCCEEW in 2022. The risk matrix has been used to assess the risk that the plan's objectives will not be met and identify the sources of those risks and strategies for managing them.

The risk assessment:

a) identified events that will, may, or are likely to impact the attainment of the completion criteria
b) assessed the likelihood and consequences of those events, and characterises residual risk levels, taking into consideration the mitigation of the risk by implementing the management actions
c) identified the level of uncertainty in mitigating the risk with the management actions and trigger criteria and corrective actions until the risk is reduced to an acceptable level.

Note: Throughout the application of the risk assessment a conservative approach has been adopted in line with the precautionary principle, which states that, if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Table 6-1: Risk matrix

RISK MATRIX	
Qualitative measure of likelihood (how likely is it that this event/circumstances 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/result 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				
		Minor	**Moderate**	**High**	**Major**	**Critical**
Likelihood	**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 6-2: Risk assessment for the offset site

Note: The risk ranking codes relate to the risk matrix as follows: L = Likelihood C = Consequence R = Risk

Risk	Threats	Initial risk ranking			Management measures	Management measures/actions	Residual risk ranking		
		L	C	R			L	C	R
Force majeure events									
Mining of the offset site	Open cut mining may produce full clearing of the offset site.	Rare	Critical	High	Offset area management	No current permits cover the offset site. The legal security over the site makes it known that the area is an offset. No available legal mechanism would render mining impossible on the offset site, however the VDec under the VMA would significantly increase offset obligations upon any person proposing to impact the offset site.	Rare	Critical	High
Drought	The threat posed by drought is a decrease in dry matter yield and groundcover, an increase in the likelihood of unplanned fire due to the dry conditions that could be started by lightning strike during storms and an increase in weed cover when rainfall occurs. There would also be lower levels of growth expected.	Likely	Moderate	Medium	Offset area management	Limited mitigation measures can be implemented. Should the offset be deemed by the approval holder or the Department to be delayed due to drought, both parties will work together to determine an appropriate response.	Likely	Moderate	Medium
Cyclones/ severe tropical lows/ flooding	The most significant impact from tropical cyclones or tropical lows is typically flooding. Systems generally form between November and April.	Likely	Moderate	Medium	Offset area management	Limited mitigation measures can be implemented The offset area is adjacent to the Dawson River and is likely to be subject to occasional flooding. However, cyclones and/or severe tropical lows are relatively infrequent (though likely to occur at some point during the life of the approval). However, flooding is not expected to be of sufficient duration, and winds are not expected to be sufficiently severe, to cause substantial long-term harm to the site. Additionally, the increased availability of soil moisture following extreme weather events is expected to increase growth rates, likely assisting natural repair of any potential damage. Increased soil moisture may assist weed growth, so a meander survey across the entire site will occur as soon after the end of a cyclone and any associated flooding as is safe and reasonably practicable to detect any areas of increased weed density. Flooding may also contribute to erosion.	Likely	Minor	Low
Degradation of habitat or vegetation loss through land clearing									
Degradation of habitat	The degradation of habitat due to the lack of environmental management of the offsets area including invasive plant control, fire management, and/or infrastructure maintenance.	Possible	High	Medium	Offset area management	Implementation of the management actions and adaptive management framework as outlined in this OAMP.	Unlikely	Minor	Low
Erosion	Raindrops hit bare soil with enough force to break the soil aggregates. These fragments wash into soil pores and prevent water from infiltrating the soil. Water then accumulates on the surface and increases runoff which takes soil with it.	Highly likely	Minor	Medium	Offset area management	Limited mitigation measures can be implemented. Improvement of ground-layer vegetation within the offset area through offset area management will decrease the risk of erosion.	Possible	Minor	Low
Timber harvesting/ collection	Unauthorised access to the offset area may result in timber harvesting/collection	Unlikely	Moderate	Low	Offset area management Site access control	Complete the installation of signage at all vehicle accesses identifying the areas as an environmental offset, within 12 months of securing the VDec. Complete the installation of any new planned fences, within twelve months of the securing the VDec; with the exception of any future riparian fencing identified as being required to protect sapling growth. All field monitoring (rapid and detailed) will report on any evidence of timber harvesting (refer Table 9-1).	Rare	Moderate	Low

Risk	Threats	Initial risk ranking			Management measures	Management measures/actions	Residual risk ranking		
		L	C	R			L	C	R
Unplanned clearing	The offset site occurs on a property used for cropping. It is possible for unplanned / illegal clearing for agriculture activities but considered improbable as the offset site will be mapped as Category A on the PMAV. Clearing can also occur by vehicles traversing the area off designated roads/tracks and/or illegal camping. This is also considered improbable, as the site is remote and access to the site will be restricted. The most plausible (though still unlikely) cause of unplanned/illegal clearing would be if aerial spraying on adjacent properties strayed across the offset boundary.	Unlikely	Major	High	Offset area management Site access control	Complete the installation of signage at all vehicle accesses identifying the areas as an environmental offset, within 12 months of securing the VDec. Within 12 months of the approval of this OAMP, register a VDec over the offset area, ensuring they area shown as Category A vegetation on the PMAV. All monitoring (rapid and detailed) will report on any evidence of clearing.	Rare	Major	Medium
Fire: the impact from uncontrolled fire would be a reduction in groundcover, thinning of the canopy and slowing of the offset site achieving the completion criteria									
Unplanned or non-controlled fire in offset area.	The impact from uncontrolled fire would be a reduction in dry matter yields and overall groundcover, thinning of the canopy, destruction of regrowth and emerging saplings and an overall slowing of the offset site achieving the completion criteria.	Likely	Moderate	Medium	Fire management	The offset area comprises remnant brigalow. Fire is usually rare in these communities due to low levels of fine fuel. This site is located adjacent to a large cropping area and the Dawson River. Fire is not used in the vicinity.	Possible	Minor	Low
Increased fire risk due to high fuel loads	Following an average or above average wet season, there is an opportunity for fuel loads in the form of dry matter to accumulate to unacceptable levels. When this occurs and the high levels of fuel are present prior to summer, then the risk of wild and/or high-intensity fires is exacerbated.	Possible	High	Medium	Fire management	The offset area comprises remnant brigalow. Fire is usually rare in these communities due to low levels of fine fuel. Fire risk will be controlled through weed control and fire management.	Unlikely	Minor	Low
Invasive plants: introduction, establishment and spread of non-native weeds including restricted invasive plants listed under the* Biosecurity Act 2014 *(Qld)									
New infestations of invasive weed species in the offset area.	Infestation of previously unidentified invasive weeds within the offset area. If a weed infestation is unchecked, it may cause a significant deterioration in the offset site.	Possible	High	Medium	Invasive plants management listed under the *Biosecurity Act 2014* (Qld)	The offset area is remote and access will be limited, to reduce/prevent pathogen/propagule transmission vectors. All vehicles accessing the offset area are required to have undergone a weed inspection and vehicle hygiene check, confirming that they are weed free, before accessing the site. If a new weed infestation is identified, weed management measures will occur as per Table 7-1.	Unlikely	Minor	Low
Expansion of existing infestations of declared weed species in the offset area	The extent of existing infestations of restricted invasive plants species expand or the species become more abundant within the area.	Highly likely	High	High	Invasive plants management listed under the *Biosecurity Act 2014* (Qld)	Access to the offset area will be restricted. Chemical and/or mechanical control of all restricted invasive plants in accordance with the control measures outlined in the Biosecurity Queensland Fact Sheets or other sources of information. All monitoring, rapid and detailed, will include observations on weed abundance (including repeated observations at established photo monitoring points).	Unlikely	Minor	Low
Pest/feral animals in the offset area									
Increased population of feral animals in the offset area.	Wild cat, pig and dog populations are extensive and highly transient, and therefore the scale of impact is potentially large. Major damage to the environment/habitat occurs when large numbers of animals congregate in the area.	Highly likely	High	High	Pest animal management Feral pig management	Control of pigs and wild dogs will be undertaken via a bating program, which will be augmented with shooting and trapping of wild pigs if baiting is not sufficient to reduce numbers. Additionally, the Land Manager, during quarterly inspections of the offset area may remove any wild cats, pigs or wild dogs that are seen. If an increase in feral animal activity above baseline or subsequent monitoring event is noted, an additional trapping, baiting and/or control program is to be instigated until the increased activity has ceased.	Possible	Minor	Low
Degradation of habitat by overgrazing									

Risk	Threats	Initial risk ranking			Management measures	Management measures/actions	Residual risk ranking		
		L	C	R			L	C	R
Unauthorised or inappropriate grazing in offset area	High density grazing over an extended period destroys shrubs and native grass cover and slows the regeneration of habitat.	Possible	High	Medium	Cattle exclusion	Signage will be installed on all major access gates to ensure the Environmental Offset Area is well signposted. The Dawsonvale property is not currently grazed. Grazing will not be permitted.	Unlikely	Minor	Low
Degradation of habitat or vegetation loss through thickening of native vegetation									
Thickening of vegetation in the offset area	Brigalow characteristically has the ability to produce shoots from their horizontal root systems (suckering) in response to disturbance. Suckering is the main form of reproduction. However, if mature brigalow trees are removed (e.g. by clearing), brigalow may take a form known as 'sucker brigalow' if many suckers as produced. After about 30 years this may develop into 'whipstick brigalow' which typically consists of high densities of many straight, slender stems with dead or spindly lower branches. The high densities of plants in sucker and whipstick brigalow affects the development of brigalow forest, slowing the growth of trees and inhibiting the establishment of other plant species. Fire can also cause suckering.	Possible	High	Medium	Offset area management	No unapproved and/or intentional clearing of vegetation within the offset area is permitted, except what is required for fencing, asses, firebreaks and public safety. Ecological thinning may be undertaken when stem densities and very high (e.g. >10,000 stems per hectare). Ecological thinning will only be undertaken under recommendation from an ecologist following the 5 yearly detailed monitoring surveys. Fire risk will be controlled through weed control and fire management.	Unlikely	Minor	Low
Offset fails to achieve the interim performance targets and/or completion criteria within the anticipated 5-, 10-, 15- and 20-year timeframes, respectively									
Offset fails to achieve the interim performance targets and/or completion criteria within the timeframes	Failure to achieve and maintain offset completion criteria	Possible	High	Medium	Offset area management	Implement the management actions of this OAMP. Expert ecological consultants will be engaged to perform the 5 yearly detailed monitoring surveys and prepare the reports on attainment of interim environmental performance targets and completion criteria.	Unlikely	High	Medium

7. Offset management measures

As per the *EPBC Act Environmental Offsets Policy* (DSEWPaC 2012), a conservation gain *is the benefit that a direct offset delivers to the protected matter, which maintains or increases its viability or reduces any threats of damage, destruction or extinction. A conservation gain may be achieved by:*

- *Improving existing habitat for the protected matter*
- *Creating new habitat for the protected matter*
- *Reducing threats to the protected matter*
- *Averting the loss of a protected matters or its habitat that is under threat*.

The proposed offset area seeks to achieve a conservation gain for MNES via improvement of existing habitat and reduction of known threats. Habitat within the offset area is in moderate to good condition, however there are a number of threatening processes occurring on the offset property as described in Section 3.4. Protection of the offset area will be maintained under the VMA as a Category A area of vegetation (vegetation subject to a restoration order or an offset).

The management actions include:

- Limiting vegetation clearing to only those areas required for maintaining fencing and fire control lines or ecological thinning upon recommendation from an ecologist
- Prohibiting alternate, incompatible land use and activities (e.g. timber harvesting, cropping)
- Restricting unauthorised access
- Controlling feral animals
- Managing fire
- Controlling weeds

The management schedule describes the actions to be undertaken on the offset site (Table 7-1). Management of the offset area will commence prior to commencement of the proposed action. The offset will be actively managed until the completion criteria are achieved in year 20.

Annual offset area reports will be prepared by the proponent. These will report against each of the management actions and monitoring criteria shown in Table 7-1. These management actions enable the offset site to improve to achieve the performance scores, thus attaining and maintaining the completion criteria required of the offset. The reports will provide transparency regarding how the site management actions are being implemented, and where relevant, identify any force majeure events impacting the offset site, and any non-compliance with the management plan.

The proponent will engage a third party consultant to undertake the 5-yearly detailed ecological assessment surveys and reports.

Table 7-1: Management actions, triggers and corrective actions

The management actions shown in this table are consistent with the risks identified in the listing advice, conservation advices, and threat abatement plans in Table 2-2.

Environmental aspect	Management objective	Management actions	Performance criteria	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective offset management actions	Responsible Person
Degradation of habitat	Achieve the completion criteria and habitat quality improvements for offset values, which include the habitat quality scores in this OAMP.	Implementation of the management actions and adaptive management framework as outlined in this OAMP, for the duration of the offset period.	Increase the habitat quality scores at each habitat quality assessment site based on the results of baseline and subsequent monitoring events to achieve the scores in the completion criteria.	Monitoring of offset value habitat quality scores will be undertaken in accordance with Section 9. The results of monitoring events will be compared against the habitat quality scores in the interim performance targets and completion criteria to determine the progress of the offset area and recorded as part of reporting.	Habitat quality scores for interim performance targets are not achieved for one or more offset values by: • Year 5 • Year 10 • Year 15 • Year 20	Step 1: Investigate cause of trigger: • Within one month after detection of the trigger, complete an investigation into the reasons why the interim performance targets or the completion criteria were not achieved within the specified timeframes. • Within two months after detection of the trigger, complete a re-evaluation of the suitability of the relevant management measures in the OAMP. The re-evaluation must identify appropriate corrective actions. Step 2: Implementation of corrective action/s The appropriate corrective actions identified under Step 1 will be implemented as soon as practicable, and in any case within eight months after detection of the trigger. They may include (though are not limited to): • Third party review of the OAMP to provide input on the effectiveness of the management actions. • Increasing the frequency and intensity of pest animal and weed control measures or revising the type of measures to be implemented. • For offset values that have not achieved interim performance targets by year 15, the approval holder will obtain advice from senior ecologists and land managers with the aim of identifying appropriate additional management interventions	Moranbah North Environmental Superintendent
Habitat or vegetation loss through land clearing or thickening of native vegetation (noting the benchmark large trees/ha) and to reduce the number of immature trees/ha	Maintain the extent of Brigalow TEC within the offset area.	Protection of the offset area via a VDec under Section 19E and 19F of the VMA, as described in *Section 10*, to be registered within 12 months of the approval of this OAMP and prior to commencement of the proposed action.	No unapproved and/or intentional clearing of vegetation within the offset area, except for clearing that is required for fencing, access, firebreaks and public safety. Ecological thinning may be carried out, but only on and in accordance with the advice of a Principal Ecologist with >15 years' experience in Central Queensland. Thinning may only be undertaken to reduce the stem density of sucking brigalow when there is a density of >10,000 stems/ha[2].	Reporting to the Australian Government consistent with any and all EPBC Act approval(s).	Any activities in contravention of the VDec.	Step 1: Investigate cause of trigger (e.g. unauthorised access) • As soon as practicable, and in any case within one month of detection of the trigger, identify appropriate corrective actions. Step 2: Implementation of corrective action/s • As soon as practicable, and in any case within two months of detection of the trigger, the appropriate corrective actions must be implemented. These may include (though are not limited to) additional fencing and/or signage and security for the offset area.	Moranbah North Environmental Superintendent
		Comply with the restrictions on clearing established throughout this OAMP. Construction and maintenance of access tracks, fencing and firebreaks will be undertaken as required to manage the offset site. If vegetation clearing is required for fencing, access, firebreaks or public safety (e.g. fire or other emergency) it must be undertaken in accordance with		Quarterly inspections will monitor and document if there is evidence of recent forestry or timber harvesting activities. Quarterly inspections will monitor and document vegetation clearing that has occurred for fire break, access road or fence line maintenance.	Detection of prohibited forestry operations, native timber harvesting or clearing outside of established access tracks, fire control lines and fence lines (existing infrastructure). Trigger for thinning is a minimum density of 10,000 stems per hectare	Step 1: Investigate cause of trigger: • Upon being notified or becoming aware of prohibited forestry operations, native timber harvesting or clearing outside of existing infrastructure, the Approval Holder is to assess how unauthorised persons accessed the site to determine actions required to prevent recurrence. This includes reviewing existing access restrictions, and inspecting signage and offset area fencing within one fortnight of detection of the clearing to ensure these remain in place. Step 2: Implementation of corrective action/s: • All actions required to prevent recurrence of the prohibited clearing (identified in Step 1) will be completed within one month of detection of the clearing. These may include	Landholder[3] (or suitably qualified person appointed by the Landholder)

[2] *Brigalow: regrowth benefits management guideline* (Peeters & Butler 2014)

[3] The landholder (or suitably qualified person appointed by the Landholder) will undertake this action on behalf of the Approval holder, who is ultimately responsible for the delivery of the offset.

Environmental aspect	Management objective	Management actions	Performance criteria	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective offset management actions	Responsible Person
		best practice management methods and any applicable legislative requirements. Thinning via chemical and/or mechanical means, including brushcutter, chainsaw and individual tractor.				(though are not limited to) repairing any existing access restrictions (e.g. fencing, signage) or implementing additional access restrictions if required.	
Introduction, establishment and spread of non-native weeds including restricted invasive plants listed under the Biosecurity Act 2014 *(Qld)*	Manage restricted invasive plant species to reduce degradation of MNES habitat.	Weed control will be undertaken as early as practicable within the natural regeneration process throughout the offset area and then periodically as required to treat the weeds at the optimum time in their life cycles to control and minimise the spread of the existing weed species. *Parkinsonia* will require foliar spraying or cut stump methods initially. Particular attention should be paid to infestations of Buffel grass to ensure presence remains low through the offset area.	Weed cover must not exceed 5% cover of the offset area by year 20. No new restricted invasive plants listed under the *Biosecurity Act 2014* (Qld) are identified at any monitoring site (based on subsequent monitoring events).	Monitoring of this management action will be undertaken by the Landholder or suitable qualified person appointed by the Landholder at least four times annually. Weed cover is to be monitored by the same methodology and at the same time as the ground cover measurements. Quarterly inspections will observe and record the presence of weeds and success of previously applied weed control measures. The inspection will include before and after photos of the weed control area. Quarterly inspections will be conducted by the Landholder or suitable qualified person appointed by the Landholder to record the ground cover in the offset area.	Pest plants dominate isolated area and/or occur in an area greater than 5% of the offset area. A new declared pest weed species is identified at one or more monitoring sites, or opportunistically during any site inspection or other monitoring.	Step 1: Investigate cause of trigger Step 2: Implementation of corrective action(s) Upon being notified or becoming aware of pest plants dominating isolated areas and/or occupying greater than 5% of the offset area, the Land Manager is to implement weed control measures within one month. These measures may include, and are not limited to: • foliar spraying • basal bark spraying • stem injection • cut stump • cut and swab • stem scraper • wick applicators.	Landholder[3] (or suitably qualified person appointed by the Landholder)
Increased population of feral animals in the offset area. *Wild cat, pig and dog populations are prevalent and highly transient, and therefore the scale of impact is potentially large. Major damage to the environment occurs when large numbers of animals congregate in the area.*	Prevent the introduction of pest animals and reduction of existing populations of pest animals (wild dogs, pigs, feral cats and foxes) within the offset area in accordance with the *Biosecurity Act 2014* (Qld).	Control of pest animals (cats, wild dogs, pigs) will be undertaken annually, and may include baiting, trapping, or shooting. In addition to this, participate fully in, and cooperate with, any and all regional pest control programs, unless those would otherwise contravene a part of this OAMP.	Progressive decline in abundance of pest animals (cats, dogs, pigs) relative to baseline and subsequent monitoring events. No new pest animal species are detected within the offset area.	Monitoring of this management action will be undertaken by the Landholder or suitable qualified person appointed by the Landholder at least four times annually, to inform management. Monitoring will also be undertaken every five years as part of the ecological condition monitoring. Camera traps will be set for 30 days at fixed monitoring points to measure abundance relative to baseline (see ERM 2025; Appendix A)	Abundance at subsequent monitoring events is above baseline, or any observed evidence (e.g. opportunistic sightings between monitoring events) of feral animal increases above the baseline, or notable evidence of severe feral animal damage. Observation or signs of any feral animal not detected during baseline surveys.	Upon being notified or becoming aware of pest animal populations exceeding the threshold (i.e. above baseline), the Land Manager is to reassess current control actions and to implement all necessary or appropriate additional or modified control measures needed to reduce pest animal populations to below trigger thresholds. The land manager is to have completed implementation of all necessary or appropriate pest control measures within one month. The Landholder may approach neighbouring landowners to discuss the increased pest animal presence and an integrated control program may be developed. If an integrated control program is considered appropriate, the land manager will make best endeavours to reach agreement with neighbouring landowners to implement such a program. • If impacts from the pest animal populations have not naturally remediated within six months of completion of implementation of the control measures, the land manager is to undertake and complete all works required to remediate those impacts.	Landholder[3] (or suitably qualified person appointed by the Landholder)
Degradation of habitat by feral pigs	Minimise degradation of MNES habitat by feral pigs.	Control of pigs will be undertaken via a bating program, which will be augmented with shooting and trapping of wild pigs if baiting is not sufficient to reduce numbers.	Reduction in feral pig abundance relative to baseline.	Monitoring of this management action will be undertaken by the Landholder or suitable qualified person appointed by the Landholder at least four times annually, to inform management.	An increase in feral pig abundance from the baseline and/or subsequent monitoring events.		Landholder[3] (or suitably qualified person appointed by the Landholder)

Environmental aspect	Management objective	Management actions	Performance criteria	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective offset management actions	Responsible Person
		In addition to this, participate fully in, and cooperate with, any and all regional pest control programs, unless those would otherwise contravene a part of this OAMP.		Quarterly inspections will involve traversing the offset area with streams, low lying areas and vehicle access tracks being noted to record the presence of wallow holes, tracks and visual incidents in the offset area. If detected, these areas will be GPS-recorded and photographed and rechecked at the next quarterly inspection. Monitoring will also be undertaken every five years as part of the ecological condition monitoring. Camera traps will be set for 30 days at fixed monitoring points to measure abundance relative to baseline (see ERM 2025; Appendix A)			
Fire *The impact from uncontrolled fire would be a reduction in groundcover, thinning of the canopy and slowing of the offset site achieving the completion criteria.* *Due to the scale of the mapping products, site specific data is not available. Fire is generally rare within Brigalow, so the greatest risk of unplanned fire comes from fire encroaching from adjoining properties.*	No evidence of unplanned and uncontrolled fire in the offset area	Implement fire management in accordance with requirements in this OAMP. If one or more bushfires are current in the region and considered potentially threatening to the site, coordinate with all relevant fire authorities to determine the appropriate method of protecting the site (if the relevant fire authorities advise against seeking to protect the site from a specific fire, the approval holder may comply with that advice without needing approval or agreement from DCCEEW). The landholder will maintain firebreaks along all external boundaries of the offset area. Fire control lines must be inspected quarterly. Maintenance must be undertaken as required and at least once every two years. Please note: if fire damages the offset area, that constitutes an incident for the purposes of Section 9.	Uncontrolled fire does not occur in the offset area.	Monitoring of this management action will be undertaken by the Landholder or suitable qualified person appointed by the approval holder at least four times annually. Quarterly inspections will monitor and document if there is evidence of wildfire, prohibited burning or Force Majeure events. Weed cover is to be monitored by the same methodology and at the same time as the dry matter yield and weed control undertaken post a fire event to ensure weed cover (WoNS) is <5%. Ground cover measurements must be in accordance with Methodology 2B as stated in the *Land Manager's Monitoring Guide* (Department of Environment and Resource Management, 2010) (DERM)[4] , or any subsequent published version of this document. The approval holder and the land manager will keep themselves informed of any bushfires in the region.	Destruction of, or significant damage to, regrowth or fallen timber. The occurrence of deliberately lit fires.	Step 1: Investigate cause of trigger • Within one month of detection of the trigger, complete an investigation into the reasons why the fire management measures have resulted in a decrease in habitat quality scores. That investigation must review adherence to the fire management measures and must identify appropriate corrective actions. Step 2: Implementation of corrective action/s • Corrective action: upon being notified or becoming aware of a prohibited fire in the offset area, the landholder is to reassess and implement new access protocols for any lessees etc., signage and general access within one fortnight. • Corrective action: subsequent to any occurrence of fire in the offset area, the Land Manager, Landholder or suitable qualified person appointed by the Landholder will: 1. inspect and repair, and widen if necessary, all firebreaks; and 2. reassess fuel load reduction practices	Landholder[3] (or suitably qualified person appointed by the Landholder)
Offset fails to achieve the interim performance targets and completion criteria within the	Achieve the interim performance targets and completion scores at years 5, 10, 15 and 20 years, respectively.	All management actions outlined in in this OAMP will be implemented to ensure that the interim performance targets and completion criteria are achieved.	The interim performance targets are achieved by year 5, 10 and 15. The completion criteria are achieved by year 20.	Monitoring of the offset area will be undertaken in accordance with Section 9. The results of monitoring events will be compared against the interim performance targets and	Interim performance targets are not achieved by year 5, 10 or 15. Completion criteria are not achieved by year 20.	Step 1: Investigate cause of trigger • Within one month of detection of the trigger, complete an investigation into the reasons why the interim performance targets or the completion criteria were not achieved within the specified timeframes. This investigation must re-evaluate the suitability of the relevant management	Moranbah North Environmental Superintendent

[4] *Land Manager's Monitoring Guide: Ground cover indicator*, Department of Environment and Resource Management, 2010, Queensland Government, Brisbane, available at http://qldgov.softlinkhosting.com.au/liberty/opac/search.do#

Environmental aspect	Management objective	Management actions	Performance criteria	Monitoring	Trigger for adaptive management and corrective action(s)	Corrective offset management actions	Responsible Person
anticipated 5-, 10-, 15- and/or 20-year timeframes, respectively				completion criteria to determine the progress of the offset area and recorded as part of reporting.		measures in the OAMP and must identify appropriate corrective actions. Step 2: Implementation of corrective action/s As soon as practicable complete implementation of the corrective actions identified under Step 1. These may include (though are not limited to): • Increasing the frequency and intensity of pest animal and weed control measures or revising the type of measures to be implemented. • Modifying the fire management measures, to better support enhancement of offset values. If the investigation under Step 1 recommends changes to the management regime, then as soon as possible, and in any case within six months of detection of the trigger, implement a revised OAMP incorporating those recommended changes.	
Site access	Unauthorised persons, vehicles, and/or stock are prevented from accessing the site.	Fences will be maintained to prevent unauthorised access. Fences will be fauna-friendly to ensure native fauna mobility. Signs will be erected at all entrances and potential access points to the site stating that access to the site is forbidden. All signs and any new planned fences will be erected within 12 months of securing the VDec.	Public access to the offset area is prohibited. Access is restricted to those authorised persons required to undertake actions described in this management plan. Fences and signage are erected at all necessary points and kept in good repair throughout the life of the offset.	Monitoring will be undertaken by the Landholder or suitable qualified person within 3 months of the offset area being legally secured and during quarterly inspections. Quarterly inspections will monitor and document evidence of unauthorised access to the offset area. Quarterly inspections will monitor and document if signage is fit for purpose.	Evidence of unauthorised persons, vehicles, and/or stock is detected at any point. Damage is detected to any fence or sign.	For evidence of unauthorised persons, vehicles, and/or stock: Step 1: determine access method • Upon becoming aware of prohibited access to the offset area, the Landholder is to reassess access protocols, signage and general access within one fortnight. • Damage to signage will be repaired within one fortnight of noting the damage. • If there are areas that have been negatively impacted, the regeneration of those areas will be added to the monitoring sites and monitored during the quarterly inspections. • Signage will be repaired and maintained as required by the Landholder or suitable qualified person appointed by the Landholder.	Landholder[3] (or suitably qualified person appointed by the Landholder)

8. Offset site management and protection additional to those that currently exist

Securing the offset area will add additional protection for biodiversity values from clearing and provide a commitment to the management of weeds and pest animals that are additional to the general requirements for biosecurity.

Prior to legal securement of the land, the offset area is not protected from timber harvesting, the inappropriate use of hot fires or the under-sowing of exotic pasture species through either the VMA or the EPBC Act due to exemptions within the legislative frameworks for the continuing use of the land. Remnant vegetation areas are protected from broadscale clearing under the VMA, however the clearing of regrowth is permitted. Maintaining the existing condition of regulated vegetation and land for habitat values is not addressed under the VMA.

The *Biosecurity Act 2014* (Qld) (the **Biosecurity Act**) imposes a 'general biosecurity obligation' on all Queenslanders to manage biosecurity risks that are under their control and that they know about or could reasonably be expected to know about[5]. In practical terms, this means that:

- If you are a livestock owner, you are expected to stay informed about pests and diseases that could affect or be carried by your animals, as well as weeds and pest animals that could be on your property. You are also expected to manage them appropriately.
- If you are a landowner, you are expected to stay informed about the weeds and pest animals (such as wild dogs) that could be on your property. You are also expected to manage them appropriately.

The Biosecurity Act assigns the pests identified in the offset area as Restricted Matters in Categories 3-6 and requires the following management as shown below in Table 8-1.

Table 8-1: Biosecurity Act 2014 (Qld) obligations

Category	What is required	Examples
3	Must not distribute, be traded or released into the environment	Most invasive weeds, pest animals, noxious fish
4	Must not move	Certain weeds, pest animals, noxious fish such as feral pigs, feral deer, rabbits, Hudson pear and jumping cholla cactus
5	Must not possess or keep	Rabbits, carp, bunny ears cactus
6	Must not feed (except if undertaking a control program)	Feral deer, wild dogs, rabbits, foxes, noxious fish (tilapia, gambusia)

The obligations in the OAMP are additional to these general obligations. For example, there is a requirement to control wild pigs to reduce numbers below baseline abundance; this is above and beyond the requirements of the Biosecurity Act, as is the reduction of weed species to 5% of the offset area over the life of the management plan. Proactive inspections of the offset area are also an additional commitment and will contribute to an increased likelihood of infestations being recorded.

[5] See https://www.daf.qld.gov.au/business-priorities/biosecurity/policy-legislation-regulation/biosecurity-act-2014/general-biosecurity-obligation

The Woorabinda Aboriginal Shire Council identifies the offset area as Rural in their planning scheme and offers no protection from the current ongoing land use. The council does not have a Biosecurity Plan and only refers to the Biosecurity Act.

9. Monitoring and Reporting

The monitoring methods (Table 9-1) will enable comparative changes in vegetation condition against baseline data collected on the offset site, as well as attainment and maintenance of the offset completion criteria. Furthermore, the monitoring will measure changes resulting from the management actions and variability due to climatic conditions. This will inform the nature and frequency of management actions required and if trigger levels are reached, the use of corrective actions to bring the offset back into compliance.

Note that the methodologies listed, and the Regional Ecosystem benchmarks used in the establishment of the baseline data, must be used consistently throughout the reporting period to enable the comparison of data.

Suitably qualified and experienced ecologists will be employed to undertake all survey design, ecological monitoring, data analysis and reporting. The landholder or appointed experienced personnel will undertake quarterly inspections and observations of fences, sapling loss, weed and feral animal incursions, dry matter yield estimates and fire risk.

At the completion of each 5 yearly ecological survey, a monitoring report will be published on the Anglo Coal website, within 6 months from completing the survey.

Table 9-1: Monitoring schedule and methodology

Monitoring	Attributes monitored	Timing[6]	Responsibility and Method	Location/s
Regular inspections and incidental observations of the offset area	Evidence of: unauthorised clearing or timber harvesting; stock incursions; feral animal and weed incursions; observe and record Dry Matter Yields and particular fire risks.	Minimum of Quarterly	The Landholder or a suitably qualified person appointed by the Landholder will undertake quarterly inspections of the offset area. Dry Matter Yields are to be assessed as per the Brigalow Belt pasture photo standards https://futurebeef.com.au/knowledge-centre/brigalow-belt-pasture-photo-standards	Incidental observations across the offset area via established tracks, and 4 permanent photo monitoring sites at the habitat quality assessment sites (Figure 4).
Regular inspections of offset area for pig activity	Evidence of pig activity	Quarterly	The Landholder or a suitably qualified person appointed by the Landholder will undertake quarterly inspections of the offset area. This will involve traversing the offset area with streams, low lying areas and vehicle access tracks being noted to record the presence of wallow holes, tracks and visual incidents in the offset area. If detected, these areas will be GPS-recorded and photographed and rechecked at the next quarterly inspection.	Across the offset area, focusing on streams, low lying areas and vehicle access tracks
Targeted habitat quality assessments	Nature and quality of habitat attributes	2031, 2036, 2041, 2046 (March – May)	Third-party ecological consultants. Relevant survey guidelines for the target MNES.	Four fixed survey sites across the offset area established in baseline survey. MHQA sites 1, 2, 7, & 8 (Figure 4)
Ecological condition and relevant habitat features using biocondition assessments	Recruitment of woody perennial species in EDL Native plant species richness – trees Native plant species richness – shrubs	2031, 2036, 2041, 2046 (March – May)	Third-party ecological consultants. Field observations, vegetation assessment and habitat quality assessment as per the *BioCondition: A Condition Assessment*	Four fixed survey sites across the offset area established in baseline survey. MHQA sites 1, 2, 7, & 8 (Figure 4)

[6] Timing to be confirmed once OAMP is approved.

Monitoring	Attributes monitored	Timing[6]	Responsibility and Method	Location/s
	Native plant species richness - grasses		*Framework for Terrestrial Biodiversity in Queensland Assessment Manual* (Eyre *et al.*, 2015b). Data for each of the ecological condition attributes (indicators) monitored will be collected at fixed survey sites across the offset area and reported on and presented in a time series (including previous data collected) to quantify change from the baseline condition. This will record the change in each attribute measured and hence the condition of the habitat, thus enabling a statistical comparison to previous years' condition. Scoring is to be consistent with the Commonwealth MHQA method (Appendix B).	
	Native plant species richness – forbs			
	Tree canopy height			
	Tree canopy cover			
	Shrub canopy cover			
	Native perennial grass cover			
	Organic litter			
	Large trees			
	Coarse woody debris			
	Non-native plant cover			
	Quality and availability of food and foraging habitat			
	Quality and availability of shelter			
Abundance and trend in pest animal numbers	Pest animal occurrence including feral pigs and wild dogs	2031, 2036, 2041, 2046 (March – May)	Third-party ecological consultants. Pest animal occurrence will be measured using camera traps deployed for 30 days, with results analysed using the Catling Index to assess frequency of occurrence, allowing for comparison of abundance over time relative to baseline. Indirect evidence and opportunistic sightings will also be recorded.	Two fixed monitoring sites across the offset area established in baseline survey (Figure 4).

Note that the methodologies listed, and the Regional Ecosystem benchmarks used in the establishment of the baseline data, must be used consistently throughout the reporting period to enable the comparison of data. Landholder reports must be detailed, consistent, and quantitative where possible.

The schedule for reporting and monitoring activities is set out in Table 9-2.

Table 9-2: Reporting schedule

Report Details	Responsibilty	Reporting period	Submission due date
Prepare and submit to the Proponent, an Annual Offset Area Management Report detailing: • summary of management action implementation • details of any triggers for corrective actions and outcome of implementing of corrective actions • results of quarterly inspections including weed and pest animal incursions/changes in abundance, unauthorised clearing, fire incidents.	The Landholder or a suitably qualified person appointed by the Landholder.	Annually to cover the period from 1 June to 30 May.	30 June each year beginning in 2026
Prepare a 5 yearly Offset Condition Report detailing: • survey sites/photo point (including coordinates), • offset condition outcomes, including habitat quality scores, condition of habitat and results of surveys, • weed and pest animal status over the period.	An ecological consultant, engaged by the Proponent.	Every 5 years until completion criteria achieved (2031, 2036, 2041, 2046)	30 June every 5 years from 2031 until completion criteria achieved

10. Legally binding mechanism

The offset area will be secured via a Voluntary Declaration (**VDec**) as an area of high conservation value under sections 19F and 19K of the VMA. Once the declaration has been registered on the title, the offset area will be mapped as Category A area on the property map of assessable vegetation (PMAV). An area mapped as Category A on a PMAV is described as an 'area subject to compliance notices, offsets and voluntary declarations'.

The approved OAMP must be attached to the legal mechanism used to legally secure the environmental offset. The approval holder will notify the Department within 5 business days of the mechanism to legally secure the environmental offset having been executed.

The VDec will remain in place as the legally securing mechanism for the offset area. The VDec and approved OAMP will ensure the offset completion criteria are attained, and then maintained until the completion criteria are achieved.

Legal securement of the offset area will remain in place for the period of the EPBC Act approval (i.e., until [insert]).

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Appendix A: Dawsonvale Offset Area – Baseline BioCondition, Weed and Pest Report (ERM 2025)

Dawsonvale Offset Investigation Area

Baseline BioCondition, Weed and Pest Report

PREPARED FOR

AngloAmerican

DATE
18 November 2025

REFERENCE
0798806

DOCUMENT DETAILS

DOCUMENT TITLE	Dawsonvale Offset Investigation Area
DOCUMENT SUBTITLE	Baseline BioCondition, Weed and Pest Report
PROJECT NUMBER	0798806
DATE	18 November 2025
VERSION	Final
AUTHOR	Environmental Resources Management Australia Pty Ltd (ERM)
CLIENT NAME	Anglo American Steelmaking Coal Pty Ltd (AASC)

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Draft	01	Shenna van Melick, Tim Lingard	Tim Callaghan, Matt Davis	Charissa Tomlin	24/10/2025	Draft for Review
Final	00	Shenna van Melick, Tim Lingard	Tim Callaghan, Matt Davis	Charissa Tomlin	14/11/2025	Final
Final	01	Shenna van Melick, Tim Lingard	Tim Callaghan, Matt Davis	Charissa Tomlin	18/11/2025	Final

SIGNATURE PAGE

Dawsonvale Offset Investigation Area

Baseline BioCondition, Weed and Pest Report

0798806

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
AASC	Anglo American Steel Making Coal
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of the Environment, Tourism, Science and Innovation
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ERM	Environmental Resources Management Australia Pty Ltd

Acronym	Description
MHQA	Modified Habitat Quality Assessments
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
RE	Regional Ecosystem
TEC	Threatened Ecological Community

1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) has been engaged by Anglo American Steel Making Coal (AASC) to undertake ecological surveys of the Dawsonvale potential offset property in Queensland. This includes an assessment of habitat quality and mapping of the extent of habitat for relevant Matters of National Environmental Significance (MNES) and Matters of State Environmental Significance (MSES) in compliance with Queensland and Commonwealth environmental legislation and policy frameworks, as well as the AASC Ecological Field Survey and Habitat Mapping Protocol (Anglo 2024).

Previous ecological surveys were undertaken at the Dawsonvale property within the Offset Investigation Area in 2022, where Threatened Ecological Communities (TECs) and some specific threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were assessed for presence, extent and quality of habitat.

Previous survey efforts have identified that the proposed Offset Investigation Area has the potential to provide offsets for current and future AASC projects, for the following MNES:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC (Brigalow TEC);
- Ornamental Snake; and
- Australian painted snipe.

Given the projected offsets required in the near future, the Offset Investigation Area has the potential to provide further offsets for a number of MNES assessed as likelihood of occurrence (based on desktop assessments and field surveys) as described throughout this report.

1.1 OBJECTIVES

The objective of this Report is to present the detailed methods and results of the field survey conducted within the Offset Investigation Area, relevant to MNES requiring offsets, and potential for habitat for MNES within the Offset Investigation Area. This Report details the results of the field survey, habitat quality scoring and extent of potential habitat for MNES with a likelihood of occurrence within the Offset Investigation Area. Habitat quality scoring has been undertaken for:

- Brigalow TEC;
- Ornamental Snake; and
- Australian Painted Snipe.

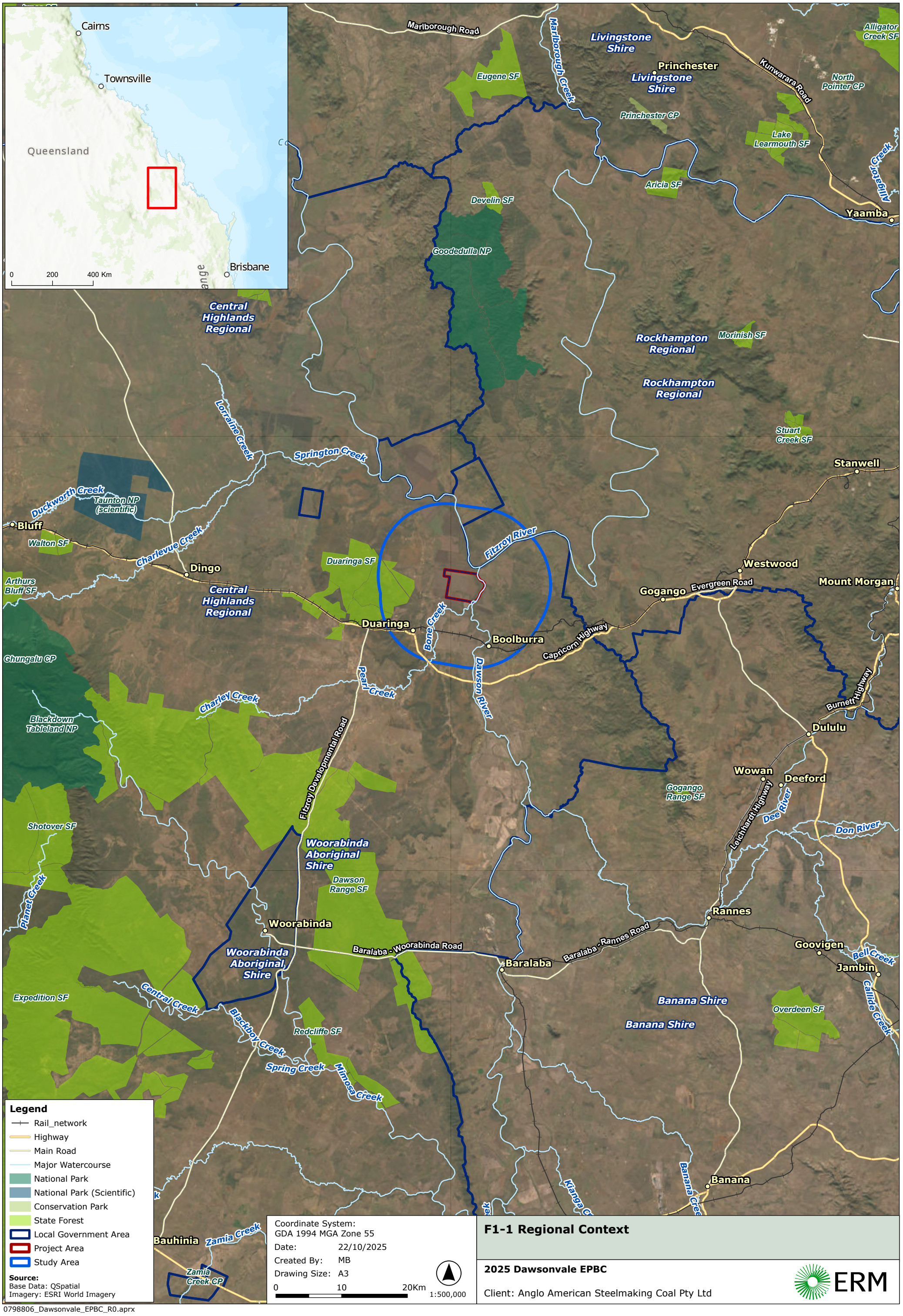
This Report further details the methodology, effort and findings of a baseline feral animal and invasive flora survey undertaken within the Offset Investigation Area in late September/early October 2025.

1.2 DAWSONVALE CONTEXT

The Dawsonvale offset property is freehold property owned by the Woorabinda Aboriginal Shire Council, located on Lot 39 on KM148 in Queensland, 111km south-west of Rockhampton and covering 2,172.4 ha (Figure 1-1). The offset property is located within the Brigalow Belt North Bioregion and Isaac Comet Downs Sub-Bioregion, containing undulating to rugged ranges and alluvial plains with vegetation consisting of primarily acacia open forests and eucalypt woodlands.

The property is currently used for cropping with the exception of the remnant and regrowth vegetation located on the eastern boundary of the property along the Dawson River and areas to the south.

AASC has a call option over 581 ha of the Offset Investigation Area (Figure 1-2), defined as the 'Offset Investigation Area' throughout this report.



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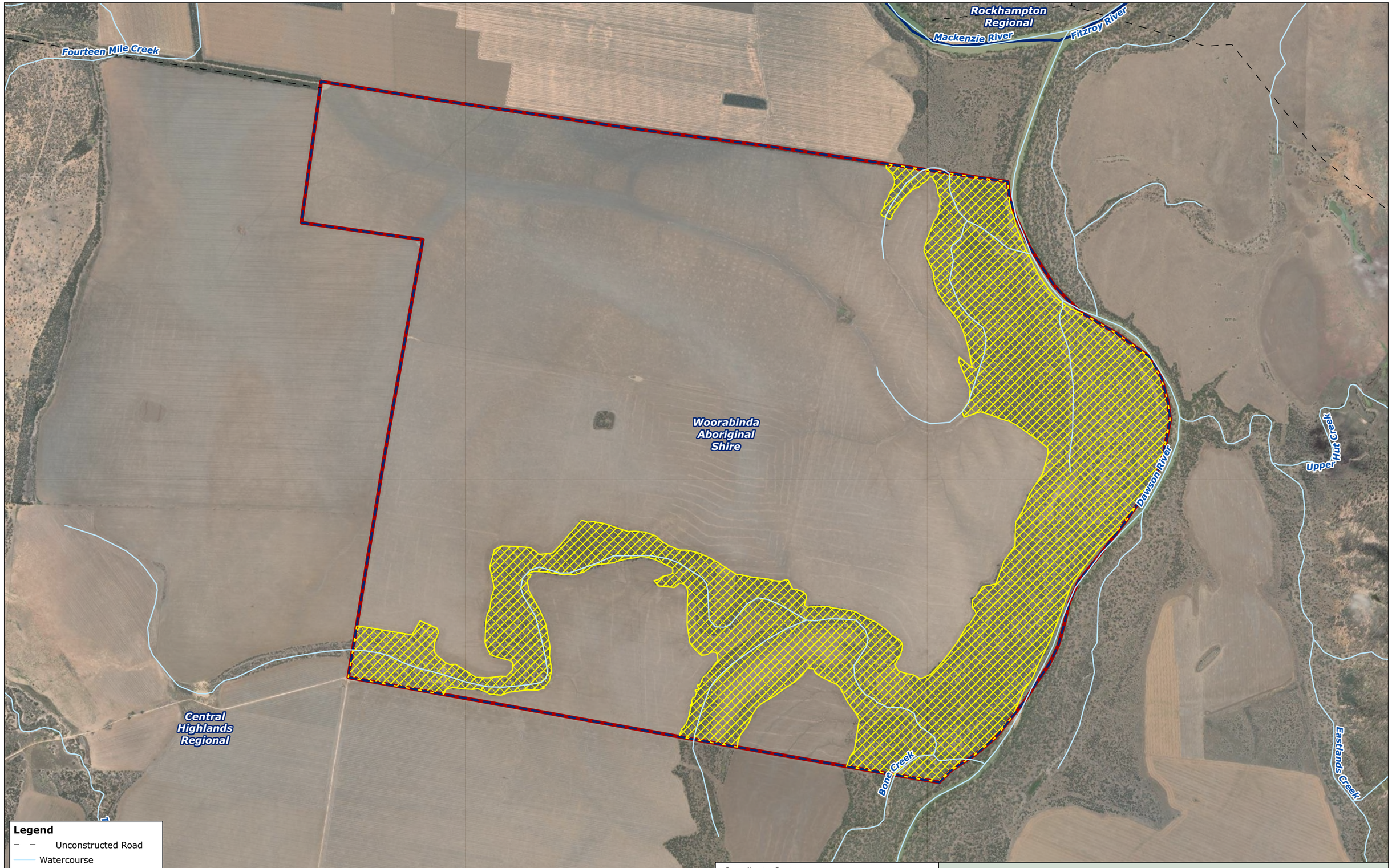

F1-2 Offset Area Context

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

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2. LEGISLATIVE AND POLICY CONTEXT

This Report has been prepared with consideration of the Commonwealth and State Legislation and Policies, as outlined in Table 2-1.

TABLE 2-1: LEGISLATIVE AND POLICY CONTEXT

Act / Policy	Administering Authority	Purpose
Commonwealth Legislation		
Environment Protection and Biodiversity Conservation Act 1999	Department of Climate Change, Energy, the Environment and Water (DCCEEW)	The EPBC Act administers the protection of the environment and MNES within Australia, which are: • world heritage properties; • national heritage properties; • wetlands of international importance; • threatened species and ecological communities; • migratory species; • Commonwealth marine areas; • the Great Barrier Reef Marine Park; • nuclear Actions (including Uranium mines); and • water Resources.
EPBC Act Environmental Offsets Policy 2012 (Environmental Offsets Policy)	DCCEEW	The Environmental Offsets Policy comes into effect where there is a significant residual impact on an identified MNES value. The policy provides guidance on the role of offsets and when a proposed offset is considered suitable.
State Legislation		
Environmental Offsets Framework (*Environmental Offsets Act 2014* and Regulation, Environmental Offsets Policy Version 1.7)	Department of Environment, Science and Innovation (DESI)	An environmental offset condition may be imposed under various State assessment frameworks for an activity that will or is likely to have a significant residual impact on a prescribed environmental matter that is a MSES There is a guideline to assist in determining whether or not a significant residual impact is likely. MSES are a component of the biodiversity State interest that is defined under the State Planning Policy (SPP) and defined under the Environmental Offsets Regulation 2014 (Offset Regulation). MSES includes certain environmental values that are protected under Queensland legislation including the: • *Nature Conservation Act 1992;* • *Marine Parks Act 2004;* • *Fisheries Act 1994;* • *Environmental Protection Act 1994;* • *Regional Interests Planning Act 2014*; • *Vegetation Management Act 1999*; and • *Environmental Offsets Act 2014*.
Biosecurity Act 2014 (and Regulation)	Department of Agriculture and Fisheries (DAF)	The Biosecurity Act provides for the management of biosecurity risks in Queensland. The Act provides measures to safeguard Queensland economy, environment, agricultural and tourism industries, and way of life from pests, diseases, and contaminants.

Act / Policy	Administering Authority	Purpose
		Restricted matters are assigned a category (or categories) from 1 to 7, with each category placing restrictions on the dealings with the matter.
Environmental Protection Act 1994 (EP Act)	DESI	Environmental Authority applications for coal mining activities are assessed under the EP Act, which considers the impact of environmental values, including biodiversity values. Environmentally Sensitive Areas (ESA) are listed under the subordinate Environmental Protection Regulation 2008, and include three categories (i.e., Categories A, B and C) to reflect the hierarchy of nature conservation importance. The EA Application Requirements for coal mining Activities (Department of Environment and Heritage Protection [DEHP], 2013) provides for protection zones around ESAs i.e.: • primary Protection Zone - an area within 200 m of the boundary of a Cat A, B or C ESA; and • secondary Protection Zone - an area within 100 m of the boundary of a Cat A or B ESA. The MSES assessment identifies the biodiversity values and the impacts on biodiversity values.
Fisheries Act 1994 (Fisheries Act)	DAF	The Fisheries Act provides the principal legislative framework for the regulation around fishing activities and areas that are fish habitat within a given area. It outlines how activities are to be conducted given the importance of the habitat for fish. All waters are protected against degradation by direct or indirect impacts associated with development activities. Measures designed to protect fisheries resources include the declaration of fish habitat areas, protection of marine plants and designation of waterways for fish passage. A waterway barrier works permit may be required if works do not comply with the *Accepted development requirements for operational work that is constructing or raising waterway barrier works*.
Nature Conservation Act 1992 (NC Act)	DESI	The NC Act and Regulations provides a framework for the creation and management of protected areas and protection of native species. It includes designation of threatened species status and provides for protected plant trigger areas.
Vegetation Management Act 1999 (VM Act)	DoR	The VM Act is the regulatory framework for the management of vegetation using the RE classification system. It regulates the broad scale clearing of vegetation, with the intent of conserving remnant vegetation, preventing the loss of biodiversity, maintaining ecological processes, and allowing for sustainable use. There are clearing exemptions for some work activities.
Water Act 2000 (Water Act)	Department of Regional Development, Manufacturing and Water (DRDMW)	The Water Act provides the framework for the planning and sustainable use and management of groundwater and surface water in Queensland. It also sets up conditions and controls the activities that may impact on water resources and quality. The Department of Resources Watercourse Identification Map identifies watercourses and drainage features mapped under the Water Act.

3. ASSESSMENT METHODOLOGY

This section outlines the desktop review and field assessment methods used to identify the ecological values relevant to Brigalow TEC and listed threatened species within the Offset Investigation Area.

3.1 DESKTOP METHODOLOGY

A preliminary review of publicly available datasets was undertaken to identify desktop-based ecological values present within the Offset Investigation Area, inclusive of a 10km buffer. The desktop review was undertaken in consideration of relevant Commonwealth and State datasets, as summarised in Table 3-1.

TABLE 3-1:RELEVANT DESKTOP REVIEW DATASETS

Information Source	Name	Data Description
DCCEEW	Protected Matters Search Tool	The PMST database provides predictive results of MNES occurrence within the Offset Investigation Area and a 10 km buffer (refer to Appendix A). The database predicts species occurrence based on species modelled distribution mapping, habitat requirements and presence, ecological communities, and wetlands. The outputs are based on modelling results and do not necessarily reflect known records of species or communities. The features highlighted by the search are considered further through a Likelihood of Occurrence assessment (refer to Appendix B). **Search date:** 23 September 2025 **Search Area:** Offset Investigation Area boundary shp. file with a 10 km buffer
Ala.org.au	Atlas of Living Australia (ALA)	Atlas of Living Australia is an interactive, spatial Australian national biodiversity database (supported by the National Collaborative Research Infrastructure Strategy, CSIRO), containing publicly available species records. All species in the likelihood of occurrence assessment were entered into this database to identify any known records either within the Offset Investigation Area and a 10 km buffer. **Search date:** 23 September 2025 **Search Area:** Offset Investigation Area boundary shp. file with a 10 km buffer
DoR	Queensland Globe	Queensland Globe is a mapping and data online interactive tool, to explore Queensland maps, imagery and other spatial data (Ecological, Geological, Planning and etc). The Globe is built on an the ESRI ArcGIS Platform.
DCCEEW	Species Profile and Threats Database (SPRAT)	The SPRAT profiles and associated conservation advice for each species were accessed to provide detailed information for the Likelihood of Occurrence assessment, regarding: • Species distributions; • Habitat information, including species-specific habitat requirements; and • Any relevant threats to species that may influence species occurrence at the Offset Investigation Area. The conservation advice documents are particularly important for assessing TECs, against the listed guidelines.

Information Source	Name	Data Description
		SPRAT Profiles and conservation advice were accessed during the likelihood of occurrence assessment, which was finalised on 9 October 2025 to include field results.
DETSI	Wildlife Online	Wildlife Online is a database containing records of wildlife sightings, including threatened species protected under the EPBC Act and NC Act, which are provided to the agency by Government departments and external organisations. Refer to Appendix A for the desktop reports. **Search date:** 23 September 2025 **Search Area:** Offset Investigation Area boundary shp. file with a 10 km buffer
DETSI	MSES reports	The MSES reports generated by DETSI provide an overview of MSES, including regulated vegetation and REs, watercourses and wetlands, wildlife habitats, environmentally sensitive areas, and connectivity areas etc. Refer to Appendix A for the desktop reports.
DETSI	Protected Plants	The Protected Plants survey trigger map identifies high-risk areas where Endangered, Vulnerable, or Near Threatened native plants are present or are likely to be present within the assigned area. Refer to Appendix A for the desktop reports. **Search date:** 10 October 2025 **Search Area:** Offset boundary shp. file
DoR	RE Version 13.1 mapping	This product maps remnant and regrowth vegetation communities across Queensland and identifies communities listed as Endangered, Of Concern or Least Concern status as defined by the VM Act.

3.1.1 LIKELIHOOD OF OCCURRENCE AND THE PRECAUTIONARY PRINCIPLE

Consistent with the accepted approach for baseline ecological value assessments, a likelihood of occurrence, informed by desktop sources and the field survey was undertaken (refer to Appendix B for the full assessment).

Desktop sources identified several fauna, flora and ecological communities listed under Commonwealth and State Legislation which have been recorded previously or are predicted to occur within an approximately 10 km buffer.

The likelihood of occurrence approach refines the desktop generated list using site-specific information and species-specific habitat information obtained from field surveys. Desktop sources are indicative only and likelihood rankings, particularly regarding the presence of preferred habitat, are conservative.

The assessment ranks the likelihood of the species occurring through analysis of species distribution information and the presence of specific habitat attributes as identified through the desktop analysis and field survey. The criteria applied are outlined in Table 3-2.

According to the MNES terminology, suitable habitats are areas or a location which has the potential to provide necessary resources needed for the maintenance of a population. This can include breeding, nesting and foraging habitat features or food resources. General habitat are areas that also could have been used transiently by a species.

Habitat and distribution information for MNES is sourced from the SPRAT database and/or Conservation Advice where available, supplemented by other primary sources (e.g., published literature). Species records were sourced from WildNet and/or ALA. Where a species was recorded within 10 km of the Offset Investigation Area dated within the previous 20 years, these records are defined as a 'recent record'.

Refer to Appendix B for the detailed likelihood of occurrence assessment.

TABLE 3-2: LIKELIHOOD OF OCCURENCE CRITERIA

	Preferred habitat exists	Suitable habitat exists[1]	Habitat does not exist[2]
Records within Offset Investigation Area (based on site surveys and recent (last 20 years) records)	Known	Known	Known
Records within 10 km of the Offset Investigation Area	Likely	Potential	Unlikely
No records within 10 km of the Offset Investigation Area, but Offset Investigation Area is within known distribution	Potential	Potential	Unlikely
No records within 10 km of the Offset Investigation Area, and Offset Investigation Area is outside of distribution	Unlikely	Unlikely	Unlikely

[1]Habitat may be considered potential but not known suitable because: some desired habitat features may be present, but not all; habitat may have poor connectivity; or habitat may be known to be disturbed; or suitable habitat requires confirmation.
[2]Based on sources reviewed and/or field survey results.

3.1.2 FIELD SURVEY PLANNING

A field survey plan was prepared prior to the field survey commencing, to assess habitat quality, identify regional ecosystems, complete targeted fauna surveys, and map MNES and MSES in compliance with Queensland and Commonwealth environmental legislation and policy frameworks, as well as the AASC Ecological Field Survey and Habitat Mapping Protocol (Anglo, 2024). The field survey planning process included identifying suitable locations for Modified Habitat Quality Assessments (MHQA), spotlighting locations and pest camera locations from mapping prepared in 2022, to maximise the data quality.

TABLE 3-3: MNES HABITAT ASSESSMENT UNITS

MNES	Correlated REs (Assessment Unit)	Assessment Unit Size (ha)	Required MHQAs	Proposed MHQAs
Brigalow TEC	RE 11.3.1	100.2 ha	Three	• BioCondition Plot 1 • BioCondition Plot 3 – 4 • BioCondition Plots 6 – 8
Ornamental snake	All REs	373.5 ha	Four	BioCondition/MHQA Plot 1 – 13
Australian painted snipe	All REs	30 ha	Two	BioCondition/MHQA Plot 1 – 13

3.2 FIELD SURVEY METHODOLOGY

3.2.1 SURVEY GUIDELINES

The field survey was undertaken in accordance with relevant survey guidelines, as summarised in Table 3-4.

TABLE 3-4: SURVEY GUIDELINES

Source	Description
Eyre, et al., (2015)	BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland Assessment Manual A manual designed for use to assess biological and ecological conditions of different mapped REs within a determined area.
Neldner et al., (2024).	Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland Version 7.0. The manual provides: • Specific procedures for regional ecosystem and vegetation survey and mapping staff from the Queensland Herbarium; and • General guidelines for other individuals or organisations carrying out similar mapping.
Department of the Environment, Tourism, Science and Innovation (DETSI) (2020).	Guide to determining terrestrial habitat quality: Methods for assessing habitat quality under the Queensland Environmental Offsets Policy This guide provides methods for undertaking habitat quality assessments required under the Queensland Environmental Offsets Framework for the following prescribed environmental matter groups: • Prescribed regional ecosystems; • Terrestrial fauna habitat, including koala habitat outside of South-East Queensland; and • A koala habitat area in South-East Queensland.
DoE (2013)	Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community This document provides conservation advice for the Brigalow TEC, outlining its description, threats, and priority actions to guide protection and recovery under the *Environment Protection and Biodiversity Conservation Act 1999*.
DCCEEW (2024)	Draft referral guidelines for the nationally listed Brigalow Belt reptiles This guideline assists proponents in determining whether the proposed action will require referral under the EPBC Act. This guideline details the potential impacts on seven threatened reptile species and outlines survey methods, habitat considerations, and referral thresholds to protect these species and their habitats.
DEWHA (2017)	Survey guidelines for Australia's threatened birds This guideline will help to determine the likelihood of a threatened bird species' presence or absence at a site. The guideline provides guidance in survey techniques and efforts required for detecting species presence adequately.

3.2.2 SURVEY TECHNIQUES AND SURVEY EFFORT

3.2.2.1 SURVEY TECHNIQUES

BioCondition Assessments

BioCondition Assessments and, by extension, MHQA have been undertaken to determine the qualitative and quantitative condition of vegetation for the relevant MNES and their habitat. BioCondition assessments were completed in accordance with the BioCondition Assessment Manual (Eyre, et al., 2015).

The BioCondition method is an assessment framework for Queensland that provides a measure of functional condition for an ecosystem. It is a site-based, quantitative and repeatable assessment procedure that can be applied to any vegetation consistent with a benchmarked Regional Ecosystem. The data recorded result in a numeric score which determines the condition as a score out of 10.

The BioCondition method is designed for use by assessors who have a reasonable working knowledge of regional ecosystem (RE) mapping and vegetation assessment at the site scale. The BioCondition score does not directly provide an index of habitat suitability for MNES. Determination of habitat quality is influenced by a myriad of other factors (e.g. presence or absence of threats, food, shelter etc.). MHQA incorporates both BioCondition and specific habitat metrics as a surrogate to measure habitat quality for MNES within the patch or assessment unit. These metrics are determined and assessed using a combination of indicators that measure the overall viability of the site and its capacity to support the species or community of interest.

BioCondition assessments are carried out within a 100m x 50m area and include measurement and recording of the following ecological characteristics (refer to Appendix C for raw data):

- Habitat description;
- Mapped Regional Ecosystem;
- Tree canopy and sub-canopy height;
- Coarse woody debris (length and diameter);
- Species richness for: tree and sub-canopy layer, shrub layer, grass layer, and forb layer;
- Proportion of dominant canopy species with evidence of recruitment;
- Proportion of non-native plant cover;
- Ground cover details (i.e., native perennial grass, non-native grass, rock etc.); and
- Number of large eucalyptus and non-eucalyptus trees.

Weed Surveys

Baseline data was collected on the presence and abundance of weeds within the Offset Investigation Area. Targeted surveys of high-risk areas where weeds were recorded during the transects involved collecting information on the density and abundance of weeds within BioCondition plots.

Collection of data on invasive flora focused on restricted invasive plants and weeds of national significance; however, all non-native plant species are recorded as part of assessment within each plot. Weed presence is measured as a proportion of their relative cover within a plot.

Pest Fauna Surveys

Baited infrared motion-activated camera traps were deployed across five permanent points to record baseline pest fauna data of the Offset Investigation Area.

Cameras were deployed using bait types selected to attract target pest species (e.g., meat-based baits for cats and foxes, grain for pigs). Camera locations were stratified across habitat types and potential animal movement corridors, focusing on roads and tracks. Each camera trap site was permanently marked in the field and logged using GPS for repeat surveys.

In the absence of a relevant DCCEEW guideline for invasive fauna camera trapping, CSIRO and Invasive Animals CRC studies (Invasive Animals Cooperative Research Centre, 2012) found that 30 days is ideal to confidently determine occupancy for wild dogs and foxes. As such, cameras have been deployed for a minimum 30 day period.

Data has been tagged by time, date, and location and assessed for species richness and detection frequency. The results were analysed using the Catling Index to assess frequency of occurrence and allow for comparison of species presence over time relative to baseline results, and include:

- Species records and abundance analysis;
- Camera trap data summary and photo appendices;
- Site map showing permanent monitoring points; and
- Comparison with standard indices and pest management recommendations.

In addition to the camera traps, opportunistic observations of pest fauna or evidence of pest fauna were recorded throughout the duration of the surveys.

3.2.2.2 SURVEY EFFORT

A single field survey was conducted within the Offset Investigation Area in September and October 2025. The field survey consisted of a three-day ecological survey undertaken by two suitably qualified ecologists from 30 September – 2 October 2025. A total 72 person hours on the ground which involved BioCondition assessments (including MHQA), spotlighting and camera deployment. Noting previous surveys were undertaken on 8 June to 12 June 2022.

A summary of the field survey effort is presented in Table 3-5.

Vegetation assessments, including ground-truthing and mapping of TECs, was led by Timothy Callaghan, senior ecologist. Additional technical review of fieldwork has been completed by Matt Davis, a principal ecologist with 15 years' experience in ecological field survey and environmental impact assessment.

TABLE 3-5: FIELD SURVEY EFFORT

Date	Target	Techniques	Survey Effort
30 September – 2 October 2025	Vegetation Assessments	BioCondition assessments (including MHQA)	• 13 individual BioCondition assessment locations
		TEC verification	• At each potential Brigalow TEC patch
		Weed surveys	• 14 assessments

Date	Target	Techniques	Survey Effort
	Targeted fauna surveys	Spotlighting	• Three spotlighting nights (5 person hours per night) by two ecologists
	Pest surveys	Camera trap deployment	• Five camera traps deployed for one month

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend

Biocondition / MHQA Assessment Location

- Start
- End
- Camera Trap Location
- Unconstructed Road
- Watercourse
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F3-1 Field Survey Locations

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R1.aprx

3.2.3 SURVEY CONDITIONS

Survey conditions for the survey period were obtained from the Blackwater Airport Bureau of Meteorology weather station (station number 035134) (BOM, 2025), which is located 88.2 km from the Offset Investigation Area. This is the nearest publicly available weather data. The survey conditions within the Offset Investigation Area included cool mornings and hot days, with no rainfall recorded.

Weather conditions for the Blackwater Airport weather station are summarised in Table 3-6.

TABLE 3-6: WEATHER CONDITIONS - BLACKWATER AIRPORT

Survey Date	Temp		Rain	9 AM Observations				3 PM Observations			
	Min °C	Max °C	mm	Temp °C	RH	Wind Dir	Wind Spd (km/hr)	Temp °C	RH	Wind Dir	Wind Spd (km/hr)
29/09/2025	15.2	35.0	0	25.8	58	N	7	24.2	16	WSW	20
30/09/2025	14.2	34.2	0	25.1	58	NE	13	33.2	18	SW	7
1/10/2025	15.9	35.4	0	25.1	61	NNW	7	37.8	20	WSW	13
2/10/2025	17.9	38.3	0	27.8	49	N	9	31.0	10	WSW	33
3/10/2025	15.9	32.2	0	26.7	15	SSE	24	32.3	8	SSW	17

Note:
Red text denotes the highest temperature during the survey period
Blue text denotes the lowest temperature during the survey period
RH = relative humidity; Dir = direction; Spd = speed

3.2.4 SURVEY ADEQUACY ASSESSMENT

A survey adequacy review has been undertaken for the field survey conducted within the Offset Investigation Area to assess the effectiveness of the completed surveys for identifying TECs and habitat for listed threatened fauna species.

It is noted that the purpose of the field survey was to provide a point-in-time summary of applicable ecological values within the Offset Investigation Area.

The survey adequacy findings are presented in Table 3-7. Where the review has determined that surveys are adequate, this is indicated by a green shading in the table and where additional surveys are recommended these are shaded yellow.

TABLE 3-7: SURVEY ADEQUACY ASSESSMENT

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy
Brigalow TEC	**Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community** (DoE, 2013) Surveys may be undertaken most times of the year, however timing consideration should be given to flowering shrub species and active growth. Timing of surveys should allow for a reasonable interval following a disturbance event.	• 13 BioCondition assessment locations.	*Survey requirements met. Brigalow TEC confirmed within the Offset* Investigation *Area.* • BioCondition assessments in accordance with Eyre et al. (2015) were undertaken across the Offset Investigation Area, particularly in areas where Brigalow TEC has the potential to occur. • Additional assessments were conducted in areas of Brigalow vegetation to confirm whether patches met the diagnostic criteria to be considered Brigalow TEC.
Australian painted snipe	**Survey Guidelines for Australia's Threatened Birds** Invalid source specified.. Targeted surveys for Australian painted snipe include area searches or transects through suitable wetlands, with detection methods by sighting and flushing. Additionally, targeted stationary observations and dawn and dusk in suitable wetland habitats is also recommended, by sighting. Brief spotlighting searches shortly after dusk may also detect the species, however this is not the preferable method of detection.	• 13 BioCondition assessment locations.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area.* • BioCondition assessments in accordance with Eyre et al. (2015) were undertaken across the Offset Investigation Area, particularly in areas previously mapped as Australian painted snipe habitat. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey.

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy
Greater glider (southern and central)	**Terrestrial Vertebrate Fauna Survey Guidelines for Queensland** (Eyre, et al., 2022) Requires two-person, 30-minute spotlight searches of 100 x 100 m survey site. This can include spotlighting up one side of the 100 x 100 m area and then spotlighting back the other side of the 100 x 100 m area. Scat and sign search can coincide with the systematic diurnal active searches, within 50 x 50 m quadrats. **Survey Guidelines for Australia's Threatened Mammals** (DSEWPC, Survey guidelines for Australia's threatened mammals, 2011a) Bright moonlight aids in detecting greater glider (southern and central). Spotlighting should be at least two 200 m transects per 5 ha sites. It is also recommended there be 100 m between survey transects.	• 13 BioCondition assessment locations. • Three nights of spotlighting by two ecologists for 2.5 hours per night.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted for this species and did not include scat and sign searches. • Field surveys did include spotlighting for three nights by two ecologists for 2.5 hours per night. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey. • Potential denning and breeding habitat and foraging and dispersal habitat was observed during the field survey.
Grey falcon	**Conservation Advice *Falco hypoleucos* - grey falcon** (TSSC, Conservation Advice Falco hypoleucos Grey Falcon, 2020) Surveys for grey falcon can be conducted by: • Visiting known nests used in previous years; • Actively searching for new nests in suitable habitat areas; and • Following up records from the general public, including from Indigenous communities, land managers and bird watchers.	• 13 BioCondition assessment locations.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted to identify presence of this species. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey. • Potential habitat was observed during the field survey.

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy
Grey snake	No specific survey guidelines for this species; however the Conservation Advice for *Hemiaspis damelii* (grey snake) (DCCEEW, 2022) was consulted for habitat information for this species.	• 13 BioCondition assessment locations • Three nights of spotlighting by two ecologists for 2.5 hours per night.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area as species has no survey guidelines.* • Field surveys included spotlighting for three nights by two ecologists for 2.5 hours per night. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey. • Potential habitat was observed during the field survey.
Koala	**Terrestrial Vertebrate Fauna Survey Guidelines for Queensland** (Eyre, et al., 2022) Requires two-person, 30-minute spotlight searches of 100 x 100 m survey site. This can include spotlighting up one side of the 100 x 100 m area and then spotlighting back the other side of the 100 x 100 m area. Scat and sign search can coincide with the systematic diurnal active searches, within 50 x 50 m quadrats. **A review of Koala habitat assessment criteria and methods** (Youngentob, Marsh, & Skewes, 2021) The koala habitat assessment criteria and methods specify koala surveys are to be completed by a case-by-case scenario, however general methods include: Direct observations: • Direct observations should be undertaken between August and January for peak activity; • Transect and point surveys (most commonly strip transects); • Nocturnal spotlighting at smaller sites to determine species presence (detecting reflected eye shine) and density;	• 13 BioCondition assessment locations. • Three nights of spotlighting by two ecologists for 2.5 hours per night.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted and did not include scat and sign searches. • Field surveys did include spotlighting for three nights by two ecologists for 2.5 hours per night. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey. • Potential foraging and breeding habitat and dispersal habitat was observed during the field survey.

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy
	• Trained koala detection dogs; • Mark-resight or mark-recapture; • Thermal detection drones; • Radio tracking; and • Camera trapping in areas where fresh scats and/or scratches have been recorded. Indirect observations: • Scats – Spot Assessment Technique involving looking at food trees for presence of koala scats; • Scats – rapid-Spot Assessment Technique; • Scats – koala optimised Rapid Assessment Methodology; • Scats – balanced koala scat survey; • Scats – faecal standing crop method; • Scats – trained scat detection dogs; • Scats – genetic sampling from faecal pellets; • Call playback; • Passive acoustics; • Scratches; and • Landscape nutritional quality surveys.		
Latham's snipe	**Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species** (DoE, 2015b). There are no species-specific survey guidelines for this species. Survey guidelines for migratory species in non-tidal areas include: • Surveys should be conducted during the period when majority of migratory shorebirds are present in the area; • Surveys should also be conducted during the breeding season (mid-April to mid-August);	• 13 BioCondition assessment locations	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted to identify presence of this species. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey.

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy

	• Surveys should not be undertaken during periods of high rainfalls or strong winds;
	• Surveys should not be undertaken when activities are taking place which cause disturbance to birds; and
	• Survey effort includes:
	  ◦ four surveys for roosting shorebirds during the period when most shorebirds are present in the area;
	  ◦ four surveys for foraging shorebirds; and
	  ◦ one survey during the northern hemisphere breeding season to capture data on birds that remain in Australia during the breeding season.
			• Potential habitat was observed during the field survey.

Ornamental snake	**Survey Guidelines for Australia's Threatened Reptiles** (DSEWPC, Survey guidelines for Australia's threatened reptiles, 2011). There are currently no known survey methods to reliably detect the ornamental snake during the dry season. However, the species is likely to be detected by searches in suitable gilgai habitat while frogs are active. Survey methods should include driving roads at night, particularly following wet weather conditions, diurnal searches under shelter sites, pitfall, and funnel trapping methods; however, these are likely to yield low returns.	• 13 BioCondition assessment locations. • Three nights of spotlighting by two ecologists for 2.5 hours per night.	*Survey requirements partially met for this species.* • BioCondition assessments in accordance with Eyre et al. (2015) were undertaken across the Offset Investigation Area, particularly in areas previously mapped as Australian painted snipe habitat. • Field surveys did include spotlighting for three nights by two ecologists for 2.5 hours per night. • Field survey was conducted during the optimal survey timeframe for the species. • Survey conditions were not idealic for spotlighting for this species (e.g., spotlighting should be undertaken in areas targeting water-inundated gilgais, wetlands and riparian habitats; however, these conditions were not present at the time of the survey). • Species was not recorded during the field survey.

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy
Red goshawk	**Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010).** Targeted surveys for red goshawk include: • searching for characteristic nests within patches of the tallest forest; • in inland areas, ground searches along riverbanks for nests within the tallest trees; • driving slowly through tropical woodland tracks and scanning groups of tall trees for nests; • searches for soaring birds at high vantage points (i.e. mountain tops); and • call playback during the breeding season. The minimum survey effort for area searches is 80 hours over 10 days (to find one nest). The effort required for 50 ha is 50 hours over 8 days.	• 13 BioCondition assessment locations.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted to identify presence of this species. • Species was not recorded during the field survey. • Potential habitat was observed during the field survey.
Short-beaked echidna	There are no species-specific guidelines for this species. Searches should be conducted in habitat assessments and whilst transversing the landscape.	• 13 BioCondition assessment locations • Three nights of spotlighting by two ecologists for 2.5 hours per night.	*Survey requirements met for this species. Short-beaked echidna was recorded during the field survey.* • Field surveys included spotlighting for three nights by two ecologists for 2.5 hours per night. • Species was recorded during the field survey.
Southern black-throated finch	**Survey Guidelines for Australia's Threatened Birds** (DEWHA, 2017) Targeted surveys for southern black-throated finch include: • Land-based area searches for 10 hours over 5 days; and • Targeted searches for 6 hours over 2 days.	• 13 BioCondition assessment locations.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted to identify presence of this species. • Species was not recorded during the field survey.

MNES	Survey Guidelines	Survey Effort	Comment on Survey Adequacy
			• Potential habitat was observed during the field survey.
Squatter pigeon (southern)	**Survey Guidelines for Australia's Threatened Birds** (DEWHA, 2017) Squatter pigeon (southern) surveys should be conducted by: • Area searches or transect surveys in suitable habitat for a minimum of 15 hours over 3 days; and • Flushing surveys are considered likely to be useful; however, are not the preferable method. The minimum survey effort for flushing surveys is 10 hours over 3 days. Optimal survey conditions are likely between May to late October, and juveniles are predominantly detected during June.	• 13 BioCondition assessment locations.	*Survey requirements met for assessing species habitat within the Offset* Investigation *Area; however, not met for confirming presence of species.* • Field survey was not targeted and did not include area or transect surveys, or flushing survey methods. • Field survey was conducted during the optimal survey timeframe for the species. • Species was not recorded during the field survey. • Potential breeding habitat and foraging and dispersal habitat was observed during the field survey.

3.2.5 LIMITATIONS AND ASSUMPTIONS

The field surveys were undertaken to provide an overview of the habitat conditions and ecological values present within the Offset Investigation Area at the time of the survey. Surveys were undertaken across the Offset Investigation Area to gain a detailed understanding of MNES, TECs and threatened species habitat features through BioCondition assessments.

Due to the staging of offset requirements, the focus of the field effort was the northern and eastern section of the Offset Investigation Area, and as such the western section has not been completely surveyed as yet and is mapped conservatively.

Surveying conditions for Ornamental snake were identified as inadequate in accordance with the *draft referral guidelines for the nationally listed Brigalow Belt reptiles* (DCCEEW, 2024), which states spotlighting should be undertaken in areas targeting water-inundated gilgais, wetlands and riparian habitats. These optimal survey conditions were not present at the time of the survey.

The absence of a species from a database list or observational studies does not confirm its absence from the Offset Investigation Area. The lack of existing records from databases is more likely to indicate a low historic sampling effort in the region, as opposed to an absence of species. To overcome these limitations, the likelihood of occurrence assessments takes a precautionary approach and identifies species that have the potential to occur (in consideration of habitat features).

All calculations have been rounded to the nearest decimal place.

3.3 BIOCONDITION SCORING METHODOLOGY

BioCondition scoring was undertaken in accordance with Eyre et al., (2015). The BioCondition score is determined by adding the scores from each site-based and landscape level attribute and dividing by the maximum possible score for the RE (e.g., 100 for wooded REs, 50 for grassland REs, 65 for shrub land REs, or 85 for mangrove REs). The scoring and weighting of each site-based and landscape scale attributes, as per Eyre et al., (2015), is provided in Table 3-8.

TABLE 3-8: SCORING AND WEIGHTING OF EACH SITE-BASED AND LANDSCAPE SCALE ATTRIBUTES

Attribute		Weighting (%)
Site based attributes		
a	Large trees	15
b	Tree canopy height	5
c	Recruitment of canopy species	5
d	Tree canopy cover (%)	5
e	Shrub layer cover (%)	5
f	Coarse woody debris	5
g	Native plant species richness for four life forms	20
h	Non-native plant cover	10

Attribute		Weighting (%)
i	Native perennial grass cover (%)	5
j	Litter cover	5
Landscape attributes		
k	Patch size	10
l	Connectivity	5
m	Context	5
n	Distance to water	20

3.3.1 SITE-BASED ATTRIBUTES

3.3.1.1 100 X 50M PLOT

Large Trees

Large trees are an essential habitat resource for many threatened species within forest and woodland environments, providing greater leaf material, nectar and bark-surface area for foraging. Large trees are likely to harbour or mature to provide hollows and crevices for nesting and sheltering.

Eyre et al., (2015) defines large trees as the 'number of living trees per hectare with a DBH greater than the DBH threshold provided in the benchmark document'. All native trees larger than the DBH threshold are counted within the 100x50 plot (Eyre, et al., 2015).

The DBH threshold for eucalypt and non-eucalypt tree species are pre-defined in some regional ecosystems, as a result of the natural variation in potential size.

Where the benchmark document specifies different diameter thresholds for large eucalypt and non-eucalypt trees, the benchmark number of large trees will be the number of large eucalypts and the number of large non-eucalypts added together to give one per hectare value and scored (Eyre, et al., 2015). The scoring methodology for the number and habitat value of large trees, as per Eyre et al., (2015), is provided in Table 3-9.

TABLE 3-9: DESCRIPTION AND SCORES FOR THE NUMBER AND HABITAT VALUE OF LARGE TREES

Description	Score
No large trees present	0
0 – 50% of benchmark number of large trees	5
≥ 50 – 100% of benchmark number of large trees	10
≥ benchmark number of large trees	15

Tree Canopy Height

The height of the tree canopy is measured from the base of the tree to the top of the highest leaves). Tree canopy height refers to the median canopy height in meters, estimated for trees in the ecologically dominant layer (EDL), or canopy layer within the assessment plot. The median height is the height that has 50% of canopy trees higher and lower than it.

If a subcanopy layer is identified in the appropriate RE benchmark because it contributes a significant amount of biomass to the vegetation, then the subcanopy layer is assessed as well as the EDL species for the three attributes (Eyre, et al., 2015). A description of the scoring methodology for tree height, as per Eyre et al., (2015), is provided in Table 3-10.

TABLE 3-10: DESCRIPTION AND SCORES FOR TREE CANOPY HEIGHT

Description	Score
< 25% of benchmark height	0
≥ 25 – 70% of benchmark height	3
≥ 70% of be	5

Recruitment of Dominant Canopy Species

The recruitment of dominant canopy species attribute assesses the presence of regeneration of the dominant canopy species in the assessment plot. Recruitment is assessed as the proportion of dominant species present at a site that are regenerating, i.e. having individuals with a DBH (Eyre, et al., 2015). A description of the scoring methodology for recruitment of canopy species, as per Eyre et al., (2015), is provided in Table 3-11.

It should be noted that only the dominant species are assessed for recruitment, and not all species counted during the assessment of native tree species richness will necessarily be included in the assessment of the recruitment of canopy species.

TABLE 3-11: DESCRIPTION AND SCORES FOR RECRUITMENT OF CANOPY SPECIES

Description	Score
< 20% of dominant canopy* species present as regeneration	0
≥ 20 – 75% of dominant canopy* species present as regeneration	3
≥ 75% of dominant canopy* species present as regeneration	5
**canopy species are those species listed in the RE benchmark in the EDL, emergent and subcanopy layers or as identified in the RE description (REDD database) that make up the dominant proportion of the EDL, emergent and subcanopy layers (but does not include those listed as occurring as scattered individuals).*	

Native Tree Species Richness

Native tree species richness is estimated for four life-forms, being trees, shrubs, grasses and forbs/other. The assessment for native tree species richness is based on the number of native tree species observed in the assessment plot. For all other life forms (shrubs, grasses, forbs/others) species richness is assessed in a 50 x 10 m plot. A description of the scoring methodology for native plant species richness for each life form, as per Eyre et al. (2015), is provided in Table 3-12.

TABLE 3-12: DESCRIPTION AND SCORES NATIVE PLANT SPECIES RICHNESS FOR EACH LIFE FORM

Description	Score
< 25% benchmark number of species within each life-form	0

Description	Score
≥ 25 – 90% benchmark number of species within each life-form	2.5
≥ 90% benchmark number of species within each life-form	5

3.3.1.2 100M TRANSECT

Tree Canopy Cover

Tree canopy cover is the estimation of the percentage canopy cover of the living, native tree layer along the transect. The only assessable tree canopy cover for this attribute is the cover of the species making up the EDL or the tree canopy cover for the majority of the REs. To assess tree canopy cover, the total length of the projected canopy of each layer is divided by the total length of the tape to give an estimate of percentage canopy cover on the site, which then can be compared with the benchmark value (Eyre, et al., 2015).

If there is, or should be, a distinct emergent or subcanopy layer, then the canopy cover of each of these layers (EDL, emergent and subcanopy) is assessed separately, then averaged to give one score for tree canopy cover (Eyre, et al., 2015).

A description of the scoring methodology for tree canopy cover, as per Eyre et al., (2015), is provided in Table 3-13.

TABLE 3-13: DESCRIPTION AND SCORES FOR TREE CANOPY COVER

Description	Score
< 10% of benchmark	0
≥ 10% and <50%	2
≥ 50% or ≤200%	5
>200%	3

Shrub Cover

Shrub canopy cover refers to the estimate of the percentage cover of native shrubs recorded along the 100 m transect (Eyre, et al., 2015). A description of the scoring methodology for shrub cover, as per Eyre et al., (2015), is provided in Table 3-14. It should be noted that non-native shrubs (e.g., *Lantana* spp.) are measured separately and do not form part of the scoring of the site.

TABLE 3-14: DESCRIPTION AND SCORES FOR SHRUB COVER

Description	Score
< 10% of benchmark shrub cover	0
>/= 10 to <50% or >200% of benchmark shrub cover	3
≥ 50% or ≤200% of benchmark shrub cover	5

3.3.1.3 50 X 20M PLOT

Coarse woody debris

Coarse woody debris refers to logs or dead timber on the ground that is >10 cm diameter and >0.5 m in length (and more than 80% in contact with the ground) (Eyre, et al., 2015). For BioCondition scoring, the total measured value of coarse woody debris within the assessment plot is multiplied by 10 for comparison with the benchmark (which is a metre per hectare value) (Eyre, et al., 2015).

A description of the scoring methodology for coarse woody debris, as per Eyre et al., (2015), is provided in Table 3-15.

TABLE 3-15: DESCRIPTION AND SCORES FOR COARSE WOODY DEBRIS

Description	Score
< 10% of benchmark number or total length of coarse woody debris	0
>/= 10 to <50% or >200% of benchmark number or total length of coarse woody debris	2
≥ 50% or ≤200% of benchmark number or total length of coarse woody debris	5

3.3.1.4 10 X 50M PLOT

Native Plant Species Richness

An assessment of native plant species richness is based on the number of native shrub, grass and forb/other species observed in the 50 x 10 m plot for each benchmarked life-form group. Whereas, native tree species richness is assessed in the 100 x 50m plot (refer to Section 3.3.1.1).

A description of the scoring methodology for native plant species richness, as per Eyre et al., (2015), is provided in Table 3-16.

TABLE 3-16: DESCRIPTION AND SCORES FOR NATIVE PLANT SPECIES RICHNESS

Description	Score
< 25% of benchmark number of species within each life-form	0
≥ 25% – 90% of benchmark number of species within each life-form	2.5
≥ 90% of benchmark number of species within each life-form	5

Non-native Plant Cover

Non-native plant cover is the percentage cover of the total vegetation cover that is comprised of exotic and non-indigenous species, assessed within the 50 x 10 m sub-plot. Where there are non-native plants present in more than one layer, then the cover in each layer are added together. The benchmark for non-native plant cover for any ecosystem type is zero (Eyre, et al., 2015).

A description of the scoring methodology for non-native plant species richness, as per Eyre et al., (2015), is provided in Table 3-17.

TABLE 3-17: DESCRIPTION AND SCORES FOR NON-NATIVE PLANT SPECIES RICHNESS

Description	Score
>50% of vegetation cover are non-native plants	0
≥ 25% – 50% of vegetation cover are non-native plants	3
≥ 5 – 25% of vegetation cover are non-native plants	5
< 5% of vegetation cover are non-native plants	10

3.3.1.5 1 X 1M QUADRATS

Native Perennial Grass Cover

Perennial grass cover refers to the average percentage cover of native perennial grasses, assessed within each of the five 1 x 1 m quadrats and averaged to give a value for the site which is then scored against the benchmark value (Eyre, et al., 2015).

A description of the scoring methodology for native perennial grass cover, as per Eyre et al., (2015), is provided in Table 3-12.

TABLE 3-18: DESCRIPTION AND SCORES FOR NATIVE PERENNIAL GRASS COVER

Description	Score
<10 % of benchmark native perennial (or preferred and intermediate) grass cover	0
≥ 10% – 50% of benchmark native perennial (or preferred and intermediate) grass cover	1
≥ 50% – 90% of benchmark native perennial (or preferred and intermediate) grass cover	3
≥ 90% of benchmark native perennial (or preferred and intermediate) grass cover	5

Organic Litter

Organic litter cover refers to the average percentage cover assessed within each of the five 1 x 1 m quadrats. Organic litter includes both fine and coarse organic material (e.g., fallen leaves, twigs and branches <10 cm in diameter) (Eyre, et al., 2015). The sum of the native ground cover, non-native ground cover, organic litter and bare ground/rock should always equal 100%.

A description of the scoring methodology for percentage of organic litter, as per Eyre et al., (2015), is provided in Table 3-19.

TABLE 3-19: DESCRIPTION AND SCORES FOR PERCENTAGE OF ORGANIC LITTER

Description	Score
<10 % of benchmark organic litter	0
≥ 10% to <50% of >200% of benchmark organic litter	3
≥ 50% or ≤ 200% of benchmark organic litter	5

3.3.2 LANDSCAPE-SCALE ATTRIBUTES

3.3.2.1 FRAGMENTED LANDSCAPE

Size of Patch

Patch size is assessed for vegetation mapped as either remnant and/or regrowth.

A description of the scoring methodology for size of patch, as per Eyre et al., (2015), is provided in Table 3-20.

TABLE 3-20: DESCRIPTION AND SCORES FOR SIZE OF PATCH

Description	Score
<5 ha remnant **and/or** regrowth	0
≥5 – 25 ha remnant **and/or** regrowth	2
≥25 – 100 ha remnant **OR** ≥ 25 – 200 ha remnant and regrowth **OR** ≥25 – 200 ha regrowth	5
≥100 – 200 ha remnant **OR** >200 ha remnant and regrowth **OR** >200 ha regrowth	7
≥200ha remnant	10

Connectivity

Four broad categories describe the connectivity of the assessment unit within the landscape, being 'low', 'medium', 'high' and 'very high'. It should be noted that both remnant and regrowth vegetation are included within the connectivity attribute assessment.

A description of the scoring methodology for connectivity, as per Eyre et al., (2015), is provided in Table 3-21.

TABLE 3-21: DESCRIPTION AND SCORES FOR CONNECTIVITY

Category	Description	Score
Low	The assessment unit is not connected using any of the below descriptions.	0
Medium	The assessment unit: • is connected with adjacent remnant vegetation along >10% to 25% of its perimeter **OR** • is connected with adjacent remnant vegetation along <10% of its perimeter **AND** • is connected with adjacent regrowth native vegetation > 25% of its perimeter.	2
High	The assessment unit is connected with adjacent remnant vegetation along 50% to 75% of its perimeter.	4
Very High	The assessment unit is connected with adjacent remnant vegetation along >75% of its perimeter **OR** includes > 500 ha remnant vegetation.	5

Context

The scoring of context within the landscape relates to the proportion of native remnant vegetation and/or regrowth vegetation that is retained within the 1 km radius landscape. The

context attribute is categorised into four categories, being 'low', 'medium', 'high' and 'very high' vegetation cover.

A description of the scoring methodology for context, as per Eyre et al., (2015), is provided in Table 3-22.

TABLE 3-22: DESCRIPTION AND SCORES FOR CONTEXT

Category	Description	Score
Low	<10% remnant vegetation AND <30% native non-remnant vegetation (regrowth)	0
Medium	• ≥10% to 30% remnant vegetation AND <30% regrowth **OR** • <10% remnant vegetation AND ≥30% regrowth	2
High	• ≥30% to 75% remnant vegetation **OR** • ≥10% to 30% remnant vegetation AND ≥30% regrowth	4
Very High	>75% remnant vegetation	5

3.4 HABITAT MAPPING METHODOLOGY

Habitat mapping for the Offset Investigation Area was undertaken using desktop assessments and ground-truthed data in accordance with the AASC Ecological Field Survey and Habitat Mapping Protocol (Anglo 2024). Desktop investigations to inform the habitat mapping included the review of species-specific habitat requirements and their ecology and biology. It is noted that only areas within the Offset Investigation Area have been mapped for this Report.

The following desktop mapping products were utilised during the habitat mapping to examine landscape features that influence species habitats:

- hi-resolution aerial imagery;
- topography;
- watercourse mapping;
- geology and soils mapping; and
- state government RE mapping.

Desktop data and potential species' habitats were ground-truthed through BioCondition assessments. These surveys later informed the ground-truthed broad habitat mapping and ground-truthed RE mapping. As a general approach, habitat mapping for threatened species was undertaken by:

- reviewing species specific conservation and listing guidance, published literature of each species' habitat requirements, ecology and biology;
- reviewing publicly available databases for species records within the Offset Investigation Area and/or the nearest species record to the Offset Investigation Area;
- identifying which broad habitat types provide preferred/suitable habitat for each species; and followed by;
- refinement of habitat within each broad habitat type to produce potential habitat mapping using REs and considering the information obtained during habitat and vegetation assessments, including:
    - land zones;
    - vegetation structure and condition;

- vegetation communities and dominant flora species;
- presence of required habitat features (e.g., hollow bearing trees, fallen timber, hollow logs etc.);
- presence of direct or indirect signs of fauna use (e.g., scats, scratch marks etc.); and
- overall condition of habitat.

Species specific habitat mapping rules and their habitat requirements are elaborated in their respective sections within Section 4.4.

3.5 DETERMINING HABITAT QUALITY SCORE

The EPBC Act MHQA method has been used to determine the quality of habitat for Brigalow TEC, ornamental snake and Australian painted snipe within the Offset Investigation Area Offset Investigation Area. Habitat quality scores are represented as a total, whole number out of 10 (x/10), and is determined by three components (site condition, site context and species stocking rate) that convey the suitability of a given site to support an ongoing population or area of a MNES. Table 3-23 below outlines these components.

TABLE 3-23: HABITAT QUALITY SCORING CRITERIA

Component of Habitat Quality Score	Rationale (per DCCEEW)
Site condition (30%)	*This is the condition of a site in relation to the ecological requirements of a threatened species or ecological community. This includes considerations such as vegetation condition and structure, the diversity of habitat, species present, and the number of relevant habitat features.*
Site context (30%)	*This is the relative importance of a site in terms of its position in the landscape, taking into account the connectivity needs of a threatened species or ecological community. This includes considerations such as movement patters of the species, the proximity of the site in relation to other areas of suitable habitat, and the role of the site in relation to the overall population or extent of a species or community.*
Species stocking rate (40%)	*This is the usage and/or density of a species at a particular site. The principle acknowledges that a particular site may have a high value for a particular threatened species, despite appearing to have poor condition and/or context. It includes considerations such as survey data for a site in regard to a particular species population or, in the case of a threatened ecological community, this may be a number of different populations. It also includes consideration of the role of the site population in regard to the overall species population viability or community context.*

Site condition is determined via collection of the 10 site-based habitat quality attributes assessed in the Queensland BioCondition in accordance with the BioCondition Assessment Manual (Eyre, et al., 2015), with additional MNES-specific data collected as well, that being the quality and availability of food and foraging habitat and quality and availability of shelter.

Detail of the species specific metrics used in the MHQA scoring is outlined below in Table 3-23Table 3-24.

TABLE 3-24: HABITAT QUALITY SCORING METRICS

Component of Habitat Quality Score	Metric		
	Brigalow TEC	**Ornamental Snake**	**Australian Painted Snip**
Site condition (additional items to the BioCondition Assessment)			
Quality and availability of food and foraging habitat	N/A	Proximity to water through woodland 0: > 1km 1: 1km - 500m 2: 500m and >250m 3: <250 - >51m connected 4: <50m connected 5: bordering Woody debris 0: <50% benchmark 1: 51% - 100% benchmark 3: 101% - 150% benchmark 5: >151% benchmark	
Quality and availability of shelter attributes	N/A	Cracking clay 0: absent 3: present Presence of Gilgai 0: absent 7: Present	Presence of wetlands: 0: patch not connected to wetland 10: patch is connected to wetland
Site context			
Size of Patch	0 - <5ha 2: 5-25ha 5: 26-100ha 7: 101-200ha 10: >200ha		
Connectedness	Proportion of the site's boundary which is connected to remnant vegetation: 0: 0-10% 2: >10%-<50% 4: 50-75% 5: >75% or 500ha		
Context	Percentage of remnant vegetation within a one kilometre buffer around the site: 0: <10% remnant 2: >10-30% remnant 4: >30-75% remnant 5: >75% remnant		
Ecological Corridors	Proximity of the site to state, bioregional, regional or sub-regional corridors (terrestrial or riparian) 0: not within 4: sharing common boundary 6 - withing (whole or part)		
Role of Site location for the population in the State	1: Not or unlikely to be critical to species survival 4: Likely to be critical to species survival 5: Critical to species survival		
Absence of threats to the species	Calculated from the lowest score of a threat matrix in accordance with the Guide to determining terrestrial habitat quality, version 1.3. The following threats were identified and assessed for each species:		

Component of Habitat Quality Score	Metric		
	Brigalow TEC	**Ornamental Snake**	**Australian Painted Snip**
	A: Land clearing B: Increased frequency and intensity of fire C: Invasive flora D: Invasive fauna (feral pigs, cats dogs) E: Overgrazing		
Species mobility capacity	Measured in consideration of the presence and severity of factors that would contribute to a reduction in the mobility of the species.		
	N/A	Woody debris 0: <50% benchmark 1: 51% - 100% benchmark 3: 101% - 150% benchmark 5: >151% benchmark Site Connectedness Score 0: 0 1: 1 2: 2 3: 3 4: 4 5: 5	Sum of connectedness, context and ecological corridor score / 16 proportioned to the max score.
Species Stocking rate			
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	N/A	0: No 5: Yes adjacent 10: Yes on site	
Species usage of the site (habitat type & evidenced usage)		0: Not habitat 5: Dispersal 10: Foraging 30: Breeding	
Approximate density (per ha)		0: 0% 10: >0-50% 20: >50-75% 30: >75%-100%	
Role/importance of species population on site*		Score total from supplementary table. 0: 0 5:5 – 15 10: 20 – 35 15: 40 – 45	

TABLE 3-25: SPECIES STOCKING RATE SUPPLEMENTARY TABLE

*SSR Supplementary Table			
	Score	0	10

***SSR Supplementary Table**			
*Key source population for breeding		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

4. DESKTOP ASSESSMENT AND FIELD SURVEY RESULTS

4.1 REGIONAL ECOSYSTEMS

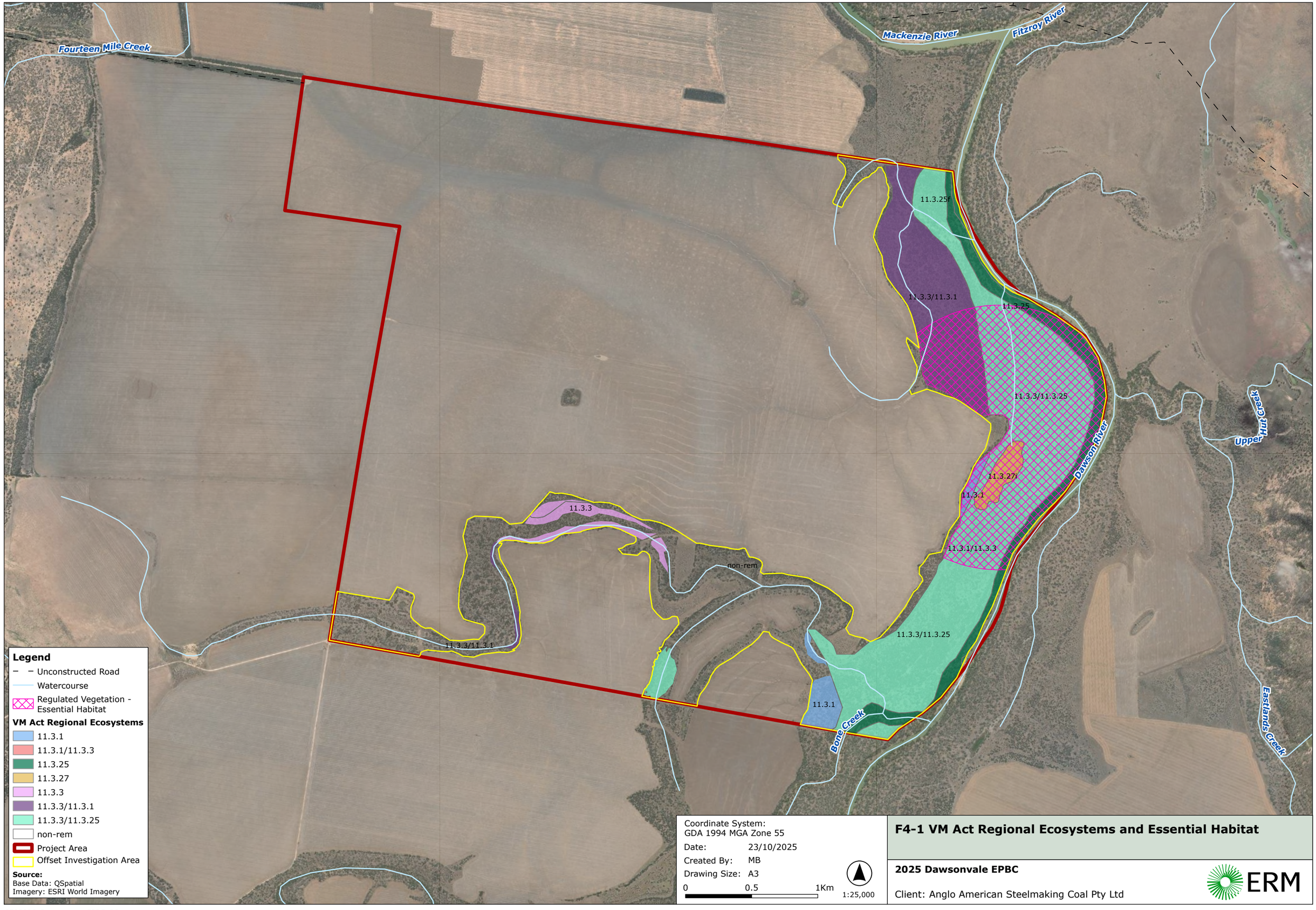
4.1.1 DESKTOP REGIONAL ECOSYSTEMS

The desktop assessment identified five state-mapped regional ecosystems within the Offset Investigation Area; of which, one is endangered, one of concern and three least concern under the *Vegetation Management Act 1999*.

The state-mapped regional ecosystems within the Offset Investigation Area are summarised in Table 4-1 and presented in Figure 4-1.

TABLE 4-1: STATE-MAPPED REGIONAL ECOSYSTEMS WITHIN THE OFFSET INVESTIGATION AREA

RE	Description	Biodiversity Status	*Vegetation Management Act 1999* Status	Area (ha)	Percentage of Offset Investigation Area
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains	Endangered	Endangered	35.68	6.14%
11.3.25	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	Of concern	Least concern	106.28	18.29%
11.3.25f	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	Of concern	Least concern	3.11	0.54%
11.3.27i	Freshwater wetlands	Of concern	Least concern	8.26	1.42%
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	Of concern	Of concern	257.56	44.32%
non-remnant	none			170.22	29.29%
Total remnant vegetation				**410.89**	**70.71%**
Total (remnant and non-remnant vegetation)				**581.11**	**100%**



F4-1 VM Act Regional Ecosystems and Essential Habitat

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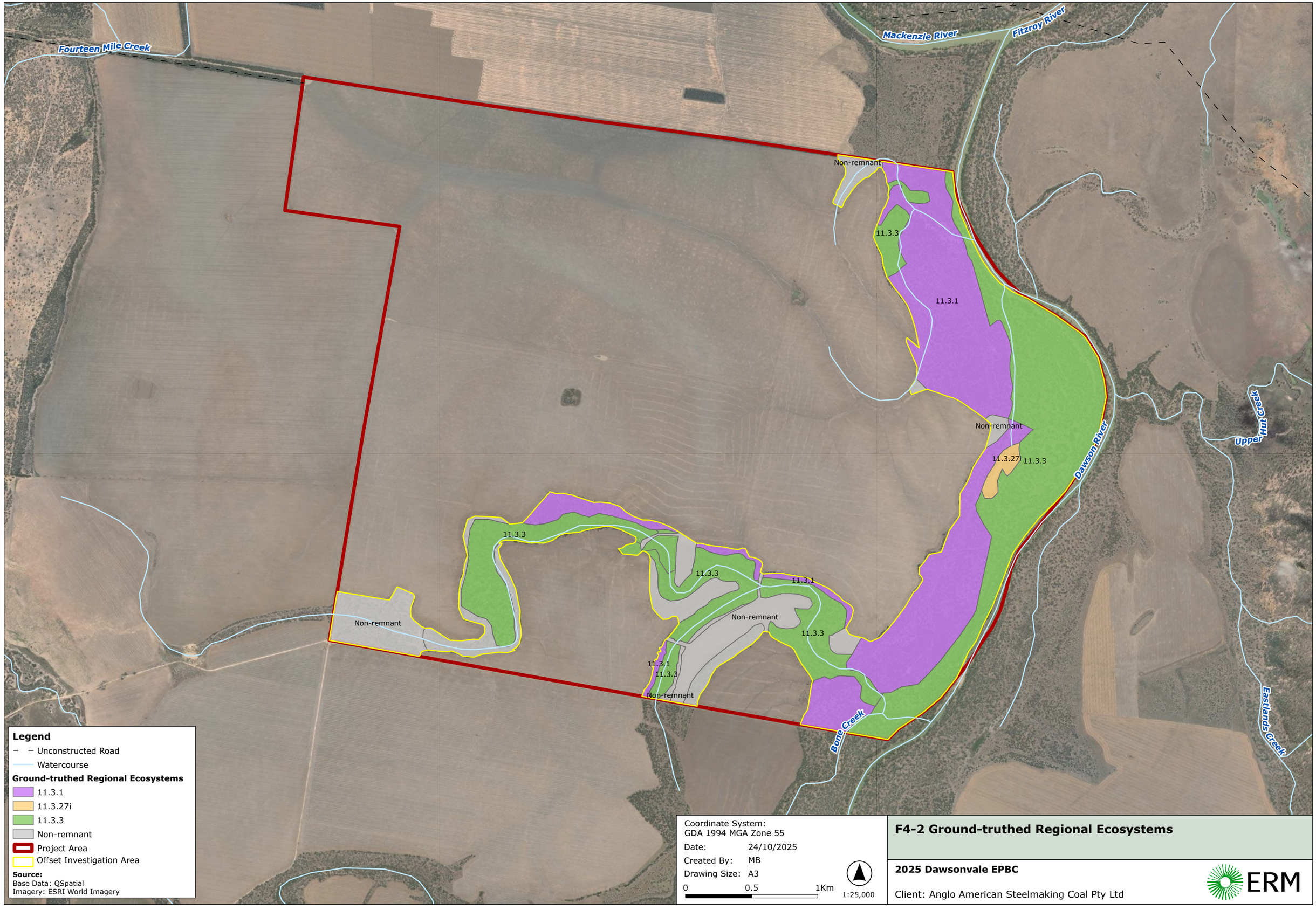
4.1.2 GROUND-TRUTHED REGIONAL ECOSYSTEMS

Regional ecosystems have been ground-truthed through BioCondition surveys in accordance with the *Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner, et al., 2024). Following the ground-truthing, three regional ecosystems were identified within the Offset Investigation Area, of which one is listed as endangered and one of concern under the *Vegetation Management Act 1999*. The Offset Investigation Area contains 475.36 ha of ground-truthed remnant vegetation and 105.75 ha of non-remnant vegetation.

A summary of the ground-truthed regional ecosystems within the Offset Investigation Area is provided in Table 4-2 and presented in Figure 4-2.

TABLE 4-2: GROUND-TRUTHED REGIONAL ECOSYSTESM WITHIN THE OFFSET INVESTIGATION AREA

RE	Description	Biodiversity Status	*Vegetation Management Act 1999* Status	Area (ha)	Percentage of total Offset Investigation Area
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains	Endangered	Endangered	212.07	36%
11.3.27	Freshwater wetlands	Of concern	Least concern	5.15	1%
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	Of concern	Of concern	258.13	44%
non-remnant	none			105.75	18%
Total remnant vegetation				475.36	82%
Total (remnant and non-remnant vegetation)				581.11	100%



F4-2 Ground-truthed Regional Ecosystems

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4.2 BROAD HABITAT TYPES

Six broad habitat types were identified and mapped within the Offset Investigation Area, as summarised in Table 4-3 and presented in Figure 4-3

TABLE 4-3: BROAD HABITAT TYPES

Broad Habitat Type	Short Description	Area (ha)
Eucalyptus coolabah woodland	Includes Eucalyptus coolabah woodland occurring on alluvial plains within the Brigalow Belt. Typically with an open woodland canopy over a grassy understory. Eucalypts in this habitat type provide an abundant food resource for eucalyptus specialists (i.e., large gliders and koala). Scattered hollows and tree cavities also provide a limited shelter resource for hollow-dwelling mammals and birds. Infestations of Parkinsonia aculeata were observed throughout this habitat type in the Offset Investigation Area.	258.13 ha
Brigalow (*Acacia harpophylla*) woodland	Includes brigalow (*Acacia harpophylla*) woodland with sparse understorey and dense ground cover of organic litter and woody debris present. All patches within the Offset Investigation Area were assessed as Brigalow TEC, due to the presence of features that met the key diagnostic criteria and condition thresholds to meet the TEC requirements (refer to Section 4.4.1). Dense ground cover, loose bark, woody debris, and cracking soil types are all microhabitat features that may be of useful habitat value to small animals that require abundant shelter from sun and predators.	212.07 ha
Mixed acacia and eucalyptus regrowth	Includes scattered or sparse Acacia spp and E*ucalyptus* spp regrowth with low habitat value but may be utilised by species to travel between habitats. Offers minimal habitat value to any species as there is limited complexity, shelter and food sources. This habitat is typically used by generalist species, but on occasion threatened species has potential to use.	57.08 ha
Waterbodies (including creeks, wetlands etc.)	Includes permanent and seasonal, natural water bodies including rivers, creeks and dams which provide suitable habitat for wading birds. This is valuable habitat for wading birds, as it promotes growth of their food sources (i.e., crustaceans, molluscs, arthropods) in an accessible habitat of shallow water.	5.15 ha
Cleared land with occasional regrowth	Includes cleared land with occasional *Acacia* spp and *Eucalyptus* spp regrowth. This is a very open and homogenous habitat type that offers little value to any species unless they are a grassland specialist. Birds of prey may take advantage of the minimal canopy cover to hunt for ground dwelling species.	23.72 ha
Cleared land	Includes cleared land with minimal to no regrowth, often dominated by introduced ground cover species. This is a very open and homogenous habitat type that offers very little to no value to any species. Birds of prey may take advantage of the minimal canopy cover to hunt for ground dwelling species.	24.95 ha

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend

- Unconstructed Road
- Watercourse

Broad Habitat Types

- Brigalow Woodland
- Cleared land
- Cleared land with occasional regrowth
- Eucalyptus Coolabah Woodland
- Mixed Acacia and Eucalypt Regrowth
- Waterbodies
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-3 Broad Habitat Types

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4.3 LIKELIHOOD OF OCCURRENCE ASSESSMENT OUTCOMES

A summary of the likelihood of occurrence assessment is provided in Table 4-4, while the full likelihood of occurrence assessment is provided in Appendix B.

TABLE 4-4: SUMMARY OF LIKEILHOOD OF OCCURRENCE ASSESSMENT

Scientific Name	Common Name	Status	
		NC Act	EPBC Act
Known to occur			
-	Brigalow (*Acacia harpophylla* dominant and co-dominant)	-	E
Phascolarctos cinereus	koala	E	E
Tachyglossus aculeatus	short-beaked echidna	SLC	-
Likely to occur			
Apus pacificus	fork-tailed swift*	-	Mi
Geophaps scripta scripta	squatter pigeon (southern)	V	V
Potential to occur			
Denisonia maculata	Ornamental snake	V	V
Erythrotriorchis radiatus	red goshawk	E	E
Falco hypoleucos	grey falcon	V	V
Gallinago hardwickii	Latham's snipe	V	V, Mi
Hemiaspis damelii	grey snake	E	E
Motacilla flava	yellow wagtail	-	Mi
Petauroides volans	greater glider (southern and central)	E	E
Poephila cincta cincta	southern black-throated finch	E	E
Rostratula australis	Australian painted snipe	E	E

Note: E = endangered, V = vulnerable, Mi = migratory, SLC = special least concern
**species is considered likely to occur based on likelihood of occurrence assessment, however at an aerial capacity only. The Offset Investigation Area does not contain suitable terrestrial habitat and offsets for this species are unlikely, thus not considered further in habitat mapping.*

4.4 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE WITHIN THE OFFSET INVESTIGATION AREA

There are several identified MNES relevant to the Offset Investigation Area as summated in Table 4-5.

TABLE 4-5: SUMMARY OF MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Matter	Relevance	Summary
World Heritage Properties	X	The PMST did not identify any world heritage properties within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area.

Matter	Relevance	Summary
National heritage places	X	The PMST did not identify any national heritage places within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area.
Wetlands of International Importance	X	The PMST did not identify any wetlands of international importance within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area.
Threatened Ecological Communities	✓	Five TECs were identified with the potential to occur within the Offset Investigation Area or 10 km buffer, including: • Brigalow (Acacia harpophylla dominant and co-dominant) (Brigalow) TEC; • Coolibah – black box woodlands of the Darline Riverine Plains and the Brigalow Belt South Bioregions TEC; • Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin TEC; • Poplar box grassy woodland on alluvial plains TEC; and • Weeping myall woodlands TEC. Following the field survey, one TEC, being Brigalow TEC, occurs within the Offset Investigation Area. No other TECs were identified.
Threatened species	X	Seven threatened flora species were identified with a potential to occur within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area. Following the field survey, all threatened flora are considered unlikely to occur and are not discussed further in this Report.
	✓	Twenty-three threatened fauna species were identified with a potential to occur within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area. There are no threatened fauna known to occur; however, three are likely to occur and eight are potential to occur.
Migratory species	✓	A total of 10 migratory species were identified with the potential to occur within the Offset Investigation Area or a 10 km buffer. Of the 10 species identified, one is likely to occur and two have the potential to occur.
Commonwealth Marine Area	X	The PMST did not identify any Commonwealth marine areas within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area.
The Great Barrier Reef Marine Park	X	The PMST did not identify any the Great Barrier Reef Marine Park within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area.
Nuclear Actions	X	The PMST did not identify any nuclear actions within the Offset Investigation Area or a 10 km buffer of the Offset Investigation Area.

4.4.1 THREATENED ECOLOGICAL COMMUNITIES

A total of five TECs were identified in the desktop assessment; however, following the field survey and likelihood of occurrence refinement, one TEC is known to occur within the Offset Investigation Area, being Brigalow TEC. All other TECs were confirmed as not occurring due to the absence of suitable REs, and as such, are not discussed further.

A detailed community profile on Brigalow TEC is provided below.

Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC

Community Profile

The Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC is listed as Endangered under the EPBC Act, effective 4 April 2001.

The Brigalow TEC occurs throughout semi-arid Queensland and New South Wales, from Townsville, Queensland, west to Blackall, Queensland and south to Narrabri, New South Wales (DoE, 2013). The Brigalow Belt TEC occurs in several Interim Biogeographical Regionalisation of Australia Bioregions, including the Brigalow Belt Bioregion, in which the Offset Investigation Area is located.

This ecological community is characterised by the presence of Brigalow (*Acacia harpophylla*) as the most abundant and dominant or co-dominant species within the tree layer (Butler, 2007). Brigalow within the tree layer is often co-dominant with Belah (*Casuarina cristata*), *Acacia* spp., or *Eucalyptus* spp. (DoE, 2013).

In the Brigalow Belt bioregion, a suspected patch of Brigalow TEC must meet the description of one of the following regional ecosystems (DoE, 2013):

- RE 11.3.1 – *Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains;
- RE 11.4.3 – *Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains;
- RE 11.4.7 – Open forest to woodland of *Eucalyptus populnea* with *Acacia harpophylla* and/or *Casuarina cristata* on Cainozoic clay plains;
- RE 11.4.8 – *Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains;
- RE 11.4.9 – *Acacia harpophylla* shrubby open forest to woodland with *Terminalia oblongata* on Cainozoic clay plains;
- RE 11.4.10 – *Eucalyptus populnea* or *E. pilligaensis*, *Acacia harpophylla, Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains;
- RE 11.5.16 – *Acacia harpophylla* and/or *Casuarina cristata* open forest in depressions on Cainozoic sand plains/remnant surfaces;
- RE 11.9.1 – *Acacia harpophylla-Eucalyptus cambageana* open forest to woodland on fine-grained sedimentary rocks;
- RE 11.9.5 – *Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks;
- RE 11.9.6 – *Acacia melvillei* +/- *A. harpophylla* open forest on fine-grained sedimentary rocks;
- RE 11.11.14 – *Acacia harpophylla* open forest on deformed and metamorphosed sediments and interbedded volcanics; and
- RE 11.12.21 – *Acacia harpophylla* open forest on igneous rocks; colluvial lower slopes.

TEC Diagnostic Criteria

To be considered Brigalow TEC, the suspected patch must meet the following diagnostic criteria (DoE, 2013):

1. The presence of *Acacia harpophylla* as one of the most abundant tree species in the patch. *A. harpophylla* is either dominant in the tree layer, or co-dominant with other species (notably *Casuarina cristata*, other *Acacia* spp., or *Eucalyptus* spp.);
2. The patch size is 0.5 ha or more in size; and
3. Exotic perennial plants comprise less than 50% of the total vegetation cover of the patch, as assessed over a minimum sample area of 0.5 ha (100 m by 50 m), that is representative of the patch.

The above criteria were considered in refining potential mapping TEC patches during the field survey.

Survey Methods and Effort

Field surveys were undertaken to verify brigalow TEC through BioCondition/MHQA assessments. A total of 13 BioConditions were conducted throughout the Offset Investigation Area.

Survey Results

Brigalow TEC was confirmed present within the Offset Investigation Area across a total of 212.07 ha and mapped accordingly, as deemed appropriate by the field assessments and diagnostic criteria. The Brigalow TEC within the Offset Investigation Area is presented in Figure 4-4.

The Brigalow TEC habitat included Brigalow (*Acacia harpophylla*) as the dominant or co-dominant tree canopy species with sparse understorey and dense ground cover of organic litter and woody debris present. Tree canopy cover typically exceeded that of the RE benchmark for RE 11.3.1 and tree height was varied throughout. Dense ground cover, loose bark, woody debris, and cracking soil types were observed throughout this habitat, providing microhabitat features that may be of useful habitat value to small animals that require abundant shelter from sun and predators.

The greatest threats to the Brigalow TEC within the Offset Investigation Area is the threat of land clearing and the scattered infestations of *Harrisia* species and presence of feral fauna species as discussed in Section 4.6. These scattered areas of infestation showed signs of an increasing footprint from surrounding recruitment and is a threat to the condition of the remnant vegetation if not treated. Additionally, the surrounding infestation of *Parkinsonia aculeata* observed within the surrounding areas of RE 11.3.3 pose a threat to the Brigalow TEC areas and are likely to encroach and reduce the TEC footprint over time if not treated.

Potential for conservation gain is available through the reduction of weeds, feral fauna species and the potential for significant gain in native grass cover which is currently low.

Habitat Quality Score

Habitat quality scoring was undertaken for Offset Investigation. One assessment unit was used to score the habitat quality for Brigalow TEC, being:

- Assessment unit 1 – RE 11.3.1

The final weighted habitat quality score for Brigalow TEC within the Offset Investigation Area is 6.22. A summary of the habitat quality scores are presented in Table 4-6; while the detailed BioCondition and MHQA scoring spreadsheet is provided in Appendix C.

TABLE 4-6: FINAL HABITAT QUALITY SCORE – BRIGALOW TEC

Final habitat quality score (weighted)	**Offset Investigation Area**
Relevant MHQA	1, 2, 3, 4, 6, 7, 8, 11, 12
Site condition score (out of 7)	4.63
Site context score (out of 3)	1.63
Habitat quality score (out of 10)	6.26
Assessment unit area (ha)	212.07
Total Offset Investigation Area (ha) for this MNES	212.07
Size weighting	1
Weighted habitat quality score	**6.26**

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend

- Unconstructed Road
- Watercourse
- Brigalow (Acacia harpophylla dominant and co-dominant) TEC
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 24/10/2025
Created By: MB
Drawing Size: A3

0 0.5 1Km

1:25,000

F4-4 Brigalow (Acacia harpophylla dominant and co-dominant) TEC Mapping

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4.4.2 THREATENED SPECIES FOR OFFSET

4.4.2.1 ORNAMENTAL SNAKE

The ornamental snake (*Denisonia maculata*) is listed as vulnerable under the EPBC Act, effective 16 July 2000.

Species Distribution and Habitat

The ornamental snake is only known to occur in Queensland, particularly within the Fitzroy River and Dawson River drainage systems. Within this extent, the ornamental snake primarily inhabits floodplains, undulating clay pans, as well as the margins of swamps, lakes and watercourses (DoE, 2014). The species has also been recorded in adjacent areas of elevated ground, woodlands and open woodlands of coolabah, poplar box, and brigalow, and in fringing vegetation along watercourses (DoE, 2014).

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat likely to occur' (DoE, 2014). There are no publicly available records of the species within the Offset Investigation Area. The nearest desktop record is located approximately 7 km north of the Offset Investigation Area and was recorded in December 1946. There are an additional five records within 15 km of the Offset Investigation Area, however these are not dated.

Important Habitat

Known important habitat for the ornamental snake is defined as '*gilgai depressions and mounds*' within the *draft referral guidelines for the nationally listed Brigalow Belt reptiles* (DCCEEW, 2024).

Field Survey Methodology and Results

Survey Guidelines

The *draft referral guidelines for the nationally listed Brigalow Belt reptiles* (DCCEEW, 2024) lists the species targeted survey effort and techniques as:

- One-off diurnal searches through turning woody debris, rocks and raking the soil surface;
- Spotlighting - targeting water-inundated gilgais, wetlands and riparian habitats;
- Opportunistic surveys of roads while driving throughout the survey area; and
- Pitfall and funnel trapping – using six 20 L buckets evenly distributed under a 30 m drift line in optimal habitat, checking these each morning and early evening over four days.

Survey Method and Effort

Field surveys were specifically undertaken to verify TEC and habitats for ornamental snake through BioCondition/MHQA assessments and spotlighting. A total of 13 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The ornamental snake was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The ornamental snake was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DoE, 2014). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest desktop record is located approximately 7 km north of the Offset Investigation Area and was recorded in December 1946. There are an additional five records within 15 km of the Offset Investigation Area, however these are not dated.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the ornamental snake has the potential to occur.

Suitable habitat was observed throughout the Offset Investigation Area in RE 11.3.1 and RE 11.3.3 with gilgai formations and varying degree of cracking soils throughout the Brigalow and Coolibah woodlands in moist areas.

The greatest observed threats to the Ornamental snake habitat were the *Parkinsonia aculeata*, observed in scattered infestations in areas of remnant RE 11.3.3 and scattered infestations of *Harrisia* species within areas of remnant RE 11.3.1. These scattered areas of infestation showed signs of an increasing footprint from surrounding recruitment and is a threat to the condition of the remnant vegetation if not treated. Feral fauna pests were also observed as a threat to the habitat as discussed in Section 4.6.

Potential for conservation gain is available through the reduction of weeds, feral fauna species and the potential for significant gain in native grass cover which is currently low.

Habitat Mapping and Habitat Quality Score

Habitat mapping for the ornamental snake was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-7.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025);
- Approved Conservation Advice for *Denisonia maculata* (ornamental snake) (DoE, 2014); and
- In consideration of the Anglo Ecological Field Survey and Habitat Mapping Protocol (Anglo, 2024).

Foraging and dispersal habitat and refuge habitat was identified following the field surveys and MHQAs within the Offset Investigation Area.

Foraging and dispersal habitat has been mapped as per the habitat requirements noted in Table 4-7 below. A total of 365.98 ha of foraging and dispersal habitat and 104.76 ha of refuge habitat was mapped within the Offset Investigation Area, as presented in Figure 4-5.

TABLE 4-7: HABITAT REQUIREMENTS/RULES FOR ORNAMENTAL SNAKE

Habitat Category	Habitat Requirements and Mapping Rules
Foraging and dispersal habitat	• Open forests and woodlands in moist areas, particularly gilgai mounds and depressions (considered important habitat) (RE LZ 4); • Lake margins and wetlands;

Habitat Category	Habitat Requirements and Mapping Rules
	• Gilgai formations where deep-cracking alluvial soils with high clay content occur; • Ground truthed REs 11.3.1 and RE 11.3.3; • Brigalow (*Acacia harpophylla*) dominated vegetation communities; • Coolibah (*Eucalyptus coolabah*) dominated vegetation communities; • Pure grassland associated with gilgais; and • Habitat patches are typically greater than 10 hectares in area and are within, or connected, to larger areas of remnant vegetation.
Refuge habitat	• Within soil cracks on gilgai mounts in ground-truthed RE 11.3.1 and RE 11.3.3 where Brigalow (*Acacia harpophylla*) and coolibah (*Eucalyptus coolabah*) occur.

Habitat Quality Score

Habitat quality scoring was undertaken for the Offset Investigation Area

The assessment was undertaken across both RE 11.3.1 and RE 11.3.3 in habitat deemed suitable for Ornamental snake.

The final weighted habitat quality score for ornamental snake is presented in Table 4-8. The full BioCondition and MHQA scoring spreadsheet is provided in Appendix C.

TABLE 4-8: FINAL HABITAT QUALITY SCORE – ORNAMENTAL SNAKE

Final habitat quality score (weighted)	Offset Investigation Area
Relevant MHQA	1 - 13
Site condition score (out of 3)	1.79
Site context score (out of 3)	1.35
Species stocking rate score (out of 4)	1.14
Habitat quality score (out of 10)	4.26
Assessment unit area (ha)	470.74
Total Offset Investigation Area (ha) for this MNES	470.74
Size weighting	1
Weighted habitat quality score	**4.26**

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Foraging & Dispersal
- Refuge
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-5 Ornamental Snake Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R1.aprx

4.4.2.2 AUSTRALIAN PAINTED SNIPE

Species Distribution and Habitat

The Australian painted snipe (*Rostratula australis*) is listed as endangered under the EPBC Act, effective 15 May 2013.

The Australian painted snipe has been recorded at wetlands in all states of Australia. Important areas for the Australian painted snipe include the Murray-Darling Basin (particularly the Riverina of Victoria and New South Wales), Queensland Channel Country, Fitzroy Basin of Central Queensland, south-eastern South Australia and adjacent parts of Victoria (DSEWPC, 2013). Across their distribution, the species inhabits shallow freshwater, and sometimes brackish, permanent and ephemeral wetlands (e.g., lakes, swamps, bore drains, claypans, dams, rice crops, sewage farms and inundated or waterlogged grassland/saltmarsh) where grasses, rushes and reeds, low scrub, lignum (*Muehlenbeckia* spp.), open timber or samphire are present (DSEWPC, 2013).

While habitat requirements are generally broad, breeding habitat is more specific. Breeding habitat for the Australian painted snipe consists of shallow wetlands with areas of bare wet mud and both upper and canopy cover nearby (DCCEEW, 2022). The majority, if not all, known nest records are from or near small islands in freshwater wetlands, provided that these islands are a combination of very shallow water, exposed mud, dense low cover and sometimes some tall dense cover (DCCEEW, 2022).

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat likely to occur' (DoE, 2014). There are no publicly available records of the species within the Offset Investigation Area. The nearest desktop record is located approximately 26 km north of the Offset Investigation Area; however, there is no date provided for this record.

Field Survey Methodology and Results

Survey Guidelines

The *survey guidelines for Australia's threatened birds* (DEWHA, 2017) recommends the following survey techniques and effort for surveying for Australian painted snipe:

- Targeted stationary observations at dawn and dusk in suitable foraging locations within wetlands – surveying for 10 hours over five days; and
- Land-based area searches or line transects for sites of <50 ha (when wetland holds water but is not flooded) – surveying 10 hours over three days.

Survey Method and Effort

Field surveys were specifically undertaken to verify TEC and habitats for Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 15 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The Australian painted snipe was not recorded during the field survey.

Suitable habitat was observed throughout the Offset Investigation Area in RE 11.3.1 and RE 11.3.3 within drainage lines and shallow wetland areas with emergent tussocks of grass, sedges, rushes or reeds and varying cover.

The greatest observed threats to this habitat were the feral fauna species as discussed in Section 4.6, with the presence of feral pigs likely to destroy the quality of the suitable habitat and surrounding vegetation within the Australian Painted snipe habitat.

In addition, *Parkinsonia aculeata*, observed in scattered infestations in areas of remnant RE 11.3.3 and scattered infestations of *Harrisia* species within areas of remnant RE 11.3.1 have the potential to out compete native tussock grasses, sedges and rushes in turn whipping out any suitable habitat for the species.

Potential for conservation gain is available through the control of feral fauna species, the reduction and eradication of invasive flora species and the potential for significant gain in native grass cover and grass cover species which is currently low.

Likelihood of Occurrence in the Offset Investigation Area

The Australian painted snipe was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DSEWPC, 2013). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest desktop record is located approximately 26 km north of the Offset Investigation Area; however, there is no date provided for this record.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the Australian painted snipe has the potential to occur.

Habitat Mapping and Habitat Quality Score

Habitat mapping for the Australian painted snipe was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-9.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025);
- Approved Conservation Advice for *Rostratula australis* (Australian painted snipe) (DSEWPC, 2013); and
- In consideration of the Anglo Ecological Field Survey and Habitat Mapping Protocol (Anglo, 2024).

Foraging and dispersal habitat and breeding habitat were identified following the field surveys and MHQAs within the Offset Investigation Area.

Foraging and dispersal habitat and Breeding habitat has been mapped as per the habitat requirements noted in Table 4-9 below. A total of 6.27 ha of breeding habitat and 73.81 ha of foraging and dispersal habitat is mapped within the Offset Investigation Area, as presented in Figure 4-6.

TABLE 4-9: HABITAT REQUIREMENTS/RULES FOR AUSTRALIAN PAINTED SNIPE

Habitat Category	Habitat Requirements and Mapping Rules
Breeding habitat	• Shallow wetland with areas of bare mud with upper and canopy cover nearby; and • Islands in freshwater wetlands, with shallow water, exposed mud and dense low cover.
Foraging and dispersal habitat	• Shallow freshwater wetlands, temporary and permanent lakes, swamps and claypans; • Rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum muehlenbeckia or canegrass or sometimes tea-tree (*Melaleuca* spp.); and • Areas that are lined with trees, or have some scattered fallen or washed up timber. The following REs were mapped where the above habitat requirements occur (as a result of ground-truthing: • RE 11.3.1; and • RE 11.3.3.

Habitat Quality Score

Habitat quality scoring was undertaken for the Offset Investigation Areas.

The assessment was undertaken across areas of both RE 11.3.1 and RE 11.3.3 within or immediately adjacent habitat deemed suitable for Australian Painted Snipe.

The final weighted habitat quality score for Australian painted snipe across the Offset Investigation Area is presented in Table 4-8. The full BioCondition and MHQA scoring spreadsheet is provided in Appendix C.

TABLE 4-10: FINAL HABITAT QUALITY SCORE – AUSTRALIAN PAINTED SNIPE

Final habitat quality score (weighted)	Offset Investigation Area
Relevant MHQA	1, 2, 5, 6, 7, 9, 10, 13
Site condition score (out of 3)	1.75
Site context score (out of 3)	1.41
Species stocking rate score (out of 4)	1.14
Habitat quality score (out of 10)	4.30
Assessment unit area (ha)	80.08
Total Offset Investigation Area (ha) for this MNES	80.08
Size weighting	4.03
Weighted habitat quality score	**4.30**

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend

- Unconstructed Road
- Watercourse
- Breeding
- Foraging & Dispersal
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 24/10/2025
Created By: MB
Drawing Size: A3

0 0.5 1Km

1:25,000

F4-6 Australian Painted Snipe Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

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4.4.3 POTENTIAL HABITAT FOR THREATENED SPECIES WITHIN OFFSET INVESTIGATION AREA

4.4.3.1 GREATER GLIDER (SOUTHERN AND CENTRAL)

The greater glider (southern and central) is listed as endangered under the EPBC Act, effective 5 July 2022.

Species Distribution and Habitat

The distribution of the greater glider (southern and central) occurs along eastern Australian, with a broad distribution ranging from Proserpine (QLD), south through New South Wales and the Australian Capital Territory, to Wombat State Forest in central Victoria. Within this distribution, the greater glider (southern and central) predominantly occurs at an elevational range of 0 – 1200 m above sea level.

Greater glider (southern and central) habitat consists of tall, montane eucalyptus forests with mature hollow-bearing trees (Eyre, 2004) Eyre et al., (2022) lists the species habitat as REs with confirmed greater glider (southern and central) records and those containing crucial habitat attributes (i.e., live and dead-hollowing bearing denning trees, feed and large trees and habitat connectivity). The species has an affinity for habitats dominated or co-dominated by *Corymbia citriodora, E. moluccana, E. tereticornis, E. crebra, C. intermedia* and *E. portuensis* (Eyre, et al., 2022). The riparian forests and woodlands within the Goonyella Rail Corridor are dominated by *E. camaldulensis* and *E. tereticornis*, two species suitable as foraging and denning trees for greater glider (southern and central).

In southern QLD specifically, greater glider (southern and central) requires a density of at least 2-4 live den trees per ha of suitable forest habitat. In the same note, the species shows 'preference for large hollows (diameter >10cm) in large, old trees' (DCCEEW, 2022), though it is noted that the species will utilise both live and dead trees.

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat likely to occur' (DCCEEW, 2022). There are no publicly available records of the species within the Offset Investigation Area. The nearest desktop record is located approximately 27 km south-west of the Offset Investigation Area; however, there is no date provided for this record.

Field Survey Methodology and Results

Survey Guidelines

Survey guidelines for the greater glider (southern and central) are outlined in the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (terrestrial guidelines) (Eyre, et al., 2022) and *Survey Guidelines for Australia's Threatened Mammals* (DSEWPC, 2011a).

Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre, et al., 2022).

- the terrestrial guidelines specify greater glider (southern and central) surveys are to be completed by:
  - two-person, 30-minute spotlighting search of 100 x 100 m survey site. This can include spotlighting up one side of the 100 x 100 m survey site and then spotlighting back the other side of the 100 x 100 m survey site; and

- scat and sign searches can coincide with systematic diurnal surveys within 50 x 50 m quadrats of the survey site.

Survey Guidelines for Australia's Threatened Mammals (DSEWPC, 2011a)

The survey guidelines for Australia's Threatened Mammals (DSEWPC, 2011a) specify greater glider (southern and central) surveys should be completed by spotlighting at least 2 200 m transects per 5 ha areas. It is further recommended that there is to be 100 m between each survey transect, and bright moonlight may aid in detecting the species.

Survey Techniques and Effort

Field surveys did not target greater glider (southern and central) as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 13 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The greater glider (southern and central) was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The greater glider (southern and central) was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DCCEEW, 2022). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 27 km south-west of the Offset Investigation Area and is not dated.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the greater glider (southern and central) has the potential to occur.

Habitat Mapping

Habitat mapping for the greater glider (southern and central) was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-11.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025);
- A guide to greater glider habitat in Queensland (Eyre, et al., 2022);
- characteristics of tree hollows used by Australian arboreal and scansorial mammals (Goldingay, 2012);
- Approved Conservation Advice for *Petauroides volans* (greater glider (southern and central)) (DCCEEW, 2022); and
- In consideration of the Anglo Ecological Field Survey and Habitat Mapping Protocol (Anglo, 2024).

Potential habitat for the greater glider (southern and central) within the Offset Investigation Area has been mapped in the following categories:

- Denning and breeding habitat –with no habitat occurring; and
- Foraging and dispersal habitat - a total 169.34 ha occurring.

Habitat for the greater glider (southern and central) is summarised in Table 4-11 and presented in Figure 4-7.

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-11: HABITAT REQUIREMENTS/RULES FOR GREATER GLIDER (SOUTHERN AND CENTRAL)

Habitat Category	Habitat Requirements and Mapping Rules

Denning and breeding	Eucalyptus dominated woodland containing the following habitat features:
	• tree species including:
	  ◦ forest red gum (*Eucalyptus tereticornis*);
	  ◦ lemon-scented spotted gum (*Corymbia citriodora*); and
	  ◦ pink bloodwood (*Corymbia intermedia*).
	• 2 – 4 live denning trees for every 2 ha of suitable habitat;
	• trees with > 50 cm DBH; and
	• live and dead stags containing hollows with entrances > 10 cm diameter.
	
	No potential denning and breeding habitat was mapped

Foraging and dispersal	• Eucalyptus dominated woodland which is connected to denning and breeding habitat with appropriate denning trees; • live and dead stags containing hollows; and • preferred tree species with 30 – 50 cm DBH. The following REs were mapped as denning and breeding habitat, where the above habitat requirements occur: • RE 11.3.3

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Potential Foraging and Dispersal
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 23/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-7 Potential Greater Glider (southern and central) Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

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4.4.3.2 KOALA

Koala is currently listed as Endangered under the EPBC Act, effective 12 February 2022.

Species Distribution and Habitat

Koala has one of the broadest distributions of threatened arboreal mammal species under the EPBC Act with a range extending from north-eastern Queensland to the south-east corner of South Australia. The biological species distribution is widespread in coastal and inland areas that extends over approximately one million square kilometres (Martin and Handasyde, 1999). The species occurrence throughout their range is dependent on numerous environmental values including specialist food, habitat availability and environmental requirements (DAWE, 2022).

Four genetically important koala populations have been identified throughout eastern Australia, including:

- Queensland and New South Wales populations north of the Clarence River Valley, New South Wales;
- south of the Clarence River Valley, New South Wales to north of the Sydney Basin;
- south of the Sydney Basin to approximately the New South Wales /Victorian boarder; and
- Victoria and South Australia populations.

As per the species conservation advice (DAWE, 2022), threats to the koala include:

- loss of climatically suitable habitat;
- increased intensity and frequency of drought;
- increased intensity and frequency of heatwaves;
- increased intensity and frequency of bushfire;
- declining nutritional value of foliage;
- clearing and degradation of koala habitat;
- encounter mortality with vehicles and dogs; and
- koala retrovirus (KoRV) and Chlamydia (*Chlamydia percorum*).

Whilst koala habitat varies throughout the species' distribution; however, common elements throughout include:

- the presence of one or more palatable tree species that provides reliable leaf moisture;
- complexity of habitat structure to allow the species to mitigate temperature and humidity stressors, and predator avoidance; and
- a landscape of sufficient extent to allow a widespread population to persist and interact.

Under the Conservation Advice for *Phascolarctos cinereus* (koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE, 2022) habitat for the koala is described as:

> '*Including both coastal and inland areas that are typically characterised by eucalyptus forests and woodlands. Biophysical habitat attributes for the koala include places that contain the resources necessary for individual foraging, survival (including predator avoidance), growth, reproduction, and movement*.'

Habitat critical to the survival of the species relates to the habitat the species relies on to avoid or halt decline and promote the recovery of the species. Under the EPBC Act, the following factors and other relevant factors are considered when identifying habitat that is critical to the survival of the species:

- whether the habitat is used during periods of stress (e.g., flood, drought or fire);
- whether the habitat is used to meet essential life cycle requirements (e.g., foraging, breeding, nesting, roosting, social behaviour patterns or seed dispersal processes);
- the extent to which the habitat is used by important populations;
- whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development;
- whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements;
- whether the habitat is necessary to ensure the long-term future of the species or ecological community through reintroduction or re-colonisation; and
- any other way in which habitat may be critical to the survival of a listed threatened species or a listed TEC.

Koala food trees are typically considered to be those of the following genus: *Angophora, Corymbia, Eucalyptus, Lophostemon* and *Melaleuca.* Koala's move between food trees and shelter trees on a daily basis, and as such, shelter trees are considered an essential resource to the species for thermoregulation and predator evasion (DAWE, 2022). Koala's show preference for large trees, shady trees and have been observed utilising a range of tree species (e.g., *Callitris* spp.*, Acacia harpophylla* and *Melaleuca bracteata*) for shelter. Additionally, koalas have been observed in lone paddock trees, showing their capacity to disperse long distances.

- koala dispersal habitat includes generalised habitats lacking an abundance of mature koala food trees (i.e., *Eucalyptus* spp., *Corymbia* spp. or *Angophora* spp.), however do meet the following criteria;
- have suitable shelter trees among scattered food trees, as '*individual koalas move daily between food and shelter trees*' (Pfeiffer et al., 2005; Tucker et al. 2007; DCCEEW, 2022); and
- occur in connective patches between foraging and breeding habitat.

Field Survey Methodology and Results

Survey Guidelines

Survey guidelines for the koala are outlined in the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (terrestrial guidelines) (Eyre et al., 2022) and *A review of* koala *Habitat Assessment Criteria and Methods* (Youngentob et al., 2021), as explained below.

Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre, et al., 2022):

- the terrestrial guidelines specify koala surveys are to be completed by:
  - two-person, 30-minute spotlighting search of 100 x 100m survey site. This can include spotlighting up one side of the 100 x 100m survey site and then spotlighting back the other side of the 100 x 100m survey site; and

- scat and sign searches can coincide with systematic diurnal surveys within 50 x 50m quadrats of the survey site.

A review of koala Habitat Assessment Criteria and Methods (Youngentob, Marsh, & Skewes, 2021):

the koala habitat assessment criteria and methods outline the following observation techniques effective in assessing koala presence/absence:

- Direct observations:
  - transect Point Surveys – strip transects, line-transect distance sampling or double count transects, involving searching for koala in trees on both sides of pre-determined lines;
  - spotlighting – night-time spotlighting searches in smaller sites to determine species presence and density;
  - trained koala detection dogs;
  - mark-resight or mark-recapture;
  - thermal detection drones;
  - radio tracking; and
  - camera trapping in areas where fresh scats and/or scratches have been recorded.

Direct observations should be undertaken between August and January for peak activity.

- Indirect observations:
  - faecal pellet (scat) surveys;
  - scats – koala rapid assessment method (KRAM);
  - scats – balanced koala scat survey (BKSS);
  - scats – spot assessment technique (SAT) involving looking at food trees for presence of koala scats;
  - scats – faecal standing crop assessment;
  - scats – trained scat detection dogs;
  - scats – genetic sampling from faecal pellets;
  - call playback;
  - passive acoustics;
  - landscape nutrition quality surveys; and
  - scratches on trees.

Survey Techniques and Effort

Field surveys did not target koala as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 13 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The koala was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The koala was not recorded within the Offset Investigation Area during the field survey; however there is one desktop record of the koala within the Offset Investigation Area, recorded in February 2000. Therefore, the koala is considered known to occur within the Offset Investigation Area.

Habitat Mapping

Habitat mapping for the koala was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-12.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025);
- Approved Conservation Advice for *Phascolarctos cinereus* (koala – combined populations of Queensland, New South Wales and the Australian Capital Territory); and
- In consideration of the Anglo Ecological Field Survey and Habitat Mapping Protocol (Anglo, 2024).

Potential habitat for the koala within the Offset Investigation Area has been mapped in the following categories:

- Breeding and foraging habitat – mapped as RE 11.3.3, with a total 258.13 ha occurring; and
- Dispersal habitat – mapped as RE 11.3.1 and Mixed Acacia and Eucalypt regrowth, with a total 269.14 ha occurring.

Habitat for the koala is summarised in Table 4-12 and presented in Figure 4-8.

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-12: HABITAT REQUIREMENTS/RULES FOR KOALA

Habitat Category	Habitat Requirements and Mapping Rules
Foraging and breeding	• Contiguous remnant and high-value regrowth eucalyptus open forest to woodlands on alluvial and/or cracked rock groundwater where locally important koala teres occur frequently (and are usually dominant); • Remnant and regrowth eucalyptus open forest to woodlands with more variable aquifers (often seasonal) and that have connectivity to other areas of breeding/shelter. Must incorporate one or more locally important koala tree species of relative abundance; and • Presence of *Eucalyptus brownii, E. camaldulensis, E. coolabah, E.* • *crebra, E. dura, E. exserta, E. longirostrata, E. melanophloia, E.* • *moluccana, E. populnea, E. saligna* and/or *E. tereticornis*. The following REs were mapped where the above habitat requirements occur: • RE 11.3.3
Dispersal	• Continuous corridors of native vegetation with koala habitat trees between koala habitat areas; • Ideally where the trees are 30 m apart but no more than 200 m apart and small clumps to provide versatility to meet koala's habitat needs;

Habitat Category	Habitat Requirements and Mapping Rules
	• Presence of *Corymbia citriodora, Corymbia dallachiana, Corymbia intermedia, Corymbia tessellaris* and/or *Eucalyptus cambageana*; and • Scattered koala habitat trees in cleared areas where connected to habitat areas. The following REs were mapped where the above habitat requirements occur: • RE 11.3.1 and Mixed Eucalypt and Acacia Regrowth

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend

- Unconstructed Road
- Watercourse
- Potential Foraging & Breeding
- Potential Dispersal
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 24/10/2025
Created By: MB
Drawing Size: A3

0 0.5 1Km
1:25,000

F4-8 Potential Koala Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

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4.4.3.3 LATHAM'S SNIPE

Latham's snipe is listed as vulnerable and migratory under the EPBC Act, effective 5 January 2024.

Species Distribution and Habitat

The Latham's snipe occurs globally, including in Japan, Russia and Australia. In Australia, the species occurs as a non-breeding visitor to south-eastern Australia, as well as being a passage migrant through northern Australia (DCCEEW, 2024). Lathan's snipe is known from Cape York Peninsula south to south-eastern South Australia, and west over the eastern tablelands in south-eastern Queensland and the Great Dividing Range in New South Wales (DCCEEW, 2024).

Within Australia, the species does not breed and as such, does not have breeding habitat. Foraging habitat consists of soft mudflats or shallow water. Roosting habitat includes areas such as small wetlands (e.g., urban water bodies, saltmarshes and creek edges) with adequate shallow flooded or inundated substrate (DCCEEW, 2024). Latham's snipe are mostly recorded in shallow water with dense vegetation cover (e.g., sedges, grasses, lignum, reeds, and rushes); however the species has also been recorded to occur in cropping and pasture lands (DCCEEW, 2024).

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat may occur' (DCCEEW, 2024). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 27 km east of the Offset Investigation Area and was recorded in 2017

Field Survey Methodology and Results

Survey Guidelines

There are no species-specific survey guidelines for this species; however, there are survey guidelines for EPBC Act listed migratory shorebird species which can be applied to Latham's snipe.

Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DoE, 2015b).

Survey guidelines for migratory species in non-tidal areas include:

- Surveys should be conducted during the period when majority of migratory shorebirds are present in the area;
- Surveys should also be conducted during the breeding season (mid-April to mid-August);
- Surveys should not be undertaken during periods of high rainfalls or strong winds;
- Surveys should not be undertaken when activities are taking place which cause disturbance to birds; and
- Survey effort includes:
- four surveys for roosting shorebirds during the period when most shorebirds are present in the area;
- four surveys for foraging shorebirds; and

- one survey during the northern hemisphere breeding season to capture data on birds that remain in Australia during the breeding season.

Survey Techniques and Effort

Field surveys did not target Latham's snipe as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 13 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The Latham's snipe was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The Latham's snipe was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DCCEEW, 2024). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 27 km east of the Offset Investigation Area and was recorded in 2017.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the Latham's snipe has the potential to occur.

Habitat Mapping

Habitat mapping for the Latham's snipe was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-13.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025); and
- Conservation Advice for *Gallinago hardwickii* (Latham's snipe) (DCCEEW, 2024).

Potential habitat for the Latham's snipe within the Offset Investigation Area has been mapped in accordance with the habitat requirements specified in Table 4-13. With a total of 68.61 Foraging habitat and 11.47 ha of Refuge habitat.

Habitat for the Latham's snipe is summarised in Table 4-13 and presented in Figure 4-9.

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-13: HABITAT REQUIREMENTS/RULES FOR LATHAM'S SNIPE

Habitat Category	Habitat Requirements and Mapping Rules
Breeding habitat	This species does not breed in Australia.
Foraging habitat	• Soft mudflats or shallow water The following REs were mapped where the above habitat requirements occur: • RE 11.3.1 • RE 11.3.3

Habitat Category	Habitat Requirements and Mapping Rules
Roosting habitat	• Small wetlands (e.g., urban water bodies, saltmarshes, creek edges) with shallow flooded or inundated substrate, as well as dense cover comprising sedges, grasses, lignum, reeds and rushes; and • Crops and pasture.

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Potential Roosting
- Potential Foraging
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-9 Potential Latham's Snipe Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R1.aprx

4.4.3.4 SQUATTER PIGEON (SOUTHERN)

The squatter pigeon (southern) is listed as vulnerable under the EPBC Act, effective 16 July 2000.

Species Distribution and Habitat

Squatter pigeon (southern) is distributed from the Burdekin-Lynd divide in the Cape York Peninsula and south to the Queensland/New South Wales border. Across this north-south range, the species is distributed inland to Hughenden, Longreach, and Charleville in Queensland. The Offset Investigation Area is located within the species modelled habitat distribution, as 'species or species habitat likely to occur'.

Within its range, the squatter pigeon (southern) typically inhabits open forests to sparse, open woodlands and scrub dominated by a Eucalyptus, Corymbia, Acacia or Callitris canopy, and remnant, regrowth, or partly modified vegetation communities. Suitable habitat for the squatter pigeon (southern) must be located within 3 km (foraging and dispersal habitat) or within 1 km (breeding habitat) of a water source or water body.

The species is unlikely to occur large distances away from wooded vegetation as predation rates by predatory birds are higher in open areas (Squatter Pigeon Workshop, 2011). Squatter pigeon (southern) are almost always observed within reasonable proximity to water (TSSC, 2015).

The species conservation advice describes an important sub-population of the squatter pigeon (southern) to be 'all of the relatively small, isolated and sparsely distributed sub-populations occurring south of the Carnarvon Ranges in Central Queensland' (Squatter Pigeon Workshop, 2011). Important populations of the species defined as, though not limited to:

- The populations in the Condamine River Catchment and Darling Downs of southern Queensland;
- The populations known to occur in the Warwick-Inglewood-Texas region of southern Queensland; and
- Any population potentially occurring in northern New South Wales.

There are no publicly available records of the species within the Offset Investigation Area. The nearest desktop record is located approximately 3 km west of the Offset Investigation Area and was recorded in 1996. There are no recent records (within 20 years) of the species within 10 km of the Offset Investigation Area.

Field Survey Methodology and Results

Survey Guidelines

Survey guidelines for the squatter pigeon (southern) are outlined in the *Survey Guidelines for Australia's Threatened Birds* (DEWHA, 2017) and include area searches or transect surveys in suitable habitat. Additionally, flushing surveys are considered likely to be useful, however are not the preferable method.

Optimal survey conditions for detecting the squatter pigeon (southern) are during the mid to late dry season, May to October, as the species is readily foraging for grass seed (Squatter Pigeon Workshop, 2011). Juvenile squatter pigeon (southern) are predominantly detected in June.

Survey Techniques and Effort

Field surveys did not target squatter pigeon (southern) as surveys were specifically undertaken to verify TEC and MNES species habitats within the Offset Investigation Area, through BioConditions. A total of 13 BioCondition assessments were conducted throughout the Offset Investigation Area. These assessments noted the vegetation present at each location, as well as any species-specific habitat features including nests and roosting sites.

Survey Results

Squatter pigeon (southern) was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

Squatter pigeon (southern) was not recorded within the Offset Investigation Area during the field survey and the species has not been recorded within the Offset Investigation Area previously. Despite this, the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DCCEEW, 2025). The nearest record of the species is located 3 km west of the Offset Investigation Area and was recorded in 1996. There are no recent records (within 20 years) of the species within 10 km of the Offset Investigation Area.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the squatter pigeon (southern) is likely to occur.

Habitat Mapping

Habitat mapping for the squatter pigeon (southern) was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-14.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025);
- Approved Conservation Advice for *Geophaps scripta scripta* (squatter pigeon (southern)) (TSSC, Conservation Advice Geophaps scripta scripta squatter pigeon (southern), 2015); and
- In consideration of the Anglo Ecological Field Survey and Habitat Mapping Protocol (Anglo, 2024).

Potential habitat for the squatter pigeon (southern) within the Offset Investigation Area has been mapped in the following categories:

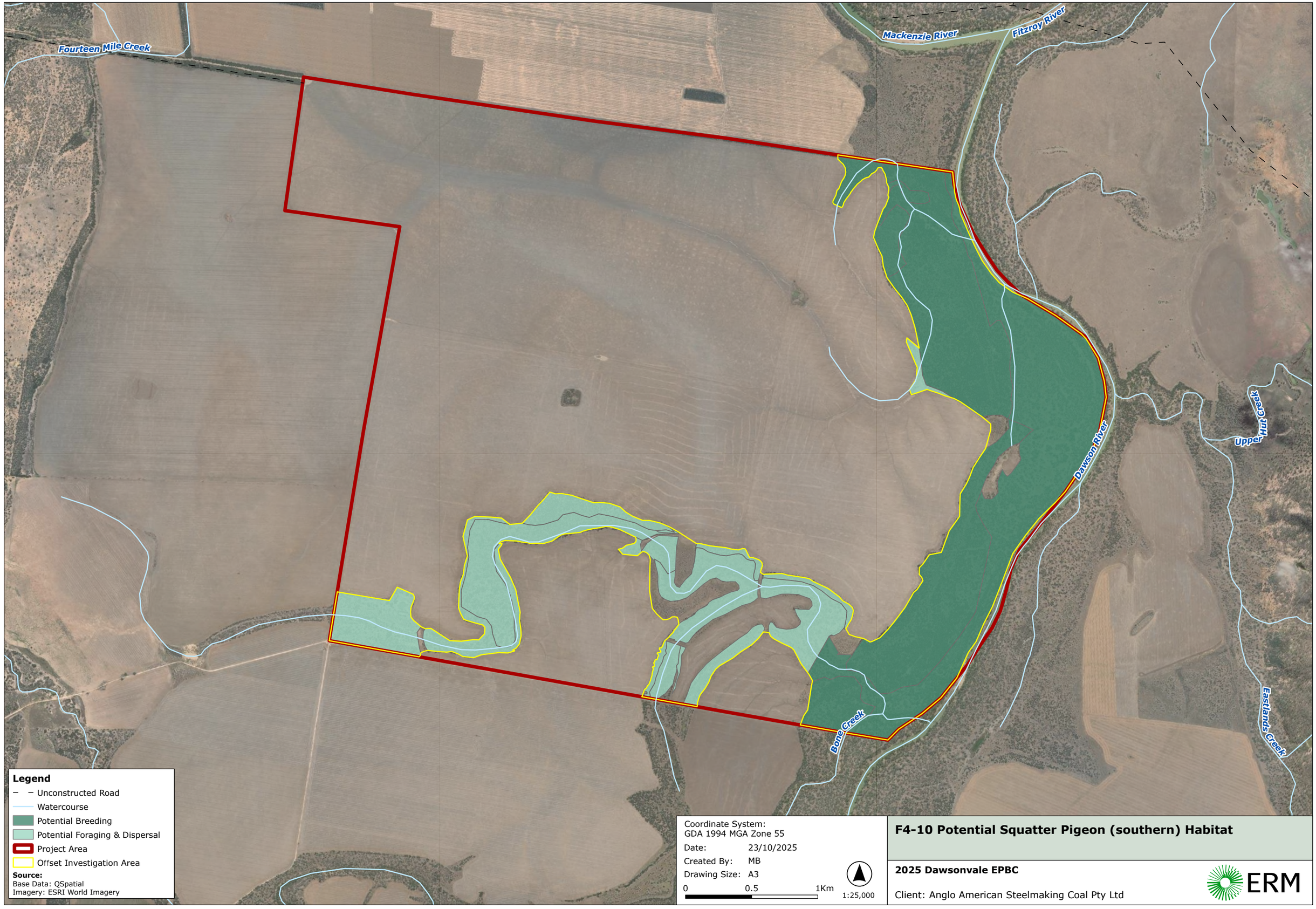
- Breeding habitat – preferred habitats within 1 km of a suitable permanent waterbody, and constitutes 360.99 ha within the Offset Investigation Area;
- Foraging and dispersal habitat – preferred habitat within 3 km of a permanent or ephemeral waterbody and constitutes 165.24 ha within the Offset Investigation Area.

Squatter pigeon (southern) habitat is summarised in Table 4-14, and is largely scattered throughout the Offset Investigation Area, as presented in Figure 4-10.

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-14: HABITAT REQUIREMENTS/RULES FOR SQUATTER PIGEON (SOUTHERN)

Habitat Category	Habitat Requirements and Mapping Rules
Breeding habitat	• Open forest to woodland communities with bare ground visible. Patchy native tussock grass understory or mix of perennial tussock grasses and low shrubs/forbs **within 1 km of a permanent water source**; • Dominated overstorey of Eucalyptus spp., Corymbia spp., Acacia spp. or Callitris spp. **within 1 km of a permanent water source**; • Ground vegetation of native, perennial tussock grasses or a mix of perennial tussock grasses and low shrubs or forbs rarely exceeding 33% of the ground area, with the remaining consisting of gravelly/dusty soil and lightly covered in leaf litter and coarse woody debris **within 1 km of a permanent water source**. The following REs were mapped where the above habitat requirements occur: • RE 11.3.1; and • RE 11.3.3.
Foraging and dispersal habitat	• Open forest to woodland communities with bare ground visible. Patchy native tussock grass understory or mix of perennial tussock grasses and low shrubs/forbs **within 3 km of a permanent or ephemeral water source**; • Dominated overstorey of Eucalyptus spp., Corymbia spp., Acacia spp. or Callitris spp. **within 3 km of a permanent or ephemeral water source**; • Ground vegetation of native, perennial tussock grasses or a mix of perennial tussock grasses and low shrubs or forbs rarely exceeding 33% of the ground area, with the remaining consisting of gravelly/dusty soil and lightly covered in leaf litter and coarse woody debris **within 3 km of a permanent or ephemeral water source**. The following REs were mapped where the above habitat requirements occur: • RE 11.3.1; and • RE 11.3.3.



F4-10 Potential Squatter Pigeon (southern) Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R0.aprx

4.4.3.5 GREY SNAKE

Grey snake is listed as endangered under the EPBC Act, effective 5 October 2022.

Species Distribution and Habitat

In Queensland, the distribution of the grey snake is broad and highly dispersed, with majority of records located along the Macintyre and Condamine Rivers and associated floodplains of the southern Brigalow Belt from Goondiwindi and Dalby west to Glenmorgan, on the Darling Downs and western Lockyer Valley, near Rockhampton on the central Queensland coast, and on the Darling Riverine Plains near Currawinya in south-western Queensland (DCCEEW, 2022).

Within this distribution, the grey snake inhabits brigalow and belah (*Casuarina cristata*) woodlands with cracking clay soils, and particularly in association with water bodies, small gullies and floodplain environments (DCCEEW, 2022). The species has also been recorded inhabiting Queensland bluegrass (Dichanthium sericeum) and/or Mitchell grass (Astrebla spp.) grasslands on alluvial plains with cracking soils (DCCEEW, 2022).

The species requires floodplains and ephemeral wetlands for breeding habitat, as these areas support prey species including frogs.

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat likely to occur' (DCCEEW, 2022). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 70 km north-east of the Offset Investigation Area and was recorded in March 2025.

Field Survey Methodology and Results

Survey Guidelines

There are no specific survey guidelines for this species.

Survey Techniques and Effort

Field surveys did not target grey snake as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 15 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The grey snake was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The grey snake was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat may occur' (DCCEEW, 2022). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 70 km north-east of the Offset Investigation Area and was recorded in March 2025.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the grey snake has the potential to occur.

Habitat Mapping

Habitat mapping for the grey snake was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-15.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025); and
- Conservation Advice for *Hemiaspis damelii* (grey snake) (DCCEEW, 2022).

Potential habitat for the grey snake within the Offset Investigation Area has been mapped in accordance with the habitat requirements specified in Table 4-15. With a total of 212.07 ha of potential foraging habitat. Habitat for the grey snake is summarised in Table 4-15 and presented in Figure 4-11.

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-15: HABITAT REQUIREMENTS/RULES FOR GREY SNAKE

Habitat Category	Habitat Requirements and Mapping Rules
Breeding habitat	• Floodplains and ephemeral wetlands with heavy clay soils where cracks and crevices are present.
Foraging habitat	• Brigalow and belah (*Casuarina cristata*) woodlands on heavy, dark brown to black cracking clay soils, in association with water bodies, areas with small gullies and ditches, and floodplain environments where the species shelters beneath logs, rocks and soil cracks; • Queensland bluegrass (*Dichanthium sericeum*) and/or Mitchell grass (*Astrebla* spp.) grassland on alluvial plains with cracking clay soils.

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Potential Foraging
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-11 Potential Grey Snake Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R1.aprx

4.4.3.6 SOUTHERN BLACK-THROATED FINCH

The southern black-throated finch is listed as endangered under the EPBC Act, effective 14 February 2005.

Species Distribution and Habitat

The southern black-throated finch predominantly occurs in the Townsville region and scattered sites in central-eastern Queensland. The species predominantly inhabits grassy, open woodlands and forests dominated by *Eucalyptus*, *Corymbia* and *Melaleuca*. Woodlands where the southern black-throated finch has been recorded are typically comprised of narrow-leaved ironbark (*E. crebra*), river red gum (*E. camaldulensis*), silver-leaved ironbark (*E. melanophloia*), Reid River box (*E. brownii*), yellowjacket (*E. similis*) and forest red gum (*E. tereticornis*). The species has also been recorded in tussock grasslands, dominated by *Astrebla*, *Dichanthium* or *Panicum* species, freshwater wetlands and along or near watercourses (TSSC, 2005).

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat may occur' (TSSC, 2005). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 3 km south of the Offset Investigation Area and is historic (1908).

Field Survey Methodology and Results

Survey Guidelines

Survey Guidelines for Australia's Threatened Birds (DEWHA, 2017)

Targeted surveys for southern black-throated finch include:

- Land-based area searches for 10 hours over 5 days; and
- Targeted searches for 6 hours over 2 days.

Survey Techniques and Effort

Field surveys did not southern black-throated finch as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 15 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The southern black-throated finch was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The southern black-throated finch was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat may occur' (TSSC, 2005). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of

the Offset Investigation Area. The nearest record of the species is located 3 km south of the Offset Investigation Area and is historic (1908). There are no recent records (within 20 years) within 10 km of the Offset Investigation Area.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the southern black-throated finch has the potential to occur.

Habitat Mapping

Habitat mapping for the southern black-throated finch was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-16.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025); and
- Commonwealth Listing Advice on Southern Black-throated Finch (*Poephila cincta cincta*) (TSSC, 2005).

Potential Habitat for the southern black-throated finch within the Offset Investigation Area has been mapped in accordance with the habitat requirements specified in Table 4-16, with a total 67.60 ha occurring. Habitat for the southern black-throated finch is summarised in Table 4-16 and presented in Figure 4-12.

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-16: HABITAT REQUIREMENTS/RULES FOR SOUTHERN BLACK-THROATED FINCH

Habitat Category	Habitat Requirements and Mapping Rules
Habitat	• Grassy, open woodlands and forests, dominated by *Eucalyptus*, *Corymbia* and Melaleuca for example: ◦ narrow-leaved ironbark (*E. crebra*), ◦ river red gum (*E. camaldulensis*), ◦ silver-leaved ironbark (*E. melanophloia*), ◦ Reid River box (*E. brownii*), ◦ yellowjacket (*E. similis*); and ◦ forest red gum (*E. tereticornis*). • Tussock grasslands comprised of *Astrebla*, *Dichanthium* or *Panicum*; • Freshwater wetlands.

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Potential Habitat
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 23/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-12 Potential Southern Black Throated Finch Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R0.aprx

4.4.3.7 GREY FALCON

The grey falcon is listed as vulnerable under the EPBC Act, effective 9 July 2020.

Species Distribution and Habitat

The grey falcon occurs across arid and semi-arid inland Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia (TSSC, 2020). Areas where the grey falcon occurs includes those where rainfall is less than 500 mm. The species inhabits timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses; as well as treeless areas, tussock grassland and open woodlands (TSSC, 2020). The grey falcon nests in the tallest trees along watercourses, particularly river red gum (*Eucalyptus camaldulensis*) and coolibah (*E. coolabah*).

The Offset Investigation Area is located within the species modelled distribution of 'species or species habitat likely to occur' (TSSC, 2020). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the species is located 3 km south of the Offset Investigation Area and is historic (1908).

Field Survey Methodology and Results

Survey Guidelines

Conservation Advice *Falco hypoleucos* - grey falcon (TSSC, Conservation Advice Falco hypoleucos Grey Falcon, 2020)

Surveys for grey falcon can be conducted by:

- Visiting known nests used in previous years;
- Actively searching for new nests in suitable habitat areas; and
- Following up records from the general public, including from Indigenous communities, land managers and bird watchers.

Survey Techniques and Effort

Field surveys did not grey falcon as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 15 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The grey falcon was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The grey falcon was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (TSSC, Conservation Advice Falco hypoleucos Grey Falcon, 2020). There are no previous publicly available records of the species within the Offset Investigation Area or within 10 km of the Offset Investigation Area. The nearest record of the

species is located 3 km south of the Offset Investigation Area and is historic (1908). There are no recent records (within 20 years) within 10 km of the Offset Investigation Area.

As there are records of the species in the region and the Offset Investigation Area contains potential habitat for the species, the grey falcon has the potential to occur.

Habitat Mapping

Habitat mapping for the grey falcon was undertaken using the methodology described in Section 3.4 of this Report, and the habitat requirements summarised in Table 4-17.

Information on the species' habitat requirements were sought from the following resources:

- Species Profile and Threats Database (DCCEEW, 2025); and
- Conservation Advice *Falco hypoleucos* (grey falcon) (TSSC, 2020).

Potential habitat for the grey falcon within the Offset Investigation Area has been mapped in the following categories:

- Breeding habitat – mapped as RE 11.3.3, with a total 258.13 ha occurring; and
- Foraging habitat – mapped as RE 11.3.1 and Mixed Acacia and Eucalypt regrowth, with a total 286.29 ha occurring.

Habitat for the grey falcon is summarised in Table 4-17 and presented in Figure 4-13,

It is noted that this species has not been included in the MHQA scoring as it is not part of the Project scope; despite potential habitat identified within the Offset Investigation Area.

TABLE 4-17: HABITAT REQUIREMENTS/RULES FOR GREY FALCON

Habitat Category	Habitat Requirements and Mapping Rules
Breeding habitat	• Tall, open woodlands along watercourses, particularly river red gum (*Eucalyptus camaldulensis*) and coolibah (*Eucalyptus coolabah*)
Foraging habitat	• Timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses; • Treeless areas; • Tussock grassland; and • Open woodland

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Potential Breeding
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-13 Potential Grey Falcon Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R1.aprx

4.4.4 POTENTIAL FOR MIGRATORY SPECIES WITHIN OFFSET INVESTIGATION AREA

One migratory species has the potential to occur above the Offset Investigation Area, being the fork-tailed swift. It is noted that the Offset Investigation Area does not provide land-based habitat for this species due to their aerial nature. A detailed species profile is provided in the following subsection.

4.4.4.1 FORK-TAILED SWIFT

Fork-tailed swift is currently listed as migratory under the EPBC Act.

Species Distribution and Habitat

The fork-tailed swift occurs aerially in all states and territories of Australia. The species is a non-breeding visitor, migrating to Australia during the non-breeding season (October to April) (DCCEEW, 2025). While in Australia, the fork-tailed swift occurs almost exclusively aerial, flying at heights of 1 m – 300 m above ground and rarely landing (DCCEEW, 2025).

The fork-tail swift predominantly occurs aerially over inland plains; however has been recorded above foothills, in coastal areas (e.g., cliffs, beaches and islands out to sea), treeless grasslands and sandplains, open farmland, rainforests, wet sclerophyll forest, open forest or plantations of pines (DCCEEW, 2025). The species forages aerially and often occur in areas of updraughts, following the edges of low-pressure systems.

The *Draft referral guidelines for 14 birds listed migratory under the EPBC Act* (DCCEEW, 2015) lists important habitat for the fork-tailed swift as:

> *'Non-breeding habitat only: Found across a range of habitats, from inland open plains to wooded areas, where it is exclusively aerial.'*

Field Survey Methodology and Results

Survey Guidelines

There are no standard survey techniques for swifts in Australia; however, it is noted that the species should be counted by an experienced person from elevated viewpoints during the Austral summer (DCCEEW, 2015).

Survey Techniques and Effort

Field surveys did not target fork-tailed swift as surveys were specifically undertaken to verify TEC and habitats for ornamental snake and Australian painted snipe through BioCondition/MHQA assessments and spotlighting. A total of 15 BioConditions were conducted throughout the Offset Investigation Area, as well as, spotlighting for 2.5 hours per night for three nights (totalling 15 person-hours during the survey).

Survey Results

The fork-tailed swift was not recorded during the field survey.

Likelihood of Occurrence in the Offset Investigation Area

The fork-tailed swift was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled

distribution as 'species or species habitat likely to occur' (DCCEEW, 2025). There are no previous publicly available records of the species within the Offset Investigation Area. The nearest record of the species is located 7 km south of the Offset Investigation Area and is recent (2018).

As there are records of the species in the region, the fork-tailed swift has the potential to occur; however, due to the aerial nature of the species, the Offset Investigation Area does not provide land-based habitat. Thus, habitat for this species is not mapped.

4.5 MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE WITHIN THE OFFSET INVESTIGATION AREA

A summary of the MSES present within the Offset Investigation Area, based on the desktop assessment, is provided in Table 4-18 and presented in Figure 4-14.

MSES has been further described in the following subsections.

TABLE 4-18: SUMMARY OF MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

Prescribed Terrestrial Matter	Relevance to the Proposed Action
Regulated Vegetation	The Offset Investigation Area contains: • Regulated vegetation – defined watercourse; • Regulated vegetation – category B (endangered or of concern); • Regulated vegetation – category C (endangered or of concern); • Regulated vegetation – category R (GBR riverine); • Regulated vegetation – essential habitat; • Regulated vegetation – 100 m from wetland; There are no mapped high ecological value watercourses or wetlands within the Offset Investigation Area.
Connectivity Areas	Regulated vegetation represents part of a connectivity area, requiring any development affecting regulated vegetation to assess connectivity areas by running the Landscape Fragmentation Tool once a disturbance area has been finalised.
Wetland Areas	There are no high ecological significant wetlands within the Offset Investigation Area.
Conservation Areas	There are no MSES conservation areas (estates, marine parks, special wildlife reserves, nature refuges, fish habitat areas or legally secured Offset Investigation Areas) within the Offset Investigation Area.
Designated Precincts in Strategic Environmental Areas	No regional interest areas are recorded over the Offset Investigation Area.
Protected Wildlife Habitat	The Offset Investigation Area is intersected by: • MSES wildlife habitat (endangered or vulnerable); and • MSES wildlife habitat (special least concern). Habitat for 11 threatened fauna species was identified, including: • Australian painted snipe – endangered; • Greater glider (southern and central) – endangered. • Grey falcon – vulnerable; • Grey snake – endangered; • Koala – endangered; • Latham's snipe – vulnerable; • Ornamental snake – vulnerable;

Prescribed Terrestrial Matter	Relevance to the Proposed Action
	• Short-beaked echidna (*Tachyglossus aculeatus*) – special least concern; • Southern black-throated finch – endangered; and • Squatter pigeon (southern) – vulnerable. There are no sea turtle nesting areas or South-east Queensland koala habitat areas within the Offset Investigation Area. The Offset Investigation Area is intersected by 25 ha of the Protected Plants Trigger Mapping and no Protected Plants were identified during the field survey. However it is noted a detailed protected plant survey was not undertaken during this assessment with opportunistic observations only.
Protected Areas	There are no protected areas of Queensland (e.g., national parks, conservation parks, reserves, state forests etc.) located within the Offset Investigation Area.
Legally Secured Offset Investigation Areas	There are no legally secured Offset Investigation Areas within the Offset Investigation Area.

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bore Creek
Eastlands Creek

Legend

- Unconstructed Road
- Watercourse
- Regulated Vegetation intersecting a Watercourse
- Wildlife Habitat - Endangered or Vulnerable Wildlife
- Wildlife Habitat - Special Least Concern Animal
- Regulated Vegetation - Essential Habitat
- Regulated Vegetation 100m from Wetland
- Regulated Vegetation - Category B Endangered or of Concern
- Regulated Vegetation - Category C Endangered or of Concern
- Regulated Vegetation - Category R Riverine
- Riparian Biodiversity Corridor
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 23/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-14 MSES Mapping

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R0.aprx

4.5.1 REGULATED VEGETATION

The VM Act distinguishes between vegetation that is non-remnant, Endangered, Of Concern, or Least Concern. REs are Queensland vegetation communities found within a particular bioregion that have a consistent combination of geology, landform, and soil type, as determined by the Queensland Herbarium.

Regulated Vegetation – Defined Watercourse

Regulated vegetation (defined watercourse) is defined as Category A, B, C or R areas located within a defined distance from the defining banks of a relevant watercourse identified on the vegetation management watercourse and drainage feature map (DES, 2020b).

Regulated vegetation (defined watercourse) is present throughout the Offset Investigation Area, totalling 13.5 km, as shown in Figure 4-14.

Regulated Vegetation – 100 m from Wetland

Regulated vegetation (100 m from wetland) is defined as Category A, B, C or R areas located within 100 metres from the defining bank of a wetland identified on the vegetation management wetlands map (DES, 2020b).

There is a total of 17.1 ha of regulated vegetation (100 m from wetland) present within the Offset Investigation Area, as shown in Figure 4-14.

Essential Habitat

Essential habitat identifies habitat for endangered, vulnerable, and near threatened wildlife, also known as protected wildlife and is prescribed under the *Nature Conservation Act* 1992 (DES, 2020b). Essential habitat is further defined under Section 20AC of the VM Act.

A total of 172.2 ha of essential habitat is mapped within the Offset Investigation Area, as shown in Figure 4-14.

Protected Plant Trigger Areas

The Flora Survey Trigger Map identifies high-risk areas where threatened or near-threatened native plants (Protected Plants) are present or are likely to be present.

Desktop mapping indicates the Offset Investigation Area is intersected by a total of 25 ha of a trigger area for Protected Plants (refer to Figure 4-14). No Protected Plants were recorded during the field survey however it is noted a detailed protected plant survey was not undertaken during this assessment with opportunistic observations only.

4.5.1.2 ENVIRONMENTALLY SENSITIVE AREAS

Approximately 362.7 ha of Category B – endangered or of concern and 0.3 ha of Category R - GBR riverine environmentally sensitive areas is present within the Offset Investigation Area. Field verification of environmentally sensitive areas occurred during the survey verification of ground-truthed RE's.

4.5.2 CONNECTIVITY AREAS

Connectivity areas are defined in the Queensland Environmental Offsets Policy as "*containing an area of land that is* required *for ecosystem functioning*". Any development impact on connectivity areas is considered to be significant if either of the following are true:

- Change in the extent of "core" areas of remnant vegetation (i.e., remnant vegetation further than 50 m from any non-remnant area, and exceeding 1 ha) at the local scale (post impact) is greater than a threshold determined by the level of fragmentation at the regional scale; or
- Any core area that is greater than or equal to 1 ha is lost or reduced to patch fragments (<1 ha).

Regulated vegetation within the Offset Investigation Area represents part of a connectivity area.

4.5.3 MSES THREATENED FLORA

There are no threatened flora species under the NC Act, with a known, likely or potential occurrence within the Offset Investigation Area.

4.5.4 MSES FAUNA HABITAT

MSES threatened fauna habitat has been determined to occurs within 532.43 ha of the Offset Investigation Area. 575.95 ha of the offset has been determined suitable habitat for special least concern species. Desktop assessment and field survey determined potential habitat for 12 threatened fauna species within the Offset Investigation Area:

- Australian painted snipe – endangered (80.08 ha of habitat) – refer to Section 4.4.2;
- Southern black-throated finch (southern) – endangered (67.60 ha of potential habitat) – refer to Section 4.4.3;
- Koala – endangered (258.24 ha of potential breeding and foraging habitat and 269.14 ha of potential dispersal habitat) – refer to Section 4.4.2;
- Greater glider (southern and central) – endangered (0 ha of denning and breeding habitat and 169.34 ha of potential foraging and dispersal habitat) – refer to Section 4.4.3;
- Grey falcon – vulnerable (258.13 ha of breeding habitat and 286.29 of foraging habitat of habitat) – refer to Section 4.4.3;
- Grey snake – endangered (212.07 ha of potential foraging habitat) – refer to Section 4.4.3;
- Latham's snipe – vulnerable (11.47 ha of potential roosting habitat and 68.61 of potential foraging habitat) – refer to Section 4.4.3;
- Ornamental snake – vulnerable (104.76 ha of refuge habitat and 365.98 of foraging and dispersal habitat) – refer to Section 4.4.2;
- Short-beaked echidna – special least concern (576.03 ha of potential habitat) – refer to Section 4.5.4.1; and
- Squatter pigeon (southern) – vulnerable (360.99 ha of potential breeding habitat and 165.24 ha of potential foraging and dispersal habitat) – refer to Section 4.4.3.

4.5.4.1 SHORT-BEAKED ECHIDNA

Species Distribution and Habitat

The short-beaked echidna (*Tachyglossus aculeatus*) is currently listed as special least concern under Schedule 2 of the Environmental Offsets Regulation 2014 and is therefore considered a MSES. The species is not a threatened species listed under the NC Act or EPBC Act. As a result

of desktop records within the Offset Investigation Area, the species is considered known to occur within the Offset Investigation Area.

Short-beaked echidna is Australia's most widespread fauna species, with the species found throughout all Australian states and Territories, including Tasmania (DoE, 2025).

Short-beaked echidna inhabit a wide range of habitats, both disturbed and undisturbed, including woodlands, forests, shrublands, grasslands, heathland, arid environments, rocky outcrops and agricultural lands (ALA, 2025). Within these habitats, the species resides under rocks and termite mounds, in hollow logs, under vegetation and woody debris piles, tree roots and may occasionally reside in wombat or rabbit burrows. Short-beaked echidnas burrow into the soil or shelter under tussock grass or bushes during wet and windy weather.

Field Survey Methodology and Results

Survey Guidelines

There are no species-specific survey guidelines for the short-beaked echidna. The species is generally observed in habitat assessments, spotlighting or incidental drive-by.

Survey Techniques and Effort

Short-beaked echidna was surveyed for during the field surveys through spotlighting and vegetation assessments. Vegetation assessments were conducted throughout the Offset Investigation Area to identify suitable habitat for the species. Spotlighting was undertaken on 2.5 hours for three nights (total 15 person-hours).

Survey Results

Short-beaked echidna was recorded the spotlighting efforts of the field survey and on camera traps (refer to Plate 4-1).

PLATE 4-1: SHORT-BEAKED ECHIDNA RECORDED ON CAMERA TRAPS

Likelihood of Occurrence in the Offset Investigation Area

As the short-beaked echidna was directly sighted during the field survey, the species is known to occur within the Offset Investigation Area.

Habitat Mapping

Due to the species' wide range of habitats, the entirety of the Offset Investigation Area (with the exception of waterbodies) is considered suitable habitat for the short-beaked echidna, thus

equalling 575.95 ha. A habitat mapping summary for the short-beaked echidna is provided in Table 4-19 and presented on Figure 4-15.

It is noted that this species has not been included in the MHQA scoring as it is not listed under the EPBC Act. Offset Investigation Area

TABLE 4-19: HABITAT REQUIREMENTS/RULES FOR SHORT-BEAKED ECHIDNA

Habitat Category	Habitat Requirements and Mapping Rules
Habitat	• Woodlands, forests, shrublands, grasslands, heathland, arid environments, rocky outcrops and agricultural lands with suitable rocks, termite mounds, hollow logs, woody debris piles, tree roots and burrows present.
Not habitat	• Waterbodies

Fourteen Mile Creek
Mackenzie River
Fitzroy River
Dawson River
Upper Hut Creek
Bone Creek
Eastlands Creek

Legend
- Unconstructed Road
- Watercourse
- Habitat
- Project Area
- Offset Investigation Area

Source:
Base Data: QSpatial
Imagery: ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55
Date: 24/10/2025
Created By: MB
Drawing Size: A3
0 0.5 1Km
1:25,000

F4-15 Short-beaked Echidna Habitat

2025 Dawsonvale EPBC

Client: Anglo American Steelmaking Coal Pty Ltd

ERM

0798806_Dawsonvale_EPBC_R1.aprx

4.5.5 WATERCOURSES AND WETLANDS

The Offset Investigation Area is intersected by riverine wetlands and palustrine wetlands. Additionally, the Offset Investigation Area borders one major river system, Dawson River, a major perennial watercourse which flows into the Fitzroy Drainage Basin (outside of the Offset Investigation Area). Additionally, multiple tributaries, including Bone Creek and other unnamed watercourses, flow from the Dawson River throughout the Offset Investigation Area, including stream orders 1 and 2, as shown in Figure 4-14.

There are no high ecologically significant watercourses or high ecological significance wetlands within the Offset Investigation Area.

4.5.5.1 WATERWAY FOR WATERWAY BARRIER WORKS

Waterway Barrier Works include any dam, weir or other barrier that limits fish stock access and movement along a waterway. All waterways are fish habitat that is protected and managed to maintain fish passage. Waterway attributes have been assigned to all waterways in Queensland as follows:

- Low risk;
- Moderate risk;
- High risk;
- Major risk; and
- Major risk (tidal).

Waterways classed as low or moderate risk typically have a smaller biomass of fish populations with stronger swimming abilities, as they are usually located in the upper reaches of a drainage catchment on steeper slopes (MacKenzie et al., 2023).

Waterways classed as high or major risk typically contain a larger biomass of fish populations, including species with weaker swimming abilities and larger size classes.

Regardless of the waterway passage attribute, development in waterways that has the potential to limit fish movement may require approval to proceed.

The desktop assessment identified the Offset Investigation Area to be intersected by the following waterways for waterway barrier works:

- Low risk;
- Moderate risk; and
- Major risk.

Waterways for waterway barrier works are shown in Figure 4-14.

4.5.5.2 MARINE PLANTS

Marine areas are not present within the Offset Investigation Area.

4.6 FERAL FAUNA SPECIES

4.6.1 DESKTOP ASSESSMENT RESULTS

The desktop assessment identified a total four invasive fauna species within the Offset Investigation Area and a 1 km buffer of the Offset Investigation Area. Invasive fauna previously recorded in this area include:

- Cane toad (*Rhinella marina*) – 12 records of the species, last recorded in 2000;
- Dog (*Canis familiaris*) – one record of the species, last recorded in 2000;
- Rabbit (*Oryctolagus cuniculus*) – one record of the species, last recorded in March 2000; and
- Pig (*Sus scrofa*) – two records of the species, last recorded in 2000.

4.6.2 FIELD SURVEY RESULTS

During the field survey, direct and indirect sightings of feral/invasive fauna were recorded, including:

- Direct sightings of cats during the daytime occurred on three occasions, no sightings of cats during nighttime surveys;
- Indirect evidence of pigs (through scats and diggings) were recorded in each of the 13 BioCondition/MHQA plots; and
- Indirect evidence of dogs (through scats) were recorded within the Offset Investigation Area.

As stated in Section 3.3.2, five cameras were deployed during the field campaign using bait types selected to attract target pest species (e.g., meat-based baits for cats and foxes, grain for pigs). Camera locations were stratified across habitat types and potential animal movement corridors, focusing on roads and tracks. A summary of the camera findings is provided in Table 4-20.

TABLE 4-20: CAMERA TRAP RESULTS

Camera ID	Habitat Type	Pest Species Observed	Catling Index
TRAILCAM_01	Brigalow woodland	No pest species recorded	N/A
TRAILCAM_02	Brigalow woodland	Black rat (*Rattus rattus*)	2.8%
TRAILCAM_03	Brigalow woodland	Feral cat (*Felis catus*)	2.8%
TRAILCAM_04	Mixed eucalyptus and acacia regrowth	• Black rat (Rattus rattus) • Feral cat (*Felis catus*) • Cane toad (Rhinella marina)	• Black rat (*Rattus rattus*) – 2.9% • Feral cat (*Felis catus*) – 5.7% • Cane toad (*Rhinella marina*) – 2.9%
TRAILCAM_05	Brigalow woodland	• Feral cat (*Felis catus*) • Cane toad (Rhinella marina)	• Feral cat (*Felis catus*) – 5.7% • Cane toad (Rhinella marina) – 8.6%

PLATE 4-2: BLACK RAT RECORDED ON CAMERA TRAPS

PLATE 4-3: FERAL CATS RECORDED ON CAMERA TRAPS

PLATE 4-4: CANE TOAD RECORDED ON CAMERA TRAPS

4.7 INVASIVE FLORA SPECIES

4.7.1 DESKTOP ASSESSMENT RESULTS

The desktop assessment identified a total 15 invasive flora species within the Offset Investigation Area and a 1 km buffer of the Offset Investigation Area. A summary of the invasive flora, their weeds of national significance status, number of records and last recorded date, are provided in Table 4-21.

TABLE 4-21: DESKTOP RESULTS OF INVASIVE FLORA RECORDED WITHIN OFFSET INVESTIGATION AREA

Scientific Name	Common Name	WoNS	Restricted species	Number of Records	Last Recorded Date
Abutilon guineense	-	No	No	1	1999
Ageratum houstonianum	blue billygoat weed	No	No	2	1999
Bidens pilosa	cobbler's pegs	No	No	1	1999
Cardiospermum halicacabum var. halicacabum	balloon vine	No	No	2	2020
Cenchrus ciliaris	buffel grass	No	No	1	1999
Convolvulus arvensis	field bindweed	No	No	1	2020
Eclipta prostrata	white eclipta	No	No	1	1999
Glandularia aristigera	Mayne's pest	No	No	1	1999
Malvastrum americanum var. americanum	spiked malvastrum	No	No	1	1999
Megathyrsus maximus var. pubiglumis	green panic grass	No	No	1	1999
Parkinsonia aculeata	parkinsonia	Yes	Yes	2	1999
Passiflora foetida	stinking passionflower	No	No	1	1999
Verbena bonariensis	purpletop	No	No	2	1999
Verbena litoralis	verbena	No	No	2	1999
Xanthium occidentale	noogoora burr	No	No	1	1999

4.7.2 FIELD SURVEY RESULTS

The field survey recorded six invasive flora species, including:

- Guinea grass (*Megathyrsus maximus*)– recorded in a low abundance;
- Velvet prickly-pear (*Opuntia tomentosa*) – recorded in a low abundance;
- Harrisia cactus (*Harrisia* spp.) – recorded in a medium abundance;
- Parkinsonia (*Parkinsonia aculeata*) – recorded in a high abundance;

- Buffel grass (*Cenchrus Ciliaris*) – recorded in a low abundance
- Red natal grass (*Melinis repens*) – recorded in a low abundance; and
- Rubber vine (*Cryptostegia grandiflora*) – recorded in a low abundance.

A table summary of the recorded weed cover per BioCondition/MHQA plot is provided in Table 4-22. The greatest threats to the Offset Investigation Area were the *Parkinsonia aculeata*, observed in scattered infestations in areas of remnant RE 11.3.3 and scattered infestations of *Harrisia* species within areas of remnant RE 11.3.1. These scattered areas of infestation showed signs of an increasing footprint from surrounding recruitment and is a threat to the condition of the remnant vegetation if not treated.

TABLE 4-22: WEED COVER RECORDED IN BIOCONDITION/MHQA PLOTS

BioCondition Plot	Weed Species	Weed Cover Total (%)	Introduced Ground Cover Species	Introduced Ground Cover Total (%)
1	*Opuntia stricta*	<1%	n/a	0%
	Harrisia sp.		n/a	
2	*Parkinsonia aculeata*	19%	n/a	0%
	Cryptostegia grandiflora		n/a	
3	*Megathyrsus maximus*	1%	*Megathyrsus maximus** (captured outside groundcover plot)	0%
4	*Harrisia sp.*	8%	*Megathyrsus maximus** (captured outside groundcover plot)	0%
	Parkinsonia aculeata			
	Megathyrsus maximus			
	Opuntia tomentosa			
5	*Parkinsonia aculeata*	8%	*Bidens pilosa** (captured outside groundcover plot)	0%
	Cryptostegia grandiflora		*Ageratum houstonianum** (captured outside groundcover plot)	
6	*Parkinsonia aculeata*	10%	n/a	0%
	Cryptostegia grandiflora			
7	*Harrisia sp.*	2%	*Megathyrsus maximus*	14%
	Parkinsonia aculeata			
8	*Parkinsoni aculeata*	5%	*Cenchrus ciliaris*	16%

BioCondition Plot	Weed Species	Weed Cover Total (%)	Introduced Ground Cover Species	Introduced Ground Cover Total (%)
	Harrisia sp.		*Megathyrsus maximus*	
9	*Parkinsonia aculeata*	14%	Melinis repens*	0%
			Cenchrus ciliaris*	
10	*Parkinsonia aculeata*	36%	*Cenchrus ciliaris**	0%
	Cryptostegia grandiflora		*Megathyrsus maximus**	
11	*Harrisia sp.*	2.4%	*Cenchrus ciliaris**	0%
			*Megathyrsus maximus**	
12	*Megathyrsus maximus*	<1%	*Cenchrus ciliaris**	0%
	Harrisia sp.		*Megathyrsus maximus**	
13	*Parkinsonia aculeata*	8.8%	Melinis repens	1%
	Cryptostegia grandiflora			

*Captured outside groundcover plots.

5. CONCLUSION

This Baseline Biocondition, weed and pest report has provided an overview of the ecological values present within the Dawsonvale Offset Investigation Area. Building on previous surveys undertaken by ERM in 2022, the ecological assessment included a three day field survey conducted on 30 September – 2 October 2025, with a total 72 person hours on the ground experienced ecologists.

The desktop assessments and field surveys informed the habitat mapping for each listed threatened species with a known, likely or potential occurrence. Habitat mapping was refined based on species-specific habitat requirements for Brigalow TEC, Ornamental Snake and Australian Painted Snipe and created for all other potential species.

The Dawsonvale Offset Investigation Area contains six Broad Habitat Types, of which three contained remnant vegetation and/or other specific habitat features for conservation significant species whilst three were categorised as regrowth vegetation or varying grades of cleared land. Broad Habitat Types that have been assessed as containing remnant vegetation or specific important habitat elements for significant species include:

- Brigalow (*Acacia harpophylla*) woodland;
- Eucalyptus Coolabah woodland;
- Mixed Acacia and Eucalyptus regrowth; and
- waterbodies and drainage features.

In total, the field surveys confirmed the presence of one TEC:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC.

The following threatened and migratory species (under the EPBC Act) were not recorded during the field surveys, however, are assessed as known, likely or potential to occur:

- Known to occur based on desktop records:
  - Koala (Phascolarctos cinereus);
- Likely to occur:
  - Squatter pigeon (southern) (*Geophaps scripta scripta*);
- Potential to occur:
  - Ornamental snake (*Denisonia maculata*);
  - Australian Painted Snipe (*Rostratula australis);*
  - Greater glider (southern and central) (*Petauroides volans*);
  - Latham's snipe (*Gallinago hardwickii);*
  - Grey snake (*Hemiaspis damelii);*
  - Southern black-throated finch (*Poephila cincta cincta*);
  - Grey falcon (*Falco hypoleucos*); and

One Special Least Concern species (under the NC Act) was recorded during the field survey and is therefore considered known to occur, being short-beaked echidna (*Tachyglossus aculeatus*).

The Dawsonvale Offset Investigation Area contains two field verified REs, including 11.3.1 (*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains) listed as

Endangered and 11.3.3 (*Eucalyptus coolabah* woodland on alluvial plains) listed as Of Concern under the VM Act.

Direct observations of feral cats, black rats and cane toads were observed in the Offset Investigation Area with indirect observations of pigs and dogs. These feral pests will likely degrade the quality of existing habitat if left untreated and populations continue to grow.

Parkinsonia aculeata, *Cryptostegia grandiflora* and *Harrisia* species were observed as the most dominant invasive species throughout the Offset Investigation Area. These invasive species will continue to spread and degrade the quality of existing habitat if left untreated with no intervention. Introduced ground cover species and grasses exist throughout the Offset Investigation area with low percentage of cover observed.

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TSSC. (2015). *Conservation Advice Geophaps scripta scripta squatter pigeon (southern).* Canberra: Department of the Environment. Retrieved In effect under the EPBC Act from 27-Oct-2015., from http://www.environment.gov.au/biodiversity/threatened/species/pubs/64440-conservation-advice-31102015.pdf.

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APPENDIX A PMST SEARCH AND DESKTOP REPORTS

WildNet Records
Introduced Species List

For the selected area of interest 2183.45 Custom input
Current as at 08/10/2025 Dawsonvale

Summary Information

The following table provides an overview of the area of interest: Custom input

Table 1. Area of interest details

Size (ha)	
2,183.45	
Local Government(s)	
Woorabinda Aboriginal Shire	
Central Highlands Regional	
Catchment(s)	
Fitzroy	
Bioregion(s)	**Subregion(s)**
Brigalow Belt	Isaac - Comet Downs

Protected Area(s)

No estates or reserves are located within the area of interest.

World Heritage Area(s)

No World Heritage Areas are located within the area of interest.

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Introduction

This WildNet report is derived from a spatial layer that is generated from the WildNet database, managed by the Department of the Environment, Tourism, Science and Innovation. The layer, which is generated weekly, contains a subset of WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero. It does not include aspatial data such as some baseline species lists created for some protected areas.

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest.

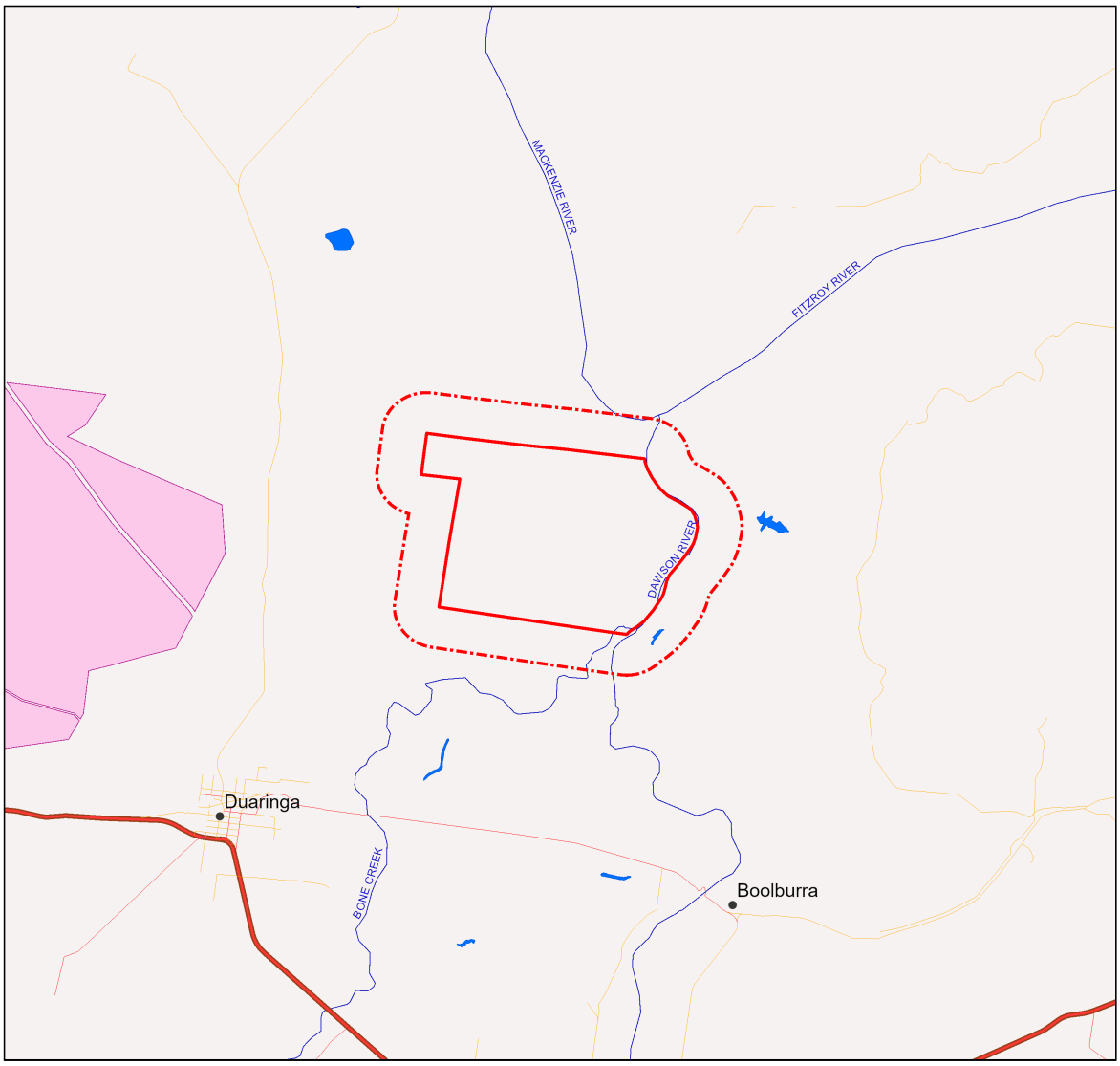
The WildNet Application may provide additional information on species occurence within your area of interest.

Species data

Contextual location information is presented in Map 1.

A summary of the Introduced species recorded within the area of interest and its one kilometre buffer is presented in Tables 2 and 3.

Map 1. Locality Map



Locality Map

Legend

- Towns
- Freeways/Highways
- Connector
- Street/Local Road
- Lakes and reservoirs
- National Park
- National Park (Scientific)
- National Park (CYPAL)
- National Park (Aboriginal Land)
- Conservation Park
- Resources Reserve
- Forest Reserve
- State Forest
- Timber Reserve
- Nature Refuges
- Coordinated Conservation Areas
- Major rivers/creeks
- Queensland
- Custom area
- 1 kilometre buffer

LOCALITY DIAGRAM

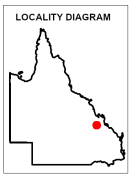


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Table 2. Introduced animals recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	Specimens	Records	Last record	Establishment Code
716	Animalia	Amphibia	Bufonidae	*Rhinella marina*	cane toad	0	12	1/03/2000	II
1067	Animalia	Mammalia	Canidae	*Canis familiaris*	dog	0	1	29/02/2000	II
834	Animalia	Mammalia	Leporidae	*Oryctolagus cuniculus*	rabbit	0	1	1/03/2000	II
1080	Animalia	Mammalia	Suidae	*Sus scrofa*	pig	0	2	1/03/2000	II

Taxon Id: Unique identifier of the taxon from the WildNet database.
Specimens: The number of specimen-backed records of the taxon.
Records: The total number of records of the taxon.
Last record: Date of most recent record of the taxon.
Establishment: Code describing how the taxon is established in Queensland. The list of code description can be accessed from the WildNet Data API.

Table 3. Introduced plants recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	Specimens	Records	Last record	Establishment Code
14051	Plantae	Equisetopsida	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	0	2	3/06/1999	NAQ
7691	Plantae	Equisetopsida	Asteraceae	*Bidens pilosa*		0	1	2/06/1999	NAQ
15438	Plantae	Equisetopsida	Asteraceae	*Eclipta prostrata*	white eclipta	0	1	2/06/1999	NAQ
22235	Plantae	Equisetopsida	Asteraceae	*Xanthium occidentale*		0	1	2/06/1999	NAQ
17598	Plantae	Equisetopsida	Convolvulaceae	*Convolvulus arvensis*		1	1	15/09/2020	NAQ
12761	Plantae	Equisetopsida	Leguminosae	*Parkinsonia aculeata*	parkinsonia	0	2	3/06/1999	NAQ
31412	Plantae	Equisetopsida	Malvaceae	*Abutilon guineense*		0	1	3/06/1999	NAQ
16718	Plantae	Equisetopsida	Malvaceae	*Malvastrum americanum var. americanum*		0	1	3/06/1999	NAQ
16530	Plantae	Equisetopsida	Passifloraceae	*Passiflora foetida*		0	1	2/06/1999	NAQ
15540	Plantae	Equisetopsida	Poaceae	*Cenchrus ciliaris*		0	1	3/06/1999	NAQ
27900	Plantae	Equisetopsida	Poaceae	*Megathyrsus maximus var. pubiglumis*		0	1	2/06/1999	NAQ
14777	Plantae	Equisetopsida	Sapindaceae	*Cardiospermum halicacabum var. halicacabum*		1	2	29/10/2020	NAQ
34284	Plantae	Equisetopsida	Verbenaceae	*Glandularia aristigera*		0	1	2/06/1999	NAQ
15951	Plantae	Equisetopsida	Verbenaceae	*Verbena bonariensis*	purpletop	0	2	3/06/1999	NAQ
14115	Plantae	Equisetopsida	Verbenaceae	*Verbena litoralis*	verbena	0	2	3/06/1999	NAQ

Taxon Id: Unique identifier of the taxon from the WildNet database.
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Links and Support

Other sites that deliver species information from the WildNet database include:

- WildNet Application - public interface to find species information and species lists generated from the WildNet database.
- Biomaps - view biodiversity information, including WildNet records approved for publication, and generate reports
- Queensland Globe - view spatial information, including WildNet records approved for publication
- Qld WildNet Data API - access WildNet species information approved for publication such as notes, images and records etc.
- Wetland*Maps* - view species records, survey locations etc. approved for publication
- Wetland*Summary* - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- WildNet wildlife records - published - Queensland - spatial layer of WildNet records approved for publication generated weekly
- Generalised distribution and densities of Queensland wildlife - Queensland species distributions and densities generalised to a 10 km grid resolution
- Conservation status of Queensland wildlife - access current lists of priority species for Queensland including nomenclature and status information
- Queensland Confidential Species - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the WildNet Team WildNet@detsi.qld.gov.au.

Other useful sites for accessing Queensland biodiversity data include:

- Useful wildlife resources
- Queensland Government Data
- Atlas of Living Australia (ALA)
- Online Zoological Collections of Australian Museums (OZCAM)
- Australasian Virtual Herbarium (AVH)
- Protected Matters Search Tool

Disclaimer

WildNet Records
Conservation Significant Species List

For the selected area of interest Custom input
Current as at 08/10/2025 Dawsonvale

Summary Information

The following table provides an overview of the area of interest: Custom input

Table 1. Area of interest details

Size (ha)	
2,183.45	
Local Government(s)	
Woorabinda Aboriginal Shire	
Central Highlands Regional	
Catchment(s)	
Fitzroy	
Bioregion(s)	**Subregion(s)**
Brigalow Belt	Isaac - Comet Downs

Protected Area(s)

No estates or reserves are located within the area of interest.

World Heritage Area(s)

No World Heritage Areas are located within the area of interest.

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Introduction

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The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a conservation significant species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest.

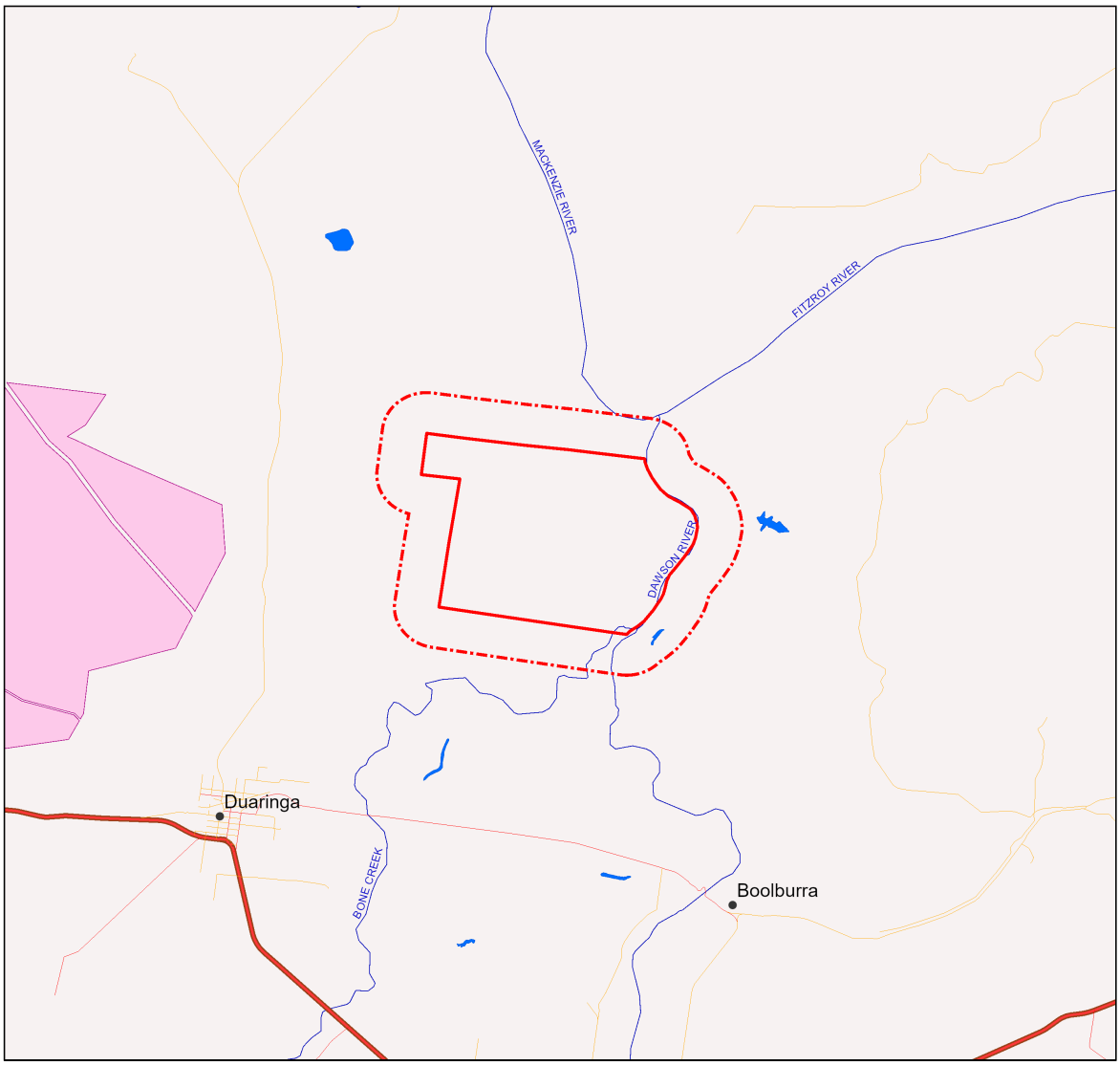
The WildNet Application may provide additional information on species occurence within your area of interest.

Conservation significant species are species listed:

- as threatened or near threatened under the *Nature Conservation Act 1992*;
- as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* or
- migratory species protected under the following international agreements:
    - Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
    - China-Australia Migratory Bird Agreement
    - Japan-Australia Migratory Bird Agreement
    - Republic of Korea-Australia Migratory Bird Agreement

Table 2 lists the species recorded within the area of interest and its one kilometre buffer.

Map 1. Locality Map



Locality Map

Legend

- Towns
- Freeways/Highways
- Connector
- Street/Local Road
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- National Park (Aboriginal Land)
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- Resources Reserve
- Forest Reserve
- State Forest
- Timber Reserve
- Nature Refuges
- Coordinated Conservation Areas
- Major rivers/creeks
- Queensland
- Custom area
- 1 kilometre buffer

LOCALITY DIAGRAM

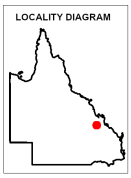

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Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1971	Animalia	Aves	Apodidae	*Hirundapus caudacutus*	white-throated needletail	V	V	0	2	27/02/2000
1736	Animalia	Aves	Cuculidae	*Cuculus optatus*	oriental cuckoo	SL		0	2	1/03/2000
1841	Animalia	Aves	Scolopacidae	*Tringa stagnatilis*	marsh sandpiper	SL		0	3	1/03/2000
1107	Animalia	Aves	Strigidae	*Ninox strenua*	powerful owl	V		0	2	31/12/1968
860	Animalia	Mammalia	Phascolarctidae	*Phascolarctos cinereus*	koala	E	E	0	1	28/02/2000
17505	Plantae	Equisetopsida	Orchidaceae	*Cymbidium canaliculatum*		SL		0	1	2/06/1999

Taxon Id: Unique identifier of the taxon from the WildNet database.
NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).
EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).
Specimens: The number of specimen-backed records of the taxon.
Records: The total number of records of the taxon.
Last record: Date of most recent record of the taxon.

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Protected Plants Flora Survey Trigger Map

- High risk area
- Other land parcel boundaries
- Freeways / motorways / highways
- Secondary roads / streets
- Custom area

LOCALITY DIAGRAM

N

0 260 520 780 1,040 1,300 m

This product is displayed in: GDA2020

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of the Environment, Tourism, Science and Innovation at palm@detsi.qld.gov.au

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Protected plants flora survey trigger map

The protected plants flora survey trigger map identifies 'high risk areas' where endangered, vulnerable or near threatened plants are known to exist or are likely to exist. Under the *Nature Conservation Act 1992* (the Act) it is an offence to clear protected plants that are 'in the wild' unless you are authorised or the clearing is exempt, for more information see section 89 of the Act.

Please see the Department of the Environment, Tourism, Science and Innovation webpage on the clearing of protected plants for information on what exemptions may apply in your circumstances, whether you may need to undertake a flora survey, and whether you may need a protected plants clearing permit.

Updates to the data informing the flora survey trigger map
The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information
Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the Queensland Spatial Catalogue, the Department of the Environment, Tourism, Science and Innovation does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of the Environment, Tourism, Science and Innovation webpage on the clearing of protected plants for more information.

Queensland Government

Department of the Environment, Tourism, Science and Innovation

Environmental Reports

Regional Ecosystems

Biodiversity Status

For the selected area of interest
Custom input

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the input coordinates.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 2020). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Important Note to User

Information presented in this report is based upon the Queensland Herbarium & Biodiversity Science's Regional Ecosystem framework. The Biodiversity Status has been used to depict the extent of "Endangered", "Of Concern" and "No Concern at Present" regional ecosystems in all cases, rather than the classes used for the purposes of the *Vegetation Management Act 1999* (VMA). Mapping and figures presented in this document reflect the Queensland Herbarium & Biodiversity Science's Remnant and Pre-clearing Regional Ecosystem Datasets, and not the certified mapping used for the purpose of the VMA.

For matters relevant to vegetation management under the VMA, please refer to the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development website https://www.nrmmrrd.qld.gov.au/

Please direct queries about these reports to: Queensland.Herbarium@qld.gov.au

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Table of Contents

Summary Information

The following table provides an overview of the AOI with respect to selected topographic and environmental themes. Refer to **Map 1** for locality information.

Table 1: Details for area of interest:
Custom input, with area 2172.41 ha

Local Government(s)	Catchment(s)	Bioregion(s)	Subregion(s)
Woorabinda Aboriginal Shire	Fitzroy	Brigalow Belt	Isaac - Comet Downs
Central Highlands Regional			

The table below summarizes the extent of remnant vegetation classed as "Endangered", "Of concern" and "No concern at present" regional ecosystems classified by Biodiversity Status within the area of interest (AOI).

Table 2: Summary table, biodiversity status of regional ecosystems within the AOI

Biodiversity Status	Area (Ha)	% of AOI
Endangered	36.27	1.67
Of concern	377.66	17.38
No concern at present	0.00	0.00
Total remnant vegetation	413.93	19.05

Refer to **Map 2** for further information.

Regional Ecosystems

1. Introduction

Regional ecosystems are vegetation communities in a bioregion that are consistently associated with particular combinations of geology, landform and soil (Sattler and Williams 1999). Descriptions of Queensland's Regional ecosystems are available online from the Regional Ecosystem Description Database (REDD). Descriptions are compiled from a broad range of information sources including vegetation, land system and geology survey and mapping and detailed vegetation site data. The regional ecosystem classification and descriptions are reviewed as new information becomes available. A number of vegetation communities may form a single regional ecosystem and may be distinguished by differences in structure or sub-dominant species in the ecologically dominant layer. Vegetation communities with different dominant species in the ecologically dominant layer may be amalgamated in to a regional ecosystem if they are not mappable and predictable in the landscape at 1:100 000 scale. Vegetation communities may be mappable at a scale larger than 1:100 000. Vegetation communities within a regional ecosystem are denoted by a letter following the regional ecosystem code (e.g. a, b, c). Vegetation communities and regional ecosystems are amalgamated into a higher level classification of broad vegetation groups (BVGs).

A published methodology for survey and mapping of regional ecosystems across Queensland (Neldner et al 2023) provides further details on regional ecosystem concepts and terminology.

This report provides information on the type, status, and extent of vegetation communities, regional ecosystems and broad vegetation groups present within a user specified area of interest. Please note, for the purpose of this report, the Biodiversity Status is used. This report has not been developed for application of the *Vegetation Management Act 1999* (VMA). Additionally, information generated in this report has been derived from the Queensland Herbarium & Biodiversity Science's Regional Ecosystem Mapping, and not the regulated mapping certified for the purposes of the VMA. If your interest/matter relates to regional ecosystems and the VMA, users should refer to the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development website https://www.nrmmrrd.qld.gov.au/.

With respect to the Queensland Biodiversity Status,

"Endangered" regional ecosystems are described as those where:

- remnant vegetation is less than 10 per cent of its pre-clearing extent across the bioregion; or 10-30% of its pre-clearing extent remains and the remnant vegetation is less than 10,000 hectares, or
- less than 10 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss*, or
- 10-30 percent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss and the remnant vegetation is less than 10,000 hectares; or
- it is a rare** regional ecosystem subject to a threatening process.***

"Of concern" regional ecosystems are described as those where:

- the degradation criteria listed above for 'Endangered' regional ecosystems are not met and,
- remnant vegetation is 10-30 per cent of its pre-clearing extent across the bioregion; or more than 20 per cent of its pre-clearing extent remains and the remnant extent is less than 10,000 hectares, or
- 10-30 percent of its pre-clearing extent remains unaffected by moderate degradation and/or biodiversity loss.****

and "No concern at present" regional ecosystems are described as those where:

- remnant vegetation is over 30 percent of its pre-clearing extent across the bioregion, and the remnant area is greater than 10,000 hectares, and
- the degradation criteria listed above for 'Endangered' or 'Of concern' regional ecosystems are not met.

**Severe degradation and/or biodiversity loss is defined as: floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 50 years even with the removal of threatening processes; or soil surface is severely degraded, for example, by loss of A horizon, surface expression of salinity; surface compaction, loss of organic matter or sheet erosion.*

***Rare regional ecosystem: pre-clearing extent (<1000 ha); or patch size (<100 ha and of limited total extent across its range).*

****Threatening processes are those that are reducing or will reduce the biodiversity and ecological integrity of a regional ecosystem. For example, clearing, weed invasion, fragmentation, inappropriate fire regime or grazing pressure, or infrastructure development.*

*****Moderate degradation and/or biodiversity loss is defined as: floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 20 years even with the removal of threatening processes; or soil surface is moderately degraded.*

2. Remnant Regional Ecosystems

The following table identifies the remnant regional ecosystems and vegetation communities mapped within the AOI and provides their short descriptions, Biodiversity Status, and remnant extent within the selected AOI. Please note, where heterogeneous vegetated patches (mixed patches of remnant vegetation mapped as containing multiple regional ecosystems) occur within the AOI, they have been split and listed as individual regional ecosystems (or vegetation communities where present) for the purposes of the table below. In such instances, associated area figures have been generated based upon the estimated proportion of each regional ecosystem (or vegetation community) predicted to be present within the larger mixed patch.

Table 3: Remnant regional ecosystems, description and status within the AOI

Regional Ecosystem	Short Description	BD Status	Area (Ha)	% of AOI
11.3.1	Acacia harpophylla and/or Casuarina cristata open forest on alluvial plains	Endangered	36.27	1.67
11.3.25	Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines	Of concern	107.68	4.96
11.3.25f	Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines	Of concern	0.46	0.02
11.3.27i	Freshwater wetlands	Of concern	8.25	0.38
11.3.3	Eucalyptus coolabah woodland on alluvial plains	Of concern	261.27	12.03
non-remnant	None	None	1,758.48	80.95

Refer to **Map 2** for further information. **Map 3** also provides a visual estimate of the distribution of regional ecosystems present before clearing.

Table 4 provides further information in regards to the remnant regional ecosystems present within the AOI. Specifically, the extent of remnant vegetation remaining within the bioregion, the 1:1,000,000 broad vegetation group (BVG) classification, whether the regional ecosystem is identified as a wetland, and extent of representation in Queensland's Protected Area Estate. For a description of the vegetation communities within the AOI and classified according to the 1:1,000,000 BVG, refer to **Table 6**.

Table 4: Remnant regional ecosystems within the AOI, additional information

Regional Ecosystem	Remnant Extent	BVG (1 Million)	Wetland	Representation in protected estate
11.3.1	Pre-clearing 786000 ha; Remnant 2023 80000 ha	25a	Not a Wetland	Low
11.3.25	Pre-clearing 842000 ha; Remnant 2023 541000 ha	16a	Riverine	Low

Regional Ecosystem	Remnant Extent	BVG (1 Million)	Wetland	Representation in protected estate
11.3.25f	Pre-clearing 842000 ha; Remnant 2023 541000 ha	16d	Riverine	Low
11.3.27i	Pre-clearing 81000 ha; Remnant 2023 46000 ha	34d	Palustrine	Low
11.3.3	Pre-clearing 937000 ha; Remnant 2023 270000 ha	16c	Not a Wetland	Low
non-remnant	None	None	None	None

Representation in Protected Area Estate: High greater than 10% of pre-clearing extent is represented; Medium 4 - 10% is represented; Low less than 4% is represented, No representation.

The distribution of mapped wetland systems within the area of interest is displayed in **Map 6**.

The following table lists known special values associated with a regional ecosystem type.

Table 5: Remnant regional ecosystems within the AOI, special values

Regional Ecosystem	Special Values
11.3.1	11.3.1: Habitat for threatened fauna species including painted honeyeater, Grantiella picta particularly in subregion 35 (Oliver et al. 2003).
11.3.25	11.3.25: Shown to be associated with a high fauna species richness in the Taroom area (Venz et al. 2002). Within parts of the Fitzroy catchment, this RE is known habitat for the threatened freshwater turtle Rheodytes leukops. Known to be important habitat for other riparian freshwater turtle species. This ecosystem is also known to provide suitable habitat for koalas (Phascolarctos cinereus).
11.3.25f	11.3.25: Shown to be associated with a high fauna species richness in the Taroom area (Venz et al. 2002). Within parts of the Fitzroy catchment, this RE is known habitat for the threatened freshwater turtle Rheodytes leukops. Known to be important habitat for other riparian freshwater turtle species. This ecosystem is also known to provide suitable habitat for koalas (Phascolarctos cinereus).
11.3.27i	11.3.27: Habitat for a diverse range of fauna species (Venz et al. 2002) particularly birds. 11.3.27a: Provides wetland habitat for a flora and fauna. 11.3.27g: The alluvial aquifer this RE occurs on are likely to have connection with aquifers of GAB sandstone.
11.3.3	11.3.3: Mature trees provide hollows for fauna especially nesting birds. Associated with a high number fauna species (Dick 1992, Venz et al. 2002). 11.3.3c: Mature trees provide hollows for fauna especially nesting birds. Associated with a high number of fauna species (Dick 1992, Venz et al. 2002).
non-remnant	None

3. Remnant Regional Ecosystems by Broad Vegetation Group

BVGs are a higher-level grouping of vegetation communities. Queensland encompasses a wide variety of landscapes across temperate, wet and dry tropics and semi-arid climatic zones. BVGs provide an overview of vegetation communities across the state or a bioregion and allow comparison with other states. There are three levels of BVGs which reflect the approximate scale at which they are designed to be used: the 1:5,000,000 (national), 1:2,000,000 (state) and 1:1,000,000 (regional) scales.

A comprehensive description of BVGs is available at: https://publications.qld.gov.au/dataset/redd/resource/

The following table provides a description of the 1:1,000,000 BVGs present and their associated extent within the AOI.

Table 6: Broad vegetation groups (1 million) within the AOI

BVG (1 Million)	Description	Area (Ha)	% of AOI
None	None	1,758.48	80.95
16a	Open forest and woodlands dominated by Eucalyptus camaldulensis (river red gum) (or E. tereticornis (blue gum)) and/or E. coolabah (coolabah) (or E. microtheca (coolabah)) fringing drainage lines. Associated species may include Melaleuca spp., Blakella tessellaris (carbeen), Angophora spp., Casuarina cunninghamiana (riveroak). Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded.	107.68	4.96
16c	Woodlands and open woodlands dominated by Eucalyptus coolabah (coolabah) or E. microtheca (coolabah) or E. largiflorens (black box) or E. tereticornis (blue gum) or E. chlorophylla on floodplains. Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded.	261.27	12.03
16d	River beds, open water or sand, or rock, frequently unvegetated.	0.46	0.02
25a	Open forests to woodlands dominated by Acacia harpophylla (brigalow) sometimes with Casuarina cristata (belah) on heavy clay soils. Includes areas co-dominated with A. cambagei (gidgee) and/or emergent eucalypts.	36.27	1.67
34d	Palustrine wetlands. Freshwater swamps/springs/billabongs on floodplains ranging from permanent and semi-permanent to ephemeral.	8.25	0.38

Refer to **Map 4** for further information. **Map 5** also provides a representation of the distribution of vegetation communities as per the 1:5,000,000 BVG believed to be present prior to European settlement.

4. Technical and BioCondition Benchmark Descriptions

Technical descriptions provide a detailed description of the full range in structure and floristic composition of regional ecosystems (e.g. 11.3.1) and their component vegetation communities (e.g. 11.3.1a, 11.3.1b). See: http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/technical-descriptions/

The descriptions are compiled using site survey data from the Queensland Herbarium & Biodiversity Science's QBEIS database. Distribution maps, representative images (if available) and the pre-clearing and remnant extent (hectares) of each vegetation community derived from the regional ecosystem mapping data are included. The technical descriptions should be used in conjunction with the fields from the regional ecosystem description database (REDD) for a full description of the regional ecosystem.

Technical descriptions include data on canopy height, canopy cover and native plant species composition of the predominant layer, which are attributes relevant to assessment of the remnant status of vegetation under the *Vegetation Management Act 1999*. However, as technical descriptions reflect the full range in structure and floristic composition across the climatic, natural disturbance and geographic range of the regional ecosystem, local reference sites should be used for remnant assessment where possible (Neldner et al. 2023 (PDF)* section 3.3 of: https://www.qld.gov.au/__data/assets/pdf_file/0033/459186/methodology-mapping-surveying-v7.pdf

The technical descriptions are subject to review and are updated as additional data becomes available.

When conducting a BioCondition assessment, these technical descriptions should be used in conjunction with BioCondition benchmarks for the specific regional ecosystem, or component vegetation community. http://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks/

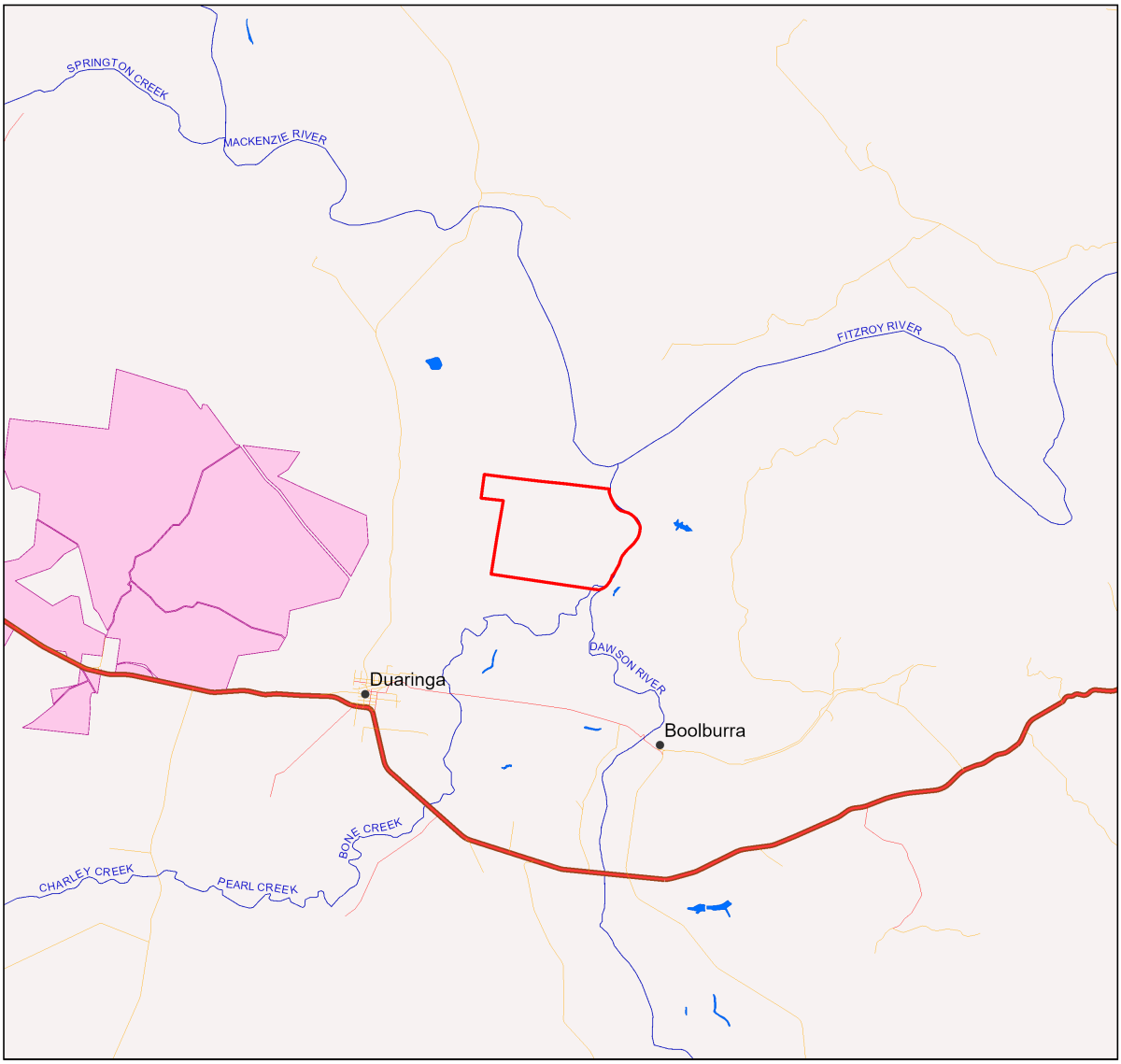
Benchmarks are based on a combination of quantitative and qualitative information and should be used as a guide only. Benchmarks are specific to one regional ecosystem vegetation community, however, the natural variability in structure and floristic composition under a range of climatic and natural disturbance regimes has been considered throughout the geographic extent of the regional ecosystem. Local reference sites should be used for this spatial and temporal (seasonal and annual) variability.

Table 7: List of remnant regional ecosystems within the AOI for which technical and biocondition benchmark descriptions are available

Regional ecosystems mapped as within the AOI	Technical Descriptions	Biocondition Benchmarks
11.3.1	Available	Available
11.3.25	Available	Available
11.3.25f	Not currently available	Not currently available
11.3.27i	Available	Available
11.3.3	Available	Available
non-remnant	Not currently available	Not currently available

Maps

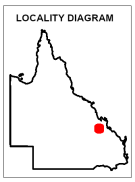
Map 1 - Location



Locality Map

Legend

- Towns
- Freeways/Highways
- Connector
- Street/Local Road
- Lakes and reservoirs
- National Park
- National Park (Scientific)
- National Park (CYPAL)
- National Park (Aboriginal Land)
- Conservation Park
- Resources Reserve
- Forest Reserve
- State Forest
- Timber Reserve
- Nature Refuges
- Coordinated Conservation Areas
- Major rivers/creeks
- Queensland
- Custom area



N

0 2500 5000 7500 10000 12500 m

This product is displayed in GDA2020

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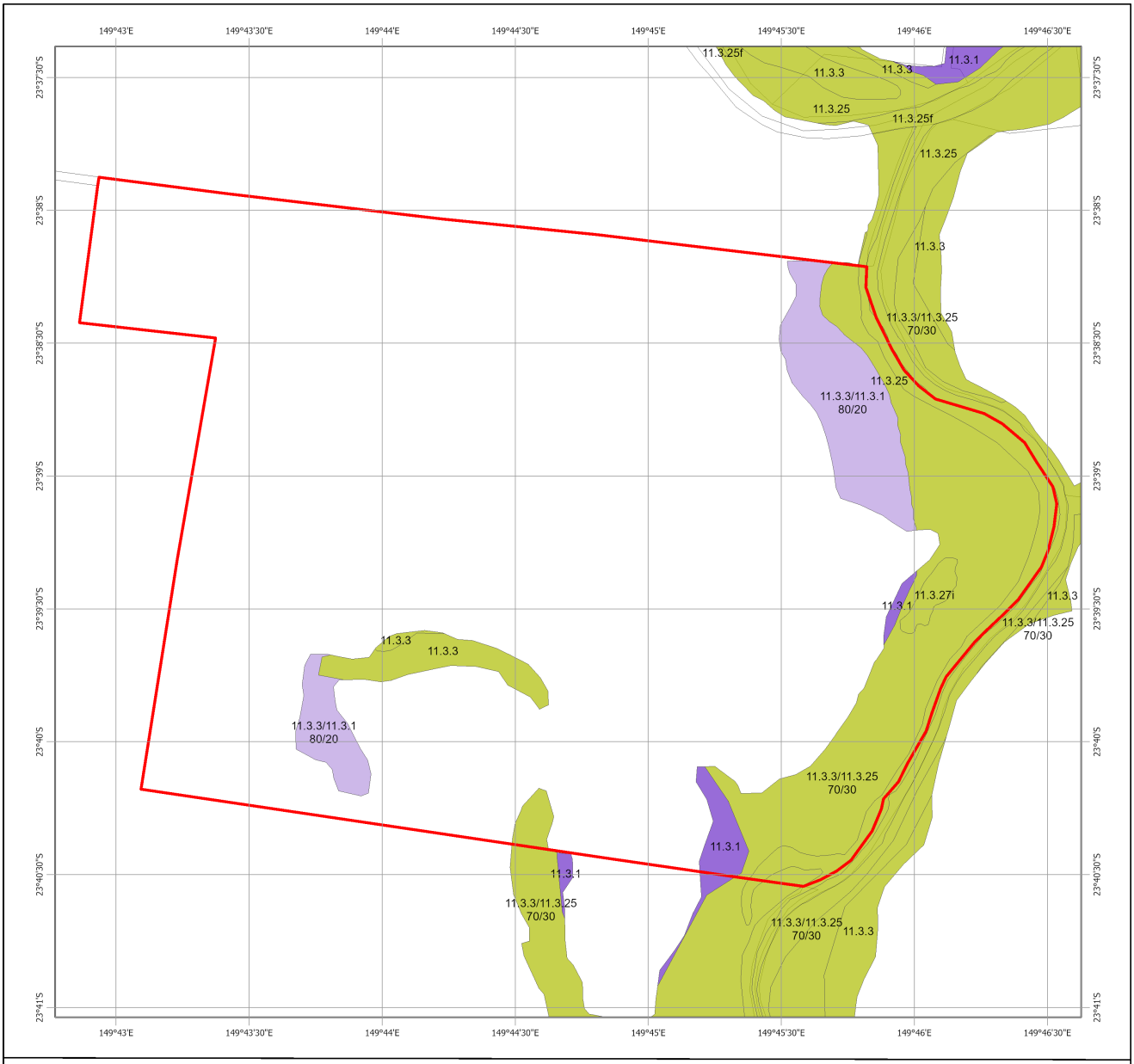
The state of Queensland disclaims all responsibility for information contained in this product and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

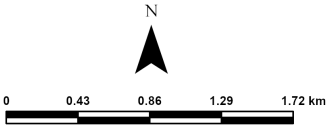
Map 2 - Remnant 2021 regional ecosystems



Remnant 2021 Regional Ecosystems

Biodiversity Status

- Endangered - Dominant vegetation
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- No concern at present
- Non-remnant vegetation, cultivated or built environment
- Plantation
- Water
- Cadastral Boundaries
- Custom area



This product is projected into GDA2020

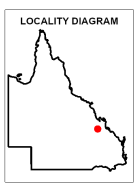
Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.
Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. The polygons are labelled by regional ecosystem (RE); where more than one RE occurs, the percentage of each is labelled. The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".
Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.

Map 3 - Pre-clearing regional ecosystems

Pre-clearing Regional Ecosystems

Biodiversity Status

- Endangered - Dominant vegetation
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- No concern at present
- Water
- Cadastral Boundaries
- Custom area



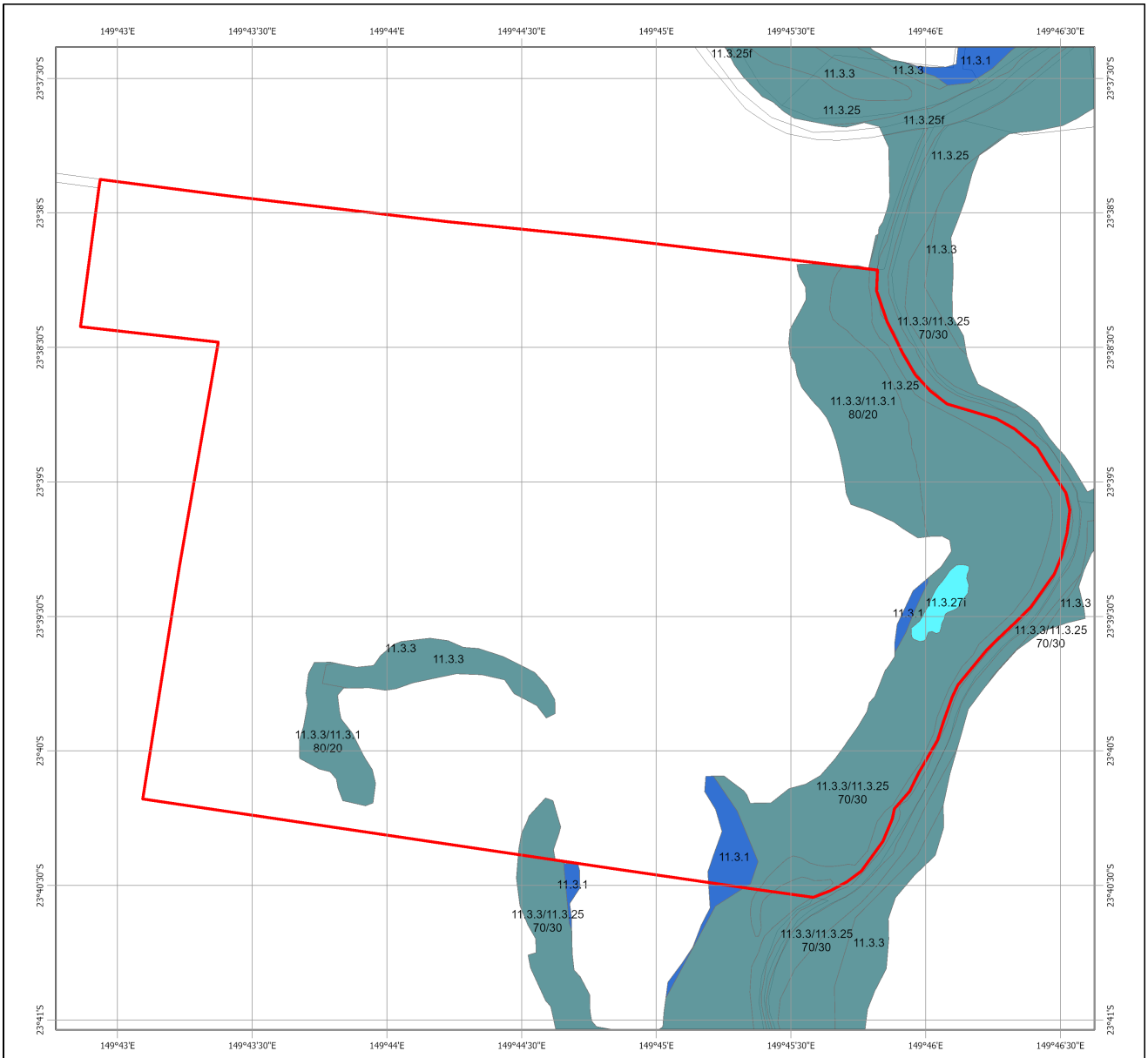
N

0 0.42 0.85 1.27 1.7 km

This product is displayed in GDA2020

Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.
Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. The polygons are labelled by regional ecosystem (RE); where more than one RE occurs, the percentage of each is labelled. The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".
Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.

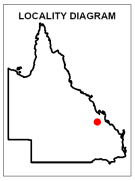
Map 4 - Remnant 2021 regional ecosystems by BVG (5M)



Remnant 2021 Regional Ecosystems coloured by Broad Vegetation Groups

Broad Vegetation Groups
BVG5M Description (BVG1M codes)

- 1. Rainforests and scrubs (1-7b)
- 2. Wet eucalypt open forests (8-8b)
- 3. Eucalypt woodlands to open forests (mainly eastern Qld) (9-15b)
- 4. Eucalypt open forests to woodlands on floodplains (16-16d)
- 5. Eucalypt dry woodlands on inland depositional plains (17-18d)
- 6. Eucalypt low open woodlands usually with spinifex understorey (19-19d)
- 7. Callitris woodland - open forests (20a)
- 8. Melaleuca open woodlands on depositional plains (21-22c)
- 9. Acacia aneura (mulga) dominated open forests, woodlands and shrublands (23-23b)
- 10. Other acacia dominated open forests, woodlands and shrublands (24-26a)
- 11. Mixed species woodlands, open woodland - (inland bioregions) includes wooded downs (27-27c)
- 12. Other coastal communities or heaths (28-29b)
- 13. Tussock grasslands, forblands (30-32b)
- 14. Hummock grasslands (33-33b)
- 15. Wetlands (swamps and lakes) (34-34g)
- 16. Mangroves and saltmarshes (35-35b)
- Non-remnant vegetation, cultivated or built environment
- Water
- Cadastral Boundaries
- Custom area



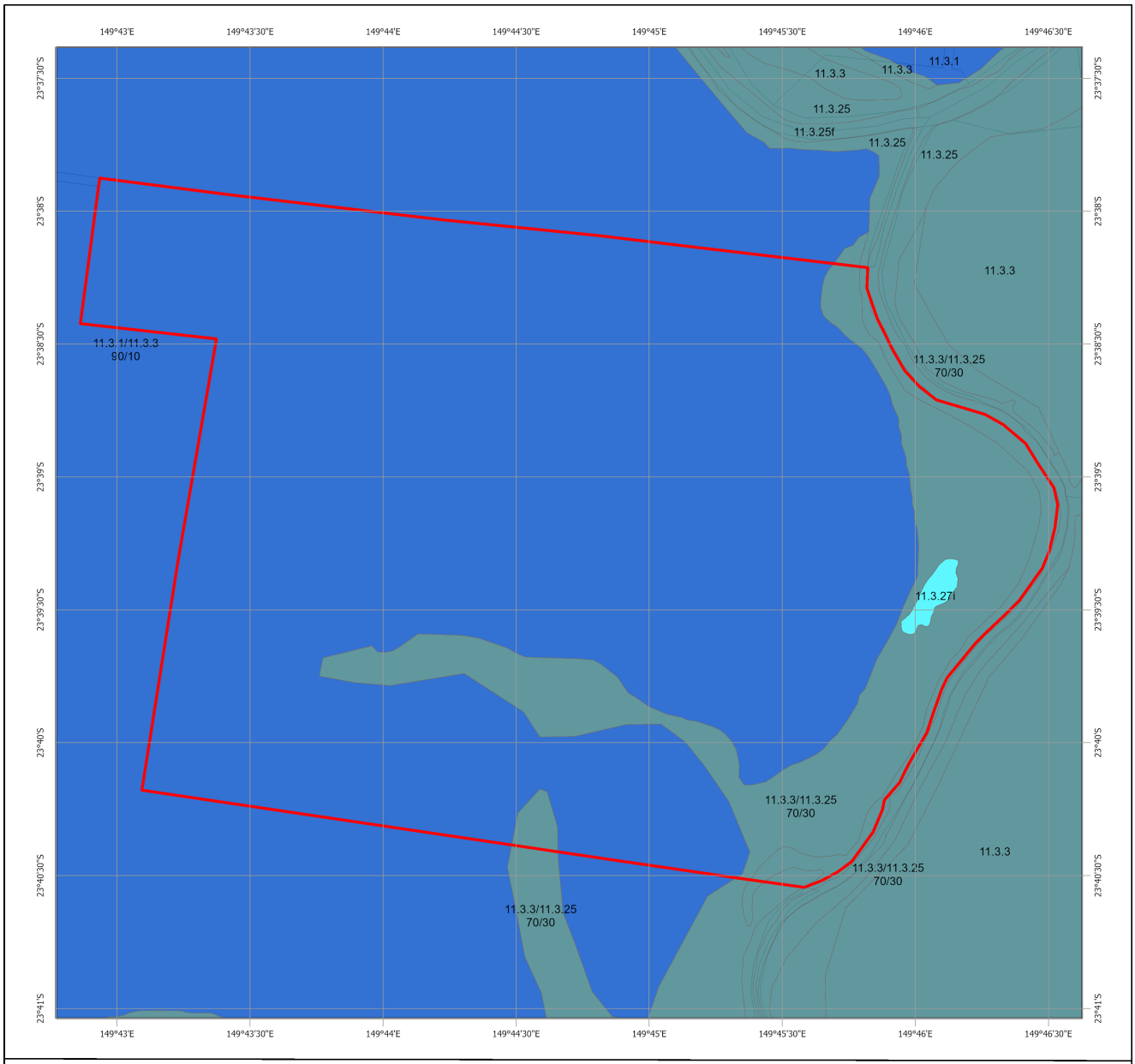
N

0 0.43 0.86 1.29 1.72 km

This product is displayed in GDA2020

Broad Vegetation Groups (BVG) of Queensland are applied by look up table to the regional ecosystem vegetation communities. Each polygon is coloured by the dominant BVG5M and the component regional ecosystems labelled. Where more than one regional ecosystem occurs, the percentage of each is labelled.
Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.
Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.
The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".
Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.
Remnant woody vegetation is defined as vegetation that has not been cleared or vegetation that has been cleared but where the dominant canopy has >70% of the height and >50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy.
Non-remnant vegetation includes regrowth and disturbed native vegetation.

Map 5 - Pre-clearing regional ecosystems by BVG (5M)



Pre-clearing Regional Ecosystems coloured by Broad Vegetation Groups

Broad Vegetation Groups
BVG5M Description (BVG1M codes)

- 1. Rainforests and scrubs (1-7b)
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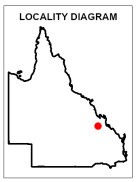
- 15. Wetlands (swamps and lakes) (34-34g)
- 16. Mangroves and saltmarshes (35-35b)
- Water
- Cadastral Boundaries
- Custom area



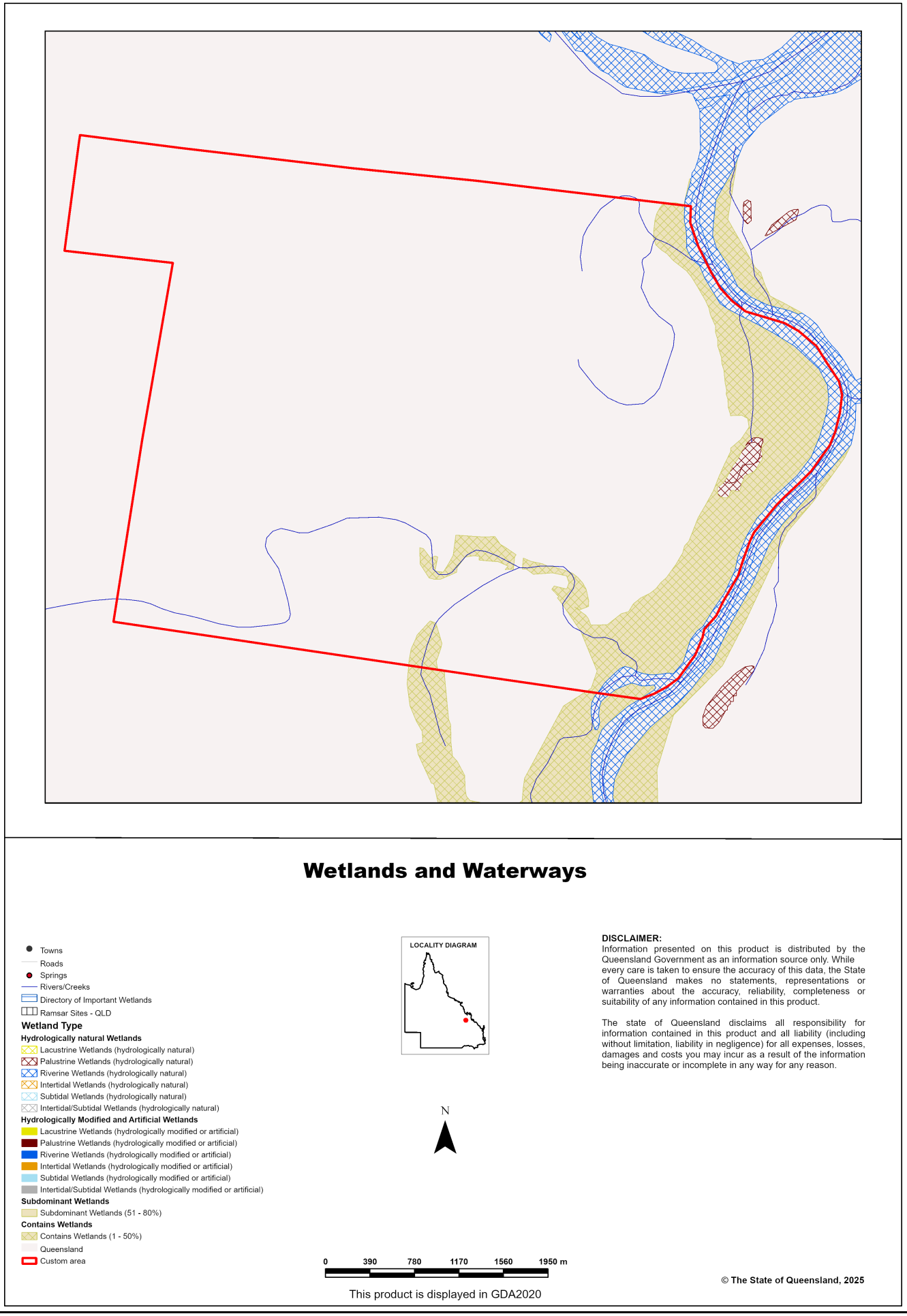
N

0 0.43 0.86 1.29 1.72 km

This product is displayed in GDA2020

Broad Vegetation Groups (BVG) of Queensland are applied by look up table to the regional ecosystem vegetation communities. Each polygon is coloured by the dominant BVG5M and the component regional ecosystems labelled. Where more than one regional ecosystem occurs, the percentage of each is labelled.
Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.
Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".
Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.

Map 6 - Wetlands and waterways



Links and Other Information Sources

The Department of the Environment, Tourism, Science and Innovation's Website - http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/ provides further information on the regional ecosystem framework, including access to links to the Regional Ecosystem Database, Broad Vegetation Group Definitions, Regional Ecosystem and Land zone descriptions.

Descriptions of the broad vegetation groups of Queensland can be downloaded from: https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/broad-vegetation

The methodology for mapping regional ecosystems can be downloaded from: https://www.qld.gov.au/__data/assets/pdf_file/0033/459186/methodology-mapping-surveying-v7.pdf

Technical descriptions for regional ecosystems can be obtained from: http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/technical-descriptions/

Benchmarks can be obtained from: http://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks/

For further information associated with the remnant regional ecosystem dataset used by this report, refer to the metadata associated with the Biodiversity status of pre-clearing and Remnant Regional Ecosystems of Queensland dataset (version listed in **Appendix 1**) which is available through the Queensland Spatial Catalogue, Queensland Spatial Catalogue : Queensland Government (information.qld.gov.au)

The Queensland Globe is a mapping and data application. As an interactive online tool, Queensland Globe allows you to view and explore Queensland maps, imagery (including up-to-date satellite images) and other spatial data, including regional ecosystem mapping. To further view and explore regional ecosystems over an area of interest, access the Biota Globe (a component of the Queensland Globe). The Queensland Globe can be accessed via the following link: https://qldglobe.information.qld.gov.au/

References

Neldner, V.J., Niehus, R.E., Wilson, B.A., McDonald, W.J.F., Ford, A.J. and Accad, A. (2023). The Vegetation of Queensland. Descriptions of Broad Vegetation Groups. Version 6.0. Queensland Herbarium, Department of Environment and Science. (https://publications.qld.gov.au/dataset/redd/resource/78209e74-c7f2-4589-90c1-c33188359086)

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Richter,D., Addicott, E.P. and Appelman, C.N. (2023) Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 7.0. Updated December 2023. Queensland Herbarium, Queensland Department of Environment, Science and Innovation, Brisbane. (https://www.qld.gov.au/__data/assets/pdf_file/0033/459186/methodology-mapping-surveying-v7.pdf).

Sattler, P.S. and Williams, R.D. (eds) (1999). *The Conservation Status of Queensland's Bioregional Ecosystems.* Environmental Protection Agency, Brisbane.

Appendices

Appendix 1 - Source Data

The dataset listed below is available for download from:
http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/download/

- Regional Ecosystem Description Database

The datasets listed below are available for download from:
Queensland Spatial Catalogue : Queensland Government (information.qld.gov.au)

- Biodiversity status of pre-clearing and 2021 remnant regional ecosystems of Queensland
- Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland
- Queensland Wetland Data Version - Wetland lines
- Queensland Wetland Data Version - Wetland points
- Queensland Wetland Data Version - Wetland areas
- Pre-clearing broad vegetation groups of Queensland
- Remnant 2021 broad vegetation groups of Queensland

Appendix 2 - Acronyms and Abbreviations

AOI - Area of Interest
GIS - Geographic Information System
RE - Regional Ecosystem
REDD - Regional Ecosystem Description Database
VMA - *Vegetation Management Act 1999*

Queensland Government

Department of the Environment, Tourism, Science and Innovation

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest

Custom input

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 2020). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and a field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@detsi.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

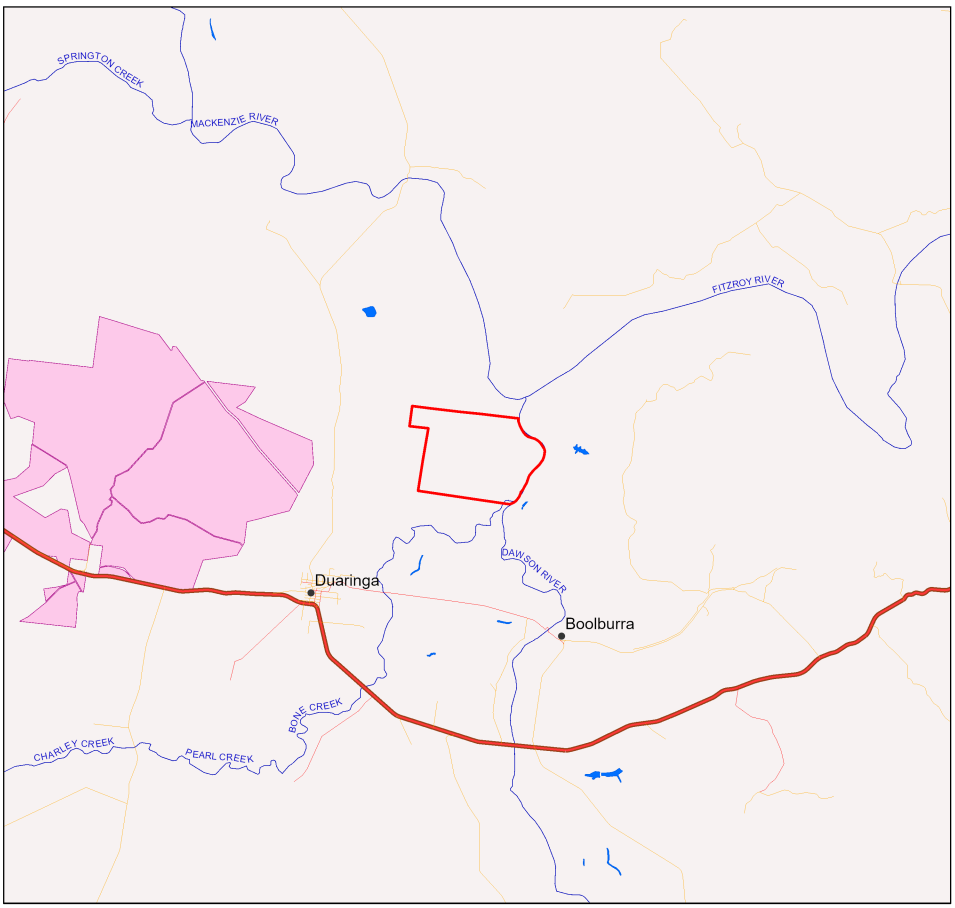
Table of Contents

Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI: Custom input, with area 2172.41 ha

Local Government(s)	Catchment(s)	Bioregion(s)	Subregion(s)
Woorabinda Aboriginal Shire	Fitzroy	Brigalow Belt	Isaac - Comet Downs
Central Highlands Regional			



Locality Map

Legend

- Towns
- Freeways/Highways
- Connector
- Street/Local Road
- Lakes and reservoirs
- National Park
- National Park (Scientific)
- National Park (CYPAL)
- National Park (Aboriginal Land)
- Conservation Park
- Resources Reserve
- Forest Reserve
- State Forest
- Timber Reserve
- Nature Refuges
- Coordinated Conservation Areas
- Major rivers/creeks
- Queensland
- Custom area

LOCALITY DIAGRAM

N

0 2500 5000 7500 10000 12500 m

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Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992;*

- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the Marine Parks Act 2004 ;

- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;

- *Threatened wildlife under the Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;

- Regulated vegetation under the *Vegetation Management Act 1999* that is:

  - Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;
  - Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;
  - Category R areas on the regulated vegetation management map;
  - Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;
  - Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;

- Strategic Environmental Areas under the *Regional Planning Interests Act 2014* ;

- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;

- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;
- Legally secured offset areas.

MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	0 ha	0.0%
1b Protected Areas- nature refuges	0 ha	0.0%
1c Protected Areas- special wildlife reserves	0 ha	0.0%
2 State Marine Parks- highly protected zones	0 ha	0.0%
3 Fish habitat areas (A and B areas)	0 ha	0.0%
4 Strategic Environmental Areas (SEA)	0 ha	0.0%
5 High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values	0 ha	0.0%
6a High Ecological Value (HEV) wetlands	0 ha	
6b High Ecological Value (HEV) waterways	0 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	175.72 ha	8.1%
7b Special least concern animals	176.14 ha	8.1%
7c i Koala habitat area - core (SEQ)	0 ha	0.0%
7c ii Koala habitat area - locally refined (SEQ)	0 ha	0.0%
7d Sea turtle nesting areas	0 km	Not applicable
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	362.75 ha	16.7%
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	0 ha	0.0%
8c Regulated Vegetation - Category R (GBR riverine regrowth)	0.31 ha	0.0%
8d Regulated Vegetation - Essential habitat	172.2 ha	7.9%
8e Regulated Vegetation - intersecting a watercourse	13.5 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	17.14 ha	0.8%
9a Legally secured offset areas- offset register areas	0 ha	0.0%
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0 ha	0.0%

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

(No results)

1b. Protected Areas - nature refuges

(No results)

1c. Protected Areas - special wildlife reserves

(No results)

2. State Marine Parks - highly protected zones

(No results)

3. Fish habitat areas (A and B areas)

(No results)

Refer to **Map 1 - MSES - State Conservation Areas** for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(No results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

(no results)

6a. Wetlands in High Ecological Value (HEV) waters

(no results)

6b. Waterways in High Ecological Value (HEV) waters

(no results)

Refer to **Map 2 - MSES - Wetlands and Waterways** for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Values are present

7b. Special least concern animals

Values are present

7c i. Koala habitat area - core (SEQ)

Not applicable

7c ii. Koala habitat area - locally refined (SEQ)

Not applicable

7d. Wildlife habitat (sea turtle nesting areas)

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
Boronia keysii	Keys boronia	V	None
Calyptorhynchus lathami	Glossy black cockatoo	V	None
Casuarius casuarius johnsonii	Sthn population cassowary	E	None
Crinia tinnula	Wallum froglet	V	None
Denisonia maculata	Ornamental snake	V	None
Euastacus bindal	Mount Elliot crayfish	CR	None
Euastacus binzayedi		CR	None
Euastacus eungella		E	None
Euastacus hystricosus		E	None
Euastacus jagara	Jagara hairy crayfish	CR	None
Euastacus maidae		CR	None
Euastacus monteithorum		E	None
Euastacus robertsi		E	None
Taudactylus pleione	Kroombit tinkerfrog	E	None
Litoria freycineti	Wallum rocketfrog	V	None
Litoria olongburensis	Wallum sedgefrog	V	None
Macadamia integrifolia		V	None
Melaleuca irbyana	swamp tea-tree	E	None
Macadamia ternifolia		V	None
Macadamia tetraphylla	bopple nut	V	None
Petrogale penicillata	brush-tailed rock-wallaby	V	None
Petrogale coenensis	Cape York rock-wallaby	E	None
Petrogale purpureicollis	purple-necked rock-wallaby	V	None
Petrogale sharmani	Sharmans rock-wallaby	V	None
Petrogale xanthopus celeris	yellow-footed rock-wallaby (Qld subspecies)	V	None
Petaurus gracilis	Mahogany Glider	E	None
Petrogale persephone	Proserpine rock-wallaby	E	None
Phascolarctos cinereus	Koala - outside SEQ*	E	None
Pezoporus wallicus wallicus	Eastern ground parrot	V	None
Xeromys myoides	Water Mouse	V	None

*For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.

Threatened (endangered or vulnerable) wildlife species records

Scientific name	Common name	NCA status	EPBC status	Migratory status
Phascolarctos cinereus	koala	E	E	None

Special least concern animal species records

Scientific name	Common name	Migratory status
Tringa stagnatilis	marsh sandpiper	M-C/J/R/B/E

Shorebird habitat (critically endangered/endangered/vulnerable)

Not applicable

Shorebird habitat (special least concern)

Not applicable

**Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL). Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)*

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at:

https://www.qld.gov.au/environment/plants-animals/species-list/

Refer to **Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals** and **Map 3b - MSES - Species - Koala habitat area (SEQ)** and **Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)** for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:

https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/

For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at:

https://environment.ehp.qld.gov.au/regional-ecosystems/

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Regional ecosystem	Vegetation management polygon	Vegetation management status
11.3.1	E-dom	rem_end
11.3.1/11.3.3	E-dom	rem_end
11.3.3	O-dom	rem_oc
11.3.3/11.3.1	E-subdom	rem_end
11.3.3/11.3.25	O-dom	rem_oc

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Regional ecosystem	Vegetation management polygon	Vegetation management status
11.3.1/11.3.3	E-dom	hvr_end
11.3.3/11.3.25	O-dom	hvr_oc

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Regulated vegetation map category	Map number
R	8850

8d. Regulated Vegetation - Essential habitat

Values are present

8e. Regulated Vegetation - intersecting a watercourse**

A vegetation management watercourse is mapped as present

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Regulated vegetation map category	Map number
B	8850
R	8850

Refer to **Map 4 - MSES - Regulated Vegetation** for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

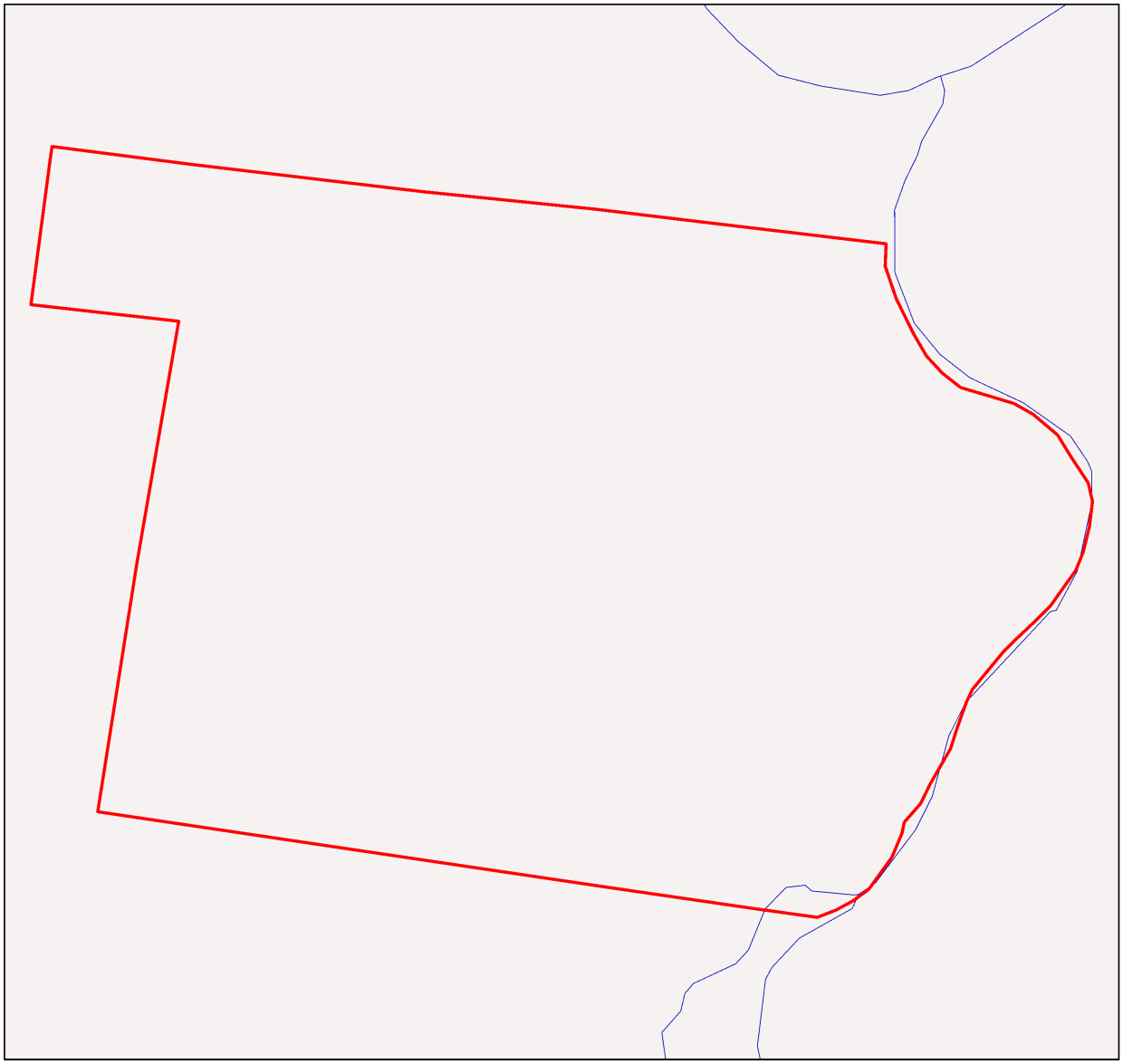
(No results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

(No results)

Refer to **Map 5 - MSES - Offset Areas** for an overview of the relevant MSES.

Map 1 - MSES - State Conservation Areas



MSES - State Conservation Areas

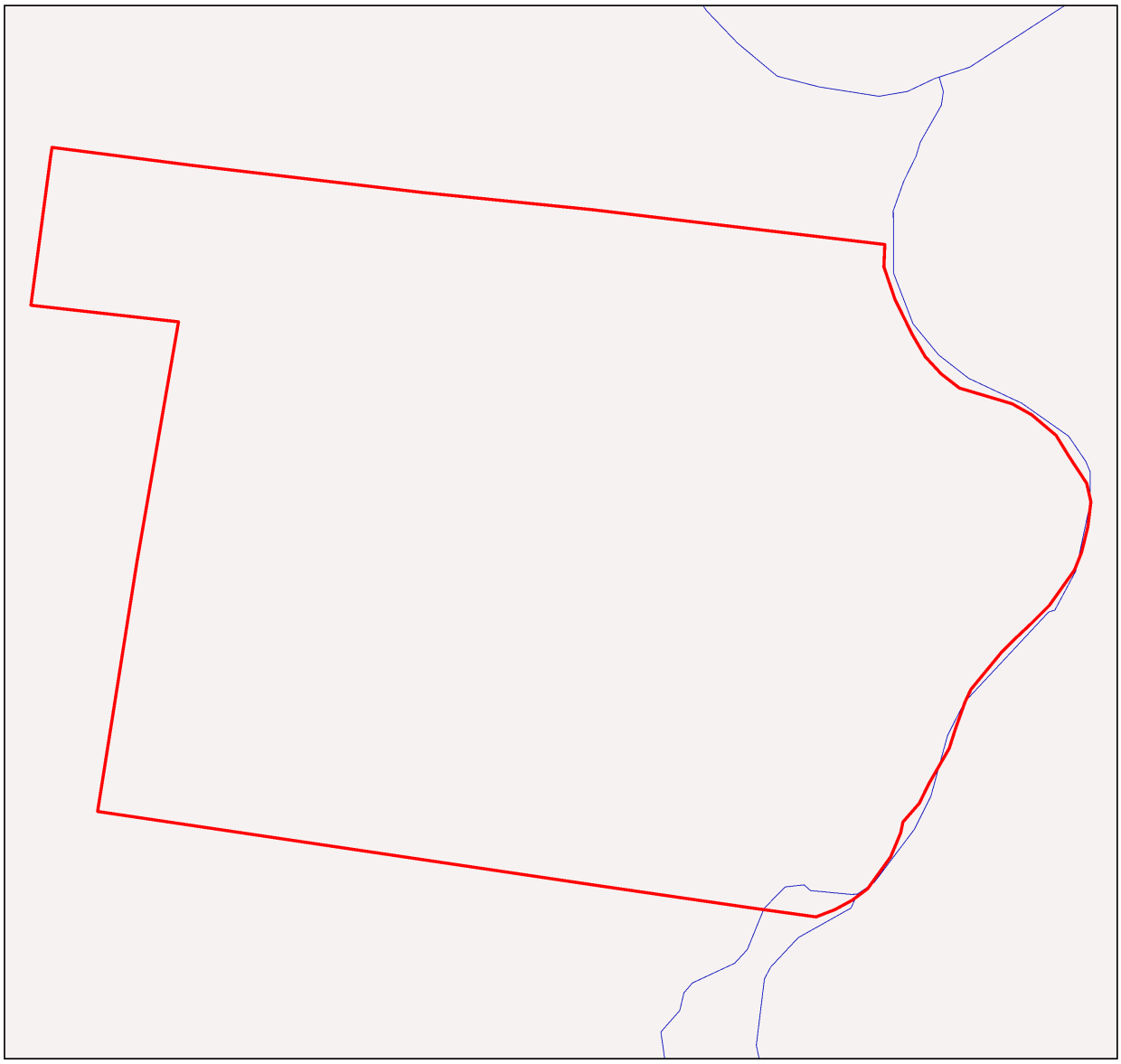
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Protected area (estates, nature refuges, special wildlife reserves)
- Declared fish habitat area (A and B areas)
- Marine park (highly protected)
- Custom area

N

0 390 780 1170 1560 1950 m

This product is displayed in GDA2020

Map 2 - MSES - Wetlands and Waterways



MSES - Wetlands and Waterways

- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Declared high ecological value waters (watercourse)
- Strategic environmental area (designated precinct)
- Declared high ecological value waters (wetland)
- High ecological significance wetlands
- Custom area

LOCALITY DIAGRAM

N

0 390 780 1170 1560 1950 m

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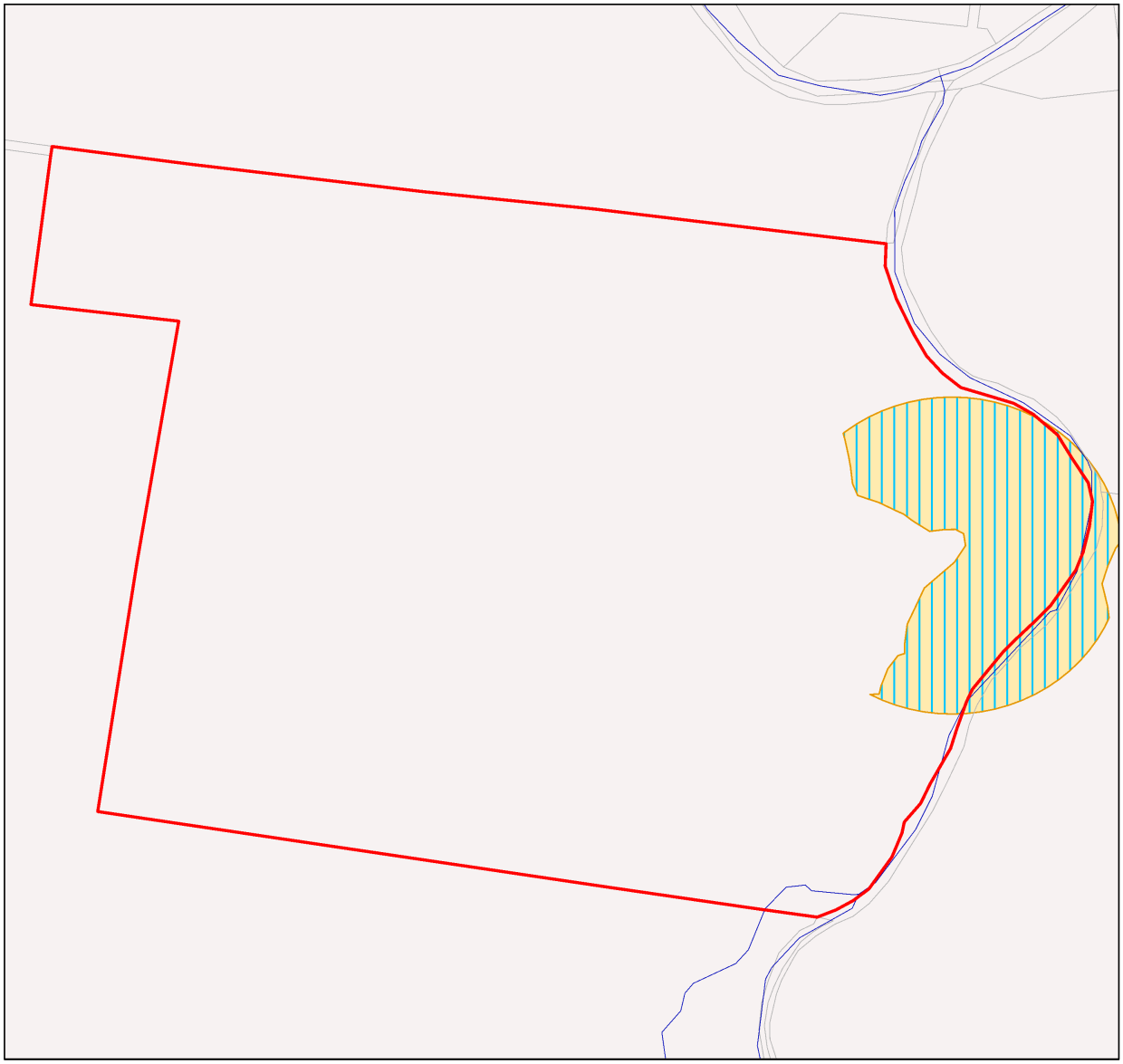
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals



MSES - Species
Threatened (endangered or vulnerable) wildlife and special least concern animals

- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (special least concern)
- Wildlife habitat (endangered or vulnerable)
- Custom area

N

0 390 780 1170 1560 1950 m

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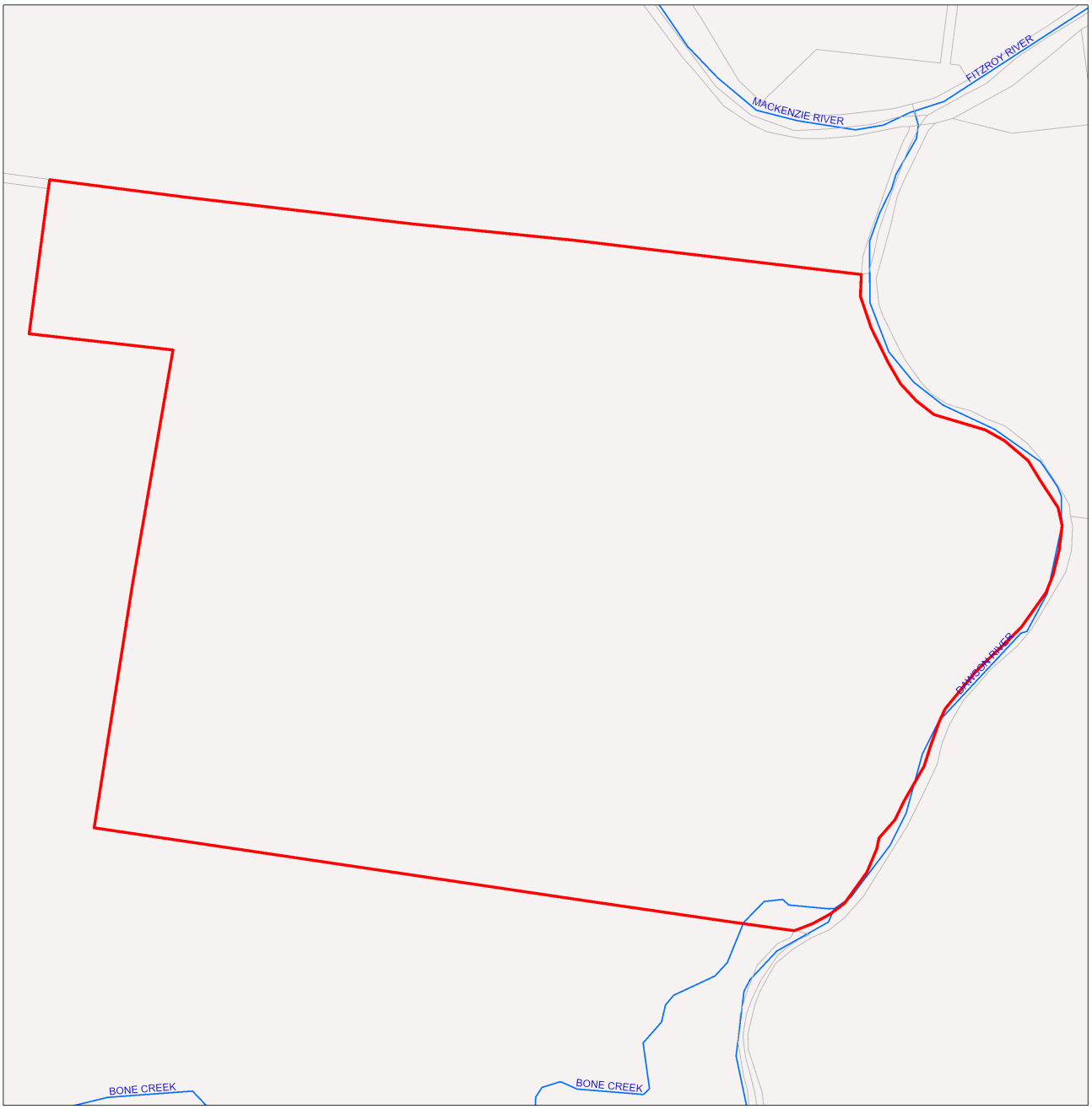
Map 3b - MSES - Species - Koala habitat area (SEQ)



MSES - Species
Koala habitat area (SEQ)

- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Koala habitat area (core)
- Koala habitat area (locally refined)
- Custom area

LOCALITY DIAGRAM

0 370 740 1,110 1,480 1,850 m

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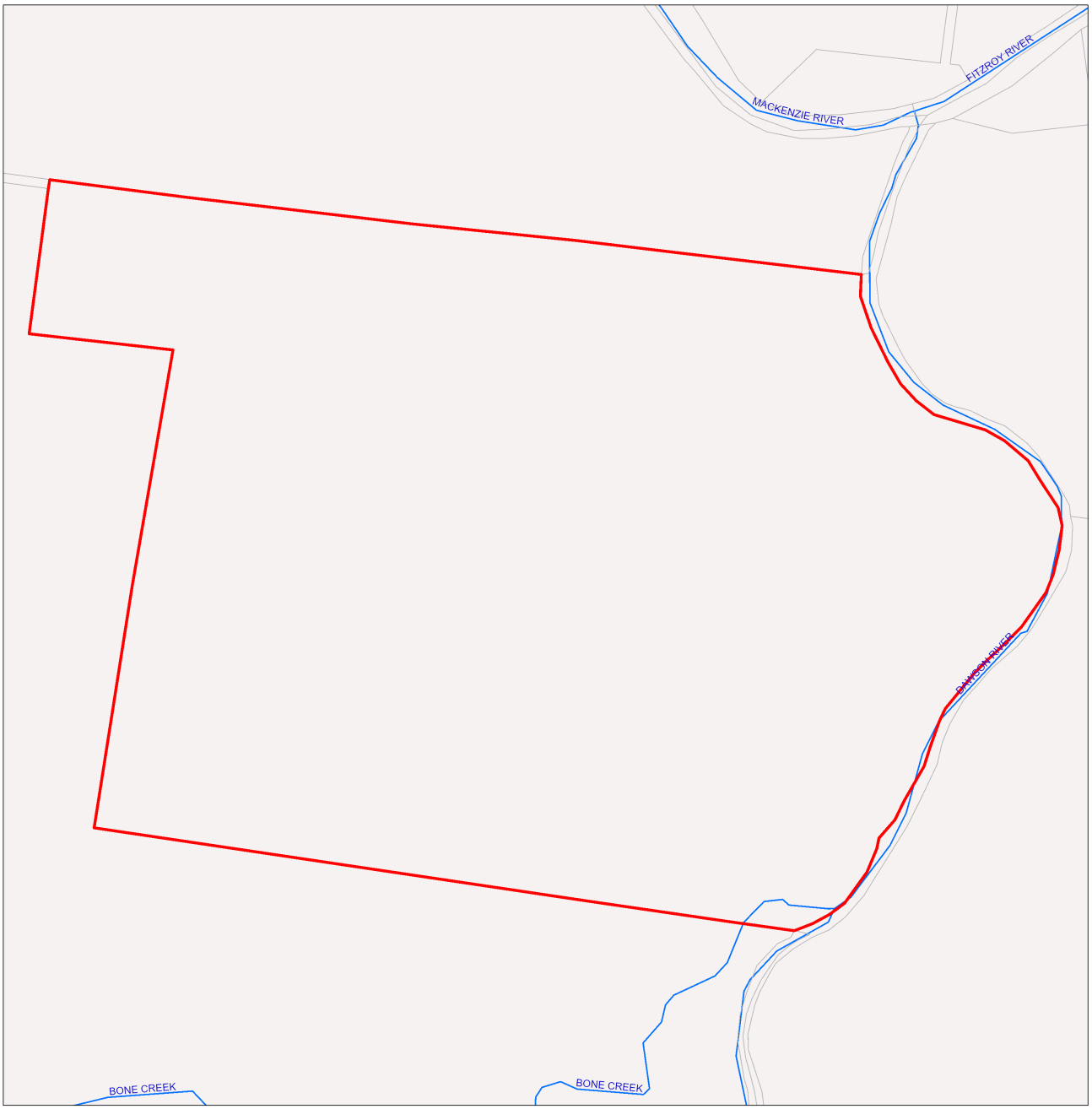
The represented layers for SEQ 'koala habitat area-core' and 'koala habitat area- locally refined' in MSES are sourced directly from the regulatory mapping under the Nature Conservation (Koala) Conservation Plan 2017. Whilst every effort is made to ensure the information remains current, there may be delays between updating versions. Please refer to the original mapping for the most recent version. See https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

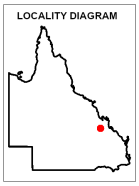
Map 3c - MSES - Species - Wildlife habitat (sea turtle nesting areas)



MSES - Wildlife habitat (sea turtle nesting areas)

- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (sea turtle nesting areas)
- Custom area

LOCALITY DIAGRAM



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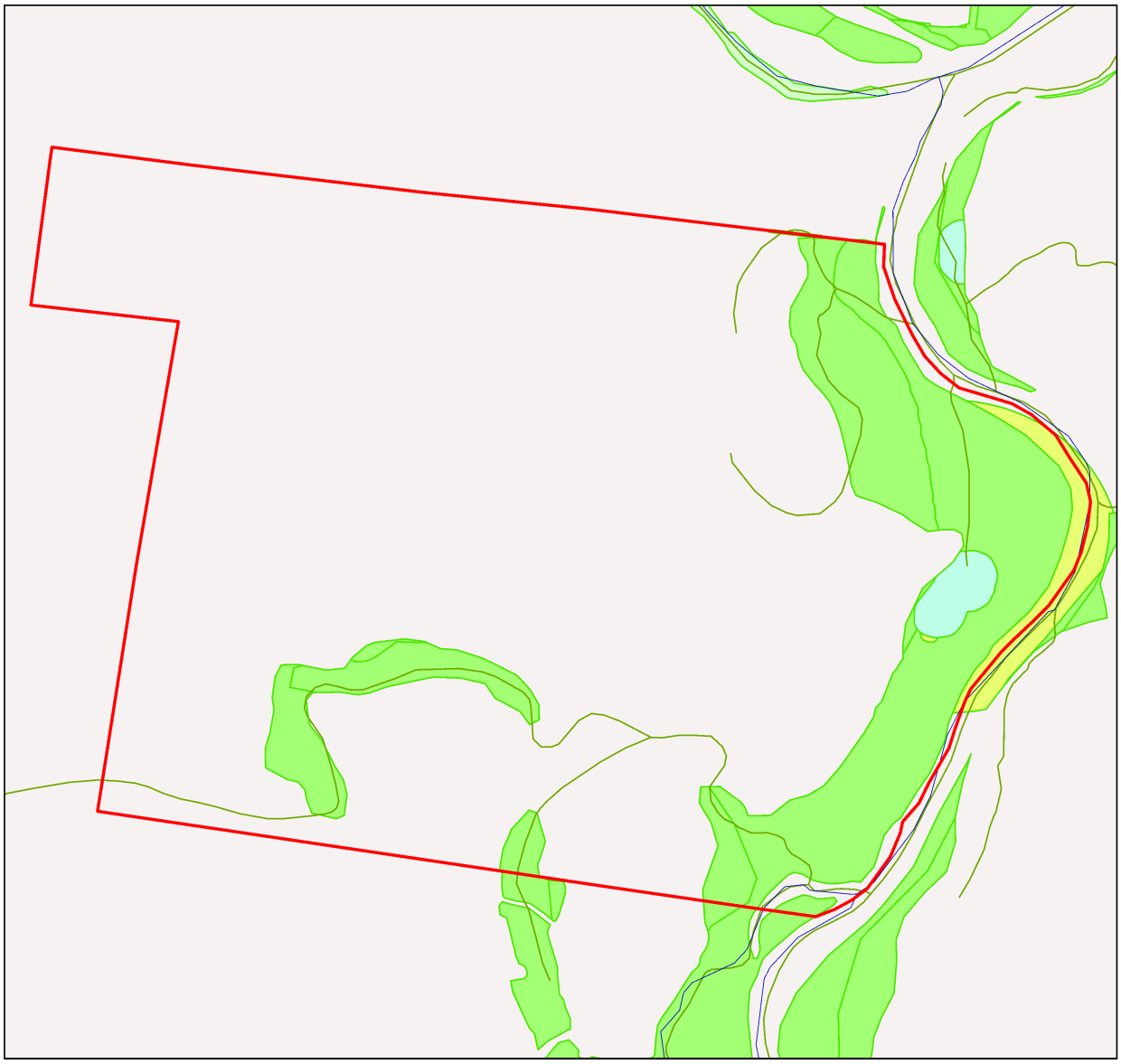
MSES mapping of sea turtle nesting areas identifies beaches where the recorded number of turtle nests are over 1% of the turtle species or genetic stock. The linework is also deliberately extended along nearby rocky coastlines and headlands to recognise that significant numbers of nesting adults and hatchlings can become disoriented by light pollution from development on rocky coastlines and headlands while navigating offshore from nesting beaches.

0 370 740 1,110 1,480 1,850 m

This product is displayed in GDA2020

Map 4 - MSES - Regulated Vegetation



MSES - Regulated Vegetation

- ▲ Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Regulated vegetation (intersecting a watercourse)
- Regulated vegetation (100m from wetland)
- Regulated vegetation (category B - endangered or of concern)
- Regulated vegetation (category C - endangered or of concern)
- Regulated vegetation (category R - GBR riverine)
- Regulated vegetation (essential habitat)
- Custom area

N

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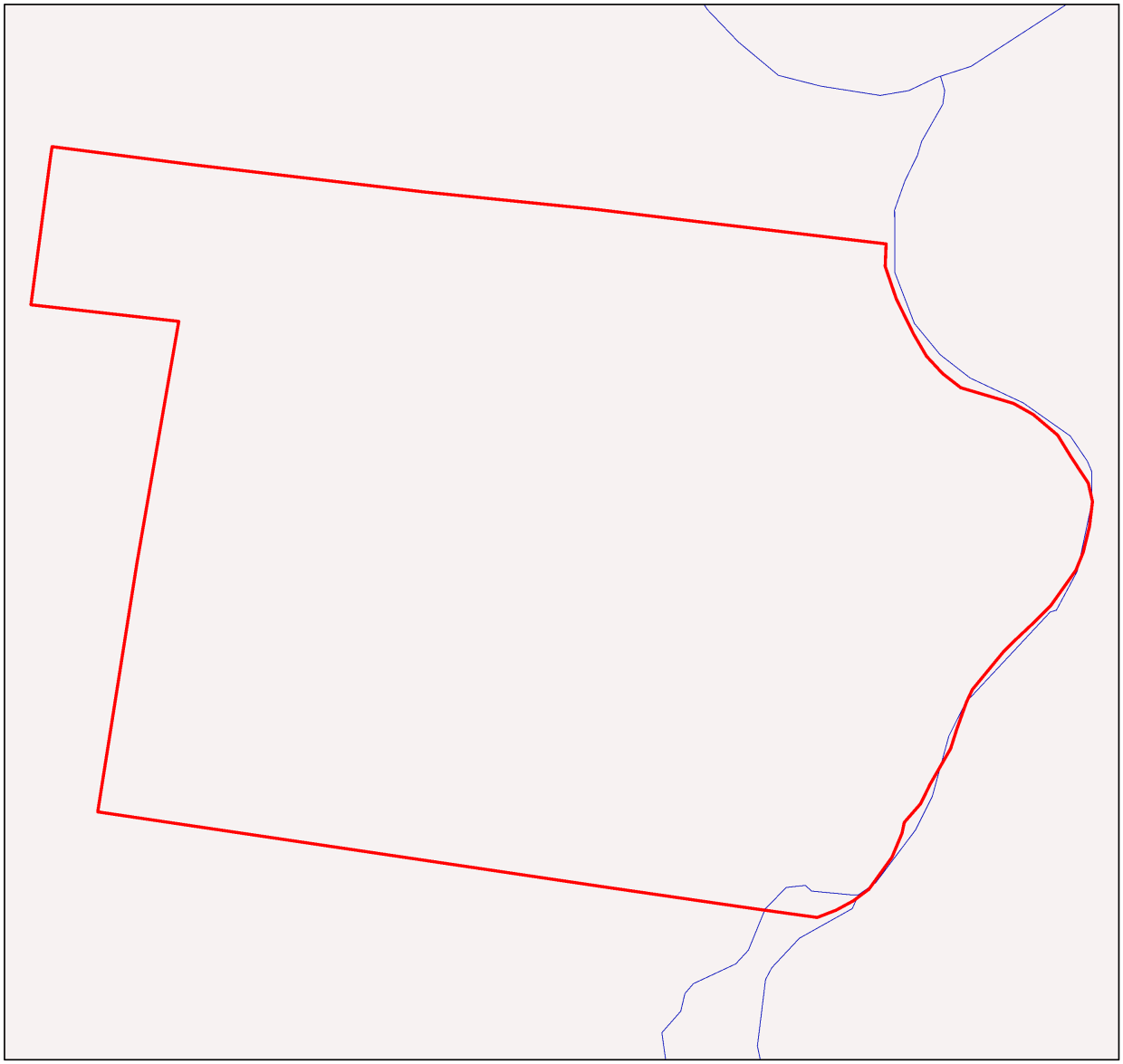
Map 5 - MSES - Offset Areas



MSES - Offsets

- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Legally secured offset area (offset register)
- Legally secured offset area (vegetation offsets)
- Custom area

N

0 390 780 1170 1560 1950 m

This product is displayed in GDA2020

Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). Its primary purpose is to support implementation of the SPP biodiversity policy.

MSES mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations.

MSES mapping does not determine whether state or local development assessment is required. For state assessment triggers refer to the Development Assessment Mapping System (DAMS). For local assessment triggers, refer to the relevant local planning scheme.

The Queensland Government's "Method for mapping - matters of state environmental significance can be downloaded from:

http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html .

Appendix 2 - Source Data

The datasets listed below are available on request from:

http://qldspatial.information.qld.gov.au/catalogue/custom/index.page

- Matters of State environmental significance

Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

MSES layers	**current QSpatial data (http://qspatial.information.qld.gov.au)**
Protected Areas-Estates, Nature Refuges, Special Wildlife Reserves	- Protected areas of Queensland - Nature Refuges - Queensland - Special Wildlife Reserves- Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	HEV waters: - EPP Water intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 5) Source Watercourses: - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	-WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DETSI
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DETSI	- Department of the Environment, Tourism, Science and Innovation
EP Act	- Environmental Protection Act 1994
EPP	- Environmental Protection Policy
GDA2020	- Geocentric Datum of Australia 2020
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- Nature Conservation Act 1992
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- Vegetation Management Act 1999

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 23-Sep-2025

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	30
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	6
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In feature area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community likely to occur within area	In feature area
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered	Community may occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Falco hypoleucos](#)			
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Gallinago hardwickii](#)			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
[Geophaps scripta scripta](#)			
Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Neochmia ruficauda ruficauda](#)			
Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area	In feature area
[Poephila cincta cincta](#)			
Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area	In feature area
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
[Stagonopleura guttata](#)			
Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
[Turnix melanogaster](#)			
Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
[Dasyurus hallucatus](#)			
Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
[Petauroides volans](#)			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
[Petaurus australis australis](#)			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Cadellia pentastylis			
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium queenslandicum			
King Blue-grass [5481]	Endangered	Species or species habitat may occur within area	In feature area
Dichanthium setosum			
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus raveretiana			
Black Ironbox [16344]	Vulnerable	Species or species habitat may occur within area	In feature area
Polianthion minutiflorum			
[82772]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Solanum dissectum			
[75720]	Endangered	Species or species habitat may occur within area	In feature area
Solanum johnsonianum			
[84820]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Delma torquata			
Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Denisonia maculata Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area	In feature area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area	In feature area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area
Rheodytes leukops Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Endangered	Species or species habitat known to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Marine Species			
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pandion haliaetus](#)			
Osprey [952]		Species or species habitat likely to occur within area	In feature area
[Pterodroma cervicalis](#)			
White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
[Rhipidura rufifrons](#)			
Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area	In feature area
[Rostratula australis as Rostratula benghalensis (sensu lato)](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Reptile			
[Crocodylus porosus](#)			
Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
[Blackwater to Gladstone Gas Pipeline Project](#)	2011/6034	Controlled Action	Completed	In buffer area only
[Construct and operate a coal gasification plant and carbon dioxide capture and storage](#)	2006/3040	Controlled Action	Completed	In buffer area only
[install & operate gas pipeline](#)	2005/2059	Controlled Action	Post-Approval	In buffer area only
[Lower Fitzroy River Infrastructure Project](#)	2009/5173	Controlled Action	Post-Approval	In feature area
[ZeroGen Integrated Gasification Combined Cycle Power Plant and CO2 Capture, Transport and Storage](#)	2009/5195	Controlled Action	Completed	In buffer area only
Not controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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APPENDIX B LIKELIHOOD OF OCCURRENCE

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Listed Threatened Species							
Birds							
Calidris ferruginea	Curlew Sandpiper	CE	CE	No	No	This species is recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. Breeding habitat: This species does not breed in Australia. Foraging habitat: Forage at the edges of shallow pools and drains of intertidal mudflats and sandy shores. At high tide, they forage among low sparse emergent vegetation, such as saltmarsh, and sometimes forage in flooded paddocks or inundated saltflats. Occasionally they forage on wet mats of algae or waterweed, or on banks of beachcast seagrass or seaweed. Roosting habitat: This species roost in open situations with damp substrate, especially on bare shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting	Unlikely to Occur • Offset Area is within the Species Distribution Area. • No recent records within Offset Area or locality. • Offset Area does not contain suitable habitat. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						in dunes during very high tides and sometimes in saltmarsh.	
Erythrotriorchis radiatus	Red Goshawk	EN	E	Yes – one	No	Occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia. Riverine forests are also used frequently. The vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest, and rainforest margins. Forests of intermediate density, with tall stands or individual trees so that nests are supported, are favoured, or ecotones between habitats of differing densities, e.g. between rainforest and eucalypt forest, between gallery forest and woodland, or on edges of woodland and forest where they meet grassland, cleared land, roads or watercourses. This species avoids very dense and very open habitats. Breeding habitat: The red goshawk nests in large trees, frequently the tallest and most massive in a tall stand, and nest trees are invariably within one km of permanent water. Breeding habitat is restricted to trees taller than 20 m high. Species rarely breeds in areas with fragmented vegetation.	Unlikely to Occur • The Offset Area is within the may occur range of distribution. • Offset Area does not contain suitable habitat. • Only one historical relevant record exists within the locality buffer of the Offset Area which was recorded in 1996. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Foraging habitat: Such habitats typically support high bird numbers and biodiversity, especially medium to large species which the goshawk requires for prey. Habitat has to be open enough for fast hunting and manoeuvring in flight, but with enough cover for ambushing of prey.	
Neochmia ruficauda	Star Finch (eastern)	EN	E	No	No	Star Finch (eastern) occurs only in central Queensland, within grasslands and grassy woodlands associated with freshwater sources. The species has also been observed in cleared and suburban areas, although rarely. Current threats on the decline of populations has been attributed to overgrazing, trampling of habitat and predation by introduced pests. Breeding habitat: The species breeds within grasslands and grassy woodlands associated with freshwater sources. Foraging habitat: Star Finch (eastern) forage for seeds of grasses and other annual plants, and insects within grasslands and grassy woodlands associated with freshwater sources.	Potential to Occur • SPRAT distribution has species as may occur. • Preferred habitat is present within the Offset Area. • There are no recent records within the Offset Area or locality. • Species was not recorded within the Offset Site during field surveys.
Rostratula australis	Australian Painted Snipe	EN	E	0	0	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses,	Potential to Occur • SPRAT distribution

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						lignum, low scrub or open timber. However, species can use modified habitat, such as low-lying woodlands converted to grazing pasture, sewage farms, damns, bores and irrigation schemes, however they do not necessarilty breed in such habitats (Marchant & Higgins, 1993). Foraging and roosting habitat: Forages nocturnally on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter. Breeding habitat: Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. The nest consists of a scrape in the ground, lined with grasses and leaves.	indicates species may occur within the Offset Area. • There is suitable habitat present within the Offset Area. • There are no historically relevant records within the locality or Offset Area. • Species was not recorded within the Offset Site during field surveys.
Poephila cincta cincta	Southern Black-throated Finch	En	E	Yes – 11	No	Occurs mainly in grassy, open woodlands and forests, typically dominated by Eucalyptus, Corymbia and Melaleuca, and occasionally in tussock grasslands or other habitats (for example freshwater wetlands), often along or near watercourses, or in the vicinity of water. Some of the more common species of eucalypts in woodlands and forests frequented by the subspecies include narrow-leaved ironbark (E. crebra), river red gum (E.	Potential to Occur • SPRAT distribution indicates species may occur within the Offset Area • There is suitable habitat present within the Offset Area • There are historically relevant records present within the Offset Area

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						camaldulensis), silver-leaved ironbark (E. melanophloia), Reid river box (E. brownii), Yellowjacket (E. similis) and forest red gum (E. tereticornis). The subspecies occasionally occurs in Melaleuca woodlands, or in grasslands comprised of genera such as Astrebla, Dichanthium or Panicum.	• Species was not recorded within the Offset Site during field surveys.
Gallinago hardwickii	Latham's Snipe	V	V, Ma, Mi	No	No	This species usually occurs in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby. They generally occupy flooded meadows, seasonal or semi-permanent swamps, or open waters, but various other freshwater habitats can be used including bogs, waterholes, billabongs, lagoons, lakes, creek or river margins, river pools and floodplains. This species has been said to occur very rarely in small patches of habitat such as roadside ditches and alpine bogs. They can also be found around irrigation channels and modified habitats at farms. Breeding habitat: Does not breed in Australia. Foraging habitat: Characterized by areas of mud (either exposed or beneath a very shallow covering of water)	Potential to occur • SPRAT distribution indicates the species may occur within the Offset Area. • The Offset Area contains suitable habitat for this species. • There are no historically relevant records within the Offset Area. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						and some form of cover (e.g. low, dense vegetation). Roosting habitat: On the ground near (or sometimes in) their foraging areas, usually in sites that provide some degree of shelter, e.g. beside or under clumps of vegetation, among dense tea-tree, in forests, in drainage ditches or plough marks, among boulders, or in shallow water if cover is unavailable.	
Falco hypoleucos	Grey Falcon	V	V	No	No	This species prefers arid and semi-arid Australia and frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined watercourses. This species has also been observed in treeless areas, frequenting tussock grassland and open woodland for foraging. Breeding habitat: Breeding occurs from June to November, Eggs are laid in the old nests of other birds, particularly those of other raptors or corvids. The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (Eucalyptus camaldulensis) and Coolibah (E. coolabah), but falcons also nest in telecommunication towers. Foraging habitat: timbered	Potential to Occur • SPRAT distribution indicates species is likely to occur. • There is preferred habitat present within the Offset Area • There are no historically relevant records present within the locality. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						lowland plains, acacia shrubland crossed by tree-line watercourses, as well as treeless areas, tussock grasslands and open woodlands. Roosting habitat: this species is likely to roost in both its breeding and foraging habitat. This species has also been observed roosting on the ground.	
Turnix melanogaster	Black-breasted Button-quail	V	Vu	No	No	Restricted to rainforests and forests, mostly in areas with 770-1200 mm rainfall per annum. They prefer drier low closed forests, particularly semi-evergreen vine thicket, low microphyll vine forest, araucarian microphyll vine forest and araucarian notophyll vine forest. They may also be found in low, dense acacia thickets and, in littoral area, in vegetation behind sand dunes. Optimum habitat is located on highly fertile soils. It is believed that the highly fertile soils promote rapid leaf growth on plants. During dry periods, much of the foliage then drops to the ground thus maintaining the deep leaf litter layer which is crucial to the foraging requirements of the species. Known TECs it is associated with are the semi-evergreen	Unlikely to occur • SPRAT distribution indicates species may occur within the Offset Area • The Offset Area does not contain rainforest or vine thicket habitats. • There are no historically relevant records present within the Locality or Offset Area. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						vine thickets of the Brigalow Belt (north and south) and Nandewar Bioregions.	
Stagonopleura guttata	Diamond Firetail	V	Vu	No	Yes – 1	Diamond firetails occur on the south-east mainland of Australia from south-east Queensland to Eyre Peninsula, South Australia, and about 300 km inland from the sea. Suitable habitat includes Eucalyptus, Acacia or Casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. Includes areas of relatively low tree density, few large logs, and little litter cover but high grass cover.	Unlikely to occur • SPRAT distribution indicates species may occur within the Offset Area. • Offset Area contains woodlands, however, with high litter cover and low grass cover, therefore not preferred. • There is a historically relevant record present within the locality. • Species was not recorded within the Offset Site during field surveys.
Geophaps scripta scripta	Squatter Pigeon (southern)	V	Vu	Yes – 1	No	The southern squatter pigeon habitat is generally defined as open-forests to sparse, open-woodlands and scrub that are mostly dominated by Eucalyptus,	Likely to Occur • SPRAT distribution indicates species is likely to occur

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Corymbia or Callitris species. Additionally, they also favour remnant regrowth or partly modified vegetation communities that are within 3 km of water bodies. Breeding habitat: Breeding habitat occurs on stony rises on sandy, gravelly soils, within 1 km of a suitable, permanent waterbody (including farm dams and watercourses). Foraging habitat: Natural foraging habitat for the species is any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by Eucalyptus, Corymbia, Acacia or Callitris species, on sandy or gravelly soils, within 3 km of a suitable, permanent or seasonal waterbody. Dispersal habitat: Dispersal habitat is any forest or woodland occurring between patches of foraging or breeding habitat, and suitable waterbodies.	within the Offset Area. • There is preferred habitat present within the Offset Area. • There are historically relevant records within the locality. • Species was not recorded within the Offset Site during field surveys.
Calidris acuminata	Sharp-tailed Sandpiper	V, Mi	-	No	No	Prefers habitat on muddy edges of freshwater wetlands or brackish wetlands. Can be found at dams inland. Will often occupy coastal mudflats when ephemeral terrestrial wetlands have dried out. Breeding habitat: Does not	Unlikely to occur • SPRAT distribution indicates species may occur within Offset Area. • There is no preferred habitat

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						breed in Australia. Foraging habitat: Foraging habitat is at the edge of the water of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water. Also among inundated vegetation of saltmarsh, grass or sedges. They forage in sewage ponds, and often in hypersaline environments. After rain, they may forage in paddocks of short grass, well away from water. They may forage on coastal mudflats at low tide and move to freshwater wetlands near the coast to feed at high tide. Roosting habitat: Roosting occurs at the edges of wetlands, on wet open mud or sand, in shallow water, or in short sparse vegetation, such as grass or saltmarsh. Occasionally, they roost on sandy beaches, stony shores or on rocks in water.	present within the Offset Area. • There are no historically relevant records within the Locality or Offset Area. • Species was not recorded within the Offset Site during field surveys.
Flora							
Solanum johnsonianum	Null	E	En	No	No	*Solanum johnsonianum* is endemic to Queensland. The species is distributed within communities dominated or co-dominated by Acacia harpophylla (Brigalow), on heavy cracking soils. Other associated species include Eucalyptus thozetiana	Unlikely to Occur • SPRAT distribution indicates species may occur within the Offset Area (southern).

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						with understory of *Geijera parviflora*.	• There is potentially preferred habitat present within the Offset Area. • There are no historically relevant records within the Offset Area or Locality. • Species was not recorded within the Offset Site during field surveys.
Solanum dissectum	Null	E	En	No	No	*Solanum dissectum* has a restricted distribution in central Queensland. It has mainly been found in the bounded by Banana, Dululu, Moura and Thangool but has also been recorded 40km south of Blackwater. The species occurs in open forest and woodland of Brigalow (Acacia harpophylla) or Eucalyptus thozetiana on solodic clay soils.	Unlikely to Occur • SPRAT distribution indicates species may occur within the Offset Area (southern). • There is potentially preferred habitat present within the Offset Area. • There are no historically relevant records within the Offset Area or Locality. • Species was not recorded within the Offset Site

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
							during field surveys.
Dichanthium queenslandicum	King Blue-Grass	E	V	No	No	Species is endemic to central and southern Queensland where it occurs in three disjunct populations: 1) Hughenden district (one record); 2) from Nebo to Monto and west to Clermont and Rolleston; and 3) Dalby district, Darling Downs. This species occurs on black cracking clay in tussock grasslands mainly in association with other species of blue grasses (Dichanthium spp. and Bothriochloa spp.) but also with other grasses restricted to this soil type. The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities: • Brigalow (Acacia harpophylla dominant and co-dominant); • Weeping Myall Woodlands; • Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern New South Wales and southern Queensland; and • Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area • There is suitable habitat present within the Offset Area. • There are no historically relevant records within the Offset Area or Locality. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Eucalyptus raveretiana	Black Ironbox	-	V	No	No	Black ironbox occurs on the banks of rivers, creeks and other watercourses, on clayey or loamy soil. Black Ironbox occurs between Rockhampton and Ayr in Queensland. The extent of occurrence is about 90 000 km2 (Queensland Herbarium, 2008). This distribution of Black Ironbox overlaps with the following EPBC Act-listed threatened ecological communities: • Brigalow (*Acacia harpophylla* dominant and co-dominant), • Bluegrass (*Dichanthium* spp.) dominant grasslands of the Brigalow Belt Bioregions (North and South), and • Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area • Suitable habitat is present within the Offset Area. • There are no recent records with the Offset Area or locality. • Species was not recorded within the Offset Site during field surveys.
Cadellia pentastylis	Ooline	V	V	No	No	Occurs on the north-west slopes of New South Wales (NSW) and in central and southern Queensland. In Queensland, Ooline occurs from Balcomba (west of Rockhampton) south to the New South Wales border and west to near Blackall. This species occurs on a range of vegetation types including semi-evergreen vine thicket, Acacia harpophylla – Casuarina cristata, Eucalyptus populnea and Acacia catenulata communities at 200 -	Unlikely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area • There is potential for suitable habitat to occur within the Offset Area.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						500 m asl. It often occurs on the edges of sandstone and basalt escarpments on moderately fertile soils.	• No recent records are known to the Offset Area or locality. • Species was not recorded within the Offset Site during field surveys.
Polianthion minutiflorum	Null	V	V	No	No	*Polianthion minutiflorum* is known from five areas in east Queensland. The species grows in forest and woodland on sandstone slopes and gullies with skeletal soil, or deeper soils adjacent to deeply weathered laterite.	Unlikely to Occur • SPRAT distribution indicates species or species habitat does not occur in the Offset Area • Suitable habitat has the potential to be present within the Offset Area. • No recent records are known to the Offset Area or locality. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Dichanthium setosum	Bluegrass	LC	V	No	No	Species is associated with heavy basaltic black soils and red-brown loams with clay subsoil. Often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. It is often collected from disturbed open grassy woodlands on the northern tablelands, where the habitat has been variously grazed, nutrient-enriched and water-enriched. The species may tolerate or benefit from disturbance, otherwise, disturbance is indicative of threatening processes in its habitat.	Unlikely to occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area • Suitable habitat is present within the Offset Area • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Mammals							
Phascolarctos cinereus	Koala	E	E	Yes - 3	No	Widely distributed species that can live in many different eucalypt forest and woodland environments ranging from dense, wet coastal forests to semi-arid scattered woodlands, and even suburban or rural landscapes, in patches or strips of native vegetation interspersed with isolated trees. Koalas can be found in habitats ranging from relatively open forests to woodlands, and in climates	Likely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area • Suitable habitat is present within the Offset Area • One historical record is known

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						ranging from tropical to cool temperate. In semi-arid climates, they prefer riparian habitats, where nearby streams and creeks provide refuge during times of drought and extreme heat. Breeding and foraging habitat: Koala habitat can be broadly defined as any forest or woodland containing species that are known koala food trees, or shrubland with emergent food trees. Dispersal habitat: Dispersal habitat is recognised as habitat that the koala can disperse into and is typically open woodland, paddock trees, riparian habitat and habitat where there are koala food trees.	from within the Offset Area, and three more within the locality, however no recent records exist. • Species was not recorded within the Offset Site during field surveys.
Dasyurus hallucatus	Northern Quoll	-	E	No	No	The northern quoll is known to occur as far south as Gracemere and Mt Morgan, south of Rockhampton, as far north as Weipa in Queensland and extends as far west into central Queensland to the vicinity of Carnarvon Range National Park. The species occupies a diversity of habitats including rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands, and beaches, shrubland, grasslands and desert. The species is also	Unlikely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • Suitable habitat has the potential to be present within the Offset Area. • There are no recent records

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						known to occupy non-rocky lowland habitats such as beach scrub communities in central Queensland. Breeding habitat: generally requires habitat encompassing some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal, as well as connection to permanent water. Dens are made in rock crevices, tree holes or occasionally termite mounds. Foraging habitat: surrounding vegetation encompassing denning habitat, lowlands, woodlands, shrublands, deserts and grasslands often within proximity to water.	within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Petauroides volans	Greater Glider (southern and central)	E	E	Yes - 4	No	Habitat attributes (but not necessarily all attributes), such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape. Associated trees include; *Corymbia citriodora, Eucalyptus moluccana, E. tereticornis, E. crebra, C. intermedia* and E. *portuensis.* Size of trees is also important for Queensland greater gliders, with trees >30 cm diameter at breast height (DBH) preferentially selected for	Potential to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • Suitable habitat has the potential to be present within the Offset Area. • There are no recent records within the Offset

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						foraging and >50 cm DBH for denning. Trees >50 cm DBH are more likely to contain suitable hollows for sheltering by greater gliders. Hollow-bearing trees are an essential component of greater glider habitat, and their presence or absence may be used to indicate habitat suitability for greater gliders. Breeding and denning habitat: species shows a preference for hollows in old, mature, smooth bark living trees. Foraging and dispersal habitat: species is primarily folivorous. therefore foraging and dispersal habitat is tied to forests with a diversity of eucalypt species, due to seasonal variation in growth and nutrient content of its preferred tree species	Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Pteropus poliocephalus	Grey-headed Flying Fox	-	V	No	No	It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops and on introduced tree species in urban areas. Breeding habitat: no specific information is available for	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • The Offset Area is not located within 50 km of a known grey-

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						breeding habitat requirements however it is said that roosting camps contain breeding habitat. Foraging and roosting habitat: The listing advice for this species says that individuals can travel up to 50 km from their known roosting camps (typical flight distance form roosts is 15km), in order to forage. They generally roost within 20 km of food sources which include the nectar and pollen of Eucalyptus, Melaleuca and Banksia native trees.	headed flying-fox camp (the species forages within 50 km of such camps). • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Petaurus australis	Yellow-bellied Glider	V	V	No	No	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Breeding and denning habitat: species shows a preference for hollows in old, mature, smooth bark living trees. Foraging and dispersal habitat: species uses a variety of food sources, including insects in shed bark, manna,	Unlikely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • Suitable habitat has the potential to be present within the Offset Area. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						eucalypt nectar and tree sap (typically smooth-barked gums).	during field surveys.
Reptiles							
Denisonia maculata	Ornamental snake	V	V	No	Yes – 5 undated records	The ornamental snake is known only from within the drainage system of the Fitzroy and Dawson Rivers in Queensland. The species can be found on floodplains, undulating clay pans and along the margins of swamps, lakes and watercourses. It also occurs on adjoining areas of elevated ground and has been recorded in woodlands and open woodlands of coolabah, poplar box, and brigalow, and in fringing vegetation along watercourses.	Potential to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • Offset Area contains suitable habitat for this species. • There are no recent records within the Offset Area; however there are records in the locality. • Species was not recorded within the Offset Site during field surveys.
Elseya albagula	Southern Snapping Turtle	CR	CE	No	Yes - 1	Found only in Queensland in the Fitzroy, Mary and Burnett Rivers and associated smaller drainages in south eastern Queensland.	Unlikely to Occur • SPRAT distribution indicates species or species habitat is likely

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Within the river system it prefers clear, flowing, well-oxygenated waters. This preference appears to be associated with its physiological adaptation to extract oxygen from water via cloacal respiration. The white-throated snapping turtle is generally found in sections of stream characterised by steep undercut banks, rocky or sand-gravel substrates, submerged boulders and/or log jams that are regularly used for shelter, and usually in close proximity to riffle. It is rarely found in reaches without suitable refuges. However, it does occur in abundance in the upstream reaches of the Fitzroy River Barrage which is not associated with habitat features such as rocks, logs and undercut banks.	to occur within the Offset Area. • Offset Area does not intersect with the Mary, Fitzroy or Burnett Rivers. • One undated record exists within a kilometer of the Offset Area, and another historic record is within the locality. • Species was not recorded within the Offset Site during field surveys.
Hemiaspis damelii	Grey Snake	E	E	No	No	In Queensland, grey snake habitat is Brigalow Acacia harpophylla and Belah Casuarina cristata woodlands on heavy, dark brown to black cracking clay soils, particularly in association with water bodies, areas with small gullies and ditches, and floodplain environments where the species	Potential to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • Suitable habitat has the potential to be present

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						shelters beneath logs, rocks and soil cracks. Key attributes of grey snake habitat are the floodplains and ephemeral wetlands which provide breeding habitat for the frog species that are its main prey, the presence of the frog species themselves, and the heavy clay soils which provide and cracks and crevices that the species uses in its hunting strategy and for shelter.	within the Offset Area. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Listed Migratory Species							
Apus pacificus	Fork-tailed swift	SLC	Mi	No	Yes - 2	The Fork-tailed Swift is exclusively aerial and mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. The sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines. The Fork-tailed Swift is widespread, although scattered in coastal areas 20C, south down to Brisbane and within most of the southern south-east region. Foraging habitat: They forage aerially, up to hundreds of	Likely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • Species may occur aerially over the Offset Area but no terrestrial habitat is present. • There is one recent record and one undated record within the locality of the Project.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						metres above ground, but also less than 1 m above open areas or over water. Breeding habitat: The Fork-tailed Swift does not breed in Australia. Roosting habitat: The species most likely roosts aerially, however, some have been observed to land and roost in trees, using bare exposed branches above vegetation.	• Species was not recorded within the Offset Site during field surveys. • Species likely to occur aerially however does not require land based offsets and is therefore not considered.
Pandion haliaetus	Osprey	SLC	Mi	No	No	The Osprey occurs in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia, occasionally travelling inland along major rivers of northern Australia. They have been recorded in habitats ranging from mangroves, inshore seas, coastal islands, estuaries and rivers. Foraging habitat: This species requires extensive areas of open fresh, brackish, or saline water for foraging, and frequent a variety of wetland habitats (e.g. estuaries, mangrove swamps, inshore waters). Breeding habitat: Large nests are built from sticks and lined with seaweed and grass. The nests may be constructed on cliff faces, headlands, rocky foreshores and islands and in	Unlikely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • The Offset Area does not contain extensive areas of open water. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						the forks of large trees up to 30 m above the ground. The nests are generally located within 3 km of a water body and frequently within sight of water. Ospreys are also known to nest on man-made structures, such as communication towers, power poles, channel markers and artificial nest platforms.	
Cuculus optatus	Oriental Cuckoo	SLC	Mi	Yes – 2	Yes – 2	The oriental cuckoo is a regular migrant to Australia, where it spends the non-breeding season (Sept- May) in coastal regions across northern and eastern Australia as well as offshore islands. Foraging habitat: It uses a range of vegetated habitats such as monsoon rainforest, wet sclerophyll forest, open woodlands and often along edges of forests, or ecotones between forest types. It feeds mainly on insects and their larvae, foraging for them in trees and bushes as well as on the ground Breeding habitat: This species does not breed in Australia	Unlikely to Occur • SPRAT distribution indicates species or species habitat is likely to occur within the Offset Area. • The Offset Area does not contain wet sclerophyll or monsoon rainforest habitats. • There are two historic records (2000) within the Offset Area or the locality, however no recent records are known. • Species was not recorded within the Offset Site

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
							during field surveys.
Motacilla flava	Yellow Wagtail	SLC	Mi	No	No	Yellow wagtails are associated with water and inhabit well-watered open grasslands and wetland fringes (DoE, 2015). Habitat requirements for the yellow wagtail are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves. This species may occur in association with non-remnant vegetation. Breeding habitat: This species does not breed in Australia. Roosting habitat: Species forages among mangroves and other dense vegetations. Has a strong association with water, particularly rock substrates along watercourses, but also lakes and marshes. Foraging habitat: Moist open grasslands and the edges of wetlands. Has a strong association with water, particularly rock substrates	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • The Offset Area does not contain mangroves or open grassland areas nearby watercourses for this species. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						along watercourses, but also lakes and marshes.	
Calidris ferruginea	Curlew sandpiper	CR	CE, M	No	No	This species is recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. Breeding habitat: This species does not breed in Australia. Foraging habitat: Forage at the edges of shallow pools and drains of intertidal mudflats and sandy shores. At high tide, they forage among low sparse emergent vegetation, such as saltmarsh, and sometimes forage in flooded paddocks or inundated saltflats. Occasionally they forage on wet mats of algae or waterweed, or on banks of beachcast seagrass or seaweed. Roosting habitat: This species roost in open situations with damp substrate, especially on bare shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh.	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • The Offset Area does not contain suitable habitat for this species. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Actitis hypoleucos	Common sandpiper	SLC	Mi	No	No	The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The common sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. Breeding habitat: Does not breed in Australia. Foraging habitat: this species forages in shallow water and on bare soft mud at the edges of wetlands; often where obstacles project from substrate, e.g. rocks or mangrove. Roosting habitat: Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves.	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • The Offset Area does not contain suitable habitat for this species. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Calidris melanotos	Pectoral sandpiper	SLC	Mi	No	No	In Australasia, the pectoral sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • The Offset Area does not contain

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Breeding habitat: Does not breed in Australia. Foraging habitat: forages in shallow water or soft mud at the edge of wetland. Roosting habitat: prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	preferred habitat for this species. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site during field surveys.
Gallinago hardwickii	Latham's Snipe	V	V, Mi	No	No	This species usually occurs in open, freshwater wetlands that have some form of shelter (usually low and dense vegetation) nearby. They generally occupy flooded meadows, seasonal or semi-permanent swamps, or open waters, but various other freshwater habitats can be used including bogs, waterholes, billabongs, lagoons, lakes, creek or river margins, river pools and floodplains. This species has been said to occur very rarely in small patches of habitat such as roadside ditches and alpine bogs. They can also be found around irrigation channels and modified habitats at farms. Breeding habitat: Does not breed in Australia.	Potential to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • There is potential for suitable habitat to be present within the Offset Area. • There are no recent records within the Offset Area or the locality. • Species was not recorded within the Offset Site

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Foraging habitat: Characterized by areas of mud (either exposed or beneath a very shallow covering of water) and some form of cover (e.g. low, dense vegetation). Roosting habitat: On the ground near (or sometimes in) their foraging areas, usually in sites that provide some degree of shelter, e.g. beside or under clumps of vegetation, among dense tea-tree, in forests, in drainage ditches or plough marks, among boulders, or in shallow water if cover is unavailable.	during field surveys.
Calidris acuminata	Sharp-tailed Sandpiper	-	V, Mi	No	No	Prefers habitat on muddy edges of freshwater wetlands or brackish wetlands. Can be found at dams inland. Will often occupy coastal mudflats when ephemeral terrestrial wetlands have dried out. Breeding habitat: Does not breed in Australia. Foraging habitat: Foraging habitat is at the edge of the water of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water. Also among inundated vegetation of saltmarsh, grass or sedges. They forage in sewage ponds, and often in hypersaline environments. After rain, they	Unlikely to Occur • SPRAT distribution indicates species or species habitat may occur within the Offset Area. • The Offset Area does not contain preferred habitat for this species. • There are no recent records within the Offset Area or the locality. • Species was not recorded within

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						may forage in paddocks of short grass, well away from water. They may forage on coastal mudflats at low tide and move to freshwater wetlands near the coast to feed at high tide. Roosting habitat: Roosting occurs at the edges of wetlands, on wet open mud or sand, in shallow water, or in short sparse vegetation, such as grass or saltmarsh. Occasionally, they roost on sandy beaches, stony shores or on rocks in water.	the Offset Site during field surveys.
Threatened Ecological Communities							
Poplar Box Grassy Woodland on Alluvial Plains		-	E	-	-	Canopy up to 20 m tall dominated by Eucalyptus populnea (poplar box). This community occurs on flat to gently undulating/sloped landforms on alluvial soils. The structure of these woodlands is typically open with a low N/Aforb and grass understorey, often featuring Aristida spp. (Wiregrass), Bothriochloa spp. (Red Grass), Dichanthium spp. (Bluegrass), Heteropogon sp. and Themeda sp. (Kangaroo Grass). The midlayer is typically lacking, though shrubs such as Acacia aneura (Mulga), Alectryon oleifolius subsp. canescens (Western Rosewood),	TEC does not occur • Offset Site does not contain relevant REs for this TEC. • TEC was not recorded during the field survey.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						Apophyllum anomalum (Warrior Bush), Atalaya hemiglauca (Whitewood), Capparis mitchellii (Native Orange), Eremophila mitchellii (Budda) and Geijera parviflora (Wilga) may feature. Other tree species may occur in the canopy alongside dominant poplar box, such as Callitris glaucophylla (White Cypress Pine), Casuarina cristata (Belah), Eucalyptus Coolibah (Coolibah), E. largiflorens (Black Box) and E. melanophloia (Silver-leaved Ironbark). The following REs best correspond with the TEC: • RE 11.3.2; • RE 11.3.17; • RE 11.4.7; • RE 11.4.12; and • RE 11.3.10.	
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin		-	CE	-	-	Native grasslands typically composed of perennial native grasses. They are found on soils that are fine textured (often cracking clays) derived from either basalt or alluvium on flat to low slopes (< 1 degree). A tree canopy is usually absent, but when present, comprises ≤10% projective foliage cover. The following REs best correspond with the TEC: • RE 11.3.21; and • RE 11.3.24.	TEC does not occur • Offset Site does not contain relevant REs for this TEC. • TEC was not recorded during the field survey.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
Weeping Myall Woodlands		-	E	-	-	Weeping Myall Woodlands are generally 4-12 m tall with Weeping Myall (Acacia pendula) trees dominant. While Weeping Myall often occurs in monotypic stands, other species such as Western Rosewood (Alectryon oleifolius subsp. elongatus), Poplar Box (Eucalyptus populnea) or Black Box (Eucalyptus largiflorens) may co-occur. Grey Mistletoe (Amyema quandang) is also commonly seen amongst the canopy. The understorey can be shrubby or grassy. These woodlands occur on flat landforms, shallow depressions and gilgais on raised alluvial plains. Soil types include black, brown, red-brown or grey clay or clay loam. The following REs best correspond with the TEC: • RE 11.3.2, and • RE 11.3.28.	TEC does not occur • Offset Site does not contain relevant REs for this TEC. • TEC was not recorded during the field survey.
Brigalow (*Acacia harpophylla* dominant and co-dominant)		-	E	-	-	This ecological community is characterised by the presence of Acacia harpophylla as one of the most abundant tree species. A. harpophylla is either dominant in the tree layer or co-dominant with other species - notably Casuarina cristata (belah), or other species of Eucalyptus or Acacia. Occasionally these other	Known to Occur • Offset Area contains RE 11.3.1 • Recorded within the Offset Area

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						species may be more common than A. harpophylla within the broad matrix of brigalow woodlands vegetation. The community has a considerable range of vegetation structure and composition united by a suite of species that tend to occur on acidic and salty clay soils. Not all vegetation in which A. harpophylla is dominant or co-dominant is part of the listed ecological community.	
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions		-	E	-	-	This community is associated with the floodplains and drainage areas of the Darling Riverine Plains and the Brigalow Belt South IBRA bioregions. This ecological community represents occurrences of one type of eucalypt woodland where Eucalyptus coolabah subsp. coolabah (Coolibah, Coolabah) and/or Eucalyptus largiflorens (Black Box) are the dominant canopy species and where the understorey tends to be grassy. The community is found on the grey, self-mulching clays of periodically waterlogged floodplains, swamp margins, ephemeral wetlands, and stream levees (NSW Scientific Committee, 2009). The landscape is flat to low relief	TEC does not occur • RE 11.3.3 mapped within the Offset Area. • This TEC was not recorded during the field survey.

Scientific Name	Common Name	NC Act	EPBC Act	Recent WildNet Records within 10km	Recent ALA Records within 10 km	Habitat Summary	Likelihood of Occurrence
						where small changes in slope and height can influence the species composition. The following REs best correspond with the TEC: • RE 11.3.3 • RE 11.3.16 • RE 11.3.28 • RE 11.3.37	

APPENDIX C BIOCONDITION & MHQA SCORING

Australian Painted Snipe

Assessment Unit - Regional Ecosystem / Habitat type	AU 1 - remnant												
Site Reference	Benchmark	MHQA 1			MHQA 2			MHQA 6			MHQA 7		
	11.3.1	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score
Site Condition													
Recruitment of woody perennial species in EDL	100	100	100%	5	100	100%	5	100	100%	5	100	100%	5
Native plant species richness - trees	4	7	175%	5	6	150%	5	5	125%	5	5	125%	5
Native plant species richness - shrubs	4	4	100%	5	2	50%	2.5	2	50%	2.5	6	150%	5
Native plant species richness - grasses	6	4	67%	2.5	5	83%	2.5	3	50%	2.5	3	50%	2.5
Native plant species richness - forbs	10	2	20%	0	9	90%	5	5	50%	2.5	5	50%	2.5
Tree Canopy height	15	18	120%	5	18	120%	5	11	73%	5	18	120%	5
Tree sub-canopy height	7	9	129%	5	8	114%	5	4	57%	3	6	86%	5
Tree canopy cover	35	55	157%	5	62.6	179%	5	45	129%	5	37	106%	5
Tree sub-canopy cover	15	29.5	197%	5	12.5	83%	5	23	153%	5	35	233%	3
Shrub canopy cover	15	7	47%	3	3.5	23%	3	4.7	31%	3	8.7	58%	5
Native grass cover	33	0.4	1%	0	3	9%	0	4	12%	1	4	12%	1
Organic litter	30	82.8	276%	3	97.8	326%	3	77	257%	3	61	203%	3
Large trees (euc plus non-euc)	53	46	87%	10	6	11%	5	58	109%	15	34	64%	10
Coarse woody debris	1520	420	28%	2	510	34%	2	500	33%	2	300	20%	2
Non-native plant cover	0	1%	#DIV/0!	10	19%	#DIV/0!	5	10%	#DIV/0!	5	4%	#DIV/0!	10
Quality and availability of food and foraging habitat	10			2			1			1			3
Quality and availability of shelter attributes	10			0			0			0			0
Site Condition Score				57.5			49			56.5			63
MAX Site Condition Score				*100*			*100*			*100*			*100*
Site Condition Score - out of 3													
Site Context													
Size of patch	10			10			10			10			
Connectedness	5			0			0			0			
Context	5			2			2			2			
Ecological Corridors	6			6			6			6			
Role of site location for the Population in the State	5			1			1			1			
Absence of threats to the species	15			2.4			2.4			2.4			
Species Mobility Capacity	10			5			5			5			
Site Context Score				26.4			26.4			26.4			
MAX Site Context Score				*56*			*56*			*56*			
Site Context Score - out of 3													

Site Reference	Benchmark	MHQA 5			MHQA 9			MHQA 10			MHQA 13			Average% Benchma	Average Score	
	11.3.3	Raw Data	% Benchmark	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score			
Site Condition																
Recruitment of woody perennial species in EDL	100	100	100%	5	100	100%	5	100	100%	5	100	100%	5	100%	5	
Native plant species richness - trees	3	2	67%	2.5	4	133%	5	4	133%	5	3	100%	5	126%	4.6875	
Native plant species richness - shrubs	5	3	60%	2.5	4	80%	2.5	3	60%	2.5	4	80%	2.5	79%	3.125	
Native plant species richness - grasses	12	4	33%	2.5	2	17%	0	6	50%	2.5	4	33%	2.5	48%	2.1875	
Native plant species richness - forbs	15	11	73%	2.5	7	47%	2.5	4	27%	2.5	6	40%	2.5	50%	2.5	
Tree Canopy height	18	30	167%	5	18	100%	5	10	56%	3	30	167%	5	115%	4.75	
Tree sub-canopy height	10	17	170%	5	6	60%	3	10	100%	5	30	300%	5	127%	4.5	
Tree canopy cover	28	30	107%	5	32	114%	5	32.8	117%	5	39	139%	5	131%	5	
Tree sub-canopy cover	5	5	100%	5	25.5	510%	3	3	60%	5	0	0%	0	167%	3.875	
Shrub canopy cover	4	5	125%	5	8	200%	5	1	25%	3	33.5	838%	3	168%	3.75	
Native grass cover	45	54.4	121%	5	0	0%	0	9	20%	1	0	0%	0	22%	1	
Organic litter	30	15.4	51%	5	25	83%	5	51.4	171%	5	50.2	167%	5	192%	4	
Large trees (euc plus non-euc)	10	32	320%	15	4	40%	5	20	200%	15	110	1100%	15	241%	11.25	
Coarse woody debris	285	240	84%	5	80	28%	2	680	239%	2	152	53%	5	65%	2.75	
Non-native plant cover	0	2%	#DIV/0!	10	14%	#DIV/0!	5	36	#DIV/0!	0	1	#DIV/0!	0	#DIV/0!	5.625	
Quality and availability of food and foraging habitat	10			3			1			9			1		2.625	
Quality and availability of shelter attributes	10			5			0			0			0		0.625	
Site Condition Score				78			46			61.5			54		58.1875	
MAX Site Condition Score				*100*			*100*			*100*			*100*		*100*	
Site Condition Score - out of 3															1.75	
Site Context																Applied score
Size of patch	10			10			10			10			10		10	Score of 10 for patch (inc directly connected remnant veg) >200ha
Connectedness	5			0			0			0			0		0	Score of 0 [0-10%]
Context	5			2			2			2			2		2	Score of 2 [>10-20%]
Ecological Corridors	6			6			6			6			6		6	Score of 6 [within (part)]
Role of site location for the Population in the State	5			1			1			1			1		1	Score of 1 [Not or unlikely to be critical to species survival]
Absence of threats to the species	15			2.4			2.4			2.4			2.4		2.4	Score 2.4 from calculation of threat matrix
Species Mobility Capacity	10			5			5			5			5		5	Refer cell A34
Site Context Score				26.4			26.4			26.4			26.4		26.4	
MAX Site Context Score	*56*						*56*			*56*			*56*		*56*	
Site Context Score - out of 3															1.41	

Species Stocking Rate (SSR)						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	**5**		10	The Australian painted snipe was not recorded within the Offset Investigation Area during the field survey, however the Offset Investigation Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DSEWPC, 2013). The nearest desktop record is located appr
		No	Yes - adjacent		Yes - on site	
Species usage of the site (habitat type & evidenced usage)	Score	0	**5**		15	Although suitable habitat for foraging and dispersal and breeding was observed and mapped. The species usage of the site can only be considered dispersal as there are currently no recods on the site
		Not habitat	Dispersal	Foraging	Breeding	
Approximate density (per ha)	Score	0	10	20	30	The nearest desktop record is located approximately 26 km north. A score of 10 is conidered reasonable as an absolute 0% cannot be confirmed due to only two site visits over 3 years.
		0%				
Role/importance of species population on site*	Score (*Total from supplementary*)	0	5	10	15	As per SSR below
		0	5 - 15	20 - 35	40 - 45	
Total SRR score (out of 70)	20					
SRR Score (out of 4)	**1.14**					

*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

Final habitat quality score (weighted)	AU1
Site Condition score (out of 3)	1.75
Site Context Score (out of 3)	1.41
Species Stocking Rate Score (out of 4)	1.14
Habitat Quality score (out of 10)	*4.30*
Assessment Unit area (ha)	80.08
Total offset area (ha) for this MNES	80.08
Size Weighting	1
Weighted Habitat Quality Score	*4.30*

Threatened Ecological Community

Assessment Unit - Regional Ecosystem / Habitat type	AU 1- Brigalow woodland / RE 11.3.1									
Site Reference	Benchmark	MHQA 1			MHQA 8			MHQA 7		
	11.3.1	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score
Site Condition										
Recruitment of woody perennial species in EDL	100	100	100%	5	100	100%	5	100	100%	5
Native plant species richness - trees	4	7	175%	5	5	125%	5	5	125%	5
Native plant species richness - shrubs	4	4	100%	5	4	100%	5	6	150%	5
Native plant species richness - grasses	6	4	67%	2.5	2	33%	2.5	3	50%	2.5
Native plant species richness - forbs	10	2	20%	0	2	20%	0	5	50%	2.5
Tree Canopy height	15	18	120%	5	18	120%	5	18	120%	5
Tree sub-canopy height	7	9	129%	5	14	200%	5	6	86%	5
Tree canopy cover	35	55	157%	5	52	149%	5	37	106%	5
Tree sub-canopy cover	15	29.5	197%	5	8	53%	5	35	233%	3
Shrub canopy cover	15	7	47%	3	9.5	63%	5	8.7	58%	5
Native grass cover	33	0.4	1%	0	8.4	25%	1	4	12%	1
Organic litter	30	82.8	276%	3	71.6	239%	3	61	203%	3
Large trees (euc plus non-euc)	53	46	87%	10	44	83%	10	34	64%	10
Coarse woody debris	1520	420	28%	2	670	44%	2	300	20%	2
Non-native plant cover	0	1%	#DIV/0!	10	5%	#DIV/0!	5	4%	#DIV/0!	10
Site Condition Score				55.5			53.5			60
MAX Site Condition Score				80			*80*			*80*
Site Condition Score - out of 7				4.86			4.68			5.25
Site Context										
Size of patch	10			10			10			10
Connectedness	5			0			0			0
Context	5			2			2			2
Ecological Corridors	6			6			6			6
Role of site location to TEC overall population in the state	5			1			1			1
Absence of threats to the species	15			6			6			6
Site Context Score				25			25			25
MAX Site Context Score				*46*			*46*			*46*
Site Context Score - out of 3				1.63			1.63			1.63

Site Reference	MHQA 2			MHQA 3			MHQA 4		
	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score
Site Condition									
Recruitment of woody perennial species in EDL	100	100%	5	100	100%	5	100	100%	5
Native plant species richness - trees	6	150%	5	3	75%	2.5	15	375%	5
Native plant species richness - shrubs	2	50%	2.5	4	100%	5	4	100%	5
Native plant species richness - grasses	5	83%	2.5	6	100%	5	6	100%	5
Native plant species richness - forbs	9	90%	5	3	30%	2.5	5	50%	2.5
Tree Canopy height	18	120%	5	12	80%	5	15	100%	5
Tree sub-canopy height	8	114%	5	4	57%	3	4	57%	3
Tree canopy cover	62.6	179%	5	45	129%	5	71	203%	3
Tree sub-canopy cover	12.5	83%	5	24.5	163%	5	4.3	29%	2
Shrub canopy cover	3.5	23%	3	2	13%	3	1.5	10%	3
Native grass cover	0.6	2%	0	11	33%	1	6	18%	1
Organic litter	99	330%	3	56	187%	5	64	213%	3
Large trees (euc plus non-euc)	6	11%	5	12	23%	5	28	53%	10
Coarse woody debris	510	34%	2	560	37%	2	630	41%	2
Non-native plant cover	14%	#DIV/0!	5	1%	#DIV/0!	10	8%	#DIV/0!	5
Site Condition Score			48			55			53
MAX Site Condition Score			*80*			*80*			*80*
Site Condition Score - out of 7			4.20			4.81			4.64
Site Context									
Size of patch			10			10			10
Connectedness			0			0			0
Context			2			2			2
Ecological Corridors			6			6			6
Role of site location to TEC overall population in the state			1			1			1
Absence of threats to the species			6			6			6
Site Context Score			25			25			25
MAX Site Context Score			*46*			*46*			*46*
Site Context Score - out of 3			1.63			1.63			1.63

Site Reference	MHQA 6			MHQA 11			MHQA 12			Average% Benchma	Average Score	
	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score			
Site Condition												
Recruitment of woody perennial species in EDL	100	100%	5	100	100%	5	100	100%	5	100%	5	
Native plant species richness - trees	5	125%	5	3	75%	2.5	4	100%	5	147%	5	
Native plant species richness - shrubs	2	50%	2.5	3	75%	2.5	4	100%	5	92%	5	
Native plant species richness - grasses	3	50%	2.5	3	50%	2.5	2	33%	2.5	63%	2.5	
Native plant species richness - forbs	5	50%	2.5	5	50%	2.5	2	20%	0	42%	2.5	
Tree Canopy height	11	73%	5	14	93%	5	16	107%	5	104%	5	
Tree sub-canopy height	4	57%	3	4	57%	3	8	114%	5	97%	5	
Tree canopy cover	45	129%	5	66	189%	5	49	140%	5	153%	5	
Tree sub-canopy cover	23	153%	5	3	20%	2	22	147%	5	120%	5	
Shrub canopy cover	4.7	31%	3	1.5	10%	3	6.3	42%	3	33%	3	
Native grass cover	4	12%	1	28.4	86%	3	14.6	44%	1	26%	1	
Organic litter	77	257%	3	65.2	217%	3	66.8	223%	3	238%	3	
Large trees (euc plus non-euc)	58	109%	15	12	23%	5	0	0%	0	50%	10	
Coarse woody debris	500	33%	2	940	62%	5	120	8%	0	34%	2	
Non-native plant cover	10%	#DIV/0!	5	2%	#DIV/0!	10		#DIV/0!	10	#DIV/0!	#DIV/0!	
Site Condition Score			55.5			51.5			44.5		52.94	
MAX Site Condition Score			*80*			*80*			*80*		*80*	
Site Condition Score - out of 7			4.86			4.51			3.89		4.63	
Site Context												Applied score
Size of patch			10			10			10		10	Score of 10 for patch (inc directly connected remnant veg) >200ha
Connectedness			0			0			0		0	Score of 0 [0-10%]
Context			2			2			2		2	Score of 2 [>10-20%]
Ecological Corridors			6			6			6		6	Score of 6 [within (part)]
Role of site location to TEC overall population in the state			1			1			1		1	Score of 1 [Not or unlikely to be critical to species survival]
Absence of threats to the species			6			6			6		6	Score 6 from calculation of threat matrix
Site Context Score			25			25			25		25	
MAX Site Context Score			*46*			*46*			*46*		46	
Site Context Score - out of 3			1.63			1.63			1.63		1.63	

Final habitat quality score (weighted)	AU1
Site Condition score (out of 7)	4.63
Site Context Score (out of 3)	1.63
Habitat Quality score (out of 10)	*6.26*
Assessment Unit area (ha)	212.07
Total offset area (ha) for this MNES	212.07
Size Weighting	1
Weighted Habitat Quality Score	*6.26*

Ornamental snake

Assessment Unit - Regional Ecosystem / Habitat ty	AU 1 - OS habitat												AU 1 - OS habitat												AU 1 OS habitat														
Site Reference	Benchmar	MHQA 3			MHQA 4			MHQA 6			Benchmar	MHQA 5			Benchmark	MHQA 1			MHQA 8			MHQA 7			MHQA 2			Benchmark	MHQA 9			Benchmark	MHQA 11			MHQA 12			Benchmark	MHQA 10			MHQA 13			Average %	Average Score
	11.3.1	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	11.3.3	Raw Data	% Benchm	Score	11.3.1	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	11.3.3	Raw Data	% Benchm	Score	11.3.1	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	11.3.3	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score		
Site Condition																																													
Recruitment of woody perennial species in EDL	100	100	100%	5	100	100%	5	100	100%	5	100	100	100%	5	100	100	100%	5	100	100%	5	100	100%	5	100	100%	5	100	100	100%	5	100	100	100%	5				100	100	100%	5	100%	5.0
Native plant species richness - trees	4	3	75%	2.5	15	375%	5	5	125%	5	3	2	67%	2.5	4	7	175%	5	5	125%	5	6	125%	5	6	150%	5	3	4	133%	5	4	3	75%	2.5	4	100%	5	3	4	133%	5	3	100%	5	135%	4.4
Native plant species richness - shrubs	4	4	100%	5	4	100%	5	2	50%	2.5	3	3	80%	2.5	4	4	100%	5	4	100%	5	6	150%	5	2	50%	2.5	5	4	80%	2.5	4	4	100%	5	4	75%	2.5	4	4	100%	5	5	80%	2.5	85%	3.7
Native plant species richness - grasses	6	6	100%	5	6	100%	5	3	50%	2.5	12	4	33%	2.5	6	4	67%	2.5	2	33%	2.5	3	50%	2.5	5	83%	2.5	12	2	17%	0	6	3	50%	2.5	2	33%	2.5	12	6	50%	2.5	4	33%	2.5	54%	2.7
Native plant species richness - forbs	10	3	30%	2.5	5	50%	2.5	5	50%	2.5	15	11	73%	2.5	10	2	20%	0	2	20%	0	5	50%	2.5	9	90%	5	15	7	47%	2.5	10	5	50%	2.5	2	20%	0	15	4	27%	2.5	6	40%	2.5	44%	2.1
Tree Canopy height	15	12	80%	5	15	100%	5	11	73%	5	18	30	167%	5	15	18	120%	5	18	120%	5	18	120%	5	18	120%	5	18	18	100%	5	15	14	93%	5	16	107%	5	18	10	56%	3	30	167%	5	109%	4.8
Tree sub-canopy height	7	4	57%	3	4	57%	3	4	57%	3	10	17	170%	5	7	9	129%	5	14	200%	5	6	86%	5	8	114%	5	10	6	60%	3	7	4	57%	3	8	114%	5	10	10	100%	5	30	300%	5	115%	4.2
Tree canopy cover	35	45	129%	5	71	203%	3	45	129%	5	28	30	107%	5	35	55	157%	5	52	149%	5	37	106%	5	62.6	179%	5	28	32	114%	5	35	66	189%	5	49	140%	5	28	32.8	117%	5	98	139%	5	143%	4.8
Tree sub-canopy cover	15	24.5	163%	5	4.3	29%	2	23	153%	5	5	5	100%	5	15	29.5	197%	5	8	53%	5	35	233%	3	12.5	83%	5	5	25.5	510%	3	15	3	20%	2	22	147%	5	5	3	60%	5	0	0%	0	135%	3.8
Shrub canopy over	15	2	13%	3	1.5	10%	3	4.7	31%	3	4	5	125%	5	15	7	47%	3	9.5	63%	5	8.7	58%	5	3.5	23%	3	4	8	200%	5	15	1.5	10%	3	6.3	42%	3	4	1	25%	3	33.5	838%	3	114%	3.6
Native grass cover	33	11	33%	1	6	18%	1	4	12%	1	45	54.4	121%	5	33	0.4	1%	0	8.4	25%	1	4	12%	1	3	9%	0	45	0	0%	0	33	28.4	86%	3	14.4	44%	1	45	9	20%	1	0	0%	0	29%	1.2
Organic litter	30	56	187%	5	64	213%	3	77	257%	3	30	15.4	51%	5	38	82.6	276%	3	71.4	239%	3	61	203%	3	97.8	326%	3	30	25	83%	5	30	65.2	217%	3	66.8	223%	3	30	51.4	171%	5	50.2	167%	5	201%	5.8
Large trees (euc plus non-euc)	53	12	23%	5	28	53%	10	58	109%	15	10	32	320%	15	53	46	87%	10	44	83%	10	34	64%	10	6	11%	5	10	4	40%	5	53	12	23%	5	0	0%	0	10	20	200%	15	110	1100%	15	163%	9.2
Coarse woody debris	1520	560	37%	2	630	41%	2	500	33%	2	285	240	84%	5	1520	400	26%	2	670	44%	2	300	20%	2	510	34%	2	285	80	28%	2	1520	940	62%	5	120	8%	0	285	680	239%	2	152	53%	5	55%	2.5
Non-native plant cover	0	1%	#DIV/0!	10	8%	#DIV/0!	5	10%	#DIV/0!	5	0	2%	#DIV/0!	10	0	1%	#DIV/0!	10	5%	#DIV/0!	5	4%	#DIV/0!	10	19%	#DIV/0!	5	0	14%	#DIV/0!	5	0	2%	#DIV/0!	10	0	#DIV/0!	10	0	36	#DIV/0!	0	1	#DIV/0!	0	#DIV/0!	6.5
Quality and availability of food and foraging habita	10			1			2			1	10			3	10			2			4			3			1	10			3	10			1			3	10			2			2.5
Quality and availability of shelter attributes	10			3			3			3	10			3	10			0			3			7			8	10			0	10			7			7	10			7			3.5
Site Condition Score				59			58			59.5				76				57.5			60.5			70			49				46			61.5			53.5			68.5			57			59.7
MAX Site Condition Score				*100*			*100*			*100*				*100*				*100*			*100*			100			100				*100*			100			100			100			100			100.0
Site Condition Score - out of 3				1.77			1.74			1.79				2.28				1.73			1.82			2.10			1.47				1.38			1.85			1.61			2.06			1.71			1.9
Site Context																																															
Size of patch	10			10			10			10	10			10	10			10			10			10			10	10			10	10			10			10			10			10			10.0
Connectedness	5			0			0			0	5			0	5			0			0			0			0	5			0	5			0			0			0			0			0.0
Context	5			2			2			2	5			2	5			2			2			2			2	5			2	5			2			2			2			2			2.0
Ecological Corridors	6			6			6			6	6			6	6			6			6			6			6	6			6	6			6			6			6			6			6.0
Role of site location for the Population in the State	5			1			1			1	5			1	5			1			1			1			1	5			1	5			1			1			1			1			1.0
Absence of threats to the species	15			5.4			5.4			6	15			5.4	15			5.4			5.4			5.4			5.4	15			5.4	15			5.4			5.4			5.4			5.4			5.4
Species Mobility Capacity	10			0			0			2	10			1	10			0			0			0			0	10			0	10			0			0			0			1			0.7
Site Context Score				24.4			24.4			27				25.4				24.4			24.4			24.4			24.4				24.4			24.4			24.4			29.4			25.4			25.1
MAX Site Context Score				*56*			*56*			*56*				*56*				*56*			*56*			*56*			*56*				*56*			*56*			*56*			*56*			*56*			*56*
Site Context Score - out of 3																																															1.35

Scores vary as per the attributes in the comment in cell A22

Applied score

Score of 10 for patch (inc directly connected remnant veg) >200ha	10.0
Score of 0 [0-10%]	0.0
Score of 2 [>10-20%]	2.0
Score of 6 [within (part)]	6.0
Score of 1 [Not or unlikely to be critical to species survival]	1.0
Score 5.4 from calculation of threat matrix	5.4
Score as described in cell A35	0.7

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%				
Role/importance of species population on site*	Score	0	5	10	15	As per SSR below
	(Total	0	5 - 15	20 - 35	40 - 45	
Total SRR score (out of 70)		20				
SRR Score (out of 4)		**1.14**				

Old records within 7-15km of the site and the Offset Area is located within the species modelled distribution as 'species or species habitat likely to occur' (DoE, 2014)

Although suitable habitat for foraging and dispersal and refuge was observed and mapped. The species usage of the site can only be considered dispersal as there are currently no records on the site

Old records do exist although no recent records. A score of 10 is conidered reasonable as an absolute 0% is unlikely

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

Final habitat quality score (weighted)	AU1
Site Condition score (out of 3)	1.79
Site Context Score (out of 3)	1.35
Species Stocking Rate Score (out of 4)	1.14
Habitat Quality score (out of 10)	4.28
Assessment Unit area (ha)	470.74
Total offset area (ha) for this MNES	470.74
Size Weighting	1
Weighted Habitat Quality Score	4.28

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Appendix B: Habitat quality scoring methodology

Habitat quality assessments were conducted in accordance with the Commonwealth Government Modified Habitat Quality Assessment (MHQA) method, which uses methods detailed within the Guide to Determining Terrestrial Habitat Quality (Version 1.2) (DEHP, 2017) (Habitat Quality Guide). The MHQA method assesses key requirements in accordance with the EPBC *Act Environmental Offsets Policy*. For a TEC, the MHQA method involves the collection of data relating to two key attributes, namely:

- Site Condition
- Site Context

In determining Habitat Quality scores, the proposed action area and proposed offset areas were first delineated into Assessment Units (AUs). An AU refers to an area or a group of areas within the matter area (i.e. the Offset Area or Impact Area) that is homogenous in vegetation community classification (i.e. RE) and broad condition state (i.e. remnant, regrowth, non-remnant). Each AU reflects a particular community with similar structure, function and quality of habitat. Sampling sites were then selected for each AU and relevant attribute data was collected at each sampling site.

Further detail regarding data collected for each of the three attributes is provided in the following sections.

Site Condition

Site Condition was assessed in accordance with the MHQA method and Habitat Quality Guide. Associated data was collected within 100 x 50 m plot (including various sub-plots) at each sampling site. Site-based attribute data were collected for each AU and compared to BioCondition benchmark values for the relevant RE benchmark (Queensland Herbarium, 2024). Table B-1 provides a description of the site-based attributes assessed, plot area and associated maximum score. Scoring relative to benchmark values for each site condition attribute is detailed in Table B-2.

Table B-1: Site condition attributes

Attribute	Description	Assessment extent	Maximum score
Recruitment of woody perennial species in EDL (%)	The proportion of overstorey species present at a site that are regenerating (<5 cm diameter at breast height (DBH))	100 m x 50 m	5
Native plant species richness	Native plant species richness, comprising all life forms (i.e. trees, shrubs, grasses and forbs/other)	100 m x 50 m (trees) 50 m x 10 m (shrubs, grasses, forbs/other)	5 each (20 total)
Tree canopy height[7]	Median canopy height in metres of the ecologically dominant layer. Average of emergent, canopy, and sub-canopy.	100 m x 50 m	5
Tree canopy cover (%)[7]	Vertical projection of the tree canopy crown cover along a transect. Average of emergent, canopy, and sub-canopy.	100 m transect	5

[7] If there is a distinct emergent or subcanopy layer in the appropriate RE benchmark, each of these layers (EDL, emergent and subcanopy) is measured and scored separately. The score for each is then averaged to give a single score for this attribute.

Attribute	Description	Assessment extent	Maximum score
Shrub canopy cover (%)	Vertical projection of the shrub layer cover of native shrubs	100 m transect	5
Native perennial grass cover (%)	Average percentage cover of native perennial grass species	Five 1 m x 1 m	5
Organic litter cover	The average percentage cover of organic material such as fallen leaves, twigs, and branches <10 cm diameter	Five 1 m x 1 m	5
Large trees	Number of large trees per hectare, as determined by existing BioCondition benchmarks for the associated RE	100 m x 50 m	15
Coarse woody debris	The length of fallen woody logs and other coarse woody debris (>10 cm diameter and >0.5 m in length) per hectare	50 m x 20 m	5
Non-native plant cover	Percentage cover of non-native/weed plant species	50 m x 10 m	10
		Total	**80**

Table B-2: Site condition attribute scoring

Attribute	Score				
Recruitment of woody perennial species in EDL	% of Benchmark	<20%	≥20-<75%	≥75%	
	Score	**0**	**3**	**5**	
Native plant species richness	% of Benchmark	<25%	≥25-<90%	≥90%	
	Score	**0**	**2.5**	**5**	
Tree canopy height	% of Benchmark	<25%	≥25-<70%	≥70%	
	Score	**0**	**3**	**5**	
Tree canopy cover	% of Benchmark	<10%	≥10–<50%	≥50–≤200%	>200%
	Score	**0**	**2**	**5**	**3**
Shrub canopy cover	% of Benchmark	<10%	≥10–<50%	≥50–≤200%	>200%
	Score	**0**	**3**	**5**	**3**
Native perennial grass cover	% of Benchmark	<10%	≥10–<50%	≥50–<90%	>90%
	Score	**0**	**1**	**3**	**5**
Organic litter cover	% of Benchmark	<10%	≥10–<50%	≥50–≤200%	>200%
	Score	**0**	**3**	**5**	**3**
Large trees	% of Benchmark	0%	>0–<50%	≥50–<100%	≥100%
	Score	**0**	**5**	**10**	**15**
Coarse woody debris	% of Benchmark	<10%	≥10–<50%	≥50–≤200%	>200%
	Score	**0**	**2**	**5**	**2**
Non-native plant cover	% of Benchmark	>50%	≥25–50%	≥5–25%	<5%
	Score	**0**	**3**	**5**	**10**

Site Context

Site Context assessed the capacity of the site and the greater landscape context in supporting the MNES. In accordance with the Habitat Quality Guide (DEHP, 2017), the Project is located within a 'Fragmented' landscape and is assessed against several criteria, as detailed in Table B-3.

Table B-3: Site context attributes and scoring

Attribute	Description	Assessment extent	Scoring	Maximum sore
Size of patch	The size of the habitat patch assessed and any directly connecting remnant vegetation	Contiguous remnant vegetation patch containing the Habitat Quality site	Raw data in (ha) • **0**: <5ha remnant AND/OR regrowth • **2**: ≥5 – 25 ha remnant AND/OR regrowth • **5**: ≥25 – 100 ha remnant OR ≥25 – 200 ha remnant and regrowth OR ≥25 – 200 ha regrowth • **7**: ≥100 – 200 ha remnant OR >200 ha remnant and regrowth OR >200 ha regrowth • **10**: ≥200 ha remnant	10
Connectedness	The proportion of the habitat patch boundary that is connected to remnant vegetation	Habitat patch containing the Habitat Quality site	• **0**: The assessment unit is not connected using any of the below descriptions. • **2**: is connected with adjacent remnant vegetation along >10% to <50% of its perimeter OR is connected with adjacent remnant vegetation along <10% of its perimeter AND is connected with adjacent regrowth native vegetation > 25% of its perimeter. • **4**: is connected with adjacent remnant vegetation along 50% to 75% of its perimeter. • **5**: is connected with adjacent remnant vegetation along >75% of its perimeter OR includes > 500 ha remnant vegetation	5
Context	The percentage of remnant vegetation within a one kilometre buffer around the site.	Buffer around habitat patch containing the Habitat Quality site	• **0**: <10% remnant vegetation AND <30% native non-remnant vegetation (regrowth) • **2**: ≥10% to 30% remnant vegetation AND <30% regrowth OR <10% remnant vegetation AND ≥30% regrowth • **4**: ≥30% to 75% remnant vegetation OR ≥10% to 30% remnant vegetation AND ≥30% regrowth • **5**: >75% remnant vegetation	5
Ecological Corridors	Proximity of the habitat patch to state, bioregional, regional or sub-regional corridors		Any riparian or terrestrial feature within the 'CORR_TYPE' attribute of the QLD Statewide Corridors. • **0**: >1km	6

Attribute	Description	Assessment extent	Scoring	Maximum sore
			• **2**: >500m - 1km • **4**: >100m- 500m • **5**: ≤ 100m • **6**: Within	
Role of the site location for the TEC in the State	Based on the observed role of the site in relation to the overall TEC in Queensland.	Impact/offset area	Location relative to known extent map (SPRAT): • **1**: Middle of species known to occur • **3**: <25% from extent's edge • **5**: edge/ outside of distribution	5
Absence of threats to the TEC	Magnitude of threats within or in close proximity to the habitat patch that may negatively impact on the persistence of the TEC within the habitat patch.	Habitat patch containing the Habitat Quality site	Threat matrix (Table B-4) and indicators (threats) identified as per the relevant Conservation Advice. Final score is the lowest score (i.e. most threatening) from the threat matrix, scaled from a score out of 25 to a score out of 15.	15

Absence of threats

Threats identified for the TEC were determined using information detailed within the Conservation Advice for Brigalow TEC. Each of the identified threats are scored based on the threat's 'scope' and 'severity' Table B-4. The scope and severity scores were then multiped to get a total score for each threat (out of 25). Scores for each threat carry a minimum score of one and a maximum score of twenty-five (25), with one being the highest potential impact to the matter and 25 being the lowest potential impact to the matter. Table B-4 below details the different scope and severity levels, and presents the threat matrix for calculating threat score.

Table B-4: Absence of threats matrix

Threat Matrix	
Scope: the proportion of the habitat within the matter area (i.e. habitat patch) that can be reasonably expected to be affected by the threat within ten years given the continuation of current circumstances and trends	
1: Very High	the threat affects all or most (80-100%) of the TEC occurrence within the site/habitat patch
2: High	the threat affects the majority (60-79%) of the TEC occurrence within the site/habitat patch
3: Medium	the threat affects some (40-59%) of the TEC occurrence within the site/habitat patch
4: Low	the threat affects a small proportion (20-39%) or the TEC occurrence the site/habitat patch; and
5: Very Low	the threat affects a negligible proportion (1-19%) of the TEC occurrence within the site/habitat patch.
Severity: the level of damage from the threat to the habitat that can be reasonably expected given the continuation of current circumstances and trends	
1: Very High	the threat is likely to destroy or reduce the habitat by 80-100% within ten years
2: High	the threat is likely to seriously degrades or reduces the habitat by 40-79% within ten years
3: Medium	the threat is likely to moderately degrade or reduce the habitat by 11-39% within ten years
4: Low	the threat is likely to slightly degrade or reduce the habitat by 6-10% within ten years
5: Very Low	the threat is likely to have a negligible damage or will only degrade or reduce the habitat by 1-5% within ten years

Threat Matrix		**Scope**				
		1 (Very High)	**2 (High)**	**3 (Medium)**	**4 (Low)**	**5 (Very Low)**
Severity	**1 (Very High)**	1	2	3	4	5
	2 (High)	2	4	6	8	10
	3 (Medium)	3	6	9	12	15
	4 (Low)	4	8	12	16	20
	5 (Very Low)	5	10	15	20	25

The threat assessment for the impact site and offset site are presented in Table B-5 and Table B-6 below.

Table B-5: Threat assessment at impact site

Indictor	Scope	Severity	Score
A = Land clearing	**Low**: existing protections apply to Brigalow TEC	**High**: any clearing would seriously degrade and reduce the habitat (Peeters & Butler, 2014).	**8**
B = Increased frequency and intensity of fires	**Very low**: existing management of the site as part of a mining lease means likelihood of bushfires are very low	**Low**: any potential bushfires would be controlled as part of existing management of the site as part of a mining lease and therefore not likely to impact more than a small area of habitat if they were to occur	**20**
C = Invasive flora (*Cenchrus ciliaris*, *Chloris gayana* and *Megathyrsus maximum*)	**High**: relatively high cover of non-native plants recorded in BioCondition plots indicating this threat affects the majority of the habitat	**Medium:** pest plants alter the structure and function of Brigalow communities. Invasive flora are likely to moderately degrade the habitat (Department of the Environment, 2013).	**6**
D = Invasive fauna (feral pigs and goats)	**High**: invasive fauna are present within the project area.	**Medium**: pest animals impact the native fauna and flora population dynamics within the TEC. Invasive fauna are likely to moderately degrade the habitat (Department of the Environment, 2013).	**6**
E = Over grazing	**High**: low native grass cover and high non-native grass cover indicate that there is grazing pressure within the impact area.	**Medium**: Overgrazing alters the composition of the ground layer in Brigalow TEC, and can strongly affect recruitment. Overgrazing is likely to moderately degrade the habitat (Peeters & Butler, 2014)	**3**

Table B-6: Threat assessment at offset site

Indictor	Scope	Severity	Score
A = Land clearing	**Very low**: no clearing is currently occurring within the proposed offset area. Existing protections apply to Brigalow TEC.	**High**: any clearing would seriously degrade and reduce the habitat (Peeters & Butler, 2014).	**10**
B = Increased frequency and intensity of fires	**Low**: existing management of the property as farm land (predominantly cropping) and the surrounding cleared land means likelihood of bushfires are very low	**Low**: any potential bushfires would likely be controlled as part of existing management of the property and therefore not likely to impact more than a small area of habitat if they were to occur	**16**
C = Invasive flora (Cenchrus ciliaris, Chloris gayana and	**Medium**: relatively low cover of non-native species recorded in the BioCondition plots indicating this threat affects only a small proportion	**Low:** pest plants alter the structure and function of Brigalow communities. Invasive flora are likely to slightly degrade the habitat	**12**

Indictor	Scope	Severity	Score
Megathyrsus maximum)	of the habitat where scattered infestations occur	(Department of the Environment, 2013).	
D = Invasive fauna (feral pigs and goats)	**Medium:** invasive fauna, including feral cats, wild pigs, and wild dogs are present within the offset area.	**Low**: pest animals impact the native fauna and flora population dynamics within the TEC. Invasive fauna are likely to slightly degrade the habitat (Department of the Environment, 2013).	**12**
E = Over grazing	**Very low**: The offset site is not currently grazed, however grazing is not prohibited and may occur.	**Very low:** High native grass cover and low non-native grass cover indicate likely existing low grazing pressure within the offset site (Department of the Environment, 2013).	**25**

Determining final habitat quality score

Site Condition and Site Context scores for each assessment site were recorded in the MHAQ spreadsheet.

For each habitat quality assessment site, the 13 site condition attributes were added to give a combined score out of 80 and the 6 site context attributes added to give a combined score out of 46.

For each assessment unit, the average site condition score and average site context score were calculated, to determine the habitat quality score for that assessment unit. The average site condition score for the assessment unit is the mean of the site condition scores (out of 80) for each of the assessment sites in that assessment unit, as per the BioCondition Assessment Manual. The average site context score for the assessment unit is the mean of the site context scores (out of 46) for each of the assessment sites in that assessment unit.

The average site condition score was then scaled to a score out of 7 and the site context score scaled to a score out of 3, in accordance with the MHQA. These two scores combined give a habitat quality score out of 10 for each assessment unit. When multiple assessment units are present within the habitat area, a final habitat quality score is then calculated as an area-weighted average of the habitat quality scores for each assessment unit. As both the impact site and the offset site contain only a single assessment unit, an area-weighted average of assessment units was not applicable.

Appendix C: OAG

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	Brigalow TEC
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	**1.2%**

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	Yes	Brigalow TEC	**Area**	7.8	Hectares	ERM 2025
			Quality	**5**	Scale 0-10	
			Total quantum of impact	3.90	Adjusted hectares	
Threatened species habitat						
Area of habitat	No		**Area**			
			Quality			
			Total quantum of impact	0.00		
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	Yes	3.90	Adjusted hectares	Dawsonvale	**Risk-related time horizon (max. 20 years)**	20	**Start area (hectares)**	60	**Risk of loss (%) without offset**	0%	**Risk of loss (%) with offset**	0%	0.00	100%	0.00	0.00	4.02	103.01%	Yes		
									Future area without offset (adjusted hectares)	60.0	**Future area with offset (adjusted hectares)**	60.0								
					Time until ecological benefit	20	**Start quality (scale of 0-10)**	7	**Future quality without offset (scale of 0-10)**	7	**Future quality with offset (scale of 0-10)**	8	1.00	85%	0.85	0.67				
Threatened species habitat																				
Area of habitat	No				**Time over which loss is averted (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)**									
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	0				$0.00		$0.00
Area of community	3.9	4.02	103.01%	**Yes**	$0.00	N/A	$0.00
					$0.00	**$0.00**	**$0.00**

IMPACT- Brigalow Threatened Ecological Community

Assessment Unit - Regional Ecosystem	AU 1 - RE 11.4.9 (remnant)												Total	Total
Site Reference	Benchmark	B13_MNM			B10_MNM			B24_MNM			Average%	Average	Total average %	Total average
	11.4.9	Raw Data	% Benchmark	Score	Raw Dat	% Benchmark	Score	Raw Data	% Benchm	Score	Benchmark	Score	benchmar	score
Site Condition														
Recruitment of woody perennial species in EDL	100	100	100	5	0	0	0	100	100	5	66.666667	3.333333		
Native plant species richness - trees	2	3	150	5	2	100	5	5	250	5	166.66667	5		
Native plant species richness - shrubs	5	4	80	2.5	6	120	5	2	40	2.5	80	3.333333		
Native plant species richness - grasses	5	1	20	0	1	20	0	2	40	2.5	26.666667	0.833333		
Native plant species richness - forbs	10	3	30	2.5	2	20	0	3	30	2.5	26.666667	1.666667		
Tree canopy height (average of emergent, canopy and sub-ca	8	5.5	68.75	5	11.5	143.75	5		0	0	70.833333	3.333333		
Tree canopy cover (average of emergent, canopy and sub-car	18	12	66.66666667	5	36.25	201.388889	3	84.5	469.4444	3	245.83333	3.666667		
Shrub canopy cover	5	4	80	5	2	40	3	10.4	208	3	109.33333	3.666667		
Native grass cover	16	0	0	0	0	0	0	25	156	5	52	1.666667		
Organic litter	45	24	53.33333333	5	34	75.5555556	5	63.6	141	5	89.962963	5		
Large trees (euc plus non-euc)	47	0	0	0	0	0	0	0	0	0	0	0		
Coarse woody debris	980	120	12.24489796	2	1050	107.142857	5	340	35	2	51.462585	3		
Non-native plant cover	0	40		3	35	0	3	3	0	10	0	5.333333		
Site Condition Score and average % benchmark			55.08290816	40		63.6797924	34		113.0342	45.5	77.26563	39.83333	77.26563	39.8333
MAX Site Condition Score				*80*			*80*			*80*		*80*		*80*
Site Condition Score - out of 7				**3.50**			**2.98**			**3.98**		**3.49**		**3.49**
Site Context														
Size of patch	10	5.015		2	26.6		5	29		5		4		
Connectedness	5			0			5			2		2.333333		
Context	5			4			4			2		3.333333		
Ecological Corridors	6			6			6			6		6		
Role of site location to TEC overall population in the state	5			3			3			3		3		
Absence of threats to the species	10			1.2			1.2			1.2		1.2		
Site Context Score				16.2			24.2			19.2		19.86667		19.8667
MAX Site Context Score				*41*			*41*			*41*				*41*
Site Context Score - out of 3				**1.19**			**1.77**			**1.40**				**1.45**

Final habitat quality score (weighted)	**AU1**
Site Condition score (out of 7)	3.49
Site Context Score (out of 3)	1.45
Habitat Quality score (out of 10)	*4.94*
Assessment Unit area (ha) in disturbance footprint	3.62
Total impact area (ha) for this MNES	3.62
Size Weighting	1.00
Weighted Habitat Quality Score	***4.94***

Threatened Ecological Community

Assessment Unit - Regional Ecosystem / Habitat type	AU 1- Brigalow woodland / RE 11.3.1														
Site Reference	Benchmark	MHQA 1			MHQA 8			MHQA 7			MHQA 2			Average%	Average
	11.3.1	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Raw Data	% Benchm	Score	Benchmar	Score
Site Condition															
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	100	100%	5	100	100%	5	100%	5
Native plant species richness - trees	**4**	7	175%	5	5	125%	5	5	125%	5	6	150%	5	144%	5
Native plant species richness - shrubs	**4**	4	100%	5	4	100%	5	6	150%	5	2	50%	2.5	100%	4.375
Native plant species richness - grasses	**6**	4	67%	2.5	2	33%	2.5	3	50%	2.5	5	83%	2.5	58%	2.5
Native plant species richness - forbs	**10**	2	20%	0	2	20%	0	5	50%	2.5	9	90%	5	45%	1.875
Tree Canopy height	**15**	18	120%	5	18	120%	5	18	120%	5	18	120%	5	120%	5
Tree sub-canopy height	**7**	9	129%	5	14	200%	5	6	86%	5	8	114%	5	132%	5
Tree canopy cover	**35**	55	157%	5	52	149%	5	37	106%	5	62.6	179%	5	148%	5
Tree sub-canopy cover	**15**	29.5	197%	5	8	53%	5	35	233%	3	12.5	83%	5	142%	4.5
Shrub canopy cover	**15**	7	47%	3	9.5	63%	5	8.7	58%	5	3.5	23%	3	48%	4
Native grass cover	**33**	0.4	1%	0	8.4	25%	1	4	12%	1	0.6	2%	0	10%	0.5
Organic litter	**30**	82.8	276%	3	71.6	239%	3	61	203%	3	99	330%	3	262%	3
Large trees (euc plus non-euc)	**53**	46	87%	10	44	83%	10	34	64%	10	6	11%	5	61%	8.75
Coarse woody debris	**1520**	420	28%	2	670	44%	2	300	20%	2	510	34%	2	31%	2
Non-native plant cover	**0**	1%		10	5%		5	4%		10	14%		5		7.5
Site Condition Score				55.5			53.5			60			48		54.25
MAX Site Condition Score				80			*80*			*80*			*80*		*80*
Site Condition Score - out of 7				**4.86**			**4.68**			**5.25**			**4.20**		**4.75**
Site Context															
Size of patch	**10**			10			10			10			10		10
Connectedness	**5**			5			5			5			5		5
Context	**5**			4			4			4			4		4
Ecological Corridors	**6**			6			6			6			6		6
Role of site location to TEC overall population in the state	**5**			1			1			1			1		1
Absence of threats to the species	**15**			6			6			6			6		6
Site Context Score				32			32			32			32		32
MAX Site Context Score				*46*			*46*			*46*			*46*		*46*
Site Context Score - out of 3				**2.09**			**2.09**			**2.09**			**2.09**		**2.09**

Final habitat quality score (weighted)	**AU1**
Site Condition score (out of 7)	4.75
Site Context Score (out of 3)	2.09
Habitat Quality score (out of 10)	***6.83***
Assessment Unit area (ha)	60
Total offset area (ha) for this MNES	60
Size Weighting	1
Weighted Habitat Quality Score	***6.83***

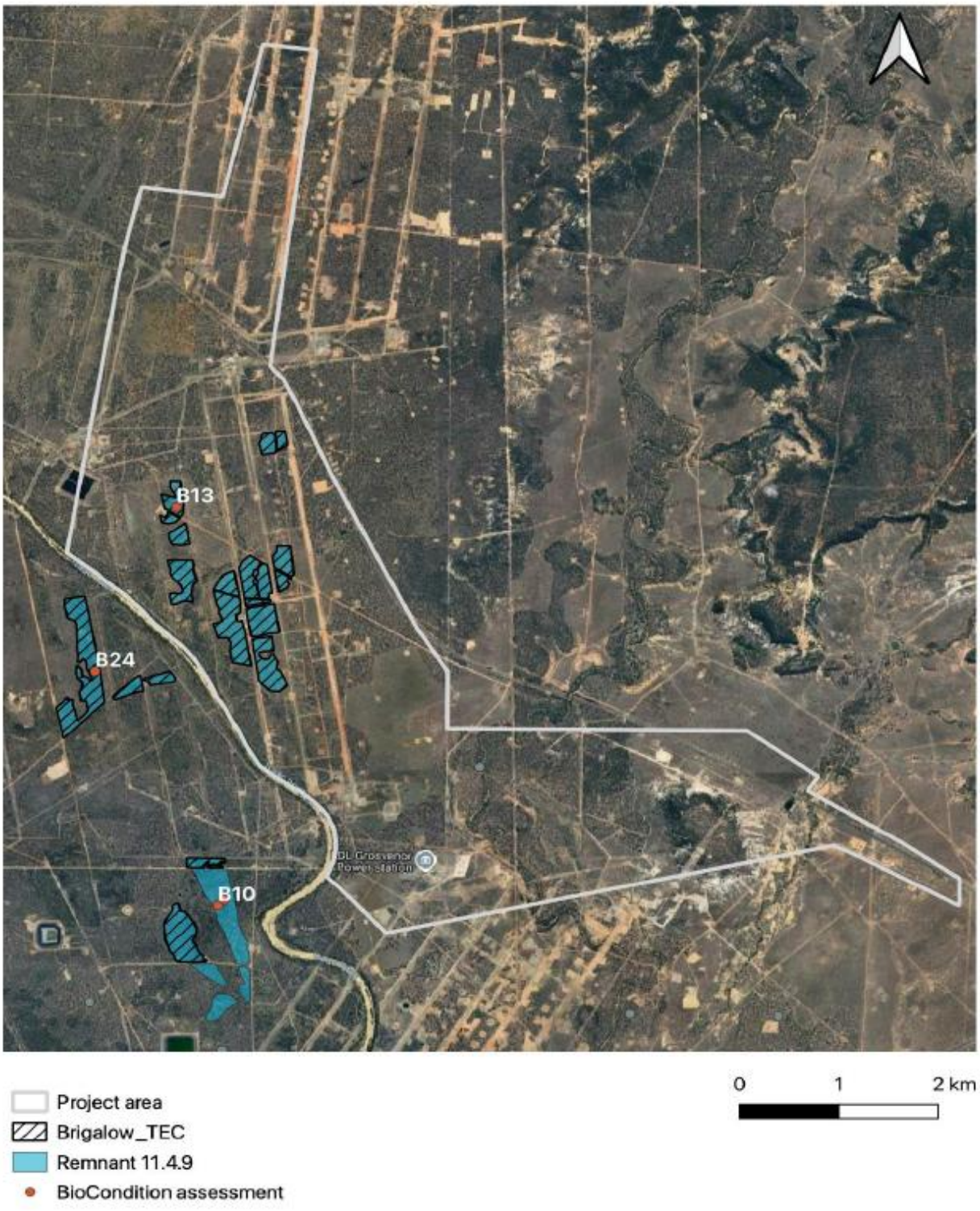

Figure 1 Impact Site Bio condition Locations