

BMA



BHP Mitsubishi Alliance

Appendix I

Offset Management Plan



BHP Mitsubishi Alliance

Offset Management Plan

**Saraji Mine
Grevillea Pit Continuation Project
EPBC 2023/09757**

Status: Final

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1 Introduction

1.1 Background

To sustain current operations at the Saraji Mine (SRM), BM Alliance Coal Operations Pty Ltd (BMA) are seeking to continue the footprint of the existing 'Grevillea Pit' eastward beyond Mining Lease (ML)1782, into ML700021. The SRM currently operates in accordance with Environment Authority (EA) EPML00862313 which was amended in 2017 to include the area associated with this 'continuation' (the Project). The Project was referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) (EPBC 2023/09757) and assessed via Preliminary Documentation (PD).

As part of the assessment process, it was determined that the Project will likely result in a significant residual impact (SRI) on one environmental value categorised as a Matter of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

- Ornamental snake (*Denisonia maculata*).

The impacts to the ornamental snake trigger offset requirements under the EPBC Environmental Offsets Policy (Commonwealth Offsets Policy) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC), 2012).

A section of a property known as 'Croydon Station' (formally Lot 4 on Plan KL210) will be used to facilitate the offset (refer [Figure 1](#)). This property is located approximately 65 kilometres (km) due east of the Project.

The suitability of the area to facilitate an offset for the ornamental snake has been interrogated in the *Croydon Station Offset Suitability Report* (E2M, 2025) and is summarised in [Section 3](#). Separate areas nearby in Croydon Station are currently used for offsets for ornamental snake.

1.2 Nomenclature

The nomenclature used throughout this document refers to:

- **Project** – SRM Grevillea Pit Continuation Project (EPBC 2023/09757).
- **Project Area** – The impact area defined as the approximately 220 hectares (ha) within ML700021 and occurring adjacent to the east of the current mining operations at SRM.
- **Croydon Station** – 58,669 ha of leasehold land in association with Lot 4 on Plan KL210 (~100 km north of Marlborough) housing an operational cattle station.
- **Study Area** – An approximate 845 ha area located in Croydon Station which has been subject to the necessary ecological assessment to determine potential offset suitability (refer *Croydon Station Offset Suitability Report* (E2M, 2025)).
- **Offset Area** – The section of 'Croydon Station' (formally Lot 4 on Plan KL210), located within the Study Area, proposed to provide the anticipated offset requirements for the Project.

1.3 Scope and objectives

The purpose of this Offset Management Plan (OMP) is to provide details on the offset to be delivered to counterbalance the likely SRI on ornamental snake resulting from the Project. This OMP:

- Addresses the management objectives, actions and outcomes necessary to:
 - o Deliver an overall conservation outcome for the relevant protected matter within the Offset Area.
 - o Satisfy Commonwealth approval offset conditions (to be determined).
- Describes the Project's nominated offset property and Offset Area, including values, existing condition and threatening processes.
- Demonstrates the Project's compliance with the Commonwealth Offsets Policy (DSEWPaC, 2012) including the degree of conservation gain and legal securement of the offset.

- Assesses the offset against the necessary habitat quality requirements in accordance with the Offsets Assessment Guide (OAG).
- Documents 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.
- Provides any additional information and detail requested as part of DCCEEW's Request/s for Information (RFI) and as a part of the adequacy review process for the Project.

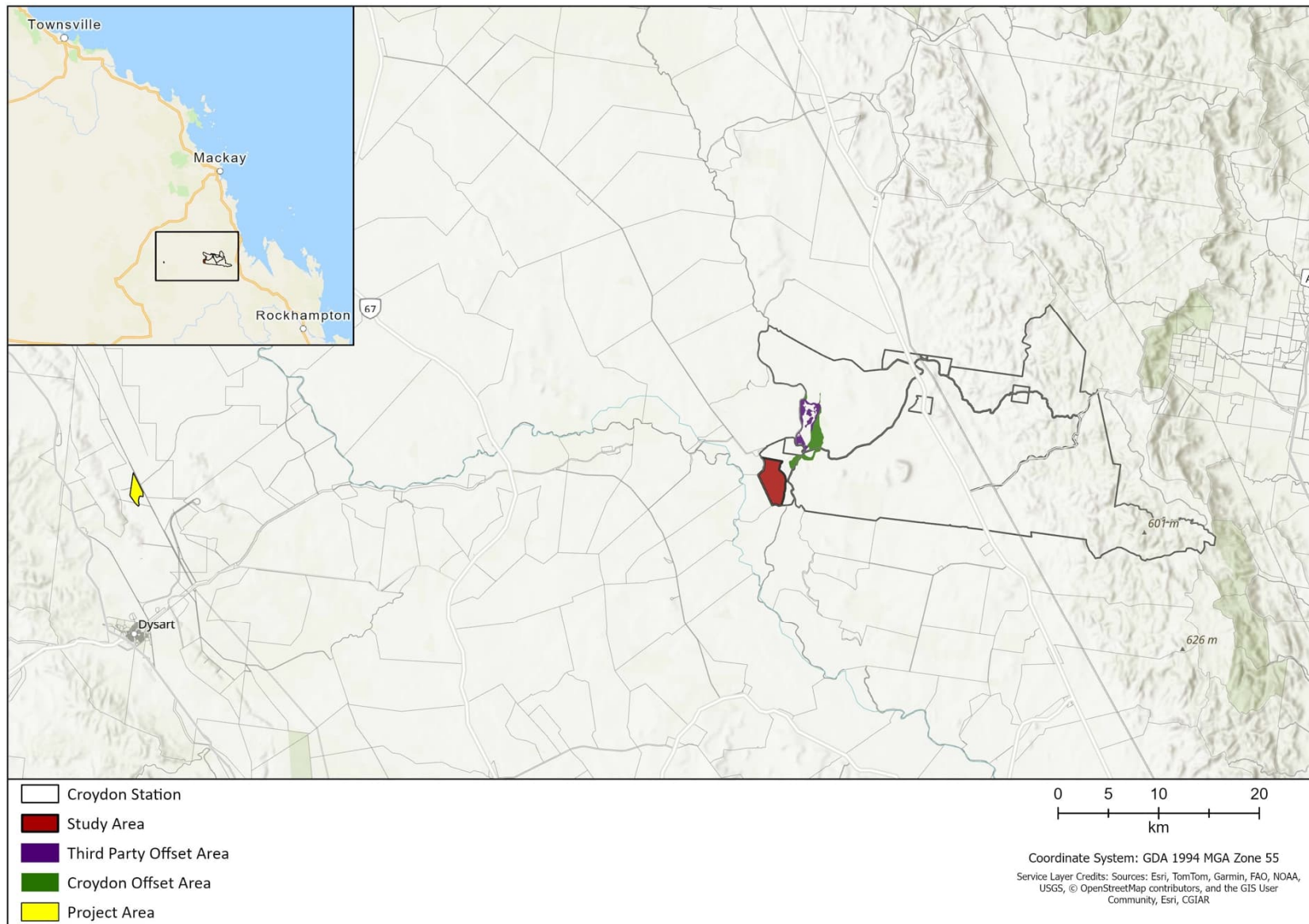


Figure 1 Regional context of Croydon Station

2 Offset requirements

2.1 Project impacts

This OMP has been prepared based on the impact assessment described in Engeny (2026) compiled for the Project. The assessment was supported by an ecological investigation of the Project Area (refer [Figure 2](#)), which included:

- Desktop assessments, including literature review of previous environmental studies and database searches to identify known or potentially occurring MNES.
- Ecological field survey/s to:
 - o Document condition, extent and conservation value of vegetation communities, habitat types and other ecological values (watercourses, habitat connectivity) within the Project Area;
 - o Identify habitat resources for known and potentially occurring threatened flora, fauna and migratory species;
 - o Detect presence of conservation significant species identified as potentially occurring from the desktop assessment through targeted surveys, including targeted flora meanders; and
 - o Opportunistically record fauna utilisation, flora diversity and introduced species across the Project Area.

The impact assessment considered the following:

- The environment of the Project Area.
- Presence and condition of MNES values.
- Direct and indirect impacts to MNES values.
- Avoidance, mitigation and management measures proposed as part of the Project.

The impact assessment shown in Engeny (2026) concluded that, per the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines: Matters of National Environmental Significance* (Department of the Environment, 2013), a SRI was likely with respect to the:

- Direct loss of 45.56 ha of ornamental snake habitat that is considered to be 'sink habitat'. It supports an overflow of individuals that form part of an important population in the area. This area includes 'preferred' (42.83 ha) and 'suitable' (2.73 ha) ornamental snake habitat.

Compensation for this habitat loss therefore forms the basis of what this OMP seeks to address.



Figure 2 Project Area at Saraji Mine

2.2 Offset conditions

The Project's offset conditions under the EPBC Act are yet to be confirmed by DCCEEW, with the PD assessment process ongoing. This OMP has been prepared in anticipation of likely offset conditions, utilising the impact assessment presented in the *Terrestrial Ecology Survey & Impact Assessment Report* (Engeny, 2026) accompanying the PD.

2.3 Offset availability

In preparation for likely offset conditions, field investigations have been undertaken within a section of a property known as 'Croydon Station' (formally Lot 4 on Plan KL210) (E2M, 2025), which is considered to encompass a suitable Offset Area.

2.3.1 Ornamental snake

Within the Study Area used for these investigations, 149.40 ha of 'preferred' and 602.62 ha of 'suitable' habitat for the ornamental snake has been identified. Based on the impact figures identified in the SRI, 100% of the offset obligation can be accounted for within the Study Area at Croydon Station. As per the OAG (refer [Appendix A](#)), a quantity of 356 ha has been established as the necessary extent of habitat needed to acquit >100% of the offset obligation and counterbalance the ornamental snake habitat significantly impacted within the Project Area. The area of ornamental snake habitat impacted has a baseline habitat quality score of 6 as determined using the Queensland Guide to Determining Terrestrial Habitat Quality (Habitat Quality Guide) (DES, 2020). The baseline habitat quality score of the Study Area is also 6 (refer [Table 1](#)).

Table 1 Study Area suitability - habitat extent and quality

MNES	Project Area			Study Area	
	SRI (ha)	Habitat required for offset (ha) – per the OAG	Habitat Quality Score	Habitat available (ha)	Baseline Habitat Quality Score
Ornamental snake	45.56	356	6	768 ¹	6

2.4 Compliance with the offset policy

Any proposed offsets must meet the key principles of the Commonwealth Offsets Policy (DSEWPaC, 2012). [Table 2](#) details how the Offset Area meets the requirements of this policy.

Table 2 Compliance with the Commonwealth Offsets Policy

Offset policy requirement	Compliance details
Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter	An overall conservation outcome for the species will be achieved via the protection, enhancement, and restoration of ornamental snake habitat within the Offset Area. Via management actions implemented to improve ornamental snake habitat condition (see Sections 4.3) and through legal securement associated with offset establishment (Section 4.2.2), habitat within the Offset Area will have good potential to transition from sink to source habitat for the species, thus improving viability for local populations. Further, the configuration and location of the Offset Area will naturally promote increased north-south connectivity for the species across the broader landscape. In the absence of the offset, the condition of ornamental snake habitat may decline as a consequence of current land use, and limited / inconsistent pest, weed and fire management. Overall, the Offset Area and its management (as laid out in this OMP) has been specifically designed to deliver a conservation gain for the ornamental snake, in accordance with the Commonwealth Offsets Policy.

¹ Rounded to whole number as per Commonwealth Offset Assessment Guide calculator format

Offset policy requirement	Compliance details
Suitable offsets must be built around direct offsets but may include other compensatory measures	The proposed offset for ornamental snake is 100% direct, located within the Offset Area.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter	The Offset Area will acquit 100% (or greater) of the offset liability for ornamental snake. This has been determined using the OAG, which factors in the level of statutory protection for each matter. The results of the OAG are provided in Appendix A – Offset Assessment Guide .
Suitable offsets must be of a size and scale proportionate to the impacts on the protected matter	The size and scale of the Offset Area have been determined using the OAG to ensure it is proportionate to the significant impacts on ornamental snake, resulting from the Project. The results of the OAGs are provided in Appendix A – Offset Assessment Guide .
Suitable offsets must effectively account for and manage the risks of the offset not succeeding	A review of the potential risks to the success of the offset is contained within this OMP (refer Section 5.1 and Appendix B – Risk assessment). Completion criteria, review triggers and corrective actions have been developed for the offset. The OMP will be enacted using the BHP Management Framework (PLAN, DO, CHECK, ACT Model), which generates corrective actions and the timing thereof to ensure offset success (refer Appendix B – Risk assessment). Performance criteria will be reviewed at regular intervals and appropriate management / corrective actions can be applied and/or adjusted where necessary. Appropriate confidence levels, reflecting risk levels, have been applied within the OAG.
Suitable offsets must be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude state or territory offsets)	The offset will provide additional conservation benefits through legal securement and management actions that will enhance ecological condition of ornamental snake habitat. The legal security attributable to offset establishment will be additional to the current protection afforded to present ecological values within the property via Commonwealth and State legislation. Further, the offset will be managed to effectively reduce identified and known threats to the species. The Offset Area is comprised of leasehold agricultural land, which currently experiences numerous threats relevant to ornamental snake (e.g. weed invasion, feral animals, cattle grazing). Habitat condition may decline in the absence of active management to mitigate these threats (as specifically dictated by this OMP). Management activities in the OMP are additional to those that are already required, determined by law or planning regulations (e.g. standard biosecurity obligations under the <i>Queensland Biosecurity Act 2014</i>), and to those occurring / or having the potential to occur in adjacent properties, via external offset plans (e.g. other offsets within Croydon Station).
Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable	Direct land-based offsets have been selected as the preferred methodology to achieve a conservation gain for ornamental snake, as they are a robust and widely accepted approach, with a high degree of confidence in the outcome. The management actions are known to be effective in improving ecological condition (e.g. feral pig control to reduce habitat degradation). The management of the Offset Area will be undertaken in line with conservation actions relevant to ornamental snake, per the species' conservation advice (DoE, 2014) (refer Appendix D – OMP alignment with Commonwealth policy). The required conservation gain (i.e. achieving a habitat quality score of 7 per the Habitat Quality Guide (DES, 2020)) is anticipated to occur within 20 years of offset establishment, within the requisite timeframe per the Commonwealth Offsets Policy.
Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	As the approval holder for the Project, BMA will have ultimate responsibility for securing and the delivery of the offset. The OMP provides completion criteria (and interim targets) to be achieved over set timeframes, management actions, a monitoring program and corrective actions in the event trigger thresholds are met and/or outcomes are not being achieved. Monitoring and reporting will be undertaken to ensure that actions are being implemented and/or outcomes are being achieved (within the first five years). Compliance reports submitted to DCCEEW by BMA will be made publicly available as required.

3 Offset Area Description

3.1 Location and context

The Offset Area is located in the southwest of Croydon Station (formally Lot 4 on Plan KL210), a 58,669-ha cattle station ~100 km north of Marlborough, Queensland. It sits at the western edge of the Croydon Station among branches of the Connors River. Croydon Station is located within the Isaac-Comet Downs biogeographic subregion and is bordered by the Connors Ranges to the east.

Two existing Offset Areas are also present within Croydon Station:

- *Third Party Offset Area* – A third party hold an existing 360.54 ha Offset Area (Category A) secured within Croydon Station.
- *The Croydon Offset Area* – approved offset site for BMA's Horse Pit Extension Project (EPBC 2021/9031) at Caval Ridge Mine.

An additional offset is planned to be established to acquit significant impact liability associated with the Peak Downs Mine (PDM) Power Line Project (EPBC 2024/09983). This offset will also occur within the Study Area and is located adjacent and to the east of the Offset Area, subject of this OMP.

The Offset Area totals 377.8 ha, of which 359.9 ha is suitable (majority) and preferred ornamental snake habitat and will satisfy required offset outcomes (per the OAG). An overview of the existing and planned offset sites within Croydon Station is provided in [Figure 3](#).

3.2 Existing environment

The environment within the Study Area and Offset Area is typical of the Brigalow Belt. Field investigations have verified six regional ecosystems (REs) of varying condition across the Study Area dissected by drainage lines and anabranches of the Connors River system (E2M, 2025). Remnant vegetation is predominantly located along riparian corridors and wetland areas (e.g. REs 11.3.25, 11.3.3 and 11.3.27b). Primarily used for cattle grazing, however, significant portions of non-remnant land are present. Review of available historical aerial photography indicates vegetation was first cleared during the late 1960s or early 1970s and has been periodically re-cleared to manage regrowth (DoR, 2024). Remnant REs 11.3.25 and 11.3.3 are present along the eastern border of the Study Area and connects to contiguous woodland stretching to offset sites in the northeast (refer [Figure 3](#)).

The extent, condition and composition of REs at the site are present in [Table 3](#) and [Figure 4](#).

Table 3 REs present in the Study Area

RE	Description	Condition	Study Area (ha)	Offset Area (ha)
11.3.1	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on alluvial plains	Remnant	1.95	Nil
		High Value Regrowth (HVR)	38.55	Nil
		Non-remnant	551.55	304.2
11.3.3	<i>Eucalyptus coolabah</i> woodland on alluvial plains	Remnant	149.41	55.8
11.3.4	<i>Eucalyptus tereticornis</i> and/or <i>Eucalyptus</i> spp. woodland on alluvial plains	Remnant	28.89	8.3
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	Remnant	26.21	Nil
11.3.27b	Freshwater wetlands - Vegetation ranges from open water +/- aquatics and emergents. Often with fringing woodland, commonly <i>Eucalyptus camaldulensis</i> or <i>E. coolabah</i>	Remnant	27.54	9.6
11.8.4	<i>Eucalyptus melanophloia</i> woodland to open woodland on Cainozoic igneous rocks.	HVR	10.99	Nil
		Non remnant	9.93	Nil

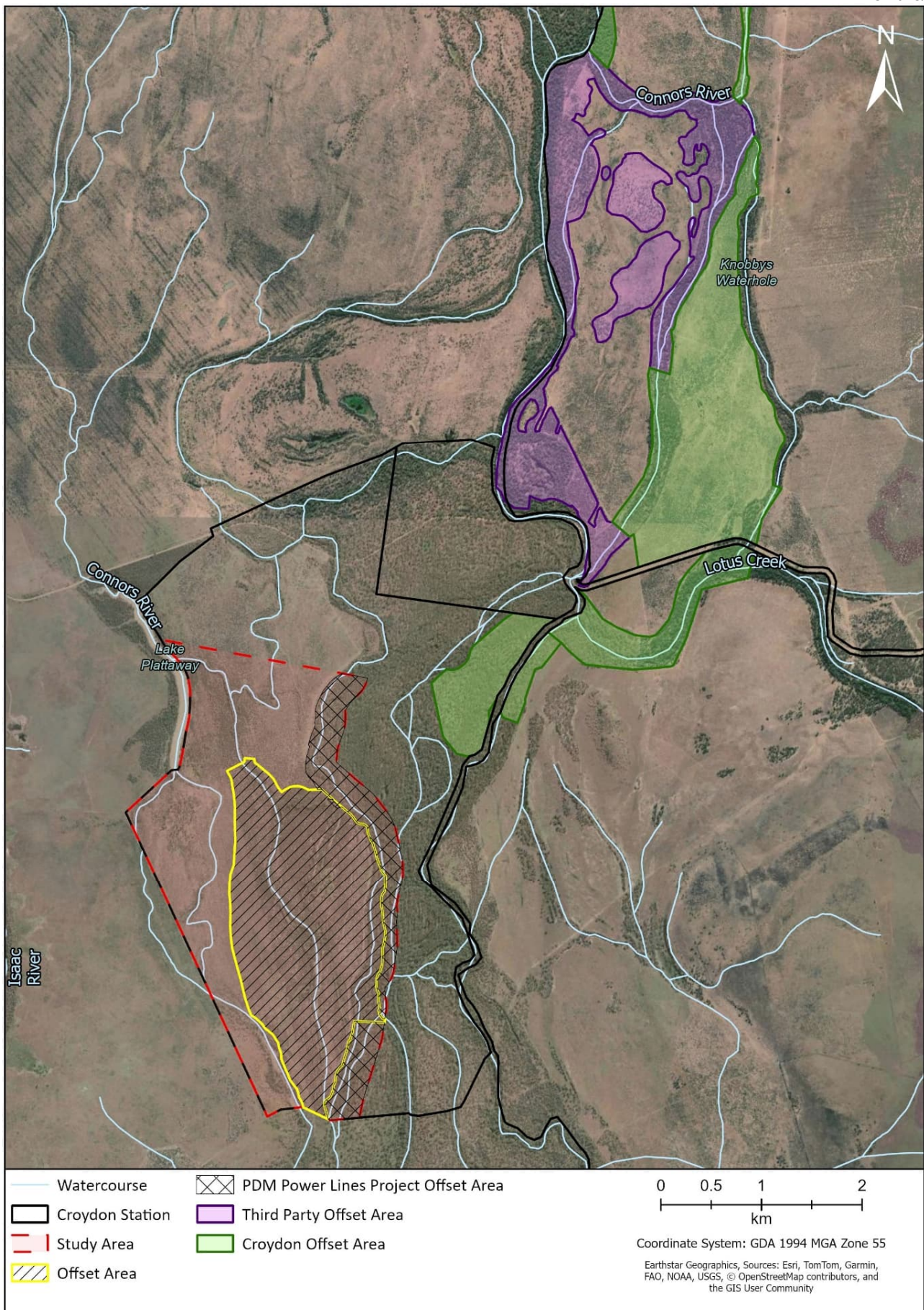


Figure 3 Offset Area, PDM Power Lines Project Offset Area, Third Party Offset Area and Croydon Offset Area

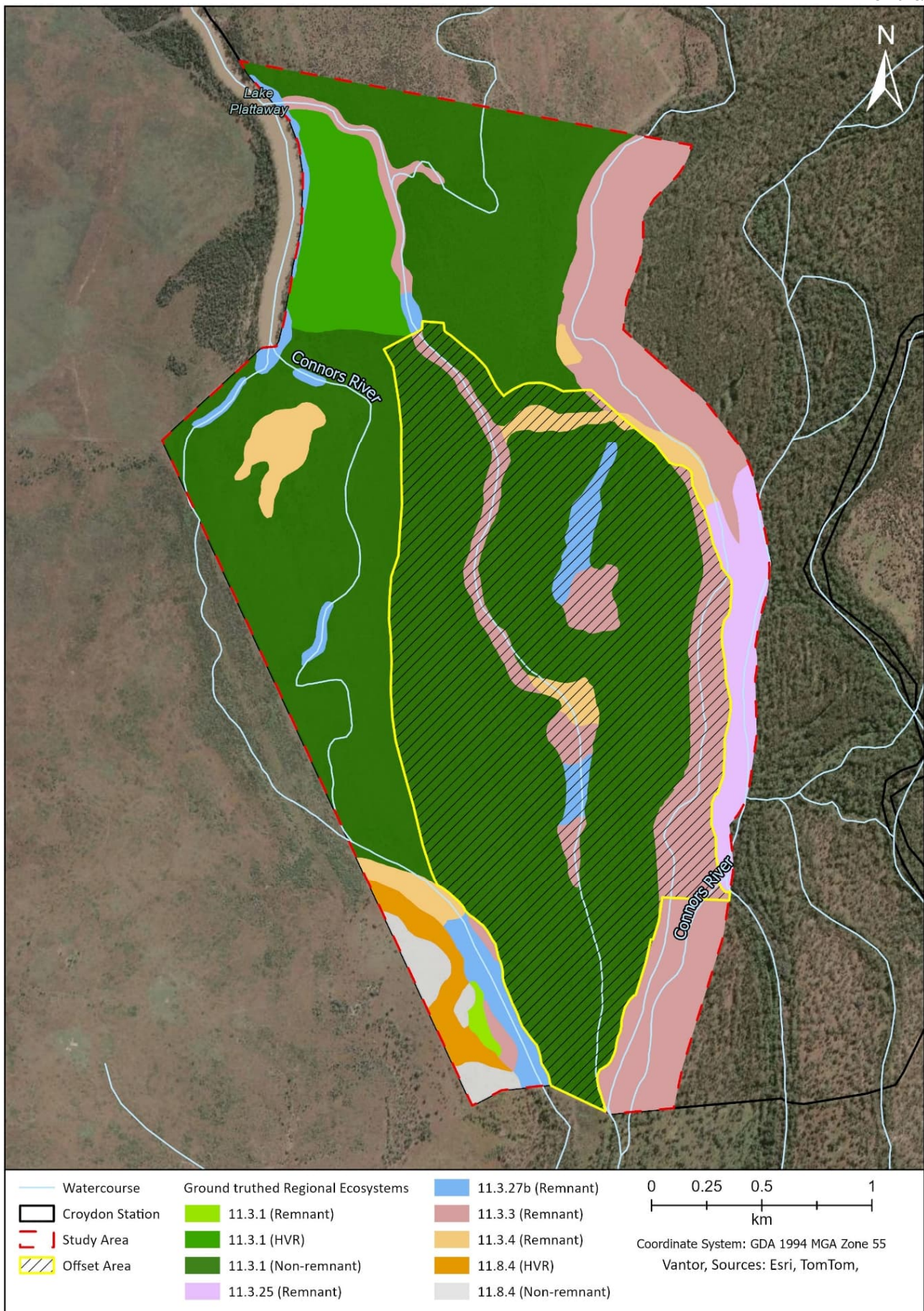


Figure 4 Ground-truthed REs within the Study Area

3.3 Offset values

3.3.1 Ornamental snake

Two field surveys across the Study Area were undertaken by qualified ecologists (E2M 2025) during middle to late wet season (February to April) and aligning with optimal survey timing per Commonwealth Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011):

- Survey One was conducted from 6–10 April 2022. The area had received below-average rainfall (95.4 mm vs. the average 251.7 mm) from January to March of that year, with just 4 mm in the two weeks before the survey. Most water sources were dry, except for parts of Connors River and its anabranches. Conditions were dry and warm (31–34°C). Due to water (and subsequently prey / frog) scarcity, survey conditions were suboptimal for detecting the ornamental snake. These drier conditions are considered unusual for the survey period (i.e. late wet season), with the timing of the survey chosen specifically to be consistent with DSEWPac (2011).
- Survey Two was conducted from 17–22 March 2025. The area had mixed rainfall prior to the survey, with heavy rain in January 2025 and lower totals in February and December. Most creeks and waterbodies held significant water. The Connors River was flowing and gilgai habitats within the Study Area were largely inundated. The temperature ranged from 27.5–31.9°C, forming favourable conditions for the detection of the ornamental snake. However, site access during Survey Two was constrained due to rainfall throughout the field assessment period. Safe vehicle access to and within the Study Area was limited, and as a result, some areas could not be surveyed. Nocturnal spotlighting was restricted to two nights due to wet weather and flooding preventing site access. When spotlighting could occur, relatively high nighttime visibility associated with moon phases was observed which is often associated with reduced fauna activity due to higher risk of predation (DCCEEW 2023). Further, due to recent rainfall, ground cover in non-remnant areas was high, thus further reducing likelihood of ornamental snake detection during spotlighting surveys. Notably, prey abundance was limited; however, a variety of suitable prey species were observed including the striped burrowing frog (*Cyclorana alboguttata*), Australian green treefrog (*Litoria caerulea*), *Limnodynastes* spp. and *Litoria* spp.

Field surveys identified considerable areas of habitat available for the species. Habitat has been mapped in accordance with the Central Queensland Threatened Species Habitat Descriptions (Version 5) (Kerswell et al., 2023) and considers key life cycle behaviours / requirements (e.g. shelter, breeding, foraging, dispersal) discussed within the MNES Significant Impact Guidelines 1.1 (DoE, 2013). Mapped habitat is described in [Table 4](#) and presented in [Figure 5](#).

Table 4 Ornamental snake habitat in the Study Area and Offset Area

Habitat type	Extent (ha)	Description ²
Preferred	Study Area – 149.40 Offset Area – 55.8	Associated with remnant RE 11.3.3 located along ephemeral watercourses. These areas provide moderate abundance of deep soil cracks, coarse woody debris and litter. Areas containing deep, undulating depressions are also likely to provide breeding opportunities for native frogs (i.e. prey). Additional areas of preferred habitat are considered likely to occur to the east of the Study Area in association with remnant communities of the adjacent floodplains.
Suitable	Study Area – 602.62 Offset Area – 304.2	Associated with non-remnant areas, and patches of remnant and HVR RE 11.3.1. These areas are considered suitable habitat due to reduced abundance of deep soil cracks and gilgai formations. Additionally, historical clearing and burning of areas containing RE 11.3.1 has substantially reduced the amount of coarse woody debris available for shelter. While lacking suitable shelter and breeding habitat, these areas may provide foraging opportunities for the species during wet periods.
Marginal ³	Study Area – 15.64 Offset Area – 0.0	Associated with non-remnant RE 11.3.1 located >1 km from preferred habitat. These areas contain lower abundance of deep soil cracks and gilgai. Historical clearing and burning have also substantially reduced the amount of coarse woody debris available for shelter. There is potential for these areas to qualify as suitable habitat depending on proximity to preferred habitat outside the Study Area (i.e. to the west).

² Per E2M, 2025

³ Unsuitable habitat located among the Offset Area does not contribute to proposed offset.

No ornamental snakes were observed during surveys. However, it is considered likely that the species would utilise habitat in the Offset Area due to the following:

- Considerable extent of preferred habitat availability (~56 ha), which encompasses essential microhabitats, including an abundance of deep soil cracks within / among gilgai.
- Presence of a variety of key prey (i.e. frog) species.
- Previous species observation in nearby habitat (~5.7 km northeast of the Study Area – including observation during 2016 surveys – refer E2M (2025)) contiguous with ornamental snake habitat mapped within the Offset Area (refer [Figure 5](#)). Notably, satellite imagery and Queensland RE mapping indicates that high value habitat for ornamental snake provides connectivity between the Offset Area, neighbouring offset sites (refer [Figure 3](#)) and prior species record locations (refer [Figure 5](#)).
- Reduced probability of detection as a result of the species' cryptic nature, suboptimal survey conditions during Survey One, and the multiple limitations on nocturnal survey effort during Survey Two (per abovementioned).

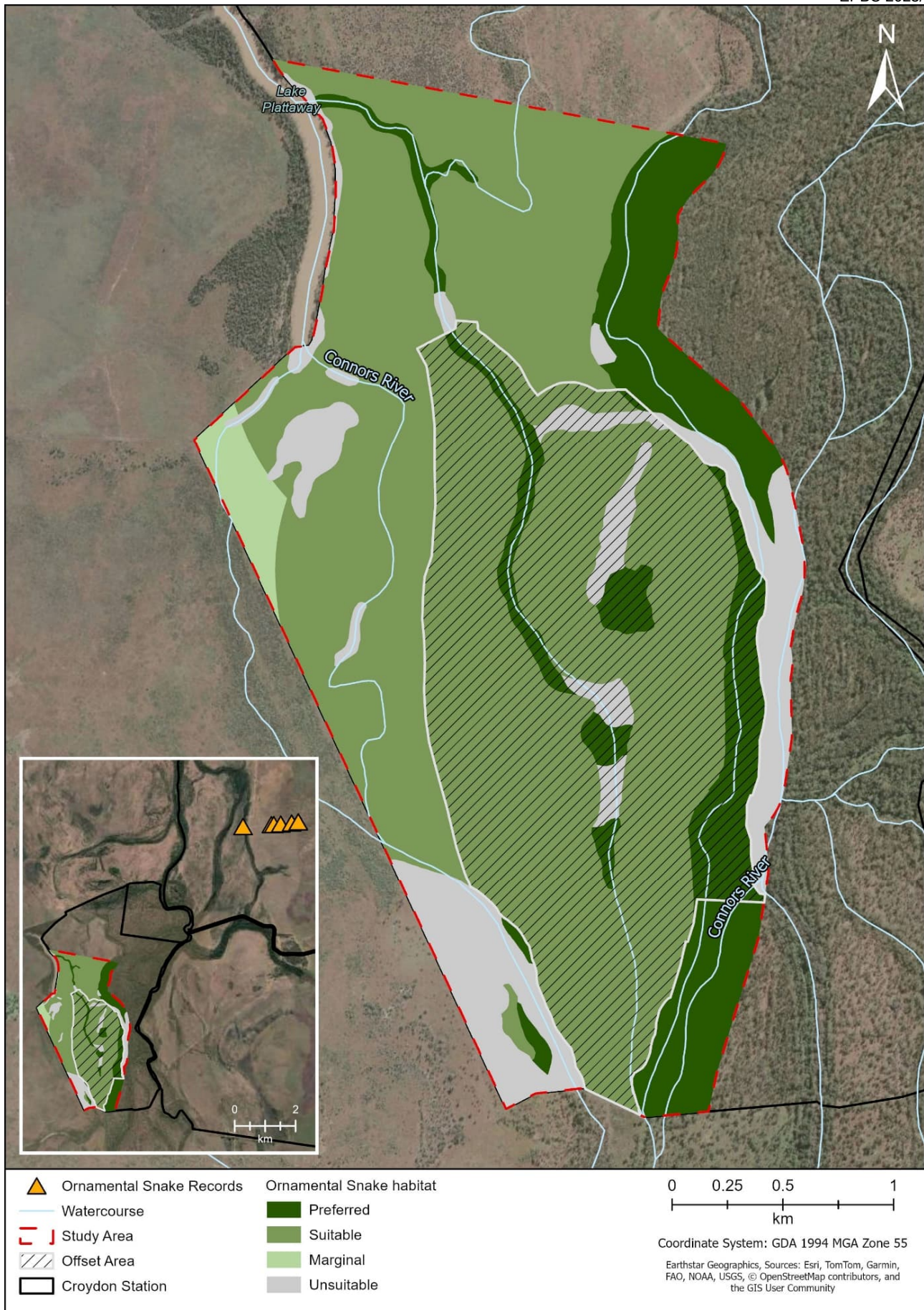


Figure 5 Ornamental snake habitat within the Study Area

3.3.2 Habitat quality assessments

During surveys undertaken to-date (E2M, 2025) habitat quality was assessed using a combination of indicators that measure the overall viability of habitat within the Study Area and its capacity to support the ornamental snake.

Habitat quality assessments were conducted in accordance with the Habitat Quality Guide (DES, 2020) which involved the collection and analysis of:

- Landscape-scale attribute data.
- Site-based attribute data.
- Species habitat attribute data.

In determining habitat quality scores, the Study Area was delineated into multiple Assessment Units (AUs). An AU refers to an area or a group of areas that are homogenous in vegetation community classification (i.e. RE) and broad condition state (i.e. remnant, regrowth, non-remnant) (E2M, 2025). Each AU reflects a particular community with similar structure, function, and quality of habitat. Sample sites were then selected for each AU, with site-based attribute data and species habitat attribute data collected at each sampling site. The quantity of sample sites used during field surveys in the Study Area (E2M, 2025) are insufficient for ongoing habitat quality monitoring within the Offset Area. As a result, Year 0 habitat quality assessments will be required at a number of sites consistent with the Habitat Quality Guide (refer [Table 5](#)). Monitoring sites will include those previously utilised and which occur in the Offset Area (per E2M, 2025; refer [Figure 6](#)) and the necessary additions as identified by a suitably qualified ecologist. Data collected via habitat quality monitoring will be utilised to assess against KPIs for ornamental snake (refer [Section 6](#)) and monitor the natural regeneration (or active restoration, where necessary) of currently non-remnant brigalow woodland.

Table 5 Sampling of Assessment Units in the Offset Area

MNES	Assessment units (per E2M 2025)	RE and condition	Extent in Offset Area (ha)	Established sites (per E2M 2025)	Total sites required ⁴
Ornamental snake	AU3	Non-remnant RE 11.3.1	304.2	3	4
	AU4	Remnant RE 11.3.3	55.8	2	3

Habitat quality assessment will be undertaken when plant diversity is greatest (Eyre et al., 2015). For the majority of Queensland, this is typically from March to late May but is dependent on local seasonal conditions (Eyre et al., 2015).

Habitat quality data compiled from surveys undertaken to-date (E2M, 2025) is available in [Appendix C](#).

⁴ Refer Table 2.2 in the [Habitat Quality Guide](#) (DES 2020).

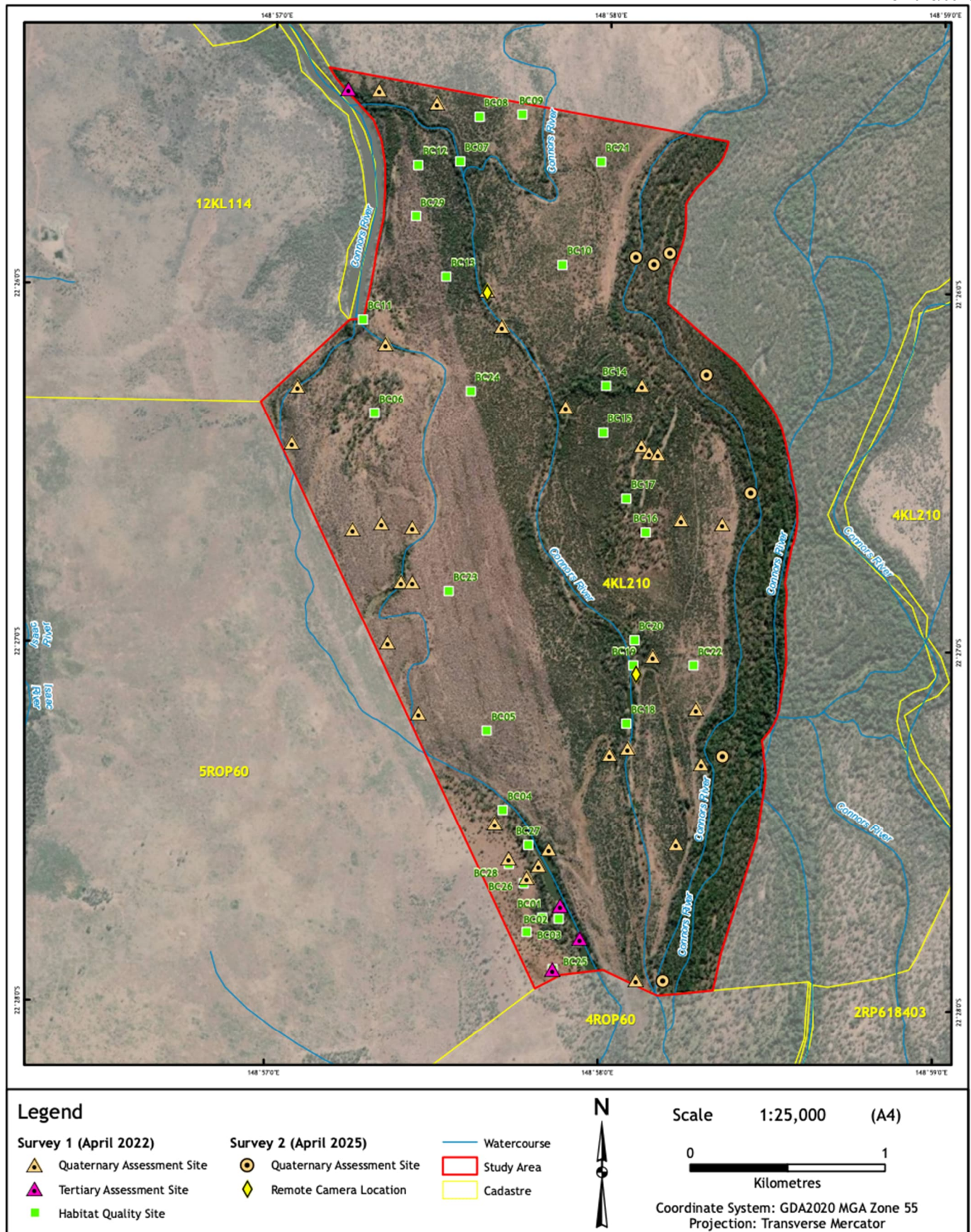


Figure 6 Habitat quality sites across the Study Area (E2M, 2025)

3.4 Threats present

A number of existing threats to the ornamental snake are present within the Offset Area. [Table 6](#) provides a summary of those threats and their relevance to the species with key sources comprising:

- *Croydon Station Offset Suitability Report* (E2M, 2025)
- Survey guidelines for the ornamental snake (*Denisonia maculata*) (DCCEEW, 2025)
- Approved Conservation Advice for *Denisonia maculata* (Ornamental Snake) (DoE, 2014).

Table 6 Summary of threats within the Offset Area

Threat	Summary
Feral animals	• Destruction and degradation of wetland / gilgai habitat by feral pigs (<i>Sus scrofa</i>), impacting the availability of habitat for the species and its prey (i.e. native frogs) is a threat to ornamental snake (DoE, 2014). During surveys, the following was observed (E2M, 2025): - o Presence of feral pigs. - o Evidence of disturbance from pigs (i.e. wallows) and habitat degradation. • Ingestion and poisoning from <i>Rhinella marina</i> (cane toads), observed during nocturnal spotlighting (E2M, 2025), has also been identified as a threat to the species (DCCEEW, 2025; DoE, 2014). The effective control of cane toads in Australia is problematic with limited effective broadscale methods currently available (DEWHA, 2010).
Weeds	• Encroachment of invasive, environmental weeds can out-compete native flora species, altering the vegetative structure and compositions within native communities that would otherwise provide shelter and connectivity values: - o There is high non-native plant cover within the Offset Area, particularly from non-native grasses and forbs, including <i>Cenchrus ciliaris</i> (buffel grass), <i>Urochloa mosambicensis</i> (sabi grass), <i>Parthenium hysterophorus</i> (parthenium), <i>Stylosanthes spp.</i> (E2M, 2025). - o A number of woody weeds and cacti were also observed throughout the sites, including <i>Parkinsonia aculeata</i> (Jerusalem thorn), <i>Vachellia farnesiana</i> (mimosa bush), <i>Opuntia tomentosa</i> (velvety tree pear) and <i>Harrisia martinii</i> (harrisia cactus) (E2M, 2025).
Land clearing and habitat degradation	• Broadscale land clearing and habitat degradation are identified as the main threats to ornamental snake (DCCEEW, 2025; DoE, 2014): - o Historical and existing land management practices have contributed to habitat degradation and fragmentation within the Offset Area and surrounds. - o Area was initially cleared within Croydon Station in the 1960s / 1970s and periodically re-cleared thereafter to manage regrowth. - o The Study Area is currently used as required by the Croydon Station landowner for cattle grazing. • Habitat degradation can be further exacerbated by introduced species, including cattle and feral pigs, impacting gilgai, soils and associated destruction of native frog habitat reducing the availability of prey for the species, as well as direct competition for food resources (DCCEEW 2025; DoE, 2014): - o Croydon Station has been utilised for livestock grazing since the initial clearing activities. Some degradation from livestock and feral animals (e.g. compacting soils) is noted (E2M, 2025).

3.5 Landscape connectivity

The Offset Area is situated within a landscape that is largely fragmented, primarily due to agricultural development in the region. Remaining remnant vegetation is typically confined to riparian corridors (e.g. Connors River and its anabranches).

The Offset Area coincides with mapped State-significant, and is proximal to, Regional biodiversity corridors (DES, 2022) which are associated with Connors River and Lotus Creek (refer [Figure 7](#)). The Offset Area provides connectivity primarily in association with riparian corridors, comprising tracts of native vegetation (e.g. remnant RE 11.3.3), though larger patches of remnant vegetation and HVR are found in both the southwest and northwest corners of the Study Area (refer [Figure 4](#)). Large areas of preferred ornamental snake habitat occur in the east of the Offset Area (and beyond, incorporated into the planned PDM Power Lines Project Offset Area) in association with remnant woodlands and communities fringing drainage lines (i.e. RE 11.3.3). These areas form part of a contiguous portion of remnant vegetation that stretches to the existing *Third Party Offset Area* and the *Croydon Offset Area* (refer [Figure 7](#)). Placing the Offset Area nearby to other legally secured offsets will facilitate a larger portion of protected habitat within the landscape, providing cumulative conservation benefits for the ornamental snake, and other native species present within brigalow communities.

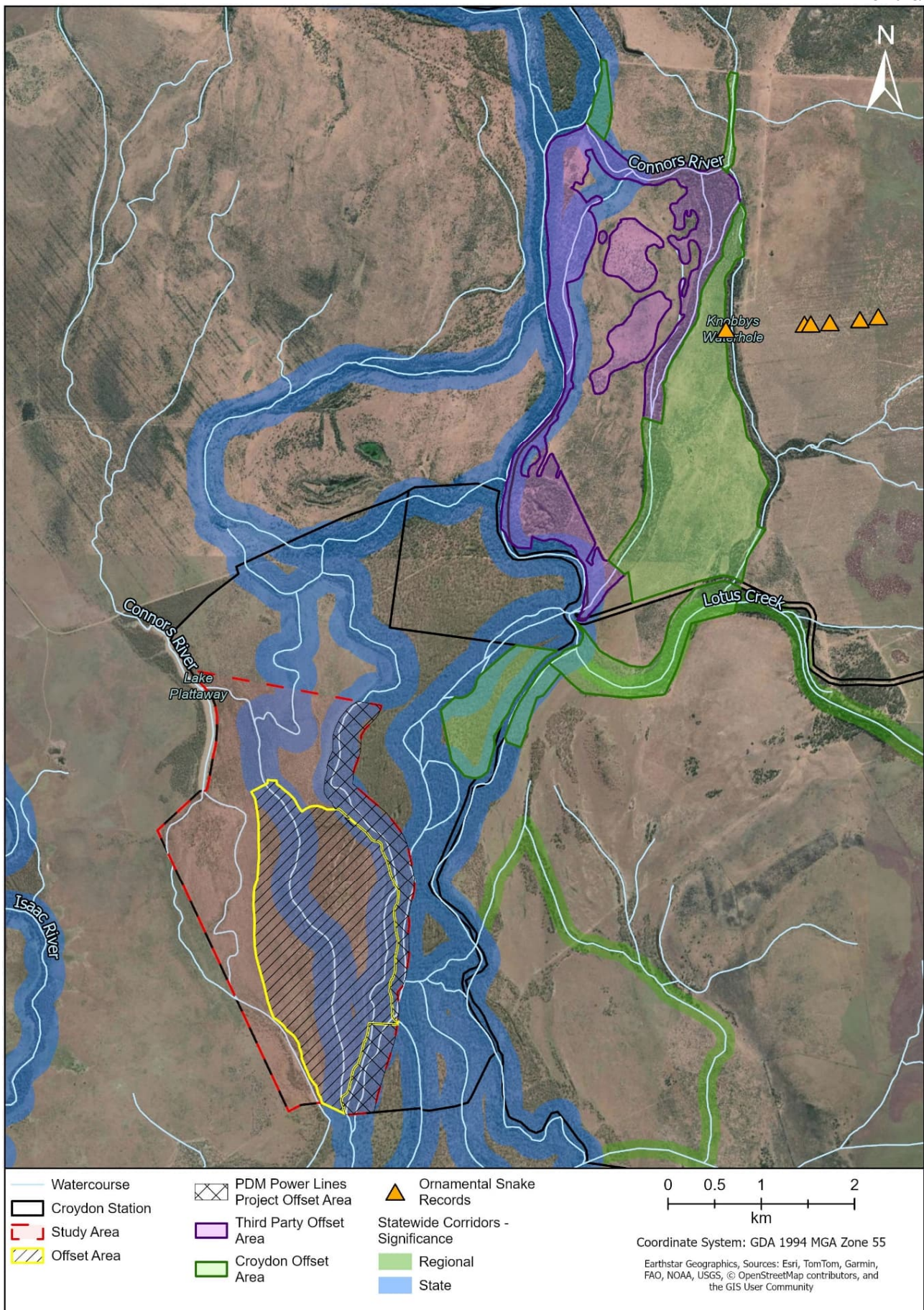


Figure 7 Connectivity features

4 Offset management

4.1 Management framework

The management of the offset commitment will be implemented in accordance with an Offset Management Framework (OMF) centred on an adaptive management cycle. The cycle is based on the **PLAN – DO – CHECK – ACT** Model used in the overarching BMA Environmental Management System (EMS) (refer [Figure 8](#)). The accountability for implementation of the framework will lie with BMA; however, for some aspects (e.g. stock management, fence monitoring, habitat quality assessment) a suitably qualified person will be appointed and held accountable to BMA to deliver the necessary outcomes (e.g. maintenance of infrastructure, monitoring reports etc).

A key aspect of the framework is the feedback cycle facilitated by CHECKing:

- Outcomes of monitoring, investigating contributing factors to results not considered in line with milestones or Key Performance Indicators (KPIs) (ACT)
- Adapting approaches to management (informed by experts where appropriate) with the aim of improving likelihood of success (ACT); and
- Circling back to updating documentation and work plans (PLAN) to ensure improved actions are then incorporated and implemented (DO) in the future.

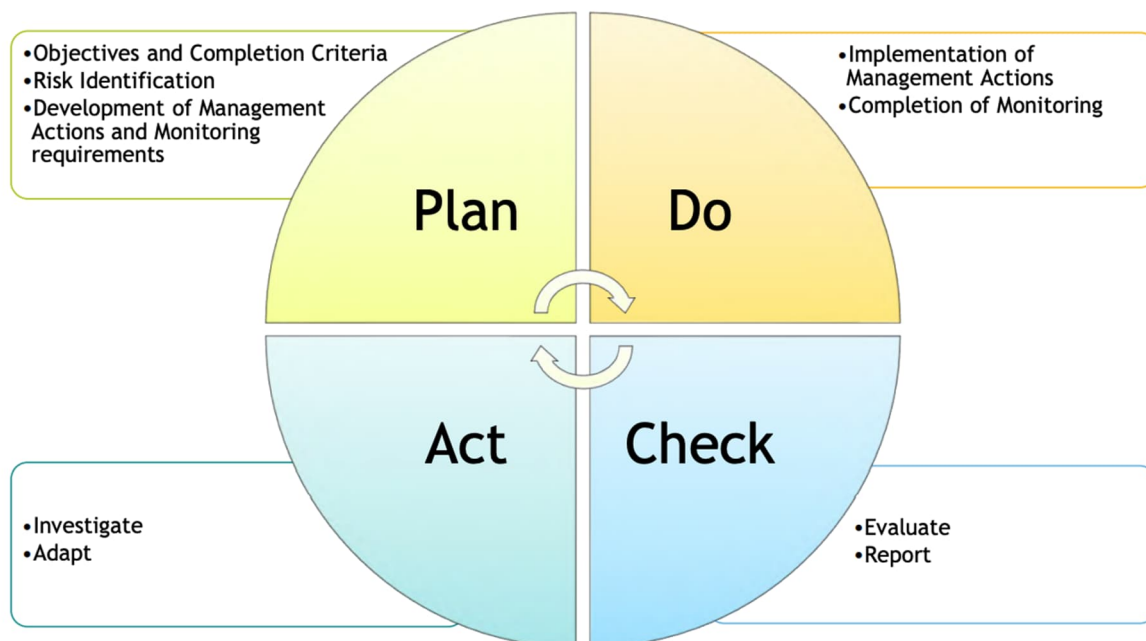


Figure 8 PLAN, DO, CHECK, ACT Model

The OMF encompasses the following key components:

PLAN

- Offset Management Objectives – the understanding of the MNES values to be offset and threats to those values drives the management objectives for the site. The objectives are outlined in [Section 4.2](#).
- Completion Criteria – final completion criteria specific to the management objectives have been identified. Performance targets are defined to measure performance of the management actions during the offset management period and progress toward final completion criteria. Criteria are shown in [Section 5](#).
- Risk Planning – a risk assessment identifies threats to the management process whereby management actions and monitoring design can incorporate precautionary measures or ensure monitoring parameters are appropriate for detection of negative results. The risk assessment provides detail pertaining to corrective actions and the required timing for action implementation should management triggers be observed. The risk assessment is found in [Appendix B](#).

- Management Actions Definition – management actions have been designed specific to the desired conservation outcomes of the offset. Actions are documented in terms of method, location, timing for implementation and responsibility. In addition, action-specific performance indicators have been defined for each management action and options for corrective actions identified. Management actions and scheduling are documented in [Section 4.3](#).
- Monitoring Program – the monitoring requirements are documented in [Section 6](#). Year zero (0) habitat quality and species occurrence data will be required for ongoing monitoring and reporting purposes in the Offset Area. Sampling sites will be selected consistent with the Habitat Quality Guide (DES, 2020) and consistent with the Croydon Station Offset Suitability Report, where they coincide with mapped ornamental snake habitat in the Offset Area. Ongoing data collection will be undertaken by a suitably qualified person depending on the nature of the parameter (e.g. ecologists for measuring habitat quality, land manager for assessing condition of fire breaks).
- Establish Process – obligations of approval and management/monitoring commitments will be recorded in the BMA Coal Legal Obligations Register (CLOR) (or comparable management systems of the time). A corresponding mechanism for assigning and tracking monitoring, management actions, reporting etc. will be implemented (e.g. the BMA Enterprise Work Management System (SAP) that is currently in place). Work orders are developed to provide a detailed breakdown of tasks to be completed. The SAP currently provides a mechanism for tracking activity completion and assigning work orders (among other things).
- Outcomes of the PLAN component of the framework are documented in the sections below. The nature of the adaptive management cycle is such that the management actions and monitoring program will be updated and implemented where investigation outcomes identify a necessary amendment.

DO

- Implementation – management actions and the monitoring program will be implemented in accordance with the work orders as they are scheduled, currently provided within the SAP. Implementation will be undertaken by suitably qualified personnel depending on the nature of the task.
- Operation – the Offset Area will be operated in accordance with the management strategies defined within this OMP. This includes land use restrictions identified to ensure the delivery of an improved environmental outcome, and the legally binding mechanism under the VM Act, by which the offset will be secured (refer [Section 4.2.2](#)).

CHECK

- Evaluate – outcomes of the monitoring undertaken will be evaluated following each monitoring event. The method of evaluation will be dependent on the parameter measured and relevant target / KPI for comparison. The monitoring schedule is shown in [Section 6](#).
- Report – results of all monitoring will be captured, and data collected will be maintained in an appropriate data storage format. Maintaining a record of results throughout the life of the offset will allow for trends to be identified (if relevant to measuring success) and measurement against KPIs, performance targets and completion criteria.

ACT

- Record – non-conformances (i.e. if actions were not completed within schedule) will be recorded in the BMA Event Management System, triggering an investigation. Non-conformance investigation will be completed, and solutions identified and implemented.
- Investigate – in the event monitoring results identify performance targets or KPIs are not reached, or other aspects of monitoring indicate areas of concern, an investigation will be undertaken. The investigation will:
 - o Identify key drivers / parameters that relate to the monitoring result not in line with milestones or KPIs.
 - o Require development of suitable mitigation or corrective actions. Where items can be solved in the short term, work order notifications will be raised for implementation (e.g. minor fencing repair). For major actions or repair works, a plan for completion will be developed in consideration of budgeting cycle or if the work is considered urgent, escalated for prioritisation. Where actions are required for impacts other than maintenance or repair activities (i.e. a change in the approach to managing the property) a suitably trained ecologist will be consulted to inform the identification of appropriate corrective actions (specifically actions that are scientifically robust and targeted to the objectives of meeting completion criteria for ornamental snake conservation)

- o The investigation may require multiple stakeholders' input including:
 - i BMA environment representative
 - ii The suitably qualified persons (e.g. ecological consultants and/or experts in specialist disciplines, landholder, or land management specialists) depending on the complexity of the outcome.
- o Adapt where investigation outcomes require a long-term amendment to the OMP (i.e. for actions or monitoring changes to be permanently implemented rather than one-time-only repair actions) relevant documents will be updated and changes to scheduling, obligations or monitoring revised (i.e. cycle back to the PLAN component) to update work orders. These updates will enable implementation of revised management and monitoring through the DO component of the framework.

Management and monitoring will continue in accordance with PLAN documentation (and subsequent updates installed as a result of the investigation process), renewing the implementation of the DO component. The framework cycle will continue until final completion criteria are determined to be reached and the approval period is expired.

The OMP will be formally reviewed every five years (at a minimum and more frequently where monitoring outputs trigger adaptive management updates). The review will consider results of all monitoring including information gathered by the suitably qualified person, results of ecological condition scoring and pest animal monitoring. The formal review will be a further opportunity for effectiveness of management actions to be assessed, and amendments considered for implementation.

4.2 Management objectives

The management objective of the OMP is to achieve a conservation gain for ornamental snake.

As per the Commonwealth 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 matter or its habitat that is under threat.*

Specifically, a conservation gain will be delivered for ornamental snake through the pursuit of the following OMP management objectives:

- To protect and improve ornamental snake habitat within the Offset Area to a level at which:
 - o the habitat over time provides greater conservation value than its current form; and
 - o the habitat over time provides at least the same conservation value as the current impact site.
- Manage and reduce threats to ornamental snake within available habitat.
- Improve the condition and extent of regrowth vegetation providing / increasing connectivity values.

4.2.1 Rationale

The ecological rationale for the delivery of a conservation gain for ornamental snake via the actioning of this OMP is concerned with the protection, improvement and increased ecological connectivity of preferred and suitable habitat within the proposed Offset Area. Although targeted surveys have not yet detected ornamental snake within the Offset Area, the site comprises extensive tracts of remnant and non-remnant brigalow communities (i.e. REs 11.3.3 and 11.3.1) associated with gilgai habitats, riparian corridors and drainage lines, known key habitat features for the species. Further, the Offset Area is well positioned, coinciding with State-significant, and in proximity to, Regional biodiversity corridors, and adjoins other existing and planned offsets (that will be subject to legal securement), forming part of a broader, contiguous network of native vegetation, and enhancing north-south ecological connectivity for the species.

In the absence of the offset, ongoing land uses and inconsistent pest, weed and fire management would likely result in continued habitat degradation. Under the Queensland *Biosecurity Act 2014*, landholders have a general

biosecurity obligation to take all reasonable and practical measures to minimise risks posed by invasive plants, pest animals, and inappropriate fire regimes on their land. In practice, however, management responses are often implemented sporadically and with varying (frequently insufficient) levels of intensity, limiting their effectiveness over time. This reflects, in part, the economic and coordination constraints faced by individual landholders, who are rarely positioned to deliver large-scale or regionally coordinated pest and weed control programs on a voluntary basis.

By contrast, legal securement and implementation of this OMP (including weed and pest control, controlled low-intensity grazing, fire exclusion, and brigalow regeneration / revegetation) will protect, restore and enhance habitat condition. These actions will reduce known threatening processes (e.g. soil compaction by stock, and degradation of gilgai and wetland features by stock and feral pigs) and facilitate natural regeneration of non-remnant vegetation toward improved RE condition. Collectively, these measures provide strong potential for habitat within the Offset Area to transition from sink to source habitat for ornamental snake over time, improving the viability of local populations and delivering a measurable conservation gain.

It is also important to emphasise that given the abundance of suitable habitat in the Offset Area, its connectivity to known corridors and adjacent remnant vegetation, nearby records of the species, and the ornamental snake's cryptic nature, and detectability limitations (refer [Section 3.3.1](#)), future colonisation or currently undetected presence is considered plausible.

4.2.2 Legal security

In Queensland, terrestrial offsets are most often secured through one of the following legal mechanisms provided for under State legislation:

- An environmental offset protection area under the *Environmental Offsets Act 2014*.
- A declaration that the area is of high nature conservation value under the *Vegetation Management Act 1999* (VM Act) known as a voluntary declaration (VDec).
- A protected area (including a nature refuge) under the *Nature Conservation Act 1992*.
- Another mechanism specified under the regulation, (including a statutory covenant) under the *Land Act 1994* or *Land Title Act 1994*.

The Offset Area is a private property and is not mapped as a protected area, in that it is not a national park, nature refuge, wildlife reserve, state forest, council reserve and there is no current conservation covenant on the land. The legal security that will be provided as part of the offset is additional by way of a formal legal protection mechanism.

Securement of the Offset Area as a Category A area via a VDec under the provisions of the VM Act, as well as via a covenant pursuant to the *Land Act 1994* for long-term securement, will provide a level of security above what is already in place. Specifically, securement of the Offset Area will protect the Offset area from:

- future changes in legislation which could result in reduced protection; and
- future clearing, including clearing of any vegetation that could potentially be undertaken as Exempt Clearing Work or under future approval.

The offset shall be in place per the anticipated period of approval, ensuring completion criteria of the offset are satisfied (consistent with the results of the OAG calculation – refer [Appendix A](#)).

4.3 Management actions

Specific management actions have been developed to facilitate the management objectives. Actions are consistent with the component requirements of the Offset Management Framework and have been drafted to meet the 'S.M.A.R.T' principle⁵:

The management actions have been designed to:

- Restore degraded areas so that they provide greater habitat value for ornamental snake.
- Reduce / remove degrading processes and key threats across the Offset Area.

⁵ Specific, Measurable, Achievable, Relevant, Time-bound

- Focus management efforts on the components of habitat quality where there is the most opportunity for improvement for the impacted species.

These actions fall under five key categories:

1. Securing the Offset Area
2. Habitat improvement
 - i. Natural regeneration of habitat
3. Land use management
 - i. Controlled livestock grazing
 - ii. Vegetation clearing restrictions
4. Weed and pest management
 - i. Control and monitoring of weeds
 - ii. Control/reduction of feral pigs and other pests
5. Other management
 - a. Fire management
 - b. Infrastructure maintenance

The management actions have been developed with respect to relevant management objectives and priorities identified in the Approved Conservation Advice for *Denisonia maculata* (ornamental snake) (DoE, 2014), and relevant Threat Abatement Plans (TAPs) (refer [Appendix D](#)).

Details on the specific management actions to be implemented within the Offset Area are outlined in [Table 7](#) and discussed in detail where required in the subsequent sections ([Sections 4.3.1 to 4.3.5](#)).

As per [Section 4.1](#), additional management and/or corrective actions may be required where monitoring indicates performance targets or KPIs are not / will not be met. Such actions are detailed in [Section 6](#) (see [Table 10](#)); however, investigations may require additional / alternative approaches to be implemented based on advice from suitably qualified persons.

Table 7 Management actions under the OMP

Management category	Method	Location	Responsibility	Timing
Secure the Offset Area				
Legally secure the land	Offset Area initially secured via VDec over the site as of 'high conservation value' under the VM Act in the short term. Offset Area subsequently secured via nature covenant under the Queensland <i>Land Act 1994</i> .	Offset Area	BMA Land Tenure Team	VDec established within 12 months of commencement of the Action. Nature Covenant application commenced within 12 months of commencement of the Action. VDec to be removed following finalisation of Nature Covenant.
Restrict access	Signage to be erected at Offset Area major access points that identifies access restrictions and instructions such as weed hygiene protocols and contact details.	Offset Area	Landowner or suitably qualified professional	Signage to be in place within 12 months of securing the Offset Area. Signage to remain in place for the duration of the Offset.
Habitat improvement				
Habitat regeneration	Natural, or passive, regeneration will be allowed to occur by the application of the formal management arrangement for the Offset Area. High intensity and/or frequent fire is to be excluded. Incidental clearing, changes in land use or other disturbance to habitat will not be undertaken unless required for the purposes of managing the land (i.e. fire breaks, fencing, etc.).	Offset Area	Suitably qualified professional	Restrictions will apply upon securement of the VDec.
Land use management				
Controlled grazing regime	Controlled grazing will be implemented according to the following guidance: - During the wet season (December to March) grazing in the Offset Area will be excluded, where the presence of cattle presents a greater risk of trampling and soil compaction. Stocking rates will aim to maintain a minimum native perennial grass cover threshold of 60% cover, or as per relevant Queensland Government requirements such as the <i>Agricultural ERA standard for beef cattle grazing in the Great Barrier Reef catchment</i>. - Outside of the wet season, grazing will occur provided BioCondition benchmarks for native perennial grass cover are achieved / maintained in grazed REs per the below (DES, 2019): - RE 11.3.1 (33%); and - RE 11.3.3 (45%). - For fuel reduction purposes.	Offset Area	Landowner or suitably qualified professional	Controlled grazing will commence as soon as appropriate fencing is installed for the Offset Area and no later than the end of Year 1. The controlled grazing stocking density to be applied will be informed by quarterly native perennial grass cover monitoring (Table 10) and adjusted in accordance with seasonal requirements and outcomes of monitoring. Controlled grazing may occur for the life of the Offset depending on outcomes of the condition monitoring.

Management category	Method	Location	Responsibility	Timing
	- To control exotic pasture grasses. The grazing must be timed such that native grasses are allowed to flower and set seed. - Allow necessary tree recruitment in non-remnant areas to uplift habitat quality consistent with the prescribed outcomes of this OMP. - Outside of the wet season, changes to livestock densities will be considered following significant rainfall events to minimise compaction and disturbance of soil cracks (refer Appendix C).			
Restrict vegetation clearing	Vegetation clearing in the Offset Area is restricted to: - That necessary for the control of non-native plants or declared pests. - Establishing and maintaining fence, firebreak, road or vehicular track and the clearing cannot reasonably be avoided or minimised. - Ensure public safety. - Where vegetation clearing is sought for any other purpose, the landowner or other person proposing to undertake the clearing must contact the relevant department administering the VM Act and the Proponent.	Offset Area	Landowner or suitably qualified professional	Vegetation clearing restrictions will apply from securement of the VDec for the duration of the Offset.
Weed and pest management				
Weed monitoring and control	All vehicles new to the Offset Area must follow best practice weed hygiene practices, including ensuring vehicle and machinery is clean, weed and seed free before entering the Offset Area.	Offset Area	Landowner or suitably qualified professional	Weed hygiene practices will be implemented in accordance with best-practice weed hygiene measures stipulated under the Queensland <i>Biosecurity Act 2014</i> and relevant Queensland Department of Agriculture and Fisheries (DAF) weed hygiene guidance, commencing from the securement of the VDec and applied for the duration of the Offset.
	Control infestations of restricted invasive plants under the Queensland <i>Biosecurity Act 2014</i> using recommended species-specific control methods. <i>Note: Buffel grass and other non-native pasture grasses are not referred to as a weed as they are not declared or restrictive invasive plants under the Biosecurity Act 2014. Control of introduced grasses will be managed through dry season grazing to reduce fire fuel loads and allowing canopy cover to increase.</i>	Offset Area	Landowner or suitably qualified professional	If detected during monitoring events (Table 10) corrective actions will be implemented within 12 months.

Management category	Method	Location	Responsibility	Timing
Feral pig control	Co-ordinated annual baiting as part of the wider Croydon Station feral animal management. Poison baits, using sodium monofluoroacetate (1080) carry a high risk of poisoning non-target species. As such, consideration to the timing, size of bait and amount of bait deployed must be considered to mitigate impacts to non-target species.	Offset Area	Landowner or suitably qualified professional	Annual baiting events undertaken by Landowner or suitably qualified professional. If results of monitoring events (Table 10) indicate an increase in presence, corrective actions will be implemented per Table 10 .
Other management				
Fire Management	Firebreaks will be maintained across Croydon Station to mitigate the threat of uncontrolled fire events. New firebreaks will be co-located with existing access tracks and fence lines on the outside of the Offset boundary. Access tracks will be maintained to allow fire fighting vehicles to effectively access the Offset Area. Low-intensity 'cool burn' fire management to be implemented in areas as identified and directed by a suitably qualified person.	Offset Area	Landowner or suitably qualified professional	Fire management, including new firebreaks will be installed within 12 months of securing the Offset Area. Firebreaks and access tracks will be maintained for the duration of the Offset.
Infrastructure maintenance	Following an extreme weather event (fire, flood or cyclone) the Offset is to be inspected to investigate if repair / restoration / revegetation is required to maintain the offsets progress toward completion criteria.	Offset Area	Landowner or suitably qualified professional	Inspection to occur 6 monthly, and within 2 weeks following an extreme weather event, where it is safe to do so.

4.3.1 Offset securement

There are a number of mechanisms under Queensland legislation for legally securing lands for the purposes of providing environmental offsets. The Offset Area will be secured through a VDec of the site as of 'high nature conservation value' under the VM Act. Legal securement of the Offset Area via this mechanism will occur within 12 months of commencement of the action. During this time, a nature covenant under the Queensland *Land Act 1994* will also be progressed to bind current/future landowners to the offset's conservation objectives to ensure its enforceability and longevity. The OMP will be attached to the legal mechanism used to legally secure the Offset Area.

4.3.2 Habitat regeneration

Natural regeneration

In order to fully acquit the Project's SRI on ornamental snake habitat, historically cleared REs within the Offset Area will be allowed to regenerate (i.e. via no regrowth clearing and reduced grazing intensity). Regenerating previously cleared areas, devoid of native vegetation, to native woodland communities is generally a highly effective, and easily measurable and detectable offset / conservation gain (Jacobs Group, 2024).

Brigalow vegetation communities often regenerate naturally after disturbance by suckering, a process facilitating the development of new shoots from the existing root system (Peeters and Butler, 2014). Observed brigalow regrowth within the Offset Area demonstrates the potential for natural regeneration within present degraded communities (e.g. RE 11.3.1). Vegetation within the Offset Area currently contains native species (consistent with those REs identified in [Table 3](#)) from each stratum (ground layer and shrub/tree layers), indicating the presence of a viable seedbank.

4.3.3 Land use management

Controlled livestock grazing

Grazing pressure by livestock can reduce shelter and food for ornamental snake by slowing and preventing the recruitment and growth of brigalow, grasses and understorey shrubs, and by trampling and reducing the amount of litter and fallen timber (Peeters & Butler, 2014). Cattle often use patches of brigalow for shade and tend to selectively graze palatable plant species, facilitate the spread of introduced weeds and increase soil compaction (Cook et al., 2006 cited in Peeters & Butler, 2014). Soil compaction of deep-cracking clays and gilgai impacts the quality of ornamental snake habitat by reducing refuge and foraging habitat.

Cattle grazing is currently ongoing within the Offset Area and some evidence of adverse effects to ornamental snake habitat because of this has been identified (E2M, 2025). To facilitate the requisite conservation gain in the Offset Area, grazing practices will be adjusted to (a) reduce the potential for impacts to shelter, foraging and breeding resources in preferred habitat (RE 11.3.3) and (b) increase habitat availability and condition via the enablement of natural brigalow regeneration (i.e. in suitable habitat – RE 11.3.1).

Currently fencing is not established along the perimeter of the proposed Offset Area. Existing fencing elsewhere within the broader Croydon Station will be used to exclude livestock from accessing the Offset Area during the wet season.

4.3.4 Weeds and pest management

Weed monitoring and control

Study Area surveys identified multiple weeds and non-native pasture grasses that compete with native species in the ground layer (E2M, 2025). Such species include *Cenchrus ciliaris* (buffel grass), *Urochloa mosambicensis* (sabi grass), *Parthenium hysterophorus* (parthenium)⁶ and various *Stylosanthes* spp. Weeds have the ability to alter the floristic composition and structure of vegetation communities. This occurs because many weed species can rapidly colonise disturbed areas following both natural and anthropogenic disturbance events (e.g. fire and land clearing). Once established, weeds may dominate the biomass within a community, restrict the growth and recruitment of native plant species, and alter overall community composition.

⁶ Restricted Category 3 under the Queensland Biosecurity Act 2014

In addition, some weed species can significantly influence ecological processes and successional trajectories, for example by increasing fuel loads and altering fire regimes. These changes may result in more frequent or higher-intensity fires, which can adversely affect native plant species assemblages and inhibit natural recovery processes.

Not all weed species have the capacity to detrimentally alter vegetation communities at a landscape scale. Accordingly, monitoring activities will prioritise the identification and mapping of weed species listed under the Queensland *Biosecurity Act 2014* and Weeds of National Significance (WoNS). However, other non-listed weed species may also negatively affect native vegetation communities and should therefore be recorded during baseline ecological surveys where present.

Feral pig control

Destruction of gilgai and wetland habitat by *Sus scrofa* (feral pigs) is a key threat to ornamental snake along with the associated destruction of frog habitat and direct competition for their food source (i.e., frogs) (WWF Australia / Queensland Murray Darling Committee, 2008; DoE 2014). Although pigs typically occur in small numbers and are transient in nature, significant damage to vegetation and habitat can occur when larger numbers congregate within an area (Department of Agriculture and Fisheries (DAF), 2020).

Feral pigs are highly fecund and able to double their population size annually. Effective control of the species requires a minimum population reduction of 70% (Choquenot et al., 1996). Recent feral pig control undertaken across Croydon Station comprised of an aerial shooting program delivered by IRC with five shooting events conducted in the past two years. IRC reporting indicates that 3,000, 1,700 and 700 pigs were destroyed in the past three shooting events (across the broader district), suggesting both program efficacy and a declining population trend under this relatively intense control regime. The intensity of this Council-led control program exceeds those typically initiated by landholders, which are generally ad hoc and might only occur biennially. Notably, the IRC program is now concluding, with no funding secured for its continuation.

In the absence of a similarly intensive control program, feral pig populations in the area may be reasonably expected to increase over time, with associated habitat disturbance (e.g. impacts to soil, vegetation and frog (prey) habitats) potentially reducing habitat quality for ornamental snake. To mitigate this risk and provide a conservation gain for ornamental snake, upon establishment, the offset will be subject to an annual 1080-baiting program (refer [Table 7](#)).

Poison baits are considered the most appropriate technique for achieving large-scale control. Bait material should be specific to the local diet of pigs. Therefore, a grain bait is deemed appropriate for the Offset Area. Sodium fluoroacetate (1080) is the primary poison recommended by the Queensland Government. Pre-feeding of non-toxic grain is required to encourage bait uptake and will be carried out for at least three nights before poisoned grain is introduced. The uptake of bait by non-target species can be significantly reduced by considering the placement, timing, size and amount of bait. Additionally, the risk is reduced by using pig specific bait stations, mechanical exclusion devices, collecting uneaten baits and dying baits green (Department of Primary Industries and Fisheries (DPIF), 2008).

Through the implementation of sustained, structured and coordinated feral pig control under an offset framework, there is greater certainty of maintaining habitat condition (and improving habitat condition, in combination with additional management actions – refer [Table 7](#)) and achieving the requisite conservation gain for ornamental snake.

4.3.5 Fire management

Fire is known to have detrimental effects on brigalow communities, particularly where it occurs at high intensity or with increased frequency, and/or in regrowth/regenerating areas (Peeters and Butler, 2014). Repeated burning can reduce tree density and canopy cover while promoting invasive grasses (e.g. buffel grass). Further increasing fuel loads, this can create a negative feedback loop which may result in reduced species diversity and structural complexity, and long-term ecosystem degradation, negatively impacting on habitat values.

5 Offset Completion Criteria

Indicative interim performance targets to assess the effectiveness of management measures in improving overall habitat quality over the duration of the offset, and to ensure final completion criteria are achieved for the ornamental snake, are provided in [Table 8](#).

The habitat quality improvement scores targeted are based on improvement of site-based and species habitat attributes within the Offset Area and the estimated time for improvement to occur. The reduction/removal of threats (e.g. intense grazing, weeds, pest animals) is expected to have a short-term effect on the habitat quality; while criteria associated with vegetation structure and composition (i.e. non-native cover and ground cover, recruitment, and species richness) is likely to be recognised over a longer time period. Hence, habitat quality completion scores (Year 20) and indicative interim performance targets (Year 5, 10 and 15) have been developed for ongoing monitoring and evaluation purposes ([Table 8](#)).

The habitat quality scores provided in [Table 8](#) have been calculated using the Habitat Quality Guide (DES, 2020) and have been used in OAG calculations ([Appendix A](#)). The same methodology was applied to assess habitat quality within the Project Area (Engeny, 2026), in order to identify the requisite completion criteria.

Should the completion criteria not be achieved within 20 years, the frequency of ongoing management will be determined by a suitably qualified ecologist.

It is noted that a Year 0 habitat quality survey event will be undertaken within the Offset Area to provide the appropriate benchmark (or baseline) for ongoing monitoring and evaluation through the duration of the offset⁷. This is consistent with requirements under the Habitat Quality Guide (DES, 2020)⁸ (refer [Section 3.3.2](#)). The Year 0 assessment for ornamental snake habitat quality in the Offset Area will be undertaken upon Project approval and will be in accordance with the Habitat Quality Guide (DES, 2020) detailed in [Section 3.3.2](#).

Table 8 Completion criteria and interim performance targets for the Offset Area

Criteria	Baseline Score	Interim Performance Targets			Completion Score Year 20
		Year 5	Year 10	Year 15	
Ornamental snake (<i>Denisonia maculata</i>)					
Species occurrence	Not recorded during baseline surveys	Species detected	Continued species occurrence		Continued species occurrence
Habitat quality score	6	6	7	7	7

5.1 Risks and triggers

A risk assessment assesses known and potential risk events which may prevent the OMP's KPIs, interim performance targets and ultimately, management objectives from being met. [Table 9](#) summarises the key risks associated with the management actions of the OMP. Correction of management actions (consistent with the BMA Management Framework) will be undertaken where risks manifest. Corrective actions (including timing of implementation) in response to management triggers will be undertaken in accordance with [Table 7](#) and the detailed risk assessment provided in [Appendix B](#). The success of such adaptive management will continue to be monitored in accordance with [Table 10](#).

Table 9 OMP objectives risk summary

Impact type and risk	Final (mitigated) risk
Overgrazing – soil compaction and impacting cover and composition of the ground layer, thereby reducing habitat value and future quality of the Offset Area.	Low

⁷ Croydon Station Offset Suitability Report (E2M, 2025) details the habitat conditions scores across the entire Study Area. Additional survey will benchmark conditions specific to within the Offset Area for ongoing monitoring purposes.

⁸ Refer Table 2.2 in the [Habitat Quality Guide](#) (DES 2020). In order to accurately capture conservation gain within the Offset Area itself, a minimum number of sampling sites must be applied to Assessment Units (refer [Section 6](#)) within the Offset Area.

Impact type and risk	Final (mitigated) risk
Feral pig proliferation – increased abundance resulting in soil compaction and impacting cover and composition of the ground layer, thereby reducing habitat value and future quality of the Offset Area.	Low
Vegetation clearing – habitat loss and hinderance to regeneration of communities.	Medium
Failed vegetation regeneration – no recruitment or establishment / spread of native flora species in the Offset Area.	Low
Introduction / spread of weeds – increased abundance and spread of existing weeds, or introduction of new weeds impacting habitat quality scores.	Low
High fuel loads – increased frequency / severity of fire resulting in impacts to vegetation composition and structure impacting habitat quality scores in the Offset Area.	Low
Erosion – increased erosion and/or sediment issues resulting in a loss of vegetation cover and structure (particularly ground layer) resulting in impacts to habitat quality.	Low
Fence failure – unauthorised access to Offset Area (people, vehicles, livestock) resulting in habitat quality (or loss) impacts.	Low
Drought – decreased groundcover and vegetation dieback – decrease in habitat quality over time and failure to meet completion criteria.	High
Bushfire – impacts to regeneration of vegetation may occur as a result of bushfire (incl. lightning strike), resulting in habitat loss.	Medium
Severe storm / tropical low – flooding of Offset Area and subsequent impacts to habitat quality.	High

6 Monitoring and evaluation

6.1 Monitoring activities

Monitoring will be required for the duration of the offset to measure the success of the management actions implemented under the OMP. Monitoring will provide a record of progress towards offset completion criteria and a mechanism for review of the OMP and development of alternative management (corrective) action/s where performance targets are not being met.

Offset monitoring activities will comprise the following:

- Baseline assessments, including:
 - o Targeted species presence – Ornamental snake surveys to determine current presence and relative abundance.
 - o Biocondition assessments to determine habitat quality at Year 0.
 - o Weed and pest survey.
- Ongoing monitoring, comprising:
 - o Targeted ornamental snake presence and relative abundance monitoring.
 - o Habitat quality monitoring for assessment of progress toward completion criteria.
 - o Feral pig presence monitoring.
 - o Weed presence and distribution monitoring.
 - o Livestock impact monitoring (via native perennial grass cover indicators).
 - o Infrastructure maintenance inspections.

Further detail regarding the baseline and ongoing monitoring actions is provided in [Table 10](#). The describes timing of each baseline and monitoring activity and key performance indicators (KPIs) associated with the management actions. The KPIs stipulate a target against which to measure the success of the offset management actions, thereby providing a positive conservation benefit to the target species in the long-term.

Monitoring will be carried out over the duration of the offset to ensure that offset completion criteria (described in [Table 8](#)) is achieved and maintained (should the criteria be attained ahead of time).

Table 10 OMP monitoring details

Aspect	Method	Monitoring timeframe / frequency	Attribute monitored	Key Performance Indicators	Corrective Actions
Species presence - ornamental snake	Commonwealth survey guidelines for ornamental snake (<i>Denisonia maculata</i>) (DCCEEW, 2025).	Baseline benchmark assessment conducted at Year 0. Subsequent surveys to be conducted at Years 1, 2, 5, 10, 15 and 20.	Presence of ornamental snake in within the offset area	Ornamental snake presence detected. Once detected, ornamental snake activity does not significantly decline between monitoring events.	If ornamental snake has not once been detected following Year 2 surveys, a species-expert will be engaged to develop scientifically robust management / corrective actions to confirm survey methodology is fit for purpose and to ensure management actions are reducing threat levels to the extent that habitat is optimal for the species to occupy. Such actions (including associated monitoring) will be incorporated into an updated OMP which will be submitted to DCCEEW for approval. Examples of possible corrective actions include: - Extended periods of livestock exclusion and/or revision of stocking densities. - Additional / increased-intensity pest plant and animal control. If ornamental snake has not once been detected following Year 5 surveys, BMA will provide DCCEEW with an alternative offset option for approval. If the number of individuals detected have reduced and is significantly different to previous monitoring results, the OMF CHECK-ACT process will be implemented to determine likely drivers of the observed decline. BMA will seek advice from a suitably qualified ecologist (SQE). The SQE will determine whether there is evidence the Offset Area management actions have contributed to the observed decline in species presence. Where results are attributed to inappropriate or ineffective management actions, corrective actions will be identified and implemented within 12 months of the monitoring result. Corrective actions planning will consider: - Additional/alternative survey methods. - Available alternative management approaches (e.g. revised gazing regime/timing/intensity, supplementary infrastructure, additional pest control events/activities). - Timing and responsibility for implementation. - Budget allocation. - Additional or changes to monitoring requirements. - Reporting requirements.

Aspect	Method	Monitoring timeframe / frequency	Attribute monitored	Key Performance Indicators	Corrective Actions
					Reporting to the Regulator may be required if management measures need to be amended.
Habitat quality	In accordance with the Habitat Quality Guide (DES, 2020). Monitoring will be undertaken at each of the Habitat Quality sites for each monitoring event. Habitat quality will be calculated for each identified monitoring period and compared against the baseline and previous years in order to track changes in habitat condition, effectiveness of management measures and assess against associated interim targets and completion criteria (refer to Table 8).	Baseline habitat quality benchmark captured at Year 0. Subsequent surveys to be conducted at Years 1, 2, 5, 10, 15 and 20.	All site condition and site context attributes identified in MHQA spreadsheet to determine the capacity of the Offset Area to support ornamental snake.	Habitat quality condition scores meet the performance targets identified in Table 8 . No decrease in habitat quality scores as based on baseline and subsequent monitoring events.	The OMP CHECK-ACT process will be implemented to determine likely drivers of the observed decline. BMA will seek advice from a SQE. The SQE will determine whether there is evidence the Offset Area management actions have contributed to the observed decline in species presence. Where results are attributed to inappropriate or ineffective management actions, corrective actions will be identified and implemented within 12 months of the monitoring result. Corrective actions and associated monitoring actions will be documented and compiled in a revised OMP (ACT-PLAN). The corrective actions will be implemented under the DO component of the OMP. Corrective actions will be specific to the species and anticipated cause of the decline. This may require further on-ground survey or consultation with experts to design site- and species-specific actions based on contemporary knowledge regarding offset and land management. Corrective actions planning will consider: • Available alternative management approaches (e.g. restoration planting, revised grazing regime/timing/intensity, supplementary infrastructure, additional pest control events/activities) guided by expert input. • Timing and responsibility for implementation. • Budget allocation. • Additional or changes to monitoring requirements. • Reporting requirements.
Native perennial grass cover	1. To be conducted in concert with maintenance inspections (damage). Monitoring will include assessment of soil compaction, erosion and any other adverse impacts on habitat associated with cattle. 2. To be conducted in concert with Habitat	6-monthly (as per maintenance inspections) Habitat Quality surveys to be conducted at Years 1, 2, 5, 10, 15 and 20.	Minimum level of native perennial grass cover within Offset Area per Assessment unit/ regional ecosystem.	1. No evidence of habitat degradation resulting from livestock trampling is observed. 2. Graze stock during the dry season, at rates and times necessary to manage fuel loads in the Offset Area.	The landowner will review stocking density to either increase stocking density to reduce fuel loads or remove cattle from the Offset Area until native perennial grass cover has been restored to the required levels. The review and adjustment to regime will be undertaken prior to the subsequent monitoring activity. Corrective actions planning will consider: • Livestock exclusion. • Timing and responsibility for implementation.

Aspect	Method	Monitoring timeframe / frequency	Attribute monitored	Key Performance Indicators	Corrective Actions
	Quality Assessments. Monitoring of the grass cover in relation to grazing intensity and fuel loads will also be undertaken. This will involve assessment of native perennial grass cover (%), woody debris and leaf litter consistent with the <i>BioCondition Method</i> (Eyre et al., 2015) as part of habitat quality assessments. Grass cover will be reported against established benchmarks for REs types consistent with mapped habitat (i.e. REs 11.3.1 and 11.3.3.), where they occur within the Offset Area. Where monitoring shows grass cover (%) falling below relevant benchmarks, corrective actions will be implemented.			3. Achieve and maintain RE benchmarks for native perennial ground cover.	- Budget allocation. - Additional or changes to monitoring requirements. - Active rehabilitation/revegetation.
Feral pigs	Camera trap monitoring for one week carried out along tracks within Offset Area. Permanent camera trap sites to be established during baseline assessment (Year 0) and repeated at subsequent monitoring events. Cameras deployed at repeatable, fixed locations, incorporating spatial coverage and habitat variation across the Offset Area.	Baseline assessment conducted at Year 0. Subsequent surveys to be conducted at Years 1, 2, 5, 10, 15 and 20.	Relative pig abundance to baseline (Year 0).	No evidence of pig wallows or trampling in gilgai. Pigs observed in/near the Offset Area are below the identified baseline (Year 0).	If an increase in feral pig populations is identified, corrective actions will be implemented within 12 months of monitoring result and include (at a minimum): - Additional feral predator control, if suitable will include increase baiting program to twice yearly. - Alternative control methods investigated including annual shooting event.

Aspect	Method	Monitoring timeframe / frequency	Attribute monitored	Key Performance Indicators	Corrective Actions
	Monitoring will occur during autumn to winter, to maximise detection. Results will be used to determine the baseline feral pig relative activity level, which will be used by a specialist pest control professional, to determine the extent of pest control response required to reduce and/or maintain the annual relative activity to as low as practicable. To determine success from feral animal control, a running scorecard of pests directly removed from the environment (quantifiable methods only, i.e. periodic shooting, discussion with landholder and/or suitably qualified professional) will be used to track progress of management.				
Weeds	Surveys of restricted invasive plants under the <i>Biosecurity Act 2014</i>. Monitoring at established weed monitoring sites throughout the Offset Area. GPS marking of small infestations or scattered individuals will be undertaken. Where weeds are more widespread, suitable assessments assessing composition and cover at monitoring sites will be undertaken.	Baseline assessment conducted at Year 0. Subsequent surveys to be conducted at Years 1, 2, 5, 10, 15 and 20.	Monitoring will record the presence and density of restricted invasive plants under the <i>Biosecurity Act 2014</i>, including species presence, abundance and distribution and health. Species composition and cover assessments, including photo monitoring will also be undertaken at established	No new weed species detected. No new, high-density infestations detected. Decrease in restricted invasive plants listed in the <i>Biosecurity Act 2014</i> within Offset Area.	If restricted invasive plants or new infestations are identified, corrective actions will be implemented within 12 months of monitoring result and will include (at a minimum): - Additional weed management activity carried out, including at an increased frequency. - Investigation and implementation of alternative control methods (e.g., manual removal, chemical applications) will be undertaken by a suitably qualified professional.

Aspect	Method	Monitoring timeframe / frequency	Attribute monitored	Key Performance Indicators	Corrective Actions
			monitoring sites or areas of known infestations, allowing quick comparison of weed/infestation areas over time.		
Infrastructure maintenance	Inspection of fence lines, access tracks and firebreaks.	6-monthly and within 2 weeks following extreme weather events when safe to do so (e.g. flooding or high intensity bushfires).	Fences, access tracks and firebreaks in working order.	Fences, firebreaks and tracks in working order.	In the case that damage to infrastructure occurs, corrective actions will be implemented within 6 months of monitoring result and will include (at a minimum): - Fence maintenance/repair. - Re-establishing/maintenance of firebreaks. - Grading of access tracks.

6.2 Monitoring roles

Monitoring roles and responsibilities will be set out consistently against [Section 4.3](#). [Table 11](#) lists the parties responsible for undertaking the monitoring activities within this OMP.

Table 11 Monitoring responsibilities under the OMP

Monitoring Activity	Responsible Party
Targeted ornamental snake survey	Suitably qualified professional (ecologist).
Habitat quality assessment	Suitably qualified professional (ecologist).
Native perennial grass cover	Suitably qualified professional (ecologist) and landowner
Feral pig monitoring	Suitably qualified professional and/or landowner
Weed inspections	Suitably qualified professional (ecologist).
Maintenance inspections	Landowner

7 Force majeure

The OMP has identified a number of potential risks, including extreme weather events which may pose a risk to the Offset Area (as identified in Section 5.1 and Appendix B). Depending on the severity of the event, the OMP may require review and/or consultation with relevant stakeholders and regulatory authorities to determine an appropriate course of action.

BMA, however, remains committed to fulfilling the requirements of the approval and ensuring appropriate outcomes are achieved. In the case of a force majeure event, BMA will notify DCCEEW as soon as they become aware of the Offset Area being affected by a force majeure event.. Furthermore, BMA currently manages a portfolio of offset sites across the region, in the case of a force majeure event, BMA can draw upon their experience in managing other offset sites and has access to commercially available stores of seed for use in regeneration areas. Where needed, BMA will engage a revegetation specialist or ecologist to provide guidance or to develop a specific works program as may be required by the severity of the event.

8 Reporting

BMA will prepare and submit a report on the implementation of the OMP at Year 1, Year 2 and Year 5, and then every five years for the remaining offset lifespan (i.e. for a minimum of 20 years). Compliance reports submitted to DCCEE by BMA will detail progress towards KPIs, performance targets and completion criteria. Reports will be made publicly available where required.

9 Terms and Definitions

Term	Definition
°C	Degrees Celsius
AU	Assessment Unit
BMA	BM Alliance Coal Operations Pty Ltd
Cwth	Commonwealth
DCCEEW	Department of Climate Change, the Environment, Energy & Water (Cwth)
DES	Department of Environment & Science (Qld) (superseded)
E2M	E2M Consulting Pty Ltd
EA	Environmental Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwth)
ha	Hectare(s)
HVR	High-value regrowth
IRC	Isaac Regional Council
km	Kilometre(s)
LGA	Local Government Area
m	Metre(s)
MNES	Matter(s) of National Environmental Significance
NA	Not applicable
OAG	Offsets Assessment Guide
OMP	Offset Management Plan
PDM	Peak Downs Mine
Project Area	The impact area defined as the approximately 220 hectares (ha) within Mining Lease (ML)700021 and occurring adjacent to the east of the current mining operations at SRM
Qld	Queensland
RE	Regional Ecosystem
RFI	Request for Information
RoL	Risk of Loss
RR	Risk Rating
SAP	BMA Enterprise Work Management System
spp.	Species (plural)
SQE	Suitably qualified ecologist
SRI	Significant Residual Impact
SRM	Saraji Mine
TAP	Threat abatement plan
TEC	Threatened ecological community
the Project	The Saraji Mine (SRM) Grevillea Pit Continuation Project (EPBC 2023/09757)
VM Act	<i>Vegetation Management Act 1999</i> (Qld)

10References

Legislative Requirements Documents

- Department of Climate Change, Energy, the Environment and Water [DCCEEW]. (2025). Survey guidelines for the ornamental snake (*Denisonia maculata*). Department of Climate Change, Energy, the Environment and Water, Canberra.
- Department of Environment and Science [DES]. (2020). Guide to determining terrestrial habitat quality (Version 1.3): Methods for assessing habitat quality under the Queensland Environmental Offsets Policy. Queensland Government.
- Department of Sustainability, Environment, Water, Population and Communities [DSEWPaC]. (2011). Survey guidelines for Australia's threatened reptiles. Australian Government. <https://www.awe.gov.au/sites/default/files/documents/survey-guidelines-reptiles.pdf>
- Department of Sustainability, Environment, Water, Population and Communities [DSEWPaC]. (2012). Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy. Australian Government.
- Department of the Environment [DoE]. (2013). Matters of National Environmental Significance, Significant impact guidelines 1.1, Environment Protection and Biodiversity Conservation Act 1999. Australian Government.
- Department of the Environment [DoE]. (2014). Approved Conservation Advice for *Denisonia maculata* (Ornamental Snake). Australian Government.

Technical Reference Documents

- Department of Agriculture and Fisheries [DAF]. (2020). Restricted Invasive animal: Feral pig (*Sus scrofa*). Queensland Government.
- Department of Climate Change, Energy, the Environment and Water [DCCEEW]. (2023). National Light Pollution Guidelines for Wildlife. Department of Climate Change, Energy, the Environment and Water, Canberra.
- Department of Environment and Resource Management [DERM]. (2010). Land Manager's Monitoring Guide: Ground cover indicator. Queensland Government.
- Department of Environment and Science [DES]. (2019). BioCondition benchmarks for Regional Ecosystem Condition Assessment. Queensland Government.
- Department of Environment and Science [DES]. (2022). Queensland Statewide Corridors [Map]. Queensland Government. <https://spatial.information.qld.gov.au/arcgis/home/item.html?id=a6d900f6433241489f5861d85806fce8>
- Department of Primary Industries and Fisheries [DPIF]. (2008). Feral pig control—A practical guide to pig control in Queensland. Queensland Government.
- Department of Resources [DoR]. (2024). QImagery. Queensland Government. <https://qimagery.information.qld.gov.au/>
- Department of the Environment, Water, Heritage and the Arts [DEWHA]. (2010). The cane toad (*Bufo marinus*). Australian Government.
- E2M Consulting [E2M]. (2025). Croydon Station Offset Suitability Report. BM Alliance Coal Operations Pty Ltd. Prepared for SLR Consulting Australia Pty Ltd.
- Engeny Australia Pty Ltd [Engeny]. (2026). BHP Grevillea Pit Continuation Project. Terrestrial Ecology Survey & Impact Assessment Report. QC1000_216-REP-001-2. Prepared for and on behalf of BHP.
- Eyre, T.J., Kelly, A.L., Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. (2015). BioCondition. A Condition Assessment Framework for Terrestrial Biodiversity in Queensland: Assessment Manual. Queensland Herbarium.
- Hines, F., Tolhurst, K., Wilson, A., & McCarthy, G. (2010). Overall Fuel Hazard Assessment Guide. Department of Sustainability and Environment. Victorian Government.
- Holwartz, M., Smith, D. and Nelson, B. (2018). Is wet season spelling achievable at a whole of property scale? Agri-Science Queensland Innovation Opportunity. Department of Agriculture and Fisheries. State of Queensland.

- Jacobos Group. (2024). Ground-truthing of EPBC Act offset site information summary report. Prepared for the Department of Climate Change, Energy, the Environment and Water.
- Kerswell, A., Kaveney, T., Evans, C., & Appleby, L. (2023). Central Queensland Threatened Species Habitat Descriptions (Version 5). Commissioned by BHP.
- Peeters, P. J., & Butler, D. W. (2014). Brigalow: Regrowth benefits—Management Guideline. Department of Science, Information Technology, Innovation and the Arts. Queensland Government.
- Sharp, T. (2012). NATSOP-PIG005 National Standard Operating Procedure: Poisoning of feral pigs with sodium fluoroacetate (1080). PestSmart – powered by the Centre for Invasive Species Solutions.
- WWF-Australia/Queensland Murray Darling Committee. (2008). Ornamental Snake Information Sheet. <http://www.qmdc.org.au/publications/download/39/fact-sheetscase-studies/reptilerecovery/ornamental-snake.pdf>

11 Version Management

Version	Details	Date
1.0	Final (PD submission)	13 November 2025
2.0	Final (2 nd round adequacy review – PD submission)	25 March 2026
6.0	Updated for Final PD submission	3 July 2026

Appendix A – Offset Assessment Guide

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	Ornamental Snake
EPBC Act status	Vulnerable
Annual probability of extinction Based on IUCN category definitions	0.2%

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

Impact calculator					
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source
Ecological communities					
Area of community	No		Area		
			Quality		
			Total quantum of impact	0.00	
Threatened species habitat					
Area of habitat	Yes	OS habitat	Area	45.56 Hectares	
			Quality	6 Scale 0-10	
			Total quantum of impact	27.34 Adjusted hectares	
Threatened species					
Birth rate e.g. Change in nest success					
	No				
Mortality rate e.g. Change in number of road kills per year					
	No				
Number of individuals e.g. Individual plants/animals					
	No				

Offset calculator																		
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source		
Ecological Communities																		
Area of community	No				Risk-related time horizon (max. 20 years)	Start area (hectares)	Risk of loss (%) without offset	Risk of loss (%) with offset	0.0									
							Future area without offset (adjusted hectares)	0.0									Future area with offset (adjusted hectares)	
							Time until ecological benefit	Start quality (scale of 0-10)									Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)
Threatened species habitat																		
Area of habitat	Yes	27.34	Adjusted hectares	OS habitat	Time over which loss is averted (max. 20 years)	Start area (hectares)	Risk of loss (%) without offset	Risk of loss (%) with offset	0.00	95%	0.00	0.00	27.36	100.10%	Yes			
							Future area without offset (adjusted hectares)	356.0									Future area with offset (adjusted hectares)	356.0
							Time until ecological benefit	Start quality (scale of 0-10)									Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)
Threatened species																		
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																	

Appendix B – Risk assessment

Table 12 Likelihood and consequence scales; and risk matrix

RISK MATRIX						
Likelihood (L): A 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				
Consequence (C): Qualitative measure of 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 OMP 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. OMP objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evident mitigation strategies)				
Critical		Severe widespread loss of environmental amenity and irrecoverable environmental damage (e.g. OMP objectives are unable to be achieved, with no evident mitigation strategies)				
Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		Consequence				
		Minor (1)	Moderate (2)	High (3)	Major (4)	Critical (5)
Likelihood	Highly (E)	Medium	High	High	Severe	Severe
	Likely (D)	Low	Medium	High	High	Severe
	Possible (C)	Low	Medium	Medium	High	Severe
	Unlikely (B)	Low	Low	Medium	High	High
	Rare (A)	Low	Low	Low	Medium	High

Impact type	Risk	Considerations / pre-application of management controls	Inherent risk rating			Avoidance / mitigation / management controls	Final risk rating		
			L	C	R		L	C	R
Force majeure									
Drought	Decreased grass cover and vegetation dieback. No increase in habitat quality over time. Failure to meet completion criteria.	Drought is a largely unavoidable situation and is known to occur cyclically throughout Queensland. Awareness of weather patterns and predictions is crucial in the planning and ongoing management phases of the offset.	D	4	High	Whilst drought conditions cannot be avoided per se, mitigation / management measures such as reducing grazing and ongoing monitoring of weather conditions / cycles and impacts to the Offset Area will remain paramount in ensuring achievement of completion criteria.	D	3	High
Bushfire	Impacts to regeneration of vegetation may occur as a result of bushfire (incl. lightning strike), resulting in habitat loss.	Ensuring safety of any personnel and livestock. Ongoing management of fuel loads within the Offset Area. Ongoing fire exclusion management. Awareness of weather patterns and predictions is crucial in the planning and ongoing management phases of the offset.	C	4	High	Ongoing awareness of weather conditions and bushfire alerts. Maintenance of fire breaks. Coordination with local fire and emergency services in the event of a fire approaching. Fuel loads to be managed (grazed) in the Offset Area. Only authorised personnel allowed in Offset Area to prevent arson.	C	3	Medium
Severe storm event	Flooding of Offset Area and subsequent impacts to habitat quality.	Floods are largely situation and known to occur cyclically throughout Queensland (Offset Area is on a large river system). Ensuring safety of any personnel and livestock. Monitoring access track accessibility. Awareness of weather patterns and predictions is crucial in the planning and ongoing management phases of the offset.	D	4	High	Ongoing awareness of weather conditions. Determine the extent of damage caused by the event and consult suitably qualified personnel if/as needed for restoration activity. Cattle to be removed from Offset Area to prevent regeneration of canopy species, soil compaction and degradation of ground layer.	D	3	High
Standard risks									
Vegetation clearing	Ornamental snake habitat loss and hindered brigalow regeneration	Offset will be legally secured, precluding vegetation clearing. Ongoing fire exclusion management.	C	4	High	Offset will be legally secured, vegetation clearing within the Offset Area to be prohibited. Only authorised personnel permitted in Offset Area.	A	4	Medium

Impact type	Risk	Considerations / pre-application of management controls	Inherent risk rating			Avoidance / mitigation / management controls	Final risk rating		
			L	C	R		L	C	R
						Maintenance of fire breaks and the requirement for low-intensity fire management activity in the Offset Area.			
Overgrazing	Gilgai soil compaction. Ornamental snake habitat loss and hindered brigalow regeneration	Unknown livestock grazing rates. Use of existing fencing and natural barriers to be used as exclusion measures.	C	3	Medium	Low-intensity grazing (at a maximum) to be implemented within the Offset Area. Wet season spelling (as dictated by this OMP). Significant rainfall events to trigger consideration of temporary reduced livestock densities.	B	2	Low
Feral pig proliferation	Gilgai soil compaction. Ornamental snake habitat loss and hindered brigalow regeneration	Unknown pig population. Management required per the Queensland <i>Biosecurity Act 2014</i> . Ensuring a consistent approach to feral species management across Croydon Station.	C	3	Medium	Annual 1080 baiting consistent with the wider Croydon Station. Opportunistic removal of individuals during maintenance inspections. If monitoring detects feral pig activity / abundance above determined baseline, then a control program will be initiated.	B	2	Low
Introduction / spread of weeds	Increased abundance and spread of existing weeds / introduction of new weeds impacting habitat quality scores.	Development of weed management and weed hygiene protocols, ensuring consistency across Croydon Station. Record keeping of weed washdown and vehicle / machinery movements into / out of Offset Area.	C	3	Medium	Personnel will be made aware of obligations related to weed management. Vehicles to be washed and certified clean prior to arrival onsite. Minimise the use of off-road vehicle movements. Weed survey/monitoring will be carried out within the Offset Area on establishment of the Offset Area and per the OMP monitoring program. Identified infestations of weeds/pests as listed under the <i>Biosecurity Act 2014</i> and WoNs onsite will only be dealt with and/or disposed of in a way prescribed under regulation and/or as recommended by Department of Primary Industries.	B	2	Low
Erosion	Reduced grass cover and hindered regeneration of ornamental snake habitat.	Offset will be legally secured, precluding vegetation clearing. Use of existing fencing and natural barriers to be used as grazing exclusion measures.	B	2	Low	Livestock grazing and vegetation regeneration is undertaken / promoted in accordance with this OMP.	B	1	Low
Failed vegetation regeneration	No increase in habitat quality.	Offset will be legally secured, precluding vegetation clearing.	B	4	High	Natural regeneration (or active) in accordance with this OMP.	A	3	Low

Impact type	Risk	Considerations / pre-application of management controls	Inherent risk rating			Avoidance / mitigation / management controls	Final risk rating		
			L	C	R		L	C	R
	Failure to meet completion criteria.	Use of existing fencing and natural barriers to be used as grazing exclusion measures.				Low-intensity grazing (at a maximum) to be implemented within the Offset Area. Wet season spelling (as dictated by this OMP). Significant rainfall events to trigger consideration of temporary reduced livestock densities. Control of pest plants and animals			
High fuel loads – increased fire intensity	Hindered brigalow regeneration / ornamental snake habitat loss from high intensity fire.	Unknown livestock grazing rates. Ensuring safety of any personnel and livestock. Ongoing management of fuel loads within the Offset Area. Ongoing fire exclusion management. Awareness of weather patterns and predictions is crucial in the planning and ongoing management phases of the offset.	C	2	Medium	Livestock grazing (management of fuel loads) and fire break maintenance is undertaken in accordance with this OMP. Ongoing awareness of weather conditions and bushfire alerts. Coordination with local fire and emergency services in the event of a fire approaching. Only authorised personnel allowed in Offset Area to prevent arson.	C	1	Low
Fence failure	Unauthorised access to offset vehicles (vehicles, livestock, people) resulting in habitat quality (or loss) impacts.	Maintenance of exclusion fencing and signage. Authorised personnel to enter Offset Area only.	C	3	Medium	Monitoring of infrastructure that may require maintenance over the life of the offset (i.e. fencing and signage) will be undertaken quarterly as carried out by the landowner or during other monitoring / inspections. Additional monitoring of infrastructure will be undertaken within two weeks (or when safe) following extreme weather events.	B	2	Low

Appendix C – Habitat quality data

Habitat Quality Assessment Results

Landscape-scale attributes

A summary of landscape-scale attribute scores for the Study Area is summarised in Table 13. The Study Area is located along a riparian corridor, comprising tracts of remnant vegetation, associated with the Connors and Isaac rivers. The Study Area is also located within a mapped State Riparian Biodiversity Corridor (State Terrestrial Corridor). The Study Area has a total landscape-scale attribute score of 14 out of 20. This score is reflective of the Study Area's position within the landscape and historical land use, providing connectivity primarily in association with riparian corridors, comprising tracts of native vegetation (remnant as well as HVR).

Table 13 Study Area landscape scale attribute score

Landscape attribute	Comment	Score
Patch size	234.00 ha of remnant and 49.54 ha of HVR ground-truthed occur within the Study Area	10/10
Connectivity	Medium	2/5
Context	Medium	2/5
Ecological Corridors	The Study Area is located within a DES mapped State Riparian Biodiversity Corridor	NA
Total		14/20

Justification of Study Area suitability

The Study Area contains suitable offsets for target MNES, based on:

- The presence of habitat for target Ornamental snake and proximity of the Study Area to existing records of this species.
- Connectivity with adjacent habitat in the broader landscape.
- The potential to effectively manage vegetation and habitat to improve habitat quality through formal securement as an offset and amelioration of existing threats within the Study Area.

While potential habitat for the Ornamental snake was identified, further target surveys are recommended to confirm presence of these species within the Study Area (noting that species presence is a key determinant of offset suitability).

Opportunities to improve habitat quality are present within the Study Area. Ongoing passive and/or active regeneration/rehabilitation of habitat throughout the Study Area, coupled with livestock grazing management will assist in improving site-based attribute (i.e. groundcover composition and cover) and species habitat attribute scores. Active management of existing threats for target threatened fauna through offset securement, particularly vegetation clearing (i.e. non-remnant areas) and feral pests, will also assist in improving the quality and condition of habitat present. Management of environmental weeds and introduced pasture species within the ground stratum may also be necessary to increase the percentage cover of native grass species and abundance of native forb species. Due to the Study Area being located on a floodplain, effective broadscale control of some weed species may prove challenging. Associated difficulties with weed control would need to be addressed as part of the Offset Area Management Plan.

Site-based attributes

Site-based attribute data for each AU within the Study Area relevant to Ornamental snake are provided in [Table 14](#).

For the purposes of determining habitat quality, scores were determined for the combined preferred and suitable habitat areas for Ornamental snake. These areas represent the priority habitat to be utilised for a potential offset.

Table 14 Site-based attribute scores – Ornamental snake

Assessment Unit	1			4			3			2		
Site	BC01			BC02			BC08			BC13		
Regional ecosystem	11.3.1			11.3.3			11.3.1			11.3.1		
Broad Condition State	Remnant			Remnant			Non-remnant			High Value Regrowth		
Biocondition attribute	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score
Recruitment of woody perennial species (%)	100	100	5	100	100	5	100	100	5	100	100	5
Native plant species richness - trees (No.)	4	6	5	3	2	2.5	4	3	2.5	4	6	5
Native plant species richness - shrubs (No.)	4	6	5	5	1	0	4	1	2.5	4	3	2.5
Native plant species richness - grasses (No.)	6	3	2.5	12	3	2.5	6	3	2.5	6	0	0
Native plant species richness - forbs (No.)	10	2	0	15	7	2.5	10	4	2.5	10	3	2.5
Tree emergent height (m)	na			na			na			na		
Tree canopy height (m)	15	11	5	18	22	5	15	5	3	15	6	3
Tree sub-canopy height (m)	7	6	5	10	10	5	7	2.75	3	7		
Tree height - average			5			5			3			3
Tree emergent cover (%)	na			na			na			na		
Tree canopy cover (%)	35	38	5	28	43	5	35	0	0	35	25	5
Tree sub-canopy cover (%)	15	22	5	5	0	0	15	35	3	15	0	0
Tree cover - average			5			2.5			1.5			2.5
Native shrub canopy cover (%)	15	5	3	4	0	0	15	0	0	15	2	3
Native perennial grass cover (%)	33	4.8	1	45	14	1	33	0.6	0	33	0	0
Organic litter (%)	30	37	5	30	51	5	30	52.4	5	30	34	5
Large trees/ha - total	53	6	5	10	34	15	53	0	0	53	0	0
Coarse woody debris (m/ha)	1520	1400	5	285	910	2	1520	20	0	1520	70	0
Non-native plant cover (%)	0	20	5	0	10	5	0	10	5	0	20	5
Maximum site-based score	80			80			80			80		
Site-based BioCondition score (out of 10)	6.44			6.00			3.69			4.19		

Table 14 Continued

Assessment Unit	1			4			3			2		
Site	BC05			BC07			BC09			BC29		
Regional ecosystem	11.3.1			11.3.3			11.3.1			11.3.1		
Broad Condition State	Remnant			Remnant			Non-remnant			High Value Regrowth		
Biocondition attribute	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score
Recruitment of woody perennial species (%)	100	100	5	100	50	3	100	100	5	100	100	5
Native plant species richness - trees (No.)	4	3	2.5	3	5	5	4	3	2.5	4	4	5
Native plant species richness - shrubs (No.)	4	1	2.5	5	2	2.5	4	3	2.5	4	5	5
Native plant species richness - grasses (No.)	6	4	2.5	12	3	2.5	6	4	2.5	6	2	2.5
Native plant species richness - forbs (No.)	10	2	0	15	8	2.5	10	4	2.5	10	4	2.5
Tree emergent height (m)	na			na			na			na		
Tree canopy height (m)	15	7	3	18	22	5	15	1.5	0	15	4	3
Tree sub-canopy height (m)	7	2.75	3	10	12	5	7			7		
Tree height - average			3			5			0			3
Tree emergent cover (%)	na			na			na			na		
Tree canopy cover (%)	35	2	0	28	30	5	35	0	0	35	25	5
Tree sub-canopy cover (%)	15	30	5	5	25	3	15	19	5	15	0	0
Tree cover - average			2.5			4			2.5			2.5
Native shrub canopy cover (%)	15	8	5	4	0	0	15	0	0	15	19	5
Native perennial grass cover (%)	33	2.2	0	45	1	0	33	4	1	33	0	0
Organic litter (%)	30	15.4	5	30	64	3	30	33.4	5	30	5.8	3
Large trees/ha - total	53	0	0	10	40	15	53	0	0	53	0	0
Coarse woody debris (m/ha)	1520	40	0	285	1660	2	1520	50	0	1520	50	0
Non-native plant cover (%)	0	20	5	0	20	5	0	40	3	0	10	5
Maximum site-based score	80			80			80			80		
Site-based BioCondition score (out of 10)	4.13			6.19			3.31			4.81		

Table 14 Continued

Assessment Unit	1			4			3			4		
Site	BC12			BC16			BC10			BC19		
Regional ecosystem	11.3.1			11.3.3c			11.3.1			11.3.3		
Broad Condition State	Remnant			Remnant			Non-remnant			Remnant		
Biocondition attribute	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score
Recruitment of woody perennial species (%)	100	100	5	100	100	5	100	100	5	100	100	5
Native plant species richness - trees (No.)	4	5	5	3	3	5	4	3	2.5	3	2	2.5
Native plant species richness - shrubs (No.)	4	4	5	5			4	2	2.5	5	0	0
Native plant species richness - grasses (No.)	6	2	2.5	12	3	2.5	6	2	2.5	12	2	0
Native plant species richness - forbs (No.)	10	2	0	15	5	2.5	10	3	2.5	15	2	0
Tree emergent height (m)	na			na			na			na		
Tree canopy height (m)	15	7	3	18	20	5	15	5	3	18	20	5
Tree sub-canopy height (m)	7	2	3	10	10	5	7	1.5	0	10	14	5
Tree height - average			3			5			1.5			5
Tree emergent cover (%)	na			na			na			na		
Tree canopy cover (%)	35	12	2	28	43	5	35	0	0	28	62	3
Tree sub-canopy cover (%)	15	0	0	5	0	0	15	13	5	5	0	0
Tree cover - average			1			2.5			2.5			1.5
Native shrub canopy cover (%)	15	5	3	4	0	0	15	2	3	4	0	0
Native perennial grass cover (%)	33	6	1	45	12.4	1	33	1.2	0	45	0	0
Organic litter (%)	30	56	5	30	63	3	30	19.2	5	30	73	3
Large trees/ha - total	53	0	0	10	28	15	53	0	0	10	14	15
Coarse woody debris (m/ha)	1520	20	0	285	260	5	1520	0	0	285	650	2
Non-native plant cover (%)	0	50	3	0	2	10	0	75	0	0	1	10
Maximum site-based score	80			80			80			80		
Site-based BioCondition score (out of 10)	4.19			7.06			3.38			5.50		

Table 14 Continued

Assessment Unit	3			3			3			3		
Site	BC15			BC21			BC22			BC23		
Regional ecosystem	11.3.1			11.3.1			11.3.1			11.3.1		
Broad Condition State	Non-remnant			Non-remnant			Non-remnant			Non-remnant		
Biocondition attribute	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score	Benchmark	Current value	Current score
Recruitment of woody perennial species (%)	100	100	5	100	100	5	100	100	5	100	100	5
Native plant species richness - trees (No.)	4	4	5	4	4	5	4	2	2.5	4	2	2.5
Native plant species richness - shrubs (No.)	4	5	5	4	5	5	4	4	5	4	4	5
Native plant species richness - grasses (No.)	6	1	0	6	1	0	6	2	2.5	6	3	2.5
Native plant species richness - forbs (No.)	10	0	0	10	2	0	10	4	2.5	10	3	2.5
Tree emergent height (m)	na			na			na			na		
Tree canopy height (m)	15			15	3	0	15			15	3	0
Tree sub-canopy height (m)	7	2.75	3	7	1	0	7			7	0	0
Tree height - average			3			0						0
Tree emergent cover (%)	na			na			na			na		
Tree canopy cover (%)	35	0	0	35	0	0	35	0	0	35	42	5
Tree sub-canopy cover (%)	15	50	3	15	0	0	15	0	0	15	0	0
Tree cover - average			1.5			0			0			2.5
Native shrub canopy cover (%)	15	22	5	15	20	5	15	26	5	15	10	5
Native perennial grass cover (%)	33	0	0	33	0	0	33	3.4	1	33	3	0
Organic litter (%)	30	53	5	30	11.4	3	30	20	5	30	17	5
Large trees/ha - total	53	0	0	53	0	0	53	0	0	53	0	0
Coarse woody debris (m/ha)	1520	40	0	1520	130	0	1520	0	0	1520	40	0
Non-native plant cover (%)	0	1	10	0	90	0	0	80	0	0	3	10
Maximum site-based score	80			80			80			80		
Site-based BioCondition score (out of 10)	4.94			2.88			3.56			5.00		

Table 14 Continued

Assessment Unit	3		
Site	BC24		
Regional ecosystem	11.3.1		
Broad Condition State	Non-remnant		
Biocondition attribute	Benchmark	Current value	Current score
Recruitment of woody perennial species (%)	100	100	5
Native plant species richness - trees (No.)	4	3	2.5
Native plant species richness - shrubs (No.)	4	5	5
Native plant species richness - grasses (No.)	6	2	2.5
Native plant species richness - forbs (No.)	10	4	2.5
Tree emergent height (m)	na		
Tree canopy height (m)	15	4	3
Tree sub-canopy height (m)	7	2.5	3
Tree height - average			3
Tree emergent cover (%)	na		
Tree canopy cover (%)	35	0	0
Tree sub-canopy cover (%)	15	22	5
Tree cover - average			2.5
Native shrub canopy cover (%)	15	12	5
Native perennial grass cover (%)	33	0	0
Organic litter (%)	30	19.2	5
Large trees/ha - total	53	0	0
Coarse woody debris (m/ha)	1520	170	2
Non-native plant cover (%)	0	2	10
Maximum site-based score	80		
Site-based BioCondition score (out of 10)			5.63

Assessment Unit (AU)	1	4	3	2
Current AU BioCondition Score	4.92	6.19	4.046875	4.5
AU Area	1.95	175.61	551.55	38.55
Current AU Weighted Biocondition Score	0.01	1.42	2.91	0.23
Current BioCondition Score (out of 10)	4.56			

Species habitat attributes

Detailed Ornamental snake habitat attribute data for each AU within the Study Area are provided in the [Table 15](#). Scores were determined for the combined preferred and suitable habitat areas for Ornamental snake as these areas represent the priority habitat to be utilised for a potential offset – refer to [Table 16](#).

Table 15 Species habitat attributes – Ornamental snake species habitat quality indicators

Indicators	Assessment Area	Scoring system	Weight
Quality and availability of food and habitat required for foraging			
Availability of prey	Habitat Quality Site	Frog breeding habitat (e.g. permanent and ephemeral wetlands) within the plot are: 1 = Non-existent 2 = Limited (<1% of plot) 4 = Moderately abundant (1-10% of the plot) 5 = Abundant (>10% of the plot)	1
Quality and availability of habitat required for shelter and breeding			
Soil crack abundance and depth	Habitat Quality Site	Soil cracks are: 1 = Absent 2 = Present, but are few and shallow (<2 cm deep) 4 = Soil cracks are present in moderate to high density but mostly shallow (<2 cm) and with few deep cracks (>2 cm) 5 = Soil cracks are present in moderate to high density and are mostly deep cracks (>2 cm)	0.6
Abundance of ground shelter	Habitat Quality Site	Suitable ground shelter for Ornamental snake (e.g. coarse woody debris and litter) are: 1 = <1-10% cover 2 = 10-15% cover 3 = 15-20% cover 4 = 20-25% cover 5 = >25% cover	0.2
Condition of vegetation as per the VM Act categories	Habitat Quality Site	Vegetation is: 1 = Non-remnant 2 = Non-remnant with young woody regrowth 3 = High value regrowth 5 = Remnant	0.2
Quality and availability of habitat required for mobility			
Average patch size of habitat	Habitat Quality Site	Area of contiguous habitat (i.e. patch size) in which the assessment site is located is: 1 = <1-5 ha 3 = 5-10 ha 5 = >10 ha	1
Connectivity of habitat patch	Habitat Quality Site	Connectivity between the site and a metapopulation of the species is: 1 = Limited (habitat is isolated in the landscape) 2 = There is some connectivity between patches but connected habitat is degraded <u>and</u> of limited extent 3 = Moderate (there is some connectivity between patches), however connected habitat is degraded <u>or</u> of limited extent 5 = High (habitat within the site is well connected to a broad area of habitat for the species)	1
Absence of threats			
Cane toad abundance	Study Area	For each threat, score 1-5 for: Scope:	Greatest threatening
Clearing/ fragmentation	Study Area		



Indicators	Assessment Area	Scoring system	Weight
Habitat degradation by cattle tramping	Study Area	1 = >80% of AU patch impacted or potentially impacted by the threat 2 = 40-80% of AU patch impacted or potentially impacted by the threat 3 = 20-40 % of AU patch impacted or potentially impacted by the threat 4 = up to 20% of AU patch impacted or potentially impacted by the threat 5 = AU patch not impacted or unlikely to be impacted by the threat Severity: 1 = intensity/severity of threat high 2 = intensity/severity of threat moderate 3 = intensity/severity of threat low 4 = intensity/severity of threat within AU patch very low 5 = threat absent	process (i.e. lowest value)

Table 16 Species habitat attributes – Ornamental snake scores

Assessment Unit		1		4		3		2		1	
Site		BC01		BC02		BC08		BC13		BC05	
Regional ecosystem		11.3.1		11.3.3		11.3.1		11.3.1		11.3.1	
Broad Condition State		Remnant		Remnant		Non-remnant		High Value Regrowth		Remnant	
Biocondition attribute	Weight	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score
Availability of prey	1	3	3	5	5	3	3	3	3	3	3
Quality and availability of food and habitat required for foraging (out of 25)			15.0		25.0		15.0		15.0		15.0
Soil crack abundance and depth	0.6	2.5	1.5	0	0	2.5	1.5	0	0	2.5	1.5
Abundance of ground shelter	0.2	5	1	5	1	3	0.6	5	1	4	0.8
Condition of vegetation	0.2	5	1	5	1	1	0.2	3	0.6	5	1
Quality and availability of habitat required for shelter and breeding (out of 25)			17.5		10.0		11.5		8.0		16.5
Average patch size	1	1	1	1	1	5	5	5	5	5	5
Connectivity of suitable habitat	1	2.5	2.5	2.5	2.5	5	5	5	5	5	5
Quality and availability of habitat required for mobility (out of 25)			17.5		17.5		50.0		50.0		50.0
Cane toad threat – scope	N/A	4		4		4		4		4	
Cane toad threat – severity	N/A	4	16	4	16	4	16	4	16	4	16
Feral predators threat – scope	N/A	4		4		3		3		4	
Feral predators threat – severity	N/A	2	8	2	8	3	9	3	9	2	8
Absence of threats (out of 25)			8.0		8.0		9.0		9.0		8.0
Site-based Fauna Habitat Attribute Score (out of 10)			5.8		6.1		8.6		8.2		9.0

Table 16 Continued

Assessment Unit		4		3		2		1		4		3	
Site		BC07		BC09		BC29		BC12		BC16		BC10	
Regional ecosystem		11.3.3		11.3.1		11.3.1		11.3.1		11.3.3		11.3.1	
Broad Condition State		Remnant		Non-remnant		High Value Regrowth		Remnant		Remnant		Non-remnant	
Biocondition attribute	Weight	Current value	Weighted score	Current value	Weighted score	Current value	Current value	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score
Availability of prey	1	5	5	3	3	3	3	3	3	3	3	3	3
Quality and availability of food and habitat required for foraging (out of 25)			25.0		15.0		15.0		15.0		15.0		15.0
Soil crack abundance and depth	0.6	0	0	0	0	0	0	0	0	0	0	0	0
Abundance of ground shelter	0.2	5	1	3	0.6	2	0.4	5	1	5	1	3	0.6
Condition of vegetation	0.2	5	1	1	0.2	3	0.6	5	1	5	1	1	0.2
Quality and availability of habitat required for shelter and breeding (out of 25)			10.0		4.0		5.0		10.0		10.0		4.0
Average patch size	1	3	3	5	5	5	5	5	5	3	3	5	5
Connectivity of suitable habitat	1	5	5	5	5	5	5	5	5	5	5	5	5
Quality and availability of habitat required for mobility (out of 25)			40.0		50.0		50.0		50.0		40.0		50.0
Cane toad threat – scope	N/A	4		4		4		4		4		4	
Cane toad threat – severity	N/A	4	16	4	16	4	16	4	16	4	16	4	16
Feral predators threat – scope	N/A	4		3		3		4		4		3	
Feral predators threat – severity	N/A	2	8	3	9	3	9	2	8	2	8	3	9
Absence of threats (out of 25)			8.0		9.0		9.0		8.0		8.0		9.0
Site-based Fauna Habitat Attribute Score (out of 10)			8.3		7.8		7.9		8.3		7.3		7.8

Table 16 Continued

Assessment Unit		4		3		3		3		3		3	
Site		BC19		BC15		BC21		BC22		BC23		BC24	
Regional ecosystem		11.3.3		11.3.1		11.3.1		11.3.1		11.3.1		11.3.1	
Broad Condition State		Remnant		Non-remnant		Non-remnant		Non-remnant		Non-remnant		Non-remnant	
Biocondition attribute	Weight	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score	Current value	Weighted score
Availability of prey	1	3	3	3	3	3	3	3	3	3	3	3	3
Quality and availability of food and habitat required for foraging (out of 25)			15.0		15.0		15.0		15.0		15.0		15.0
Soil crack abundance and depth	0.6	0	0	0	0	2.5	1.5	0	0	2.5	1.5	2.5	1.5
Abundance of ground shelter	0.2	5	1	3	0.6	3	0.6	3	0.6	3	0.6	3	0.6
Condition of vegetation	0.2	5	1	1	0.2	1	0.2	1	0.2	1	0.2	1	0.2
Quality and availability of habitat required for shelter and breeding (out of 25)			10.0		4.0		11.5		4.0		11.5		11.5
Average patch size	1	1	1	5	5	5	5	5	5	5	5	5	5
Connectivity of suitable habitat	1	5	5	5	5	5	5	5	5	5	5	5	5
Quality and availability of habitat required for mobility (out of 25)			30.0		50.0		50.0		50.0		50.0		50.0
Cane toad threat – scope	N/A	4		4		4		4		4		4	
Cane toad threat – severity	N/A	4	16	4	16	4	16	4	16	4	16	4	16
Feral predators threat – scope	N/A	4		3		3		3		3		3	
Feral predators threat – severity	N/A	2	8	3	9	3	9	3	9	3	9	3	9
Absence of threats (out of 25)			8.0		9.0		9.0		9.0		9.0		9.0
Site-based Fauna Habitat Attribute Score (out of 10)			6.3		7.8		8.6		7.8		8.6		8.6

Assessment Unit (AU)	1	4	3	2
Current AU Species Habitat Score	7.68	6.99	8.175	8.05
AU Area	1.95	175.61	551.55	38.55
Current AU Weighted Species Habitat Score	0.02	1.60	5.87	0.40
Current Species Habitat Score (out of 10)	7.90			

Overall Habitat Quality scores

The overall habitat quality score for combined preferred and suitable habitat for Ornamental snake within the Study Area, as calculated per the previous subsections, are provided in [Table 17](#).

Table 17 Overall habitat quality score for Ornamental snake

Adjusted site-based attribute score (/5)	Adjusted species habitat attribute score (/5)	Overall Habitat Quality score (/10)
2.28	3.95	6.23 (rounded 6 start quality)

Appendix D – OMP alignment with Commonwealth policy

Table 18 OMP alignment with Commonwealth policy

Theme	Objective or priority	How the OMP aligns to these objective or priorities
Approved Conservation Advice for Denisonia maculata (ornamental snake) (DoE 2014)		
Habitat loss, disturbance and modification	Identify populations of high conservation priority.	Baseline surveys failed to record the species as present within the Offset Area (E2M, 2025); however, survey records (2016) did note the species' presence approximately 5.7 km to the northeast, proximal to the <i>Croydon Offset Area</i> . Targeted species surveys will be conducted annually for the first five years of the offset, then once every five years until completion. Considering the Vulnerable status of the species, and its restricted distribution in Australia, all observations of the species assist in identifying 'populations of high conservation priority'.
	Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.	The proposed Offset Area will be legally secured via Voluntary Declaration under the provisions of the VM Act in the short-term, pursuing a nature covenant under the <i>Land Act 1999</i> for long-term conservation security. Together with other BMA assets in Croydon Station (i.e. the <i>Croydon Offset Area</i>), ornamental snake habitat is likely to be under formal management arrangements, preventing habitat loss and disturbance in those areas.
	Minimise adverse impacts from land use at known sites.	Cattle grazing is currently ongoing within the Offset Area. A grazing regime will be implemented that is low-intensity and restricted to the dry season only, provided that native perennial grass cover benchmark for grazed areas are achieved / maintained. Changes to livestock densities will be considered following significant rainfall events to minimise compaction and disturbance of soil cracks, particularly following significant rainfall events.
Animal impacts	Control introduced pests such as pigs to manage threats at known sites.	Numbers and location of pest animals present within the Offset Area will be recorded during quarterly inspections. Pest control will be in accordance with the Queensland <i>Biosecurity Act 2014</i> and through the development of property based feral animal management. Annual baiting programs and periodic shooting are currently employed within Croydon Station and will continue during the offset lifespan. Baiting employs the use of recommended toxins from the Qld Government (i.e. Sodium fluoroacetate (1080)) and is adherent to methods described by the State. If an annual increase in pig activity is noted during routine monitoring, an additional baiting and/or control program is to be instigated until the increased activity has ceased.
	Develop and implement a management plan for the control of Cane Toads in the region.	Not directly applicable to the Offset Area or proponent.
Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (<i>Sus scrofa</i>) (2017)		
Animal impacts	Prioritise key species, ecological communities, ecosystems and locations across Australia for strategic feral pig management.	The destruction and degradation of wetland habitat by feral pigs (<i>Sus scrofa</i>) impacts the availability of habitat for the ornamental and its prey (i.e. native frogs) – this is recognised within the species' approved conservation advice.

Theme	Objective or priority	How the OMP aligns to these objective or priorities
	Encourage the integration of feral pig management into land management activities at regional, state and territory, and national levels.	The integration of management triggers (for ornamental snake) into ongoing feral pig management across Croydon Station assists in the maintenance of a regional approach to the transient species. Management actions adopted under the OMP are consistent with those recommended / used across the state.
	Encourage further scientific research into feral pig impacts on nationally threatened species and ecological communities, and feral pig ecology and control.	Not directly applicable to the Offset Area or proponent.
	Record and monitor feral pig control programs, so their effectiveness can be evaluated.	Numbers, location and impacts of feral pigs present within the Offset Area will be recorded during inspections including: - Gilgai assessment (in concert with habitat quality assessment) - Relative abundance of feral pigs during quarterly inspections and comparison with previous monitoring periods Review of monitoring data against KPIs (refer Table 10) will allow for necessary evaluation of management, and adaption where needed. This information will be made available to DCCEEW on request.
	Build capacity for feral pig management and raise feral pig awareness amongst landholders and land managers.	The landholder (and / or suitably qualified person) will be responsible for the implementation and monitoring of feral pig management within the Offset Area. Review of monitoring data against KPIs (refer Table 10) will allow for necessary evaluation of management, and adaption where needed. Potential for the implementation of an integration control strategy with the adjacent existing offset sites (e.g. <i>Croydon Offset Area</i>) and Croydon Station landholder at a future date.
Stakeholder engagement	Improve public awareness about feral pigs and the environmental damage and problems they cause, and the need for the feral pig control.	Not directly applicable to the Offset Area or proponent.
Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (2011)		
Animal impacts	Identify priority native species and ecological communities at risk from the impact of cane toads.	Ingestion and poisoning from cane toads has been identified as a threat to the ornamental snake (DoE, 2014). The effective control of cane toads in Australia is problematic with limited effective broadscale methods currently available (DEWHA, 2010).
	Reduce the impact on populations of native species and ecological communities.	Numbers and location of pest animals present within the Offset Area will be recorded during quarterly inspections. This information will be made available to DCCEEW on request.
Stakeholder engagement	Communicate information about cane toads, their impacts and the TAP.	Not directly applicable to the Offset Area or proponent.