Report
S00-ARW-ENV-REP-00085-000

# Surat Gas Project (SGP) Stage 1

## Offset Area Management Plan (OAMP)

**EPBC Approval 2010/5344**

**24 February 2025**

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# Declaration

*I declare that to the best of my knowledge, all the information contained in, or accompanying this document is complete, current and correct. I am duly authorised to sign this declaration on behalf of the proponent/approval holder. I am aware that*:

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

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

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

Signed:

| | |
|---|---|
| Full name: | Matthew Jeffries |
| Organisation: | Arrow Energy Pty Ltd |
| EPBC Referral Number: | EPBC 2010/5344 |
| Document: | EPBC Offset Area Management Plan |
| Date: | 07/02/2025 |

# Executive Summary

Arrow Energy Pty Ltd (Arrow) has been operating a strong domestic gas supply business since 2004, and we are expanding our coal seam gas (CSG) operations in the Surat Basin through the Surat Gas Project (SGP; the Project). Arrow lodged a referral to the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (the Act) for the SGP on 27 January 2010 (EPBC 2010/5344). An Environmental Impact Statement (EIS) and Supplementary Report to the EIS (SREIS) were completed in March 2012 and June 2013, respectively. The SGP was granted approval from the Queensland Government in October 2013. The Minister for the Environment of the Australian Government provided their approval for the SGP on 19 December 2013.

The SGP comprises up to 6,500 coal seam gas production wells and associated infrastructure and the tenure covers an area of approximately 6,100 km$^2$, extending from the township of Wandoan in the north towards Millmerran in the south. Land uses in the Surat Basin are dominated by agriculture. Some cattle grazing also occurs and remnant vegetation exists largely within State Forests and road reserves.

The EPBC Act approval for the SGP specifies 'Whole of Project' and 'Stage 1' maximum disturbance to core habitat limits for specified Matters of National Environmental Significance (MNES). The approval defines Stage 1 as "year 1 to 3 (inclusive) of the action, starting at the date of commencement". Stage 1 commenced on 22 October 2020 and involves the installation of gas wells, gas and water gathering lines and associated infrastructure (refer to **Figure 1**). As the Stage 1 progress has been slower than anticipated, the activities as described in the Offset Strategy for Stage 1 are not yet complete and will continue after year 3 under the approved Offset Strategy.

There have been five variations to the original approval (dated 29 March 2017, 29 May 2018, 31 October 2018, 2 July 2019 and 29 March 2022). These variations include the requirement to provide a detailed Offset Area Management Plan (OAMP) to be submitted within 12 months of project commencement. The purpose of this OAMP is to address the requirements of approval (EPBC 2010/5344; dated 29 March 2022) conditions 6 and 10A and 10B for Stage 1 of the Project.

Arrow will secure Stage 1 offsets proposed for the residual significant impacts to the EPBC listed species and EPBC communities through direct land-based offsets. The approved disturbance limits and actual disturbance limits for Stage 1 and the associated offset are summarised in **Table 1**. The reconciliation of the Maximum Disturbance Limits, Stage 1 disturbance limits and the actual disturbance limits for Stage 1 are in **Appendix A** and will be updated in each OAMP for each Stage of the Project.

A property comprising 4 Lot on Plans (Lots 36 BO175 and Lots 15, 16 and 19 BO94) has been identified for use as the SGP Stage 1 offset area. The property, known as Killara, is located 93 km north-east of Kogan (refer to **Figure 3**).

Field surveys of both the impact and offset areas have been undertaken. The surveys on the impact sites were undertaken using the *Guide to determining terrestrial habitat quality, A toolkit for assessing land-based offsets under the Queensland Environmental Offsets Policy v1.2* (Department of Environment and Heritage Protection (DEHP), 2017, now Department of the

Environment, Tourism, Science, and Innovation (DETSI)). These detailed surveys were conducted by suitably qualified ecologists from 3D Environmental and Ecosmart Ecology during both the dry season (September 2016) and wet season (February/March 2017) (3D Environmental and Ecosmart Ecology, 2017).[1]

These surveys were conducted by suitably qualified ecologists from AECOM in 2018. Further detailed vegetation and fauna surveys were also undertaken by suitably qualified ecologists from Umwelt from 16-22 June 2020. The 2020 surveys on the offset area were undertaken using the *Guide to determining terrestrial habitat quality* (DES, 2020). The reports are *Habitat Quality Assessment- Killara Offset Area* (Umwelt, July 2020), *Targeted Fauna Survey- Killara Offset Area* (Umwelt, July 2020). Additional surveys were undertaken between 10 and 21 May 2021 to provide extra data for Stage 1 impacts.

An overview of the terrestrial ecology of the impact areas and the resultant offset requirements are summarised in **Table 1**, detailed in Section 3 and **Attachment 1.2** , and all of the terrestrial ecology reports are provided in full in **Attachment 1**.

The offset meets the conditions of approval and the offset policy requirements of a 100% direct offset. Risks to successfully achieve the objectives of the OAMP are included in this report and include vegetation clearing, uncontrolled fire, inappropriate grazing and drought. Management actions that will be implemented at the Killara offset area as part of the OAMP are described in Section 6 . The risks to plan success have been rated, on the basis of current practice (before) and after the management actions have been implemented. The primary strategies (management actions) to manage the risks are outlined in Section 6 of this OAMP. These include feral animal control, weed management, legally securing the area, fencing and managing grazing, and fire management. The performance and success of management actions will be subject to a monitoring regime that includes regular inspections for weeds, pest animals and fuel load monitoring, as well as habitat quality assessments and flora and fauna presence/absence surveys.

The OAMP is divided into 2 parts, Part A (Project Details and Impact Areas) and Part B (Offset Land Management Details). Collectively, Parts A and B describe the Stage 1 impacts to MNES demonstrate that the proposed offset area on Killara meets the principles of the EPBC Act Environmental Offsets Policy (EOP) and is a suitable offset for approved impacts resulting from the SGP Stage 1.

**Table 2**, identifies the section in this document that has addressed each of the OAMP obligations specified in the EPBC approval 2010/5344.

[1] 3D Environmental and Ecosmart Ecology. (2017). *Surat Gas Project Terrestrial Ecology Report*. Report prepared for Arrow Energy Pty Ltd, June 2017.

**Table 1 Stage 1 SGP Impacts and Offset Area by Species and EPBC Communities**

| Species | Whole of project maximum disturbance limits (ha) | Maximum disturbance limits Stage 1 | Actual disturbance Stage 1 | Habitat quality score | Offset area (ha) | Offset area habitat start quality | Offset area habitat finish quality score |
|---|---|---|---|---|---|---|---|
| South-eastern long-eared bat, *Nyctophilus corbeni* | 4,080 | 225 | 485.52 | 4.34 | 1356.10 | 4 | 6 |
| Dunmall's snake, *Furina dunmalli* | 4,400 | 300 | 150.00 | 3.06 | 296.40 | 4 | 6 |
| Five-clawed worm-skink, *Anomalopus mackayi* | 560 | 2 | 0 | N/A | | | |
| Squatter pigeon (southern), *Geophaps scripta scripta* | 3,261 | 203 | 0 | | | | |
| Regent honeyeater, *Anthochaera phrygia* | 20 | 1 | 0 | | | | |
| Collared delma, *Delma torquata* | 90 | 11 | 0 | | | | |
| Yakka skink, *Egernia rugosa* | 310 | 19 | 0 | | | | |
| **EPBC Communities** | **Whole of project maximum disturbance limits (ha)** | **Maximum disturbance limits Stage 1** | **Actual disturbance Stage 1** | **Habitat quality score** | **Offset area (ha)** | **Offset area habitat start quality** | **Offset area habitat finish quality score** |
| Brigalow (*Acacia harpophylla* dominant and co-dominant) | 106 | 39 | 4.63 | 2.84 | 13.00 | 5 | 7 |
| Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions | 8 | 8 | 0 | N/A | | | |

# Part A : Project Details and Impact Areas

# 1. Introduction

Arrow Energy Pty Ltd (Arrow) has been operating a strong domestic gas supply business since 2004, and it is expanding its coal seam gas (CSG) operations in the Surat Basin through the Surat Gas Project (SGP).

Arrow lodged a referral to the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (the Act) for the SGP on 27 January 2010 (EPBC 2010/5344, the Approval). An Environmental Impact Statement (EIS) and Supplementary Report to the EIS (SREIS) were completed in March 2012 and June 2013, respectively. The Minister for the Environment of the Australian Government provided their approval for the SGP on 19 December 2013.

The controlling provisions for the action relevant to offsets are Listed Threatened Species and Communities (Sections 18 and 18A of the Act). Tables 1 and 2 of the Approval list the maximum disturbance limits for species and communities for the whole of project and Stage 1 respectively (refer to **Table 1**).

Arrow's comprehensive ecological surveys conducted after the EIS was approved detected the presence of an additional three EPBC Act-listed species in the SGP project area. Residual significant impacts to these species will be assessed as state matters, being impacts to habitat for the koala (*Phascolarctos cinereus*), greater glider (*Petauroides volans*), and painted honeyeater (*Grantiella picta*).

This OAMP demonstrates how Arrow will meet the requirements for Approval conditions 10A and 10B and provides environmental offsets consistent with the Environmental Offsets Policy (EOP) to compensate for the clearing of habitat for Stage 1 of the SGP. The Stage 1 progress has been slower than anticipated. The Stage 1 activities described in the Offset Strategy will continue after year 3. Stage 2 is not expected to commence until Q3 2025..

## 1.1 Project Location

The SGP covers an area of approximately 5,385 $km^2$, extending from the township of Wandoan in the north towards Millmerran in the south, within the Brigalow Belt. The proposed Stage 1 activities are centred around Dalby, from just north of Cecil Plains to just north of Kogan, and a small area east of Miles, as shown in **Figure 1**.

Detailed maps of the impact areas for Stage 1 are located in **Appendix C**.

## 1.2 OAMP Purpose

The purpose of the OAMP is to address the requirements of approval conditions 10A and 10B (29 March 2022). These requirements are provided in **Table 2**, and the reference to the relevant section of this OAMP for each requirement is also provided.

**Table 2 Conditions of Approval addressed in the document**

| Approval Conditions | Section addressed |
|---|---|
| 10A. Offsets for development stages must be provided in accordance with the mechanism identified in the approved Offset Strategy and must be registered and legally secured in accordance with Queensland legislation prior to commencement of any subsequent development stage. | Section 6 |
| 10B. Within 12 months of project commencement or the Minister approving the Offset Strategy for a subsequent development stage, the approval holder must submit for the approval of the Minister an Offset Area Management Plan which includes: | This document |
| a. a description of the management measures that will be implemented to protect of EPBC listed threatened species and EPBC communities in each offset area; | Section 8 |
| b. details of how the proposed offset/s and Offset Area Management Plan are consistent with the principles of the EPBC Act Offsets Policy; | Section 2.1 |
| c. a field validation survey and baseline description of the current condition (prior to any management activities) of the offset area/s, including existing vegetation; | Section 1<br>Attachment 1.3<br>Attachment 1.4 |
| d. a description and map (including shapefile/s) to clearly define the location and boundaries of the offset area/s, accompanied by the offset attributes; | Section 6.1, Section 6.2, Section 6.3, and Section 6.4<br>**Figure 7, Figure 8,** and **Figure 9** |
| e. information about how the offset area/s provide connectivity with other relevant habitats and biodiversity corridors; | Section 5.1 |
| f. details of how proposed management measures take into account relevant approved conservation advices and are consistent with the measures contained in relevant recovery plans and threat abatement plans; | Section 2.2<br>Section 8 |
| g. completion criteria and performance targets for evaluating the effectiveness of Offset Area Management Plan implementation, and criteria for triggering corrective actions (if necessary); | Section 5 |
| h. a program to monitor, report on and review the effectiveness of the Offset Area Management Plan; | Section 6 |
| i. a description of potential risks to the successful implementation of the offset/s and Offset Area Management Plan, and | Section 8 |

| Approval Conditions | Section addressed |
|---|---|
| contingency measures that would be implemented to mitigate against these risks. | |
| 11A. The approval holder must not commence the subsequent development stage until the Offset Area Management Plan for the current development stage has been approved in writing by the Minister. | |

| | |
|---|---|
| Note 1: The Minister may determine that a plan, strategy or program approved by the Queensland Government satisfies the requirements for the EPBC Species Management and Offset Plan under these conditions.<br><br>Note 2: Offsets for some species may be accommodated within ecological communities or overlap State approval requirements or other species habitat requirements, as long as they meet the requirements of these conditions of approval in respect of each individual species being offset. | |

## 1.3 Surat Gas Project offset acquittal

Arrow has selected a property to acquit offset requirements for project development associated with the SGP. Within the offset property, an area has been selected to acquit offset requirements for Stage 1 of the Project. Arrow has already secured an offset property to address the offsets required for impacts to MNES associated with the pipelines that transfer gas and water from Arrow's tenements to the neighbouring QGC-operated facilities (Petroleum Pipeline Licences (PPLs) (EPBC 2018/8223). That offset area is known as 'Killara Offset Area 1'. 'Killara Offset Area 2' (the offset area), is the subject of this OAMP, proposed to acquit Stage 1 impacts of the SGP conducted on Arrow Petroleum Lease (PL) tenements.

Co-locating the offset obligations from these Arrow projects on the same large offset property will improve the biodiversity value of each offset individually and strengthen other values such as connectivity and resilience. Optimal management for each offset will be achieved where the management actions, reporting timeframes and monitoring, can be aligned, where appropriate. This will achieve efficiencies in managing many aspects of the cumulative offset area, for aspects such as weeds, feral animals, fire and monitoring.

## 1.4 Structure of the OAMP

The OAMP is divided into 2 parts. Part A Project Details and Impact Areas and Part B Offset Land Management Details.

Part A contains:

- Project details of the SGP (Section 1.5)
- How the offsets address the EOP and EPBC Conservation Advice (Section 2.2)

- Impact area description (Section 3)

Part B contains:

- Offset property information, including the landscape values (refer to Section 4 and Section 5)
- Offset regional ecosystems (REs) and habitat quality scoring (HQS) (refer to Section 5 and Section 6)
- Risk analysis (Section 7)
- Offset management measures (Section 8)
- Completion criteria and performance targets (Section 5)
- Monitoring and reporting (Section 6)

## 1.5 Overview of the SGP Stage 1 impact areas

Stage 1 of the Project refers to the activities which involve the installation of approximately 350 coal seam gas production wells and associated gathering lines and access tracks in the areas shown in **Figure 1**.

The SGP project commenced on 22 October 2020 and hence this OAMP is required to be submitted to DCCEEW on or before 22 October 2023 as per Condition 10B of the Approval.

Offsets for the Project will be staged in line with the Project stages. The benefit of staging the project offsets is the continued focus on reducing the impacts to MNES by means of continuous improvement in the refinement of infrastructure locations (i.e., field development layouts) and increasing knowledge of preferred habitats for MNES gained by ongoing pre-clearance surveys and monitoring of construction activities (e.g., fauna spotter-catcher observations and records of any reptiles removed from the gathering line open trenches).

The ecology reports for the Stage 1 impact sites are provided in **Attachment 1** and **Attachment 1.2**. Stage 1 activities will impact 3 listed MNES species and one MNES threatened ecological community (refer to **Table 1**). The following provides an overview of the Stage 1 impact areas; details are provided in Section 3.

Impacts to MNES have been minimised by:

- selecting well pad and pipeline alignments to avoid remnant vegetation and fauna habitat values where practicable;
- seeking opportunities to co-locate pipeline rights-of-way (RoWs) with existing pipelines, and therefore reducing the width of new easements and habitat fragmentation;
- completing field surveys in remnant vegetation to understand the likelihood of this vegetation to provide habitat for the listed species; and
- reviewing effective impact minimisation and mitigation measures based on scientific evidence for wildlife.

The total disturbance footprint area for the SGP Stage 1 is around 2,000 ha, comprised of approximately 844.82 ha (42.25 %) of land that contains remnant or regrowth vegetation, and the remainder (57.75%) is previously cleared/disturbed land. This highlights that Arrow has

been quite successful in locating infrastructure on previously cleared areas. Some impacts are unavoidable because of the need to locate infrastructure in State Forests and traverse linear strips of vegetation in road reserves and waterway crossings.

The majority of this 844 ha of remnant and regrowth vegetation is recognised as habitat for the koala (830 ha) as this species has been known to occupy most of the regional ecosystems present in the Surat Basin. The other MNES impacted in Stage 1 of the SGP almost entirely overlap with this koala habitat (i.e. there is 99.6 % overlap with Dunmall's snake habitat and 100% overlap for all others; the south-eastern long-eared bat, and brigalow threatened ecological community (TEC)). This means that the koala is essentially an 'umbrella species' whereby offsetting impacts to its habitat also covers the other MNES impacted in Stage 1 of the SGP.

A range of mitigations have been implemented to minimise impacts to MNES, as detailed in sections 3 and 4 of the *Surat Gas Project Species Impact Management Plan* (Rev 4.0) (SIMP) (20 November 2018).[2]

The mitigation measures detailed in the SIMP are being followed by Arrow in the development of Field Development Plan/s and will be followed in the execution of the SGP. These mitigation measures are described in full detail in the SIMP (refer to Tables 3.1 and 4.1 of the SIMP). These tables are shown in full at **Appendix B**.

[2] Available at https://www.arrowenergy.com.au/__data/assets/pdf_file/0007/31012/Surat-Gas-Project-Species-Impact-Management-Plan.pdf

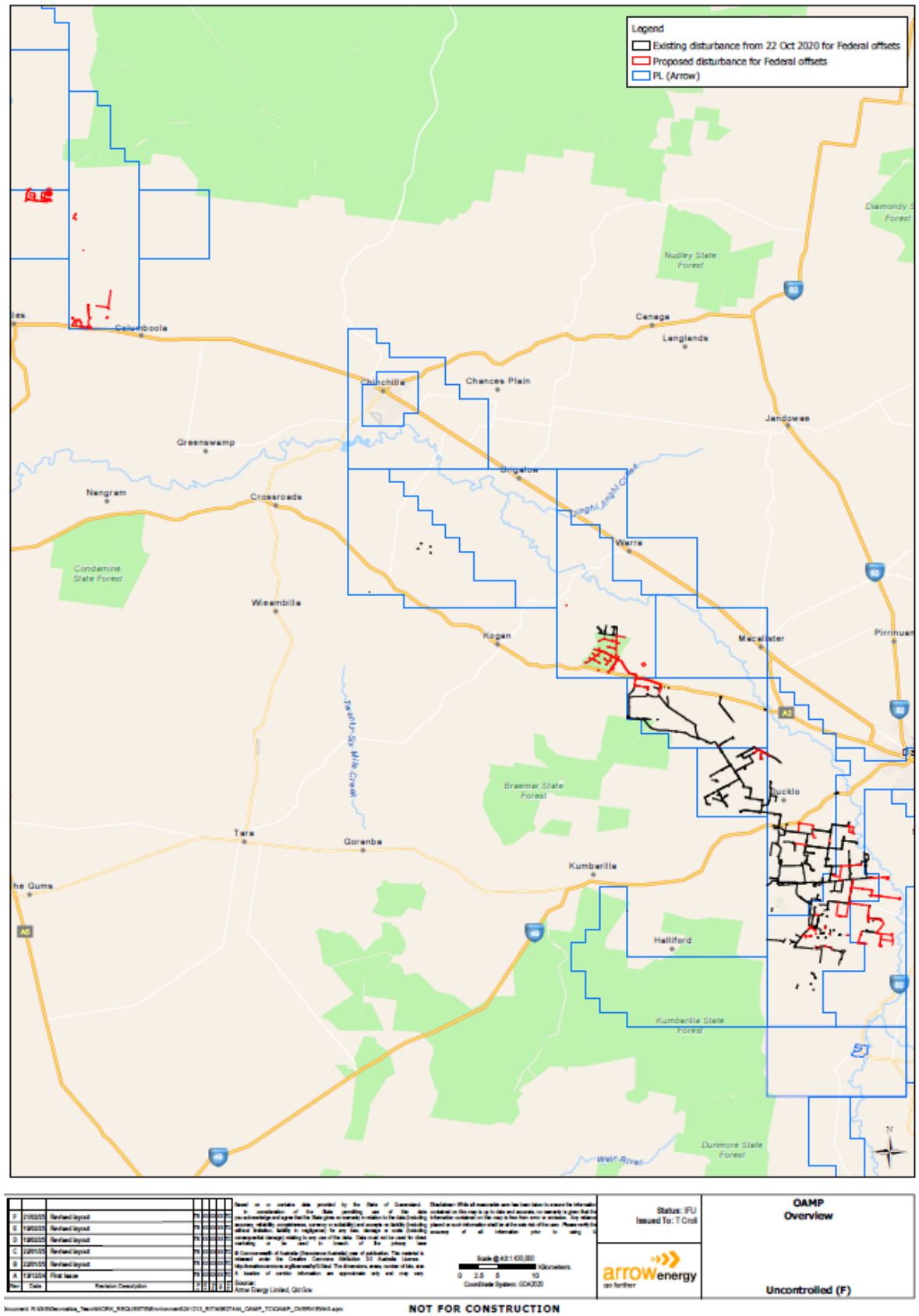



**Figure 1 Surat Gas Project (SGP) overview of impact areas**

# 2. EPBC Act Environmental Offsets Policy

This section describes how the proposed offset package meets the requirements of the EPBC Act Environmental Offsets Policy (October 2012) (EOP).

## 2.1 Application of EOP principles

The EOP sets out eight key overarching principles to be applied to determine the suitability of an offset. **Table 3** outlines how each of the policy principles has been considered in this OAMP with a description of how the principle has been addressed and a reference to the relevant OAMP section.

Given the EOP principles in relation to the offset requirements of the Project, the selected offset area is considered to supply the values required. Consideration was also given to offset property development planning and any potential conflicting future use of the property to minimise the potential for conflicting land use pressures with the offset area.

**Table 3 EPBC Act Environmental Offset Policy Principles**

| Policy Principle | Project Offsets |
|---|---|
| Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matters | The offset area was selected because Brigalow TEC and regrowth is present[3], as is habitat for the Dunmall's snake and south-eastern long-eared bat. Also, the habitat is in a condition that is developed enough to be of low risk of loss and to enable significant uplift in habitat value. Kogan waxflower was delisted in 2020, prior to any impacts from SGP Stage 1 on the species, and therefore is no longer required to be offset under the EPBC Act or EOP. However, Arrow are obligated to a 'no-net-loss' outcome under Queensland's protected plants legislation and as such are continuing with a successful propagation of the species and will undertake field planting trials in March/April 2022. The offset for the Project will acquit 100% of the project's previously required direct offsets for impacts to the matters as listed in **Table 1**. Calculations have been undertaken based on ecological reports that included both flora and fauna surveys undertaken on both the impact and offset areas informing inputs to the Offset Assessment Guide.<br><br>The proposed offset area will be managed to mitigate the risks, to increase the extent and condition of the habitat, and improve the viability of the species within the proposed offset area, as per the offset area management measures (refer to **Table 13**). |
| Suitable offsets must be built around direct offsets but may include | 100% of the Project's MNES offset obligations will be acquitted by the proposed direct land-based offsets (refer to **Figure 1**). |

[3] Figure 2.1A, Appendix 5, Habitat Quality Assessment, Killara Offset Area, Final, December 2020; Umwelt Australia Pty Ltd

| Policy Principle | Project Offsets |
|---|---|
| other compensatory measures | |
| Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter | The species in **Table 1** are listed as vulnerable under the EPBC Act. The brigalow TEC is listed as Endangered. The status of the impacted threatened species has been accounted for, by using the offset assessment guide to calculate the offset area required. |
| Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter | The extent of the offset has been calculated using ecological reports that include both flora and fauna surveys, for both the impact and offset areas. The reports have been used to inform inputs into the offset assessment guide.<br>The inputs to the offset assessment guides for each of the protected matters impacted are in **Table 10**. |
| Suitable offsets must effectively account for and manage the risks of the offset not succeeding | The risks associated with the offset have been assessed (refer to **Table 12**) and appropriate management and corrective actions proposed in the offset area management measures (refer to **Table 13**). **Table 15** sets out the interim habitat quality criteria to be met at each 5-year interval. Monitoring will ensure management measures are enabling the achievement of the required outcomes, including the habitat quality score increases, and progress will be reported on, as outlined in Section 11. |
| Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs | Vegetation clearing in regulated vegetation areas as a Native Forest Practice, broadscale clearing in vegetation that is not regulated, and grazing on the offset area are activities that are not currently prohibited by legal mechanisms at either the local, state or Australian government legislative level.<br><br>The area is zoned rural and has been predominantly cleared and used for timber harvesting and cattle grazing previously.<br><br>Areas of the offset property have been subject to vegetation clearing[4] since the 1930s. The current remnant and regrowth vegetation in the offset area will be secured through the use of a declared area that has its head of power under the *Vegetation Management Act 1999* (QLD) (VMA), which will prevent clearing and require that the management activities in **Table 13** are implemented. This will ensure the offset site is managed for habitat quality improvement (Refer to Section 11). |

[4] Vegetation Management Act 1999, Schedule dictionary.

| Policy Principle | Project Offsets |
|---|---|
| Suitable offsets must be efficient, timely, transparent, scientifically robust and reasonable | The proposed offsets will be implemented efficiently and in a timely way, as this OAMP is required to be submitted to the Minister within 12 months of commencing the action and be legally secured prior to commencing Stage 2.[5]<br><br>Terrestrial ecology reports for the impact and offset areas (refer to **Attachment 1**) provide data on habitat quality and species presence, using an established and robust BioCondition assessment methodology (Queensland's terrestrial habitat quality assessment guide (2017 and 2020) and BioCondition assessment manual). The information is scientifically robust, demonstrating the level of impact, as well as the suitability of the offset for the impacted protected matter. Along with an assessment of the offset area using the EPBC Act Offset Assessment Guide, this provides transparency about the offsets' scale and suitability. Refer to **Table 10** for further application of the Offset Assessment Guide. |
| Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced. | Monitoring and reporting, outlined in Section 11 , will ensure that the offset management plan is being implemented by the landholder. Arrow, as the approval holder, will have oversight of the progress of the required outcomes being attained at the offset site and any corrective actions undertaken. The approval holder will undertake annual compliance reporting, as detailed in Section 11, as well as any independent audits, if deemed necessary.<br><br>Habitat assessments in this OAMP have been undertaken in accordance with the published guidelines outlined in Section 11.<br><br>Monitoring and reporting, detailed in Section 11, will assess the Offset Area Management Actions in **Table 13**, taking into consideration the start condition.<br><br>The offset will be protected from clearing and secured through the use of a declared area that has its head of power under the VMA (refer to Section 12). |

## 2.2 Addressing relevant EPBC plans and advice

The EOP states that an offset should address key priority actions for the impacted MNES in any approved recovery plans, threat abatement plans, conservation advice, ecological character description or approved Commonwealth Management Plan. Approval condition 10B (f)[6] also requires that management measures take into account the relevant approved conservation advices and are consistent recovery plans and threat abatement plans for the respective species and TECs. **Table 4** summarises how this plan addresses the relevant Conservation Advices for the relevant species and TEC, on the offset area.

[5] Condition 7 (k); Variation to Conditions attached to Approval Surat Gas Expansion Project (EPBC 2010/5344) dated 29 March 2017
[6] Condition 10B (f); Variation to Conditions attached to Approval Surat Gas Expansion Project (EPBC 2010/5344) dated 2 July 2019

**Table 4 Conservation Advice addressed in the OAMP**

| Document | Key threats | Section addressed in documents |
|---|---|---|
| Approved Conservation Advice for *Nyctophilus corbeni* (South-eastern Long-eared Bat). Canberra: Department of the Environment (DoE). 2015.<br><br>Commonwealth Listing advice for ten species of bats. Threatened Species Scientific Committee (TSSC). 2001 | **Habitat loss and fragmentation**<br>Extensive clearing of woodland and mallee vegetation is likely to have been a major factor in the decline of the south-eastern long-eared bat. Habitat loss threatens the species by reducing habitat availability, such as important roosting sites (Schulz and Lumsden 2010). | Refer to **Table 13 -** Forestry and native vegetation - clearing is not allowed under the management plan.<br>No forestry or timber harvesting activities are to be conducted during the period of the declared area under the VMA.<br>Forestry and native timber harvesting practices in the offset area remove large trees that provide shelter and food and may also contain hollows and deadwood. It is therefore considered a potential threat to the quality of the habitat. |
| | **Fire**<br>Bushfires are suspected to be a threat in the remaining uncleared areas of the south-eastern long-eared bat's habitat (Duncan et al., 1999). Bushfires pose a threat to the conservation of the species by both causing direct mortality during bushfire events and through the loss of foraging habitat and roosting sites, which take a long time to develop (Schulz and Lumsden 2010). | Refer to **Table 13 -** Fire is not permitted in the offset area unless for fuel reduction purposes, at no less than seven-year intervals and no more than 30% of the area at any one time (as per Queensland DES regional ecosystem descriptions fire management guidelines).<br>Fuel reduction burns will be used as a last resort, and if utilised will be planned to be low intensity with no canopy scorch, with the aim to reduce fuel load in the ground cover layer. This practice aims to prevent unplanned high intensity burns that result from a build-up of fuel. |
| | **Reduction in hollow availability**<br>Hollows can be lost through general habitat loss and either purposely or incidentally during routine forestry practices (Schulz and Lumsden 2010). The loss of hollows is a threat on its own to the species; however, habitat loss also leads to increased competition for remaining hollows from other animals (Reardon 2012). | Refer to **Table 13 -** Forestry and native vegetation.<br>No forestry or timber harvesting activities are to be conducted during the period of the declared area under the VMA.<br>Forestry and native timber harvesting practices in the offset area remove large trees that provide shelter and food and may also contain hollows and deadwood. |
| | **Grazing**<br>Grazing in the habitat of the south-eastern long-eared bat is a suspected threat in the uncleared areas of habitat (Duncan et al., 1999) as it may reduce foraging | Refer to **Table 13 -** Grazing – grazing is not permitted during the wet season; ground cover levels will be monitored and managed. |

| Document | Key threats | Section addressed in documents |
|---|---|---|
| | habitat through the removal of shrubs and by limiting regeneration, as well as potentially causing significant changes to the structure and diversity of such habitats (Schulz and Lumsden 2010). The relative impact of grazing as a threat to the species is unknown however and requires further investigation. | Stock will be grazed in the offset areas for fuel reduction purposes during September to January, or until the wet season starts, to avoid soil pugging. |
| | **Predation by feral animals**<br>Predation of south-eastern long-eared bat by introduced species, such as the feral cat or red fox, has not been demonstrated (Woinarski et al., 2014) and therefore the risk to the species is unknown. Schulz and Lumsden (2010) note that predation is a possible threat for the sympatric lesser long-eared bat. The impact of predation by feral animals needs to be assessed for this species. | **Table 13 -** Feral animals – monitoring and control as detailed.<br>Existing populations of feral animals (feral cats, dogs and pigs) will be controlled within the offset areas in accordance with the *Biosecurity Act 2014* (Qld).<br>Monthly inspections to record the presence of wallow holes, tracks and visual incidents in the offset area will be undertaken.<br>On being notified or becoming aware of the presence of large numbers, for example, approximately 10 feral animals or multiple tracks in the offset area at any one time, the Landholder is to implement feral animal control measures within one month. |
| Approved Conservation Advice for *Furina dunmalli* (Dunmall's Snake). (DoE). 2014. | **Land clearing and habitat modification**<br>The main identified threat to Dunmall's snake is a continued legacy of past broadscale land clearing and habitat modification. The preferred habitat for this species has been extensively modified and continues to be threatened by overgrazing by stock, modification for grazing and agriculture, pasture improvement, crop production and urban development. Drainage of swamps may also be a threat to this species. | **Table 13 -** Forestry and native vegetation - clearing not allowed.<br>No forestry or timber harvesting activities, or clearing for cropping, pasture or grazing, during the period of the Approval (until 31 December 2080). |
| | **Predation by feral animals**<br>Predation by feral animals has also been identified as a potential threat (DERM, 2007). | **Table 13 -** Feral animals – monitoring and control as detailed.<br>Existing populations of feral animals (feral cats, dogs and pigs) will be controlled within the offset areas in accordance with the *Biosecurity Act 2014* (Qld). |

| Document | Key threats | Section addressed in documents |
|---|---|---|
| | | Monthly inspections to record the presence of wallow holes, tracks and visual incidents, in the offset area will be undertaken.<br>On being notified or becoming aware of the presence of large numbers, for example, approximately 10 feral animals or multiple tracks in the offset area at any one time, the Landholder is to implement feral animal control measures within one month. |
| Commonwealth Listing Advice on Brigalow (*Acacia harpophylla* dominant and co-dominant). (TSSC). 2001.<br><br>Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community. (DoE) 2013. | **Vegetation clearing for cropping and pasture and grazing**<br>The brigalow ecological community was listed as endangered on the basis of extensive clearing. This has altered the ecological community's typical landscape context, with most remnants now occurring as fragments within substantially modified landscapes, or on small clay pans or the toe-slopes of jump-ups and escarpments. As clearing has mostly occurred after 1960, effects on biodiversity in the brigalow ecological community are likely to be ongoing for some time yet, with equilibrium between the number of species supported and the much reduced area of available habitat probably still in the process of being re-established (McAlpine et al. 2002). | Refer to **Table 13** which provides that clearing is not permitted within the offset area, except for ecological thinning, on the advice of a suitably qualified expert.<br><br>The offset area will be protected from clearing by this OAMP through the use of a declared area under the VMA which will be registered on the title of the property. |
| | **Fire**<br>The low density of herbage in most types of brigalow vegetation suggests that fire has been historically rare in the brigalow ecological community. It becomes a serious threat to remnant brigalow where fuel characteristics have been changed (e.g. by the presence of high biomass introduced grass pasture species such as buffel grass (*Pennisetum ciliare* syn. *Cenchrus ciliaris*), Rhodes grass (*Chloris gayana*) or | Refer to **Table 13 -** Fire – fire is not permitted in offset areas.<br>Strategy: Maintain fire management of surrounding country so that wildfires will be very limited in extent. Protection from fire is necessary. Issues: *Casuarina cristata* (belah) is fire sensitive, although germination can be good in bare areas. Brigalow is soft-seeded, so germination is not promoted by fire. Buffel grass invasion will increase risk from fire. High-intensity fires will cause damage to over-storey. Grazing may be an option for reducing fuel loads where exotic grass such as buffel have invaded. |

| Document | Key threats | Section addressed in documents |
|---|---|---|
| | green panic grass (*Megathyrsus maximus* syn. *Panicum maximum*)) in, or adjacent to, brigalow woodlands (Butler, 2007). Fragmentation and disturbance can interact lead to higher densities of invasive grasses to thereby increasinge the risk of fire to within remnant brigalow woodlands. Linear brigalow remnants, such as those occurring on roadsides, possess large edge to area ratios and often grow in a matrix of introduced pasture grasses. Fire associated with exotic grass invasion is more problematic in the more open brigalow woodland types in the west and north.<br>Generally, the most appropriate fire regime for brigalow stands is fire-exclusion (Butler, 2007). It is possible that grazing can be used to manage grass fuel loads. It may also be possible in some cases to develop techniques with cool fires that reduce fuel loads without killing brigalow. | |
| | **Plant and animal pests**<br>Pest plants can alter the structure and function of brigalow ecosystems and affect their suitability as habitat for native species. Introduced grasses, such as buffel grass, Rhodes grass and green panic grass pose the greatest threat by drawing fires into the Brigalow ecological community and increasing fire severity (Butler, 2007).<br>Feral pigs are probably the most widespread and problematic pest animal in the ecological community, although goats, cane toads, cats and foxes are also serious threats (Butler, 2007). | Refer to **Table 13 -** Pest plants – reduce to no more than 10% of ground cover across the offset area. The 10% level is adopted as a reasonable aspirational target to be achieved over the term of the management plan based on surrounding land use and regional weed loading.<br><br>Refer to **Table 13 -** Feral animals. Trigger levels and corrective actions are detailed in **Table 12**. |

# 3. Impact site biodiversity values

## 3.1 Description of the project site

Stage 1 of the SGP is located in the Surat Basin, Queensland, approximately 230 km west of Brisbane (refer to **Figure 1**).

The Project area is rural in nature, comprising predominantly cultivated land including intensive farming, and low intensity grazing in the west as land suitability and rainfall declines. There are five State Forests (Condamine, Braemar, Dalby, Daandine and Kumbarilla) in the project area, which are used for timber harvesting, and they are leased for cattle grazing.

The impact area was assessed by suitably qualified ecologists from 3D Environmental and EcoSmart Ecology (2017) with further data collected in 2021 by the same highly qualified experts in flora and fauna ecology respectively.

There are five dominant terrestrial habitats in the wider project area:

- Previously cleared or highly modified areas;
- Alluvial creek flats that contain narrow riparian strips with mixed eucalypts (mainly *Eucalyptus tereticornis*, *E. populnea* and *E. camaldulensis*);
- Clay plains with cracking soils that contain brigalow (*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest);
- Narrow strips of mixed eucalypts on undulating plains (mainly *Eucalyptus populnea* and *E. crebra*); and
- Large stands of mixed eucalypts, cypress pines and wattles on ironstone jump-ups within State Forests.

There are two main waterways that will be traversed by the Stage 1 project infrastructure (Wilkie and Wambo Creeks) and numerous smaller drainage channels that feed into these creeks. The only waterbodies in the Stage 1 project area are Lake Broadwater and man-made dams on cultivated paddocks.

## 3.2 Habitat mapping of the project site

The EPBC Act approval for the SGP specifies Stage 1 maximum disturbance limits to core habitat for particular MNES. Core habitat is defined in the EPBC approval notice as 'core habitat known and core habitat possible as defined in the rules for habitat mapping for each individual species in the *Supplementary Report to the Surat Gas Project EIS (March 2012), Attachment 1 – Matters of National Environmental Significance'*.

These mapping rules from the SREIS were derived from the Biodiversity Assessment Mapping Methodology developed by the Queensland Environmental Protection Authority in 2002, and are as follows:

- Core habitat known (CHK): Identifies habitat where a spatially accurate confirmed record of a particular species exists (e.g., survey record). CHK is attributed to the particular habitat polygon in which it occurs, based on either RE mapping or high resolution habitat mapping developed for a specific purpose. CHK also applies to a 1 km buffer around all spatially accurate (<400m accuracy) species records.

- Core habitat possible (CHP): Previous records of a particular species are not known to occur in a given area or habitat, although specific habitat features are present which are known to be favoured by the species and the habitat occurs within the species' known geographic range.

- General habitat (GH): Where a species has not been recorded in a given location and habitat accounts for some of the features favoured by a particular species. The habitat occurs on the margins of a species' known geographic range. Otherwise, the habitat is suitable for the species although has been subject to intensive survey and the species has not been recorded.

- Absence suspected: The species has not been recorded in a given location and habitat features are not suitable (or sub-optimal) for survival of a given species or population.

Mapping work undertaken as a part of terrestrial ecology studies and surveys for the SGP has been based on these mapping rules. Detailed descriptions of how CHP and CHK criteria apply to each MNES impacted are shown in **Table 5**.

Maps showing the Stage 1 impact areas for each individual species and the brigalow TEC are provided in **Appendix C**.

**Table 5 Core habitat mapping criteria for Stage 1 impacted MNES**

| MNES | Core habitat possible (CHP) | Core habitat known (CHK) | Impacted area (ha) |
|---|---|---|---|
| South-eastern long-eared bat | Only remnant vegetation which contributes to significantly large contiguous vegetation patches (>500ha) is considered suitable. Within these larger continuous vegetation patches. REs 11.3.14, 11.5.1, 11.5.1a, 11.5.4, 11.5.20, 11.5.21, 11.7.4 and 11.7.7 are mapped as CHP. REs 11.3.25 and 11.3.27 were previously considered CHP but should be reassigned to General Habitat unless they contribute to a larger continuous vegetation patch. | All CHP or General Habitat (GH) within 2km of a recent (1980+), accurate (± 500m) record is classed as CHK. | 485.52 |
| Dunmall's snake | All remnant vegetation >50ha in extent and within 500m of a larger vegetation patch of RE 11.3.1, 11.3.2, 11.3.14, 11.3.17, 11.3.18, 11.4.3, 11.5.1, 11.5.4, 11.5.20, 11.7.2, 11.7.4, and 11.7.7 are classed as CHP. REs 11.3.2 and 11.3.26 were elevated to CHP, being part of broad vegetation groups (BVGs) now associated with the species.7 | CHP within 1km of a recent (1980+), accurate (±500m) record is classed as CHK. | 150.00 |
| **TEC** | **Mapping criteria** | | **Impacted area (ha)** |
| Brigalow TEC | All remnant vegetation mapped as REs 11.3.1, 11.4.3 and 11.9.5, and mature regrowth derived from these ecosystems (i.e. brigalow vegetation >15 years old). | | 4.63 |

[7] EcoSmart 2021, p.19.

## 3.3 South-eastern long-eared bat habitat in the impact area

The south-eastern long-eared bat is a relatively large solid bat with a broad, robust skull long ears, approximately 30 mm in length, which are erect when the bat is alert but fold back when at rest (Reardon 2012). The species' fur is a light brown to a dark grey-brown (Reardon 2012).

Records of south-eastern long-eared bat occur to the north, south and west of the SGP, however the species is absent from open and modified habitats on the Condamine River flood plains which stretch along the central-east and south-east boundary of the SGP. Suitable habitat east of the SGP is only present in the very north (i.e, near Barakula State Forest). Therefore, while large areas of suitable habitat occur within the SGP, it is situated at the eastern distributional limit of the species.

Consistent with the mapping rules described in Section 3.2, the total area of impact to core habitat for the south-eastern long-eared bat has been determined to be 485.52 ha. A map showing these impact areas is in **Appendix C1**. Habitat quality scores for the impact area are shown in **Appendix E1**.

## 3.4 Dunmall's snake habitat in the impact area

*Furina dunmalli*, Family Elapidae, also known as Dunmall's snake, is a small to medium sized snake, growing to a total length of 60 cm. It is a dark grey-brown snake with a white underbelly (Cogger, 2000). Dunmall's snake is confined to the Brigalow Belt bioregion of south-eastern Queensland and north-eastern New South Wales, occurring north to Clermont and near Rockhampton. Most records are from the Dalby-Tara area of the Darling Downs (Hobson 2012a).

The Dunmall's Snake has been recorded from a number of locations surrounding the SGP including two records approximately 6 to 7 km to the west. One of these is undated, and likely very old, while the second is dated as the year 2000. Three records fall within the SGP, two at Lake Broadwater (dated as 1984 and 1993) and a third more recent record (post 2015) to the north (-26.425189, 150.182572). The species is cryptic and difficult to detect, even during suitable conditions. Despite Arrow's extensive survey effort over several years, no individuals of the species have been located or observed.

Consistent with the mapping rules, the total area of impact to core habitat for Dunmall's snake has been determined to be 150.00 ha. A map showing these impact areas is in **Appendix C2**. Habitat quality scores for the impact area are shown in **Appendix E2** .

## 3.5 Brigalow TEC in the impact area

In the SGP area, brigalow communities (RE 11.3.1, RE 11.4.3 and RE 11.9.5) and brigalow/eucalypt associations (RE 11.3.17) have been cleared to the margins of adjacent vegetation types and generally exist as small unviable remnants, slivers along the margins of riparian forest types, or as secondary forests with limited structural complexity or floristic diversity. Native ground covers, although naturally sparse in these communities are often displaced by exotic species including prickly pear (*Opuntia stricta*), mother of millions (*Bryophyllum delagoense*) and harrisia cactus (*Harrisia martinii*). Dense infestations of velvet tree pear are typical in brigalow habitats, forming up to 20% cover in the taller shrub layer of

many occurrences (3d environmental and EcoSmart Ecology 2017, and EcoSmart Ecology 2021).

The mapping rule for core habitat for brigalow TEC includes all remnant vegetation mapped as REs 11.3.1, 11.4.3 and 11.9.5, and mature regrowth derived from these ecosystems (i.e. brigalow vegetation >15 years old). Based on this, the total area of impact to this TEC has been determined to be 4.63 ha. A map showing these impact areas is in **Appendix C3** . Habitat quality scores for the impact area are shown in **Appendix E3**.

# Part B : Offset Land Management Plan

# 4. Offset property overview

The offset area for the SGP Stage 1 offset is proposed to be located beside the SGP Pipelines Project offset on the Killara property. **Figure 2** shows the location of Killara in relation to the SGP Stage 1 impact area. **Figure 3** shows the location of this property in terms of the four lots on plans targeted by Arrow for EPBC offsets, the size of each lot and the connectivity with the adjacent Barakula and Allies State Forests. Specific Assessment Units (AUs) within each Lot are also labelled on **Figure 4** and **Figure 5** (e.g., AU2, AU3 etc) to show the location of areas that are suitable for the different MNES. The proximity of the lots to bioregional corridors is shown in **Figure 6**.

**Table 6** identifies the specific areas on the Killara offset property that are suitable for each MNES (refer to Section 6 for further details).

**Table 6 Assessment units for MNES offsets on Killara**

| Lot | AU | RE | MNES being offset | | |
|---|---|---|---|---|---|
| | | | SE long-eared bat | Dunmall's snake | Brigalow TEC |
| 36 BO175 | 3 | 11.7.6 | X | X | |
| | 4 | | X | X | |
| | 5 | 11.3.1 | X | X | |
| | 8 | 11.5.20 | X | X | |
| | 11 | 11.4.3 | X | X | X |
| 15 BO94 16 BO94 | 1 | 11.12.1 | X | | |
| | 2 | | X | | |
| | 6 | 11.5.1 | X | X | |

Note: AU2 is a large assessment unit totalling 897.6 ha in area and is located across all four lots that comprise the property.

The property is approximately 94km north-east of the centre of the Project impact area (refer to **Figure 2**), within the Brigalow Belt bioregion. The property was selected to:

- deliver the offset because of the proximity to the impact site
- the property management objectives aligning with the offset management objectives
- suitable values present on the property, including field verification of brigalow TEC (and regrowth), and records of Dunmall's snake in proximity to the property and the property containing suitable habitat

- potential to provide future offsets on the same property for other Arrow projects.

For further context, Lots 15, 16 and 19 BO94 on which parts of the Dunmall's snake and south-eastern long-eared bat offset area is proposed, adjoins the Boyne River to the west, which is a recognised biodiversity corridor of state significance (**Figure 4** and **Figure 6**). A regional corridor of biodiversity significance bounds the property to the east. Lot 36 BO175 contains brigalow and Dunmall's snake offset area, as well as parts of the south-eastern long-eared bat offset area. This lot adjoins the state significant corridor, being the Allies and Barakula State Forests, which contains records of the south-eastern long-eared bat. The portion of the offset that is located on Lot 19 is adjacent to remnant vegetation within the lot. This remnant vegetation is itself mapped as part of a regional biodiversity corridor.

Additional offset areas for future stages of the SGP are planned on the property. Locating offsets on this property provides an opportunity to enhance and extend patches of remnant vegetation and improve connectivity in the local and regional landscape.

The property has been utilised for timber harvesting and cattle grazing since the 1930s, which has continued to the current time. The regrowth vegetation present on Lot 16, is a growing timber resource for the current owners and as a result, displays a lack of large trees and hollows that would be present in a mature version of these REs. The lack of these features is due to the timber harvesting that was undertaken previously (and documented to have been undertaken to 2011), to preclude the vegetation being classified as remnant status. The regrowth brigalow on Lot 36 was previously cleared for pasture production and some of the previously cleared areas have been established to leucaena (an introduced shrub species grown for cattle production).

The offset area comprises *Eucalyptus crebra*, *E. populnea*, *E. moluccana*, *E. tereticornis*, *Corymbia citriodora* and *Acacia harpophylla* vegetation communities in both degraded remnant and regrowth condition. The REs on the offset property are shown in **Figure 4** and **Figure 5**.

Farm dams are located within each portion of the offset area which provides additional drinking sources for koala and other species in times of drought.

A detailed description of the offset area for this OAMP is in Section 5.

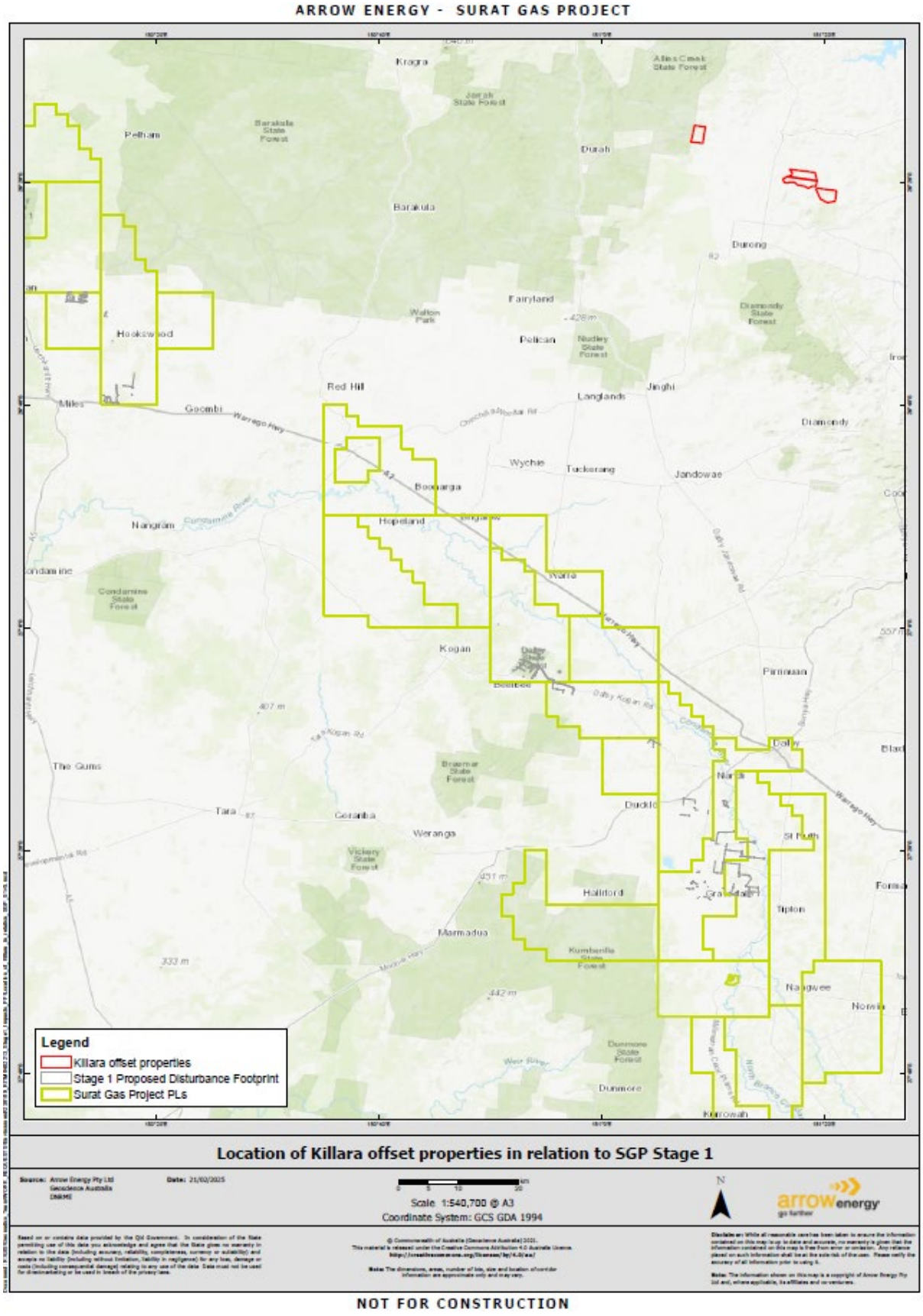



**Figure 2 Location of SGP Stage 1 and Killara offset area**

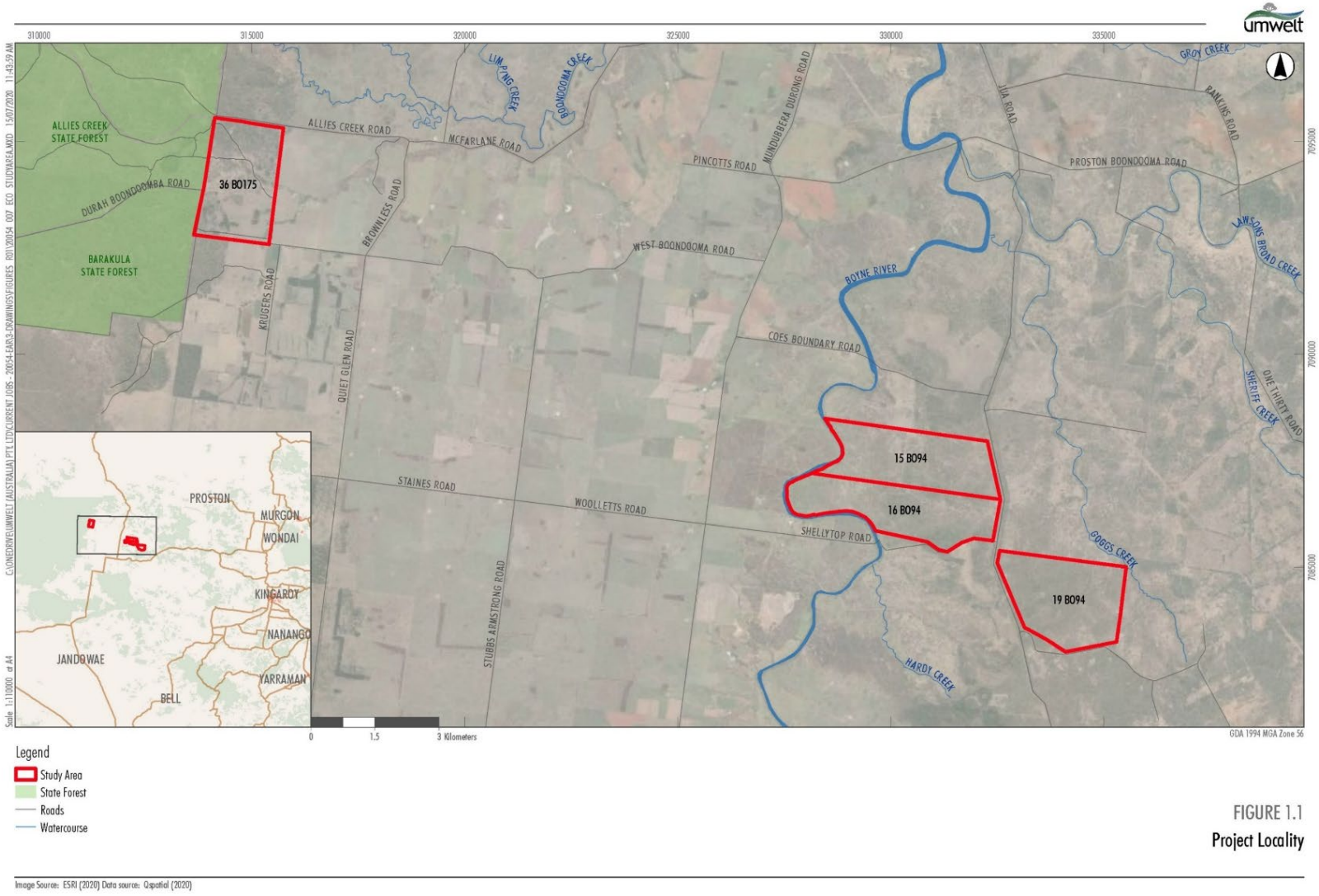
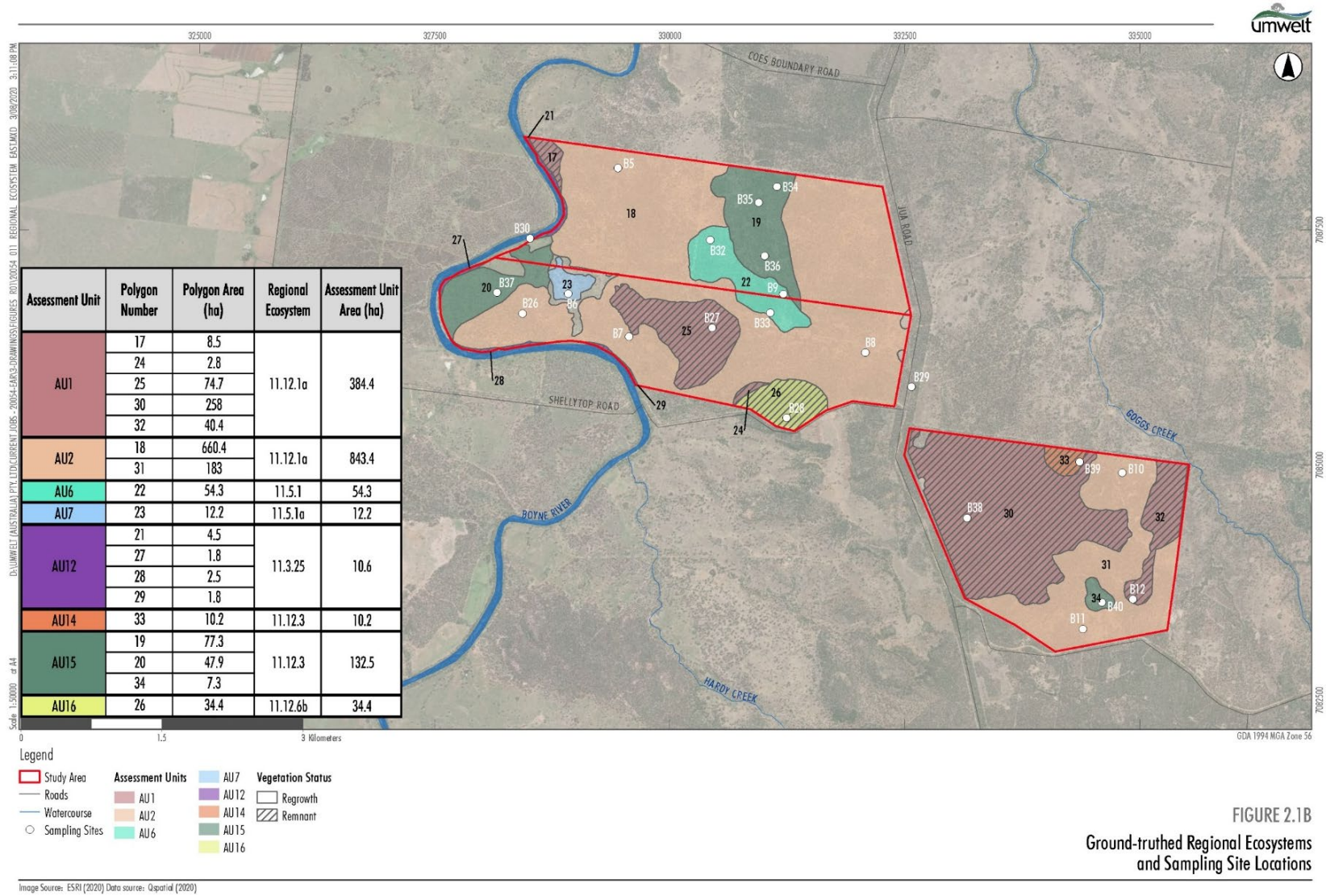



**Figure 3 Killara offset area – regional context**




| Assessment Unit | Polygon Number | Polygon Area (ha) | Regional Ecosystem | Assessment Unit Area (ha) |
|---|---|---|---|---|
| AU1 | 17 | 8.5 | 11.12.1a | 384.4 |
| | 24 | 2.8 | | |
| | 25 | 74.7 | | |
| | 30 | 258 | | |
| | 32 | 40.4 | | |
| AU2 | 18 | 660.4 | 11.12.1a | 843.4 |
| | 31 | 183 | | |
| AU6 | 22 | 54.3 | 11.5.1 | 54.3 |
| AU7 | 23 | 12.2 | 11.5.1a | 12.2 |
| AU12 | 21 | 4.5 | 11.3.25 | 10.6 |
| | 27 | 1.8 | | |
| | 28 | 2.5 | | |
| | 29 | 1.8 | | |
| AU14 | 33 | 10.2 | 11.12.3 | 10.2 |
| AU15 | 19 | 77.3 | 11.12.3 | 132.5 |
| | 20 | 47.9 | | |
| | 34 | 7.3 | | |
| AU16 | 26 | 34.4 | 11.12.6b | 34.4 |

**Figure 4 Assessment units and ground-truthed REs on Killara (Lots 15, 16 and 19Tab)**

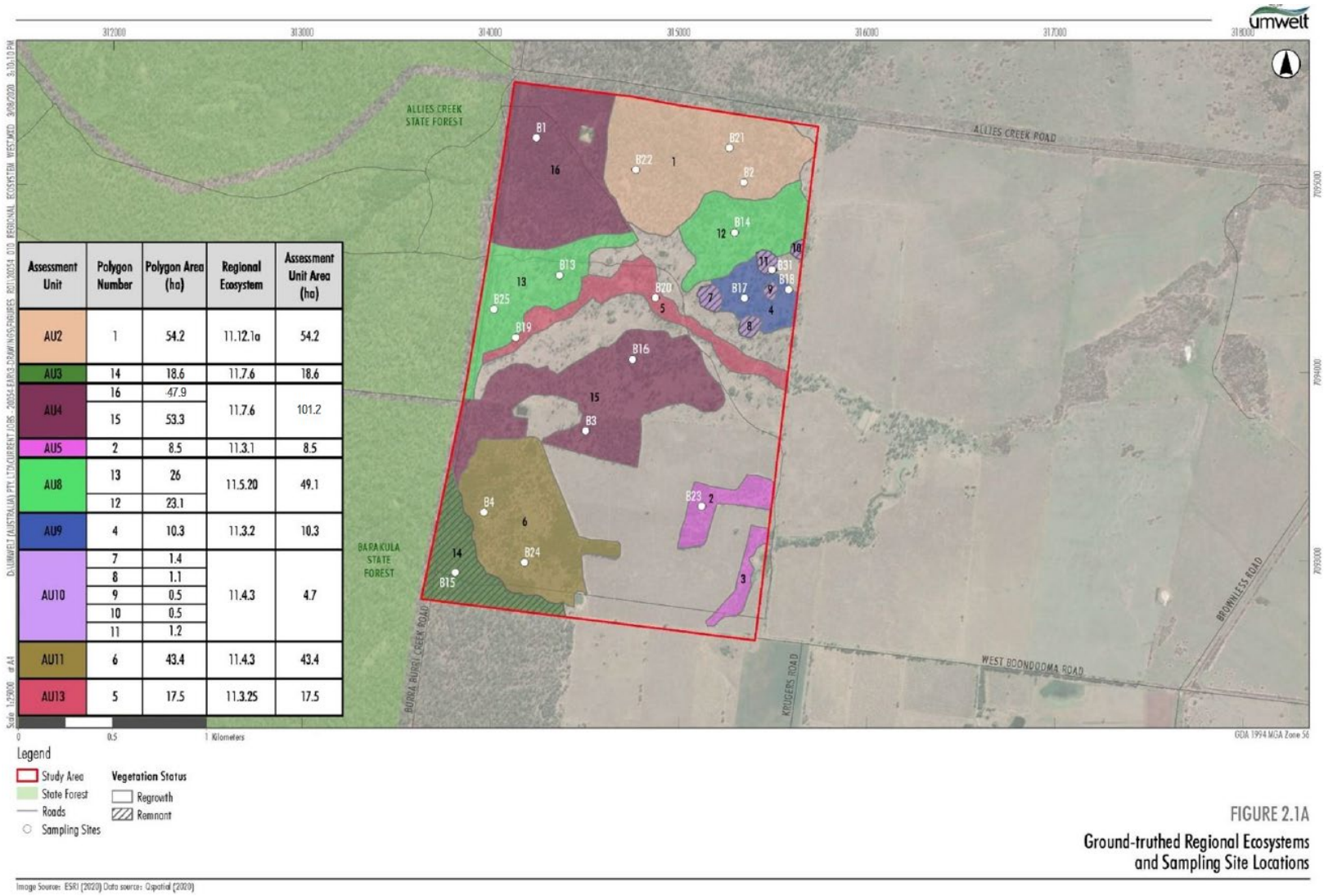



**Figure 5 Assessment units and ground-truthed REs on Killara (Lot 36)**


**Figure 6 State biodiversity corridors in relation to the offset areas [8]**

[8] DES (2018).

# 5. Offset area description

## 5.1 Vegetation and connectivity values

The proposed offset area, on Lots 15, 16 and 19 BO94, was selected for its potential to provide an offset for Dunmall's snake and south-eastern long-eared bat habitat. It meets the principles of the offset policy by:

- Once protected, increasing the current available habitat
- Contributing to improving landscape connectivity
- Improving habitat quality to enable more frequent use by these species, and other species such as koalas and greater glider that are being offset under Queensland Government legislation.

The offset area is currently composed of degraded tracts of regrowth and remnant vegetation adjoining the SGP PPL koala offset and the Boyne River.

The area selected for the offset area supports regrowth Eucalyptus crebra +/- Corymbia erythrophloia shrubby woodland, E. melanophloia (RE 11.12.1) and Eucalyptus crebra and/or E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii woodland (RE 11.5.1). These communities are illustrated in **Figure 4**, which provides an overview of Lots 15, 16 and 19 BO94.

The offset for brigalow TEC and part of the offset areas for south-eastern long-eared bat and Dunmall's snake are located on Lot 36 BO175 which adjoins the Barakula and Allies State Forests and comprises field survey confirmed regrowth brigalow (*Acacia harpophylla* dominant and co-dominant) REs 11.4.3 and 11.3.1 (AU11 and AU5 respectively) and remnant and regrowth *Corymbia citriodora* or *Eucalyptus crebra* woodland on Cainozoic lateritic duricrust (RE 11.7.6) being AU3 (remnant RE 11.7.6) and AU4 (regrowth RE 11.7.6) and AU8 regrowth *Eucalyptus moluccana* and/or *E. microcarpa* and/or *E. woollsiana* +/- *E. crebra* woodland on Cainozoic sand plains (RE 11.5.20). **Figure 5** shows these vegetation communities on Lot 36.

The offset area on Lot 19 provides the balance of the koala offset being provided under Queensland Government legislation. This area is part of the large assessment unit AU2 and is comprised of regrowth RE 11.12.1a (refer to **Figure 4**).

Landcape connectivity is essential to maintain functional links between habitat patches and permit dispersal of organisms and thus maintain healthy, viable populations (D'Eon et al. 2002). The offset area adjoins the Boyne River, part of a state bioregional corridor (refer to **Figure 6**). Allowing the regeneration of the regrowth will improve connectivity to the riparian vegetation along the Boyne River and provide additional habitat for south-eastern long-eared bat that utilise the property. Although the proposed offset area does not extend to the regional corridor on the eastern side, vegetation across the property is well connected to a network of corridors of state and regional value. Furthermore, the proposed offset area contains habitat values that will have the additional benefit to other EPBC threatened species, such as

improving the local greater glider habitat (known occurrence[9]).The ground-verified REs on the offset are on Lot 36 are illustrated in **Figure 5**.

Lot 36 is also directly linked to the state significant corridor being the Barakula and Allies State Forests (refer to **Figure 6**). Koala, south-eastern long-eared bat, greater glider, and painted honeyeater are all recorded within the State Forest. While three of these species are being offset under state legislation, this demonstrates the role of the site in the landscape in providing benefits for a wide range of species.

The eucalypt dominated areas on the properties have been selected for the offset area as they are preferred habitat for the koala and greater glider, which are known within the state forests and are present on Lots 15, 16 and 19.[9]. Although the south-eastern long-eared bat was not confirmed during field survey, echolocation calls of *Nyctophilus* spp. were recorded on anabat units. The state biodiversity corridors (DES (now DETSI), 2018) are illustrated in **Figure 6** showing connectivity corridors adjoining the offset areas.

The offset area will be a benefit to MNES species, as regeneration activities will enhance connectivity across the fragmented landscape. Utilising these regrowth and currently degraded communities as an offset will add significant value to the local area over time by extending the area of the available habitat and brigalow TEC. By implementing the offset area, patches of habitat from the Boyne River biodiversity corridor to the remnant vegetation east of the offset site will become a continuous patch of habitat for the southern long-eared bat. Furthermore, the offset on Lot 36 connects directly to the State Forest extending the habitat for each of the fauna species.

A detailed map of the proposed offset areas for each MNES is provided in

**Figure** 7**, Figure 8**, and **Figure 9**. The offset area has been determined utilising agreed outputs from the DCCEEW Offsets Assessment Guide (OAG). Southern long-eared bat and Dunmall's snake have been recorded throughout the regional area, and the records of these species' sightings are shown in **Figure 10**.

[9] Section 3.2.1; Targeted Fauna Survey Report, Killara Offset Area, July 2020, Umwelt.

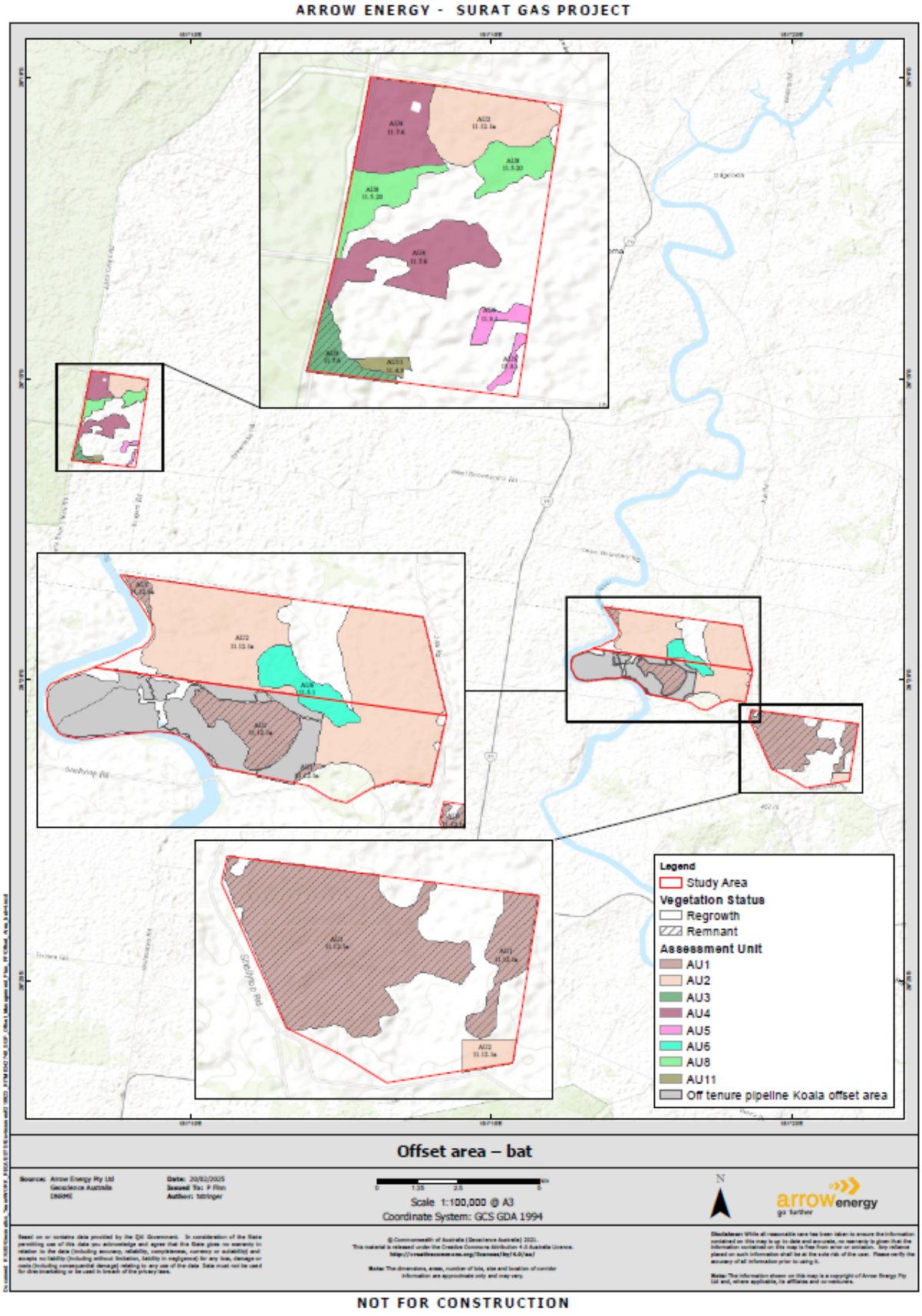



**Figure 7 Offset area for south-eastern long-eared bat**

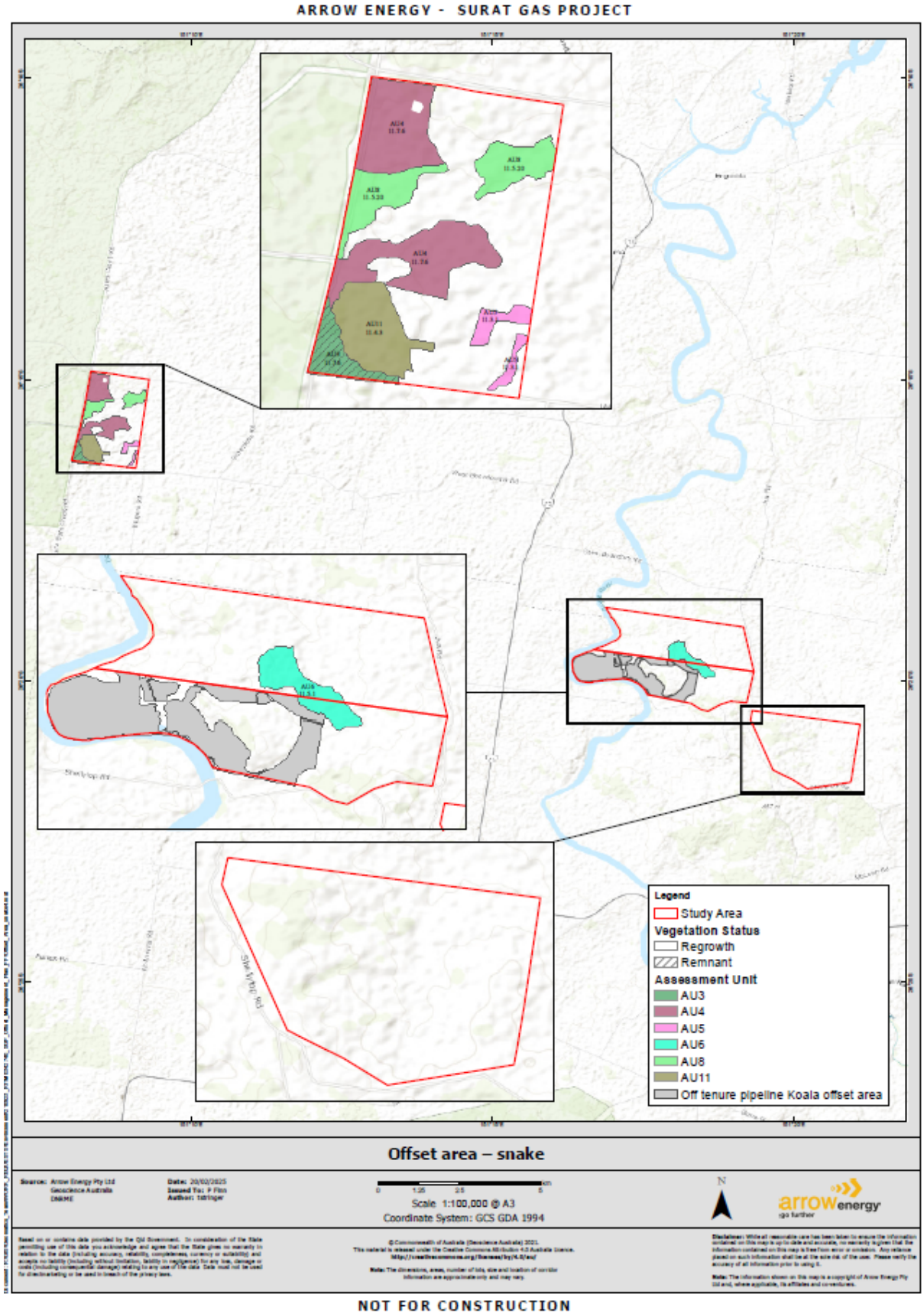



**Figure 8 Offset area for Dunmall's snake**

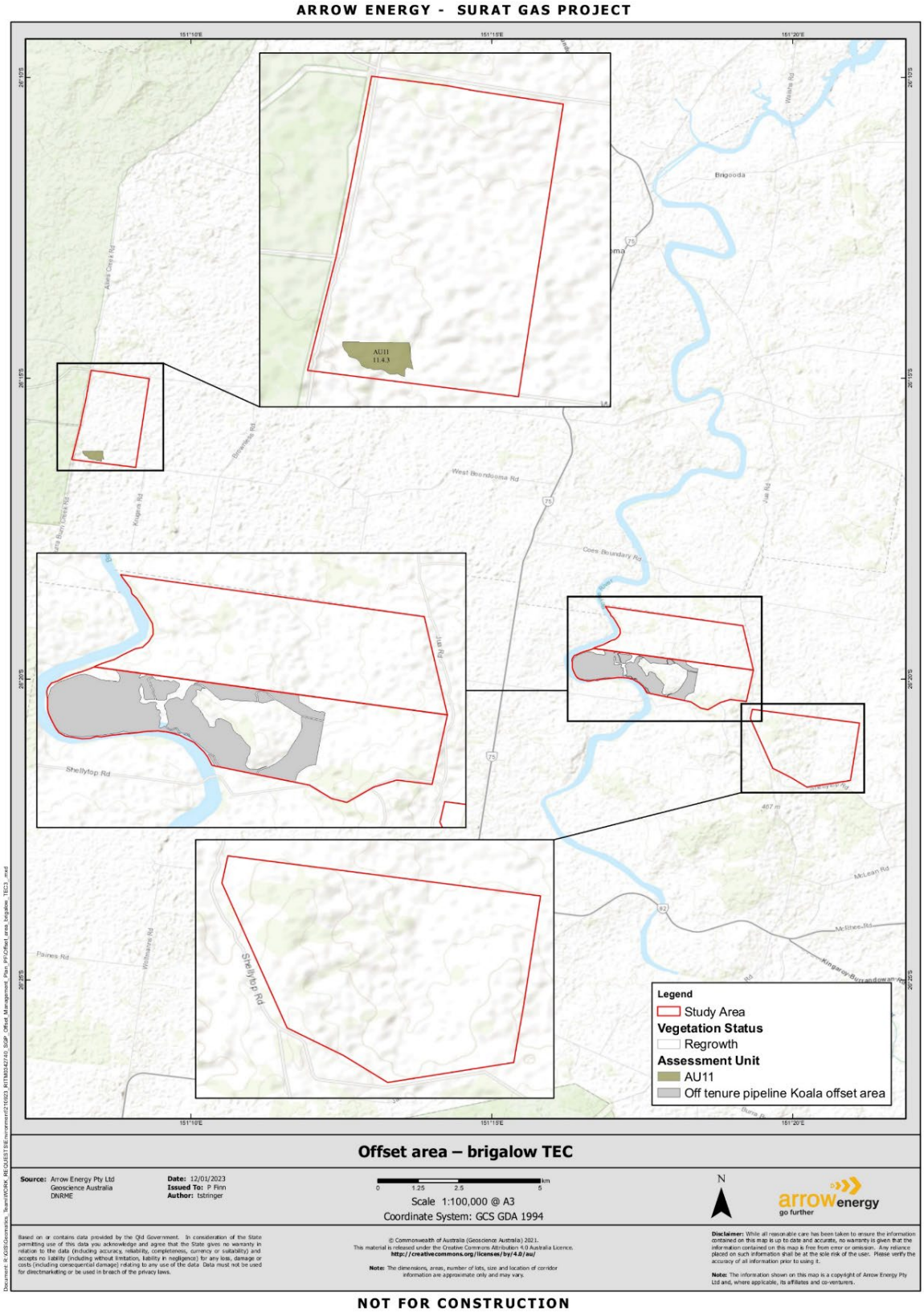



**Figure 9 Offset area for brigalow TEC**

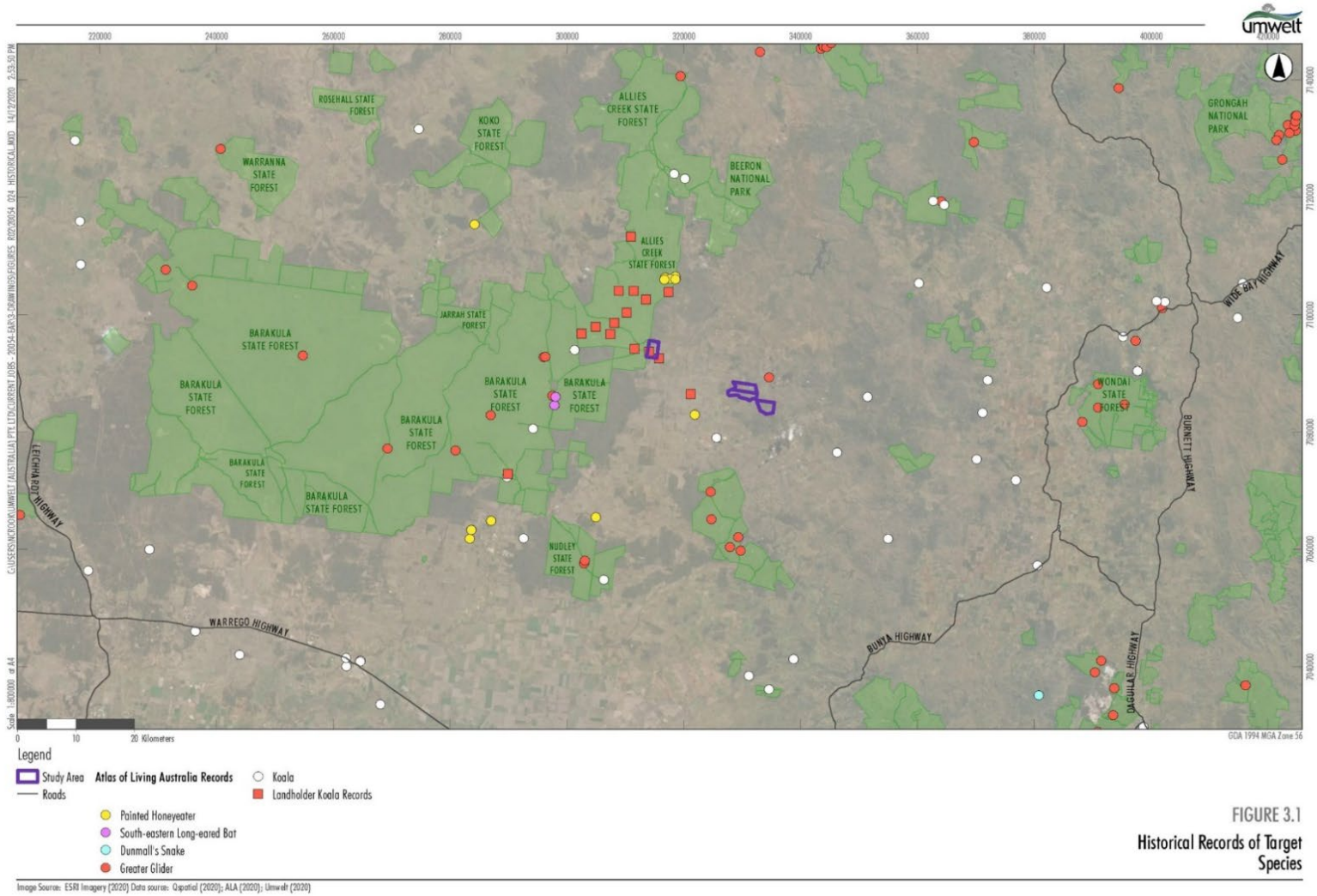



**Figure 10 Regional species sightings records**

# 6. Estimating offset area required to offset impact to species habitat and TEC

## 6.1 South-eastern long-eared bat

### 6.1.1 Habitat requirements

The south-eastern long-eared bat is found in southern central Queensland, central western New South Wales, north-western Victoria and eastern South Australia, where it is patchily distributed, with most of its range in the Murray Darling Basin (Duncan et al., 1999; Turbill and Ellis 2006). Most records are from inland of the Great Dividing Range (Parnaby 2009). The species is uncommon within this distribution and is rarely recorded (Department of the Environment 2013), except in some areas including the Nandewar and Brigalow Belt South bioregions in New South Wales and Queensland.[10]

In Queensland and New South Wales, it inhabits a variety of vegetation types, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of New South Wales and southern Queensland (NSW OEH 2012). In Victoria most records are from *Eucalyptus gracilis* mallee, buloke and black box woodlands Lumsden 1994) while in South Australia it is confined to tall mallee shrublands (Duncan et al. 1999).

The species is more abundant in extensive stands of vegetation in comparison to smaller woodland patches (Turbill and Ellis 2006), suggesting its home range is probably large (Lumsden et al. 2008). The offset is located within the distribution range and associated habitat for this species.

### 6.1.2 Offset area attributes

The offset area contains REs 11.12.1, 11.7.6, 11.5.20 and 11.4.3 in regrowth and remnant forms. These REs align with the Umwelt recommendations of suitable REs (adapted from AECOM 2018).[11]

At the offset area, parts of the assessment units AU1 (remnant) and AU2 (regrowth) vegetation RE 11.12.1a, AU4 (regrowth RE 11.7.6), AU8 (regrowth RE 11.5.20) and AU11 (regrowth RE 11.4.3) received moderate BioCondition scores because these communities have not yet developed large trees, hollows and a dense canopy cover, although tree canopy height and canopy species recruitment was close to the benchmark for each community. BioCondition assessments further confirmed that shrub layer canopy cover was low, as was the incidence of fallen woody debris, reflecting the impact from previous timber harvesting, grazing and hot fires. Wildfire has occurred on the offset site, although its frequency/records have not been documented. The habitat quality assessment results for south-eastern long-eared bat habitat are shown in **Table 7**. Detailed habitat quality scores for the offset area (start

[10] See Species Profile and Threats Database at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=83395
[11] Table 1.3, Appendix 5, Habitat Quality Assessment, Killara Offset Area, Umwelt 2020.

quality, quality without the offset, and quality with the offset) are shown at **Appendix E4**, **Appendix E5**, and **Appendix E6**.

The offset area was selected due to the dominance of *E. crebra* (ironbark) and *E. populnea* (poplar box) in a mix of remnant and regrowth condition. Additionally, the area has the potential to develop larger trees, denser canopy cover and woody debris over time and therefore to deliver a net benefit to habitat quality.

**Table 7 South-eastern long-eared bat offset area habitat quality assessment results**

| Assess-ment Unit | Regional ecosystem | Description | Assessment sites | Vegetation Condition score | Start Habitat quality score# (AUs) | Area (ha) | Regulated vegetation? | Contribution to offset area as a % of the final area (ha) |
|---|---|---|---|---|---|---|---|---|
| 1 | 11.12.1 | *Eucalyptus crebra* +/- *Corymbia erythrophloia* shrubby woodland. *E. melanophloia, Eucalyptus moluccana* and/or *E. microcarpa* and/or *E. woollsiana* +/- *E. crebra* woodland | B12, B27, B38 | 66, 69, 72 | 4.51 | 384.4 | Yes | 28.35 |
| 2 | 11.12.1 (regrowth) | | B8 | 48 | 3.98 | 729.7 | No | 53.81 |
| 3 | 11.7.6 | *Corymbia citriodora and/or Eucalyptus crebra woodland* | B15 | 75 | 5.25 | 18.7 | Yes | 1.38 |
| 4 | 11.7.6 (regrowth) | | B1, B3, B16 | 59, 59, 61 | 3.99 | 101.2 | No | 7.46 |
| 5 | 11.3.1 (regrowth) | *Acacia harpophylla and/or Casuarina cristata open forest on alluvial plains* | B23 | 90 | 3.99 | 12.8 | | 0.94 |
| 6 | 11.5.1 (regrowth) | *Eucalyptus crebra and/or E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii woodland on Cainozoic sand plains and/or remnant surfaces* | B9, B32, B33 | 68, 61, 75 | 4.12 | 54.3 | | 4.00 |
| 8 | 11.5.20 (regrowth) | *Eucalyptus moluccana and/or E. microcarpa and/or E. woollsiana +/- E. crebra woodland on Cainozoic sand plains* | B13, B14, B25 | 48, 57, 69 | 3.96 | 49.1 | Yes | 3.62 |

| Assess-ment Unit | Regional ecosystem | Description | Assessment sites | Vegetation Condition score | Start Habitat quality score# (AUs) | Area (ha) | Regulated vegetation? | Contribution to offset area as a % of the final area (ha) |
|---|---|---|---|---|---|---|---|---|
| 11 | 11.4.3 (regrowth) | *Acacia harpophylla and/or Casuarina cristata shrubby open forest on Cainozoic clay plains* | B4, B24 | 69, 53 | 4.28 | 5.9 | No | 0.44 |
| **Total and/or weighted score** | | | | | **4.15** | **1356.10** | | **100.00** |

# derived from the habitat quality spreadsheet.

## 6.2 Dunmall's snake

### 6.2.1 Habitat requirements

In Queensland, its range extends from Yeppoon and the Expedition Range in the north, to Oakey, Glenmorgan and Inglewood in the south. Most locality records are from between 200 and 500 metres above sea level. This species occurs within the Brigalow Belt Bioregion and may also occur in the Burdekin, Fitzroy, Desert Channels, Burnett Mary, South East, Condamine (QLD), Border Rivers Maranoa-Balonne, South West and the Border Rivers/Gwydir (NSW) Natural Resource Management Regions.[12]

Dunmall's snake is found in open forest, particularly brigalow *Acacia harpophylla* forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils (Covacevich et al., 1988, Cogger et al., 1993). Little is known about this species though it is thought to be genuinely uncommon within its limited range (Wilson, 2003). Captive specimens indicate that it is a nocturnal species, sheltering under fallen timber and in deep soil cracks and other cavities. Its diet consists of small skinks and geckos (DERM, 2007).

The distribution of this species is associated with the Brigalow (*Acacia harpophylla* dominant and co-dominant) EPBC Act-listed threatened ecological community. The offset is located within the distribution range and associated habitat for this species.

### 6.2.2 Offset area attributes

The Offset Area is located within the DCCEEW mapped distribution of the species. Dunmall's snake records from the region are rare, with the nearest records being approximately 60 km south east of the Offset Area near Tarong, Queensland[13]. It should be noted that the species is very rarely encountered, even in areas of known habitat, and has been described as 'extremely secretive, rarely encountered, possibly genuinely scarce' (Wilson 2015).

[12] See Species Profile and Threats Database at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59254
[13] Figure 3.1, Habitat Quality Assessment, Killara Offset Area, Umwelt 2020.

Umwelt ecology recommended REs 11.3.1, 11.4.3, 11.5.1, 11.5.20 and 11.7.6 as suitable habitat for the Dunmall's snake.[14] The REs considered in the offset area listed within the ecology report are brigalow TEC and REs that are consistent with a higher fallen woody debris score. The habitat quality assessment results for habitat for Dunmall's snake are shown in **Table 8**. Detailed habitat quality scores for the offset area (start quality, quality without the offset, and quality with the offset) are shown in **Appendix E7**, **Appendix E8**, and **Appendix E9**.

**Table 8 Dunmall's snake offset area habitat quality assessment results**

| Assess-ment Unit | Regional ecosystem | Description | Assessment sites | Vegetation Condition score | Start Habitat quality score# (AUs) | Area (ha) | Regulated vegetation? | Contribution to offset area as a % of the final area (ha) |
|---|---|---|---|---|---|---|---|---|
| 3 | 11.7.6 (remnant) | *Corymbia citriodora and/or Eucalyptus crebra woodland* | B15 | 114 | 6.28 | 18.7 | Yes | 6.31 |
| 4 | 11.7.6 (regrowth) | | B1, B3, B16 | 84, 77, 75 | 4.86 | 101.2 | No | 34.14 |
| 5 | 11.3.1 (regrowth) | *Acacia harpophylla and/or Casuarina cristata open forest on alluvial plains* | B23 | 83.5 | 3.55 | 12.8 | No | 4.32 |
| 6 | 11.5.1 (regrowth) | *Eucalyptus crebra and/or E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii woodland on Cainozoic sand plains and/or remnant surfaces* | B9, B32, B33 | 102, 52, 64 | 4.16 | 54.3 | No | 18.32 |
| 7 | 11.5.1a (regrowth) | *Eucalyptus crebra and/or E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii woodland on Cainozoic sand plains and/or remnant surfaces* | B6 | 54 | 3.51 | 12.2 | No | 4.12 |

[14] Table 3.5, Appendix 5, Habitat Quality Assessment, Killara Offset Area, Umwelt 2020.

| Assess-ment Unit | Regional ecosystem | Description | Assessment sites | Vegetation Condition score | Start Habitat quality score# (AUs) | Area (ha) | Regulated vegetation? | Contribution to offset area as a % of the final area (ha) |
|---|---|---|---|---|---|---|---|---|
| 8 | 11.5.20 (regrowth) | *Eucalyptus moluccana and/or E. microcarpa and/or E. woollsiana +/- E. crebra woodland on Cainozoic sand plains* | B13, B14, B25 | 41, 65, 83 | 4.06 | 49.1 | Yes | 16.57 |
| 10 | 11.4.3 (remnant) | *Acacia harpophylla and/or Casuarina cristata shrubby open forest on Cainozoic clay plains* | | 2.50 | 5.64 | 4.7 | Yes | 1.59 |
| 11 | 11.4.3 (regrowth) | *Acacia harpophylla and/or Casuarina cristata shrubby open forest on Cainozoic clay plains* | B4, B24 | 57, 43 | 3.53 | 43.4 | No | 14.64 |
| **Total and/or weighted score** | | | | **4.41** | | **296.40** | | **100.00** |

# derived from the habitat quality spreadsheet

## 6.3 Brigalow

### 6.3.1 TEC requirements

Patches of brigalow vegetation in Queensland must meet the following characteristics and thresholds to be considered eligible as the EPBC Act-listed brigalow TEC:

- The presence of *Acacia harpophylla* as one of the most abundant tree species in the patch. *A. harpophylla* is either dominant in the tree layer, or co-dominant with other species (notably *Casuarina cristata*, other species of *Acacia*, or species of *Eucalyptus*).
- The patch must be located In the Brigalow Belt Bioregion, and meet the Queensland Herbarium description of REs 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14 and 11.12.21.
- The patch must be larger than 0.5 ha in size.
- Exotic perennial plants must comprise less than 50% of the total vegetation cover of the patch.
- Regrowth brigalow vegetation can qualify as brigalow TEC if it is more than 15 years old and has the species composition and structural elements broadly typical of one of the identified REs.

The regrowth brigalow offset area on Killara meets the criteria above, and falls within the mapped distribution area of the TEC.[15]

### 6.3.2 Offset area attributes

The brigalow TEC is located on Lot 36 BO175 which adjoins the Barakula and Allies State Forests and comprises field survey confirmed brigalow (*Acacia harpophylla* dominant and co-dominant) REs 11.4.3 and 11.3.1 (AU10/AU11 and AU5 respectively). The offset area is comprised of part of AU11 (RE 11.4.3) which links via other parts of the overall offset area to the Allies and Barakula State Forests, part of a state bioregional corridor (refer to **Figure 6**). The habitat quality assessment results for brigalow TEC are shown in **Table 9**. Detailed habitat quality scores for the offset area (start quality, quality without the offset, and quality with the offset) are shown in **Appendix E10**, **Appendix E11**, and **Appendix E12**.

**Table 9 Brigalow TEC offset area habitat quality assessment results**

| Assess-ment Unit | Regional ecosystem | Description | Assessment sites | Vegetation Condition score | Vegetation condition score (AU) | Area (ha) | Regulated vegetation? | Contribution to offset area as a % of the final area (ha) |
|---|---|---|---|---|---|---|---|---|
| 11 | 11.4.3 | *Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains | B4, B24 | 45, 43 | 5.13 | 13 | No | 100 |
| **Total and/or weighted score** | | | | | **5.13** | **13** | | **100.00** |

## 6.4 Offset area start values

The results of the habitat quality assessments of the ten different vegetation community assessment units that occur within the offset areas are summarised in **Table 7**, **Table 8**, and **Table 9**. The field data sheets are provided within the ecology report (refer to **Attachment 1.3**).

A detailed map of the offset areas for each MNES in this management plan are shown in **Figure 7**, **Figure 8**, and **Figure 9**, and the known regional fauna species sighting records[16] are in **Figure 10**. The offset area has been determined utilising outputs from the DCCEEW OAG. The full OAG outputs for each MNES are shown in **Appendix D** .

[15] See Species Profile and Threats Database at http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=28&status=Endangered
[16] Section 2.1.1, Appendix 5, Habitat Quality Assessment, Killara Offset Area, Umwelt August 2020.

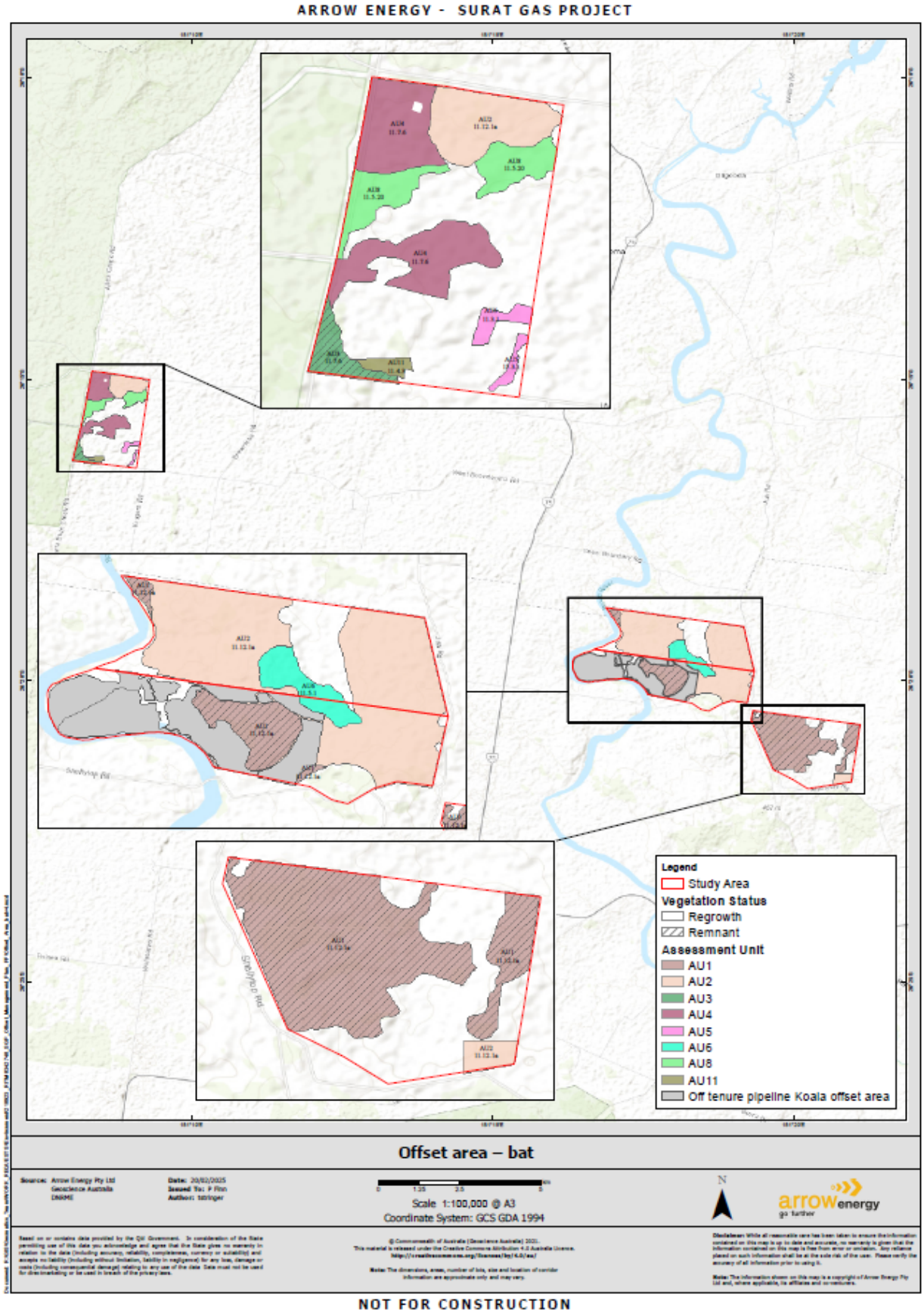



**Figure 11 Offset area for south-eastern long-eared bat**

The inputs used in the Offset Assessment Guide for regrowth vegetation, to calculate the area required for the offset area, are outlined in **Table 10**.

**Table 10 Offset Assessment Guide inputs for each MNES**

| Attribute | MNES | | |
|---|---|---|---|
| | South-eastern long-eared bat | Dunmall's snake | Brigalow TEC |
| EPBC status | Vulnerable | Vulnerable | Endangered |
| Impact area (ha) | 485.52 | 150.00 | 4.63 |
| Impact quality | 4.34 | 3.06 | 2.84 |
| Time until ecological benefit | 20 | 20 | 20 |
| Start area (hectares) | 1356.10 | 296.40 | 13 |
| Start quality (scale of 0-10) | 4 | 4 | 5 |
| Future quality without offset (scale of 0-10) | 4 | 4 | 5 |
| Future quality with offset (scale of 0-10) | 6 | 6 | 7 |
| Risk of Loss without offset % | 6 | 6 | 6 |
| Confidence in ROL Result (%) | 100 | 100 | 100 |
| Confidence in Condition Result (%) | 85 | 85 | 85 |
| % of impact offset | 132.4 | 101.19 | 111.59 |

# 7. Risk Analysis

The following risks to achieving the management objectives and outcomes (refer to **Table 12**) have been considered for the plan:

- the risk of, and remedial actions that might result from, failure to achieve the offset completion criteria
- any real or potential risks associated with achieving the outcomes;
- the actions taken to minimise those risks; and
- remedial action that will be undertaken if any of the risks occur.

The risk matrix (refer to **Table 11**) has been used to assess the risk that the plan's objectives will not be met and identify sources of those risks and strategies for managing them.

**Table 11 Risk Matrix**

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

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

**Table 12 Risk analysis**

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 1 | Failure to achieve and maintain offset completion criteria | Implement the management actions of this OAMP.<br>Monitor and report on attainment of interim environmental performance targets (*Section* refer to Section 11) | Possible | High | Medium | Monitoring and reporting program undertaken, which includes annual reporting, vegetation and fauna assessments (refer to **Table 16**). | Review and enhance active management interventions, including an option of additional plantings to improve habitat quality if not meeting interim and/or completion criteria for two consecutive ecological surveys (the second ecological survey to be undertaken within 12 months), to consist of species, stocking rate and density to assist in achieving the regional ecosystem benchmark.<br>Extend timeframe required to meet habitat quality completion criteria.<br>Review and vary the OAMP (condition 31) in consultation with the landholder and a Senior ecologist with at least 5 years local knowledge and experience, to reflect implementation of enhanced management measures and ensure that the offset achieves completion criteria. |
| 2 | Alternative land use is undertaken on the offset sites | The declared area under the VMA is used to legally secure the offset area as a Category A under the VMA. This will prevent clearing and timber harvesting. | Unlikely | Moderate | Low | Annual reporting to regulators. | If an alternative land use is approved by the Queensland Government, and the declared area is revoked, an alternative offset is required. |

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 3 | South-eastern long-eared bat, are not detected on the offset area during surveys | Implement this OAMP to improve habitat quality for the south-eastern long-eared bat. Undertake regular surveys for the species on the offset area and in immediately adjacent properties with connecting habitat | Unlikely | High | Medium | Implement fauna monitoring program (refer to **Table 16**). | If south-eastern long-eared bat are not detected on the offset area or fails to be detected in subsequent years during offset implementation or in immediately adjacent properties with connecting habitat, fauna monitoring program may require modifying methods and frequency.<br>Implement enhanced active management measures to improve habitat quality for the species. |
| 4 | Feral animals, e.g. dogs, pigs, cats, kill or injure fauna species, and/or increase habitat degradation | Feral animal control, particularly dogs, will be undertaken to reduce the risk of predation and/or injury to fauna species. Control of pigs will be undertaken to reduce the risk of habitat degradation.<br>Other feral animal control will be undertaken, as needed, e.g. foxes, cats, rabbits, to improve habitat quality more broadly. | Possible | High | Medium | Monitoring quarterly and reported annually until the offset completion criteria are achieved (refer to **Table 16**).<br>Targeted surveys for South eastern long eared bat and, Dunmall's snake every 5 years | Intensification of dog, or other feral animal control, to be undertaken to reduce numbers<br>BioCondition assessments to record habitat quality improvements following intensification |
| 5 | Weed spread increases habitat degradation and prevents habitat quality improvements | Weed control will be undertaken as part of management actions, especially for pest plants that cause habitat degradation and impacts on habitat quality improvements, i.e. interim and final completion criteria. | Possible | Moderate | Medium | Monitoring quarterly and reported annually until the offset completion criteria are achieved (refer to **Table 16**). | Intensification of weed control to reduce spread, targeted to the best time of year for maximum effect<br>BioCondition assessments to record habitat quality improvements following intensification. |

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 6 | High intensity fires/ *Force majeure* events passing through from the undermanaged State Forests have the potential to significantly reduce habitat quality. | Fire to be excluded wherever possible from the offset area.<br>Any low intensity fires immediately after the wet season at a >7-year interval if advised by a Principal Ecologist with >15 years' experience in Qld.<br>Maintaining firebreaks at appropriate widths to enable fires in adjoining areas to be prevented from entering on the offset area.<br>Manage fuel loads through controlled grazing during the dry season.<br>Fire control lines to be checked quarterly for condition and adequacy, and maintenance work is to be undertaken each 2 years at a minimum | Possible | High | Medium | Any uncontrolled fire.<br>Fire damage to the offset area.<br>All field monitoring (rapid and detailed) will report on any evidence of fire observed. | Destock the offset area, re-establish fire breaks and control lines and if appropriate, widen fire control lines and reassess fuel load reduction practices.<br>Enhanced management measures, e.g. additional plantings of appropriate vegetation, to consist of species, stocking rate and density to assist in achieving the regional ecosystem benchmark. |

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 7 | Unauthorised land clearing.<br>Standard forestry and native timber harvesting practices, as well as agricultural clearing, remove large trees that are shelter trees for the south-eastern long-eared bat . Hence forestry practices and timber harvesting are considered a potential threat to the quality of the vegetation community and habitat. | Forestry and native timber harvesting, and agricultural clearing of native trees and vegetation will not occur within the offset area.<br>Clearing is **excluded** from the offset area under the declared area under the VMA. | Unlikely | Moderate | Low | Landholder Monitoring quarterly and reported annually until the offset completion criteria are achieved (refer to **Table 16**). | Reassess access protocols for any lessees etc. and general access. |

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 8 | Grazing<br>High density grazing destroys shrubs and native grass cover and slows the regeneration of habitat.<br>The natural condition of the native ground cover is a moderate cover and hence any grazing undertaken is to be enable the retention of a minimum of 30% grass cover at the end of the dry season. | Low density grazing of domestic livestock will occur in the offset area only during the dry season for fuel reduction purposes with a minimum groundcover to be present at the end of the dry season of 30%.<br>Groundcover (%) to be assessed at least once at all BioCondition assessment sites during late season grazing period.<br>Stock rotation, as required, to ensure areas within the offset are not overgrazed or otherwise damaged, e.g. watering points. | Unlikely | Moderate | Low | Monitoring quarterly and reported annually until the offset completion criteria are achieved (refer to **Table 16**). | Any entry points due to fencing breaks etc. to be repaired to a stock proof condition as soon as possible and within 10 days.<br>Re-assess duration of stock rotation in areas where damage is occurring and/or grass cover is reduced below 30%.<br>Remove stock from areas where late season grass cover is below 30%. |

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 9 | Erosion to reduce habitat value of offset site | Maintain grass cover at levels specified in (8) above at the end of the dry season. This will ensure groundcover is high due to the presence of fallen woody debris, organic matter etc. thus minimising the risk of sheet erosion.<br>Ensure rotation of stock when grazing in offset area, so that areas are not too heavily impacted. | Unlikely | Minor | Low | Monitoring quarterly and reported annually until the offset completion criteria are achieved (refer to **Table 16**). | Further reduction of grazing levels and inspections at least four times per year to identify the cause of any point source erosion (such as illegal vehicle access), and rectifying accessibility as required. |
| 10 | Drought.<br>The risk posed by drought would also increase the likelihood of fire due to the dry conditions and accumulated fuel loads. | Maintain fire control lines and manage grazing levels according to the amount of grass cover.<br>BioCondition assessments to assess habitat quality and determine any decline owing to drought conditions. | Likely | High | High | Monitoring program (annual) and at the end of the dry season (refer to **Table 16)**. | Allow offset area to recover post drought/fire, particularly through the control of weeds and removal of stock. Maintaining grass cover at levels specified in (6) above at the end of the dry season.<br>Enhanced management measures, e.g. additional plantings where habitat quality declines are detected through BioCondition assessments for two consecutive ecological surveys (the second survey to be undertaken within 12 months). These will assist to reach/maintain completion criteria. |

| Number | Risk event or description | Relevant management actions to minimise risk | Residual risk | | | Trigger detection and monitoring events/activities | Remedial actions if risk occurs |
|---|---|---|---|---|---|---|---|
| | | | L | C | RL | | |
| 11 | Well movement. The risk of moving wells post OAMP provision / approval means additional disturbance impacts to MNES are different to those approved in the OAMP | Management of Change process within Arrow that ensures that any changes are minimised<br><br>Clearance values tracked and reported internally | Likely | Moderate | Medium | Importance of Management of Change process within Arrow has been escalated given the new contracting arrangement and limits of approvals.<br><br>GIS processes are being fast-tracked to look at real-time clearance data.<br><br>Securing of additional offsets for SGP Stage 2 which will mean offsets are available if required. | Engagement with DCCEEW to understand process of the Department assessing and approving the potential re-location of wells if there is additional disturbance to MNES, noting that the Department has been advised that the well locations are indicative only and are yet to be agreed with landholders so likely. |

# 8. Offset management measures

The Offset Area Management Measures have been prepared (refer to **Table 13**) in accordance with the specific requirements for the Offset Area Management Plan in the EPBC Act approval conditions.

The offset area management measures include, but are not limited to, management actions required to be undertaken on the offset site to mitigate those risks identified to the MNES. The offset area measures to manage, report and monitor will be undertaken until the outcomes detailed in **Table 15** are achieved.

The offset area will be protected by securing the offset area as Category A vegetation under the *Vegetation Management Act 1999* (VMA). The offset area is secured by the landholder declaring the area as an area of high nature conservation value under the VMA (by a change in vegetation class protection). This process also lodges the OAMP on the title of the property and the implementation of the OAMP is therefore enforceable under the VMA.

The management actions within the OAMP specify what will and will not be permitted on the offset site, and include:

- Limiting vegetation clearing to only those areas required for maintaining fencing and fire control lines;
- Prohibiting alternative land use and activities during the period of offset management (e.g. timber harvesting, cropping, vegetation thinning, and any alternative land use that would result in loss of the offset, etc), i.e. for the duration of the approval;
- Restricting unauthorised access;
- Excluding domestic livestock from the offset area except for the infrequent low-density grazing associated with fuel reduction in dry periods;
- Controlling feral animals;
- Managing fire; and
- Controlling weeds.

The management schedule describes the actions to be undertaken on the offset area (refer to **Table 13**).

Regular Offset Area reports will be prepared by the approval holder as listed in **Table 17** (refer to Section 11). They will report against each management action in **Table 13**. These management actions will enable the offset area to improve the attributes identified in **Attachment 1**, thus attaining and maintaining the prescribed completion criteria (refer to Section 10). The reports will provide transparency regarding how the site management actions are being implemented, and where relevant, identify any force majeure events impacting the offset site, and trigger levels reached, corrective actions implemented as a result and the effectiveness of those actions and any non-compliance with the management plan and corrective actions taken to address the non-compliance.

The management actions in this table are consistent with addressing the risks identified in the listing and conservation advice in **Table 4** and analysed in **Table 12**. They will be implemented from the commencement date of the offset area until the Completion Criteria have been achieved. The habitat quality on the offset area will be maintained for the duration of the approval, i.e. to 31 December 2080.

## 8.1 Responsible parties

As approval holder, Arrow Energy, is accountable for implementing the plan. Completing the actions will be ensured through the annual reporting requirements (refer to Section 11). Arrow will coordinate reporting, reviewing, inspections, auditing and any adaptive management changes to the plan. A person within Arrow (e.g. Environment Manager) will be assigned the responsibility of managing offset requirements for the company.

Arrow will enter into an arrangement with the landowner to undertake the offset management actions and day to day management of the site, including fencing, managing fire breaks, weed management, feral animal management and grazing management. The landholder will also undertake the landholder reporting as per **Table 16**.

Arrow will engage suitably qualified persons to undertake the BioCondition assessments, ecological studies and surveys, prepare reports and undertake inspections, as required.

Incidents identified on site will be reported by the landowner to Arrow Energy. The level of severity will dictate the necessary actions through the Company's formal incident management system. General incidents, for example, wild dog incursion, will be managed by the landowner. Responses to incidents adversely impacting habitat quality on the offset site, or MNES directly, will be coordinated by Arrow Energy, to ensure remediation or enhanced management measures (refer to **Table 13**) are implemented to address the incident as soon as reasonably possible.

**Table 13 Management actions over the offset area**

| Threat to offset values | Management objective | Performance criteria | Management action | Monitoring | Trigger for adaptive management and corrective action(s) | Corrective action and timing |
|---|---|---|---|---|---|---|
| Degradation of habitat (relates to loss and fragmentation of habitat, which is an identified threat in the Approved Conservation Advices for south-eastern long-eared bat, and Dunmall's snake. | Achieve the completion criteria and habitat quality improvements for offset values, which include the habitat quality scores in this OAMP (**Table 15**). | Increase the habitat quality scores for each offset value as measured at each identified habitat quality assessment site (**Figure 11** and **Figure 12**) based on the results of baseline and subsequent BioCondition assessments and monitoring events to achieve the scores in the completion criteria. | Implementation of the management actions and adaptive management framework as outlined in this OAMP. | BioCondition assessments and monitoring of offset value habitat quality scores will be undertaken in accordance with Section 11. The results of monitoring events will be compared against the habitat quality scores in the interim performance targets and completion criteria to determine the progress of the offset area and recorded as part of reporting (see Section 11). | BioCondition assessments and monitoring indicate that habitat quality scores for interim performance targets will not be achieved for one or more offset values by:<br>• Year 5<br>• Year 10<br>• Year 15<br>• Year 20. | Step 1: Investigate cause of trigger:<br>• Within one month after detection of the trigger, complete an investigation into the reasons why the interim performance targets or the completion criteria were not achieved within the specified timeframes.<br>• Within two months after detection of the trigger, complete a re-evaluation of the suitability of the relevant management measures in the OAMP. The re-evaluation must identify appropriate corrective actions.<br><br>Step 2: Implementation of corrective action/s within eight months of detection of trigger, including, as appropriate:<br>• Approval holder and the landholder review the OAMP with assistance from offset coordinator and relevant Senior Land Management and/or Senior ecologists, if required, to provide input on the effectiveness of the management actions.<br>• Increase frequency and intensity of pest animal and weed control measures and/or revise the type of measures to be implemented.<br>• Where interim habitat quality criteria are not likely to be met in the required timeframe, the Approval Holder will notify the Commonwealth within one week and implement additional management measures.<br>• Where final habitat quality scores are not likely to be met by year 20, the Approval Holder will notify the Commonwealth within one week and will obtain advice from senior ecologists and land managers with the aim of identifying appropriate additional management interventions, such as extending the timeframes and intensifying management measures, including plantings, to enhance habitat. This may include provision of an additional offset, if required. |
| Habitat or vegetation loss through unauthorised land clearing (loss of habitat identified as a threat in the Approved Conservation Advices for south-eastern long-eared bat and Dunmall's snake. | Maintain the extent of habitat within the offset area by prohibiting clearing of native vegetation. | No unapproved and/or intentional clearing of vegetation within the offset area, except for clearing that is required for fencing, access, firebreaks and public safety.<br><br>Any proposed ecological thinning requires the advice of a Principal Ecologist, and prior written agreement of DCCEEW. | Protection of the offset area via a Voluntary Declaration under Section 19E and 19F of the VMA, as described in Section 12, to be registered within 12 months of the approval of this OAMP.<br><br>Comply with the restrictions on clearing in *Table 12.* Construction and maintenance of access tracks, fencing and firebreaks will only be undertaken in accordance with the requirements of this table.<br>If vegetation clearing is required for fencing, access, firebreaks or public safety, it must be | Quarterly inspections will monitor and document if there is evidence of recent unapproved clearing, including forestry or timber harvesting activities.<br><br>Monthly and quarterly inspections will monitor and document vegetation clearing that has occurred for fire break, access road or fence line maintenance.<br><br>All monitoring reports will include records of any maintenance clearing required.<br><br>Annual compliance reporting to the Commonwealth Government consistent with any and all EPBC Act approval(s), as well as scheduled monitoring reports on condition of the offset | Any unauthorised clearing in contravention of the Voluntary Declaration. | Step 1: Investigate cause of trigger (e.g. unauthorised access)<br>• As soon as unauthorised clearing is detected, review existing access restrictions, and inspect signage and offset area fencing, within two weeks of detection of the clearing, identify how unauthorised persons[17] accessed the site and identify appropriate corrective actions.<br><br>Step 2: Implementation of corrective action/s<br>• All identified actions required to prevent recurrence of the prohibited clearing will be completed within one month of detection of the clearing. These may include (though are not limited to) additional fencing and/or signage and security for the offset area.<br>• BioCondition assessments to record extent of damage and progress of management measures, to assess progress toward recovery and towards meeting next interim or final completion criteria<br>• Where unauthorised clearing has been extensive and habitat quality scores are reduced (based on results of BioCondition assessments), additional plantings will be undertaken within six months of the most recent BioCondition assessment, as needed. |

[17] Defined in Glossary

| Threat to offset values | Management objective | Performance criteria | Management action | Monitoring | Trigger for adaptive management and corrective action(s) | Corrective action and timing |
|---|---|---|---|---|---|---|
| | | | undertaken in accordance with best practice management methods and any applicable legislative requirements. | | | |
| Degradation of habitat by overgrazing (relates to loss and fragmentation of habitat, identified as either a known threat or suspected threat in the Approved Conservation Advices for south-eastern long-eared bat and Dunmall's snake. | Ensure that any livestock grazing for fire management and weed control maintains and enhances the ground cover attributes for MNES (at least 30% grass cover) and does not result in the degradation of habitat and vegetation. | Increase the richness and average % cover from the baseline measured, of native perennial grasses, as measured at each habitat quality assessment site based on the results of baseline and subsequent BioCondition assessment and monitoring events. | Stock will be grazed only when required to reduce ground cover (i.e.: when groundcover exceeds 60%), and only during the dry season.<br><br>The dry season is normally between April and November; however, if unseasonal rainfall should occur, then grazing may be allowed outside of this time period only if there is no evidence of moisture in the stream order one gullies to ensure that "pugging" of the soil by livestock does not occur. | Habitat quality (BioCondition) assessments will be undertaken in accordance with Section 11. These will include assessment of percentage cover of native perennial grasses<br><br>Monitoring reports shall be kept to record results of BioCondition assessments and habitat quality condition of the offset area. | Detection of stock grazing outside of the dry season, or during any other exclusion period<br><br>Decrease in the richness and average ground layer cover at one or more habitat quality (BioCondition) assessment sites based on the results of baseline and subsequent monitoring events | Upon being notified or becoming aware of prohibited stock grazing in the offset area, the Landholder is to remove the stock from the area (if present) and assess the adequacy of fencing within 10 days. The Landholder is to undertake fence maintenance and repairs to resecure the offset area within 10 days.<br><br>Stock to be kept out of affected area for as long as is required for recovery to establish (minimum two years). |
| Introduction, establishment and spread of non-native weeds including prohibited and restricted matter listed under the Biosecurity Act 2014 (Qld) or as a Weed of National Significance (relates to loss and fragmentation of habitat). | Manage invasive weed species to reduce degradation of MNES habitat | Weed cover must not exceed 10% cover in the offset area. No new prohibited or restricted matter species listed under the *Biosecurity Act 2014* (Qld) are identified at any BioCondition assessment or monitoring site (based on subsequent monitoring events), or opportunistically, i.e. if noted outside of BioCondition assessment or monitoring surveys. | The primary weed control method will be grazing by cattle, which will be undertaken during the dry season (that is, from April to November each year), to control Buffel grass outbreaks. Weed control will be undertaken initially within the first year throughout the offset areas and then periodically as required to treat the weeds at the optimum time in their life cycles to control and minimise the spread of the existing weed species. | Monitoring of this management action will be undertaken by the Pastoral Manager, Landholder or suitable qualified person appointed by the Landholder at least four times annually.<br><br>Weed cover is to be monitored by the same methodology and at the same time as the ground cover measurements, i.e. during BioCondition assessments.<br><br>Quarterly inspections will observe and record the presence of weeds and success of previously applied weed control measures. The inspection will include before and after photos of the weed control area.<br><br>Quarterly inspections will be conducted by the Landholder or suitable qualified person | Pest plants (including Buffel grass) occur in greater than 10% of the offset area.<br><br>A new declared invasive weed species is identified at one or more monitoring sites, or opportunistically during any site inspection or other monitoring. | Step 1: Investigate cause of trigger<br><br>Step 2: Implementation of corrective action(s)<br>Upon being notified or becoming aware of pest plants being present in greater than 10% of the offset area, the Landholder is to implement additional weed control measures within one month. These measures will include, and are not limited to:<br>• foliar spraying;<br>• basal bark spraying;<br>• stem injection;<br>• cut stump;<br>• cut and swab;<br>• stem scraper; and<br>• wick applicators.<br><br>All new weed species and required intensification of weed management to be reported in offset monitoring reports. |

| Threat to offset values | Management objective | Performance criteria | Management action | Monitoring | Trigger for adaptive management and corrective action(s) | Corrective action and timing |
|---|---|---|---|---|---|---|
| | | | | appointed by the Landholder to record the level of weed cover in the offset area. | | |
| Predation and impacts from dogs and other pest animals . Predation by feral animals is identified as either a potential or suspected threat in the Conservation Advices for south-eastern long-eared bat and Dunmall's snake. | Minimise the introduction of pest animals and control of existing populations of pest animals (wild dogs, and feral pigs, cats and foxes) within the offset areas in accordance with the *Biosecurity Act 2014* (Qld). | Detection of twelve or more feral pigs or any feral dogs during any inspection. | Implement control actions for pest animals in accordance with Section 8.<br>Participate fully in, and cooperate with, any and all regional pest control programs, unless those would otherwise contravene a part of this OAMP. | Undertake monitoring for pest animals in accordance with Section 11. | Any observed evidence of feral animal presence, particularly dogs (that is, an indicator of feral animals required to be recorded as part of the feral animal monitoring requirements detailed in **Table 13**) | • Upon being notified or becoming aware of pest animal populations exceeding the threshold, the Landholder is to implement all necessary or appropriate control measures needed to reduce pest animal populations to below trigger thresholds, which is 12 feral pigs or any feral dogs. The Landholder is to have completed implementation of all necessary or appropriate pest control measures within one month of detecting the feral animals.<br>• Where a feral dog reduction and control program is to be undertaken, this must be continued until feral dogs are eliminated from the offset area.<br>• The Landholder may approach neighbouring landowners to discuss the increased pest animal presence, and an integrated control program may be developed. If an integrated control program is considered appropriate, the Landholder will make best endeavours to reach agreement with neighbouring landowners to implement such a program.<br>• If impacts from the pest animal populations have not naturally remediated within six months of completion of implementation of the control measures, the Landholder is to undertake and complete all works required to remediate those impacts. |
| Fire (relates to loss and fragmentation of habitat, identified as a threat in the Approved Conservation Advice for south-eastern long-eared bat. .<br><br>The impact from uncontrolled fire would be a reduction in groundcover, thinning of the canopy, loss of juvenile canopy species, reduction of available tree hollows, and slowing of the offset area achieving the completion criteria.<br><br>Fire scar mapping[18] products produced for the period 1986 to 2016 are derived from the Landsat satellite imagery | No unplanned fire in the offset area.<br><br>Planned fire ('cool burns') is undertaken only to improve habitat and reduce fuel loads, where supported by advice from a principal ecologist with a minimum of 10 years field experience in Qld. | No unplanned fire in the offset area.<br>Any 'cool burns' are managed appropriately to reduce fuel loads and improve habitat, only if required and supported by advice from a principal ecologist with a minimum of 10 years field experience in Qld. | Implement fire management in accordance with all requirements in this OAMP.<br>If one or more bushfires are current in the region and considered potentially threatening to the site, coordinate with all relevant fire authorities to determine the appropriate method of protecting the site (if the relevant fire authorities advise against seeking to protect the site from a specific fire, the approval holder may comply with that advice without needing approval or agreement from DCCEEW).<br>The approval holder will maintain firebreaks along all boundaries of the Killara property.<br>Fire control lines must be inspected quarterly.<br>Maintenance must be | Monitoring of this management action will be undertaken by the Landholder or suitable qualified person appointed by the Approval Holder at least quarterly.<br><br>Quarterly inspections will monitor and document if there is evidence of wildfire or prohibited burning. If fire impacts part or all of the offset area, the Landholder must notify the approval holder immediately.<br><br>Any cool burns will be monitored and recorded in the annual compliance report, as well as monitoring reports for the offset area, with the written advice from a suitable ecological expert.<br><br>Weed cover is to be monitored post-fire, utilising the same methodology and in conjunction the groundcover monitoring (e.g. BioCondition assessments).<br><br>Weed control measures undertaken post a fire event to ensure weed cover is <10%. | Destruction of, or significant damage to, part or all of the offset area.<br><br>The occurrence of any unplanned or deliberately lit fires. | Step 1: Investigate cause of trigger<br>• Within one month of detection of the trigger, complete an investigation into the source of the fire and how habitat quality scores have been impacted.<br><br>Step 2: Implementation of corrective action/s<br><br>**Corrective action:** upon being notified or becoming aware of an unplanned fire in the offset area, the landholder is to reassess and implement new access protocols for any lessees etc., signage and general access within two weeks. The landholder must notify the approval holder immediately.<br><br>**Corrective action:** subsequent to any unplanned occurrence of fire in the offset area, within two months, the Landholder or suitable qualified person appointed by the Landholder will:<br>• inspect and repair, and widen, if necessary, all firebreaks (but cannot reduce the area of vegetation on the offset area); and<br>• reassess fuel load reduction practices; and exclude grazing until the ground cover present at the end of the dry season of that year is at a minimum of 60%<br><br>Corrective action: Where there is substantial damage to the offset area, within two months, the approval holder must arrange for a BioCondition assessment to determine habitat quality loss and report to the Commonwealth on how this loss will be addressed to continue to meet the required interim or final completion criteria. This may include updating this OAMP. |

[18] https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/firescar

| Threat to offset values | Management objective | Performance criteria | Management action | Monitoring | Trigger for adaptive management and corrective action(s) | Corrective action and timing |
|---|---|---|---|---|---|---|
| and has been used to inform this risk. Due to the scale of the mapping products, site specific data is not available. Anecdotal evidence from the landholder indicates that unplanned fire is not common. | | | undertaken as required and at least once every two years.<br><br>Please note: if fire damages the offset areas, it must be reported by the landholder and in annual reports as per Section 11.<br><br>Any damage by fire to the offset area must be reported to the Commonwealth as soon as possible following the impact. | Ground cover measurements must be in accordance with Methodology 2B as stated in the *Land Manager's Monitoring Guide* (Department of Environment and Resource Management, 2010) (DERM)[19], or any subsequent published version of this document.<br><br>The approval holder and the Landholder will keep themselves informed of any bushfires in the region. The Commonwealth must be notified immediately of any impact to part or all of the offset area from fire. | | |
| Offset fails to achieve the interim performance targets and completion criteria within the anticipated 5, 10, 15 and/or 20 year timeframes, respectively (relates to loss and fragmentation of habitat, identified as a threat in the Approved Conservation Advices for south-eastern long-eared bat and Dunmall's snake. | Achieve the interim performance targets and completion scores at years 5, 10, 15 and 20 years, respectively (**Table 15**). | The interim performance targets are achieved by year 5, 10 and 15.<br>The completion criteria are achieved by year 20.<br>See **Table 15**. | All management actions outlined in this OAMP will be implemented to ensure that the interim performance targets and completion criteria are achieved.<br>BioCondition assessments will be undertaken every 5 years to measure progress towards interim and final completion criteria. | Monitoring of the offset area will be undertaken in accordance with Section 11.<br>The results of monitoring events (BioCondition assessments) will be compared against the interim performance targets and completion criteria to determine the progress of offset habitat quality scores and recorded as part of reporting. | Interim performance targets are not achieved by year 5, 10 or 15<br>Completion criteria are not achieved by year 20. | Step 1: Investigate cause of trigger<br>• Within one month of detection of the trigger, complete an investigation into the reasons why the interim performance targets or the completion criteria were not achieved within the specified timeframes. This investigation must re-evaluate the suitability of the relevant management measures in the OAMP and must identify appropriate corrective actions. The approval holder must notify the Commonwealth that interim or final completion criteria are unlikely to be, or have not been, met.<br><br>Step 2: Implementation of corrective action/s<br>As soon as practicable, and in any case within eight months of detection of the trigger, complete implementation of the corrective actions identified under Step 1. These may include (though are not limited to):<br>• Increasing the frequency and intensity of pest animal and weed control measures and/or revising the type of measures to be implemented.<br>• Modifying the fire management measures to better support enhancement of offset values.<br>• Provide additional plantings representative of the species and densities in the regional ecosystem benchmarks to enhance habitat quality improvement<br>• Secure an additional offset if there is no realistic possibility of meeting final completion criteria.<br><br>If the investigation under Step 1 recommends changes to the management regime, then: as soon as possible, and in any case within six months of detection of the trigger, implement a revised OAMP incorporating those recommended changes. The revised OAMP must be submitted to and approved by the Commonwealth. |
| Unauthorised site access | Unauthorised persons, vehicles, and/or stock are prevented from accessing the site, and authorised stock are prevented from incurring during | Public access to the offset area is prohibited.<br>Access is restricted to those authorised persons required to undertake actions described in this management plan, including the landholder, and Approval Holder staff and their contractors and assigns.<br>The offset area is not to be utilised for any purpose including recreational activities, or any other activities that deter | Fences will be maintained around the entirety of the offset area to prevent unauthorised access and to control stock presence. | Monitoring of this management action will be undertaken by the Pastoral Manager, Landholder or suitable qualified person within 3 months of the offset area being legally secured and during quarterly inspections.<br><br>Quarterly inspections will monitor and document | Evidence of unauthorised persons, vehicles, and/or stock is detected at any point.<br>Evidence of stock is detected at any point during exclusion times.<br>Damage is detected to any fence. | For evidence of unauthorised persons, vehicles, and/or stock; or evidence of stock in an exclusion area:<br><br>Step 1: determine access method<br>Upon being notified or becoming aware of prohibited access to the offset area, reassess access protocols for any lessees etc., as well as signage and general access within two weeks and implement repairs to fencing as required.<br><br>Step 2: If there are areas that have been negatively impacted, the regeneration of those areas will be undertaken within two months of the impact and will be added to the monitoring sites at **Table 18** and monitored during the quarterly inspections. Fencing requirements will be reassessed and fencing improvements made, e.g. change in materials, if required. |

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

| Threat to offset values | Management objective | Performance criteria | Management action | Monitoring | Trigger for adaptive management and corrective action(s) | Corrective action and timing |
|---|---|---|---|---|---|---|
| | exclusion times | from achieving the outcomes of this plan<br>No evidence is found of unauthorised persons, vehicles, and/or stock is detected on site at any point.<br>Fences and gates are erected at all necessary points and kept in good repair throughout the life of the EPBC Act approval. | | evidence of unauthorised access to the offset area. | | |

# 9. Offset area management and protection additional to those that currently exist

Establishing an offset area on the Killara property would add additional protection for biodiversity values from clearing.[20]

In relation to clearing, as outlined in Section 5 and detailed in **Appendix E**, the offset area is currently not protected by the VMA or the EPBC Act (due to the exemption related to continuing use of the land) from activities such as timber harvesting, the inappropriate use of hot fires or under-sowing of exotic pasture species. Only the remnant vegetation areas are protected from broadscale clearing under the VMA (see maps in **Figure 4** and **Figure 5**). Maintaining the existing condition of regulated vegetation and land for habitat values is not addressed under the VMA.

In relation to biosecurity, the *Biosecurity Act 2014* (Qld) (the Biosecurity Act) imposes a 'general biosecurity obligation' on all Queenslanders to manage biosecurity risks for the area under their control and that they know about or could reasonably be expected to know about.[21] In practical terms, this means that:

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

**Table 14 Biosecurity Act 2014 (Qld) obligations**

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

Implementing the OAMP will increase the frequency of biosecurity management for matters such as wild dog protection and weed management, as a result of increased site inspections

[20] Vegetation Management Act 1999 (schedule definitions)
[21] See https://www.daf.qld.gov.au/business-priorities/biosecurity/policy-legislation-regulation/biosecurity-act-2014/general-biosecurity-obligation

and monitoring, and additional feral animal and weed control, where required. The management actions in this OAMP set out obligations that are additional to these general business as usual obligations. Management actions must be undertaken on the offset area (refer to **Table 13**), and any trigger for adaptive management that is met requires corrective actions, including additional management, to be undertaken. For example, there is a requirement to control feral pigs if numbers in excess of 12 are observed in any one property inspection; this is above and beyond the requirements of the Biosecurity Act, as is the reduction of weed species to 10% over the offset area over the life of the approval.

The South Burnett Regional Council identifies the offset area as Rural in their planning scheme and offers no protection for native vegetation from the current ongoing land use. The council does not have a Biosecurity Plan and only refers to the state Biosecurity Act.

# 10. Offset completion criteria and performance targets

Offset completion criteria have been determined based on an understanding of the specific habitat, connectivity, and other ecological values for the relevant MNES. These criteria were initially derived from detailed ecology survey information of both the impact and offset areas utilising an approach specified in the *Guide to determining terrestrial habitat quality* (DEHP, 2017 and DES 2020). The targeted habitat quality meet guidelines published by ANZMEC (2000) stating completion criteria should be:

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

During the management period, a set number of interim performance completion criteria have been proposed to track the trajectory of habitat quality towards the desired final completion criteria. The timing of the interim targets corresponds with the targeted species surveys and detailed ecological condition monitoring in **Table 16**.

Interim targets were derived by identifying the attributes expected to increase over the period of the approval. The values were determined by differentiating between specific, longer term metrics (e.g., species richness, tree canopy cover, number of large trees) and those where an initial benefit could be realised early (e.g., recruitment of woody species, non-native plant cover).

Completing management actions identified in **Table 13** will enable the offset area to attain the completion criteria identified in **Table 15**, and maintaining the stated completion criteria for the duration of the approval.

Annual reporting (that includes monitoring reports for the offset site) to DCCEEW will provide transparency regarding how the site management actions are being implemented. The reports will be prepared after the anniversary of the implementation of the offset site or will be consistent with other offset site reporting dates, as it is planned that other offset sites will be established on the property. Where relevant, the report will identify any events impacting the offset area, trigger levels reached, corrective actions implemented as a result and the efficacy and success of those actions, and any non-compliance with the management plan and subsequent corrective actions taken.

**Table 15 Interim targets and completion criteria**

| Protected matter | EPBC Status | Impact area (ha) | Habitat quality score | Offset area (ha) | Habitat start quality score | Habitat quality score Year 5 | Habitat quality score Year 10 | Habitat quality score Year 15 | Habitat finish quality score* |
|---|---|---|---|---|---|---|---|---|---|
| South-eastern long-eared bat | Vulnerable | 485.52 | 4.34 | 1356.10 | 4.15 | 4.75 - 5 | 5 - 5.5 | 5.5 - 6 | 6 |
| Dunmall's snake | | 150.00 | 3.06 | 296.40 | 4.41 | 4.5 - 5 | 5 – 5.5 | 5.5 - 6 | 6 |
| Brigalow TEC | Endangered | 4.63 | 2.84 | 13.00 | 5.13 | 5.13 – 5.5 | 5.5 – 6.0 | 6.0 - 6.5 | 7 |

Final scores out of 10 have been calculated in the OAG based on the outcomes provided in **Attachment 1** (terrestrial ecology reports for the impact and offset site (sampling sites for each of the relevant species for the offset area)). It should be noted that the interim targets included in **Table 15** may need to be updated as offset management progresses.

# 11. Monitoring and reporting

The monitoring methods discussed in **Table 16** will enable comparative changes in vegetation condition against baseline data collected on the offset area, as well as attainment and maintenance of the offset completion criteria (refer to Section 10). Furthermore, the monitoring and subsequent reports identified in **Table 17** will measure changes resulting from the management actions and variability due to climatic conditions. This will inform the nature and frequency of management intervention required.

Arrow will prepare a compliance report for each 12-month period following the date of the commencement of the action and for the period of the Approval, as per approval conditions 27 and 28.

Offset Area Management Plan reports will be prepared until the completion criteria of the management plan are achieved (noting that completion criteria must be maintained for the period of the approval, as per approval condition 34). The monitoring schedule is outlined in **Table 16**. The reporting schedule is provided in **Table 17**.

Data will be owned, managed, stored and the responsibility of the approval holder.

Commonwealth threatened species survey guidelines used to inform the requirements of the terrestrial flora and fauna surveys included:

- Survey guidelines for Australia's threatened reptiles (DSEWPC, 2011)
- Survey guidelines for Australia's threatened bats; Guidelines for detecting bats listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*
- Species Profile and Threat databases for relevant EPBC Act listed species and communities

**Table 16 Monitoring schedule**

| Monitoring | Attributes monitored | Timing | Method | Location/s |
|---|---|---|---|---|
| **Surveys undertaken by ecologists every 5 years** | | | | |
| • Targeted habitat quality assessments<br>• Targeted surveys for south-eastern long-eared bat and Dunmall's snake | • Nature and quality of habitat attributes for the species being offset, presence of threats such as dogs, pigs, cats).<br>• Presence of the species in the offset area, including estimated numbers and location of sightings | 2030, 2035, 2040, 2045, 2050 (March – May) [a] | Survey guidelines for Australia's threatened mammals (DSEWPC 2011); Survey guidelines for Australia's threatened bats; Guidelines for detecting bats listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*; Survey guidelines for Australia's threatened mammals Guidelines for detecting mammals listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*; *Environment Protection and Biodiversity Conservation Act 1999.* Draft Referral guidelines for the nationally listed Brigalow Belt reptiles | Across the offset area |
| Ecological condition and relevant habitat features using BioCondition assessments | Recruitment of woody perennial species in EDL | 2030, 2035, 2040, 2045, 2050 (March – May) | Field observations, vegetation assessment as per the Guide to determining terrestrial habitat quality – a toolkit for assessing land-based offsets under the Queensland Environmental Offsets Policy (DES 2020) (or any subsequent published version of this document).<br>Data for each of the ecological condition attributes monitored will be collected at each site listed in **Table 18** and reported on and presented in a sequential manner (including previous data collected) to quantify change | Sites listed in **Table 18** |
| | Native plant species richness – trees | | | |
| | Native plant species richness – shrubs | | | |
| | Native plant species richness - grasses | | | |

| Monitoring | Attributes monitored | Timing | Method | Location/s |
|---|---|---|---|---|
| | Native plant species richness – forbs | | from the baseline condition determined June 2020. This will record the change in each attribute measured and hence the condition of the habitat, thus enabling a statistical comparison to previous years' data and tracking towards attainment of the offset interim and final completion criteria. | |
| | Tree canopy height | | | |
| | Tree canopy cover | | | |
| | Shrub canopy cover | | | |
| | Native perennial grass cover | | | |
| | Organic litter | | | |
| | Large trees | | | |
| | Coarse woody debris | | | |
| | Non-native plant cover | | | |
| | Quality and availability of food and foraging habitat | | | |
| | Quality and availability of shelter | | | |
| **Quarterly Landholder/Authority Holder Records and monitoring (monitoring (report to approval holder - end of Sept, Dec, Mar, Jun).** | | | | |
| Forestry Operations, Native Timber Harvesting and general vegetation impacts | Any incidence of native plant destruction | Monitored quarterly and reported annually in Offset Area Report until the offset Completion Criteria are achieved. | General observations during routine inspections | Within offset area |

| Monitoring | Attributes monitored | Timing | Method | Location/s |
|---|---|---|---|---|
| Unauthorised impacts to vegetation and woody debris from activities such as illegal access / camping | Vegetation, woody debris, grass cover, weed cover, feral animal damage and presence | Monitored quarterly and reported annually until the offset Completion Criteria are achieved. | Landholder or person appointed by the Landholder will undertake quarterly inspections of the offset area to observe and record grass cover levels, weeds, accessibility (i.e. condition of fencing), and evidence of fire, erosion, and feral animal incursion. The inspection records will be provided to the approval holder and serve as the primary data source for the Offset Area Report.<br>Grass and weed cover is to be undertaken as per the Level 1 methodology described in the *Land Manager's Monitoring Guide* (DERM, 2010) (or any subsequent published version of this document). This is in addition to BioCondition assessments. | Within offset area |
| Grazing | Cattle stocking rates<br><br>Grass cover<br><br>Pugging | Monitored monthly during grazing periods (dry season or as otherwise authorised) and reported annually in the Offset Area Report until the offset Completion Criteria are achieved in accordance with *Level 1 monitoring as per the Land Manager's Monitoring Guide (DERM, 2010)* | | Within offset area |
| Unplanned fire | Occurrence, control measures implemented, timing and result of the control measures as per *Table 12.* | Monitored quarterly and reported annually until the offset Completion | | |

| Monitoring | Attributes monitored | Timing | Method | Location/s |
|---|---|---|---|---|
| | | Criteria are achieved. | | |
| Weeds | Occurrence, control measures implemented, timing and the result of the control measures as per **Table 13**. | Monitored quarterly and reported annually until the offset Completion Criteria are achieved | Weed cover is to be monitored by the same methodology and at the same time as the grass cover measurements. This is in addition to BioCondition assessments. | |
| Pest animals | Occurrence, control measures implemented, timing, number and type of animal/s and the result of the control measures as per **Table 13**. | Monitored quarterly and reported annually until the offset completion criteria are achieved | Quarterly inspections will involve traversing the offset area along streams, low lying areas and vehicle access tracks, to record the presence of wallow holes, tracks and any visual incidents in the offset area. If detected, these locations will be GPS'd and photographed and rechecked at the next quarterly inspection. Any evidence of predation on fauna must be reported immediately to the approval holder and corrective actions implemented (refer to **Table 13**). | |

[a] Based on a starting date for the OAMP management measures of 2025. These years 2030, 2035, 2040, 2045 and 2050 are representative of "years 5, 10, 15, 20 and 25" and surveys are used to evaluate performance levels against interim performance targets referred to in **Table 13**.

**Table 17 Reporting schedule**

| Report to DCCEEW | Report Details | Reporting Period | Submission due date |
|---|---|---|---|
| Annual Offset Area Report | Annual Area Offsets Report which contributes to the Annual Compliance Report as per approval condition 28.<br><br>This report details:<br>• photo point (including coordinates)<br>• landholder monitoring results<br>• implementation of management actions<br>• any triggers for corrective actions and implementation of those corrective actions, if implemented, and<br>• offset condition outcomes, including habitat quality scores, condition of koala habitat and results of koala surveys, achieved for preceding reporting period.<br><br>Note: the reports and results from detailed ecology survey (BioCondition assessments) and monitoring events, conducted in accordance with Table 16, will be provided as an Appendix to the subsequent Annual Offset Area Report. | Annual Offset Area Report - from the date of approval of this OAMP to 21 October for the first report.<br><br>Subsequent Annual Offset Area Report for each 12-month period (22 October to 21 October reported annually until the Offset Completion Criteria are achieved and then every five years for the period of the approval). | The same period provided for the publication of the Annual Compliance Report under the Approval on Arrow Energy's website - Reports and plans. |
| | Photo-point monitoring (including coordinates) for the previous monitoring period to be included in the Annual Area Offsets Report. | 1 May – 15 June annually until the offset Completion Criteria are achieved and then every 5 years for the period of effect of the approval. | The same period provided for the publication of the Annual Compliance Report under the Approval on Arrow Energy's website - Reports and plans. |
| Annual Compliance Report | Compliance report detailing compliance with approval conditions under the EPBC Act, including compliance with the offset conditions, as detailed in this OAMP. | 12 months (22 October to 21 October) following commencement of the action, as per approval condition 28. | The period for the publication of the Annual Compliance Report under the Approval on Arrow |

| Report to DCCEEW | Report Details | Reporting Period | Submission due date |
|---|---|---|---|
| | | | Energy's website - Reports and plans. |

**Table 18 Monitoring sites**

| Assessment Unit | Monitoring site number | Regional ecosystem | Latitude | Longitude |
|---|---|---|---|---|
| 1 | 27 | 11.12.1a | -26.271204 | 151.1355 |
| | 38 | | -26.349844 | 151.328168 |
| 2 | 8 | | -26.358597 | 151.34232 |
| 3 | 15 | 11.7.6 | -26.331793 | 151.301142 |
| 4 | 1 | | -26.256938 | 151.152526 |
| | 3 | | -26.330418 | 151.307367 |
| | 16 | | -26.252052 | 151.145427 |
| 5 | 23 | 11.3.1 | -26.260011 | 151.138909 |
| 6 | 9 | 11.5.1 | -26.340533 | 151.308981 |
| | 32 | | -26.316335 | 151.291378 |
| | 33 | | -26.32832 | 151.285915 |
| 8 | 13 | 11.5.20 | -26.318328 | 151.308263 |
| | 14 | | -26.322959 | 151.281899 |
| | 25 | | -26.258287 | 151.15105 |
| 11 | 4 | 11.4.3 | -26.319827 | 151.306312 |
| | 24 | | -26.257056 | 151.141284 |

*Coordinates system: GDA_1994

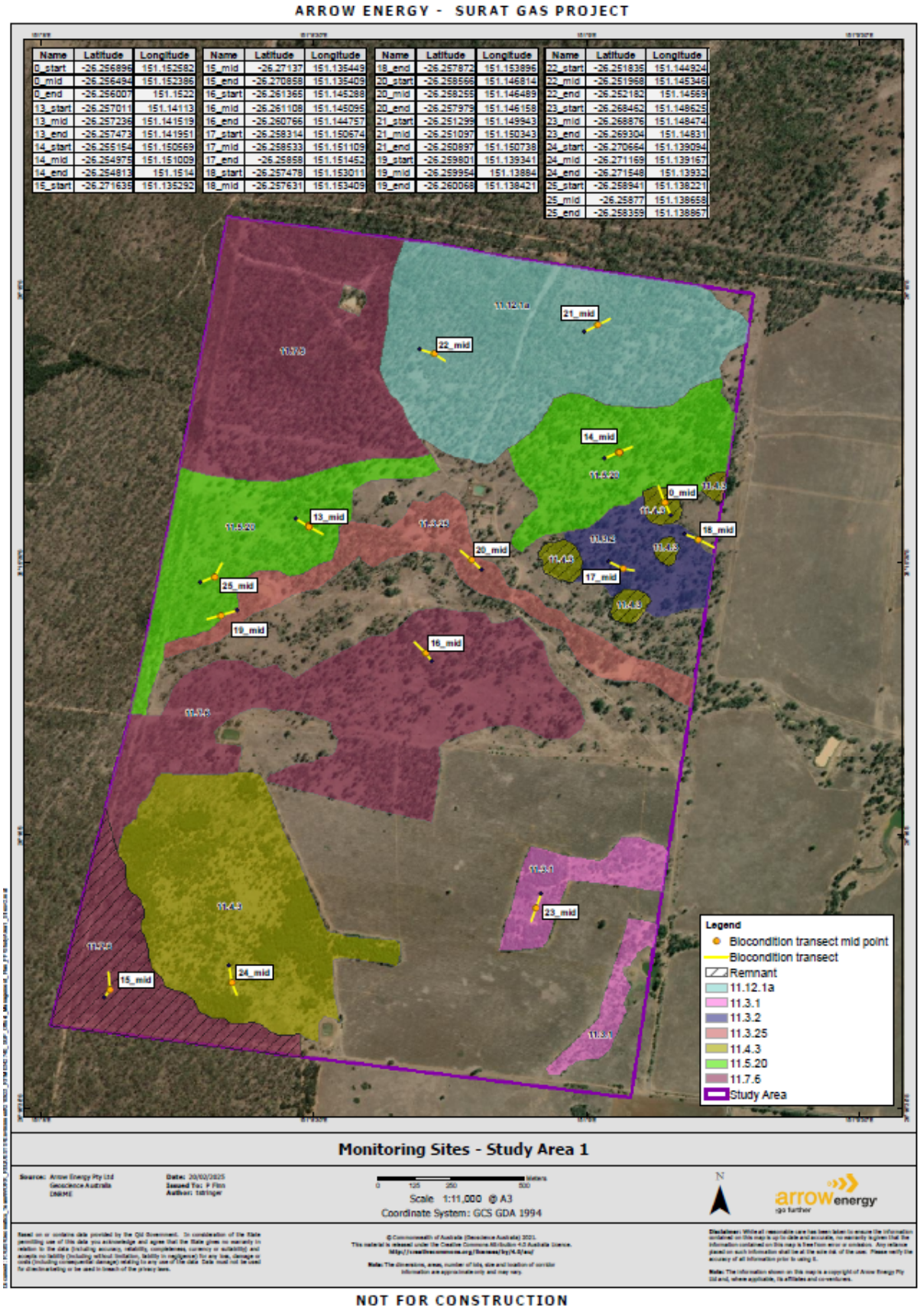



**Figure 12 Monitoring sites for the offset areas – study area 1**

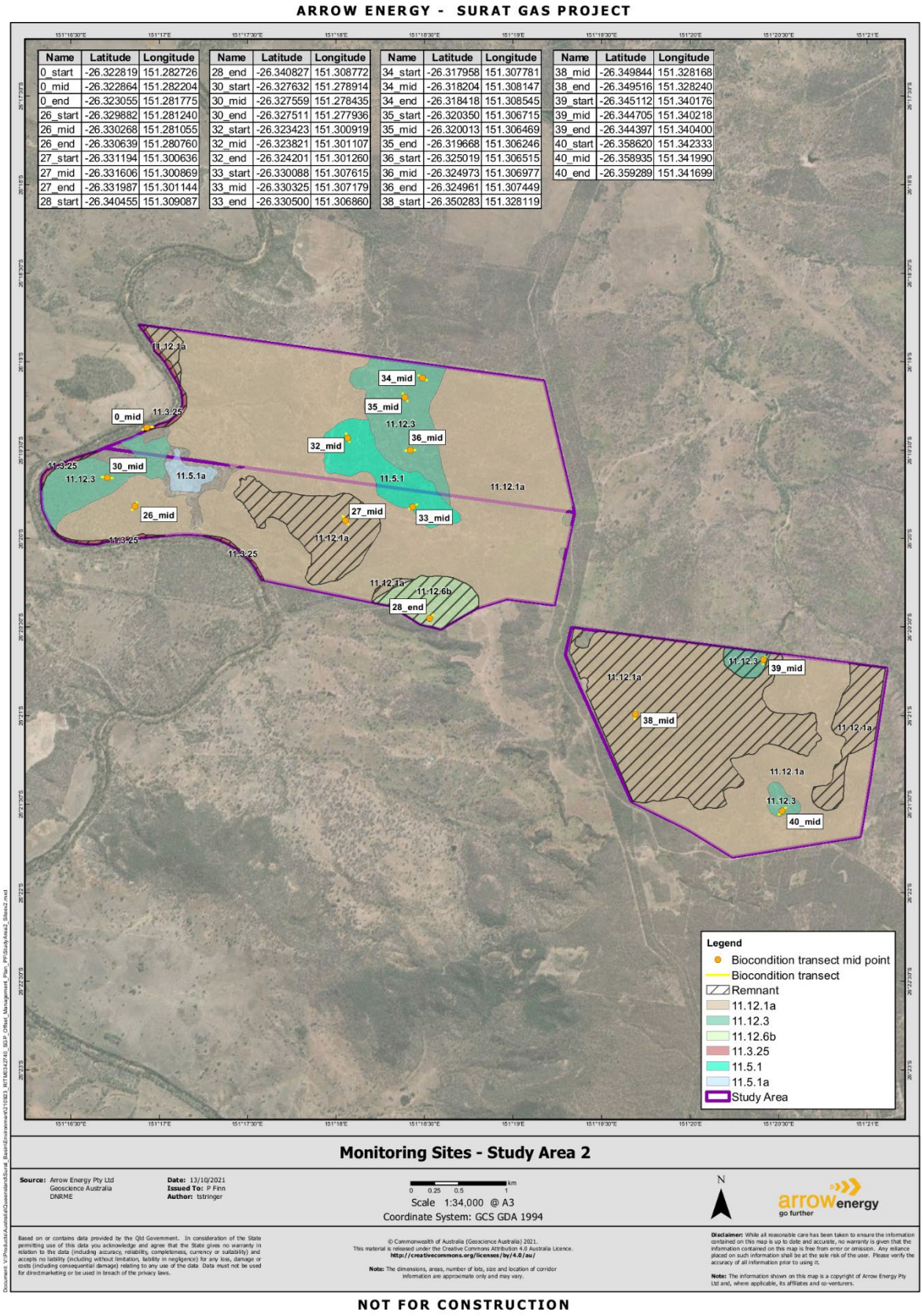



**Figure 13 Monitoring sites for the offset areas – study area 2**

# 12. Legally binding mechanism

This offset will be secured through the use of a declared area as an area of high conservation value under the VMA. Once the declaration has been registered on the title, the offset area will be a category A area on the property map of assessable vegetation (PMAV). Pursuant to the VMA, an area mapped as category A on a PMAV is described as an 'area subject to compliance notices, offsets and voluntary declarations'.

Once approved under the EPBC Act, the OAMP will be attached to the declared area, further ensuring compliance of the plan. Arrow will seek to secure the offset area within 6 months of approval of the OAMP (actual timing will be dependent on negotiation and execution of the agreement documents with the landholder).

Management and monitoring of the offset area will be undertaken in accordance with commitments in the approved OAMP. DCCEEW will be notified within 5 business days of the declared area execution.

The declared area will remain in place as the legally securing mechanism for the offset area until the outcomes detailed in **Table 15** are achieved. The declared area and approved OAMP will ensure the offset completion criteria are attained and then maintained for the period of the EPBC Act approval (i.e. until 31 December 2080). Statutory protection of the offset area is maintained under the VMA.

Title searches for the subject lots of the offset property are provided in **Schedule 1**. The request for a declared area form, and the declared area management plan form are provided in **Schedule 2**. Both of these forms are requirements of the Queensland Department of Resources so that the legally binding mechanism may be lodged on the title of the property.

# 13. Adaptive management and plan review

This plan has been prepared to be implemented until the offset completion criteria have been achieved. when the approval for the action ceases. Management measures will be reported in the Offset Area reports, and adapted, where required, if triggers are reached and corrective actions are implemented (refer to **Table 13**). If management measures need substantial adjustment, Arrow may review this plan in consultation with the landholder and submit as per condition 31.[22]

[22] Revision of the OAMP: See variations to conditions of approval dated 2 July 2019 - condition 31: If the approval holder wishes to carry out any activity other than in accordance with the management plans specified in the conditions, the approval holder must submit to the Department for the Minister's written approval a revised version of that management plan. The approval holder must not commence the varied activity until the Minister has approved the varied management plan. The Minister will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.

# 14. Definitions

Definitions of terms used in this report.

| Abbreviations | Definition |
|---|---|
| AU | Assessment Unit |
| BVG | Broad vegetation group |
| CHK | Core habitat known |
| CHP | Core habitat possible |
| CSG | Coal seam gas |
| DAWE | Department of Agriculture, Water and the Environment (Commonwealth) (former, now DCCEEW) |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| DEHP | Department of Environment and Heritage Protection (Qld) |
| DERM | Department of Environment and Resource Management (Qld) (former; now DES) |
| DES | Department of Environment and Science (Qld) |
| DoE | Department of Environment (former; now DCCEEW) |
| DSEWPC | Department of Sustainability, Environment, Water, Population and Communities (former; now DCCEEW) |
| EIS | Environmental Impact Statement |
| EOP | Environmental Offsets Policy (October 2012) (EPBC Act) |
| EPBC Act/EPBC | Environment Protection & Biodiversity Conservation Act 1999 (Cwth) |
| GH | General habitat |
| ha | hectares |
| HQS | Habitat Quality Score |
| MNES | Matters of National Environmental Significance |
| NC Act | Nature Conservation Act 1992 (Qld) |
| OAG | Offset Assessment Guide (DCCEEW) |
| OAMP | Offset Area Management Plan |
| Offset Area | Site that has been calculated to meet the requirements of the offset for the impacts on MNES from the Project |
| PL | Petroleum Lease |
| PMAV | Property Map of Assessable Vegetation |
| PPL | Petroleum Pipeline Licences |
| RE | Regional ecosystem |
| SGP | Surat Gas Project |
| SIMP | Species Impact Management Plan |
| SREIS | Supplementary Report to the EIS |
| TEC | Threatened ecological community |
| The Project | Surat Gas Project |
| VMA | Vegetation Management Act 1999 (Qld) |

# 15. Glossary

| Term | Definition |
|---|---|
| Approval holder | Means the person to whom the approval is granted. |
| Brigalow Development Scheme | In 1962 The *Brigalow and Other Lands Development Act* (Qld) was passed. Under the Brigalow Development Scheme, approximately 2 million ha was allocated in Areas I, IA and II in the Bauhinia, Taroom and Duaringa districts, with a further 2.4 million ha in the Brigalow Belt North. Properties were to be large enough to stock 1,000 cattle. State and Commonwealth governments provided loans of up to $60,000 for settlers to cover development costs, plus paying for the construction of 1,200 km of development roads. The Scheme was the first closer settlement policy that provided a combination of infrastructure, adequate financial assistance, and large enough blocks to provide a decent living.<br>By the 1970s, most of the brigalow scrub had disappeared. Vast areas of sucker regrowth were controlled by aerial spraying with 245T and 24D, burning and mechanical means, in preparation for improved pastures and cropping. Sheep numbers declined markedly matched by a rise in cattle numbers and the area under crops. The rise in cropping was linked to a severe decline in cattle prices in the 1970s and to the more effective control of brigalow regrowth using blade ploughing, whereby the roots were cut off under the soil. |
| Category A vegetation | Under Queensland vegetation management legislation, Category A vegetation is an area which is:<br>• a declared area<br>• an offset area, an exchange area, an area that has been subject to unlawful clearing or an enforcement notice, an area subject to clearing as a<br>result of a clearing offence OR<br>• an area that the chief executive determines to be Category A<br>Category A areas are colour-coded red on the regulated vegetation management map.<br>See Vegetation Management Act 1999, s20AL. |
| Category X vegetation | Under Queensland vegetation management legislation, all areas other than Category A, B, C and R areas are Category X areas. Some Category X areas are also identified on a property map of assessable vegetation (PMAV) as 'locked in'.<br>Category X areas are also known as 'exempt areas' because activity in Category X areas is not regulated by the *Vegetation Management Act 1999*.<br>Category X areas are colour-coded white on the regulated vegetation management map.<br>see Vegetation Management Act 1999 (Qld), s 20A. |
| Conservation advice | Means an approved conservation advice under the EPBC Act for an EPBC Act listed species or community. |
| Core habitat | Means core habitat known and core habitat possible as defined in the rules for habitat mapping for each individual species in the *Supplementary Report to the Surat Gas Project EIS (March 2012), Attachment 1 – Matters of National Environmental Significance*. |
| Core habitat known | Means habitat where a spatially accurate confirmed record of a particular species exists (e.g. Herbrecs or survey record). Core habitat known is attributed to the particular habitat polygon in which it occurs, based on either Queensland RE mapping or high resolution habitat mapping developed for a specific purpose. Core habitat known also means a 1 km buffer around all spatially accurate (<400 metres accuracy) species records. |

| Term | Definition |
|---|---|
| Core habitat possible | Means an area where previous records of a particular species are not known to occur within a given area or habitat, although specific habitat features are present which are known to be favoured by the species and the habitat occurs within the species' known geographic range. |
| EPBC community | Means a threatened ecological community listed under the EPBC Act. |
| EPBC listed threatened species | Means a threatened flora or fauna species listed under the EPBC Act. |
| EPBC Act Offsets Policy (EOP) | Means the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (October 2012) including the Offsets Assessment Guide. |
| Exempted development | See the Planning Regulation 2017, Schedule 24 |
| General habitat | Means where a species has not been recorded in a given location and habitat accounts for some of the features favoured by a particular species. The habitat occurs on the margins of a species' known geographic range. Otherwise, the habitat is suitable for the species. |
| Habitat quality scores | A score out of ten, based on BioCondition assessment plus an assessment of habitat quality. |
| Matters of national environmental significance (MNES) | Means matters protected by a provision of Part 3 for which the approval has effect. |
| Minister | Means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister |
| Offset calculator | The Offset Assessment Guide spreadsheet tool as provided by DCCEEW |
| Property Map of Assessable Vegetation | A map certified by the chief-executive as a PMAV for an area and showing the vegetation category areas for the area (e.g. Category C area, Category X area)<br>See Vegetation Management Act 1999 (Qld), section 20AK. |
| Recovery plan/s | Means an approved recovery plan under the EPBC Act for an EPBC listed species or EPBC community |
| Regrowth vegetation | Vegetation that is not remnant vegetation however meets certain criteria, native and consistent with or on track to meet RE status if managed. |
| Remnant vegetation | Vegetation that:<br>• is an endangered regional ecosystem, an of concern regional ecosystem, or at least concern regional ecosystem, and<br>• forms the predominant canopy of the vegetation covering more than 50% of the undisturbed predominant canopy; averaging more than 70% of the vegetation's undisturbed height; and composed of species characteristic of the vegetation's undisturbed predominant canopy. |
| Stage 1 | Means year 1 to 3 (inclusive) of the action, starting at the date of commencement. However, for purposes of the approved Offset Strategy, the Stage 1 activities will continue after year 3. |
| Suitably qualified ecologist | Means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using relevant protocols, standards, methods and literature. |
| The Project | Surat Gas Project: Stage 1 |
| Threat abatement plans | Means an approves threat abatement plan under the EPBC Act. |

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# Appendix A. EPBC 2010/5344 Disturbance limits and Actual disturbance

| Species | Whole of project maximum disturbance limits (ha) | Maximum disturbance limits Stage 1 | Actual disturbance Stage 1 | Actual disturbance Stage 2 | Actual disturbance Stage 3 | Actual disturbance Stage 4 | Balance area |
|---|---|---|---|---|---|---|---|
| Curly-bark wattle, *Acacia curranii* | 1210 | 0 | | | | | |
| Hando's wattle, *Acacia handonis* | 1210 | 0 | | | | | |
| Belson's panic, *Homopholis belsonii* | 140 | 0 | | | | | |
| Lobed bluegrass, *Bothriochloa bifoba* | 305 | 0 | | | | | |
| *Prostanthera sp Dunmore* | 380 | 0 | | | | | |
| Small-leaved denhamia, *Denhamia parvifolia* | 50 | 0 | | | | | |
| *Calytrix gurulmundensis* | 1210 | 0 | | | | | |
| Ooline, *Cadellia pentastyfis* | No disturbance | 0 | | | | | |
| Finger panic grass, *Digitaria porrecta* | 174 | 0 | | | | | |
| Austral toadflax, *Thesium austrafe* | 160 | 0 | | | | | |
| *Acacia lauta* | 990 | 0 | | | | | |
| Cobar greenhood orchid, *Pterostylis cobarensis* | 2170 | 0 | | | | | |
| *Xerothamnella herbacea* | 110 | 0 | | | | | |
| Hawkweed, *Picris evae* | 120 | 0 | | | | | |
| Austral cornflower *Rhaponticum australe* | 160 | 0 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Eucalyptus virens* | 170 | 0 | | | | | |
| King bluegrass, *Dichanthium queenslandicum* | 160 | 0 | | | | | |
| Queensland white-gum, *Eucalyptus argophloia* | 10 | 0 | | | | | |
| *Macrozamia machinii* | No disturbance | 0 | | | | | |
| South-eastern long-eared bat, *Nyctophilus corbeni* | 4080 | 225 | | | | | |
| Dunmall's snake, *Furina dunmalli* | 400 | 300 | | | | | |
| Five-clawed worm-skink, *Anomalopus mackayi* | 560 | 2 | | | | | |
| Squatter pigeon (southern), *Geophaps scripta scripta* | 3261 | 203 | | | | | |
| Regent honeyeater, *Anthochaera phrygia* | 20 | 1 | | | | | |
| Collared delma, *Delma torquata* | 90 | 11 | | | | | |
| Yakka skink, *Egernia rugosa* | 310 | 19 | | | | | |
| Australian painted snipe, *Rostratula australis* | 5 | 0 | | | | | |
| **EPBC Communities** | **Whole of project maximum disturbance limits (ha)** | **Maximum disturbance limits Stage 1** | **Actual disturbance Stage 1** | **Actual disturbance Stage 2** | **Actual disturbance Stage 3** | **Actual disturbance Stage 4** | |
| Brigalow (*Acacia harpophylla* dominant and co-dominant) | 106 | 39 | | | | | |
| Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions | 8 | 8 | | | | | |
| Weeping Myall Woodlands | 1 | 0 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Natural Grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland | No disturbance | 0 | | | | | |
| White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland | No disturbance | 0 | | | | | |
| Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions | No disturbance | 0 | | | | | |

# Appendix B. Description of mitigation measures and commitments

SGP Species Impact Management Plan

**Table 3.1 Description of mitigation measures / commitments**

| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| Pre-construction clearance surveys / minimise clearing | • Minimise the disturbance footprint and vegetation clearing<br>• Use existing roads and tracks, where practicable<br>• Avoid unnecessary impervious surface coverings and reduce land footprint and vegetation clearing when designing facilities<br>• Reduce the width of construction ROW within areas of sensitivity to the greatest extent practicable without compromising the safety of workers<br>• Conduct preconstruction clearance surveys to identify any additional areas that may need to be avoided<br>• Conduct preconstruction clearance surveys and include as a minimum:<br>– Vegetation mapping at a scale suitable for site- specific planning<br>– Identification of habitats and listed species<br>– Identification of site-specific sensitive areas that require avoidance or buffer areas | • To identify opportunities where the residual impacts to MNES matters can be further reduced | • SGP Pre-execution (i.e. Planning) Manager (Arrow) |
| Construction activities as per plan (no-go areas) | • Ensure construction activities do not extend beyond the work site boundaries<br>• Mark site boundaries clearly for site-specific sensitive areas that require avoidance<br>• Demarcate buffers and inform workers and machinery operators of buffer locations when working within the vicinity of national- and state-listed species, communities and areas identified for avoidance<br>• When clearing vegetation, seek to avoid creating gaps in stands or patches and to avoid isolating parcels of remnant vegetation from more continuous tracts<br>• Retain habitat trees, where practicable<br>• Construct production wells, gathering lines and access tracks within cleared areas, where practicable, with the aim of avoiding sensitive areas<br>• Avoid damaging standing trees not identified for removal. Limit the scraping of standing tree trunks and breaking of limbs by equipment as far as practicable | • To ensure that no unplanned impacts occur on MNES as a result of construction activities | • SGP Construction Manager (Arrow) |

| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| Clear Communication | • Inform relevant workers, including contract plant and machinery operators of the location of significant remnant vegetation and buffers and use qualified personnel to guide clearing activities<br>• Prohibit disturbance or harassment of wildlife and the unauthorised collection of flora and forest products | • To ensure that no unplanned impacts occur on MNES as a result of construction activities | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Fauna spotter catcher | • Assess trees prior to felling for potential nesting hollows. If identified, fell trees in the presence of a qualified fauna spotter-catcher (FSC) and roll them so that the hollows are facing upwards, allowing fauna to escape<br>• Identify key koala trees (*Eucalyptus tereticornis* and *Eucalyptus populnea*), and visually inspect prior to clearing to ensure that they are free of koalas. If koalas are located, the tree should be retained until the animals have moved on, typically overnight<br>• Use appropriately trained personnel or a FSC to capture injured wildlife, where possible. If further action is required, consult with a qualified vet to determine appropriate action<br>• The FSC will be present during clearing. The FSC will be suitably qualified as per the definition provided in EPBC 2010/5344. The number of FSCs on site at the time of clearing will depend on the number of machines being used at any given time<br>• Checks for identified EPBC Act fauna species breeding places will be undertaken immediately prior to commencing vegetation clearing<br>• Potential breeding places will be clearly marked in the field with spray paint, coloured flagging tape (unless not permitted by land owners, e.g. some cattle properties), or by other suitable methods | • To ensure that no unplanned impacts occur on the Koala, Dunmall's Snake, Greater Glider, South-eastern Long-eared Bat, Regent Honeyeater, Painted Honeyeater or Squatter Pigeon | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Appropriate rehabilitation | • Retain woody debris, logs and rocks for use in rehabilitation, spreading them over part or all of the corridor or, as a minimum, piled along the edge of the cleared corridor to provide refuge for crossing fauna<br>• Translocate or propagate significant species where it is deemed necessary for use during rehabilitation or in offsets in accordance with relevant legislation<br>• Fell trees away from existing stands where practicable. Where trees unavoidably fall into a stand, leave trees in situ to emulate natural tree fall and provide habitat for ground-dwelling species, where practicable | • To ensure that no unplanned impacts occur on MNES as a result of construction activities | • SGP Construction Managers (Arrow and Third Party Contractor) |

| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| Reduce light spill | • Reduce light spill resulting from project activities to reduce disturbance to nocturnal fauna | • To ensure that no unplanned impacts occur on the Koala, Dunmall's Snake, Greater Glider or South-eastern Long-eared Bat | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Reduce project traffic speed | • Implement speed limits on project-controlled roads to reduce the potential for vehicle collisions with wildlife<br>• Confine project traffic to designated roads and access tracks, where practicable | • To ensure that no unplanned impacts occur on the Koala, Dunmall's Snake, Collared Delma or Yakka Skink | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Weed control | • Inspect work sites and access routes for notifiable weeds and pest plants and animals prior to accessing the site<br>• Wash down vehicles and equipment that have potentially been in contact with weeds before entering new work sites<br>• Advise all relevant personnel of the location and extent of weed infestations in the vicinity of the work areas and the risks involved in moving from one site or property to another<br>• Identify declared weeds [as per the Land Access Code 2016] during the preconstruction clearance survey | • To avoid degradation of the Brigalow, Coolibah-Black Box or Weeping Myall TEC<br>• To avoid reduction in the condition of listed threatened species habitat | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Documentation | • Develop management procedures, inclusive of buffers where required, for threatened communities and species as and when project activities are identified as likely to have an impact on these values<br>• Develop and implement a compensation framework to 'add value' rather than just compensating for impacts<br>• Where avoidance is not possible, and significant residual impacts remain to threatened species and communities, implement an offset strategy approved by a relevant government agency and comply with reporting conditions of an offset plan | • To ensure that the planned (and actual) impacts to MNES are accurately documented and offset | • Environment Manager (Arrow) |

**Table 4.1 Description of additional mitigation measures / commitments**

| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| Construction - clearing | • See Table 3.1 | | |
| Construction - Open trench management | • Trenches will be inspected and monitored as per the APIA Code of Environmental Practice (B159) and will be checked within two hours of sunrise and trapped fauna released. Additional monitoring will be undertaken following rainfall events<br>• The time a trench is left open will be minimised. Fauna exit points will be incorporated when construction is within 1 km of native vegetation, using appropriate material. Fauna refuges, such as sawdust-filled bags, will be provided regularly through areas of high fauna activity<br>• As soon as practical following pipe laying, the trench will be backfilled with excavated material, compacted and topsoil replaced and erosion controls implemented | • To ensure that no unplanned impacts occur on Dunmall's Snake, Koala, Collared Delma or Yakka Skink | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Construction - Reduce light spill | • Lighting will be designed in a manner that limits disruption on landscape character, views and visual amenity and lighting will be directed into the infrastructure siting rather than dispersed into native vegetation when sites are adjacent to intact habitat | • To ensure that no unplanned impacts occur on the Koala, South-eastern Long-eared Bat and Greater Glider | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Construction - Reduce project traffic speed | • Speed limits on Project controlled roads will be developed with due consideration to reduce the potential for vehicle collisions with wildlife | • To ensure that no unplanned impacts occur on Dunmall's Snake, Squatter Pigeon, Koala or Yakka Skink | • SGP Construction Managers (Arrow and Third Party Contractor) |
| Construction - Bushfire | • Fire management plans will be developed for production facilities<br>• Radiation exclusion zones around flares will be designed according to API standard<br>• Enclosed spaces where flammable gas may accumulate will be minimised<br>• Fire-fighting equipment will be installed, inspected and serviced in accordance with risk assessments and relevant legislation and standards<br>• Gathering lines will be buried at a minimum depth of 600 mm. Where gathering lines are present above the ground (at wellheads and at vents or drains), a clear area will be maintained. The size of the cleared area will be determined on a site-by-site basis with consideration of the site-specific risk of bushfire | • To avoid degradation of TECs<br>• To avoid reduction in the condition of listed threatened species habitat | • SGP Construction Managers (Arrow and Third Party Contractor) |

| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| | • Fire-safety equipment will be commissioned in the early phase of the construction period<br>• All buildings and production facilities will be fitted with smoke or fire alarms<br>• Fire and gas detection systems will be installed to shutdown compressors<br>• Protocols will be developed for the control of operational activities during extreme fire danger periods, e.g., flaring or shutdowns<br>• Regular patrols and inspections of pipeline easements will be conducted, including status of signposting subsidence and of fire breaks<br>• Vegetation surrounding production facilities and wellheads will be maintained in a manner that limits the amount of combustible material in the area. The size of the cleared area will be determined on a site-by-site basis with consideration of the site-specific risk of bushfire<br>• Access tracks to well sites will be kept clear of dry grass and combustible material wherever practicable and where there is a higher risk of bushfire (to minimise the risk of dry grass being ignited by hot components of vehicles accessing the sites)<br>• Daily operations will be managed with consideration of the fire danger current at that time | | |
| Construction / Operation / Decommissioning - Weed control | • A detailed pest management plan will be developed to mitigate and manage the potential spread of pest flora and fauna species (B152). This plan will include requirements for machinery washdown procedures to be followed during all clearing activities<br>• Weed monitoring and targeted weed control measures will be undertaken within sensitive EVNT habitats (particularly threatened communities such as Brigalow and native grasslands) (B158). Weed control methods within EVNT habitats will be selected on the basis of minimising the risk of adverse impacts on EVNT species or communities<br>• In accordance with the Pest Management Plan regular inspections for pest flora and evidence of pest fauna will be undertaken within Project disturbed areas<br>• Washdown facilities will be designed to ensure that runoff is contained on site and does not transfer weed seeds, spores or infected soils to adjacent areas<br>• When sourcing maintenance materials, materials such as bedding sand, topsoil, straw bales and sand bags will be brought to site only after it is ascertained that the materials are not contaminated with weeds and plant or animal pathogens. A weed hygiene declaration form will be requested from the supplier where there is possible risk of | • To avoid degradation of TECs<br>• To avoid reduction in the condition of listed threatened species habitat<br>• Successful implementation of Arrow's Vehicle and Machinery Hygiene Procedure (ORG-ARW-HSM-PRO-00138) and Weed Management Procedure (ORG-ARW-HSM-PRO-00139) | • SGP Managers (Arrow and Third Party Contractor) |

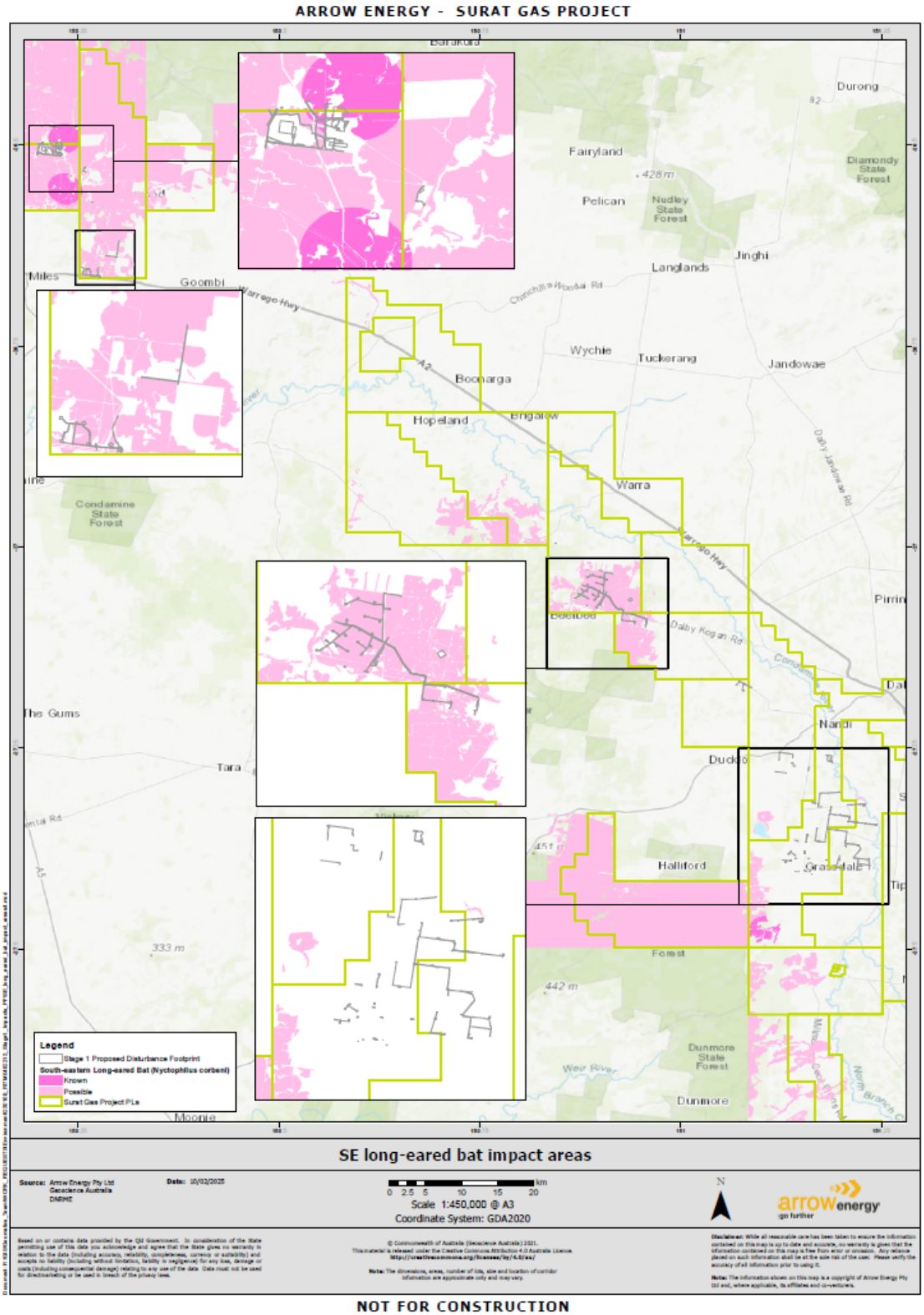
| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| | contamination in products<br>• All relevant personnel will be made aware of the location and extent of weed infestations in the vicinity of the work area and the risks involved in moving from one site or property to another<br>• A declared weed and pest management plan will be developed in accordance with the Petroleum Industry – Pest Spread Minimisation Advisory Guide (Biosecurity Queensland, 2008). Species-specific management will be undertaken for identified key weed species at risk of spread through Project activities. Weed control efforts will be increased in areas particularly sensitive to invasion. The pest management plan will include, as a minimum, training, management of pest spread, management of pest infestations and monitoring effectiveness of control measures | | |
| Construction / Operation / Decommissioning – Pest control | • Arrow will manage food, waste and other project activities to prevent or minimise the potential for these to transport or attract pest animals which may then impact MNES | • Successful implementation of Arrow's Pest Management Procedure (ORG-ARW-HSM-PRO-00096) | • SGP Managers (Arrow and Third Party Contractor) |
| Operation - Grazing | • Grazing activities will be excluded from all Arrow gas and water processing and well head infrastructure sites | • To avoid degradation of TECs<br>• To avoid reduction in the condition of listed threatened species habitat | • SGP Operations Managers (Arrow) |
| Operation / decommissioning - Appropriate rehabilitation | • The cleared areas and stockpiles will be progressively rehabilitated through revegetation and/or mulching<br>• Areas will be cleared progressively and rehabilitation implemented as soon as practicable following construction and decommissioning activities<br>• Rehabilitation timeframes will be compliant with applicable Environmental Authority conditions and consider any landholder requirements/expectations<br>• Rehabilitation plans will be developed addressing ground preparation requirements, natural and constructed drainage patterns, soil erodibility, contamination, slope steepness and length, vegetation cover, land use and landowner requirements. Partial rehabilitation of gathering lines and other linear infrastructure will be undertaken to reduce edge effects (including weed invasion) and maintain movement rates<br>• Rehabilitation of available areas will be undertaken that is consistent with pre-clearance habitats, to increase the rate of recovery | • To ensure that no unplanned impacts occur on MNES as a result of construction activities<br>• To return the area to pre-disturbed condition (or better) as agreed with the landholder and as required by DES in order to grant progressive rehabilitation certification and EA surrender | • SGP Managers (Arrow and Third Party Contractor) |

| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| | • Woody debris, logs and rocks will be retained for use in rehabilitation. Where practical, these will be piled along the edge of the cleared corridor. Where possible these features will be spread over all or part of the corridor to provide refugia for crossing fauna. Systematic removal of surface debris will be avoided and cleared timber will never be burnt<br>• Data collection, particularly of EVNT species identified during pre-clearance surveys, during trench checking or in other Project related activities, will be ongoing until rehabilitation is complete<br>• Site planning, preparation and management requirements will be implemented in accordance with a decommissioning and rehabilitation plan<br>• After decommissioning, rehabilitation areas will be inspected for regrowth similar to the surrounding environment<br>• Regular monitoring of rehabilitation success will be carried out<br>• During rehabilitation works, care will be taken when moving stockpiled logs and vegetation to avoid fauna mortality<br>• Excavations, particularly pipeline trenches and drilling sumps, will be backfilled and rehabilitated. Backfilling will be conducted in a manner that will promote successful rehabilitation, including capping of exposed subsoil with topsoil and replacement of the land surface to preconstruction levels to reduce trench subsidence and concentration of flow. Soils will be mounded where required to allow for settling. However, in laser-levelled paddocks, this may not be practicable, and backfilling will be carried out in consultation with the landowner<br>• A rehabilitation management plan for decommissioning will be developed and implemented which includes monitoring and maintenance of rehabilitated areas until rehabilitation sign off criteria are met<br>• Monitoring of the rehabilitated areas will be undertaken to identify whether the general objectives of the rehabilitation strategy are being met, and whether a sustainable and stable landform has been achieved. Monitoring will be conducted by suitably skilled and qualified persons at representative locations. Annual reviews of monitoring data will be conducted during operations, and post closure, to assess trends and performance<br>• A final rehabilitation report and a decommissioning plan, including a contaminated land assessment where required, landowner commitments and agreements, and rehabilitation | | |

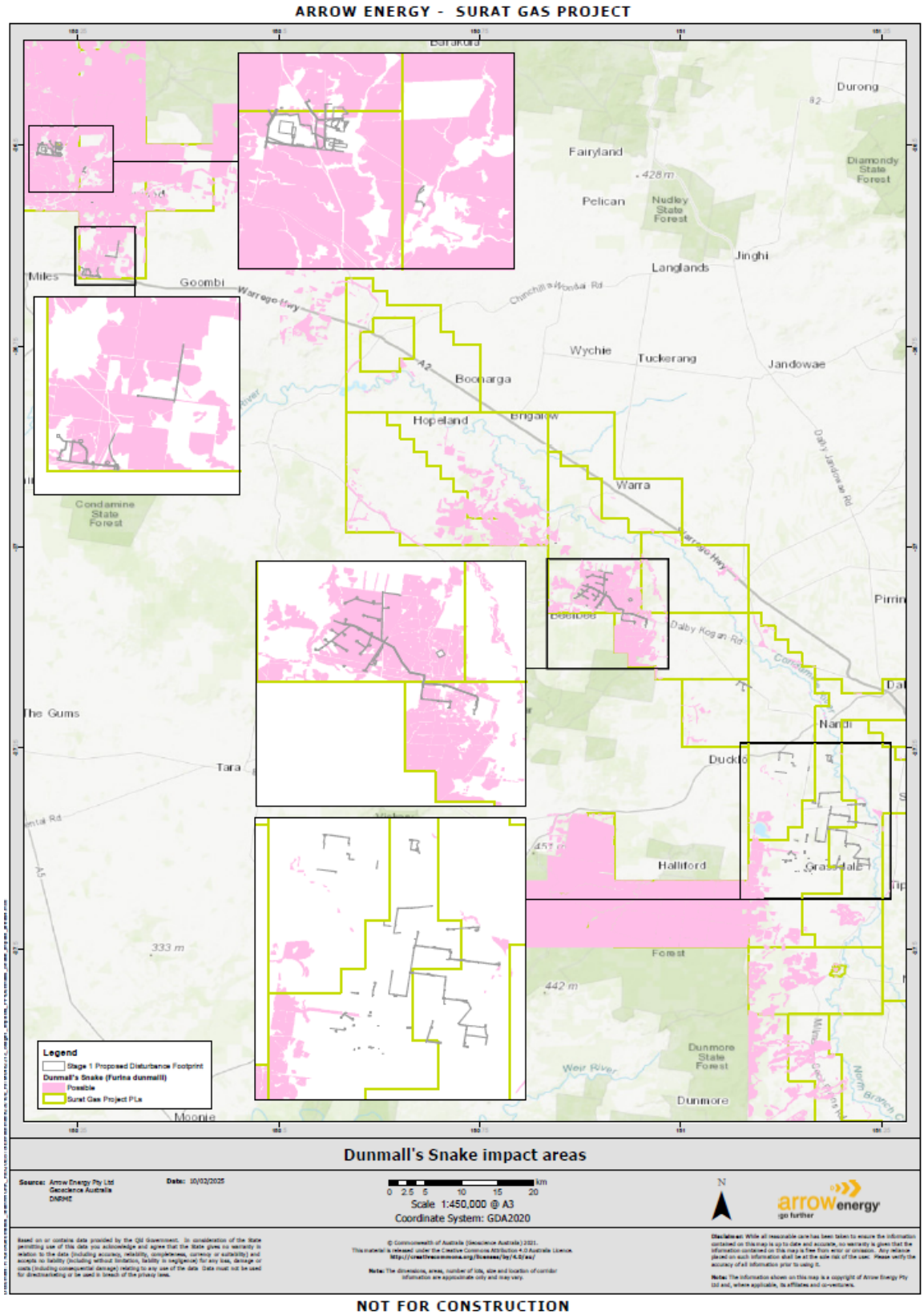
| Mitigation | Commitment | Intended outcome | Responsible manager/s |
|---|---|---|---|
| | status, will be prepared and submitted to the appropriate authorities for approval where required<br>• The area disturbed within the pipeline corridor during the laying of the pipelines will be progressively rehabilitated as soon as practicable after completion of the pipeline installation. Fences, roads and tracks and other existing infrastructure impacted during construction of the pipeline will be repaired and/or replaced as required<br>• At decommissioning, a suitable vegetation cover will be re-established to enable natural vegetation progression and minimal weed invasion<br>• Final ground conditions will be rehabilitated to a state that is conducive to support further natural regeneration at project closure | | |
| Construction / Operation / Decommissioning - Documentation | • A Water Management Plan, Erosion and Sediment Control Plan, and Waste Management Plan will be designed to avoid or minimise the potential impacts of Project<br>• Corrective actions will be undertaken in accordance with the outcomes of incident investigations, audits, monitoring results or advice given by the relevant regulatory authority<br>• Arrow will develop emergency response plans in consultation with emergency services organisations that includes a list of required equipment, training and other resources, and foreseeable emergency and crisis situations. The plans will include safe evacuation procedures, communication protocols (internal and to emergency services, including the Petroleum and Gas Inspectorate), accounting for personnel and visitors, roles and responsibilities, and requirements for training<br>• Any residual impacts to EPBC Act species and communities will be offset. A detailed SGP Phase 1 Offset Strategy and additional offset strategies for the subsequent phases will be developed and implemented to add value rather than just compensating for impact | • To ensure that the planned (and actual) impacts to MNES are accurately documented and offset | • Environment Manager (Arrow) |
| Construction / Operation / Decommissioning - Hazardous materials management | • Appropriate international, Australian and industry standards and codes of practice will be applied for the handling and storage of hazardous materials, such as chemicals, fuels and lubricants<br>• Appropriate spill response equipment including containment and recovery equipment will be available onsite<br>• Staff will be trained on appropriate handling, storage and containment practices for chemical, fuels and other potential chemicals as relevant | • To avoid degradation of TECs<br>• To avoid reduction in the condition of listed threatened species habitat | • SGP Managers (Arrow and Third Party Contractor) |

# Appendix C. Mapping of MNES impact areas

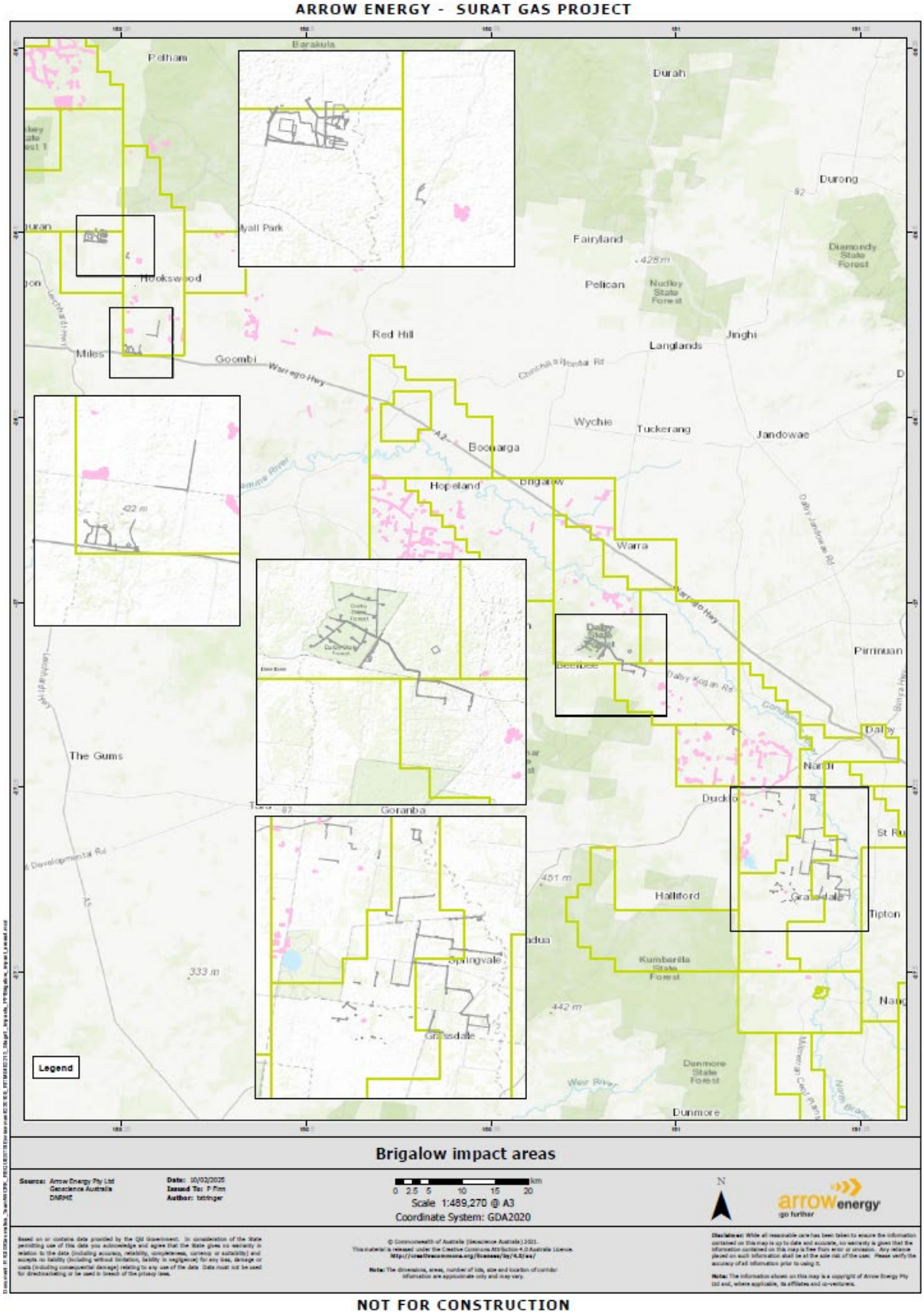
## Appendix C1. South-eastern long-eared bat impact areas



# Appendix C2. Dunmall's snake impact areas



# Appendix C3. Brigalow TEC impact areas



# Appendix D. Offset assessment guide outputs

## Appendix D1. Offset assessment guide output for south-eastern long-eared bat

### Offsets Assessment Guide

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

| *Matter of National Environmental Significance* | |
|---|---|
| Name | South-eastern long-eared bat |
| EPBC Act status | Vulnerable |
| Annual probability of extinction<br>Based on IUCN category definitions | 0.2% |

**Impact calculator**

*Ecological communities*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | | Information source |
|---|---|---|---|---|---|
| Area of community | No | | Area (Hectares) | | |
| | | | Quality (Scale 0-10) | | |
| | | Total quantum of impact (Adjusted Hectares) | | | |

*Threatened species habitat*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | | Information source |
|---|---|---|---|---|---|
| Area of habitat | Yes | South-eastern long-eared bat | Area (Hectares) | 485.52 | |
| | | | Quality (Scale 0-10) | 4 | |
| | | Total quantum of impact (Adjusted Hectares) | | 194.21 | |

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | Information source |
|---|---|---|---|---|
| Number of features<br>e.g. Nest hollows, habitat trees | No | | | |
| Condition of habitat<br>Change in habitat condition, but no change in extent | No | | | |

*Threatened species*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | Information source |
|---|---|---|---|---|
| Birth rate<br>e.g. Change in nest success | No | | | |
| Mortality rate<br>e.g Change in number of road kills per year | No | | | |
| Number of individuals<br>e.g. Individual plants/animals | No | | | |

**Offset calculator**

*Ecological Communities*

| Protected matter attributes | Attribute relevant to case? | Total quantum of impact (Adjusted Hectares) | Proposed offset | Time Horizon (Years) | | Start area and quality | | Future area and quality without offset (adjusted hectares) | | Future area and quality with offset (adjusted hectares) | | Raw gain | Confidence in result (%) | Adjusted gain | Net present value (adjusted hectares) | Offset Result | | Cost ($ total) | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area of community | No | | | Risk-related time horizon (max. 20 years) | | Start area (hectares) | | Risk of loss without offset (%) | | Risk of loss with offset (%) | | 0.00 | | 0.00 | 0.00 | Overall net present value | 0.00 | | |
| | | | | 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) | | 0.00 | | 0.00 | 0.00 | % of impact offset | 0.00% | | |
| | | | | | | | | Future area without offset | 0.0 | Future area with offset | 0.0 | | | Minimum (90%) direct offset requirement met? | | FALSE | | | |

*Threatened species habitat*

| Protected matter attributes | Attribute relevant to case? | Total quantum of impact (Adjusted Hectares) | Proposed offset | Time Horizon (Years) | | Start area and quality | | Future area and quality without offset (adjusted hectares) | | Future area and quality with offset (adjusted hectares) | | Raw gain | Confidence in result (%) | Adjusted gain | Net present value (adjusted hectares) | Offset Result | | Cost ($ total) | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area of habitat | Yes | 194.21 | | Risk-related time horizon (max. 20 years) | 20 | Start area (hectares) | 1356.1 | Risk of loss without offset (%) | 6% | Risk of loss with offset (%) | 0% | 86.25 | 100% | 86.25 | 82.87 | Overall net present value | 257.14 | | |
| | | | | Time until ecological benefit | 20 | Start quality (scale of 0-10) | 4 | Future quality without offset (scale of 0-10) | 4 | Future quality with offset (scale of 0-10) | 6 | 2.00 | 85% | 1.70 | 1.63 | % of impact offset | 132.40% | | |
| | | | | | | | | Future area without offset | 1269.9 | Future area with offset | 1356.1 | | | Minimum (90%) direct offset requirement met? | | TRUE | | | |

| Protected matter attributes | Attribute relevant to case? | Quantum of impact | Proposed offset | Time horizon (years) | Start Value | Future value without offset | Future value with offset | Raw gain | Confidence in result (%) | Adjusted gain | Net present value | % of impact offset | Minimum (90%) direct offset requirement met? | Cost ($ total) | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of features<br>e.g. Nest hollows, habitat trees | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| Condition of habitat<br>Change in habitat condition, but no change in extent | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |

*Threatened species*

| Protected matter attributes | Attribute relevant to case? | Quantum of impact | Proposed offset | Time horizon (years) | Start Value | Future value without offset | Future value with offset | Raw gain | Confidence in result (%) | Adjusted gain | Net present value | % of impact offset | Minimum (90%) direct offset requirement met? | Cost ($ total) | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Birth rate<br>e.g. Change in nest success | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| Mortality rate<br>e.g Change in number of road kills per year | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| Number of individuals<br>e.g. Individual plants/animals | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |

**Summary**

| | | | | | Cost ($) | | |
|---|---|---|---|---|---|---|---|
| Protected matter attributes | Quantum of impact | Net present value | % of impact offset | Direct offset adequate? | Direct offset | Other compensatory measures | Total |
| Birth rate | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Mortality rate | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Number of individuals | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Number of features | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Condition of habitat | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Area of habitat | 194.21 | 257.14 | 1.32 | TRUE | 0.00 | N/A | 0.00 |
| Area of community | | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| | | | | | $0.00 | $0.00 | $0.00 |

# Appendix D2. Offset assessment guide output for Dunmall's snake

## Offsets Assessment Guide

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

| *Matter of National Environmental Significance* | |
|---|---|
| Name | Dunmalls snake |
| EPBC Act status | Vulnerable |
| Annual probability of extinction<br>Based on IUCN category definitions | 0.2% |

### Impact calculator

*Ecological communities*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | | Information source |
|---|---|---|---|---|---|
| Area of community | No | | Area *(Hectares)* | | |
| | | | Quality *(Scale 0-10)* | | |
| | | Total quantum of impact *(Adjusted Hectares)* | | | |

*Threatened species habitat*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | | Information source |
|---|---|---|---|---|---|
| Area of habitat | Yes | Dunmalls Snake | Area *(Hectares)* | 150 | |
| | | | Quality *(Scale 0-10)* | 3 | |
| | | Total quantum of impact *(Adjusted Hectares)* | | 45.00 | |

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | Information source |
|---|---|---|---|---|
| Number of features<br>e.g. Nest hollows, habitat trees | No | | | |
| Condition of habitat<br>Change in habitat condition, but no change in extent | No | | | |

*Threatened species*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | Information source |
|---|---|---|---|---|
| Birth rate<br>e.g. Change in nest success | No | | | |
| Mortality rate<br>e.g Change in number of road kills per year | No | | | |
| Number of individuals<br>e.g. Individual plants/animals | No | | | |

### Offset calculator

*Ecological Communities*

| Protected matter attributes | Attribute relevant to case? | Total quantum of impact *(Adjusted Hectares)* | Proposed offset | Time Horizon *(Years)* | | Start area and quality | | Future area and quality without offset *(adjusted hectares)* | | Future area and quality with offset *(adjusted hectares)* | | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value *(adjusted hectares)* | Offset Result | | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area of community | No | | | Risk-related time horizon *(max. 20 years)* | | Start area *(hectares)* | | Risk of loss without offset *(%)* | | Risk of loss with offset *(%)* | | 0.00 | | 0.00 | 0.00 | Overall net present value | 0.00 | | |
| | | | | 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)* | | 0.00 | | 0.00 | 0.00 | % of impact offset | 0.00% | | |
| | | | | | | | | Future area without offset | 0.0 | Future area with offset | 0.0 | | | Minimum (90%) direct offset requirement met? | | FALSE | | | |

*Threatened species habitat*

| Protected matter attributes | Attribute relevant to case? | Total quantum of impact *(Adjusted Hectares)* | Proposed offset | Time Horizon *(Years)* | | Start area and quality | | Future area and quality without offset *(adjusted hectares)* | | Future area and quality with offset *(adjusted hectares)* | | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value *(adjusted hectares)* | Offset Result | | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area of habitat | Yes | 45.00 | 297ha on Kilarn and 513 | Risk-related time horizon *(max. 20 years)* | 20 | Start area *(hectares)* | 296.4 | Risk of loss without offset *(%)* | 6% | Risk of loss with offset *(%)* | 0% | 18.85 | 100% | 18.85 | 18.11 | Overall net present value | 45.54 | | |
| | | | | Time until ecological benefit | 20 | Start quality *(scale of 0-10)* | 4 | Future quality without offset *(scale of 0-10)* | 4 | Future quality with offset *(scale of 0-10)* | 6 | 2.00 | 65% | 1.30 | 1.25 | % of impact offset | 101.19% | | |
| | | | | | | | | Future area without offset | 277.5 | Future area with offset | 296.4 | | | Minimum (90%) direct offset requirement met? | | TRUE | | | |

| Protected matter attributes | Attribute relevant to case? | Quantum of impact | Proposed offset | Time horizon *(years)* | Start Value | Future value without offset | Future value with offset | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value | % of impact offset | Minimum (90%) direct offset requirement met? | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of features<br>e.g. Nest hollows, habitat trees | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| Condition of habitat<br>Change in habitat condition, but no change in extent | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |

*Threatened species*

| Protected matter attributes | Attribute relevant to case? | Quantum of impact | Proposed offset | Time horizon *(years)* | Start Value | Future value without offset | Future value with offset | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value | % of impact offset | Minimum (90%) direct offset requirement met? | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Birth rate<br>e.g. Change in nest success | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| Mortality rate<br>e.g Change in number of road kills per year | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| Number of individuals<br>e.g. Individual plants/animals | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |

### Summary

| Protected matter attributes | Quantum of impact | Net present value | % of impact offset | Direct offset adequate? | Cost ($) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Direct offset | Other compensatory measures | Total |
| Birth rate | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Mortality rate | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Number of individuals | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Number of features | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Condition of habitat | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| Area of habitat | 45.00 | 45.54 | 1.01 | TRUE | 0.00 | N/A | 0.00 |
| Area of community | | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| | | | | | $0.00 | $0.00 | $0.00 |

# Appendix D3. Offset assessment guide output for brigalow TEC

## Offsets Assessment Guide

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

| *Matter of National Environmental Significance* | |
|---|---|
| **Name** | Brigalow |
| **EPBC Act status** | Endangered |
| **Annual probability of extinction** Based on IUCN category definitions | 1.2% |

### Impact calculator

*Ecological communities*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | | Information source |
|---|---|---|---|---|---|
| **Area of community** | Yes | Brigalow | Area *(Hectares)* | 4.63 | |
| | | | Quality *(Scale 0-10)* | 4 | |
| | | Total quantum of impact *(Adjusted Hectares)* | | 1.85 | |

*Threatened species habitat*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | | Information source |
|---|---|---|---|---|---|
| **Area of habitat** | No | | Area *(Hectares)* | | |
| | | | Quality *(Scale 0-10)* | | |
| | | Total quantum of impact *(Adjusted Hectares)* | | | |

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | Information source |
|---|---|---|---|---|
| **Number of features** e.g. Nest hollows, habitat trees | No | | | |
| **Condition of habitat** Change in habitat condition, but no change in extent | No | | | |

*Threatened species*

| Protected matter attributes | Attribute relevant to case? | Description | Quantum of impact | Information source |
|---|---|---|---|---|
| **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

*Ecological Communities*

| Protected matter attributes | Attribute relevant to case? | Total quantum of impact *(Adjusted Hectares)* | Proposed offset | Time Horizon *(Years)* | | Start area and quality | | Future area and quality **without** offset *(adjusted hectares)* | | Future area and quality **with** offset *(adjusted hectares)* | | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value *(adjusted hectares)* | Offset Result | | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Area of community** | Yes | 1.85 | | Risk-related time horizon *(max. 20 years)* | 20 | Start area *(hectares)* | 13 | Risk of loss **without** offset *(%)* | 6% | Risk of loss **with** offset *(%)* | 0% | 0.78 | 100% | 0.78 | 0.61 | Overall net present value | 2.07 | | |
| | | | | Time until ecological benefit | 20 | Start quality *(scale of 0-10)* | 5 | Future quality **without** offset *(scale of 0-10)* | 5 | Future quality **with** offset *(scale of 0-10)* | 7 | 2.00 | 85% | 1.70 | 1.34 | % of impact offset | 111.59% | | |
| | | | | | | | | Future area **without** offset | 12.2 | Future area **with** offset | 13.0 | | | | | Minimum (90%) direct offset requirement met? | TRUE | | |

*Threatened species habitat*

| Protected matter attributes | Attribute relevant to case? | Total quantum of impact *(Adjusted Hectares)* | Proposed offset | Time Horizon *(Years)* | | Start area and quality | | Future area and quality **without** offset *(adjusted hectares)* | | Future area and quality **with** offset *(adjusted hectares)* | | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value *(adjusted hectares)* | Offset Result | | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Area of habitat** | Yes | | | Risk-related time horizon *(max. 20 years)* | 7 | Start area *(hectares)* | 500 | Risk of loss **without** offset *(%)* | 6% | Risk of loss **with** offset *(%)* | 0% | 31.80 | 100% | 31.80 | 29.25 | Overall net present value | 77.33 | | |
| | | | | Time until ecological benefit | 20 | Start quality *(scale of 0-10)* | 3 | Future quality **without** offset *(scale of 0-10)* | 3 | Future quality **with** offset *(scale of 0-10)* | 5 | 2.00 | 85% | 1.70 | 1.34 | % of impact offset | 0.00% | | |
| | | | | | | | | Future area **without** offset | 468.2 | Future area **with** offset | 500.0 | | | | | Minimum (90%) direct offset requirement met? | FALSE | | |

| Protected matter attributes | Attribute relevant to case? | Quantum of impact | Proposed offset | Time horizon *(years)* | Start Value | Future value without offset | Future value with offset | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value | % of impact offset | Minimum (90%) direct offset requirement met? | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Number of features** e.g. Nest hollows, habitat trees | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| **Condition of habitat** Change in habitat condition, but no change in extent | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |

*Threatened species*

| Protected matter attributes | Attribute relevant to case? | Quantum of impact | Proposed offset | Time horizon *(years)* | Start Value | Future value without offset | Future value with offset | Raw gain | Confidence in result *(%)* | Adjusted gain | Net present value | % of impact offset | Minimum (90%) direct offset requirement met? | Cost *($ total)* | Information source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Birth rate** e.g. Change in nest success | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| **Mortality rate** e.g Change in number of road kills per year | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |
| **Number of individuals** e.g. Individual plants/animals | No | | | | | | | 0.00 | | 0.00 | 0.00 | 0.00% | FALSE | | |

### Summary

| | | | | | Cost ($) | | |
|---|---|---|---|---|---|---|---|
| Protected matter attributes | Quantum of impact | Net present value | % of impact offset | Direct offset adequate? | Direct offset | Other compensatory measures | Total |
| **Birth rate** | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| **Mortality rate** | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| **Number of individuals** | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| **Number of features** | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| **Condition of habitat** | 0.00 | 0.00 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| **Area of habitat** | | 77.33 | 0.00 | FALSE | 0.00 | N/A | 0.00 |
| **Area of community** | 1.85 | 2.07 | 1.12 | TRUE | 0.00 | N/A | 0.00 |
| | | | | | **$0.00** | **$0.00** | **$0.00** |

# Appendix E. Habitat quality scores

## Appendix E1. Impact habitat quality scores - south-eastern long-eared bat

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.3.14 | | | BM | 11.3.14 | | | BM | 11.3.14 | | | BM | 11.3.18 | | | BM | 11.3.18 | | | BM | 11.3.18 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | CS4 | | | | CS9 | | | | AE17 | | | | CN6 | | | | AE26 | | | | AE32 | | |
| | Regional ecosystem: | 11.3.14 | 11.3.14 | | | 11.3.14 | 11.3.14 | | | 11.3.14 | 11.3.14 | | | 11.3.18 | 11.3.18 | | | 11.3.18 | 11.3.18 | | | 11.3.18 | 11.3.18 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100% | 5 | 100% | 100 | 100 | 100% | 5 | 100 | 0 | 0% | 0 | 100 | 50 | 50% | 3 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 5 | 3 | 60% | 2.5 | 5 | 60% | 2.5 | 60% | 5 | 1 | 20% | 0 | 4 | 4 | 100% | 5 | 4 | 3 | 75% | 2.5 | 4 | 2 | 50% | 2.5 |
| Shrubs | | 7 | 1 | 14% | 0 | 7 | 29% | 2.5 | 29% | 7 | 0 | 0% | 0 | 7 | 1 | 14% | 0 | 7 | 1 | 14% | 0 | 7 | 1 | 14% | 0 |
| Grasses | | 7 | 2 | 29% | 2.5 | 7 | 14% | 0 | 14% | 7 | 2 | 29% | 2.5 | 11 | 11 | 100% | 5 | 11 | 3 | 27% | 2.5 | 11 | 2 | 18% | 0 |
| Forbs | | 19 | 7 | 37% | 2.5 | 19 | 16% | 0 | 16% | 19 | 4 | 21% | 0 | 21 | 21 | 100% | 5 | 21 | 13 | 62% | 2.5 | 21 | 2 | 10% | 0 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 16 | 18 | 113% | 5 | 16 | 100% | 5 | 100% | 16 | 22 | 138% | 5 | 18 | 13 | 72% | 5 | 18 | 16 | 89% | 5 | 18 | 10.25 | 57% | 3 |
| Tree sub-canopy height | | 8 | 9 | | 0 | 8 | 7 | 0 | 0 | 8 | 10 | | 0 | 9 | 6 | | 0 | 9 | 10 | | 0 | 9 | 8 | | 0 |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 53 | 62 | 117% | 5 | 53 | 34.4 | 65% | 5 | 53 | 18 | 34% | 2 | 43 | 78.3 | 182% | 5 | 43 | 24 | 56% | 5 | 43 | 58 | 135% | 5 |
| Tree sub-canopy cover | | 18 | 8 | | 0 | 18 | 0 | | 0 | 18 | 78 | | 0 | 26 | 6.1 | | 0 | 26 | 25 | | 0 | 26 | 10 | | 0 |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 1.0 | | | | 2.5 | | | | 2.5 | | | | 2.5 |
| Shrub canopy cover (%): | | 8 | 1 | 13% | 3 | 8 | 0.8 | 10% | 3 | 8 | 2 | 25% | 3 | 5 | 0 | 0% | 0 | 5 | 12 | 240% | 3 | 5 | 0 | 0% | 0 |
| Native perennial grass cover (%): | | 18 | 0 | 0% | 0 | 18 | 0 | 0% | 0 | 18 | 6 | 33% | 1 | 16 | 29 | 181% | 5 | 16 | 13.9 | 87% | 3 | 16 | 26 | 163% | 5 |
| Organic litter (%): | | 48 | 39.6 | 83% | 5 | 48 | 16 | 33% | 3 | 48 | 54.5 | 114% | 5 | 35 | 31 | 89% | 5 | 35 | 43 | 123% | 5 | 35 | 24 | 69% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 46 | 24 | 52% | 10 | 46 | 15 | 33% | 5 | 46 | 30 | 65% | 10 | 24 | 20 | 83% | 10 | 24 | 6 | 25% | 5 | 24 | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | 544 | 690 | 127% | 5 | 544 | 320 | 59% | 5 | 544 | 23 | 4% | 0 | 273 | 415 | 152% | 5 | 273 | 80 | 29% | 2 | 273 | 80 | 29% | 2 |
| Non-native plant cover (%): | | 0 | 0.25 | 25% | 3 | 0 | 0.42 | 42% | 3 | 0 | 0.24 | 24% | 5 | 0 | 0.2 | 20% | 5 | 0 | 0.01 | 1% | 10 | 0 | 0.13 | 13% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 25 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 53.5 | | | | 44.0 | | | | 72.0 | | | | 60.0 | | | | 53.5 | | | | 36.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 0 | | | | 10 | | | | 2 | | | | 5 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 0 | | | | 2 | | | | 0 | | | | 4 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 10 | | | | 0 | | | | 0 | | | | 0 | | | | 5 | | | | 0 |
| Site context score (-/70) | | | | | 27.0 | | | | 5.0 | | | | 27.0 | | | | 7.0 | | | | 23.0 | | | | 11.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 1.10 | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | 0.84 | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 2.00 | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | 3.94 | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | 0.03 | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | 485.51 | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | 0.00 | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | 0.00 | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.3.18 | | | BM | 11.5.1 | | | BM | 11.5.1 | | | BM | 11.5.1 | | | BM | 11.5.1 | | | BM | 11.5.1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE42 | | | | CN13 | | | | AE20 | | | | AE24 | | | | AE46 | | | | AE73 | | |
| | Regional ecosystem: | 11.3.14 | 11.3.14 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 0.5 | 1% | 0 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 4 | 4 | 100% | 5 | 3 | 11 | 367% | 5 | 3 | 2 | 67% | 2.5 | 3 | 1 | 33% | 2.5 | 3 | 3 | 100% | 5 | 3 | 1 | 33% | 2.5 |
| Shrubs | | 7 | 2 | 29% | 2.5 | 6 | 7 | 117% | 5 | 6 | 3 | 50% | 2.5 | 6 | 2 | 33% | 2.5 | 6 | 5 | 83% | 2.5 | 6 | 1 | 17% | 0 |
| Grasses | | 11 | 1 | 9% | 0 | 9 | 11 | 122% | 5 | 9 | 1 | 11% | 0 | 9 | 3 | 33% | 2.5 | 9 | 1 | 11% | 0 | 9 | 6 | 67% | 2.5 |
| Forbs | | 21 | 3 | 14% | 0 | 11 | 12 | 109% | 5 | 11 | 8 | 73% | 2.5 | 11 | 5 | 45% | 2.5 | 11 | 4 | 36% | 2.5 | 11 | 3 | 27% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 16 | 89% | 5 | 17 | 17 | 100% | 5 | 17 | 19.33 | 114% | 5 | 17 | 13.5 | 79% | 5 | 17 | 13 | 76% | 5 | 17 | 19 | 112% | 5 |
| Tree sub-canopy height | | 9 | 9.5 | | 0 | 8 | 7 | 88% | 5 | 8 | 9 | 113% | 5 | 8 | 9.33 | 117% | 5 | 8 | 9 | 113% | 5 | 8 | 9 | 113% | 5 |
| Average score | | | | | 2.5 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 43 | 3 | 7% | 0 | 25 | 5.4 | 22% | 2 | 25 | 17 | 68% | 5 | 25 | 10 | 40% | 2 | 25 | 13 | 52% | 5 | 25 | 32 | 128% | 5 |
| Tree sub-canopy cover | | 26 | 29 | | 0 | 5 | 45.7 | 914% | 3 | 5 | 14 | 280% | 3 | 5 | 8 | 160% | 5 | 5 | 12 | 240% | 3 | 5 | 8 | 160% | 5 |
| Average score | | | | | 0.0 | | | | 2.5 | | | | 4.0 | | | | 3.5 | | | | 4.0 | | | | 5.0 |
| Shrub canopy cover (%): | | 5 | 42 | 840% | 3 | 10 | 12 | 120% | 5 | 10 | 38 | 380% | 3 | 10 | 51 | 510% | 3 | 10 | 41 | 410% | 3 | 10 | 23 | 230% | 3 |
| Native perennial grass cover (%): | | 16 | 11.5 | 72% | 3 | 26 | 50 | 192% | 5 | 26 | 0 | 0% | 0 | 26 | 3.9 | 15% | 1 | 26 | 1.5 | 6% | 0 | 26 | 17.5 | 67% | 3 |
| Organic litter (%): | | 35 | 51.2 | 146% | 5 | 30 | 8.6 | 29% | 3 | 30 | 19.5 | 65% | 5 | 30 | 77.5 | 258% | 3 | 30 | 55.5 | 185% | 5 | 30 | 37.5 | 125% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 24 | 0 | 0% | 0 | 22 | 6 | 27% | 5 | 22 | 18 | 82% | 10 | 22 | 6 | 27% | 5 | 22 | 8 | 36% | 5 | 22 | 4 | 18% | 5 |
| Coarse woody debris (m/ha) | | 273 | 80 | 29% | 2 | 342 | 285 | 83% | 5 | 342 | 31.5 | 9% | 0 | 342 | 24 | 7% | 0 | 342 | 760 | 222% | 2 | 342 | 520 | 152% | 5 |
| Non-native plant cover (%): | | 0 | 0.13 | 13% | 5 | 0 | 0.02 | 2% | 10 | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 | 0 | 0.005 | 1% | 10 | 0 | 0 | 0% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 10 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 10 | | | | 5 | | | | 5 | | | | 15 | | | | 0 |
| Site condition score (-/130) | | | | | 33.0 | | | | 100.5 | | | | 72.5 | | | | 67.5 | | | | 82.0 | | | | 73.5 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 5 | | | | 10 | | | | 5 | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 2 | | | | 5 | | | | 4 | | | | 5 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 2 | | | | 4 | | | | 4 | | | | 4 | | | | 2 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 10 | | | | 5 | | | | 10 | | | | 5 | | | | 15 | | | | 0 |
| Site context score (-/70) | | | | | 34.0 | | | | 19.0 | | | | 34.0 | | | | 23.0 | | | | 39.0 | | | | 19.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 0.87 | | | | | | | | | | | | | | | | | | | | 1.42 |
| AU site context score (-/3): | | | | | 0.80 | | | | | | | | | | | | | | | | | | | | 1.15 |
| AU species stocking rate (-/4): | | | | | 2.00 | | | | | | | | | | | | | | | | | | | | 2.00 |
| AU habitat quality score (-/10): | | | | | 3.67 | | | | | | | | | | | | | | | | | | | | 4.57 |
| AU area within impact area: | | | | | 3.46 | | | | | | | | | | | | | | | | | | | | 222.77 |
| Total impact area for this MNES: | | | | | 485.51 | | | | | | | | | | | | | | | | | | | | 485.51 |
| Area weighting: | | | | | 0.01 | | | | | | | | | | | | | | | | | | | | 0.46 |
| AU weighted HQS: | | | | | 0.03 | | | | | | | | | | | | | | | | | | | | 2.10 |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE02 | | | | AE03 | | | | AE10 | | | | AE11 | | | | AE12 | | | | AE55 | | |
| | Regional ecosystem: | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 4 | 2 | 50% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 |
| Shrubs | | 3 | 5 | 167% | 5 | 3 | 4 | 133% | 5 | 3 | 4 | 133% | 5 | 3 | 2 | 67% | 2.5 | 3 | 1 | 33% | 2.5 | 3 | 4 | 133% | 5 |
| Grasses | | 13 | 4 | 31% | 2.5 | 13 | 4 | 31% | 2.5 | 13 | 3 | 23% | 0 | 13 | 4 | 31% | 2.5 | 13 | 5 | 38% | 2.5 | 13 | 3 | 23% | 0 |
| Forbs | | 18 | 8 | 44% | 2.5 | 18 | 8 | 44% | 2.5 | 18 | 7 | 39% | 2.5 | 18 | 7 | 39% | 2.5 | 18 | 7 | 39% | 2.5 | 18 | 4 | 22% | 0 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 21 | 14 | 67% | 3 | 21 | 13 | 62% | 3 | 21 | 23 | 110% | 5 | 21 | 17 | 81% | 5 | 21 | 21 | 100% | 5 | 21 | 14 | 67% | 3 |
| Tree sub-canopy height | | 10 | 0 | 0% | 0 | 10 | 8.67 | 87% | 5 | 10 | 11.5 | 115% | 5 | 10 | 10 | 100% | 5 | 10 | 10 | 100% | 5 | 10 | 12 | 120% | 5 |
| Average score | | | | | 1.5 | | | | 4.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 4.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 30 | 14 | 47% | 2 | 30 | 27 | 90% | 5 | 30 | 37 | 123% | 5 | 30 | 25 | 83% | 5 | 30 | 15 | 50% | 5 | 30 | 22 | 73% | 5 |
| Tree sub-canopy cover | | 24 | 0 | 0% | 0 | 24 | 12 | 50% | 5 | 24 | 27 | 113% | 5 | 24 | 21 | 88% | 5 | 24 | 20 | 83% | 5 | 24 | 19 | 79% | 5 |
| Average score | | | | | 1.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Shrub canopy cover (%): | | 7 | 37 | 529% | 3 | 7 | 12 | 171% | 5 | 7 | 4 | 57% | 5 | 7 | 2 | 29% | 3 | 7 | 6 | 86% | 5 | 7 | 30 | 429% | 3 |
| Native perennial grass cover (%): | | 30 | 10.6 | 35% | 1 | 30 | 6.4 | 21% | 1 | 30 | 0 | 0% | 0 | 30 | 5 | 17% | 1 | 30 | 1.7 | 6% | 0 | 30 | 16.8 | 56% | 3 |
| Organic litter (%): | | 58 | 74.4 | 128% | 5 | 58 | 57 | 98% | 5 | 58 | 24 | 41% | 3 | 58 | 59 | 102% | 5 | 58 | 92.3 | 159% | 5 | 58 | 20 | 34% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 17 | 10 | 59% | 10 | 17 | 12 | 71% | 10 | 17 | 36 | 212% | 15 | 17 | 30 | 176% | 15 | 17 | 20 | 118% | 15 | 17 | 2 | 12% | 5 |
| Coarse woody debris (m/ha) | | 204 | 24 | 12% | 2 | 204 | 24 | 12% | 2 | 204 | 17 | 8% | 0 | 204 | 67 | 33% | 2 | 204 | 48 | 24% | 2 | 204 | 275.5 | 135% | 5 |
| Non-native plant cover (%): | | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 | 0 | 0.39 | 39% | 3 | 0 | 0.04 | 4% | 10 | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 56.0 | | | | 77.5 | | | | 71.0 | | | | 81.0 | | | | 82.0 | | | | 68.5 |
| Size of patch (fragmented) (-/10) | | | | | 2 | | | | 10 | | | | 5 | | | | 5 | | | | 10 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 2 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 2 | | | | 2 | | | | 2 | | | | 4 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site context score (-/70) | | | | | 11.0 | | | | 19.0 | | | | 12.0 | | | | 12.0 | | | | 19.0 | | | | 11.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 1.29 |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 0.60 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | | | | | 2.00 |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | 3.89 |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | 1.51 |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | 485.51 |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | 0.00 |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | 0.01 |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | CS5 | | | | CS6 | | | | CS7 | | | | CN7 | | | | AE58 | | | | AE59 | | |
| | Regional ecosystem: | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 66 | 66% | 3 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 3 | 3 | 100% | 5 | 3 | 2 | 67% | 2.5 | 3 | 2 | 67% | 2.5 | 3 | 3 | 100% | 5 | 3 | 3 | 100% | 5 | 3 | 2 | 67% | 2.5 |
| Shrubs | | 4 | 1 | 25% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 0 | 0% | 0 | 4 | 0 | 0% | 0 | 4 | 4 | 100% | 5 | 4 | 6 | 150% | 5 |
| Grasses | | 7 | 14 | 200% | 5 | 7 | 15 | 214% | 5 | 7 | 13 | 186% | 5 | 7 | 12 | 171% | 5 | 7 | 4 | 57% | 2.5 | 7 | 4 | 57% | 2.5 |
| Forbs | | 13 | 9 | 69% | 2.5 | 13 | 13 | 100% | 5 | 13 | 7 | 54% | 2.5 | 13 | 11 | 85% | 2.5 | 13 | 4 | 31% | 2.5 | 13 | 5 | 38% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 23 | 15 | 65% | 3 | 23 | 20.5 | 89% | 5 | 23 | 21.5 | 93% | 5 | 23 | 20 | 87% | 5 | 23 | 16.4 | 71% | 5 | 23 | 23 | 100% | 5 |
| Tree sub-canopy height | | 10 | 8 | 80% | 5 | 10 | 7 | 70% | 5 | 10 | 3 | 30% | 3 | 10 | 7 | 70% | 5 | 10 | 11.6 | 116% | 5 | 10 | 12 | 120% | 5 |
| Average score | | | | | 4.0 | | | | 5.0 | | | | 4.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 43 | 22.6 | 53% | 5 | 43 | 45.7 | 106% | 5 | 43 | 35.8 | 83% | 5 | 43 | 49.1 | 114% | 5 | 43 | 31 | 72% | 5 | 43 | 30 | 70% | 5 |
| Tree sub-canopy cover | | 38 | 0 | 0% | 0 | 38 | 0 | 0% | 0 | 38 | 0 | 0% | 0 | 38 | 2.4 | 6% | 0 | 38 | 28 | 74% | 5 | 38 | 13 | 34% | 2 |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 5.0 | | | | 3.5 |
| Shrub canopy cover (%): | | 5 | 0.5 | 10% | 3 | 5 | 0 | 0% | 0 | 5 | 0 | 0% | 0 | 5 | 0 | 0% | 0 | 5 | 38 | 760% | 3 | 5 | 43 | 860% | 3 |
| Native perennial grass cover (%): | | 8 | 46 | 575% | 5 | 8 | 49 | 613% | 5 | 8 | 23 | 288% | 5 | 8 | 42 | 525% | 5 | 8 | 10.6 | 133% | 5 | 8 | 5.5 | 69% | 3 |
| Organic litter (%): | | 57 | 11 | 19% | 3 | 57 | 27 | 47% | 3 | 57 | 40 | 70% | 5 | 57 | 41 | 72% | 5 | 57 | 54.5 | 96% | 5 | 57 | 62 | 109% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 24 | 0 | 0% | 0 | 24 | 6 | 25% | 5 | 24 | 9 | 38% | 5 | 24 | 4 | 17% | 5 | 24 | 4 | 17% | 5 | 24 | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | 178 | 15 | 8% | 0 | 178 | 410 | 230% | 2 | 178 | 0 | 0% | 0 | 178 | 650 | 365% | 2 | 178 | 127 | 71% | 5 | 178 | 410 | 230% | 2 |
| Non-native plant cover (%): | | 0 | 0.05 | 5% | 5 | 0 | 0.03 | 3% | 10 | 0 | 0.03 | 3% | 10 | 0 | 0.02 | 2% | 10 | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 53.5 | | | | 67.5 | | | | 59.5 | | | | 67.0 | | | | 83.0 | | | | 66.0 |
| Size of patch (fragmented) (-/10) | | | | | 0 | | | | 10 | | | | 0 | | | | 2 | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 5 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 0 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 10 | | | | 0 | | | | 0 | | | | 10 | | | | 10 |
| Site context score (-/70) | | | | | 9.0 | | | | 34.0 | | | | 9.0 | | | | 7.0 | | | | 34.0 | | | | 34.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.5.20 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE60 | | | | CS8 | | | | AE22 | | | | AE41 | | | | AE47 | | | | AE50 | | |
| | Regional ecosystem: | 11.5.20 | 11.5.20 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | |
| Ecological condition indicator | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 0 | 0% | 0 | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 | 100 | 3 | 3% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 3 | 2 | 67% | 2.5 | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 |
| Shrubs | | 4 | 1 | 25% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 |
| Grasses | | 7 | 6 | 86% | 2.5 | 7 | 5 | 71% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 |
| Forbs | | 13 | 4 | 31% | 2.5 | 9 | 5 | 56% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 0 | 0% | 0 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 23 | 21 | 91% | 5 | 18 | 5 | 28% | 3 | 18 | 3 | 17% | 0 | 18 | 3 | 17% | 0 | 18 | 3 | 17% | 0 | 18 | 5 | 28% | 3 |
| Tree sub-canopy height | | 10 | 12 | 120% | 5 | 9 | 3 | 33% | 3 | 9 | 5 | 56% | 3 | 9 | 0 | 0% | 0 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 |
| Average score | | | | | 5.0 | | | | 3.0 | | | | 1.5 | | | | 0.0 | | | | 1.5 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 43 | 48 | 112% | 5 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 |
| Tree sub-canopy cover | | 38 | 17 | 45% | 2 | 8 | 3 | 38% | 2 | 8 | 3 | 38% | 2 | 8 | 0 | 0% | 0 | 8 | 5 | 63% | 5 | 8 | 5 | 63% | 5 |
| Average score | | | | | 3.5 | | | | 2.0 | | | | 2.0 | | | | 1.0 | | | | 3.5 | | | | 3.5 |
| Shrub canopy cover (%): | | 5 | 3 | 60% | 5 | 7 | 0 | 0% | 0 | 7 | 5 | 71% | 5 | 7 | 3 | 43% | 3 | 7 | 3 | 43% | 3 | 7 | 3 | 43% | 3 |
| Native perennial grass cover (%): | | 8 | 15.1 | 189% | 5 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 12 | 3 | 25% | 1 | 12 | 3 | 25% | 1 |
| Organic litter (%): | | 57 | 63.2 | 111% | 5 | 50 | 3 | 6% | 0 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 24 | 14 | 58% | 10 | 21 | 5 | 24% | 5 | 21 | 10 | 48% | 5 | 21 | 5 | 24% | 5 | 21 | 5 | 24% | 5 | 21 | 5 | 24% | 5 |
| Coarse woody debris (m/ha) | | 178 | 830 | 466% | 2 | 320 | 5 | 2% | 0 | 320 | 0 | 0% | 0 | 320 | 5 | 2% | 0 | 320 | 2 | 1% | 0 | 320 | 5 | 2% | 0 |
| Non-native plant cover (%): | | 0 | 0 | 0% | 10 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 15 | | | | 0 | | | | 5 | | | | 5 | | | | 10 |
| Site condition score (-/130) | | | | | 77.5 | | | | 53.5 | | | | 42.0 | | | | 35.0 | | | | 47.0 | | | | 54.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 0 | | | | 10 | | | | 10 | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 0 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 0 | | | | 4 | | | | 4 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 10 | | | | 0 | | | | 10 | | | | 10 | | | | 10 | | | | 15 |
| Site context score (-/70) | | | | | 34.0 | | | | 5.0 | | | | 34.0 | | | | 34.0 | | | | 34.0 | | | | 39.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 1.20 | | | | | | | | | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | 0.99 | | | | | | | | | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | 2.00 | | | | | | | | | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | 4.19 | | | | | | | | | | | | | | | | | | | | |
| AU area within impact area: | | | | | 14.59 | | | | | | | | | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | 485.51 | | | | | | | | | | | | | | | | | | | | |
| Area weighting: | | | | | 0.03 | | | | | | | | | | | | | | | | | | | | |
| AU weighted HQS: | | | | | 0.13 | | | | | | | | | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | | Bench-mark (BM) | | | | BM | | | | BM | | | | BM | | | | BM | | | | BM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Assessment unit: | | 11.7.4 | | | | 11.7.4 | | | | 11.7.4 | | | | 11.7.7 | | | | 11.7.7 | | | | 11.7.7 | | |
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE66 | | | | AE70 | | | | GB51 | | | | N3 | | | | AE21 | | | | AE38 | | |
| | Regional ecosystem: | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.7 | 11.7.7 | | | 11.7.7 | 11.7.7 | | | 11.7.7 | 11.7.7 | | |
| Ecological condition indicator | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 3 | 3% | 0 | 100 | 3 | 3% | 0 | 100 | 5 | 5% | 0 | 100 | 3 | 3% | 0 | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 | 4 | 5 | 125% | 5 | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 |
| Shrubs | | 6 | 2.5 | 42% | 2.5 | 6 | 5 | 83% | 2.5 | 6 | 5 | 83% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Grasses | | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 5 | 71% | 2.5 | 4 | 5 | 125% | 5 | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 |
| Forbs | | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 5 | 56% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 5 | 28% | 3 | 18 | 5 | 28% | 3 | 18 | 5 | 28% | 3 | 19 | 3 | 16% | 0 | 19 | 5 | 26% | 3 | 19 | 5 | 26% | 3 |
| Tree sub-canopy height | | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 |
| Average score | | | | | 3.0 | | | | 3.0 | | | | 3.0 | | | | 1.5 | | | | 3.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 29 | 5 | 17% | 2 | 29 | 2 | 7% | 0 | 29 | 5 | 17% | 2 | 40 | 2 | 5% | 0 | 40 | 5 | 13% | 2 | 40 | 2 | 5% | 0 |
| Tree sub-canopy cover | | 8 | 3 | 38% | 2 | 8 | 3 | 38% | 2 | 8 | 3 | 38% | 2 | 20 | 5 | 25% | 2 | 20 | 0 | 0% | 0 | 20 | 5 | 25% | 2 |
| Average score | | | | | 2.0 | | | | 1.0 | | | | 2.0 | | | | 1.0 | | | | 1.0 | | | | 1.0 |
| Shrub canopy cover (%): | | 7 | 3 | 43% | 3 | 7 | 3 | 43% | 3 | 7 | 5 | 71% | 5 | 15 | 5 | 33% | 3 | 15 | 3 | 20% | 3 | 15 | 5 | 33% | 3 |
| Native perennial grass cover (%): | | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 |
| Organic litter (%): | | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 68 | 3 | 4% | 0 | 68 | 5 | 7% | 0 | 68 | 5 | 7% | 0 |
| Large trees/ha (euc./non-euc. combined) | | 21 | 5 | 24% | 5 | 21 | 5 | 24% | 5 | 21 | 15 | 71% | 10 | 26 | 15 | 58% | 10 | 26 | 5 | 19% | 5 | 26 | 10 | 38% | 5 |
| Coarse woody debris (m/ha) | | 320 | 5 | 2% | 0 | 320 | 5 | 2% | 0 | 320 | 5 | 2% | 0 | 288 | 2 | 1% | 0 | 288 | 2 | 1% | 0 | 288 | 5 | 2% | 0 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 10 | | | | 15 | | | | 15 | | | | 20 | | | | 20 |
| Site condition score (-/130) | | | | | 42.0 | | | | 49.0 | | | | 66.5 | | | | 58.0 | | | | 60.0 | | | | 60.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 10 | | | | 10 | | | | 10 | | | | 7 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 0 | | | | 5 | | | | 0 | | | | 2 | | | | 4 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 5 | | | | 0 | | | | 15 | | | | 0 | | | | 5 | | | | 10 |
| Site context score (-/70) | | | | | 28.0 | | | | 19.0 | | | | 39.0 | | | | 19.0 | | | | 23.0 | | | | 33.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 0.92 | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | 1.24 | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 2.00 | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | 4.16 | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | 146.34 | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | 485.51 | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | 0.30 | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | 1.25 | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | | Bench-mark (BM) | 11.7.7 | | | BM | 11.7.7 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Assessment unit: | | | | | | | | |
| | Property: | | | | | | | | |
| | Assessment site no: | | | | | | | | |
| | Regional ecosystem: | 11.7.7 | 11.7.7 | | | 11.7.7 | 11.7.7 | | |
| Ecological condition indicator | | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 5 | 5 | 100% | 5 | 5 | 2.5 | 50% | 2.5 |
| Shrubs | | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Grasses | | 4 | 5 | 125% | 5 | 4 | 2.5 | 63% | 2.5 |
| Forbs | | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 19 | 5 | 26% | 3 | 19 | 5 | 26% | 3 |
| Tree sub-canopy height | | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 |
| Average score | | | | | 3.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 40 | 2 | 5% | 0 | 40 | 5 | 13% | 2 |
| Tree sub-canopy cover | | 20 | 3 | 15% | 2 | 20 | 5 | 25% | 2 |
| Average score | | | | | 1.0 | | | | 2.0 |
| Shrub canopy cover (%): | | 15 | 2 | 13% | 3 | 15 | 5 | 33% | 3 |
| Native perennial grass cover (%): | | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 |
| Organic litter (%): | | 68 | 5 | 7% | 0 | 68 | 3 | 4% | 0 |
| Large trees/ha (euc./non-euc. combined) | | 26 | 5 | 19% | 5 | 26 | 10 | 38% | 5 |
| Coarse woody debris (m/ha) | | 288 | 5 | 2% | 0 | 288 | 5 | 2% | 0 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 5 | | | | 5 |
| Site condition score (-/130) | | | | | 50.0 | | | | 48.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 4 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 5 | | | | 5 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 5 |
| Site context score (-/70) | | | | | 21.0 | | | | 28.0 |
| Assessment unit totals | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.09 |
| AU site context score (-/3): | | | | | | | | | 1.06 |
| AU species stocking rate (-/4): | | | | | | | | | 2.00 |
| AU habitat quality score (-/10): | | | | | | | | | 4.16 |
| AU area within impact area: | | | | | | | | | 96.82 |
| Total impact area for this MNES: | | | | | | | | | 485.51 |
| Area weighting: | | | | | | | | | 0.20 |
| AU weighted HQS: | | | | | | | | | 0.83 |
| Total HQS all AUs: | | | | | | | | | 4.34 |

# Appendix E2. Impact habitat quality scores – Dunmall's snake

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | | BM | 11.5.4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE02 | | | | AE03 | | | | AE10 | | | | AE11 | | | | AE12 | | | | AE55 | | |
| | Regional ecosystem: | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | | 11.5.4 | 11.5.4 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 4 | 2 | 50% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 |
| Shrubs | | 3 | 5 | 167% | 5 | 3 | 4 | 133% | 5 | 3 | 4 | 133% | 5 | 3 | 2 | 67% | 2.5 | 3 | 1 | 33% | 2.5 | 3 | 4 | 133% | 5 |
| Grasses | | 13 | 4 | 31% | 2.5 | 13 | 4 | 31% | 2.5 | 13 | 3 | 23% | 0 | 13 | 4 | 31% | 2.5 | 13 | 5 | 38% | 2.5 | 13 | 3 | 23% | 0 |
| Forbs | | 18 | 8 | 44% | 2.5 | 18 | 8 | 44% | 2.5 | 18 | 7 | 39% | 2.5 | 18 | 7 | 39% | 2.5 | 18 | 7 | 39% | 2.5 | 18 | 4 | 22% | 0 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 21 | 14 | 67% | 3 | 21 | 13 | 62% | 3 | 21 | 23 | 110% | 5 | 21 | 17 | 81% | 5 | 21 | 21 | 100% | 5 | 21 | 14 | 67% | 3 |
| Tree sub-canopy height | | 10 | 0 | 0% | 0 | 10 | 8.67 | 87% | 5 | 10 | 11.5 | 115% | 5 | 10 | 10 | 100% | 5 | 10 | 10 | 100% | 5 | 10 | 12 | 120% | 5 |
| Average score | | | | | 1.5 | | | | 4.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 4.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 30 | 14 | 47% | 2 | 30 | 27 | 90% | 5 | 30 | 37 | 123% | 5 | 30 | 25 | 83% | 5 | 30 | 15 | 50% | 5 | 30 | 22 | 73% | 5 |
| Tree sub-canopy cover | | 24 | 0 | 0% | 0 | 24 | 12 | 50% | 5 | 24 | 27 | 113% | 5 | 24 | 21 | 88% | 5 | 24 | 20 | 83% | 5 | 24 | 19 | 79% | 5 |
| Average score | | | | | 1.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Shrub canopy cover (%): | | 7 | 37 | 529% | 3 | 7 | 12 | 171% | 5 | 7 | 4 | 57% | 5 | 7 | 2 | 29% | 3 | 7 | 6 | 86% | 5 | 7 | 30 | 429% | 3 |
| Native perennial grass cover (%): | | 30 | 10.6 | 35% | 1 | 30 | 6.4 | 21% | 1 | 30 | 0 | 0% | 0 | 30 | 5 | 17% | 1 | 30 | 1.7 | 6% | 0 | 30 | 16.8 | 56% | 3 |
| Organic litter (%): | | 58 | 74.4 | 128% | 5 | 58 | 57 | 98% | 5 | 58 | 24 | 41% | 3 | 58 | 59 | 102% | 5 | 58 | 92.3 | 159% | 5 | 58 | 20 | 34% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 17 | 10 | 59% | 10 | 17 | 12 | 71% | 10 | 17 | 36 | 212% | 15 | 17 | 30 | 176% | 15 | 17 | 20 | 118% | 15 | 17 | 2 | 12% | 5 |
| Coarse woody debris (m/ha) | | 204 | 24 | 12% | 2 | 204 | 24 | 12% | 2 | 204 | 17 | 8% | 0 | 204 | 67 | 33% | 2 | 204 | 48 | 24% | 2 | 204 | 275.5 | 135% | 5 |
| Non-native plant cover (%): | | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 | 0 | 0.39 | 39% | 3 | 0 | 0.04 | 4% | 10 | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 10 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 10 |
| Site condition score (-/130) | | | | | 56.0 | | | | 77.5 | | | | 71.0 | | | | 81.0 | | | | 82.0 | | | | 88.5 |
| Size of patch (fragmented) (-/10) | | | | | 2 | | | | 10 | | | | 5 | | | | 5 | | | | 10 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 2 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 2 | | | | 2 | | | | 2 | | | | 4 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 10 |
| Site context score (-/70) | | | | | 18.0 | | | | 26.0 | | | | 19.0 | | | | 19.0 | | | | 26.0 | | | | 28.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 1.78 |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 1.21 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | | | | | 0.29 |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | 3.28 |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | 1.51 |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | 150.00 |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | 0.01 |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | 0.03 |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Assessment unit:** | Bench-mark (BM) | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | |
| | **Property:** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Assessment site no:** | | CS2 | | | | CN10 | | | | RR10 | | | | RR11 | | | | RR12 | | | | AE06 | | |
| | **Regional ecosystem:** | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 50 | 50% | 3 | 100 | 50 | 50% | 3 | 100 | 50 | 50% | 3 | 100 | 50 | 50% | 3 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 3 | 2 | 67% | 2.5 | 3 | 7 | 233% | 5 | 3 | 6 | 200% | 5 | 3 | 4 | 133% | 5 | 3 | 5 | 167% | 5 | 3 | 2 | 67% | 2.5 |
| Shrubs | | 5 | 1 | 20% | 0 | 5 | 2 | 40% | 2.5 | 5 | 5 | 100% | 5 | 5 | 6 | 120% | 5 | 5 | 5 | 100% | 5 | 5 | 1 | 20% | 0 |
| Grasses | | 4 | 1 | 25% | 2.5 | 4 | 20 | 500% | 5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 2 | 50% | 2.5 |
| Forbs | | 8 | 3 | 38% | 2.5 | 8 | 12 | 150% | 5 | 8 | 1 | 13% | 0 | 8 | 5 | 63% | 2.5 | 8 | 2 | 25% | 2.5 | 8 | 2 | 25% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 14 | 11.5 | 82% | 5 | 14 | 15 | 107% | 5 | 14 | 14 | 100% | 5 | 14 | 19 | 136% | 5 | 14 | 17 | 121% | 5 | 14 | 8.7 | 62% | 3 |
| Tree sub-canopy height | | 4 | 6 | 150% | 5 | 4 | 7 | 175% | 5 | 4 | 6 | 150% | 5 | 4 | 10 | 250% | 5 | 4 | 8 | 200% | 5 | 4 | 0 | 0% | 0 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 29 | 78 | 269% | 3 | 29 | 33.7 | 116% | 5 | 29 | 78.7 | 271% | 3 | 29 | 49 | 169% | 5 | 29 | 45.5 | 157% | 5 | 29 | 68 | 234% | 3 |
| Tree sub-canopy cover | | 9 | 0 | 0% | 0 | 9 | 43.6 | 484% | 3 | 9 | 18.7 | 208% | 3 | 9 | 65 | 722% | 3 | 9 | 22.5 | 250% | 3 | 9 | 0 | 0% | 0 |
| Average score | | | | | 1.5 | | | | 4.0 | | | | 3.0 | | | | 4.0 | | | | 4.0 | | | | 1.5 |
| Shrub canopy cover (%): | | 8 | 0 | 0% | 0 | 8 | 7 | 88% | 5 | 8 | 8.5 | 106% | 5 | 8 | 6 | 75% | 5 | 8 | 10 | 125% | 5 | 8 | 8 | 100% | 5 |
| Native perennial grass cover (%): | | 8 | 0 | 0% | 0 | 8 | 28.8 | 360% | 5 | 8 | 21 | 263% | 5 | 8 | 0 | 0% | 0 | 8 | 0 | 0% | 0 | 8 | 10 | 125% | 5 |
| Organic litter (%): | | 34 | 86 | 253% | 3 | 34 | 56 | 165% | 5 | 34 | 72 | 212% | 3 | 34 | 92 | 271% | 3 | 34 | 80 | 235% | 3 | 34 | 45.1 | 133% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 70 | 22 | 31% | 5 | 70 | 3 | 4% | 5 | 70 | 26 | 37% | 5 | 70 | 18 | 26% | 5 | 70 | 18 | 26% | 5 | 70 | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | 1752 | 740 | 42% | 2 | 1752 | 1130 | 64% | 5 | 1752 | 460 | 26% | 2 | 1752 | 40 | 2% | 0 | 1752 | 500 | 29% | 2 | 1752 | 5 | 0% | 0 |
| Non-native plant cover (%): | | 0 | 0.05 | 5% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.03 | 3% | 10 | 0 | 0.005 | 1% | 10 | 0 | 0.03 | 3% | 10 | 0 | 0 | 0% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 25 | | | | 25 | | | | 20 | | | | 0 | | | | 25 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 25 | | | | 25 | | | | 20 | | | | 0 | | | | 25 | | | | 0 |
| Site condition score (-/130) | | | | | 97.0 | | | | 127.5 | | | | 109.5 | | | | 68.0 | | | | 120.0 | | | | 46.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 5 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 4 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 25 | | | | 25 | | | | 20 | | | | 0 | | | | 15 | | | | 0 |
| Site context score (-/70) | | | | | 46.0 | | | | 43.0 | | | | 34.0 | | | | 14.0 | | | | 37.0 | | | | 21.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 1.84 |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 1.39 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | | | | | 0.29 |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | 3.52 |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | 0.37 |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | 150.00 |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | 0.00 |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | 0.01 |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| **Assessment table for impact to fauna habitat** | **Assessment unit:** | Bench-mark (BM) | 11.3.2 | | | BM | 11.3.2 | | | BM | 11.3.2 | | | BM | 11.3.1 | | | BM | 11.3.2 | | | BM | 11.3.2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Assessment site no:** | | S1 | | | | S2 | | | | S3 | | | | S7 | | | | S8 | | | | CS10 | | |
| | **Regional ecosystem:** | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 0 | 0% | 0 | 100 | 0 | 0% | 0 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 2 | 1 | 50% | 2.5 | 2 | 1 | 50% | 2.5 | 2 | 1 | 50% | 2.5 | 2 | 3 | 150% | 5 | 2 | 2 | 100% | 5 | 2 | 5 | 250% | 5 |
| Shrubs | | 2 | 1 | 50% | 2.5 | 2 | 1 | 50% | 2.5 | 2 | 1 | 50% | 2.5 | 2 | 0 | 0% | 0 | 2 | 1 | 50% | 2.5 | 2 | 2 | 100% | 5 |
| Grasses | | 9 | 13 | 144% | 5 | 9 | 11 | 122% | 5 | 9 | 7 | 78% | 2.5 | 9 | 10 | 111% | 5 | 9 | 4 | 44% | 2.5 | 9 | 7 | 78% | 2.5 |
| Forbs | | 17 | 18 | 106% | 5 | 17 | 11 | 65% | 2.5 | 17 | 12 | 71% | 2.5 | 17 | 14 | 82% | 2.5 | 17 | 9 | 53% | 2.5 | 17 | 12 | 71% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 16 | 89% | 5 | 18 | 10.5 | 58% | 3 | 18 | 10 | 56% | 3 | 18 | 12 | 67% | 3 | 18 | 10 | 56% | 3 | 18 | 25 | 139% | 5 |
| Tree sub-canopy height | | 0 | 5 | | | 0 | 3 | | | 0 | 4 | | | 0 | 4 | | | 0 | 5 | | | 0 | 11 | | |
| Average score | | | | | 5.0 | | | | 3.0 | | | | 3.0 | | | | 3.0 | | | | 3.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 40 | 14 | 35% | 2 | 40 | 10 | 25% | 2 | 40 | 3 | 8% | 0 | 40 | 18.9 | 47% | 2 | 40 | 5.6 | 14% | 2 | 40 | 18.7 | 47% | 2 |
| Tree sub-canopy cover | | 0 | 1 | | | 0 | 1 | | | 0 | 0.5 | | | 0 | 1.8 | | | 0 | 3.8 | | | 0 | 0 | | |
| Average score | | | | | 2.0 | | | | 2.0 | | | | 0.0 | | | | 2.0 | | | | 2.0 | | | | 2.0 |
| Shrub canopy cover (%): | | 2 | 0.5 | 25% | 3 | 2 | 0 | 0% | 0 | 2 | 0 | 0% | 0 | 2 | 0 | 0% | 0 | 2 | 0 | 0% | 0 | 2 | 1.2 | 60% | 5 |
| Native perennial grass cover (%): | | 35 | 43 | 123% | 5 | 35 | 60 | 171% | 5 | 35 | 80.6 | 230% | 5 | 35 | 64 | 183% | 5 | 35 | 20.6 | 59% | 3 | 35 | 25 | 71% | 3 |
| Organic litter (%): | | 30 | 7 | 23% | 3 | 30 | 9.8 | 33% | 3 | 30 | 0 | 0% | 0 | 30 | 3.4 | 11% | 3 | 30 | 3.2 | 11% | 3 | 30 | 18 | 60% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 22 | 20 | 91% | 10 | 22 | 4 | 18% | 5 | 22 | 2 | 9% | 5 | 22 | 2 | 9% | 5 | 22 | 8 | 36% | 5 | 22 | 5 | 23% | 5 |
| Coarse woody debris (m/ha) | | 307 | 470 | 153% | 5 | 307 | 105 | 34% | 2 | 307 | 50 | 16% | 2 | 307 | 55 | 18% | 2 | 307 | 130 | 42% | 2 | 307 | 690 | 225% | 2 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.06 | 6% | 5 | 0 | 0.15 | 15% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 20 | | | | 5 | | | | 0 | | | | 0 | | | | 5 | | | | 25 |
| Quality/availability of shelter (-/25) | | | | | 20 | | | | 5 | | | | 0 | | | | 0 | | | | 5 | | | | 25 |
| Site condition score (-/130) | | | | | 105.0 | | | | 57.5 | | | | 38.0 | | | | 42.5 | | | | 50.5 | | | | 109.0 |
| Size of patch (fragmented) (-/10) | | | | | 7 | | | | 7 | | | | 7 | | | | 5 | | | | 5 | | | | 0 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 2 | | | | 2 | | | | 0 | | | | 2 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 20 | | | | 5 | | | | 0 | | | | 0 | | | | 5 | | | | 25 |
| Site context score (-/70) | | | | | 45.0 | | | | 30.07 | | | | 23.0 | | | | 21.0 | | | | 24.0 | | | | 39.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.3.2 | | | BM | 11.3.2 | | | BM | 11.3.2 | | | BM | 11.3.1 | | | BM | 11.3.2 | | | BM | 11.3.2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | CS16 | | | | RR1 | | | | RR2 | | | | RR4 | | | | RR8 | | | | CN1 | | |
| | Regional ecosystem: | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | |
| **Ecological condition indicator** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100 % | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 0 | 0% | 0 | 100 | 66 | 66% | 3 | 100 | 50 | 50% | 3 |
| Native plant species richness (No.): Trees | | 2 | 3 | 150 % | 5 | 2 | 3 | 150% | 5 | 2 | 2 | 100% | 5 | 2 | 2 | 100% | 5 | 2 | 6 | 300% | 5 | 2 | 5 | 250% | 5 |
| Shrubs | | 2 | 1 | 50% | 2.5 | 2 | 1 | 50% | 2.5 | 2 | 0 | 0% | 0 | 2 | 0 | 0% | 0 | 2 | 1 | 50% | 2.5 | 2 | 2 | 100% | 5 |
| Grasses | | 9 | 6 | 67% | 2.5 | 9 | 8 | 89% | 2.5 | 9 | 11 | 122% | 5 | 9 | 6 | 67% | 2.5 | 9 | 5 | 56% | 2.5 | 9 | 8 | 89% | 2.5 |
| Forbs | | 17 | 13 | 76% | 2.5 | 17 | 9 | 53% | 2.5 | 17 | 10 | 59% | 2.5 | 17 | 7 | 41% | 2.5 | 17 | 7 | 41% | 2.5 | 17 | 15 | 88% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 21 | 117 % | 5 | 18 | 16 | 89% | 5 | 18 | 14.5 | 81% | 5 | 18 | 16 | 89% | 5 | 18 | 22 | 122% | 5 | 18 | 15 | 83% | 5 |
| Tree sub-canopy height | | 0 | 8 | | | 0 | 7 | | | 0 | 7.5 | | | 0 | 5 | | | 0 | 11 | | | 0 | 6 | | |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 40 | 50.6 | 127 % | 5 | 40 | 41.9 | 105% | 5 | 40 | 15.2 | 38% | 2 | 40 | 17 | 43% | 2 | 40 | 14.8 | 37% | 2 | 40 | 41.5 | 104% | 5 |
| Tree sub-canopy cover | | 0 | 5 | | 5.0 | 0 | 5.9 | | | 0 | 8.6 | | | 0 | 3.5 | | | 0 | 30.6 | | | 0 | 0 | | |
| Average score | | | | | | | | | 5.0 | | | | 2.0 | | | | 2.0 | | | | 2.0 | | | | 5.0 |
| Shrub canopy cover (%): | | 2 | 0.5 | 25% | 3 | 2 | 0 | 0% | 0 | 2 | 0 | 0% | 0 | 2 | 0 | 0% | 0 | 2 | 1.5 | 75% | 5 | 2 | 0.9 | 45% | 3 |
| Native perennial grass cover (%): | | 35 | 17 | 49% | 1 | 35 | 70 | 200% | 5 | 35 | 71 | 203% | 5 | 35 | 0 | 0% | 0 | 35 | 0 | 0% | 0 | 35 | 23 | 66% | 3 |
| Organic litter (%): | | 30 | 54 | 180 % | 5 | 30 | 4.6 | 15% | 3 | 30 | 5.2 | 17% | 3 | 30 | 2.4 | 8% | 0 | 30 | 16 | 53% | 5 | 30 | 4.8 | 16% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 22 | 17 | 77% | 10 | 22 | 10 | 45% | 5 | 22 | 7 | 32% | 5 | 22 | 8 | 36% | 5 | 22 | 13 | 59% | 10 | 22 | 14 | 64% | 10 |
| Coarse woody debris (m/ha) | | 307 | 1430 | 466 % | 2 | 307 | 20 | 7% | 0 | 307 | 150 | 49% | 2 | 307 | 0 | 0% | 0 | 307 | 40 | 13% | 2 | 307 | 170 | 55% | 5 |
| Non-native plant cover (%): | | 0 | 0.03 | 3% | 10 | 0 | 0.15 | 15% | 5 | 0 | 0.15 | 15% | 5 | 0 | 0.85 | 85% | 0 | 0 | 0.85 | 85% | 0 | 0 | 0.03 | 3% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 25 | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 5 |
| Quality/availability of shelter (-/25) | | | | | 25 | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 5 |
| Site condition score (-/130) | | | | | 118.5 | | | | 55.5 | | | | 61.5 | | | | 29.0 | | | | 51.5 | | | | 82.0 |
| Size of patch (fragmented) (-/10) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 0 | | | | 2 | | | | 2 | | | | 0 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 25 | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 5 |
| Site context score (-/70) | | | | | 39.0 | | | | 16.0 | | | | 19.0 | | | | 16.0 | | | | 14.0 | | | | 19.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.3.2 | | | BM | 11.3.2 | | | BM | 11.3.14 | | | BM | 11.3.14 | | | BM | 11.3.14 | | | BM | 11.3.17 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | CN11 | | | | CN12 | | | | CS4 | | | | CS9 | | | | AE17 | | | | CS1 | | |
| | Regional ecosystem: | 11.3.2 | 11.3.2 | | | 11.3.2 | 11.3.2 | | | 11.3.14 | 11.3.14 | | | 11.3.14 | 11.3.14 | | | 11.3.14 | 11.3.14 | | | 11.3.17 | 11.3.17 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 2000% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 2 | 5 | 200% | 5 | 2 | 5 | 250% | 5 | 5 | 3 | 60% | 2.5 | 5 | 3 | 60% | 2.5 | 5 | 1 | 20% | 0 | 6 | 11 | 183% | 5 |
| Shrubs | | 2 | 3 | 120% | 5 | 2 | 4 | 200% | 5 | 7 | 1 | 14% | 0 | 7 | 2 | 29% | 2.5 | 7 | 0 | 0% | 0 | 11 | 5 | 45% | 2.5 |
| Grasses | | 9 | 5 | 100% | 5 | 9 | 8 | 89% | 2.5 | 7 | 2 | 29% | 2.5 | 7 | 1 | 14% | 0 | 7 | 2 | 29% | 2.5 | 12 | 2 | 17% | 0 |
| Forbs | | 17 | 24 | 480% | 5 | 17 | 17 | 100% | 5 | 19 | 7 | 37% | 2.5 | 19 | 3 | 16% | 0 | 19 | 4 | 21% | 0 | 12 | 9 | 75% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 18 | 360% | 5 | 18 | 16 | 89% | 5 | 16 | 18 | 113% | 5 | 16 | 16 | 100% | 5 | 16 | 22 | 138% | 5 | 17 | 18 | 106% | 5 |
| Tree sub-canopy height | | 0 | 7 | | | 0 | 5 | | | 8 | 9 | | 0 | 8 | 7 | | 0 | 8 | 10 | | 0 | 8 | 6 | 75% | 5 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 40 | 46.6 | 2330% | 3 | 40 | 53.6 | 134% | 5 | 53 | 62 | 117% | 5 | 53 | 34.4 | 65% | 5 | 53 | 18 | 34% | 2 | 29 | 72 | 248% | 3 |
| Tree sub-canopy cover | | 0 | 8 | | | 0 | 16.9 | | | 18 | 8 | | 0 | 18 | 0 | | 0 | 18 | 78 | | 0 | 12 | 13 | 108% | 5 |
| Average score | | | | | 3.0 | | | | 5.0 | | | | 2.5 | | | | 2.5 | | | | 1.0 | | | | |
| Shrub canopy cover (%): | | 2 | 8 | 267% | 3 | 2 | 8 | 267% | 3 | 8 | 1 | 13% | 3 | 8 | 0.8 | 10% | 3 | 8 | 2 | 25% | 3 | 8 | 18.5 | 231% | 3 |
| Native perennial grass cover (%): | | 35 | 13.4 | 268% | 5 | 35 | 13.4 | 268% | 5 | 18 | 0 | 0% | 0 | 18 | 0 | 0% | 0 | 18 | 6 | 33% | 1 | 29 | 2.4 | 8% | 0 |
| Organic litter (%): | | 30 | 46 | 1533% | 3 | 30 | 46 | 1533% | 3 | 48 | 39.6 | 83% | 5 | 48 | 16 | 33% | 3 | 48 | 54.5 | 114% | 5 | 27 | 59.6 | 221% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 22 | 6 | 60% | 10 | 22 | 6 | 60% | 10 | 46 | 24 | 52% | 10 | 46 | 15 | 33% | 5 | 46 | 30 | 65% | 10 | 38 | 28 | 74% | 10 |
| Coarse woody debris (m/ha) | | 307 | 400 | 8000% | 2 | 307 | 400 | 8000% | 2 | 544 | 690 | 127% | 5 | 544 | 320 | 59% | 5 | 544 | 23 | 4% | 0 | 453 | 475 | 105% | 5 |
| Non-native plant cover (%): | | 0 | 0.05 | 5% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.25 | 25% | 3 | 0 | 0.42 | 42% | 3 | 0 | 0.24 | 24% | 5 | 0 | 0.02 | 2% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 20 | | | | 0 | | | | 25 | | | | 15 | | | | 0 | | | | 20 |
| Quality/availability of shelter (-/25) | | | | | 20 | | | | 0 | | | | 25 | | | | 15 | | | | 0 | | | | 20 |
| Site condition score (-/130) | | | | | 109.0 | | | | 65.5 | | | | 103.5 | | | | 74.0 | | | | 42.0 | | | | 113.0 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 5 | | | | 5 | | | | 0 | | | | 10 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 3 | | | | 3 | | | | 5 | | | | 0 | | | | 2 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 0 | | | | 2 |
| Species mobility capacity (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Threats to the species (-/25) | | | | | 20 | | | | 0 | | | | 25 | | | | 15 | | | | 0 | | | | 20 |
| Site context score (-/70) | | | | | 42.0 | | | | 22.0 | | | | 49.0 | | | | 27.0 | | | | 24.0 | | | | 41.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.44 | | | | | | | | | | | | 1.48 | | | | |
| AU site context score (-/3): | | | | | | | | | 0.99 | | | | | | | | | | | | 1.43 | | | | |
| AU species stocking rate (-/4): | | | | | | | | | 0.29 | | | | | | | | | | | | 0.29 | | | | |
| AU habitat quality score (-/10): | | | | | | | | | 2.71 | | | | | | | | | | | | 3.20 | | | | |
| AU area within impact area: | | | | | | | | | 8.74 | | | | | | | | | | | | 0.03 | | | | |
| Total impact area for this MNES: | | | | | | | | | 150.00 | | | | | | | | | | | | 150.00 | | | | |
| Area weighting: | | | | | | | | | 0.06 | | | | | | | | | | | | 0.00 | | | | |
| AU weighted HQS: | | | | | | | | | 0.16 | | | | | | | | | | | | 0.00 | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.3.17 | | | BM | 11.3.17 | | | BM | 11.3.17 | | | BM | 11.3.17 | | | BM | 11.3.17 | | | BM | 11.3.18 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | CS3 | | | | RR5 | | | | RR6 | | | | RR7 | | | | RR9 | | | | CN6 | | |
| | Regional ecosystem: | 11.3.17 | 11.3.17 | | | 11.3.17 | 11.3.17 | | | 11.3.17 | 11.3.17 | | | 11.3.17 | 11.3.17 | | | 11.3.17 | 11.3.17 | | | 11.3.18 | 11.3.18 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 50 | 50% | 3 | 100 | 100 | 100% | 5 | 100 | 0 | 0% | 0 |
| Native plant species richness (No.): Trees | | 6 | 7 | 117% | 5 | 6 | 9 | 150% | 5 | 6 | 5 | 83% | 2.5 | 6 | 8 | 133% | 5 | 6 | 10 | 167% | 5 | 4 | 4 | 100% | 5 |
| Shrubs | | 11 | 4 | 36% | 2.5 | 11 | 11 | 100% | 5 | 11 | 8 | 73% | 2.5 | 11 | 6 | 55% | 2.5 | 11 | 4 | 36% | 2.5 | 7 | 1 | 14% | 0 |
| Grasses | | 12 | 3 | 25% | 2.5 | 12 | 5 | 42% | 2.5 | 12 | 5 | 42% | 2.5 | 12 | 8 | 67% | 2.5 | 12 | 11 | 92% | 5 | 11 | 11 | 100% | 5 |
| Forbs | | 12 | 16 | 133% | 5 | 12 | 13 | 108% | 5 | 12 | 10 | 83% | 2.5 | 12 | 17 | 142% | 5 | 12 | 13 | 108% | 5 | 21 | 21 | 100% | 5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 17 | 20 | 118% | 5 | 17 | 19 | 112% | 5 | 17 | 16 | 94% | 5 | 17 | 15 | 88% | 5 | 17 | 18 | 106% | 5 | 18 | 13 | 72% | 5 |
| Tree sub-canopy height | | 8 | 6 | 75% | 5 | 8 | 10 | 125% | 5 | 8 | 8 | 100% | 5 | 8 | 9 | 113% | 5 | 8 | 9 | 113% | 5 | 9 | 6 | | 0 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 2.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 29 | 69 | 238% | 3 | 29 | 67.5 | 233% | 3 | 29 | 47.7 | 164% | 5 | 29 | 0 | 0% | 0 | 29 | 6.4 | 22% | 2 | 43 | 78.3 | 182% | 5 |
| Tree sub-canopy cover | | 12 | 9 | 75% | 5 | 12 | 7 | 58% | 5 | 12 | 17 | 142% | 5 | 12 | 42.2 | 352% | 3 | 12 | 8.7 | 73% | 5 | 26 | 6.1 | | 0 |
| Average score | | | | | 4.0 | | | | 4.0 | | | | 5.0 | | | | 1.5 | | | | 3.5 | | | | 2.5 |
| Shrub canopy cover (%): | | 8 | 14.2 | 178% | 5 | 8 | 18.2 | 228% | 3 | 8 | 10.5 | 131% | 5 | 8 | 15.2 | 190% | 5 | 8 | 11.5 | 144% | 5 | 5 | 0 | 0% | 0 |
| Native perennial grass cover (%): | | 29 | 3.4 | 12% | 1 | 29 | 5 | 17% | 1 | 29 | 14 | 48% | 1 | 29 | 12 | 41% | 1 | 29 | 14 | 48% | 1 | 16 | 29 | 181% | 5 |
| Organic litter (%): | | 27 | 70 | 259% | 3 | 27 | 51 | 189% | 5 | 27 | 56 | 207% | 3 | 27 | 42 | 156% | 5 | 27 | 31 | 115% | 5 | 35 | 31 | 89% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 38 | 14 | 37% | 5 | 38 | 25 | 66% | 10 | 38 | 22 | 58% | 10 | 38 | 9 | 24% | 5 | 38 | 8 | 21% | 5 | 24 | 20 | 83% | 10 |
| Coarse woody debris (m/ha) | | 453 | 46.5 | 10% | 2 | 453 | 1090 | 241% | 2 | 453 | 730 | 161% | 5 | 453 | 370 | 82% | 5 | 453 | 80 | 18% | 2 | 273 | 415 | 152% | 5 |
| Non-native plant cover (%): | | 0 | 0.02 | 2% | 10 | 0 | 0.01 | 1% | 10 | 0 | 0.01 | 1% | 10 | 0 | 0.07 | 7% | 5 | 0 | 0.65 | 65% | 0 | 0 | 0.2 | 20% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 25 | | | | 25 | | | | 15 | | | | 0 | | | | 20 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 25 | | | | 25 | | | | 15 | | | | 0 | | | | 20 |
| Site condition score (-/130) | | | | | 73.0 | | | | 130.5 | | | | 129.0 | | | | 93.5 | | | | 66.0 | | | | 100.0 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 2 | | | | 0 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 0 |
| Species mobility capacity (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Threats to the species (-/25) | | | | | 0 | | | | 25 | | | | 25 | | | | 15 | | | | 0 | | | | 20 |
| Site context score (-/70) | | | | | 21.0 | | | | 39.0 | | | | 39.0 | | | | 29.0 | | | | 14.0 | | | | 34.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | | | | | 1.93 | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | 1.31 | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | | | | | 0.29 | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | 3.52 | | | | |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | 0.84 | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | 150.00 | | | | |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | 0.01 | | | | |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | 0.02 | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.3.18 | | | BM | 11.3.18 | | | BM | 11.3.18 | | | BM | 11.4.3 | | | BM | 11.5.1 | | | BM | 11.5.1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE26 | | | | AE32 | | | | AE42 | | | | S6 | | | | CN13 | | | | AE20 | | |
| | Regional ecosystem: | 11.3.18 | 11.3.18 | | | 11.3.18 | 11.3.18 | | | 11.3.18 | 11.3.18 | | | 11.4.3 | 11.4.3 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 50 | 50% | 3 | 100 | 100 | 100% | 5 | 100 | 0.5 | 1% | 0 | 100 | 100 | 100 % | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100 % | 5 |
| Native plant species richness (No.): Trees | | 4 | 3 | 75% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 4 | 100% | 5 | 2 | 2 | 100 % | 5 | 3 | 11 | 367% | 5 | 3 | 2 | 67% | 2.5 |
| Shrubs | | 7 | 1 | 14% | 0 | 7 | 1 | 14% | 0 | 7 | 2 | 29% | 2.5 | 10 | 2 | 20% | 0 | 6 | 7 | 117% | 5 | 6 | 3 | 50% | 2.5 |
| Grasses | | 11 | 3 | 27% | 2.5 | 11 | 2 | 18% | 0 | 11 | 1 | 9% | 0 | 4 | 8 | 200 % | 5 | 9 | 11 | 122% | 5 | 9 | 1 | 11% | 0 |
| Forbs | | 21 | 13 | 62% | 2.5 | 21 | 2 | 10% | 0 | 21 | 3 | 14% | 0 | 13 | 21 | 162 % | 5 | 11 | 12 | 109% | 5 | 11 | 8 | 73% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 16 | 89% | 5 | 18 | 10.25 | 57% | 3 | 18 | 16 | 89% | 5 | 24 | 12 | 50% | 3 | 17 | 17 | 100% | 5 | 17 | 19.33 | 114 % | 5 |
| Tree sub-canopy height | | 9 | 10 | | 0 | 9 | 8 | | 0 | 9 | 9.5 | | 0 | 0 | 5 | | | 8 | 7 | 88% | 5 | 8 | 9 | 113 % | 5 |
| Average score | | | | | 2.5 | | | | 1.5 | | | | 2.5 | | | | 3.0 | | | | 5.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 43 | 24 | 56% | 5 | 43 | 58 | 135% | 5 | 43 | 3 | 7% | 0 | 70 | 66% | 5 | 66% | 25 | 5.4 | 22% | 2 | 25 | 17 | 68% | 5 |
| Tree sub-canopy cover | | 26 | 25 | | 0 | 26 | 10 | | 0 | 26 | 29 | | 0 | 0 | | | | 5 | 45.7 | 914% | 3 | 5 | 14 | 280 % | 3 |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 0.0 | | | | | | | | 2.5 | | | | 4.0 |
| Shrub canopy cover (%): | | 5 | 12 | 240% | 3 | 5 | 0 | 0% | 0 | 5 | 42 | 840% | 3 | 48 | 3.2 | 7% | 0 | 10 | 12 | 120% | 5 | 10 | 38 | 380 % | 3 |
| Native perennial grass cover (%): | | 16 | 13.9 | 87% | 3 | 16 | 26 | 163% | 5 | 16 | 11.5 | 72% | 3 | 6 | 6.8 | 113 % | 5 | 26 | 50 | 192% | 5 | 26 | 0 | 0% | 0 |
| Organic litter (%): | | 35 | 43 | 123% | 5 | 35 | 24 | 69% | 5 | 35 | 51.2 | 146% | 5 | 75 | 38 | 51% | 5 | 30 | 8.6 | 29% | 3 | 30 | 19.5 | 65% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 24 | 6 | 25% | 5 | 24 | 0 | 0% | 0 | 24 | 0 | 0% | 0 | 80 | 14 | 18% | 5 | 22 | 6 | 27% | 5 | 22 | 18 | 82% | 10 |
| Coarse woody debris (m/ha) | | 273 | 80 | 29% | 2 | 273 | 80 | 29% | 2 | 273 | 80 | 29% | 2 | 1752 | 310 | 18% | 2 | 342 | 285 | 83% | 5 | 342 | 31.5 | 9% | 0 |
| Non-native plant cover (%): | | 0 | 0.01 | 1% | 10 | 0 | 0.13 | 13% | 5 | 0 | 0.13 | 13% | 5 | 0 | 0.04 | 4% | 10 | 0 | 0.02 | 2% | 10 | 0 | 0 | 0% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 15 | | | | 10 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 15 | | | | 10 | | | | 0 |
| Site condition score (-/130) | | | | | 53.5 | | | | 36.5 | | | | 33.0 | | | | 93.0 | | | | 100.5 | | | | 67.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 2 | | | | 10 | | | | 2 | | | | 5 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 0 | | | | 5 | | | | 0 | | | | 2 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 2 | | | | 4 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 15 | | | | 10 | | | | 0 |
| Site context score (-/70) | | | | | 25.0 | | | | 18.0 | | | | 31.0 | | | | 31.0 | | | | 31.0 | | | | 31.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 1.10 | | | | 1.96 | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | 1.16 | | | | 1.33 | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 0.29 | | | | 0.29 | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | 2.54 | | | | 3.58 | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | 3.46 | | | | 0.37 | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | 150.00 | | | | 150.00 | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | 0.02 | | | | 0.00 | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | 0.06 | | | | 0.01 | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.5.1 | | | BM | 11.5.1 | | | BM | 11.5.1 | | | BM | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE24 | | | | AE46 | | | | AE73 | | | | CS5 | | | | CS6 | | | | CS7 | | |
| | Regional ecosystem: | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 66 | 66% | 3 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 3 | 1 | 33% | 2.5 | 3 | 3 | 100% | 5 | 3 | 1 | 33% | 2.5 | 3 | 3 | 100% | 5 | 3 | 2 | 67% | 2.5 | 3 | 2 | 67% | 2.5 |
| Shrubs | | 6 | 2 | 33% | 2.5 | 6 | 5 | 83% | 2.5 | 6 | 1 | 17% | 0 | 4 | 1 | 25% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 0 | 0% | 0 |
| Grasses | | 9 | 3 | 33% | 2.5 | 9 | 1 | 11% | 0 | 9 | 6 | 67% | 2.5 | 7 | 14 | 200% | 5 | 7 | 15 | 214% | 5 | 7 | 13 | 186% | 5 |
| Forbs | | 11 | 5 | 45% | 2.5 | 11 | 4 | 36% | 2.5 | 11 | 3 | 27% | 2.5 | 13 | 9 | 69% | 2.5 | 13 | 13 | 100% | 5 | 13 | 7 | 54% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 17 | 13.5 | 79% | 5 | 17 | 13 | 76% | 5 | 17 | 19 | 112% | 5 | 23 | 15 | 65% | 3 | 23 | 20.5 | 89% | 5 | 23 | 21.5 | 93% | 5 |
| Tree sub-canopy height | | 8 | 9.33 | 117% | 5 | 8 | 9 | 113% | 5 | 8 | 9 | 113% | 5 | 10 | 8 | 80% | 5 | 10 | 7 | 70% | 5 | 10 | 3 | 30% | 3 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 4.0 | | | | 5.0 | | | | 4.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 25 | 10 | 40% | 2 | 25 | 13 | 52% | 5 | 25 | 32 | 128% | 5 | 43 | 22.6 | 53% | 5 | 43 | 45.7 | 106% | 5 | 43 | 35.8 | 83% | 5 |
| Tree sub-canopy cover | | 5 | 8 | 160% | 5 | 5 | 12 | 240% | 3 | 5 | 8 | 160% | 5 | 38 | 0 | 0% | 0 | 38 | 0 | 0% | 0 | 38 | 0 | 0% | 0 |
| Average score | | | | | 3.5 | | | | 4.0 | | | | 5.0 | | | | 2.5 | | | | 2.5 | | | | 2.5 |
| Shrub canopy cover (%): | | 10 | 51 | 510% | 3 | 10 | 41 | 410% | 3 | 10 | 23 | 230% | 3 | 5 | 0.5 | 10% | 3 | 5 | 0 | 0% | 0 | 5 | 0 | 0% | 0 |
| Native perennial grass cover (%): | | 26 | 3.9 | 15% | 1 | 26 | 1.5 | 6% | 0 | 26 | 17.5 | 67% | 3 | 8 | 46 | 575% | 5 | 8 | 49 | 613% | 5 | 8 | 23 | 288% | 5 |
| Organic litter (%): | | 30 | 77.5 | 258% | 3 | 30 | 55.5 | 185% | 5 | 30 | 37.5 | 125% | 5 | 57 | 11 | 19% | 3 | 57 | 27 | 47% | 3 | 57 | 40 | 70% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 22 | 6 | 27% | 5 | 22 | 8 | 36% | 5 | 22 | 4 | 18% | 5 | 24 | 0 | 0% | 0 | 24 | 6 | 25% | 5 | 24 | 9 | 38% | 5 |
| Coarse woody debris (m/ha) | | 342 | 24 | 7% | 0 | 342 | 760 | 222% | 2 | 342 | 520 | 152% | 5 | 178 | 15 | 8% | 0 | 178 | 410 | 230% | 2 | 178 | 0 | 0% | 0 |
| Non-native plant cover (%): | | 0 | 0 | 0% | 10 | 0 | 0.005 | 1% | 10 | 0 | 0 | 0% | 10 | 0 | 0.05 | 5% | 5 | 0 | 0.03 | 3% | 10 | 0 | 0.03 | 3% | 10 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 25 | | | | 25 | | | | 0 | | | | 20 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 25 | | | | 25 | | | | 0 | | | | 20 | | | | 0 |
| Site condition score (-/130) | | | | | 62.5 | | | | 117.0 | | | | 123.5 | | | | 53.5 | | | | 107.5 | | | | 59.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 10 | | | | 10 | | | | 0 | | | | 10 | | | | 0 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 5 | | | | 2 | | | | 0 | | | | 5 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 2 | | | | 4 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 0 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 25 | | | | 25 | | | | 0 | | | | 20 | | | | 0 |
| Site context score (-/70) | | | | | 13.0 | | | | 56.0 | | | | 51.0 | | | | 16.0 | | | | 51.0 | | | | 16 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 1.77 | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | 1.56 | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 0.29 | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | 3.61 | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | 53.82 | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | 150.00 | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | 0.36 | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | 1.30 | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.5.20 | | | BM | 11.7.2 | | | BM | 11.7.2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | CN7 | | | | AE58 | | | | AE59 | | | | AE60 | | | | AG253 | | | | AG293 | | |
| | Regional ecosystem: | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.7.2 | 11.7.2 | | | 11.7.2 | 11.7.2 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 3 | 3 | 100% | 5 | 3 | 3 | 100% | 5 | 3 | 2 | 67% | 2.5 | 3 | 2 | 67% | 2.5 | 3 | 2.5 | 83% | 2.5 | 3 | 2.5 | 83% | 2.5 |
| Shrubs | | 4 | 0 | 0% | 0 | 4 | 4 | 100% | 5 | 4 | 6 | 150% | 5 | 4 | 1 | 25% | 2.5 | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 |
| Grasses | | 7 | 12 | 171% | 5 | 7 | 4 | 57% | 2.5 | 7 | 4 | 57% | 2.5 | 7 | 6 | 86% | 2.5 | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 |
| Forbs | | 13 | 11 | 85% | 2.5 | 13 | 4 | 31% | 2.5 | 13 | 5 | 38% | 2.5 | 13 | 4 | 31% | 2.5 | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 23 | 20 | 87% | 5 | 23 | 16.4 | 71% | 5 | 23 | 23 | 100% | 5 | 23 | 21 | 91% | 5 | 15 | 5 | 33% | 3 | 15 | 5 | 33% | 3 |
| Tree sub-canopy height | | 10 | 7 | 70% | 5 | 10 | 11.6 | 116% | 5 | 10 | 12 | 120% | 5 | 10 | 12 | 120% | 5 | 5 | 5 | | 0 | 5 | 5 | | 0 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 1.5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 43 | 49.1 | 114% | 5 | 43 | 31 | 72% | 5 | 43 | 30 | 70% | 5 | 43 | 48 | 112% | 5 | 40 | 5 | 13% | 2 | 40 | 5 | 13% | 2 |
| Tree sub-canopy cover | | 38 | 2.4 | 6% | 0 | 38 | 28 | 74% | 5 | 38 | 13 | 34% | 2 | 38 | 17 | 45% | 2 | 4 | 3 | | 0 | 4 | 3 | | 0 |
| Average score | | | | | 2.5 | | | | 5.0 | | | | 3.5 | | | | 3.5 | | | | 1.0 | | | | 1.0 |
| Shrub canopy cover (%): | | 5 | 0 | 0% | 0 | 5 | 38 | 760% | 3 | 5 | 43 | 860% | 3 | 5 | 3 | 60% | 5 | 4 | 2 | 50% | 5 | 4 | 0 | 0% | 0 |
| Native perennial grass cover (%): | | 8 | 42 | 525% | 5 | 8 | 10.6 | 133% | 5 | 8 | 5.5 | 69% | 3 | 8 | 15.1 | 189% | 5 | 15 | 5 | 33% | 1 | 15 | 5 | 33% | 1 |
| Organic litter (%): | | 57 | 41 | 72% | 5 | 57 | 54.5 | 96% | 5 | 57 | 62 | 109% | 5 | 57 | 63.2 | 111% | 5 | 20 | 5 | 25% | 3 | 20 | 5 | 25% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 24 | 4 | 17% | 5 | 24 | 4 | 17% | 5 | 24 | 0 | 0% | 0 | 24 | 14 | 58% | 10 | 36 | 0 | 0% | 0 | 36 | 10 | 28% | 5 |
| Coarse woody debris (m/ha) | | 178 | 650 | 365% | 2 | 178 | 127 | 71% | 5 | 178 | 410 | 230% | 2 | 178 | 830 | 466% | 2 | 1214 | 5 | 0% | 0 | 1214 | 2 | 0% | 0 |
| Non-native plant cover (%): | | 0 | 0.02 | 2% | 10 | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 | 0 | 0 | 0% | 10 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 25 | | | | 5 | | | | 20 | | | | 25 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 25 | | | | 5 | | | | 20 | | | | 25 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 117.0 | | | | 93.0 | | | | 106.0 | | | | 127.5 | | | | 31.5 | | | | 31.5 |
| Size of patch (fragmented) (-/10) | | | | | 2 | | | | 10 | | | | 10 | | | | 10 | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 0 | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 2 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 25 | | | | 5 | | | | 20 | | | | 25 | | | | 0 | | | | 0 |
| Site context score (-/70) | | | | | 39.0 | | | | 36.0 | | | | 51.0 | | | | 56.0 | | | | 29.0 | | | | 29.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | 1.83 | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | 1.62 | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | 0.29 | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | 3.73 | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | | | | | 14.59 | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | 150.00 | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | | | | | 0.10 | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | | | | | 0.36 | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to fauna habitat | Assessment unit: | Bench-mark (BM) | 11.7.2 | | | BM | 11.7.2 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE68 | | | | EPB48 | | | | CS8 | | | | AE22 | | | | AE41 | | | | AE47 | | |
| | Regional ecosystem: | 11.7.2 | 11.7.2 | | | 11.7.2 | 11.7.2 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 3 | 3% | 0 | 100 | 5 | 5% | 0 | 100 | 0 | 0% | 0 | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 | 100 | 3 | 3% | 0 |
| Native plant species richness (No.): Trees | | 3 | 5 | 167% | 5 | 3 | 2.5 | 83% | 2.5 | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 |
| Shrubs | | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 |
| Grasses | | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 | 7 | 5 | 71% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 |
| Forbs | | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 | 9 | 5 | 56% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 15 | 5 | 33% | 3 | 15 | 5 | 33% | 3 | 18 | 5 | 28% | 3 | 18 | 3 | 17% | 0 | 18 | 3 | 17% | 0 | 18 | 3 | 17% | 0 |
| Tree sub-canopy height | | 5 | 5 | | 0 | 5 | 5 | | 0 | 9 | 3 | 33% | 3 | 9 | 5 | 56% | 3 | 9 | 0 | 0% | 0 | 9 | 5 | 56% | 3 |
| Average score | | | | | 1.5 | | | | 1.5 | | | | 3.0 | | | | 1.5 | | | | 0.0 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 40 | 5 | 13% | 2 | 40 | 5 | 13% | 2 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 |
| Tree sub-canopy cover | | 4 | 3 | | 0 | 4 | 3 | | 0 | 8 | 3 | 38% | 2 | 8 | 3 | 38% | 2 | 8 | 0 | 0% | 0 | 8 | 5 | 63% | 5 |
| Average score | | | | | 1.0 | | | | 1.0 | | | | 2.0 | | | | 2.0 | | | | 1.0 | | | | 3.5 |
| Shrub canopy cover (%): | | 4 | 3 | 75% | 5 | 4 | 5 | 125% | 5 | 7 | 0 | 0% | 0 | 7 | 5 | 71% | 5 | 7 | 3 | 43% | 3 | 7 | 3 | 43% | 3 |
| Native perennial grass cover (%): | | 15 | 5 | 33% | 1 | 15 | 5 | 33% | 1 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 12 | 3 | 25% | 1 |
| Organic litter (%): | | 20 | 5 | 25% | 3 | 20 | 5 | 25% | 3 | 50 | 3 | 6% | 0 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 |
| Large trees/ha (euc./non-euc. combined) | | 36 | 15 | 42% | 5 | 36 | 10 | 28% | 5 | 21 | 5 | 24% | 5 | 21 | 10 | 48% | 5 | 21 | 5 | 24% | 5 | 21 | 5 | 24% | 5 |
| Coarse woody debris (m/ha) | | 1214 | 2 | 0% | 0 | 1214 | 2 | 0% | 0 | 320 | 5 | 2% | 0 | 320 | 0 | 0% | 0 | 320 | 5 | 2% | 0 | 320 | 2 | 1% | 0 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 39.0 | | | | 36.5 | | | | 38.5 | | | | 42.0 | | | | 30.0 | | | | 42.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 10 | | | | 0 | | | | 10 | | | | 10 | | | | 10 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 5 | | | | 0 | | | | 5 | | | | 5 | | | | 5 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 2 | | | | 0 | | | | 4 | | | | 4 | | | | 4 |
| Species mobility capacity (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Threats to the species (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site context score (-/70) | | | | | 28.0 | | | | 29.0 | | | | 12.0 | | | | 31.0 | | | | 31.0 | | | | 31.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 0.68 | | | | | | | | | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | 1.23 | | | | | | | | | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | 0.29 | | | | | | | | | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | 2.20 | | | | | | | | | | | | | | | | |
| AU area within impact area: | | | | | | | | | 5.81 | | | | | | | | | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | 150.00 | | | | | | | | | | | | | | | | |
| Area weighting: | | | | | | | | | 0.04 | | | | | | | | | | | | | | | | |
| AU weighted HQS: | | | | | | | | | 0.09 | | | | | | | | | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| **Assessment table for impact to fauna habitat** | **Assessment unit:** | Bench-mark (BM) | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.4 | | | BM | 11.7.7 | | | BM | 11.7.7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Assessment site no:** | | AE50 | | | | AE66 | | | | AE70 | | | | GBS1 | | | | N3 | | | | AE21 | | |
| | **Regional ecosystem:** | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.4 | 11.7.4 | | | 11.7.7 | 11.7.7 | | | 11.7.7 | 11.7.7 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 5 | 5% | 0 | 100 | 3 | 3% | 0 | 100 | 3 | 3% | 0 | 100 | 5 | 5% | 0 | 100 | 3 | 3% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 | 4 | 2.5 | 63% | 2.5 | 4 | 5 | 125% | 5 | 5 | 2.5 | 50% | 2.5 | 5 | 2.5 | 50% | 2.5 |
| Shrubs | | 6 | 2.5 | 42% | 2.5 | 6 | 2.5 | 42% | 2.5 | 6 | 5 | 83% | 2.5 | 6 | 5 | 83% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Grasses | | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 2.5 | 36% | 2.5 | 7 | 5 | 71% | 2.5 | 4 | 5 | 125% | 5 | 4 | 2.5 | 63% | 2.5 |
| Forbs | | 9 | 0 | 0% | 0 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 5 | 56% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 18 | 5 | 28% | 3 | 18 | 5 | 28% | 3 | 18 | 5 | 28% | 3 | 18 | 5 | 28% | 3 | 19 | 3 | 16% | 0 | 19 | 5 | 26% | 3 |
| Tree sub-canopy height | | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 |
| Average score | | | | | 3.0 | | | | 3.0 | | | | 3.0 | | | | 3.0 | | | | 1.5 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 29 | 5 | 17% | 2 | 29 | 5 | 17% | 2 | 29 | 2 | 7% | 0 | 29 | 5 | 17% | 2 | 40 | 2 | 5% | 0 | 40 | 5 | 13% | 2 |
| Tree sub-canopy cover | | 8 | 5 | 63% | 5 | 8 | 3 | 38% | 2 | 8 | 3 | 38% | 2 | 8 | 3 | 38% | 2 | 20 | 5 | 25% | 2 | 20 | 0 | 0% | 0 |
| Average score | | | | | 2.5 | | | | 2.0 | | | | 1.0 | | | | 2.0 | | | | 1.0 | | | | 1.0 |
| Shrub canopy cover (%): | | 7 | 3 | 43% | 3 | 7 | 3 | 43% | 3 | 7 | 3 | 43% | 3 | 7 | 5 | 71% | 5 | 15 | 5 | 33% | 3 | 15 | 3 | 20% | 3 |
| Native perennial grass cover (%): | | 12 | 3 | 25% | 1 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 12 | 5 | 42% | 1 | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 |
| Organic litter (%): | | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 50 | 5 | 10% | 3 | 68 | 3 | 4% | 0 | 68 | 5 | 7% | 0 |
| Large trees/ha (euc./non-euc. combined) | | 21 | 5 | 24% | 5 | 21 | 5 | 24% | 5 | 21 | 5 | 24% | 5 | 21 | 15 | 71% | 10 | 26 | 15 | 58% | 10 | 26 | 5 | 19% | 5 |
| Coarse woody debris (m/ha) | | 320 | 5 | 2% | 0 | 320 | 5 | 2% | 0 | 320 | 5 | 2% | 0 | 320 | 5 | 2% | 0 | 288 | 2 | 1% | 0 | 288 | 2 | 1% | 0 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 44.0 | | | | 42.0 | | | | 39.0 | | | | 51.5 | | | | 43.0 | | | | 40.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 10 | | | | 10 | | | | 10 | | | | 10 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 4 | | | | 0 | | | | 5 | | | | 0 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site context score (-/70) | | | | | 31.0 | | | | 30.0 | | | | 26.0 | | | | 31.0 | | | | 26.0 | | | | 25.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | | | | | 0.97 | | | | | | | | |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | 1.49 | | | | | | | | |
| AU species stocking rate (-/4): | | | | | | | | | | | | | | | | | 0.29 | | | | | | | | |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | 2.75 | | | | | | | | |
| AU area within impact area: | | | | | | | | | | | | | | | | | 36.39 | | | | | | | | |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | 150.00 | | | | | | | | |
| Area weighting: | | | | | | | | | | | | | | | | | 0.24 | | | | | | | | |
| AU weighted HQS: | | | | | | | | | | | | | | | | | 0.67 | | | | | | | | |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| **Assessment table for impact to fauna habitat** | **Assessment unit:** | Bench-mark (BM) | 11.7.7 | | | BM | 11.7.7 | | | BM | 11.7.7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | | | | | | | | | | | |
| | **Assessment site no:** | | AE38 | | | | AE62 | | | | AE69 | | |
| | **Regional ecosystem:** | 11.7.7 | 11.7.7 | | | 11.7.7 | 11.7.7 | | | 11.7.7 | 11.7.7 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 5 | 2.5 | 50% | 2.5 | 5 | 5 | 100% | 5 | 5 | 2.5 | 50% | 2.5 |
| Shrubs | | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Grasses | | 4 | 2.5 | 63% | 2.5 | 4 | 5 | 125% | 5 | 4 | 2.5 | 63% | 2.5 |
| Forbs | | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 | 9 | 2.5 | 28% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 19 | 5 | 26% | 3 | 19 | 5 | 26% | 3 | 19 | 5 | 26% | 3 |
| Tree sub-canopy height | | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 | 9 | 5 | 56% | 3 |
| Average score | | | | | 3.0 | | | | 3.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 40 | 2 | 5% | 0 | 40 | 2 | 5% | 0 | 40 | 5 | 13% | 2 |
| Tree sub-canopy cover | | 20 | 5 | 25% | 2 | 20 | 3 | 15% | 2 | 20 | 5 | 25% | 2 |
| Average score | | | | | 1.0 | | | | 1.0 | | | | 2.0 |
| Shrub canopy cover (%): | | 15 | 5 | 33% | 3 | 15 | 2 | 13% | 3 | 15 | 5 | 33% | 3 |
| Native perennial grass cover (%): | | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 | 4 | 5 | 125% | 5 |
| Organic litter (%): | | 68 | 5 | 7% | 0 | 68 | 5 | 7% | 0 | 68 | 3 | 4% | 0 |
| Large trees/ha (euc./non-euc. combined) | | 26 | 10 | 38% | 5 | 26 | 5 | 19% | 5 | 26 | 10 | 38% | 5 |
| Coarse woody debris (m/ha) | | 288 | 5 | 2% | 0 | 288 | 5 | 2% | 0 | 288 | 5 | 2% | 0 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Quality/availability of food/foraging habitat (-/25) | | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 0 |
| Site condition score (-/130) | | | | | 40.0 | | | | 45.0 | | | | 43.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 2 | | | | 4 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 |
| Threats to the species (-/25) | | | | | 12 | | | | 12 | | | | 12 |
| Species mobility capacity (-/25) | | | | | 0 | | | | 0 | | | | 0 |
| Site context score (-/70) | | | | | 30.0 | | | | 28.0 | | | | 30.0 |
| Assessment unit totals | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 0.79 |
| AU site context score (-/3): | | | | | | | | | | | | | 1.19 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 0.29 |
| AU habitat quality score (-/10): | | | | | | | | | | | | | 2.27 |
| AU area within impact area: | | | | | | | | | | | | | 24.07 |
| Total impact area for this MNES: | | | | | | | | | | | | | 150.00 |
| Area weighting: | | | | | | | | | | | | | 0.16 |
| AU weighted HQS: | | | | | | | | | | | | | 0.36 |
| Total HQS all AUs: | | | | | | | | | | | | | 3.06 |

# Appendix E3. Impact habitat quality scores – brigalow TEC

| Assessment table for impact to TEC | | Bench-mark (BM) | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | | BM | 11.3.1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Assessment unit:** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Property:** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Assessment site no:** | | CS2 | | | | CN10 | | | | RR10 | | | | RR11 | | | | RR12 | | | | AE06 | | |
| | **Regional ecosystem:** | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | | 11.3.1 | 11.3.1 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 50 | 50% | 3 | 100 | 50 | 50% | 3 | 100 | 50 | 50% | 3 | 100 | 50 | 50% | 3 | 100 | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | 3 | 2 | 67% | 2.5 | 3 | 7 | 233% | 5 | 3 | 6 | 200% | 5 | 3 | 4 | 133% | 5 | 3 | 5 | 167% | 5 | 3 | 2 | 67% | 2.5 |
| Shrubs | | 5 | 1 | 20% | 0 | 5 | 2 | 40% | 2.5 | 5 | 5 | 100% | 5 | 5 | 6 | 120% | 5 | 5 | 5 | 100% | 5 | 5 | 1 | 20% | 0 |
| Grasses | | 4 | 1 | 25% | 2.5 | 4 | 20 | 500% | 5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 2 | 50% | 2.5 | 4 | 2 | 50% | 2.5 |
| Forbs | | 8 | 3 | 38% | 2.5 | 8 | 12 | 150% | 5 | 8 | 1 | 13% | 0 | 8 | 5 | 63% | 2.5 | 8 | 2 | 25% | 2.5 | 8 | 2 | 25% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 14 | 11.5 | 82% | 5 | 14 | 15 | 107% | 5 | 14 | 14 | 100% | 5 | 14 | 19 | 136% | 5 | 14 | 17 | 121% | 5 | 14 | 8.7 | 62% | 3 |
| Tree sub-canopy height | | 4 | 6 | 150% | 5 | 4 | 7 | 175% | 5 | 4 | 6 | 150% | 5 | 4 | 10 | 250% | 5 | 4 | 8 | 200% | 5 | 4 | 0 | 0% | 0 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 29 | 78 | 269% | 3 | 29 | 33.7 | 116% | 5 | 29 | 78.7 | 271% | 3 | 29 | 49 | 169% | 5 | 29 | 45.5 | 157% | 5 | 29 | 68 | 234% | 3 |
| Tree sub-canopy cover | | 9 | 0 | 0% | 0 | 9 | 43.6 | 484% | 3 | 9 | 18.7 | 208% | 3 | 9 | 65 | 722% | 3 | 9 | 22.5 | 250% | 3 | 9 | 0 | 0% | 0 |
| Average score | | | | | 1.5 | | | | 4.0 | | | | 3.0 | | | | 4.0 | | | | 4.0 | | | | 1.5 |
| Shrub canopy cover (%): | | 8 | 0 | 0% | 0 | 8 | 7 | 88% | 5 | 8 | 8.5 | 106% | 5 | 8 | 6 | 75% | 5 | 8 | 10 | 125% | 5 | 8 | 8 | 100% | 5 |
| Native perennial grass cover (%): | | 8 | 0 | 0% | 0 | 8 | 28.8 | 360% | 5 | 8 | 21 | 263% | 5 | 8 | 0 | 0% | 0 | 8 | 0 | 0% | 0 | 8 | 10 | 125% | 5 |
| Organic litter (%): | | 34 | 86 | 253% | 3 | 34 | 56 | 165% | 5 | 34 | 72 | 212% | 3 | 34 | 92 | 271% | 3 | 34 | 80 | 235% | 3 | 34 | 45.1 | 133% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 70 | 22 | 31% | 5 | 70 | 3 | 4% | 5 | 70 | 26 | 37% | 5 | 70 | 18 | 26% | 5 | 70 | 18 | 26% | 5 | 70 | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | 1752 | 740 | 42% | 2 | 1752 | 1130 | 64% | 5 | 1752 | 460 | 26% | 2 | 1752 | 40 | 2% | 0 | 1752 | 500 | 29% | 2 | 1752 | 5 | 0% | 0 |
| Non-native plant cover (%): | | 0 | 0.05 | 5% | 5 | 0 | 0.05 | 5% | 5 | 0 | 0.03 | 3% | 10 | 0 | 0.005 | 1% | 10 | 0 | 0.03 | 3% | 10 | 0 | 0 | 0% | 10 |
| Site condition score (-/80) | | | | | 47.0 | | | | 77.5 | | | | 69.5 | | | | 68.0 | | | | 70.0 | | | | 46.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 4 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Site context score (-/20) | | | | | 9.0 | | | | 6.0 | | | | 2.0 | | | | 2.0 | | | | 0.0 | | | | 9.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/7): | | | | | | | | | | | | | | | | | | | | | | | | | 48.25 |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | | | | | | | | | 4.67 |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | | | | | | | | | 5.29 |
| AU area within impact area: | | | | | | | | | | | | | | | | | | | | | | | | | 0.46 |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | | | | | | | | | 4.63 |
| Area weighting: | | | | | | | | | | | | | | | | | | | | | | | | | 0.10 |
| AU weighted HQS: | | | | | | | | | | | | | | | | | | | | | | | | | 0.53 |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for impact to TEC | Assessment unit: | Bench-mark (BM) | 11.4.3 | | | BM | 11.4.3 | | | BM | 11.4.3 | | | BM | 11.4.3 | | | BM | 11.3.1 regrowth | | | BM | 11.4.3 regrowth | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment site no: | | AE01 | | | | S6 | | | | AE45 | | | | AE74 | | | | CN8 | | | | CN14 | | |
| | Regional ecosystem: | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.3.1 | 11.3.1 regrowth | | | 11.4.3 | 11.4.3 | | |
| ***Ecological condition indicator*** | | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 5 | 5% | 0 | 100 | 5 | 5% | 0 |
| Native plant species richness (No.): Trees | | 2 | 3 | 150% | 5 | 2 | 2 | 100% | 5 | 2 | 3 | 150% | 5 | 2 | 2 | 100% | 5 | 3 | 0 | 0% | 0 | 2 | 2.5 | 125% | 5 |
| Shrubs | | 10 | 8 | 80% | 2.5 | 10 | 2 | 20% | 0 | 10 | 5 | 50% | 2.5 | 10 | 1 | 10% | 0 | 5 | 0 | 0% | 0 | 10 | 2.5 | 25% | 2.5 |
| Grasses | | 4 | 3 | 75% | 2.5 | 4 | 8 | 200% | 5 | 4 | 3 | 75% | 2.5 | 4 | 3 | 75% | 2.5 | 4 | 2.5 | 63% | 2.5 | 4 | 5 | 125% | 5 |
| Forbs | | 13 | 8 | 62% | 2.5 | 13 | 21 | 162% | 5 | 13 | 8 | 62% | 2.5 | 13 | 5 | 38% | 2.5 | 8 | 5 | 63% | 2.5 | 13 | 5 | 38% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 24 | 17.57 | 73% | 5 | 24 | 12 | 50% | 3 | 24 | 13.28 | 55% | 3 | 24 | 9 | 38% | 3 | 14 | 3 | 21% | 0 | 24 | 5 | 21% | 0 |
| Tree sub-canopy height | | 0 | 11 | | 0 | 0 | 5 | | 0 | 0 | 8.8 | | 0 | 0 | 0 | | 0 | 4 | 0 | 0% | 0 | 0 | 3 | | |
| Average score | | | | | 2.5 | | | | 1.5 | | | | 1.5 | | | | 1.5 | | | | 0.0 | | | | 0.0 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 70 | 66 | 94% | 5 | 70 | 46.2 | 66% | 5 | 70 | 40 | 57% | 5 | 70 | 61 | 87% | 5 | 29 | 5 | 17% | 2 | 70 | 2 | 3% | 0 |
| Tree sub-canopy cover | | 0 | 8 | | 0 | 0 | 9.5 | | 0 | 0 | 22 | | 0 | 0 | 0 | | 0 | 9 | 0 | 0% | 0 | 0 | 2 | | |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 2.5 | | | | 1.0 | | | | 0.0 |
| Shrub canopy cover (%): | | 48 | 37 | 77% | 5 | 48 | 3.2 | 7% | 0 | 48 | 20 | 42% | 3 | 48 | 0 | 0% | 0 | 8 | 5 | 63% | 5 | 48 | 3 | 6% | 0 |
| Native perennial grass cover (%): | | 6 | 22 | 367% | 5 | 6 | 6.8 | 113% | 5 | 6 | 6 | 100% | 5 | 6 | 12 | 200% | 5 | 8 | 0 | 0% | 0 | 6 | 5 | 83% | 3 |
| Organic litter (%): | | 75 | 41.5 | 55% | 5 | 75 | 38 | 51% | 5 | 75 | 21 | 28% | 3 | 75 | 29 | 39% | 3 | 34 | 5 | 15% | 3 | 75 | 3 | 4% | 0 |
| Large trees/ha (euc./non-euc. combined) | | 80 | 68 | 85% | 10 | 80 | 14 | 18% | 5 | 80 | 48 | 60% | 10 | 80 | 0 | 0% | 0 | 70 | 0 | 0% | 0 | 80 | 5 | 6% | 5 |
| Coarse woody debris (m/ha) | | 1752 | 450 | 26% | 2 | 1752 | 310 | 18% | 2 | 1752 | 670 | 38% | 2 | 1752 | 0 | 0% | 0 | 1752 | 2 | 0% | 0 | 1752 | 5 | 0% | 0 |
| Non-native plant cover (%): | | 0 | 0.005 | 1% | 10 | 0 | 0.04 | 4% | 10 | 0 | 0 | 0% | 10 | 0 | 0.005 | 1% | 10 | 0 | 0.1 | 10% | 5 | 0 | 0.1 | 10% | 5 |
| Site condition score (-/80) | | | | | 69.5 | | | | 59.0 | | | | 62.5 | | | | 45.0 | | | | 21.0 | | | | 28.0 |
| Size of patch (fragmented) (-/10) | | | | | 10 | | | | 2 | | | | 2 | | | | 0 | | | | 2 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 4 | | | | 2 | | | | 0 | | | | 0 |
| Site context score (-/20) | | | | | 14.0 | | | | 4.0 | | | | 6.0 | | | | 2.0 | | | | 2.0 | | | | 0.0 |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/7): | | | | | | | | | | | | | | | | | 50.50 | | | | 19.00 | | | | 28.00 |
| AU site context score (-/3): | | | | | | | | | | | | | | | | | 6.50 | | | | 2.00 | | | | 0.00 |
| AU habitat quality score (-/10): | | | | | | | | | | | | | | | | | 5.70 | | | | 2.10 | | | | 2.80 |
| AU area within impact area: | | | | | | | | | | | | | | | | | 0.37 | | | | 2.89 | | | | 3.80 |
| Total impact area for this MNES: | | | | | | | | | | | | | | | | | 4.63 | | | | 4.63 | | | | 4.63 |
| Area weighting: | | | | | | | | | | | | | | | | | 0.08 | | | | 0.62 | | | | 0.82 |
| AU weighted HQS: | | | | | | | | | | | | | | | | | 0.45 | | | | 1.31 | | | | 2.30 |
| Total HQS all AUs: | | | | | | | | | | | | | | | | | | | | | | | | | 2.84 |

# Appendix E4. Habitat quality scores – south-eastern long-eared bat – offset start quality

| *Assessment table for fauna habitat offset* | **Assessment unit:** | **Bench-mark (BM)** | AU11 | | | **BM** | AU11 | | | **BM** | AU8 | | | **BM** | AU8 | | | **BM** | AU8 | | | **BM** | AU3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B4 | | | | B24 | | | | B13 | | | | B14 | | | | B25 | | | | B15 | | |
| | **Regional ecosystem:** | **11.4.3** | 11.4.3 | | | **11.4.3** | 11.4.3 | | | **11.5.2** | 11.5.20 | | | **11.5.20** | 11.5.20 | | | **11.5.2** | 11.5.20 | | | **11.7.6** | 11.7.6 | | |
| ***Ecological condition indicator*** | | | **Value** | **%** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 100.0 | 1.0 | 5.0 | **100** | 75.0 | 0.8 | 5.0 | **100** | 80.0 | 0.8 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 |
| Native plant species richness (No.): Trees | | **2** | 3.0 | 1.5 | 5.0 | **2** | 8.0 | 4.0 | 5.0 | **2** | 6.0 | 2.0 | 5.0 | **3** | 3.0 | 1.0 | 5.0 | **3** | 8.0 | 2.7 | 5.0 | **4** | 6.0 | 1.5 | 5.0 |
| Shrubs | | **10** | 4.0 | 0.4 | 2.5 | **10** | 7.0 | 0.7 | 2.5 | **10** | 2.0 | 0.5 | 2.5 | **4** | 2.0 | 0.5 | 2.5 | **4** | 6.0 | 1.5 | 5.0 | **5** | 9.0 | 1.8 | 5.0 |
| Grasses | | **4** | 6.0 | 1.5 | 5.0 | **4** | 8.0 | 2.0 | 5.0 | **4** | 8.0 | 1.1 | 5.0 | **7** | 8.0 | 1.1 | 5.0 | **7** | 8.0 | 1.1 | 5.0 | **10** | 6.0 | 0.6 | 2.5 |
| Forbs | | **13** | 7.0 | 0.5 | 2.5 | **13** | 8.0 | 0.6 | 2.5 | **13** | 10.0 | 0.8 | 2.5 | **13** | 9.0 | 0.7 | 2.5 | **13** | 14.0 | 1.1 | 5.0 | **16** | 10.0 | 0.6 | 2.5 |
| Tree canopy height (m): average of emergent, | | **24** | 12.0 | 0.5 | 3.0 | **24** | 7.0 | 0.3 | 3.0 | **24** | 12.5 | 0.5 | 3.0 | **23** | 10.6 | 0.5 | 3.0 | **23** | 20.5 | 0.9 | 5.0 | **25** | 17.7 | 0.7 | 5.0 |
| Tree sub-canopy height | | **0** | 0.0 | 0 | 5.0 | **0** | 2.9 | | 0.0 | **0** | 5.8 | | 0.0 | **10** | 5.8 | | 0.0 | **10** | 9.2 | | 0.0 | **13** | 8.3 | 0.6 | 3.0 |
| Average score | | | | | 4.0 | | | | 1.5 | | | | 1.5 | | | | 1.5 | | | | 2.5 | | | | 4.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 29.0 | 0.4 | 2.0 | **70** | 0.0 | 0.0 | 0.0 | **70** | 0 | 0% | 0 | **43** | 18.6 | 0.4 | 2.0 | **43** | 30.8 | 0.7 | 5.0 | **40** | 51.0 | 1.3 | 5.0 |
| Tree sub-canopy cover | | **0** | 0.0 | 0 | 5.0 | **0** | 1.5 | | 0.0 | **0** | 0 | | 0 | **38** | 0.0 | | 0.0 | **38** | 11.6 | | 0.0 | **7** | 19.8 | 2.8 | 3.0 |
| Average score | | | | | 3.5 | | | | 0.0 | | | | 0.0 | | | | 1.0 | | | | 2.5 | | | | 4.0 |
| Shrub canopy cover (%): | | **48** | 4.0 | 0.1 | 0.0 | **48** | 5.0 | 0.1 | 3.0 | **48** | 0.0 | 0.0 | 0.0 | **5** | 0.4 | 0.1 | 0.0 | **5** | 0.0 | 0.0 | 0.0 | **11** | 0.0 | 0.0 | 0.0 |
| Native perennial grass cover (%): | | **6** | 6.4 | 1.1 | 5.0 | **6** | 17.0 | 2.8 | 5.0 | **6** | 29.4 | 3.7 | 5.0 | **8** | 34.0 | 4.3 | 5.0 | **8** | 18.2 | 2.3 | 5.0 | **23** | 31.6 | 1.4 | 5.0 |
| Organic litter (%): | | **75** | 38.6 | 0.5 | 5.0 | **75** | 46.8 | 0.6 | 5.0 | **75** | 21.4 | 0.4 | 3.0 | **57** | 44.0 | 0.8 | 5.0 | **57** | 7.0 | 0.1 | 3.0 | **52** | 41.2 | 0.8 | 5.0 |
| Large trees/ha (euc./non-euc. combined) | | **80** | 0.0 | 0.0 | 0.0 | **80** | 4.0 | 0.1 | 5.0 | **80** | 2.0 | 0.1 | 5.0 | **24** | 0.0 | 0.0 | 0.0 | **24** | 2.0 | 0.1 | 5.0 | **27** | 8.0 | 0.3 | 5.0 |
| Coarse woody debris (m/ha) | | **1752** | 58.0 | 0.0 | 0.0 | **1752** | 71.0 | 0.0 | 0.0 | **1752** | 14.0 | 0.1 | 0.0 | **178** | 292.0 | 1.6 | 5.0 | **178** | 296.0 | 1.7 | 5.0 | **217** | 816.0 | 3.8 | 2.0 |
| Non-native plant cover (%): | | **0** | 0.1 | 0.1 | 5.0 | **0** | 0.2 | 0.2 | 1.0 | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.3 | 0.3 | 3.0 |
| Quality/availability of food/foraging habitat (- | | | | | 0.0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 11.7 | | | | 10.0 | | | | 8.3 | | | | 11.7 | | | | 6.7 | | | | 11.7 |
| ***Site condition score (-/130)*** | | | | | **51.67** | | | | **52.00** | | | | **47.33** | | | | **53.67** | | | | **63.17** | | | | **59.67** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 7 | | | | 7 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 2 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 4 | | | | 4 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 4 | | | | 0 |
| Threats to the species (-/15) | | | | | 17.5 | | | | 17.5 | | | | 15 | | | | 15 | | | | 17.5 | | | | 17.5 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 5 | | | | 0 | | | | 0 | | | | 0 | | | | 15 |
| ***Site context score (-/70)*** | | | | | **33.5** | | | | **33.5** | | | | **28.0** | | | | **24.0** | | | | **34.5** | | | | **48.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.20 | | | | | | | | | | | | 1.26 | | | | 1.38 |
| AU site context score (-/3): | | | | | | | | | 1.44 | | | | | | | | | | | | 1.18 | | | | 2.08 |
| AU species stocking rate (-/4): | | | | | | | | | 1.43 | | | | | | | | | | | | 1.43 | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | | | | | **4.06** | | | | | | | | | | | | **3.87** | | | | **4.88** |
| AU area within offset area: | | | | | | | | | 5.90 | | | | | | | | | | | | 49.10 | | | | 18.70 |
| Total offset area for this MNES: | | | | | | | | | 1355.5 | | | | | | | | | | | | 1355.5 | | | | 1355.5 |
| Area weighting: | | | | | | | | | 0.00 | | | | | | | | | | | | 0.04 | | | | 0.01 |
| ***AU weighted HQS:*** | | | | | | | | | **0.02** | | | | | | | | | | | | **0.14** | | | | **0.07** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **Bench-mark (BM)** | AU4 | | | **BM** | AU4 | | | **BM** | AU4 | | | **BM** | AU1 | | | **BM** | AU1 | | | **BM** | AU1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B1 | | | | B3 | | | | B16 | | | | B12 | | | | B27 | | | | B38 | | |
| | **Regional ecosystem:** | **11.7.6** | 11.7.6 | | | 11.7.6 | 11.7.6 | | | 11.7.6 | 11.7.6 | | | 11.12.1 | 11.12.1 | | | 11.12. | 11.12.1 | | | 11.12. | 11.12.1 | | |
| ***Ecological condition indicator*** | | | **Value** | **%** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | 100 | 50.0 | 0.5 | 3.0 | 200 | 100.0 | 0.5 | 3.0 | 200 | 50.0 | 0.3 | 3.0 | 200 | 50.0 | 0.3 | 3.0 |
| Native plant species richness (No.): Trees | | **4** | 3.0 | 0.8 | 2.5 | **4** | 4.0 | 1.0 | 5.0 | 4 | 8.0 | 2.0 | 5.0 | 6 | 9.0 | 1.5 | 5.0 | 6 | 7.0 | 1.2 | 5.0 | 6 | 7.0 | 1.2 | 5.0 |
| Shrubs | | **5** | 1.0 | 0.2 | 0.0 | **5** | 4.0 | 0.8 | 2.5 | 5 | 3.0 | 0.6 | 2.5 | 12 | 5.0 | 0.4 | 2.5 | 12 | 9.0 | 0.8 | 2.5 | 12 | 9.0 | 0.8 | 2.5 |
| Grasses | | **10** | 6.0 | 0.6 | 2.5 | **10** | 8.0 | 0.8 | 2.5 | 10 | 9.0 | 0.9 | 5.0 | 16 | 10.0 | 0.6 | 2.5 | 16 | 9.0 | 0.6 | 2.5 | 16 | 8.0 | 0.5 | 2.5 |
| Forbs | | **16** | 9.0 | 0.6 | 2.5 | **16** | 12.0 | 0.8 | 2.5 | 16 | 5.0 | 0.3 | 2.5 | 26 | 9.0 | 0.3 | 2.5 | 26 | 9.0 | 0.3 | 2.5 | 26 | 15.0 | 0.6 | 2.5 |
| Tree canopy height (m): average of | | **25** | 16.0 | 0.6 | 3.0 | **25** | 15.0 | 0.6 | 3.0 | 25 | 8.5 | 0.3 | 3.0 | 30 | 16.0 | 0.5 | 3.0 | 30 | 15.4 | 0.5 | 3.0 | 30 | 16.1 | 0.5 | 3.0 |
| Tree sub-canopy height | | **13** | 0.0 | 0.0 | 0.0 | **13** | 0.0 | 0.0 | 0.0 | 13 | 5.3 | 0.4 | 3.0 | 20 | 0.0 | 0.0 | 0.0 | 20 | 7.3 | 0.4 | 3.0 | 20 | 10.1 | 0.5 | 3.0 |
| Average score | | | | | 1.5 | | | | 1.5 | | | | 1.5 | | | | 3.0 | | | | 3.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, | | **40** | 46.0 | 1.2 | 5.0 | **40** | 26.5 | 0.7 | 5.0 | 40 | 0.0 | 0.0 | 0.0 | 70 | 44.0 | 0.6 | 5.0 | 70 | 43.1 | 0.6 | 5.0 | 70 | 23.9 | 0.3 | 2.0 |
| Tree sub-canopy cover | | **7** | 0.0 | 0.0 | 0.0 | **7** | 0.0 | 0.0 | 0.0 | 7 | 31.6 | 4.5 | 3.0 | 14 | 27.0 | 1.9 | 5.0 | 14 | 4.4 | 0.3 | 2.0 | 14 | 37.9 | 2.7 | 3.5 |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 1.5 | | | | 2.5 | | | | 3.5 | | | | 1.0 |
| Shrub canopy cover (%): | | **11** | 12.5 | 1.1 | 5.0 | **11** | 0.0 | 0.0 | 0.0 | 11 | 0.0 | 0.0 | 0.0 | 8 | 3.7 | 0.5 | 3.0 | 8 | 1.0 | 0.1 | 3.0 | 8 | 1.0 | 0.1 | 3.0 |
| Native perennial grass cover (%): | | **23** | 27.0 | 1.2 | 5.0 | **23** | 36.0 | 1.6 | 5.0 | 23 | 32.2 | 1.4 | 5.0 | 82 | 15.0 | 0.2 | 1.0 | 82 | 60.0 | 0.7 | 3.0 | 82 | 15.0 | 0.2 | 1.0 |
| Organic litter (%): | | **52** | 56.0 | 1.1 | 5.0 | **52** | 37.8 | 0.7 | 5.0 | 52 | 8.4 | 0.2 | 3.0 | 56 | 76.2 | 1.4 | 5.0 | 56 | 41.0 | 0.7 | 5.0 | 56 | 54.6 | 1.0 | 5.0 |
| Large trees/ha (euc./non-euc. combined) | | **27** | 0.0 | 0.0 | 0.0 | **27** | 0.0 | 0.0 | 0.0 | 27 | 0.0 | 0.0 | 0.0 | 40 | 0.0 | 0.0 | 0.0 | 40 | 10.0 | 0.3 | 5.0 | 40 | 2.0 | 0.1 | 5.0 |
| Coarse woody debris (m/ha) | | **217** | 480.0 | 2.2 | 2.0 | **217** | 367.0 | 1.7 | 5.0 | 217 | 447.0 | 2.1 | 2.0 | 816 | 292.0 | 0.4 | 2.0 | 816 | 219.0 | 0.3 | 2.0 | 816 | 795.0 | 1.0 | 5.0 |
| Non-native plant cover (%): | | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.4 | 0.4 | 3.0 | 0 | 0.3 | 0.3 | 3.0 | 0 | 0.2 | 0.2 | 5.0 | 0 | 0.6 | 0.6 | 0.0 | 0 | 0.2 | 0.2 | 5.0 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 5 |
| Quality/availability of shelter (-/25) | | | | | 15.0 | | | | 11.7 | | | | 11.7 | | | | 15.0 | | | | 16.7 | | | | 16.7 |
| ***Site condition score (-/130)*** | | | | | **51.5** | | | | **51.17** | | | | **52.17** | | | | **53.0** | | | | **56.67** | | | | **67.67** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 7 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 2 | | | | 2 | | | | 4 | | | | 4 | | | | 5 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 17.5 | | | | 17.5 | | | | 17.5 | | | | 10 | | | | 17.5 | | | | 22.5 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 0 | | | | 0 | | | | 0 | | | | 5 | | | | 5 |
| ***Site context score (-/70)*** | | | | | **33.5** | | | | **24.5** | | | | **24.5** | | | | **19.0** | | | | **35.5** | | | | **44.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 1.19 | | | | | | | | | | | | 1.36 |
| AU site context score (-/3): | | | | | | | | | | | | | 1.18 | | | | | | | | | | | | 1.41 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 1.43 | | | | | | | | | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | | | | | | | | | **3.80** | | | | | | | | | | | | **4.21** |
| AU area within offset area: | | | | | | | | | | | | | 100.6 | | | | | | | | | | | | 384.40 |
| Total offset area for this MNES: | | | | | | | | | | | | | 1355.5 | | | | | | | | | | | | 1355.5 |
| Area weighting: | | | | | | | | | | | | | 0.07 | | | | | | | | | | | | 0.28 |
| ***AU weighted HQS:*** | | | | | | | | | | | | | **0.28** | | | | | | | | | | | | **1.19** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **Bench** | AU2 | | | **BM** | AU5 | | | **BM** | AU6 | | | **BM** | AU6 | | | **BM** | AU6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | **-mark** | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | **(BM)** | B8 | | | | B23 | | | | B9 | | | | B32 | | | | B33 | | |
| | **Regional** | **11.12.** | 11.12.1 | | | **11.3.1** | 11.3.1 | | | **11.5.1** | 11.5.1 | | | **11.5.1** | 11.5.1 | | | **11.5.1** | 11.5.1 | | |
| ***Ecological condition indicator*** | | | **Value** | **%** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **200** | 66.0 | 0.3 | 3.0 | **100** | 50.0 | 0.5 | 3.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 40.0 | 0.4 | 3.0 |
| Native plant species richness (No.): Trees | | **6** | 3.0 | 0.5 | 2.5 | **3** | 19.0 | 6.3 | 5.0 | **3** | 8.0 | 2.7 | 5.0 | **3** | 7.0 | 2.3 | 5.0 | **3** | 12.0 | 4.0 | 5.0 |
| Shrubs | | **12** | 3.0 | 0.3 | 2.5 | **5** | 5.0 | 1.0 | 5.0 | **6** | 4.0 | 0.7 | 2.5 | **6** | 5.0 | 0.8 | 2.5 | **6** | 8.0 | 1.3 | 5.0 |
| Grasses | | **16** | 6.0 | 0.4 | 2.5 | **4** | 7.0 | 1.8 | 5.0 | **9** | 10.0 | 1.1 | 5.0 | **9** | 5.0 | 0.6 | 2.5 | **9** | 3.0 | 0.3 | 2.5 |
| Forbs | | **26** | 3.0 | 0.1 | 0.0 | **8** | 6.0 | 0.8 | 2.5 | **11** | 4.0 | 0.4 | 2.5 | **11** | 5.0 | 0.5 | 2.5 | **11** | 7.0 | 0.6 | 2.5 |
| Tree canopy height (m): average of | | **30** | 10.0 | 0.3 | 3.0 | **14** | 11.0 | 0.8 | 5.0 | **17** | 11.0 | 0.6 | 3.0 | **17** | 13.5 | 0.8 | 5.0 | **17** | 13.7 | 0.8 | 5.0 |
| Tree sub-canopy height | | **20** | 0.0 | 0.0 | 0.0 | **4** | 5.4 | 1.4 | 5.0 | **8** | 5.0 | | 0.0 | **8** | 6.5 | | 0.0 | **8** | 6.4 | 0.8 | 5.0 |
| Average score | | | | | 1.5 | | | | 5.0 | | | | 1.5 | | | | 2.5 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 25.5 | 0.4 | 2.0 | **29** | 14.6 | 0.5 | 5.0 | **25** | 22.5 | 0.9 | 5.0 | **25** | 21.1 | 0.8 | 5.0 | **25** | 13.7 | 0.5 | 5.0 |
| Tree sub-canopy cover | | **14** | 0.0 | 0.0 | 0.0 | **9** | 7.1 | 0.8 | 5.0 | **5** | 17.5 | | 0.0 | **5** | 6.3 | | 0.0 | **5** | 4.7 | | 0.0 |
| Average score | | | | | 1.0 | | | | 5.0 | | | | 2.5 | | | | 2.5 | | | | 2.5 |
| Shrub canopy cover (%): | | **8** | 1.0 | 0.1 | 3.0 | **8** | 1.2 | 0.2 | 3.0 | **10** | 8.0 | 0.8 | 5.0 | **10** | 6.4 | 0.6 | 5.0 | **10** | 1.0 | 0.1 | 3.0 |
| Native perennial grass cover (%): | | **82** | 34.2 | 0.4 | 1.0 | **8** | 21.0 | 2.6 | 5.0 | **26** | 19.0 | 0.7 | 3.0 | **26** | 14.0 | 0.5 | 3.0 | **26** | 11.0 | 0.4 | 1.0 |
| Organic litter (%): | | **56** | 40.4 | 0.7 | 5.0 | **34** | 46.6 | 1.4 | 5.0 | **30** | 62.2 | 2.1 | 3.0 | **30** | 18.0 | 0.6 | 5.0 | **30** | 44.0 | 1.5 | 5.0 |
| Large trees/ha (euc./non-euc. combined) | | **40** | 0.0 | 0.0 | 0.0 | **70** | 4.0 | 0.1 | 5.0 | **22** | 0.0 | 0.0 | 0.0 | **22** | 0.0 | 0.0 | 0.0 | **22** | 10.0 | 0.5 | 5.0 |
| Coarse woody debris (m/ha) | | **816** | 255.0 | 0.3 | 2.0 | **1752** | 175.0 | 0.1 | 0.0 | **342** | 435.0 | 1.3 | 5.0 | **342** | 52.0 | 0.2 | 2.0 | **342** | 136.0 | 0.4 | 2.0 |
| Non-native plant cover (%): | | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.1 | 0.1 | 5.0 | **0** | 0.1 | 0.1 | 5.0 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 16.7 | | | | 16.8 | | | | 15.0 | | | | 8.3 | | | | 13.3 |
| ***Site condition score (-/130)*** | | | | | **43.67** | | | | **70.3** | | | | **63.0** | | | | **55.83** | | | | **62.33** |
| Size of patch (-/10) | | | | | 7 | | | | 2 | | | | 5 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 2 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 2 | | | | 2 | | | | 2 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 12.5 | | | | 12.5 | | | | 12.5 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 0 | | | | 5 | | | | 0 | | | | 5 |
| ***Site context score (-/70)*** | | | | | **36.0** | | | | **22.0** | | | | **26.5** | | | | **23.5** | | | | **28.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 1.01 | | | | 1.62 | | | | | | | | | | | | 1.39 |
| AU site context score (-/3): | | | | | 1.54 | | | | 0.94 | | | | | | | | | | | | 1.12 |
| AU species stocking rate (-/4): | | | | | 1.43 | | | | 1.43 | | | | | | | | | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | **3.98** | | | | **3.99** | | | | | | | | | | | | **3.94** |
| AU area within offset area: | | | | | 729.70 | | | | 12.80 | | | | | | | | | | | | 54.30 |
| Total offset area for this MNES: | | | | | 1355.5 | | | | 1355.5 | | | | | | | | | | | | 1355.5 |
| Area weighting: | | | | | 0.54 | | | | 0.01 | | | | | | | | | | | | 0.04 |
| ***AU weighted HQS:*** | | | | | **2.14** | | | | **0.04** | | | | | | | | | | | | **0.16** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | **4.04** |

# Appendix E5. Habitat quality scores – south-eastern long-eared bat – quality without offset

| *Assessment table for fauna habitat offset* | Assessment unit: | Bench-mark (BM) | AU11 | | | BM | AU11 | | | BM | AU8 | | | BM | AU8 | | | BM | AU8 | | | BM | AU3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | | | B13 | | | | B14 | | | | B25 | | | | B15 | | |
| | Regional ecosystem: | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.5.2 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.2 | 11.5.20 | | | 11.7.6 | 11.7.6 | | |
| ***Ecological condition indicator*** | | | Value | % | Score | | Value | % | Score | | Value | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | **100** | 100.0 | 1.0 | 5.0 | **100** | 75.0 | 0.8 | 5.0 | **100** | 80.0 | 0.8 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 |
| Native plant species richness (No.): Trees | | **2** | 3.0 | 1.5 | 5.0 | **2** | 8.0 | 4.0 | 5.0 | **2** | 6.0 | 2.0 | 5.0 | **3** | 3.0 | 1.0 | 5.0 | **3** | 8.0 | 2.7 | 5.0 | **4** | 6.0 | 1.5 | 5.0 |
| Shrubs | | **10** | 4.0 | 0.4 | 2.5 | **10** | 7.0 | 0.7 | 2.5 | **10** | 2.0 | 0.5 | 2.5 | **4** | 2.0 | 0.5 | 2.5 | **4** | 6.0 | 1.5 | 5.0 | **5** | 9.0 | 1.8 | 5.0 |
| Grasses | | **4** | 6.0 | 1.5 | 5.0 | **4** | 8.0 | 2.0 | 5.0 | **4** | 8.0 | 1.1 | 5.0 | **7** | 8.0 | 1.1 | 5.0 | **7** | 8.0 | 1.1 | 5.0 | **10** | 6.0 | 0.6 | 2.5 |
| Forbs | | **13** | 7.0 | 0.5 | 2.5 | **13** | 8.0 | 0.6 | 2.5 | **13** | 10.0 | 0.8 | 2.5 | **13** | 9.0 | 0.7 | 2.5 | **13** | 14.0 | 1.1 | 5.0 | **16** | 10.0 | 0.6 | 2.5 |
| Tree canopy height (m): average of | | **24** | 12.0 | 0.5 | 3.0 | **24** | 7.0 | 0.3 | 3.0 | **24** | 12.5 | 0.5 | 3.0 | **23** | 10.6 | 0.5 | 3.0 | **23** | 20.5 | 0.9 | 5.0 | **25** | 17.7 | 0.7 | 5.0 |
| Tree sub-canopy height | | **0** | 0.0 | 0 | 5.0 | **0** | 2.9 | | 0.0 | **0** | 5.8 | | 0.0 | **10** | 5.8 | | 0.0 | **10** | 9.2 | | 0.0 | **13** | 8.3 | 0.6 | 3.0 |
| Average score | | | | | 4.0 | | | | 1.5 | | | | 1.5 | | | | 1.5 | | | | 2.5 | | | | 4.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 29.0 | 0.4 | 2.0 | **70** | 0.0 | 0.0 | 0.0 | **70** | 0 | 0% | 0 | **43** | 18.6 | 0.4 | 2.0 | **43** | 30.8 | 0.7 | 5.0 | **40** | 51.0 | 1.3 | 5.0 |
| Tree sub-canopy cover | | **0** | 0.0 | 0 | 5.0 | **0** | 1.5 | | 0.0 | **0** | 0 | | 0 | **38** | 0.0 | | 0.0 | **38** | 11.6 | | 0.0 | **7** | 19.8 | 2.8 | 3.0 |
| Average score | | | | | 3.5 | | | | 0.0 | | | | 0.0 | | | | 1.0 | | | | 2.5 | | | | 4.0 |
| Shrub canopy cover (%): | | **48** | 4.0 | 0.1 | 0.0 | **48** | 5.0 | 0.1 | 3.0 | **48** | 0.0 | 0.0 | 0.0 | **5** | 0.4 | 0.1 | 0.0 | **5** | 0.0 | 0.0 | 0.0 | **11** | 0.0 | 0.0 | 0.0 |
| Native perennial grass cover (%): | | **6** | 6.4 | 1.1 | 5.0 | **6** | 17.0 | 2.8 | 5.0 | **6** | 29.4 | 3.7 | 5.0 | **8** | 34.0 | 4.3 | 5.0 | **8** | 18.2 | 2.3 | 5.0 | **23** | 31.6 | 1.4 | 5.0 |
| Organic litter (%): | | **75** | 38.6 | 0.5 | 5.0 | **75** | 46.8 | 0.6 | 5.0 | **75** | 21.4 | 0.4 | 3.0 | **57** | 44.0 | 0.8 | 5.0 | **57** | 7.0 | 0.1 | 3.0 | **52** | 41.2 | 0.8 | 5.0 |
| Large trees/ha (euc./non-euc. combined) | | **80** | 0.0 | 0.0 | 0.0 | **80** | 4.0 | 0.1 | 5.0 | **80** | 2.0 | 0.1 | 5.0 | **24** | 0.0 | 0.0 | 0.0 | **24** | 2.0 | 0.1 | 5.0 | **27** | 8.0 | 0.3 | 5.0 |
| Coarse woody debris (m/ha) | | **1752** | 58.0 | 0.0 | 0.0 | **1752** | 71.0 | 0.0 | 0.0 | **1752** | 14.0 | 0.1 | 0.0 | **178** | 292.0 | 1.6 | 5.0 | **178** | 296.0 | 1.7 | 5.0 | **217** | 816.0 | 3.8 | 2.0 |
| Non-native plant cover (%): | | **0** | 0.1 | 0.1 | 5.0 | **0** | 0.2 | 0.2 | 1.0 | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.3 | 0.3 | 3.0 |
| Quality/availability of food/foraging habitat (- | | | | | 0.0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 11.7 | | | | 10.0 | | | | 8.3 | | | | 11.7 | | | | 6.7 | | | | 11.7 |
| ***Site condition score (-/130)*** | | | | | **51.67** | | | | **52.00** | | | | **47.33** | | | | **53.67** | | | | **63.17** | | | | **59.67** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 7 | | | | 7 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 0 | | | | 2 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 4 | | | | 4 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 4 | | | | 0 |
| Threats to the species (-/15) | | | | | 17.5 | | | | 17.5 | | | | 15 | | | | 15 | | | | 17.5 | | | | 17.5 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 5 | | | | 0 | | | | 0 | | | | 0 | | | | 15 |
| ***Site context score (-/70)*** | | | | | **33.5** | | | | **33.5** | | | | **28.0** | | | | **24.0** | | | | **34.5** | | | | **48.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.20 | | | | | | | | | | | | 1.26 | | | | 1.38 |
| AU site context score (-/3): | | | | | | | | | 1.44 | | | | | | | | | | | | 1.18 | | | | 2.08 |
| AU species stocking rate (-/4): | | | | | | | | | 1.43 | | | | | | | | | | | | 1.43 | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | | | | | **4.06** | | | | | | | | | | | | **3.87** | | | | **4.88** |
| AU area within offset area: | | | | | | | | | 5.90 | | | | | | | | | | | | 49.10 | | | | 18.70 |
| Total offset area for this MNES: | | | | | | | | | 1355.5 | | | | | | | | | | | | 1355.5 | | | | 1355.5 |
| Area weighting: | | | | | | | | | 0.00 | | | | | | | | | | | | 0.04 | | | | 0.01 |
| ***AU weighted HQS:*** | | | | | | | | | **0.02** | | | | | | | | | | | | **0.14** | | | | **0.07** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| Assessment table for fauna habitat offset | Assessment unit: | Bench-mark (BM) | AU4 | | | BM | AU4 | | | BM | AU4 | | | BM | AU1 | | | BM | AU1 | | | BM | AU1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B1 | | | | B3 | | | | B16 | | | | B12 | | | | B27 | | | | B38 | | |
| | Regional | 11.7.6 | 11.7.6 | | | 11.7.6 | 11.7.6 | | | 11.7.6 | 11.7.6 | | | 11.12.1 | 11.12.1 | | | 11.12. | 11.12.1 | | | 11.12.1 | 11.12.1 | | |
| ***Ecological condition indicator*** | | | Value | % | Score | | Value | % | Score | | Value | % BM | Score | | Value | % | Score | | Value | % BM | Score | | Valu | % BM | Score |
| Recruitment of woody perennial species (%) | | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 50.0 | 0.5 | 3.0 | **200** | 100.0 | 0.5 | 3.0 | **200** | 50.0 | 0.3 | 3.0 | **200** | 50.0 | 0.3 | 3.0 |
| Native plant species richness (No.): Trees | | **4** | 3.0 | 0.8 | 2.5 | **4** | 4.0 | 1.0 | 5.0 | **4** | 8.0 | 2.0 | 5.0 | **6** | 9.0 | 1.5 | 5.0 | **6** | 7.0 | 1.2 | 5.0 | **6** | 7.0 | 1.2 | 5.0 |
| Shrubs | | **5** | 1.0 | 0.2 | 0.0 | **5** | 4.0 | 0.8 | 2.5 | **5** | 3.0 | 0.6 | 2.5 | **12** | 5.0 | 0.4 | 2.5 | **12** | 9.0 | 0.8 | 2.5 | **12** | 9.0 | 0.8 | 2.5 |
| Grasses | | **10** | 6.0 | 0.6 | 2.5 | **10** | 8.0 | 0.8 | 2.5 | **10** | 9.0 | 0.9 | 5.0 | **16** | 10.0 | 0.6 | 2.5 | **16** | 9.0 | 0.6 | 2.5 | **16** | 8.0 | 0.5 | 2.5 |
| Forbs | | **16** | 9.0 | 0.6 | 2.5 | **16** | 12.0 | 0.8 | 2.5 | **16** | 5.0 | 0.3 | 2.5 | **26** | 9.0 | 0.3 | 2.5 | **26** | 9.0 | 0.3 | 2.5 | **26** | 15.0 | 0.6 | 2.5 |
| Tree canopy height (m): average of | | **25** | 16.0 | 0.6 | 3.0 | **25** | 15.0 | 0.6 | 3.0 | **25** | 8.5 | 0.3 | 3.0 | **30** | 16.0 | 0.5 | 3.0 | **30** | 15.4 | 0.5 | 3.0 | **30** | 16.1 | 0.5 | 3.0 |
| Tree sub-canopy height | | **13** | 0.0 | 0.0 | 0.0 | **13** | 0.0 | 0.0 | 0.0 | **13** | 5.3 | 0.4 | 3.0 | **20** | 0.0 | 0.0 | 0.0 | **20** | 7.3 | 0.4 | 3.0 | **20** | 10.1 | 0.5 | 3.0 |
| Average score | | | | | 1.5 | | | | 1.5 | | | | 1.5 | | | | 3.0 | | | | 3.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, | | **40** | 46.0 | 1.2 | 5.0 | **40** | 26.5 | 0.7 | 5.0 | **40** | 0.0 | 0.0 | 0.0 | **70** | 44.0 | 0.6 | 5.0 | **70** | 43.1 | 0.6 | 5.0 | **70** | 23.9 | 0.3 | 2.0 |
| Tree sub-canopy cover | | **7** | 0.0 | 0.0 | 0.0 | **7** | 0.0 | 0.0 | 0.0 | **7** | 31.6 | 4.5 | 3.0 | **14** | 27.0 | 1.9 | 5.0 | **14** | 4.4 | 0.3 | 2.0 | **14** | 37.9 | 2.7 | 3.5 |
| Average score | | | | | 2.5 | | | | 2.5 | | | | 1.5 | | | | 2.5 | | | | 3.5 | | | | 1.0 |
| Shrub canopy cover (%): | | **11** | 12.5 | 1.1 | 5.0 | **11** | 0.0 | 0.0 | 0.0 | **11** | 0.0 | 0.0 | 0.0 | **8** | 3.7 | 0.5 | 3.0 | **8** | 1.0 | 0.1 | 3.0 | **8** | 1.0 | 0.1 | 3.0 |
| Native perennial grass cover (%): | | **23** | 27.0 | 1.2 | 5.0 | **23** | 36.0 | 1.6 | 5.0 | **23** | 32.2 | 1.4 | 5.0 | **82** | 15.0 | 0.2 | 1.0 | **82** | 60.0 | 0.7 | 3.0 | **82** | 15.0 | 0.2 | 1.0 |
| Organic litter (%): | | **52** | 56.0 | 1.1 | 5.0 | **52** | 37.8 | 0.7 | 5.0 | **52** | 8.4 | 0.2 | 3.0 | **56** | 76.2 | 1.4 | 5.0 | **56** | 41.0 | 0.7 | 5.0 | **56** | 54.6 | 1.0 | 5.0 |
| Large trees/ha (euc./non-euc. combined) | | **27** | 0.0 | 0.0 | 0.0 | **27** | 0.0 | 0.0 | 0.0 | **27** | 0.0 | 0.0 | 0.0 | **40** | 0.0 | 0.0 | 0.0 | **40** | 10.0 | 0.3 | 5.0 | **40** | 2.0 | 0.1 | 5.0 |
| Coarse woody debris (m/ha) | | **217** | 480.0 | 2.2 | 2.0 | **217** | 367.0 | 1.7 | 5.0 | **217** | 447.0 | 2.1 | 2.0 | **816** | 292.0 | 0.4 | 2.0 | **816** | 219.0 | 0.3 | 2.0 | **816** | 795.0 | 1.0 | 5.0 |
| Non-native plant cover (%): | | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.4 | 0.4 | 3.0 | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.6 | 0.6 | 0.0 | **0** | 0.2 | 0.2 | 5.0 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 0 | | | | 5 | | | | 0 | | | | 0 | | | | 5 |
| Quality/availability of shelter (-/25) | | | | | 15.0 | | | | 11.7 | | | | 11.7 | | | | 15.0 | | | | 16.7 | | | | 16.7 |
| ***Site condition score (-/130)*** | | | | | **51.5** | | | | **51.17** | | | | **52.17** | | | | **53.0** | | | | **56.67** | | | | **67.67** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 7 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 0 | | | | 0 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 2 | | | | 2 | | | | 4 | | | | 4 | | | | 5 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 17.5 | | | | 17.5 | | | | 17.5 | | | | 10 | | | | 17.5 | | | | 22.5 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 0 | | | | 0 | | | | 0 | | | | 5 | | | | 5 |
| ***Site context score (-/70)*** | | | | | **33.5** | | | | **24.5** | | | | **24.5** | | | | **19.0** | | | | **35.5** | | | | **44.5** |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 1.19 | | | | | | | | | | | | 1.36 |
| AU site context score (-/3): | | | | | | | | | | | | | 1.18 | | | | | | | | | | | | 1.41 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 1.43 | | | | | | | | | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | | | | | | | | | **3.80** | | | | | | | | | | | | **4.21** |
| AU area within offset area: | | | | | | | | | | | | | 100.6 | | | | | | | | | | | | 384.40 |
| Total offset area for this MNES: | | | | | | | | | | | | | 1355.5 | | | | | | | | | | | | 1355.5 |
| Area weighting: | | | | | | | | | | | | | 0.07 | | | | | | | | | | | | 0.28 |
| ***AU weighted HQS:*** | | | | | | | | | | | | | **0.28** | | | | | | | | | | | | **1.19** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| *Assessment table for fauna habitat offset* | Assessment unit: | Bench -mark (BM) | AU2 | | | BM | AU5 | | | BM | AU6 | | | BM | AU6 | | | BM | AU6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B8 | | | | B23 | | | | B9 | | | | B32 | | | | B33 | | |
| | Regional | 11.12. | 11.12.1 | | | 11.3.1 | 11.3.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | |
| ***Ecological condition indicator*** | | | Valu | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | **200** | 66.0 | 0.3 | 3.0 | **100** | 50.0 | 0.5 | 3.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 100.0 | 1.0 | 5.0 | **100** | 40.0 | 0.4 | 3.0 |
| Native plant species richness (No.): Trees | | **6** | 3.0 | 0.5 | 2.5 | **3** | 19.0 | 6.3 | 5.0 | **3** | 8.0 | 2.7 | 5.0 | **3** | 7.0 | 2.3 | 5.0 | **3** | 12.0 | 4.0 | 5.0 |
| Shrubs | | **12** | 3.0 | 0.3 | 2.5 | **5** | 5.0 | 1.0 | 5.0 | **6** | 4.0 | 0.7 | 2.5 | **6** | 5.0 | 0.8 | 2.5 | **6** | 8.0 | 1.3 | 5.0 |
| Grasses | | **16** | 6.0 | 0.4 | 2.5 | **4** | 7.0 | 1.8 | 5.0 | **9** | 10.0 | 1.1 | 5.0 | **9** | 5.0 | 0.6 | 2.5 | **9** | 3.0 | 0.3 | 2.5 |
| Forbs | | **26** | 3.0 | 0.1 | 0.0 | **8** | 6.0 | 0.8 | 2.5 | **11** | 4.0 | 0.4 | 2.5 | **11** | 5.0 | 0.5 | 2.5 | **11** | 7.0 | 0.6 | 2.5 |
| Tree canopy height (m): average of | | **30** | 10.0 | 0.3 | 3.0 | **14** | 11.0 | 0.8 | 5.0 | **17** | 11.0 | 0.6 | 3.0 | **17** | 13.5 | 0.8 | 5.0 | **17** | 13.7 | 0.8 | 5.0 |
| Tree sub-canopy height | | **20** | 0.0 | 0.0 | 0.0 | **4** | 5.4 | 1.4 | 5.0 | **8** | 5.0 | | 0.0 | **8** | 6.5 | | 0.0 | **8** | 6.4 | 0.8 | 5.0 |
| Average score | | | | | 1.5 | | | | 5.0 | | | | 1.5 | | | | 2.5 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 25.5 | 0.4 | 2.0 | **29** | 14.6 | 0.5 | 5.0 | **25** | 22.5 | 0.9 | 5.0 | **25** | 21.1 | 0.8 | 5.0 | **25** | 13.7 | 0.5 | 5.0 |
| Tree sub-canopy cover | | **14** | 0.0 | 0.0 | 0.0 | **9** | 7.1 | 0.8 | 5.0 | **5** | 17.5 | | 0.0 | **5** | 6.3 | | 0.0 | **5** | 4.7 | | 0.0 |
| Average score | | | | | 1.0 | | | | 5.0 | | | | 2.5 | | | | 2.5 | | | | 2.5 |
| Shrub canopy cover (%): | | **8** | 1.0 | 0.1 | 3.0 | **8** | 1.2 | 0.2 | 3.0 | **10** | 8.0 | 0.8 | 5.0 | **10** | 6.4 | 0.6 | 5.0 | **10** | 1.0 | 0.1 | 3.0 |
| Native perennial grass cover (%): | | **82** | 34.2 | 0.4 | 1.0 | **8** | 21.0 | 2.6 | 5.0 | **26** | 19.0 | 0.7 | 3.0 | **26** | 14.0 | 0.5 | 3.0 | **26** | 11.0 | 0.4 | 1.0 |
| Organic litter (%): | | **56** | 40.4 | 0.7 | 5.0 | **34** | 46.6 | 1.4 | 5.0 | **30** | 62.2 | 2.1 | 3.0 | **30** | 18.0 | 0.6 | 5.0 | **30** | 44.0 | 1.5 | 5.0 |
| Large trees/ha (euc./non-euc. combined) | | **40** | 0.0 | 0.0 | 0.0 | **70** | 4.0 | 0.1 | 5.0 | **22** | 0.0 | 0.0 | 0.0 | **22** | 0.0 | 0.0 | 0.0 | **22** | 10.0 | 0.5 | 5.0 |
| Coarse woody debris (m/ha) | | **816** | 255.0 | 0.3 | 2.0 | **1752** | 175.0 | 0.1 | 0.0 | **342** | 435.0 | 1.3 | 5.0 | **342** | 52.0 | 0.2 | 2.0 | **342** | 136.0 | 0.4 | 2.0 |
| Non-native plant cover (%): | | **0** | 0.3 | 0.3 | 3.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.2 | 0.2 | 5.0 | **0** | 0.1 | 0.1 | 5.0 | **0** | 0.1 | 0.1 | 5.0 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 16.7 | | | | 16.8 | | | | 15.0 | | | | 8.3 | | | | 13.3 |
| ***Site condition score (-/130)*** | | | | | **43.67** | | | | **70.3** | | | | **63.0** | | | | **55.83** | | | | **62.33** |
| Size of patch (-/10) | | | | | 7 | | | | 2 | | | | 5 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 2 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 2 | | | | 2 | | | | 2 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 12.5 | | | | 12.5 | | | | 12.5 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 0 | | | | 5 | | | | 0 | | | | 5 |
| ***Site context score (-/70)*** | | | | | **36.0** | | | | **22.0** | | | | **26.5** | | | | **23.5** | | | | **28.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 1.01 | | | | 1.62 | | | | | | | | | | | | 1.39 |
| AU site context score (-/3): | | | | | 1.54 | | | | 0.94 | | | | | | | | | | | | 1.12 |
| AU species stocking rate (-/4): | | | | | 1.43 | | | | 1.43 | | | | | | | | | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | **3.98** | | | | **3.99** | | | | | | | | | | | | **3.94** |
| AU area within offset area: | | | | | 729.70 | | | | 12.80 | | | | | | | | | | | | 54.30 |
| Total offset area for this MNES: | | | | | 1355.5 | | | | 1355.5 | | | | | | | | | | | | 1355.5 |
| Area weighting: | | | | | 0.54 | | | | 0.01 | | | | | | | | | | | | 0.04 |
| ***AU weighted HQS:*** | | | | | **2.14** | | | | **0.04** | | | | | | | | | | | | **0.16** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | **4.04** |

# Appendix E6. Habitat quality scores – south-eastern long-eared bat – quality with offset

| *Assessment table for fauna habitat offset* | Assessment unit: | Bench-mark (BM) | AU11 | | | BM | AU11 | | | BM | AU8 | | | BM | AU8 | | | BM | AU8 | | | BM | AU3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | | | B13 | | | | B14 | | | | B25 | | | | B15 | | |
| | Regional | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.5.2 | 11.5.20 | | | 11.5.20 | 11.5.20 | | | 11.5.2 | 11.5.20 | | | 11.7.6 | 11.7.6 | | |
| ***Ecological condition indicator*** | | | Valu | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 75 | 75% | 5 | **100** | 80 | 80% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | **2** | 3 | 150% | 5 | **2** | 8 | 400% | 5 | **2** | 6 | 200% | 5 | **3** | 3 | 100% | 5 | **3** | 8 | 267% | 5 | **4** | 6 | 150% | 5 |
| Shrubs | | **10** | 4 | 40% | 2.5 | **10** | 7 | 70% | 2.5 | **10** | 2 | 50% | 2.5 | **4** | 2 | 50% | 2.5 | **4** | 6 | 150% | 5 | **5** | 9 | 180% | 5 |
| Grasses | | **4** | 6 | 150% | 5 | **4** | 8 | 200% | 5 | **4** | 8 | 114% | 5 | **7** | 8 | 114% | 5 | **7** | 8 | 114% | 5 | **10** | 6 | 60% | 2.5 |
| Forbs | | **13** | 7 | 54% | 2.5 | **13** | 8 | 62% | 2.5 | **13** | 10 | 77% | 2.5 | **13** | 9 | 69% | 2.5 | **13** | 14 | 108% | 5 | **16** | 10 | 63% | 2.5 |
| Tree canopy height (m): average of | | **24** | 12 | 50% | 5 | **24** | 7.04 | 29% | 5 | **24** | 12.5 | 54% | 5 | **23** | 10.63 | 46% | 5 | **23** | 20.53 | 89% | 5 | **25** | 17.68 | 71% | 5 |
| Tree sub-canopy height | | **0** | 0 | | 5 | **0** | 2.875 | | 5 | **0** | 5.75 | | 5 | **10** | 5.75 | | 5 | **10** | 9.2 | | 5 | **13** | 8.34 | 64% | 5 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 29 | 41% | 5 | **70** | 0 | 0% | 5 | **70** | 0 | 0% | 5 | **43** | 18.6 | 43% | 5 | **43** | 30.8 | 72% | 5 | **40** | 51 | 128% | 5 |
| Tree sub-canopy cover | | **0** | 0 | | 5 | **0** | 1.5 | | 5 | **0** | 0 | | 5 | **38** | 0 | | 5 | **38** | 11.6 | | 5 | **7** | 19.8 | 283% | 5 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 |
| Shrub canopy cover (%): | | **48** | 4 | 8% | 3 | **48** | 5 | 10% | 5 | **48** | 0 | 0% | 5 | **5** | 0.4 | 8% | 5 | **5** | 0 | 0% | 5 | **11** | 0 | 0% | 5 |
| Native perennial grass cover (%): | | **6** | 6.4 | 107% | 5 | **6** | 17 | 283% | 5 | **6** | 29.4 | 368% | 5 | **8** | 34 | 425% | 5 | **8** | 18.2 | 228% | 5 | **23** | 31.6 | 137% | 5 |
| Organic litter (%): | | **75** | 38.6 | 51% | 5 | **75** | 46.8 | 62% | 5 | **75** | 21.4 | 38% | 3 | **57** | 44 | 77% | 5 | **57** | 7 | 12% | 3 | **52** | 41.2 | 79% | 5 |
| Large trees/ha (euc./non-euc. combined) | | **80** | 0 | 0% | 5 | **80** | 4 | 5% | 5 | **80** | 2 | 8% | 10 | **24** | 0 | 0% | 10 | **24** | 2 | 8% | 10 | **27** | 8 | 30% | 5 |
| Coarse woody debris (m/ha) | | **1752** | 58 | 3% | 3 | **1752** | 71 | 4% | 3 | **1752** | 14 | 8% | 5 | **178** | 292 | 164% | 5 | **178** | 296 | 166% | 5 | **217** | 816 | 376% | 5 |
| Non-native plant cover (%): | | **0** | 0.064 | 6% | 5 | **0** | 0.17 | 17% | 5 | **0** | 0.294 | 29% | 5 | **0** | 0.34 | 34% | 5 | **0** | 0.182 | 18% | 5 | **0** | 0.316 | 32% | 5 |
| Quality/availability of food/foraging habitat (- | | | | | 10.0 | | | | 10.0 | | | | 15.0 | | | | 15.0 | | | | 15.0 | | | | 15.0 |
| Quality/availability of shelter (-/25) | | | | | 11.7 | | | | 11.7 | | | | 15.0 | | | | 15.0 | | | | 15.0 | | | | 20.0 |
| ***Site condition score (-/130)*** | | | | | **77.67** | | | | **78** | | | | **83** | | | | **95** | | | | **98** | | | | **95** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 7 | | | | 7 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 4 | | | | 4 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 4 | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| Species mobility capacity (-/10) | | | | | 15 | | | | 15 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| ***Site context score (-/70)*** | | | | | **49.0** | | | | **49.0** | | | | **56.0** | | | | **54.0** | | | | **56.0** | | | | **56.0** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.80 | | | | | | | | | | | | 2.20 | | | | 2.19 |
| AU site context score (-/3): | | | | | | | | | 2.10 | | | | | | | | | | | | 2.67 | | | | 2.40 |
| AU species stocking rate (-/4): | | | | | | | | | 1.43 | | | | | | | | | | | | 1.43 | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | | | | | **5.32** | | | | | | | | | | | | **6.00** | | | | **6.02** |
| AU area within offset area: | | | | | | | | | 5.90 | | | | | | | | | | | | 49.10 | | | | 18.70 |
| Total offset area for this MNES: | | | | | | | | | 1355.5 | | | | | | | | | | | | 1355.5 | | | | 1355.5 |
| Area weighting: | | | | | | | | | 0.00 | | | | | | | | | | | | 0.04 | | | | 0.01 |
| ***AU weighted HQS:*** | | | | | | | | | **0.02** | | | | | | | | | | | | **0.22** | | | | **0.08** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **Bench -mark (BM)** | AU4 | | | **BM** | AU4 | | | **BM** | AU4 | | | **BM** | AU1 | | | **BM** | AU1 | | | **BM** | AU1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B1 | | | | B3 | | | | B16 | | | | B12 | | | | B27 | | | | B38 | | |
| | **Regional** | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | | **11.12.1** | 11.12.1 | | | **11.12.** | 11.12.1 | | | **11.12.** | 11.12.1 | | |
| ***Ecological condition indicator*** | | | **Valu** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 50 | 50% | 3 | **200** | 100 | 50% | 3 | **200** | 50 | 25% | 3 | **200** | 50 | 25% | 3 |
| Native plant species richness (No.): Trees | | **4** | 3 | 75% | 2.5 | **4** | 4 | 100% | 5 | **4** | 8 | 200% | 5 | **6** | 9 | 150% | 5 | **6** | 7 | 117% | 5 | **6** | 7 | 117% | 5 |
| Shrubs | | **5** | 1 | 20% | 0 | **5** | 4 | 80% | 2.5 | **5** | 3 | 60% | 2.5 | **12** | 5 | 42% | 2.5 | **12** | 9 | 75% | 2.5 | **12** | 9 | 75% | 2.5 |
| Grasses | | **10** | 6 | 60% | 2.5 | **10** | 8 | 80% | 2.5 | **10** | 9 | 90% | 5 | **16** | 10 | 63% | 2.5 | **16** | 9 | 56% | 2.5 | **16** | 8 | 50% | 2.5 |
| Forbs | | **16** | 9 | 56% | 2.5 | **16** | 12 | 75% | 2.5 | **16** | 5 | 31% | 2.5 | **26** | 9 | 35% | 2.5 | **26** | 9 | 35% | 2.5 | **26** | 15 | 58% | 2.5 |
| Tree canopy height (m): average of | | **25** | 16 | 64% | 5 | **25** | 15 | 60% | 5 | **25** | 8.45 | 34% | 5 | **30** | 16 | 53% | 5 | **30** | 15.43 | 51% | 5 | **30** | 16.07 | 54% | 3 |
| Tree sub-canopy height | | **13** | 0 | 0% | 5 | **13** | 0 | 0% | 5 | **13** | 5.3 | 41% | 5 | **20** | 0 | 0% | 5 | **20** | 7.33 | 37% | 5 | **20** | 10.13 | 51% | 3 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, | | **40** | 46 | 115% | 5 | **40** | 26.5 | 66% | 5 | **40** | 0 | 0% | 0 | **70** | 44 | 63% | 5 | **70** | 43.1 | 62% | 5 | **70** | 23.9 | 34% | 2 |
| Tree sub-canopy cover | | **7** | 0 | 0% | 5 | **7** | 0 | 0% | 5 | **7** | 31.6 | 451% | 5 | **14** | 27 | 193% | 5 | **14** | 4.4 | 31% | 5 | **14** | 37.9 | 271% | 5 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 2.5 | | | | 5.0 | | | | 5.0 | | | | 3.5 |
| Shrub canopy cover (%): | | **11** | 12.5 | 114% | 5 | **11** | 0 | 0% | 5 | **11** | 0 | 0% | 5 | **8** | 3.7 | 46% | 5 | 8 | 1 | 13% | 5 | **8** | 1 | 13% | 3 |
| Native perennial grass cover (%): | | **23** | 27 | 117% | 5 | **23** | 36 | 157% | 5 | **23** | 32.2 | 140% | 5 | **82** | 15 | 18% | 1 | 82 | 60 | 73% | 3 | **82** | 15 | 18% | 1 |
| Organic litter (%): | | **52** | 56 | 108% | 5 | **52** | 37.8 | 73% | 5 | **52** | 8.4 | 16% | 3 | **56** | 76.2 | 136% | 5 | 56 | 41 | 73% | 5 | **56** | 54.6 | 98% | 5 |
| Large trees/ha (euc./non-euc. combined) | | **27** | 0 | 0% | 0 | **27** | 0 | 0% | 0 | **27** | 0 | 0% | 0 | **40** | 0 | 0% | 0 | 40 | 10 | 25% | 5 | **40** | 2 | 5% | 5 |
| Coarse woody debris (m/ha) | | **217** | 480 | 221% | 5 | **217** | 367 | 169% | 5 | **217** | 447 | 206% | 5 | **816** | 292 | 36% | 5 | 816 | 219 | 27% | 5 | **816** | 795 | 97% | 5 |
| Non-native plant cover (%): | | **0** | 0.27 | 27% | 5 | **0** | 0.36 | 36% | 5 | **0** | 0.322 | 32% | 5 | **0** | 0.15 | 15% | 5 | 0 | 0.6 | 60% | 5 | **0** | 0.15 | 15% | 5 |
| Quality/availability of food/foraging habitat (- | | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| Quality/availability of shelter (-/25) | | | | | 200 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 16.7 |
| ***Site condition score (-/130)*** | | | | | **87.5** | | | | **92.5** | | | | **88.5** | | | | **86.5** | | | | **93.5** | | | | **82.67** |
| Size of patch (-/10) | | | | | 7 | | | | 7 | | | | 7 | | | | 7 | | | | 7 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 52 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 5 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 22.5 |
| Species mobility capacity (-/10) | | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| ***Site context score (-/70)*** | | | | | **56.0** | | | | **56.0** | | | | **56.0** | | | | **56.0** | | | | **56.0** | | | | **62.5** |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | | | | | 2.07 | | | | | | | | | | | | 2.02 |
| AU site context score (-/3): | | | | | | | | | | | | | 2.40 | | | | | | | | | | | | 2.49 |
| AU species stocking rate (-/4): | | | | | | | | | | | | | 1.43 | | | | | | | | | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | | | | | | | | | **5.89** | | | | | | | | | | | | **5.94** |
| AU area within offset area: | | | | | | | | | | | | | 100.6 | | | | | | | | | | | | 384.40 |
| Total offset area for this MNES: | | | | | | | | | | | | | 1355.5 | | | | | | | | | | | | 1355.5 |
| Area weighting: | | | | | | | | | | | | | 0.07 | | | | | | | | | | | | 0.28 |
| ***AU weighted HQS:*** | | | | | | | | | | | | | **0.44** | | | | | | | | | | | | **1.69** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| *Assessment table for fauna habitat offset* | Assessment unit: | Bench-mark (BM) | AU2 | | | BM | AU5 | | | BM | AU6 | | | BM | AU6 | | | BM | AU6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B8 | | | | B23 | | | | B9 | | | | B32 | | | | B33 | | |
| | Regional | 11.12. | 11.12.1 | | | 11.3.1 | 11.3.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | |
| ***Ecological condition indicator*** | | | Valu | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | **200** | 66 | 33% | 3 | **100** | 50 | 50% | 3 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 40 | 40% | 3 |
| Native plant species richness (No.): Trees | | **6** | 3 | 50% | 2.5 | **3** | 19 | 633% | 5 | **3** | 8 | 267% | 5 | **3** | 7 | 233% | 5 | **3** | 12 | 400% | 5 |
| Shrubs | | **12** | 3 | 25% | 2.5 | **5** | 5 | 100% | 5 | **6** | 4 | 67% | 2.5 | **6** | 5 | 83% | 2.5 | **6** | 8 | 133% | 5 |
| Grasses | | **16** | 6 | 38% | 2.5 | **4** | 7 | 175% | 5 | **9** | 10 | 111% | 5 | **9** | 5 | 56% | 2.5 | **9** | 3 | 33% | 2.5 |
| Forbs | | **26** | 3 | 12% | 0 | **8** | 6 | 75% | 2.5 | **11** | 4 | 36% | 2.5 | **11** | 5 | 45% | 2.5 | **11** | 7 | 64% | 2.5 |
| Tree canopy height (m): average of | | **30** | 10 | 33% | 3 | **14** | 11 | 79% | 5 | **17** | 11 | 65% | 3 | **17** | 13.53 | 80% | 5 | **17** | 13.73 | 81% | 5 |
| Tree sub-canopy height | | **20** | 0 | 0% | 0 | **4** | 5.425 | 136% | 5 | **8** | 5 | 63% | 5 | **8** | 6.47 | 81% | 5 | **8** | 6.37 | 80% | 5 |
| Average score | | | | | 1.5 | | | | 5.0 | | | | 4.0 | | | | 5.0 | | | | 5.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 25.5 | 36% | 2 | **29** | 14.6 | 50% | 5 | **25** | 22.5 | 90% | 5 | **25** | 21.1 | 84% | 5 | **25** | 13.7 | 55% | 5 |
| Tree sub-canopy cover | | **14** | 0 | 0% | 0 | **9** | 7.1 | 79% | 5 | **5** | 17.5 | 350% | 3 | **5** | 6.3 | | 3 | **5** | 4.7 | 94% | 3 |
| Average score | | | | | 1.0 | | | | 5.0 | | | | 4.0 | | | | 4.0 | | | | 4.0 |
| Shrub canopy cover (%): | | **8** | 1 | 13% | 3 | **8** | 1.2 | 15% | 3 | **10** | 8 | 80% | 5 | **10** | 6.4 | 64% | 5 | **10** | 1 | 10% | 3 |
| Native perennial grass cover (%): | | **82** | 34.2 | 42% | 1 | **8** | 21 | 263% | 5 | **26** | 19 | 73% | 3 | **26** | 14 | 54% | 3 | **26** | 11 | 42% | 1 |
| Organic litter (%): | | **56** | 40.4 | 72% | 5 | **34** | 46.6 | 137% | 5 | **30** | 62.2 | 207% | 3 | **30** | 18 | 60% | 5 | **30** | 44 | 147% | 5 |
| Large trees/ha (euc./non-euc. combined) | | **40** | 0 | 0% | 0 | **70** | 4 | 6% | 5 | **22** | 0 | 0% | 5 | **22** | 0 | 0% | 5 | **22** | 10 | 45% | 5 |
| Coarse woody debris (m/ha) | | **816** | 255 | 31% | 2 | **1752** | 175 | 10% | 10 | **342** | 435 | 127% | 10 | **342** | 52 | 15% | 10 | **342** | 136 | 40% | 10 |
| Non-native plant cover (%): | | **0** | 0.342 | 34% | 3 | **0** | 0.21 | 21% | 5 | **0** | 0.19 | 19% | 5 | **0** | 0.14 | 14% | 5 | **0** | 0.11 | 11% | 5 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 12 | | | | 12.0 | | | | 12.0 | | | | 12.0 |
| Quality/availability of shelter (-/25) | | | | | 16.7 | | | | 16.8 | | | | 15.0 | | | | 8.0 | | | | 20. |
| ***Site condition score (-/130)*** | | | | | **43.67** | | | | **92.3** | | | | **86** | | | | **78.83** | | | | **87** |
| Size of patch (-/10) | | | | | 7 | | | | 2 | | | | 5 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 5 | | | | 0 | | | | 2 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 0 | | | | 2 | | | | 2 | | | | 2 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 12.5 | | | | 12.5 | | | | 12.5 |
| Species mobility capacity (-/10) | | | | | 20 | | | | 0 | | | | 5 | | | | 0 | | | | 5 |
| ***Site context score (-/70)*** | | | | | **54.0** | | | | **22.0** | | | | **26.5** | | | | **23.5** | | | | **28.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 1.92 | | | | 2.13 | | | | | | | | | | | | 1.94 |
| AU site context score (-/3): | | | | | 2.31 | | | | 0.94 | | | | | | | | | | | | 1.12 |
| AU species stocking rate (-/4): | | | | | 1.43 | | | | 1.43 | | | | | | | | | | | | 1.43 |
| **AU habitat quality score (-/10):** | | | | | **5.66** | | | | **4.50** | | | | | | | | | | | | **4.49** |
| AU area within offset area: | | | | | 729.70 | | | | 12.80 | | | | | | | | | | | | 54.30 |
| Total offset area for this MNES: | | | | | 1355.5 | | | | 1355.5 | | | | | | | | | | | | 1355.5 |
| Area weighting: | | | | | 0.54 | | | | 0.01 | | | | | | | | | | | | 0.04 |
| ***AU weighted HQS:*** | | | | | **3.05** | | | | **0.04** | | | | | | | | | | | | **0.18** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | **5.71** |

# Appendix E7. Habitat quality scores – Dunmall's snake – offset start quality

| *Assessment table for fauna habitat offset* | Assessment unit: | Bench-mark (BM) | AU11 | | | BM | AU11 | | | BM | AU6 | | | BM | AU6 | | | BM | AU6 | | | BM | AU8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | | | B9 | | | | B32 | | | | B33 | | | | B13 | | |
| | Regional | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.2 | 11.5.20 | | |
| ***Ecological condition indicator*** | | | Valu | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 75 | 75% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 40 | 40% | 3 | **100** | 80 | 80% | 5 |
| Native plant species richness (No.): Trees | | **2** | 3 | 150% | 5 | **2** | 8 | 400% | 5 | **3** | 8 | 267% | 5 | **3** | 7 | 233% | 5 | **3** | 12 | 400% | 5 | **3** | 6 | 200% | 5 |
| Shrubs | | **10** | 4 | 40% | 2.5 | **10** | 7 | 70% | 2.5 | **6** | 4 | 67% | 2.5 | **6** | 5 | 83% | 2.5 | **6** | 8 | 133% | 5 | **4** | 2 | 50% | 2.5 |
| Grasses | | **4** | 6 | 150% | 5 | **4** | 8 | 200% | 5 | **9** | 10 | 111% | 5 | **9** | 5 | 56% | 2.5 | **9** | 3 | 33% | 2.5 | **7** | 8 | 114% | 5 |
| Forbs | | **13** | 7 | 54% | 2.5 | **13** | 8 | 62% | 2.5 | **11** | 4 | 36% | 2.5 | **11** | 5 | 45% | 2.5 | **11** | 7 | 64% | 2.5 | **13** | 10 | 77% | 2.5 |
| Tree canopy height (m): average of | | **24** | 12 | 50% | 3 | **24** | 7.04 | 29% | 3 | **17** | 11 | 65% | 3 | **17** | 13.53 | 80% | 5 | **17** | 13.73 | 81% | 5 | **23** | 12.5 | 54% | 3 |
| Tree sub-canopy height | | **0** | 0 | | 5 | **0** | 2.875 | | 0 | **8** | 5 | 63% | 3 | **8** | 6.47 | | 0 | **8** | 6.37 | | 0 | **10** | 5.75 | | 0 |
| Average score | | | | | 4.0 | | | | 1.50 | | | | 3.0 | | | | 2.5 | | | | 2.5 | | | | 0.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 29 | 41% | 2 | **70** | 0 | 0% | 0 | **25** | 22.5 | 90% | 5 | **25** | 21.1 | 84% | 5 | **25** | 13.7 | 55% | 5 | **43** | 0 | 0% | 0 |
| Tree sub-canopy cover | | **0** | 0 | | 5 | **0** | 1.5 | | 0 | **5** | 17.5 | 350% | 3 | **5** | 6.3 | | 0 | **5** | 4.7 | | 0 | **38** | 0 | | 0 |
| Average score | | | | | 3.5 | | | | .0 | | | | 4.0 | | | | 2.5 | | | | 2.5 | | | | 0.0 |
| Shrub canopy cover (%): | | **48** | 4 | 8% | 0 | **48** | 5 | 10% | 3 | **10** | 8 | 80% | 5 | **10** | 6.4 | 64% | 5 | **10** | 1 | 10% | 3 | **5** | 0 | 0% | 0 |
| Native perennial grass cover (%): | | **6** | 6.4 | 107% | 5 | **6** | 17 | 283% | 5 | **26** | 19 | 73% | 3 | **26** | 14 | 54% | 3 | **26** | 11 | 42% | 1 | **8** | 29.4 | 368% | 5 |
| Organic litter (%): | | **75** | 38.6 | 51% | 5 | **75** | 46.8 | 62% | 5 | **30** | 62.2 | 207% | 3 | **30** | 18 | 60% | 5 | **30** | 44 | 147% | 5 | **57** | 21.4 | 38% | 3 |
| Large trees/ha (euc./non-euc. combined) | | **80** | 0 | 0% | 0 | **80** | 4 | 5% | 5 | **22** | 0 | 0% | 0 | **22** | 0 | 0% | 0 | **22** | 10 | 45% | 5 | **24** | 2 | 8% | 5 |
| Coarse woody debris (m/ha) | | **1752** | 58 | 3% | 0 | **1752** | 71 | 4% | 0 | **342** | 435 | 127% | 5 | **342** | 52 | 15% | 2 | **342** | 136 | 40% | 2 | **178** | 14 | 8% | 0 |
| Non-native plant cover (%): | | **0** | 0.064 | 6% | 5 | **0** | 0.17 | 17% | 100% | **0** | 0.19 | 19% | 5 | **0** | 0.14 | 14% | 5 | **0** | 0.11 | 11% | 5 | **0** | 0.294 | 29% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 0 | | | | 20.0 | | | | 0 | | | | 5.0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 20.0 | | | | 0 | | | | 5.0 | | | | 0 |
| ***Site condition score (-/130)*** | | | | | **40** | | | | **42** | | | | **88** | | | | **47.5** | | | | **59** | | | | **39** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 5 | | | | 7 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 2 | | | | 2 | | | | 2 | | | | 4 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 17.5 | | | | 17.5 | | | | 12.5 | | | | 12.5 | | | | 12.5 | | | | 15 |
| Species mobility capacity (-/10) | | | | | 0 | | | | 0 | | | | 20 | | | | 0 | | | | 5 | | | | 0 |
| ***Site context score (-/70)*** | | | | | **28.5** | | | | **28.5** | | | | **41.5** | | | | **23.5** | | | | **28.5** | | | | **28.0** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 0.95 | | | | | | | | | | | | 1.50 | | | | |
| AU site context score (-/3): | | | | | | | | | 1.22 | | | | | | | | | | | | 1.34 | | | | |
| AU species stocking rate (-/4): | | | | | | | | | 1.14 | | | | | | | | | | | | 1.14 | | | | |
| **AU habitat quality score (-/10):** | | | | | | | | | **3.31** | | | | | | | | | | | | **3.97** | | | | |
| AU area within offset area: | | | | | | | | | 43.40 | | | | | | | | | | | | 54.30 | | | | |
| Total offset area for this MNES: | | | | | | | | | 295.8 | | | | | | | | | | | | 295.8 | | | | |
| Area weighting: | | | | | | | | | 0.15 | | | | | | | | | | | | 0.18 | | | | |
| ***AU weighted HQS:*** | | | | | | | | | **0.49** | | | | | | | | | | | | **0.73** | | | | |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **Bench-mark (BM)** | AU8 | | | **BM** | AU8 | | | **BM** | AU3 | | | **BM** | AU4 | | | **BM** | AU4 | | | **BM** | AU4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B14 | | | | B25 | | | | B15 | | | | B1 | | | | B3 | | | | B16 | | |
| | **Regional** | **11.5.2** | 11.5.20 | | | **11.5.2** | 11.5.20 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | |
| ***Ecological condition indicator*** | | | **Valu** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 50 | 50% | 3 |
| Native plant species richness (No.): Trees | | **3** | 3 | 100% | 5 | **3** | 8 | 267% | 5 | **4** | 6 | 150% | 5 | **4** | 3 | 75% | 2.5 | **4** | 4 | 100% | 5 | **4** | 8 | 200% | 5 |
| Shrubs | | **4** | 2 | 50% | 2.5 | **4** | 6 | 150% | 5 | **5** | 9 | 180% | 5 | **5** | 1 | 20% | 0 | **5** | 4 | 80% | 2.5 | **5** | 3 | 60% | 2.5 |
| Grasses | | **7** | 8 | 114% | 5 | **7** | 8 | 114% | 5 | **10** | 6 | 60% | 2.5 | **10** | 6 | 60% | 2.5 | **10** | 8 | 80% | 2.5 | **10** | 9 | 90% | 5 |
| Forbs | | **13** | 9 | 69% | 2.5 | **13** | 14 | 108% | 5 | **16** | 10 | 63% | 2.5 | **16** | 9 | 56% | 2.5 | **16** | 12 | 75% | 2.5 | **16** | 5 | 31% | 2.5 |
| Tree canopy height (m): average of | | **23** | 10.63 | 46% | 3 | **23** | 20.53 | 89% | 5 | **25** | 17.68 | 71% | 5 | **25** | 16 | 64% | 3 | **25** | 15 | 60% | 3 | **25** | 8.45 | 34% | 3 |
| Tree sub-canopy height | | **10** | 5.75 | | 0 | **10** | 9.2 | | 0 | **13** | 8.34 | 64% | 3 | **13** | 0 | | 0 | **13** | 0 | | 0 | **13** | 5.3 | | 0 |
| Average score | | | | | 1.5 | | | | 2.5 | | | | 4.0 | | | | 1.5 | | | | 1.5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, | | **43** | 18.6 | 43% | 2 | **43** | 30.8 | 72% | 5 | **40** | 51 | 128% | 5 | **40** | 46 | 115% | 5 | **40** | 26.5 | 66% | 5 | **40** | 0 | 0% | 0 |
| Tree sub-canopy cover | | **38** | 0 | | 0 | **38** | 11.6 | | 0 | **7** | 19.8 | 283% | 3 | **7** | 0 | | 0 | **7** | 0 | | 0 | **7** | 31.6 | | 0 |
| Average score | | | | | 1.0 | | | | 2.5 | | | | 4.0 | | | | 2.5 | | | | 2.5 | | | | 0.0 |
| Shrub canopy cover (%): | | **5** | 0.4 | 8% | 0 | **5** | 0 | 0% | 0 | **11** | 0 | 0% | 0 | **11** | 12.5 | 114% | 5 | **11** | 0 | 0% | 0 | **11** | 0 | 0% | 0 |
| Native perennial grass cover (%): | | **8** | 34 | 425% | 5 | **8** | 18.2 | 228% | 5 | **23** | 31.6 | 137% | 5 | **23** | 27 | 117% | 5 | **23** | 36 | 157% | 5 | **23** | 32.2 | 140% | 5 |
| Organic litter (%): | | **57** | 44 | 77% | 5 | **57** | 7 | 12% | 3 | **52** | 41.2 | 79% | 5 | **52** | 56 | 108% | 5 | **52** | 37.8 | 73% | 5 | **52** | 8.4 | 16% | 3 |
| Large trees/ha (euc./non-euc. combined) | | **24** | 0 | 0% | 0 | **24** | 2 | 8% | 5 | **27** | 8 | 30% | 5 | **27** | 0 | 0% | 0 | **27** | 0 | 0% | 0 | **27** | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | **178** | 292 | 164% | 5 | **178** | 296 | 166% | 5 | **217** | 816 | 376% | 2 | **217** | 480 | 221% | 2 | **217** | 367 | 169% | 5 | **217** | 447 | 206% | 2 |
| Non-native plant cover (%): | | **0** | 0.34 | 34% | 3 | **0** | 0.182 | 18% | 5 | **0** | 0.316 | 32% | 3 | **0** | 0.27 | 27% | 3 | **0** | 0.36 | 36% | 3 | **0** | 0.322 | 32% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 10 | | | | 10 | | | | 25 | | | | 20 | | | | 15 | | | | 20 |
| Quality/availability of shelter (-/25) | | | | | 10 | | | | 10 | | | | 25 | | | | 20 | | | | 15 | | | | 20 |
| ***Site condition score (-/130)*** | | | | | **62** | | | | **76.5** | | | | **98** | | | | **76.5** | | | | **69.5** | | | | **75.5** |
| Size of patch (-/10) | | | | | 7 | | | | 7 | | | | 7 | | | | 5 | | | | 5 | | | | 5 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 2 | | | | 5 | | | | 2 | | | | 0 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 2 |
| Ecological corridors (-/6) | | | | | 0 | | | | 4 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 15 | | | | 17.5 | | | | 17.5 | | | | 17.5 | | | | 17.5 | | | | 17.5 |
| Species mobility capacity (-/10) | | | | | 10 | | | | 10 | | | | 25 | | | | 20 | | | | 15 | | | | 20 |
| ***Site context score (-/70)*** | | | | | **34.0** | | | | **40.5** | | | | **58.5** | | | | **48.5** | | | | **39.5** | | | | **44.5** |
| Assessment unit totals | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.37 | | | | 2.26 | | | | | | | | | | | | 1.70 |
| AU site context score (-/3): | | | | | | | | | 1.46 | | | | 2.51 | | | | | | | | | | | | 1.89 |
| AU species stocking rate (-/4): | | | | | | | | | 1.14 | | | | 1.14 | | | | | | | | | | | | 1.14 |
| **AU habitat quality score (-/10):** | | | | | | | | | **3.97** | | | | **5.91** | | | | | | | | | | | | **4.74** |
| AU area within offset area: | | | | | | | | | 49.10 | | | | 18.70 | | | | | | | | | | | | 100.6 |
| Total offset area for this MNES: | | | | | | | | | 295.8 | | | | 295.8 | | | | | | | | | | | | 295.80 |
| Area weighting: | | | | | | | | | 0.17 | | | | 0.06 | | | | | | | | | | | | 0.34 |
| ***AU weighted HQS:*** | | | | | | | | | **0.66** | | | | **0.37** | | | | | | | | | | | | **1.61** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **BM** | AU5 | | | **BM** | AU10 | | | **BM** | AU7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B25 | | | | B15 | | | | B1 | | |
| | **Regional** | **11.3.1** | 11.3.1 | | | **11.4.3** | 11.4.3 | | | **11.5.1** | 11.5.1a | | |
| ***Ecological condition indicator*** | | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Valu** | **% BM** | **Scor** |
| Recruitment of woody perennial species (%) | | **100** | 50 | 50% | 3 | **100** | 33.33 | 33% | 3 | **100** | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | **3** | 19 | 633% | 5 | **2** | 8 | 400% | 5 | **3** | 2 | 75% | 2.5 |
| Shrubs | | **5** | 5 | 100% | 5 | **10** | 6 | 60% | 2.5 | **6** | 1 | 20% | 0 |
| Grasses | | **4** | 7 | 175% | 5 | **4** | 3 | 75% | 2.5 | **9** | 7 | 60% | 2.5 |
| Forbs | | **8** | 6 | 75% | 2.5 | **13** | 5 | 38% | 2.5 | **11** | 4 | 56% | 2.5 |
| Tree canopy height (m): average of | | **14** | 11 | 79% | 5 | **24** | 21.03 | 88% | 5 | **17** | 11 | 64% | 3 |
| Tree sub-canopy height | | **4** | 5.425 | 136% | 5 | **0** | 11.93 | 33% | | **8** | 0 | | 0 |
| Average score | | | | | 5 | | | | 5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, | | **29** | 14.6 | 50% | 5 | **70** | 75.2 | 107% | 5 | **25** | 18 | 115% | 5 |
| Tree sub-canopy cover | | **9** | 7.1 | 79% | 5 | **0** | 13 | 0 | | **5** | 0 | | 0 |
| Average score | | | | | 5 | | | | 5 | | | | 2.5 |
| Shrub canopy cover (%): | | **8** | 1.2 | 15% | 3 | **48** | 4 | 8% | 0 | **10** | 0 | 114% | 0 |
| Native perennial grass cover (%): | | **8** | 21 | 263% | 5 | **6** | 20 | 333% | 5 | **26** | 32 | 117% | 5 |
| Organic litter (%): | | **34** | 46.6 | 137% | 5 | **75** | 8 | 11% | 3 | **30** | 26 | 108% | 5 |
| Large trees/ha (euc./non-euc. combined) | | **70** | 4 | 6% | 5 | **80** | 90 | 113% | 15 | **22** | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | **1752** | 175 | 10% | 0 | **1752** | 1585 | 90% | 5 | **342** | 246 | 221% | 5 |
| Non-native plant cover (%): | | **0** | 0.21 | 21% | 5 | **0** | 0.2 | 20% | 5 | **0** | 0.32 | 27% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 5 | | | | 25 | | | | 10 |
| Quality/availability of shelter (-/25) | | | | | 5 | | | | 25 | | | | 10 |
| ***Site condition score (-/130)*** | | | | | **63.5** | | | | **108.5** | | | | **54.5** |
| Size of patch (-/10) | | | | | 2 | | | | 7 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 0 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 0 | | | | 2 | | | | 4 |
| Ecological corridors (-/6) | | | | | | | | | | | | | 0 |
| Threats to the species (-/15) | | | | | 15 | | | | 12.5 | | | | 10 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 25 | | | | 10 |
| ***Site context score (-/70)*** | | | | | **22** | | | | **46.5** | | | | **26** |
| Assessment unit totals | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 1.47 | | | | 2.50 | | | | 1.26 |
| AU site context score (-/3): | | | | | 0.94 | | | | 1.99 | | | | 1.11 |
| AU species stocking rate (-/4): | | | | | 1.14 | | | | 1.14 | | | | 1.14 |
| **AU habitat quality score (-/10):** | | | | | **3.55** | | | | **5.64** | | | | **3.61** |
| AU area within offset area: | | | | | 12.8 | | | | 4.7 | | | | 12.2 |
| Total offset area for this MNES: | | | | | 295.8 | | | | 295.8 | | | | 295.8 |
| Area weighting: | | | | | 0.04 | | | | 0.02 | | | | 0.04 |
| ***AU weighted HQS:*** | | | | | **0.15** | | | | **0.09** | | | | **0.14** |
| **Total HQS all AUs:** | | | | | | | | | | | | | **4.25** |

# Appendix E8. Habitat quality scores – Dunmall's snake – quality without offset

| *Assessment table for fauna habitat offset* | Assessment unit: | Bench-mark (BM) | AU11 | | | BM | AU11 | | | BM | AU6 | | | BM | AU6 | | | BM | AU6 | | | BM | AU8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | | | B9 | | | | B32 | | | | B33 | | | | B13 | | |
| | Regional | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.1 | 11.5.1 | | | 11.5.2 | 11.5.20 | | |
| ***Ecological condition indicator*** | | | Valu | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Valu | % BM | Score | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 75 | 75% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 40 | 40% | 3 | **100** | 80 | 80% | 5 |
| Native plant species richness (No.): Trees | | **2** | 3 | 150% | 5 | **2** | 8 | 400% | 5 | **3** | 8 | 267% | 5 | **3** | 7 | 233% | 5 | **3** | 12 | 400% | 5 | **3** | 6 | 200% | 5 |
| Shrubs | | **10** | 4 | 40% | 2.5 | **10** | 7 | 70% | 2.5 | **6** | 4 | 67% | 2.5 | **6** | 5 | 83% | 2.5 | **6** | 8 | 133% | 5 | **4** | 2 | 50% | 2.5 |
| Grasses | | **4** | 6 | 150% | 5 | **4** | 8 | 200% | 5 | **9** | 10 | 111% | 5 | **9** | 5 | 56% | 2.5 | **9** | 3 | 33% | 2.5 | **7** | 8 | 114% | 5 |
| Forbs | | **13** | 7 | 54% | 2.5 | **13** | 8 | 62% | 2.5 | **11** | 4 | 36% | 2.5 | **11** | 5 | 45% | 2.5 | **11** | 7 | 64% | 2.5 | **13** | 10 | 77% | 2.5 |
| Tree canopy height (m): average of | | **24** | 12 | 50% | 3 | **24** | 7.04 | 29% | 3 | **17** | 11 | 65% | 3 | **17** | 13.53 | 80% | 5 | **17** | 13.73 | 81% | 5 | **23** | 12.5 | 54% | 3 |
| Tree sub-canopy height | | **0** | 0 | | 5 | **0** | 2.875 | | 0 | **8** | 5 | 63% | 3 | **8** | 6.47 | | 0 | **8** | 6.37 | | 0 | **10** | 5.75 | | 0 |
| Average score | | | | | 4.0 | | | | 1.50 | | | | 3.0 | | | | 2.5 | | | | 2.5 | | | | 0.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 29 | 41% | 2 | **70** | 0 | 0% | 0 | **25** | 22.5 | 90% | 5 | **25** | 21.1 | 84% | 5 | **25** | 13.7 | 55% | 5 | **43** | 0 | 0% | 0 |
| Tree sub-canopy cover | | **0** | 0 | | 5 | **0** | 1.5 | | 0 | **5** | 17.5 | 350% | 3 | **5** | 6.3 | | 0 | **5** | 4.7 | | 0 | **38** | 0 | | 0 |
| Average score | | | | | 3.5 | | | | .0 | | | | 4.0 | | | | 2.5 | | | | 2.5 | | | | 0.0 |
| Shrub canopy cover (%): | | **48** | 4 | 8% | 0 | **48** | 5 | 10% | 3 | **10** | 8 | 80% | 5 | **10** | 6.4 | 64% | 5 | **10** | 1 | 10% | 3 | **5** | 0 | 0% | 0 |
| Native perennial grass cover (%): | | **6** | 6.4 | 107% | 5 | **6** | 17 | 283% | 5 | **26** | 19 | 73% | 3 | **26** | 14 | 54% | 3 | **26** | 11 | 42% | 1 | **8** | 29.4 | 368% | 5 |
| Organic litter (%): | | **75** | 38.6 | 51% | 5 | **75** | 46.8 | 62% | 5 | **30** | 62.2 | 207% | 3 | **30** | 18 | 60% | 5 | **30** | 44 | 147% | 5 | **57** | 21.4 | 38% | 3 |
| Large trees/ha (euc./non-euc. combined) | | **80** | 0 | 0% | 0 | **80** | 4 | 5% | 5 | **22** | 0 | 0% | 0 | **22** | 0 | 0% | 0 | **22** | 10 | 45% | 5 | **24** | 2 | 8% | 5 |
| Coarse woody debris (m/ha) | | **1752** | 58 | 3% | 0 | **1752** | 71 | 4% | 0 | **342** | 435 | 127% | 5 | **342** | 52 | 15% | 2 | **342** | 136 | 40% | 2 | **178** | 14 | 8% | 0 |
| Non-native plant cover (%): | | **0** | 0.064 | 6% | 5 | **0** | 0.17 | 17% | 100% | **0** | 0.19 | 19% | 5 | **0** | 0.14 | 14% | 5 | **0** | 0.11 | 11% | 5 | **0** | 0.294 | 29% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 0 | | | | 0 | | | | 20.0 | | | | 0 | | | | 5.0 | | | | 0 |
| Quality/availability of shelter (-/25) | | | | | 0 | | | | 0 | | | | 20.0 | | | | 0 | | | | 5.0 | | | | 0 |
| ***Site condition score (-/130)*** | | | | | **40** | | | | **42** | | | | **88** | | | | **47.5** | | | | **59** | | | | **39** |
| Size of patch (-/10) | | | | | 5 | | | | 5 | | | | 5 | | | | 7 | | | | 7 | | | | 7 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 2 | | | | 2 | | | | 2 | | | | 4 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 17.5 | | | | 17.5 | | | | 12.5 | | | | 12.5 | | | | 12.5 | | | | 15 |
| Species mobility capacity (-/10) | | | | | 0 | | | | 0 | | | | 20 | | | | 0 | | | | 5 | | | | 0 |
| ***Site context score (-/70)*** | | | | | **28.5** | | | | **28.5** | | | | **41.5** | | | | **23.5** | | | | **28.5** | | | | **28.0** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 0.95 | | | | | | | | | | | | 1.50 | | | | |
| AU site context score (-/3): | | | | | | | | | 1.22 | | | | | | | | | | | | 1.34 | | | | |
| AU species stocking rate (-/4): | | | | | | | | | 1.14 | | | | | | | | | | | | 1.14 | | | | |
| **AU habitat quality score (-/10):** | | | | | | | | | **3.31** | | | | | | | | | | | | **3.97** | | | | |
| AU area within offset area: | | | | | | | | | 43.40 | | | | | | | | | | | | 54.30 | | | | |
| Total offset area for this MNES: | | | | | | | | | 295.8 | | | | | | | | | | | | 295.8 | | | | |
| Area weighting: | | | | | | | | | 0.15 | | | | | | | | | | | | 0.18 | | | | |
| ***AU weighted HQS:*** | | | | | | | | | **0.49** | | | | | | | | | | | | **0.73** | | | | |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| *Assessment table for fauna habitat offset* | **Assessment unit:** | **Bench-mark (BM)** | AU8 | | | **BM** | AU8 | | | **BM** | AU3 | | | **BM** | AU4 | | | **BM** | AU4 | | | **BM** | AU4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B14 | | | | B25 | | | | B15 | | | | B1 | | | | B3 | | | | B16 | | |
| | **Regional** | **11.5.2** | 11.5.20 | | | **11.5.2** | 11.5.20 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | | **11.7.6** | 11.7.6 | | |
| ***Ecological condition indicator*** | | | **Valu** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 50 | 50% | 3 |
| Native plant species richness (No.): Trees | | **3** | 3 | 100% | 5 | **3** | 8 | 267% | 5 | **4** | 6 | 150% | 5 | **4** | 3 | 75% | 2.5 | **4** | 4 | 100% | 5 | **4** | 8 | 200% | 5 |
| Shrubs | | **4** | 2 | 50% | 2.5 | **4** | 6 | 150% | 5 | **5** | 9 | 180% | 5 | **5** | 1 | 20% | 0 | **5** | 4 | 80% | 2.5 | **5** | 3 | 60% | 2.5 |
| Grasses | | **7** | 8 | 114% | 5 | **7** | 8 | 114% | 5 | **10** | 6 | 60% | 2.5 | **10** | 6 | 60% | 2.5 | **10** | 8 | 80% | 2.5 | **10** | 9 | 90% | 5 |
| Forbs | | **13** | 9 | 69% | 2.5 | **13** | 14 | 108% | 5 | **16** | 10 | 63% | 2.5 | **16** | 9 | 56% | 2.5 | **16** | 12 | 75% | 2.5 | **16** | 5 | 31% | 2.5 |
| Tree canopy height (m): average of | | **23** | 10.63 | 46% | 3 | **23** | 20.53 | 89% | 5 | **25** | 17.68 | 71% | 5 | **25** | 16 | 64% | 3 | **25** | 15 | 60% | 3 | **25** | 8.45 | 34% | 3 |
| Tree sub-canopy height | | **10** | 5.75 | | 0 | **10** | 9.2 | | 0 | **13** | 8.34 | 64% | 3 | **13** | 0 | | 0 | **13** | 0 | | 0 | **13** | 5.3 | | 0 |
| Average score | | | | | 1.5 | | | | 2.5 | | | | 4.0 | | | | 1.5 | | | | 1.5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, | | **43** | 18.6 | 43% | 2 | **43** | 30.8 | 72% | 5 | **40** | 51 | 128% | 5 | **40** | 46 | 115% | 5 | **40** | 26.5 | 66% | 5 | **40** | 0 | 0% | 0 |
| Tree sub-canopy cover | | **38** | 0 | | 0 | **38** | 11.6 | | 0 | **7** | 19.8 | 283% | 3 | **7** | 0 | | 0 | **7** | 0 | | 0 | **7** | 31.6 | | 0 |
| Average score | | | | | 1.0 | | | | 2.5 | | | | 4.0 | | | | 2.5 | | | | 2.5 | | | | 0.0 |
| Shrub canopy cover (%): | | **5** | 0.4 | 8% | 0 | **5** | 0 | 0% | 0 | **11** | 0 | 0% | 0 | **11** | 12.5 | 114% | 5 | **11** | 0 | 0% | 0 | **11** | 0 | 0% | 0 |
| Native perennial grass cover (%): | | **8** | 34 | 425% | 5 | **8** | 18.2 | 228% | 5 | **23** | 31.6 | 137% | 5 | **23** | 27 | 117% | 5 | **23** | 36 | 157% | 5 | **23** | 32.2 | 140% | 5 |
| Organic litter (%): | | **57** | 44 | 77% | 5 | **57** | 7 | 12% | 3 | **52** | 41.2 | 79% | 5 | **52** | 56 | 108% | 5 | **52** | 37.8 | 73% | 5 | **52** | 8.4 | 16% | 3 |
| Large trees/ha (euc./non-euc. combined) | | **24** | 0 | 0% | 0 | **24** | 2 | 8% | 5 | **27** | 8 | 30% | 5 | **27** | 0 | 0% | 0 | **27** | 0 | 0% | 0 | **27** | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | **178** | 292 | 164% | 5 | **178** | 296 | 166% | 5 | **217** | 816 | 376% | 2 | **217** | 480 | 221% | 2 | **217** | 367 | 169% | 5 | **217** | 447 | 206% | 2 |
| Non-native plant cover (%): | | **0** | 0.34 | 34% | 3 | **0** | 0.182 | 18% | 5 | **0** | 0.316 | 32% | 3 | **0** | 0.27 | 27% | 3 | **0** | 0.36 | 36% | 3 | **0** | 0.322 | 32% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 10 | | | | 10 | | | | 25 | | | | 20 | | | | 15 | | | | 20 |
| Quality/availability of shelter (-/25) | | | | | 10 | | | | 10 | | | | 25 | | | | 20 | | | | 15 | | | | 20 |
| ***Site condition score (-/130)*** | | | | | **62** | | | | **76.5** | | | | **98** | | | | **76.5** | | | | **69.5** | | | | **75.5** |
| Size of patch (-/10) | | | | | 7 | | | | 7 | | | | 7 | | | | 5 | | | | 5 | | | | 5 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 2 | | | | 5 | | | | 2 | | | | 0 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 2 | | | | 4 | | | | 4 | | | | 4 | | | | 2 | | | | 2 |
| Ecological corridors (-/6) | | | | | 0 | | | | 4 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 15 | | | | 17.5 | | | | 17.5 | | | | 17.5 | | | | 17.5 | | | | 17.5 |
| Species mobility capacity (-/10) | | | | | 10 | | | | 10 | | | | 25 | | | | 20 | | | | 15 | | | | 20 |
| ***Site context score (-/70)*** | | | | | **34.0** | | | | **40.5** | | | | **58.5** | | | | **48.5** | | | | **39.5** | | | | **44.5** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 1.37 | | | | 2.26 | | | | | | | | | | | | 1.70 |
| AU site context score (-/3): | | | | | | | | | 1.46 | | | | 2.51 | | | | | | | | | | | | 1.89 |
| AU species stocking rate (-/4): | | | | | | | | | 1.14 | | | | 1.14 | | | | | | | | | | | | 1.14 |
| **AU habitat quality score (-/10):** | | | | | | | | | **3.97** | | | | **5.91** | | | | | | | | | | | | **4.74** |
| AU area within offset area: | | | | | | | | | 49.10 | | | | 18.70 | | | | | | | | | | | | 100.6 |
| Total offset area for this MNES: | | | | | | | | | 295.8 | | | | 295.8 | | | | | | | | | | | | 295.80 |
| Area weighting: | | | | | | | | | 0.17 | | | | 0.06 | | | | | | | | | | | | 0.34 |
| ***AU weighted HQS:*** | | | | | | | | | **0.66** | | | | **0.37** | | | | | | | | | | | | **1.61** |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **BM** | AU5 | | | **BM** | AU10 | | | **BM** | AU7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B25 | | | | B15 | | | | B1 | | |
| | **Regional** | **11.3.1** | 11.3.1 | | | **11.4.3** | 11.4.3 | | | **11.5.1** | 11.5.1a | | |
| ***Ecological condition indicator*** | | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 50 | 50% | 3 | **100** | 33.33 | 33% | 3 | **100** | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | **3** | 19 | 633% | 5 | **2** | 8 | 400% | 5 | **3** | 2 | 75% | 2.5 |
| Shrubs | | **5** | 5 | 100% | 5 | **10** | 6 | 60% | 2.5 | **6** | 1 | 20% | 0 |
| Grasses | | **4** | 7 | 175% | 5 | **4** | 3 | 75% | 2.5 | **9** | 7 | 60% | 2.5 |
| Forbs | | **8** | 6 | 75% | 2.5 | **13** | 5 | 38% | 2.5 | **11** | 4 | 56% | 2.5 |
| Tree canopy height (m): average of | | **14** | 11 | 79% | 5 | **24** | 21.03 | 88% | 5 | **17** | 11 | 64% | 3 |
| Tree sub-canopy height | | **4** | 5.425 | 136% | 5 | **0** | 11.93 | 33% | | **8** | 0 | | 0 |
| Average score | | | | | 5 | | | | 5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, | | **29** | 14.6 | 50% | 5 | **70** | 75.2 | 107% | 5 | **25** | 18 | 115% | 5 |
| Tree sub-canopy cover | | **9** | 7.1 | 79% | 5 | **0** | 13 | 0 | | **5** | 0 | | 0 |
| Average score | | | | | 5 | | | | 5 | | | | 2.5 |
| Shrub canopy cover (%): | | **8** | 1.2 | 15% | 3 | **48** | 4 | 8% | 0 | **10** | 0 | 114% | 0 |
| Native perennial grass cover (%): | | **8** | 21 | 263% | 5 | **6** | 20 | 333% | 5 | **26** | 32 | 117% | 5 |
| Organic litter (%): | | **34** | 46.6 | 137% | 5 | **75** | 8 | 11% | 3 | **30** | 26 | 108% | 5 |
| Large trees/ha (euc./non-euc. combined) | | **70** | 4 | 6% | 5 | **80** | 90 | 113% | 15 | **22** | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | **1752** | 175 | 10% | 0 | **1752** | 1585 | 90% | 5 | **342** | 246 | 221% | 5 |
| Non-native plant cover (%): | | **0** | 0.21 | 21% | 5 | **0** | 0.2 | 20% | 5 | **0** | 0.32 | 27% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 5 | | | | 25 | | | | 10 |
| Quality/availability of shelter (-/25) | | | | | 5 | | | | 25 | | | | 10 |
| ***Site condition score (-/130)*** | | | | | **63.5** | | | | **108.5** | | | | **54.5** |
| Size of patch (-/10) | | | | | 2 | | | | 7 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 0 | | | | 0 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 0 | | | | 2 | | | | 4 |
| Ecological corridors (-/6) | | | | | | | | | | | | | 0 |
| Threats to the species (-/15) | | | | | 15 | | | | 12.5 | | | | 10 |
| Species mobility capacity (-/10) | | | | | 5 | | | | 25 | | | | 10 |
| ***Site context score (-/70)*** | | | | | **22** | | | | **46.5** | | | | **26** |
| **Assessment unit totals** | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 1.47 | | | | 2.50 | | | | 1.26 |
| AU site context score (-/3): | | | | | 0.94 | | | | 1.99 | | | | 1.11 |
| AU species stocking rate (-/4): | | | | | 1.14 | | | | 1.14 | | | | 1.14 |
| **AU habitat quality score (-/10):** | | | | | **3.55** | | | | **5.64** | | | | **3.61** |
| AU area within offset area: | | | | | 12.8 | | | | 4.7 | | | | 12.2 |
| Total offset area for this MNES: | | | | | 295.8 | | | | 295.8 | | | | 295.8 |
| Area weighting: | | | | | 0.04 | | | | 0.02 | | | | 0.04 |
| ***AU weighted HQS:*** | | | | | **0.15** | | | | **0.09** | | | | 0.14 |
| **Total HQS all AUs:** | | | | | | | | | | | | | 4.25 |

# Appendix E9. Habitat quality scores – Dunmall's snake – quality with offset

| *Assessment table for fauna habitat offset* | **Assessment unit:** | **Bench-mark (BM)** | AU11 | | | **BM** | AU11 | | | **BM** | AU6 | | | **BM** | AU6 | | | **BM** | AU6 | | | **BM** | AU8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B4 | | | | B24 | | | | B9 | | | | B32 | | | | B33 | | | | B13 | | |
| | **Regional** | **11.4.3** | 11.4.3 | | | **11.4.3** | 11.4.3 | | | **11.5.1** | 11.5.1 | | | **11.5.1** | 11.5.1 | | | **11.5.1** | 11.5.1 | | | **11.5.2** | 11.5.20 | | |
| ***Ecological condition indicator*** | | | **Valu** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Valu** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 100 | 100% | 5 | **100** | 75 | 75% | 5 | **100** | 100 | 100% | 5 | **100** | 100 | 100% | 5 | **100** | 40 | 40% | 3 | **100** | 80 | 80% | 5 |
| Native plant species richness (No.): Trees | | **2** | 3 | 150% | 5 | **2** | 8 | 400% | 5 | **3** | 8 | 267% | 5 | **3** | 7 | 233% | 5 | **3** | 12 | 400% | 5 | **3** | 6 | 200% | 5 |
| Shrubs | | **10** | 4 | 40% | 2.5 | **10** | 7 | 70% | 2.5 | **6** | 4 | 67% | 2.5 | **6** | 5 | 83% | 2.5 | **6** | 8 | 133% | 5 | **4** | 2 | 50% | 2.5 |
| Grasses | | **4** | 6 | 150% | 5 | **4** | 8 | 200% | 5 | **9** | 10 | 111% | 5 | **9** | 5 | 56% | 2.5 | **9** | 3 | 33% | 2.5 | **7** | 8 | 114% | 5 |
| Forbs | | **13** | 7 | 54% | 2.5 | **13** | 8 | 62% | 2.5 | **11** | 4 | 36% | 2.5 | **11** | 5 | 45% | 2.5 | **11** | 7 | 64% | 2.5 | **13** | 10 | 77% | 2.5 |
| Tree canopy height (m): average of | | **24** | 12 | 50% | 5 | **24** | 7.04 | 29% | 5 | **17** | 11 | 65% | 5 | **17** | 13.53 | 80% | 5 | **17** | 13.73 | 81% | 5 | **23** | 12.5 | 54% | 3 |
| Tree sub-canopy height | | **0** | 0 | | 5 | **0** | 2.875 | | 5 | **8** | 5 | 63% | 5 | **8** | 6.47 | | 5 | **8** | 6.37 | | 5 | **10** | 5.75 | | 3 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 5.0 | | | | 3.0 |
| Tree canopy cover (%): average of emergent, | | **70** | 29 | 41% | 5 | **70** | 0 | 0% | 5 | **25** | 22.5 | 90% | 5 | **25** | 21.1 | 84% | 5 | **25** | 13.7 | 55% | 5 | **43** | 0 | 0% | 5 |
| Tree sub-canopy cover | | **0** | 0 | | 5 | **0** | 1.5 | | 5 | **5** | 17.5 | 350% | 3 | **5** | 6.3 | | 3 | **5** | 4.7 | | 3 | **38** | 0 | | 3 |
| Average score | | | | | 5.0 | | | | 5.0 | | | | 4.0 | | | | 4.0 | | | | 4.0 | | | | 4.0 |
| Shrub canopy cover (%): | | **48** | 4 | 8% | 3 | **48** | 5 | 10% | 3 | **10** | 8 | 80% | 5 | **10** | 6.4 | 64% | 5 | **10** | 1 | 10% | 3 | **5** | 0 | 0% | 3 |
| Native perennial grass cover (%): | | **6** | 6.4 | 107% | 5 | **6** | 17 | 283% | 5 | **26** | 19 | 73% | 2.5 | **26** | 14 | 54% | 3 | **26** | 11 | 42% | 3 | **8** | 29.4 | 368% | 5 |
| Organic litter (%): | | **75** | 38.6 | 51% | 5 | **75** | 46.8 | 62% | 5 | **30** | 62.2 | 207% | 3 | **30** | 18 | 60% | 5 | **30** | 44 | 147% | 5 | **57** | 21.4 | 38% | 3 |
| Large trees/ha (euc./non-euc. combined) | | **80** | 0 | 0% | 5 | **80** | 4 | 5% | 5 | **22** | 0 | 0% | 5 | **22** | 0 | 0% | 5 | **22** | 10 | 45% | 5 | **24** | 2 | 8% | 5 |
| Coarse woody debris (m/ha) | | **1752** | 58 | 3% | 3 | **1752** | 71 | 4% | 3 | **342** | 435 | 127% | 5 | **342** | 52 | 15% | 5 | **342** | 136 | 40% | 5 | **178** | 14 | 8% | 5 |
| Non-native plant cover (%): | | **0** | 0.064 | 6% | 5 | **0** | 0.17 | 17% | 5 | **0** | 0.19 | 19% | 5 | **0** | 0.14 | 14% | 5 | **0** | 0.11 | 11% | 5 | **0** | 0.294 | 29% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 25 | | | | 25 | | | | 25 | | | | 25 | | | | 25 | | | | 25 |
| Quality/availability of shelter (-/25) | | | | | 25 | | | | 25 | | | | 25 | | | | 25 | | | | 25 | | | | 25 |
| ***Site condition score (-/130)*** | | | | | **106.0** | | | | **106.0** | | | | **105.5** | | | | **104.5** | | | | **103.0** | | | | **101.0** |
| Size of patch (-/10) | | | | | 10 | | | | 10 | | | | 10 | | | | 10 | | | | 10 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 | | | | 4 |
| Context (fragmented) (-/5) | | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 | | | | 5 |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| Species mobility capacity (-/10) | | | | | 15 | | | | 15 | | | | 15 | | | | 15 | | | | 15 | | | | 15 |
| ***Site context score (-/70)*** | | | | | **54.0** | | | | **54.0** | | | | **54.0** | | | | **54.0** | | | | **54.0** | | | | **54.0** |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 2.45 | | | | | | | | | | | | 2.41 | | | | |
| AU site context score (-/3): | | | | | | | | | 2.31 | | | | | | | | | | | | 2.31 | | | | |
| AU species stocking rate (-/4): | | | | | | | | | 1.14 | | | | | | | | | | | | 1.14 | | | | |
| **AU habitat quality score (-/10):** | | | | | | | | | **5.90** | | | | | | | | | | | | **5.86** | | | | |
| AU area within offset area: | | | | | | | | | 43.40 | | | | | | | | | | | | 54.30 | | | | |
| Total offset area for this MNES: | | | | | | | | | 295.8 | | | | | | | | | | | | 295.8 | | | | |
| Area weighting: | | | | | | | | | 0.15 | | | | | | | | | | | | 0.18 | | | | |
| ***AU weighted HQS:*** | | | | | | | | | **0.87** | | | | | | | | | | | | **1.08** | | | | |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | Bench-mark (BM) | AU8 | | | BM | AU8 | | | BM | AU3 | | | | BM | AU4 | | | | BM | AU4 | | | | BM | AU4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | | | | Killara | | | | | Killara | | | | | Killara | | |
| | **Assessment site no:** | | B14 | | | | B25 | | | | B15 | | | | | B1 | | | | | B3 | | | | | B16 | | |
| | **Regional** | 11.5.2 | 11.5.20 | | | 11.5.2 | 11.5.20 | | | 11.7.6 | 11.7.6 | | | | 11.7.6 | 11.7.6 | | | | 11.7.6 | 11.7.6 | | | | 11.7.6 | 11.7.6 | | |
| ***Ecological condition indicator*** | | | **Value** | **%** | **Score** | | **Value** | **%** | **Score** | | **Value** | **% BM** | **Score** | | | **Value** | **%** | **Score** | | | **Value** | **% BM** | **Score** | | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | | 100 | 100% | 5 | 100 | 100 | 100% | 5 | 100 | 50 | 50% | 3 | |
| Native plant species richness (No.): Trees | | 3 | 3 | 100% | 5 | 3 | 8 | 267% | 5 | 4 | 6 | 150% | 5 | 4 | | 3 | 75% | 2.5 | 4 | 4 | 100% | 5 | 4 | 8 | 200% | 5 | |
| Shrubs | | 4 | 2 | 50% | 2.5 | 4 | 6 | 150% | 5 | 5 | 9 | 180% | 5 | 5 | | 1 | 20% | 0 | 5 | 4 | 80% | 2.5 | 5 | 3 | 60% | 2.5 | |
| Grasses | | 7 | 8 | 114% | 5 | 7 | 8 | 114% | 5 | 10 | 6 | 60% | 2.5 | 10 | | 6 | 60% | 2.5 | 10 | 8 | 80% | 2.5 | 10 | 9 | 90% | 5 | |
| Forbs | | 13 | 9 | 69% | 2.5 | 13 | 14 | 108% | 5 | 16 | 10 | 63% | 2.5 | 16 | | 9 | 56% | 2.5 | 16 | 12 | 75% | 2.5 | 16 | 5 | 31% | 2.5 | |
| Tree canopy height (m): average of | | 23 | 10.63 | 46% | 3 | 23 | 20.53 | 89% | 5 | 25 | 17.68 | 71% | 5 | 25 | | 16 | 64% | 3 | 25 | 15 | 60% | 3 | 25 | 8.45 | 34% | 3 | |
| Tree sub-canopy height | | 10 | 100 | 100% | 5 | 10 | 100 | 100% | 5 | 13 | 8.34 | 64% | 3 | 13 | | 0 | | 0 | 13 | 0 | | 5 | 13 | 5.3 | | 5 | |
| Average score | | | | | 4.0 | | | | 5.0 | | | | 4.0 | | | | | 1.5 | | | | 4.0 | | | | 4.0 | |
| Tree canopy cover (%): average of emergent, | | 43 | 18.6 | 43% | 5 | 43 | 30.8 | 72% | 5 | 40 | 51 | 128% | 5 | 40 | | 46 | 115% | 5 | 40 | 26.5 | 66% | 5 | 40 | 0 | 0% | 0 | |
| Tree sub-canopy cover | | 38 | 0 | | 3 | 38 | 11.6 | | 3 | 7 | 19.8 | 283% | 3 | 7 | | 0 | | 0 | 7 | 0 | | 3 | 7 | 31.6 | | 1.53 | |
| Average score | | | | | 4.0 | | | | 4.0 | | | | 4.0 | | | | | 2.5 | | | | 4.0 | | | | | |
| Shrub canopy cover (%): | | 5 | 0.4 | 8% | 3 | 5 | 0 | 0% | 3 | 11 | 0 | 0% | 3 | 11 | | 12.5 | 114% | 5 | 11 | 0 | 0% | 3 | 11 | 0 | 0% | 3 | |
| Native perennial grass cover (%): | | 8 | 34 | 425% | 5 | 8 | 18.2 | 228% | 5 | 23 | 31.6 | 137% | 5 | 23 | | 27 | 117% | 5 | 23 | 36 | 157% | 5 | 23 | 32.2 | 140% | 5 | |
| Organic litter (%): | | 57 | 44 | 77% | 5 | 57 | 7 | 12% | 3 | 52 | 41.2 | 79% | 5 | 52 | | 56 | 108% | 5 | 52 | 37.8 | 73% | 5 | 52 | 8.4 | 16% | 3 | |
| Large trees/ha (euc./non-euc. combined) | | 24 | 0 | 0% | 0 | 24 | 2 | 8% | 5 | 27 | 8 | 30% | 5 | 27 | | 0 | 0% | 0 | 27 | 0 | 0% | 5 | 27 | 0 | 0% | 5 | |
| Coarse woody debris (m/ha) | | 178 | 292 | 164% | 5 | 178 | 296 | 166% | 5 | 217 | 816 | 376% | 5 | 217 | | 480 | 221% | 2 | 217 | 367 | 169% | 5 | 217 | 447 | 206% | 2 | |
| Non-native plant cover (%): | | 0 | 0.34 | 34% | 3 | 0 | 0.182 | 18% | 5 | 0 | 0.316 | 32% | 3 | 0 | | 0.27 | 27% | 3 | 0 | 0.36 | 36% | 3 | 0 | 0.322 | 32% | 3 | |
| Quality/availability of food/foraging habitat (- | | | | | 25 | | | | 25 | | | | 25 | | | | | 25 | | | | 25 | | | | 25 | |
| Quality/availability of shelter (-/25) | | | | | 25 | | | | 25 | | | | 25 | | | | | 25 | | | | 25 | | | | 25 | |
| ***Site condition score (-/130)*** | | | | | **98.0** | | | | **109.0** | | | | **104.0** | | | | | **86.5** | | | | **101.5** | | | | **94.5** | |
| Size of patch (-/10) | | | | | 10 | | | | 10 | | | | 10 | | | | | 10 | | | | 10 | | | | 10 | |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 4 | | | | 4 | | | | | 4 | | | | 4 | | | | 4 | |
| Context (fragmented) (-/5) | | | | | 5 | | | | 5 | | | | 5 | | | | | 5 | | | | 5 | | | | 5 | |
| Ecological corridors (-/6) | | | | | 0 | | | | 0 | | | | 0 | | | | | 0 | | | | 0 | | | | 0 | |
| Threats to the species (-/15) | | | | | 20 | | | | 20 | | | | 20 | | | | | 20 | | | | 20 | | | | 20 | |
| Species mobility capacity (-/10) | | | | | 15 | | | | 15 | | | | 15 | | | | | 15 | | | | 15 | | | | 15 | |
| ***Site context score (-/70)*** | | | | | **54.0** | | | | **54.0** | | | | **54.0** | | | | | **54.0** | | | | **54.0** | | | | **54.0** | |
| **Assessment unit totals** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | | | | | 2.37 | | | | 2.40 | | | | | | | | | | | | | 2.17 | |
| AU site context score (-/3): | | | | | | | | | 2.31 | | | | 2.31 | | | | | | | | | | | | | 2.31 | |
| AU species stocking rate (-/4): | | | | | | | | | 1.14 | | | | 1.14 | | | | | | | | | | | | | 1.14 | |
| **AU habitat quality score (-/10):** | | | | | | | | | **5.83** | | | | **5.86** | | | | | | | | | | | | | **5.63** | |
| AU area within offset area: | | | | | | | | | 49.10 | | | | 18.70 | | | | | | | | | | | | | 100.6 | |
| Total offset area for this MNES: | | | | | | | | | 295.8 | | | | 295.8 | | | | | | | | | | | | | 295.8 | |
| Area weighting: | | | | | | | | | 0.17 | | | | 0.06 | | | | | | | | | | | | | 0.34 | |
| ***AU weighted HQS:*** | | | | | | | | | **0.97** | | | | **0.37** | | | | | | | | | | | | | **1.91** | |
| **Total HQS all AUs:** | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| ***Assessment table for fauna habitat offset*** | **Assessment unit:** | **BM** | AU5 | | | **BM** | AU10 | | | **BM** | AU7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Property:** | | Killara | | | | Killara | | | | Killara | | |
| | **Assessment site no:** | | B25 | | | | B15 | | | | B1 | | |
| | **Regional** | **11.3.1** | 11.3.1 | | | **11.4.3** | 11.4.3 | | | **11.5.1** | 11.5.1a | | |
| ***Ecological condition indicator*** | | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | **100** | 50 | 50% | 3 | **100** | 33.33 | 33% | 3 | **100** | 100 | 100% | 5 |
| Native plant species richness (No.): Trees | | **3** | 19 | 633% | 5 | **2** | 8 | 400% | 5 | **3** | 2 | 75% | 2.5 |
| Shrubs | | **5** | 5 | 100% | 5 | **10** | 6 | 60% | 2.5 | **6** | 1 | 20% | 0 |
| Grasses | | **4** | 7 | 175% | 5 | **4** | 3 | 75% | 2.5 | **9** | 7 | 60% | 2.5 |
| Forbs | | **8** | 6 | 75% | 2.5 | **13** | 5 | 38% | 2.5 | **11** | 4 | 56% | 2.5 |
| Tree canopy height (m): average of | | **14** | 11 | 79% | 5 | **24** | 21.03 | 88% | 5 | **17** | 11 | 64% | 3 |
| Tree sub-canopy height | | **4** | 5.425 | 136% | 5 | **0** | 11.93 | 33% | | **8** | 0 | | 0 |
| Average score | | | | | 5 | | | | 5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, | | **29** | 14.6 | 50% | 5 | **70** | 75.2 | 107% | 5 | **25** | 18 | 115% | 5 |
| Tree sub-canopy cover | | **9** | 7.1 | 79% | 5 | **0** | 13 | 0 | | **5** | 0 | | 0 |
| Average score | | | | | 5 | | | | 5 | | | | 2.5 |
| Shrub canopy cover (%): | | **8** | 1.2 | 15% | 3 | **48** | 4 | 8% | 0 | **10** | 0 | 114% | 0 |
| Native perennial grass cover (%): | | **8** | 21 | 263% | 5 | **6** | 20 | 333% | 5 | **26** | 32 | 117% | 5 |
| Organic litter (%): | | **34** | 46.6 | 137% | 5 | **75** | 8 | 11% | 3 | **30** | 26 | 108% | 5 |
| Large trees/ha (euc./non-euc. combined) | | **70** | 4 | 6% | 10 | **80** | 90 | 113% | 15 | **22** | 0 | 0% | 0 |
| Coarse woody debris (m/ha) | | **1752** | 175 | 10% | 5 | **1752** | 1585 | 90% | 5 | **342** | 246 | 221% | 5 |
| Non-native plant cover (%): | | **0** | 0.21 | 21% | 10 | **0** | 0.2 | 20% | 5 | **0** | 0.32 | 27% | 3 |
| Quality/availability of food/foraging habitat (- | | | | | 25 | | | | 25 | | | | 10 |
| Quality/availability of shelter (-/25) | | | | | 25 | | | | 25 | | | | 10 |
| ***Site condition score (-/130)*** | | | | | **118.5** | | | | **108.5** | | | | **54.5** |
| Size of patch (-/10) | | | | | 10 | | | | 7 | | | | 2 |
| Connectedness (fragmented) (-/5) | | | | | 4 | | | | 0 | | | | 0 |
| Context (fragmented) (-/5) | | | | | 5 | | | | 2 | | | | 4 |
| Ecological corridors (-/6) | | | | | | | | | | | | | 0 |
| Threats to the species (-/15) | | | | | 20 | | | | 12.5 | | | | 10 |
| Species mobility capacity (-/10) | | | | | 15 | | | | 25 | | | | 10 |
| ***Site context score (-/70)*** | | | | | **54** | | | | **46.5** | | | | **26** |
| **Assessment unit totals** | | | | | | | | | | | | | |
| AU site condition score (-/3): | | | | | 2.73 | | | | 2.50 | | | | 1.26 |
| AU site context score (-/3): | | | | | 2.31 | | | | 1.99 | | | | 1.11 |
| AU species stocking rate (-/4): | | | | | 1.14 | | | | 1.14 | | | | 1.14 |
| **AU habitat quality score (-/10):** | | | | | **6.19** | | | | **5.64** | | | | **3.61** |
| AU area within offset area: | | | | | 12.8 | | | | 4.7 | | | | 12.2 |
| Total offset area for this MNES: | | | | | 295.8 | | | | 295.8 | | | | 295.8 |
| Area weighting: | | | | | 0.04 | | | | 0.02 | | | | 0.04 |
| ***AU weighted HQS:*** | | | | | **0.27** | | | | **0.09** | | | | **0.14** |
| **Total HQS all AUs:** | | | | | | | | | | | | | 5.7 |

# Appendix E10. Habitat quality scores – brigalow TEC – offset start quality

| Assessment table for TEC offset | Assessment unit: | Bench-mark (BM) | AU11 | | | BM | AU11 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | |
| | Regional ecosystem: | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | |
| ***Ecological condition indicator*** | | | **Value** | **% BM** | **Score** | | **Value** | **% BM** | **Score** |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 75 | 75% | 5 |
| Native plant species richness (No.): Trees | | 2 | 3 | 150% | 5 | 2 | 8 | 400% | 5 |
| Shrubs | | 10 | 4 | 40% | 2.5 | 10 | 7 | 70% | 2.5 |
| Grasses | | 4 | 6 | 150% | 5 | 4 | 8 | 200% | 5 |
| Forbs | | 13 | 7 | 54% | 2.5 | 13 | 8 | 62% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 24 | 12 | 50% | 3 | 24 | 7.04 | 29% | 3 |
| Tree sub-canopy height | | 0 | 0 | | | 0 | 2.875 | | 0 |
| Average score | | | | | 3.0 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 70 | 29 | 41% | 2 | 70 | 0 | 0% | 0 |
| Tree sub-canopy cover | | 0 | 0 | | | 0 | 1.5 | | 0 |
| Average score | | | | | 2.0 | | | | 0.0 |
| Shrub canopy cover (%): | | 48 | 4 | 8% | 0 | 48 | 5 | 10% | 3 |
| Native perennial grass cover (%): | | 6 | 6.4 | 107% | 5 | 6 | 17 | 283% | 5 |
| Organic litter (%): | | 75 | 38.6 | 51% | 5 | 75 | 46.8 | 62% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 80 | 0 | 0% | 0 | 80 | 4 | 5% | 5 |
| Coarse woody debris (m/ha) | | 1752 | 58 | 3% | 0 | 1752 | 71 | 4% | 0 |
| Non-native plant cover (%): | | 0 | 0.064 | 6% | 5 | 0 | 0.17 | 17% | 100% |
| Site condition score (-/80) | | | | | 45.0 | | | | 43.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 5 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 |
| Site context score (-/20) | | | | | 11.0 | | | | 11.0 |
| Assessment unit totals | | | | | | | | | |
| AU site condition score (-/7): | | | | | | | | | 40.25 |
| AU site context score (-/3): | | | | | | | | | 11.00 |
| AU habitat quality score (-/10): | | | | | | | | | 5.13 |
| AU area within offset area: | | | | | | | | | 13.00 |
| Total offset area for this MNES: | | | | | | | | | 13.00 |
| Area weighting: | | | | | | | | | 1.00 |
| AU weighted HQS: | | | | | | | | | 5.13 |
| Total HQS all AUs: | | | | | | | | | 5.13 |

# Appendix E11. Habitat quality scores – brigalow TEC – quality without offset

| Assessment table for TEC offset | | Bench-mark (BM) | AU11 | | | BM | AU11 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Assessment unit: | | AU11 | | | | AU11 | | |
| | Property: | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | |
| | Regional ecosystem: | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | |
| Ecological condition indicator | | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 100 | 100% | 5 | 100 | 75 | 75% | 5 |
| Native plant species richness (No.): Trees | | 2 | 3 | 150% | 5 | 2 | 8 | 400% | 5 |
| Shrubs | | 10 | 4 | 40% | 2.5 | 10 | 7 | 70% | 2.5 |
| Grasses | | 4 | 6 | 150% | 5 | 4 | 8 | 200% | 5 |
| Forbs | | 13 | 7 | 54% | 2.5 | 13 | 8 | 62% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 24 | 12 | 50% | 3 | 24 | 7.04 | 29% | 3 |
| Tree sub-canopy height | | 0 | 0 | | | 0 | 2.875 | | 0 |
| Average score | | | | | 3.0 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 70 | 29 | 41% | 2 | 70 | 0 | 0% | 0 |
| Tree sub-canopy cover | | 0 | 0 | | | 0 | 1.5 | | 0 |
| Average score | | | | | 2.0 | | | | 0.0 |
| Shrub canopy cover (%): | | 48 | 4 | 8% | 0 | 48 | 5 | 10% | 3 |
| Native perennial grass cover (%): | | 6 | 6.4 | 107% | 5 | 6 | 17 | 283% | 5 |
| Organic litter (%): | | 75 | 38.6 | 51% | 5 | 75 | 46.8 | 62% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 80 | 0 | 0% | 0 | 80 | 4 | 5% | 5 |
| Coarse woody debris (m/ha) | | 1752 | 58 | 3% | 0 | 1752 | 71 | 4% | 0 |
| Non-native plant cover (%): | | 0 | 0.064 | 6% | 5 | 0 | 0.17 | 17% | 100% |
| Site condition score (-/80) | | | | | 45.0 | | | | 43.5 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 5 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 |
| Site context score (-/20) | | | | | 11.0 | | | | 11.0 |
| Assessment unit totals | | | | | | | | | |
| AU site condition score (-/7): | | | | | | | | | 40.25 |
| AU site context score (-/3): | | | | | | | | | 11.00 |
| AU habitat quality score (-/10): | | | | | | | | | 5.13 |
| AU area within offset area: | | | | | | | | | 13.00 |
| Total offset area for this MNES: | | | | | | | | | 13.00 |
| Area weighting: | | | | | | | | | 1.00 |
| AU weighted HQS: | | | | | | | | | 5.13 |
| Total HQS all AUs: | | | | | | | | | 5.13 |

# Appendix E12. Habitat quality scores – brigalow TEC – quality with offset

| Assessment table for TEC offset | Assessment unit: | Bench-mark (BM) | AU11 | | | BM | AU11 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Property: | | Killara | | | | Killara | | |
| | Assessment site no: | | B4 | | | | B24 | | |
| | Regional ecosystem: | 11.4.3 | 11.4.3 | | | 11.4.3 | 11.4.3 | | |
| Ecological condition indicator | | | Value | % BM | Score | | Value | % BM | Score |
| Recruitment of woody perennial species (%) | | 100 | 75 | 75% | 5 | 100 | 75 | 75% | 5 |
| Native plant species richness (No.): Trees | | 2 | 8 | 400% | 5 | 2 | 8 | 400% | 5 |
| Shrubs | | 10 | 7 | 70% | 2.5 | 10 | 7 | 70% | 2.5 |
| Grasses | | 4 | 8 | 200% | 5 | 4 | 8 | 200% | 5 |
| Forbs | | 13 | 10 | 77% | 2.5 | 13 | 10 | 77% | 2.5 |
| Tree canopy height (m): average of emergent, canopy and sub-canopy layer | | 24 | 15 | 63% | 3 | 24 | 15 | 63% | 3 |
| Tree sub-canopy height | | 0 | 2.875 | | 0 | 0 | 2.875 | | 0 |
| Average score | | | | | 1.5 | | | | 1.5 |
| Tree canopy cover (%): average of emergent, canopy and sub-canopy layer | | 70 | 50 | 71% | 5 | 70 | 50 | 71% | 5 |
| Tree sub-canopy cover | | 0 | 1.5 | | 0 | 0 | 1.5 | | 0 |
| Average score | | | | | 2.5 | | | | 2.5 |
| Shrub canopy cover (%): | | 48 | 30 | 63% | 5 | 48 | 30 | 63% | 5 |
| Native perennial grass cover (%): | | 6 | 17 | 283% | 5 | 6 | 17 | 283% | 5 |
| Organic litter (%): | | 75 | 46.8 | 62% | 5 | 75 | 46.8 | 62% | 5 |
| Large trees/ha (euc./non-euc. combined) | | 80 | 10 | 13% | 5 | 80 | 10 | 13% | 5 |
| Coarse woody debris (m/ha) | | 1752 | 500 | 29% | 2 | 1752 | 500 | 29% | 2 |
| Non-native plant cover (%): | | 0 | 0.1 | 10% | 5 | 0 | 10 | 1000% | 1 |
| Site condition score (-/80) | | | | | 59.0 | | | | 55.0 |
| Size of patch (fragmented) (-/10) | | | | | 5 | | | | 10 |
| Connectedness (fragmented) (-/5) | | | | | 2 | | | | 2 |
| Context (fragmented) (-/5) | | | | | 4 | | | | 4 |
| Site context score (-/20) | | | | | 12.0 | | | | 16.0 |
| Assessment unit totals | | | | | | | | | |
| AU site condition score (-/7): | | | | | | | | | 57.00 |
| AU site context score (-/3): | | | | | | | | | 13.50 |
| AU habitat quality score (-/10): | | | | | | | | | 7.05 |
| AU area within offset area: | | | | | | | | | 13.00 |
| Total offset area for this MNES: | | | | | | | | | 13.00 |
| Area weighting: | | | | | | | | | 1.00 |
| AU weighted HQS: | | | | | | | | | 7.05 |
| Total HQS all AUs: | | | | | | | | | 7.05 |

# Appendix F. Offset area overview

**Lot 16 on BO94 and Lot 36 BO175 – vegetation clearing and property development history**

Information on the development (that is, vegetation clearing) of the offset area and the broader property is provided to support the ability of the property to be managed for conservation purposes and to support requirements for approval condition 1B.

Significant development on Lot 16 BO94 was undertaken after World War 1 as part of the Soldier Settlement Scheme and then subsequently during the Brigalow Development Scheme. Initial clearing[23] took place within the offset area in the form of thinning of the vegetation, most likely for timber harvesting of the bluegum species between the river system.

The regrowth was treated in the 1950s by tordoning. Between 1967-1971, the area was heavily cleared for pasture production. Maintenance thinning for pasture production was continued between 1970 and the 1990s on a 7-10 year cycle, dependent on seasonal conditions, with wet seasons producing a faster growth rate; therefore bringing the thinning cycle earlier.

In 2007, the large trees that were left during the previous cycle were harvested for timber and a thinning program was undertaken in 2011.

Historically, the offset area has been cleared and continually thinned, and there has been recurring regrowth maintenance therein to retain its improved pasture value, prior to and at the time of introduction of the EPBC Act in 2000. This practice supports the ability of the owners to continue the practices, especially of timber harvesting, under Sections 43B of the EPBC Act – 'Continuing Use'.

**Prior authorisation and continuing use exemptions**

Sections 43A and 43B of the EPBC Act exempt certain actions from the assessment and approval provisions of the EPBC Act. They apply to lawful continuations of land use that started before 16 July 2000 or actions that were legally authorised before 16 July 2000, the date of commencement of the EPBC Act. The exemptions allow for the continuation of activities that were fully approved by state and local governments before the EPBC Act came into force ('prior authorisation'), or otherwise lawful activities, which commenced before the EPBC Act came into force, and which have continued without substantial interruption ('continuing uses').

**Continuing use**

Under the continuing use exemption, assessment and approval under the EPBC Act is not required if:

- the action commenced before 16 July 2000; and

[23] Vegetation Management Act 1999, Schedule Dictionary

- the use of land, sea or seabed was lawful; and
- the action has continued in the same location without enlargement, expansion or intensification.

# Schedule 1. Title searches

## Schedule 1.1. Title search - Lot 15 BO94

Titles QUEENSLAND

**Current Title Search**

**Queensland Titles Registry Pty Ltd**
**ABN 23 648 568 101**

| | | | |
|---|---|---|---|
| **Title Reference:** | 13535040 | **Search Date:** | 06/02/2025 08:42 |
| **Date Title Created:** | 03/12/1962 | **Request No:** | 50790128 |
| **Previous Title:** | 12632212, 12632213 | | |

**ESTATE AND LAND**

Estate in Fee Simple

LOT 15 CROWN PLAN BO94
Local Government: SOUTH BURNETT

| REGISTERED OWNER | | INTEREST |
|---|---|---|
| Dealing No: 711938918 23/09/2008 | | |
| COLIN ANDREW SEILER<br>JOAN MAY SEILER | JOINT TENANTS INTER SE | 1/2 |
| PETER ALFORD SEILER<br>LYNNELLE EVELYN SEILER | JOINT TENANTS INTER SE<br>AS TENANTS IN COMMON | 1/2 |

**EASEMENTS, ENCUMBRANCES AND INTERESTS**

1. Rights and interests reserved to the Crown by Deed of Grant No. 11988005 (POR 15)

**ADMINISTRATIVE ADVICES**

NIL

**UNREGISTERED DEALINGS**

NIL

** End of Current Title Search **



www.titlesqld.com.au
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# Schedule 1.2. Title search - Lot 16 BO94

Titles QUEENSLAND

**Current Title Search**

**Queensland Titles Registry Pty Ltd**
**ABN 23 648 568 101**

| | | | |
|---|---|---|---|
| **Title Reference:** | 13535041 | **Search Date:** | 06/02/2025 08:42 |
| **Date Title Created:** | 03/12/1962 | **Request No:** | 50790128 |
| **Previous Title:** | 12882121, 12882122 | | |

**ESTATE AND LAND**

Estate in Fee Simple

LOT 16 CROWN PLAN BO94
Local Government: SOUTH BURNETT

| **REGISTERED OWNER** | | **INTEREST** |
|---|---|---|
| Dealing No: 711938918 23/09/2008 | | |
| COLIN ANDREW SEILER<br>JOAN MAY SEILER | JOINT TENANTS INTER SE | 1/2 |
| PETER ALFORD SEILER<br>LYNNELLE EVELYN SEILER | JOINT TENANTS INTER SE<br>AS TENANTS IN COMMON | 1/2 |

**EASEMENTS, ENCUMBRANCES AND INTERESTS**

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12882121 (POR 16)
Deed of Grant No. 12882122 (POR 16)

**ADMINISTRATIVE ADVICES**

| Dealing | Type | Lodgement Date | Status |
|---|---|---|---|
| 722830879 | VEG NOTICE<br>VEGETATION MANAGEMENT ACT 1999 | 24/10/2023 10:36 | CURRENT |

**UNREGISTERED DEALINGS**

NIL

** End of Current Title Search **



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# Schedule 1.3. Title search – Lot 19 BO94

Titles QUEENSLAND

**Current Title Search**

**Queensland Titles Registry Pty Ltd**
**ABN 23 648 568 101**

| | | | |
|---|---|---|---|
| **Title Reference:** | **50738174** | **Search Date:** | 06/02/2025 08:42 |
| **Date Title Created:** | 24/09/2008 | **Request No:** | 50790128 |
| **Previous Title:** | 16069173, 16069174, 16069175 | | |

**ESTATE AND LAND**

Estate in Fee Simple

LOT 19 CROWN PLAN BO94
Local Government: SOUTH BURNETT

**REGISTERED OWNER** **INTEREST**

Dealing No: 711938994 23/09/2008

COLIN ANDREW SEILER 1/2
PETER ALFORD SEILER 1/2

AS TENANTS IN COMMON

**EASEMENTS, ENCUMBRANCES AND INTERESTS**

1. Rights and interests reserved to the Crown by Deed of Grant No. 16069173 (POR 19)

**ADMINISTRATIVE ADVICES**

NIL

**UNREGISTERED DEALINGS**

NIL

** End of Current Title Search **

# Schedule 1.4. Title search – Lot 36 BO175

Titles QUEENSLAND

**Current Title Search**

**Queensland Titles Registry Pty Ltd**
**ABN 23 648 568 101**

| | | | |
|---|---|---|---|
| **Title Reference:** | 18338010 | **Search Date:** | 06/02/2025 08:42 |
| **Date Title Created:** | 06/07/1992 | **Request No:** | 50790128 |
| **Creating Dealing:** | | | |

**ESTATE AND LAND**

Estate in Fee Simple

LOT 36 CROWN PLAN BO175
Local Government: SOUTH BURNETT

| **REGISTERED OWNER** | | **INTEREST** |
|---|---|---|
| Dealing No: 711938916 23/09/2008 | | |
| COLIN ANDREW SEILER<br>JOAN MAY SEILER | JOINT TENANTS INTER SE | 1/2 |
| PETER ALFORD SEILER<br>LYNNELLE EVELYN SEILER | JOINT TENANTS INTER SE<br>AS TENANTS IN COMMON | 1/2 |

**EASEMENTS, ENCUMBRANCES AND INTERESTS**

1. Rights and interests reserved to the Crown by
Deed of Grant No. 18338010 (Lot 36 on CP BO175)

**ADMINISTRATIVE ADVICES**

NIL

**UNREGISTERED DEALINGS**

NIL

** End of Current Title Search **


Requested by: D-ENQ TITLES QUEENSLAND

**www.titlesqld.com.au**
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# Schedule 2. Request for declared area

## Schedule 2.1. Lots 15 & 16 BO94, Lot 36 BO175

Queensland Government

Department of Resources
ABN 59 020 847 551

### Request for a declared area

*ss19E-19L Vegetation Management Act 1999*

*Use this form to request an area of land to be declared an area of high nature conservation value or an area vulnerable to land degradation. For guidance on declared areas see the Guide to declared areas (hyperlink).*

*To apply for an area to be legally secured as an exchange area, complete the application to legally secure an exchange area. For guidance on legally securing an exchange area see the General guide to accepted development vegetation clearing codes.*

**1. Owner's (applicant's) details**

Owner, of land includes -
(a) for freehold land - all registered owners; or
(b) for a lease, license or permit under the *Land Act 1994* – all lessees, licensees or permittees; or
(c) for indigenous land - the holder of title to the land; or
(d) for any tenure under any other Act - the holder of the tenure.

| | | | | | |
|---|---|---|---|---|---|
| First name: | See details of owners on page 5 | Middle name: | | Surname: | |
| Company name: | | | | | |
| If a corporation then enter one of the following: ◯ ACN ◯ ABN ◯ ARBN | | | | | |
| Main phone: | | Other phone: | | | |
| Email: | cjseiler3@gmail.com | | | | |
| Address line 1: | 861 West Boondooma Road | | | | |
| Address line 2: | | | | | |
| Town/Suburb: | Boondooma | State: | QLD | Postcode: | 4613 |
| Preferred method of contact | | ◯ Phone | ☑ Email | ◯ Letter | |

*The nominated contact person does not need to be the owner. All verbal and written correspondence (including the issue of notices) will be sent to the nominated contact person.*

| | | | | | |
|---|---|---|---|---|---|
| Name of nominated contact person (if applicable): | Colin Seiler | | | | |
| Company name: | | | | | |
| If a corporation then enter one of the following: ◯ ACN ◯ ABN ◯ ARBN | | | | | |
| Main phone: | | Other phone: | | | |
| Email address: | | | | | |
| Address line 1: | | | | | |
| Address line 2: | | | | | |
| Town/Suburb: | | State | | Postcode | |
| Preferred method of contact | | ◯ Phone | ◯ Email | ◯ Letter | |

*I accept that I will act as the nominated contact person on behalf of the owner(s) referred to in Section 1.*

| | |
|---|---|
| Signature of nominated contact person | |
| Date: | |

## 2. Property description

This is the property on which the declared area is proposed. The declared area management plan should indicate the specific location of the proposed declared area on the property.

Extra pages may be attached to list additional lots.

| Lot number | Plan number | Area in hectares | Tenure |
|---|---|---|---|
| 15 | BO94 | | Freehold |
| 16 | BO94 | | Freehold |
| 36 | BO175 | | Freehold |

## 3. Registered interest holder consent

A registered interest is one registered under the *Land Act 1994* or the *Land Title Act 1994*.

Registered interests include but are not limited to mortgages, leases, subleases, covenants, profit a prendres, easements and building management statements.

A declaration may not be made unless the holder of a registered interest (other than the owner) in the proposed declaration area has consented in writing to the making of the declaration.

**Note:** Registered interest holder consent is not required to lodge this request for a declared area but is required prior to the making of a declaration.

**Acknowledgement and waiver by all registered interest holders.**

**READ BEFORE SIGNING THIS SECTION**

By signing this section, those signing are taken to:

- acknowledge that a declaration resulting from this request may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any special, indirect or consequential damages or any damages whatsoever rising out of or in connection with this request or any subsequent declaration in accordance with this request.
- consent to the making of a declaration as proposed in this request and supporting material.

Extra pages may be attached to list additional lots and/or registered interest holders and provide their consent to the making of the declaration.

| Parcel (Lot & plan) | Type of registered interest | Registered interest holder's name | Contact details | Signature |
|---|---|---|---|---|
| 15 BO94 | n/a | n/a | | |
| 16 BO94 | n/a | n/a | | |
| 36 BO 175 | n/a | n/a | | |

## 4. Type of declaration

Specify the type of declaration that is requested, and the relevant criteria for the declaration. One or more of the criteria may be applicable to the area being sought for declaration.

Note: The owner must provide an explanation of how the declared area meets the criteria selected in this section. This explanation must be provided in the documents accompanying the request.

◉ **Area of high nature conservation value**

- ☐ A wildlife refugium
- ☐ A centre of endemism
- ☑ An area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity
- ☑ An area that makes a significant contribution to the conservation of biodiversity
- ☐ An area that contributes to the conservation value of a wetland, lake or spring
- ☐ Another area that contributes to the conservation of the environment

**OR**

◯ **An area vulnerable to land degradation**

- ☐ Soil erosion
- ☐ Rising water tables
- ☐ The expression of salinity, whether inside or outside the area
- ☐ Mass movement by gravity of soil or rock
- ☐ Stream bank instability
- ☐ A process that results in declining water quality

### 4.1 Purpose of request

| | |
|---|---|
| ◯ Vegetation Management Environmental Offset | ◯ Better Environmental Outcome (BEO) |
| ◯ Environmental Offset (Queensland) | ◯ Other Conservation Purpose |
| ◉ Environmental Offset (Commonwealth) | ◯ Enforceable Undertaking |
| ◯ Carbon Offset | |

*Note: If the purpose of the declaration is to legally secure an exchange area, complete the application to legally secure an exchange area*

### 4.2 Associated development approval

*If the declaration is linked to a development approval under the Planning Act (for example, if it required to meet a project condition to legally secure an offset area), please provide details of the development approval below:*

| | |
|---|---|
| Development approval reference number: | |

*If the declaration is linked to an approval under another Act please provide details of the approval below:*

| | |
|---|---|
| Other Approval reference number: | EPBC 2010/5344 |
| Responsible agency: | Dept of Climate Change, Energy, the Environment and Water |

## 5. Management plan

A management plan must be provided with this request for a declared area. The management plan must contain all the components identified in this section. The management plan is to refer to the area identified in Section 2 of this form. The management plan may also include any other information the applicant considers will assist in the determination of the request.

For more information on the management plan, consult the Guide to declared areas, available on www.qld.gov.au.

**Management plan checklist**

- ☑ Property owner's contact details and signature
- ☑ Includes description of the area subject to the declared area
- ☑ Includes map showing the location and extent of the declared area (or enough information for chief executive to map the stated area):
  - ☐ A map that defines the boundaries of the proposed declared area and a description of the boundaries of the area referenced by Map Grid of Australia 2020 (MGA2020) coordinates and zone references for the area
  - ☐ A map showing the proposed declared area with five or more GPS points that correspond to identifiable fixed features; and the Map Grid of Australia 2020 (MGA2020) coordinates and zone references for each point, acquired by GPS or similar system of satellites that receives and processing information; and a description of the feature that each point represents
  - ☐ A dataset, which can be used in a Geographic Information System showing the proposed declared area
- ☑ States the owner's management intent, and management outcomes proposed by the owner, for the conservation of the high nature conservation value of the area or the prevention of land degradation in the area
- ☑ States the activities the owner intends to carry out, or refrain from carrying out, to achieve the stated management outcomes
- ☑ States the restrictions, if any, to be imposed on the use of, or access to, the area by other persons to achieve the stated management outcomes
- ☑ If the declared area is to legally secure an environmental offset and the Department of Resources is not the administering agency, includes confirmation that the administering agency has / has not approved the declared area management plan that complies with the VMA.

A declared area management plan template / guidance is available at www.qld.gov.au.

**6. Signature of owner (applicant) and all registered owners**

Where the owner is a company, execution by the company must be provided in accordance with the requirements of the ***Corporations Act 2001 (Commonwealth)***, section 127.

A company:

- may execute a document without using a common seal if the document is signed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director; or
- with a company seal may execute a document if the seal is fixed to the document and the fixing of the seal is witnessed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director.

**READ BEFORE SIGNING THIS SECTION**

Acknowledgement and waiver by the owner (applicant) and all registered owners.

Before consent to or lodging this request for a declared area, it is recommended that all registered owners of the property seek their own independent legal and financial advice regarding the effect of this request, and the legal and financial impacts of any subsequent declaration.

By signing this section, those signing are taken to:

- acknowledge that the declared area resulting from this request may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any damages whatsoever rising out of or in connection with this request or any subsequent declaration; and
- consent to the lodgment of the request; and
- agree that all information entered and provided in this request, including any maps, lists or other documents additionally supplied, is correct and accurate; and
- authorise the nominated contact person to act as such on your behalf; and
- authorise all verbal correspondence relating to this request to be to the nominated contact person; and
- authorise all written correspondence (including the issuing of notices) relating to this request to be sent to the postal address for the nominated contact person; and
- request that the chief executive agree to make a declaration as proposed in this request.

If there are more owners, extra pages containing the additional signature(s) may be attached.

| Lot | Plan number | Owner's name | If a corporation record one of the following: | | Owner's signature | Date | Company seal (if applicable) |
|---|---|---|---|---|---|---|---|
| 15 | BO94 | Colin Andrew Seiler | ○ ACN ○ ARBN | | | | |
| 15 | BO94 | Joan May Seiler | ○ ACN ○ ARBN | | | | |
| 15 | BO94 | Peter Alford Seiler | ○ ACN ○ ARBN | | | | |
| 15 | BO94 | Lynnelle Evelyn Seiler | ○ ACN ○ ARBN | | | | |
| 16 | BO94 | Colin Andrew Seiler | ○ ACN ○ ARBN | | | | |
| 16 | BO94 | Joan May Seiler | ○ ACN ○ ARBN | | | | |
| 16 | BO94 | Peter Alford Seiler | ○ ACN ○ ARBN | | | | |
| 16 | BO94 | Lynnelle Evelyn Seiler | ○ ACN ○ ARBN | | | | |
| 36 | BO175 | Colin Andrew Seiler | ○ ACN ○ ARBN | | | | |
| 36 | BO175 | Joan May Seiler | ○ ACN ○ ARBN | | | | |
| 36 | BO175 | Peter Alford Seiler | ○ ACN ○ ARBN | | | | |
| 36 | BO175 | Lynnelle Evelyn Seiler | ○ ACN ○ ARBN | | | | |

Privacy statement: The Department of Resources is collecting the information in this form and any attachments to process your request that the chief executive declare a stated area of land under the *Vegetation Management Act 1999*. The consideration of your request may involve consultation, and if so, details of your request and any attachments may be disclosed to third parties. These details will not otherwise be disclosed outside the Department of Resources unless required or authorized by law.

**Office use only**

| | | | | | |
|---|---|---|---|---|---|
| Name: | | Position: | | Date received: | |
| Signature: | | Date: | | | |

# Schedule 2.2. Lot 19 BO94

Queensland Government

Department of Resources
ABN 59 020 847 551

## Request for a declared area

*ss19E-19L Vegetation Management Act 1999*

*Use this form to request an area of land to be declared an area of high nature conservation value or an area vulnerable to land degradation. For guidance on declared areas see the Guide to declared areas (hyperlink).*

*To apply for an area to be legally secured as an exchange area, complete the application to legally secure an exchange area. For guidance on legally securing an exchange area see the General guide to accepted development vegetation clearing codes.*

### 1. Owner's (applicant's) details

Owner, of land includes -
(a) for freehold land - all registered owners; or
(b) for a lease, license or permit under the *Land Act 1994* – all lessees, licensees or permittees; or
(c) for indigenous land - the holder of title to the land; or
(d) for any tenure under any other Act - the holder of the tenure.

| | | | | | |
|---|---|---|---|---|---|
| First name: | Colin Seiler, Peter Seiler | Middle name: | Refer details on page 5 | Surname: | |
| Company name: | | | | | |
| If a corporation then enter one of the following: ◯ ACN ◯ ABN ◯ ARBN | | | | | |
| Main phone: | | Other phone: | | | |
| Email: | Cjseiler3@gmail.com | | | | |
| Address line 1: | 861 West Boondooma Road | | | | |
| Address line 2: | | | | | |
| Town/Suburb: | Boondooma | State: | QLD | Postcode: | 4612 |
| Preferred method of contact | ◯ Phone | ☑ Email | ◯ Letter | | |

*The nominated contact person does not need to be the owner. All verbal and written correspondence (including the issue of notices) will be sent to the nominated contact person.*

| | | | | | |
|---|---|---|---|---|---|
| Name of nominated contact person (if applicable): | Colin Seiler | | | | |
| Company name: | | | | | |
| If a corporation then enter one of the following: ◯ ACN ◯ ABN ◯ ARBN | | | | | |
| Main phone: | | Other phone: | | | |
| Email address: | | | | | |
| Address line 1: | | | | | |
| Address line 2: | | | | | |
| Town/Suburb: | | State | | Postcode | |
| Preferred method of contact | ◯ Phone | ◯ Email | ◯ Letter | | |

*I accept that I will act as the nominated contact person on behalf of the owner(s) referred to in Section 1.*

| | |
|---|---|
| Signature of nominated contact person | |
| Date: | |

## 2. Property description

This is the property on which the declared area is proposed. The declared area management plan should indicate the specific location of the proposed declared area on the property.

Extra pages may be attached to list additional lots.

| Lot number | Plan number | Area in hectares | Tenure |
|---|---|---|---|
| 19 | BO94 | | Freehold |
| | | | |
| | | | |

## 3. Registered interest holder consent

A registered interest is one registered under the *Land Act 1994* or the *Land Title Act 1994*.

Registered interests include but are not limited to mortgages, leases, subleases, covenants, profit a prendres, easements and building management statements.

A declaration may not be made unless the holder of a registered interest (other than the owner) in the proposed declaration area has consented in writing to the making of the declaration.

**Note:** Registered interest holder consent is not required to lodge this request for a declared area but is required prior to the making of a declaration.

**Acknowledgement and waiver by all registered interest holders.**

**READ BEFORE SIGNING THIS SECTION**

By signing this section, those signing are taken to:

- acknowledge that a declaration resulting from this request may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any special, indirect or consequential damages or any damages whatsoever rising out of or in connection with this request or any subsequent declaration in accordance with this request.
- consent to the making of a declaration as proposed in this request and supporting material.

Extra pages may be attached to list additional lots and/or registered interest holders and provide their consent to the making of the declaration.

| Parcel (Lot & plan) | Type of registered interest | Registered interest holder's name | Contact details | Signature |
|---|---|---|---|---|
| 19 BO 94 | n/a | n/a | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 4. Type of declaration

Specify the type of declaration that is requested, and the relevant criteria for the declaration. One or more of the criteria may be applicable to the area being sought for declaration.

Note: The owner must provide an explanation of how the declared area meets the criteria selected in this section. This explanation must be provided in the documents accompanying the request.

◉ **Area of high nature conservation value**

- ☐ A wildlife refugium
- ☐ A centre of endemism
- ☑ An area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity
- ☑ An area that makes a significant contribution to the conservation of biodiversity
- ☐ An area that contributes to the conservation value of a wetland, lake or spring
- ☐ Another area that contributes to the conservation of the environment

**OR**

◯ **An area vulnerable to land degradation**

- ☐ Soil erosion
- ☐ Rising water tables
- ☐ The expression of salinity, whether inside or outside the area
- ☐ Mass movement by gravity of soil or rock
- ☐ Stream bank instability
- ☐ A process that results in declining water quality

### 4.1 Purpose of request

| | |
|---|---|
| ◯ Vegetation Management Environmental Offset | ◯ Better Environmental Outcome (BEO) |
| ◯ Environmental Offset (Queensland) | ◯ Other Conservation Purpose |
| ◉ Environmental Offset (Commonwealth) | ◯ Enforceable Undertaking |
| ◯ Carbon Offset | |

*Note: If the purpose of the declaration is to legally secure an exchange area, complete the application to legally secure an exchange area*

### 4.2 Associated development approval

*If the declaration is linked to a development approval under the Planning Act (for example, if it required to meet a project condition to legally secure an offset area), please provide details of the development approval below:*

| | |
|---|---|
| Development approval reference number: | |

*If the declaration is linked to an approval under another Act please provide details of the approval below:*

| | |
|---|---|
| Other Approval reference number: | EPBC 2010/5344 |
| Responsible agency: | Dept of Climate Change, Energy, the Environment and Water |

## 5. Management plan

A management plan must be provided with this request for a declared area. The management plan must contain all the components identified in this section. The management plan is to refer to the area identified in Section 2 of this form. The management plan may also include any other information the applicant considers will assist in the determination of the request.

For more information on the management plan, consult the Guide to declared areas, available on www.qld.gov.au.

**Management plan checklist**

- ☑ Property owner's contact details and signature
- ☑ Includes description of the area subject to the declared area
- ☑ Includes map showing the location and extent of the declared area (or enough information for chief executive to map the stated area):
  - ☐ A map that defines the boundaries of the proposed declared area and a description of the boundaries of the area referenced by Map Grid of Australia 2020 (MGA2020) coordinates and zone references for the area
  - ☐ A map showing the proposed declared area with five or more GPS points that correspond to identifiable fixed features; and the Map Grid of Australia 2020 (MGA2020) coordinates and zone references for each point, acquired by GPS or similar system of satellites that receives and processing information; and a description of the feature that each point represents
  - ☐ A dataset, which can be used in a Geographic Information System showing the proposed declared area
- ☑ States the owner's management intent, and management outcomes proposed by the owner, for the conservation of the high nature conservation value of the area or the prevention of land degradation in the area
- ☑ States the activities the owner intends to carry out, or refrain from carrying out, to achieve the stated management outcomes
- ☑ States the restrictions, if any, to be imposed on the use of, or access to, the area by other persons to achieve the stated management outcomes
- ☑ If the declared area is to legally secure an environmental offset and the Department of Resources is not the administering agency, includes confirmation that the administering agency has / has not approved the declared area management plan that complies with the VMA.

A declared area management plan template / guidance is available at www.qld.gov.au.

**6. Signature of owner (applicant) and all registered owners**

Where the owner is a company, execution by the company must be provided in accordance with the requirements of the ***Corporations Act 2001 (Commonwealth)***, section 127.

A company:

- may execute a document without using a common seal if the document is signed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director; or
- with a company seal may execute a document if the seal is fixed to the document and the fixing of the seal is witnessed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director.

**READ BEFORE SIGNING THIS SECTION**

Acknowledgement and waiver by the owner (applicant) and all registered owners.

Before consent to or lodging this request for a declared area, it is recommended that all registered owners of the property seek their own independent legal and financial advice regarding the effect of this request, and the legal and financial impacts of any subsequent declaration.

By signing this section, those signing are taken to:

- acknowledge that the declared area resulting from this request may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any damages whatsoever rising out of or in connection with this request or any subsequent declaration; and
- consent to the lodgment of the request; and
- agree that all information entered and provided in this request, including any maps, lists or other documents additionally supplied, is correct and accurate; and
- authorise the nominated contact person to act as such on your behalf; and
- authorise all verbal correspondence relating to this request to be to the nominated contact person; and
- authorise all written correspondence (including the issuing of notices) relating to this request to be sent to the postal address for the nominated contact person; and
- request that the chief executive agree to make a declaration as proposed in this request.

If there are more owners, extra pages containing the additional signature(s) may be attached.

| Lot | Plan number | Owner's name | If a corporation record one of the following: | | Owner's signature | Date | Company seal (if applicable) |
|---|---|---|---|---|---|---|---|
| 19 | BO94 | Colin Andrew Seiler | ○ ACN ○ ARBN | | | | |
| 19 | BO94 | Peter Alford Seiler | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |
| | | | ○ ACN ○ ARBN | | | | |

Privacy statement: The Department of Resources is collecting the information in this form and any attachments to process your request that the chief executive declare a stated area of land under the *Vegetation Management Act 1999*. The consideration of your request may involve consultation, and if so, details of your request and any attachments may be disclosed to third parties. These details will not otherwise be disclosed outside the Department of Resources unless required or authorized by law.

**Office use only**

| | | | | | |
|---|---|---|---|---|---|
| Name: | | Position: | | Date received | |
| Signature | | Date: | | | |

# Schedule 2.3. Queensland Government Declared Area Management Plan

Queensland Government

Department of Resources
ABN 59 020 847 551

## Declared area management plan

*Vegetation Management Act 1999*

*Complete the following management plan for an area to be declared as an area of high nature conservation value or an area vulnerable to land degradation.*

*For guidance on declared areas see the Guide to declared areas at www.qld.gov.au. For guidance on legally securing an exchange area see the General guide to accepted development vegetation clearing codes at www.qld.gov.au (search 'vegetation management').*

*Note: Examples of information to include in this management plan are intended as guidance only. The level of detail or scope of the management plan will depend on the purpose of the declaration and the particular circumstances of the area being secured.*

### 1. Owner's details

| | | | | | |
|---|---|---|---|---|---|
| First name: | Refer to details on page 6 | Middle name: | | Surname: | |
| Company name: | | | | | |
| If a corporation then enter one of the following: | ◯ ACN ◯ ARBN | | | | |
| Main phone: | | Other phone: | | | |
| Address line 1: | 861 West Boondooma Road | | | | |
| Address line 2: | | | | | |
| Town/Suburb: | Boondooma | State: | QLD | Postcode: | 4613 |
| Email address: | cjseiler3@gmail.com | | | | |
| Preferred method of contact | ◯ Phone | ◉ Email | ◯ Letter | | |
| Local government area: | South Burnett Regional Council | | | | |
| *Office use only:* | | | | | |
| eLVAS case number: | | | | | |
| Notification number: | | | | | |

### 2. Property description

This is the property on which the declared area is proposed. The declared area management plan should indicate the specific location of the proposed declared area on the property.
Extra pages may be attached to list additional lots.

| Lot number | Plan number | Declared area in hectares | Tenure |
|---|---|---|---|
| 15 & 16 | BO94 | | Freehold |
| 19 | BO94 | | Freehold |
| 36 | BO175 | | Freehold |

## 3. Description of declared area

Include enough information to allow the chief executive to map the boundary of the stated area, including a description of the area subject to the declared area and a map showing the location and extent of the area.

Please refer to EPBC Offset Area Management Plan (EPBC OAMP) Section 5 (offset area maps) and shapefiles provided.

*A map may be attached to this plan and submitted with the request for a declared area. Please provide spatial data in the format of a .kml or .shp file of your proposed area so that the exact extent can be used for the assessment.*

## 4. Purpose of the declaration

The purpose of this declaration is to legally secure:

- (●) an area of high nature conservation value
- ( ) an area vulnerable to land degradation

under sections 19E-19L of the *Vegetation Management Act 1999* (VMA)

## 5. Registered interest holders consent

A registered interest is one registered under the *Land Act 1994* or the *Land Title Act 1994*.

Registered interests include mortgages, leases, subleases, covenants, profit a prendres, easements and building management statements.

A declaration may not be made unless the holder of a registered interest (other than the owner) in the proposed declaration area has consented in writing to the making of the declaration.

**READ BEFORE SIGNING THIS SECTION**

Acknowledgement and waiver by all registered interest holders.

By signing this section, those signing are taken to:

- acknowledge that a declared area resulting from a request for a declared area may have legal and financial implications for your interest in the property, and you agree that in no event shall the Department of Resources be liable for any special, indirect or consequential damages or any damages whatsoever rising out of or in connection with a request for a declared area or any subsequent declaration of the area in accordance with the request for a declared area.
- consent to the making of a declared area as proposed in the request for a declared area.

Extra pages may be attached to list additional lots and/or registered interest holders and provide their consent to the making of the declaration

| Parcel (Lot & plan) | Type of registered interest | Registered interest holder's name | Contact details | Signature |
|---|---|---|---|---|
| 15 BO94 | Nil | n/a | | |
| 16 BO94 | Nil | n/a | | |
| 19 BO94 | Nil | n/a | | |
| 36 BO175 | Nil | n/a | | |
| | | | | |
| | | | | |

***Principles for drafting management plan:*** *In the sections below you will need to outline how you will achieve the management outcomes, including details on what actions will be taken to achieve this and how you will mitigate any impacts and manage any potential risks that may hinder the specified outcome.*

## 6. Management intent

Detailed within EPBC OAMP. Please refer to:
- Section 7: Risk analysis
- Section 8: Offset management measures
- Section 13: Adaptive management and plan review

*Examples:*

1. *The management intent for the area is the conservation of the native vegetation in the area. Conservation of the native vegetation will prevent the loss of biodiversity and maintain ecological processes.*
2. *The management intent for an area vulnerable to land degradation is to rehabilitate a degraded, unstable watercourse in an area subject to stream bank instability.*

## 7. Management outcome

Detailed within EPBC OAMP. Please refer to:
- Section 8: Offset management measures
- Section 10: Offset completion criteria and performance targets

***Principles for drafting management outcomes:*** *The management outcomes for the area should be achievable, measurable and related to the to the conservation value or land degradation issue associated with the area.*

*Examples:*

1. *The management outcome for the area is that it achieves the definition of remnant vegetation.*
2. *The management outcome for the area is to establish (insert number) habitat trees and to have restored and enhanced (insert hectares) of natural area within (insert number) of years.*

**Note for exchange areas**: If the declaration is to legally secure an exchange area, the management objective must be either of the following:

i. If the exchange area is located in a category X area, category C area or category R area—to return the exchange area to remnant vegetation (a category B area on the regulated vegetation management map) as soon as possible and within 20 years

ii. If the exchange area is located in a category B area—to achieve the nominated substantial conservation outcome or address the nominated significant land degradation issue as soon as possible

## 8. Activities and restrictions

Detailed within EPBC OAMP. Please refer to:
- Section 8: Offset management measures

*Example: To achieve the management outcome, the landholder will comply with the following activities and restrictions:*

1. *Clearing of native vegetation will not occur unless in accordance with an exemption listed in Schedule 21 of the Planning Regulation 2017 or a development approval under the Planning Act 2016.*
2. *All reasonable measures will be taken to maintain and enhance the structure and function of the regional ecosystem. For example, minimizing the introduction, establishment and spread of non-native plants. Where non-native plants already occur in the area, all reasonable measures will be taken to control the non-native plants.*
3. *Burning will only occur in accordance with the fire guideline/s specified in the Regional ecosystem description database (available at www.qld.gov.au) for the regional ecosystem/s in the declared area.*
4. *Pest animals and pest plants considered an invasive biosecurity matter under the Biosecurity Act 2014 will be controlled.*
5. *Livestock will be managed to ensure the growth of native vegetation and biodiversity is not impeded.*

**Note for exchange areas**: If the declaration is to legally secure an exchange area, this section of the management plan must include:

- Description of the works / management actions that will be undertaken to achieve the management objective, including the methods, timing, frequency, intended benefits etc.
- The conservation outcomes that will be achieved by the works / management actions
- Description of the management actions that will be undertaken to ensure that the effects of the works do not result in land degradation
- Details of who is responsible for all works and management actions, and the estimated length of time the area/s will be managed

## 9. Term

A management plan for a declared area has effect until the earlier of the following happens:

- the plan ends under its terms; or
- the declaration of the area as a declared area ends under section 19L of the VMA

Detailed within EPBC OAMP. Please refer to:
- Section 10: Offset completion criteria and performance targets

**Ending a declaration**

Under section 19L of the VMA the chief executive may, by written notice given to the owner of the land the subject of a declaration, end the declaration if the chief executive considers:

- the declaration is not in the interests of the State, having regard to the public interest; or
- the management outcomes mentioned in section 19E(3)(c) of the VMA for the management plan relevant to the declaration have been achieved.

The chief executive may, by notice given to the owner of land declared as an area of high conservation value, end the declaration if:

- the area is, on or after the commencement of subsection 19L(2) of the VMA, a legally secured offset area; and
- a prescribed activity is, under an authority under another Act, to be carried out in or on the area; and
- the holder of the authority has entered into an agreed delivery arrangement in relation to an environmental offset for impacts to the area.

**Note:** If the landholder considers the management outcomes have been achieved, they may submit a request to end a declaration to the Department of Resources. The Department of Resources will assess whether the management outcomes have been met before removing the declaration. If the declaration is to legally secure an environmental offset and the Department of Resources is not the administering agency, the department should also be satisfied that the administering agency agrees the management outcomes have been met and agrees to the ending of the declaration in order for the department to end the declaration.

Once the declaration has ended this plan will cease to have effect and the department will remove the declaration notice from the title of the land. The landholder should submit a 20C PMAV application with the request to remove the declaration to replace the PMAV currently over the declared area and map the appropriate category of vegetation for the area (for example, category B).

## 10. Monitoring and record keeping

Detailed within EPBC OAMP. Please refer to:
- Section 8: Offset management measures
- Section 11: Monitoring and reporting

Monitoring and record keeping should be undertaken to track the state of the declared area and progress towards achieving the management outcomes specified in this plan. The following information should also be provided:

- Monitoring and auditing processes including adaptive management approaches to rectify negative results from the monitoring and auditing processes
- Record keeping process for retaining appropriate records for monitoring and auditing processes.

**Note:** Providing the information above complies with the ADVCC requirements for legally securing an exchange area.

*To apply for an area to be legally secured as an exchange area, complete the application to legally secure an exchange area at www.qld.gov.au (search 'vegetation management'). For guidance on legally securing an exchange area see the General guide to accepted development vegetation clearing codes at www.qld.gov.au (search 'vegetation management').*

## 11. Additional information

The management plan may also include any other information the applicant considers will assist in the determination of the request. Additional information can be provided below or as an attachment to this plan.

## 12. Administering agency approval

If you are using a declared area to legally secure an environmental offset and the Department of Resources is not the administering agency, has the administering agency approved this management plan?

- (●) Yes – Please include a copy of this approval with the request
- ( ) No – Please provide contact information for the administering agency and details of the offset delivery progress

**Note:** this management plan complies with the requirements for a declared area under the VMA, it does not fulfil the requirements of an offset management plan.

**13. Signature of owner (applicant) and all registered owners**

If there is more than one owner of the land on which the declared area is proposed, each owner must complete and sign this management plan. The owner of the land is the party/s registered on title as the registered owner.

Where the owner is a company, execution by the company must be provided in accordance with the requirements of the *Corporations Act 2001 (Commonwealth)*, section 127.

A company:

- may execute a document without using a common seal if the document is signed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director; or
- with a company seal may execute a document if the seal is fixed to the document and the fixing of the seal is witnessed by two (2) directors of the company or a director and a company secretary; or for a proprietary company that has a sole director who is also the sole company secretary - that director.

If there are more owners, extra pages containing the additional signature(s) may be attached.

| Lot | Plan number | Owner's name | If a corporation record one of the following: | | Owner's signature | Date | Company seal *(if applicable)* |
|---|---|---|---|---|---|---|---|
| 15 | BO94 | refer to Attachment 1 | | | | | |
| 16 | BO94 | refer to Attachment 1 | | | | | |
| 19 | BO94 | refer to Attachment 1 | | | | | |
| 36 | BO175 | refer to Attachment 1 | | | | | |
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**Department of Resources** *(office use only)*

| Name | | Position | | Signature | Date |
|---|---|---|---|---|---|

## Attachment 1

## Lots 15, 16, 19 BO94 and Lot 36 BO175 – owners' signatures

| Parcel | Owner's name | Owner's signature | Date |
|---|---|---|---|
| 15BO94 | Colin Andrew Seiler | | |
| 15BO94 | Joan May Seiler | | |
| 15BO94 | Peter Alford Seiler | | |
| 15BO94 | Lynnelle Evelyn Seiler | | |
| 16BO94 | Colin Andrew Seiler | | |
| 16BO94 | Joan May Seiler | | |
| 16BO94 | Peter Alford Seiler | | |
| 16BO94 | Lynnelle Evelyn Seiler | | |
| 19BO94 | Colin Andrew Seiler | | |
| 19BO94 | Peter Alford Seiler | | |
| 36BO175 | Colin Andrew Seiler | | |
| 36BO175 | Joan May Seiler | | |
| 36BO175 | Peter Alford Seiler | | |
| 36BO175 | Lynnelle Evelyn Seiler | | |

# Attachment 1. Terrestrial Ecology Reports

**Impact area – desktop and field survey methodology**

The methodology undertaken to assess the BioCondition of the impact areas in the Project site is described below.

The assessment consisted of a desktop analysis, including a literature review, followed by a number of field surveys. The impact area was surveyed by EcoSmart Ecology and 3D Environmental who were commissioned by Arrow Energy. The broader SGP project area was surveyed in detail during dry (September 2016) and wet (February/March 2017) seasons (EcoSmart Ecology and 3D Environmental, 2017).

The mapped locations for the koala and its habitat are based on a combination of known species records, ground-verified mapping and Queensland Government RE mapping. Habitat is presented with regards to 'Core Habitat Known' (being a 1 km buffer around a recent (1980+) accurate (± 500m) record of the species) and 'Core Habitat Possible' (being areas of remnant or regrowth vegetation with a mapped RE known or likely to provide habitat for the koala or contains other environmental features that provide microhabitats). Habitat criteria have been developed for the koala and these are defined in EcoSmart Ecology and 3D Environmental (2019).

Prior to any clearing within the areas identified above, Arrow will conduct pre-clearance surveys that:

- Validate the presence of EPBC Act species core habitat or threatened ecological communities.
- Record GPS coordinates of the boundary of the core habitat in relation to the proposed clearing boundaries to ensure the limits of the area to be cleared are clearly marked on the ground (eg. high visibility flagging tape, hazard netting or similar) in accordance with the construction limits shown on construction drawings.
- For areas mapped as core habitat for the koala, the pre-clearance survey will include confirmation of presence of preferred food trees, observations looking for koalas and the distinct koala scratch marks on smooth-barked trees and/or presence of scats.
- The coordinates and total area of cleared core habitat will be recorded and tracked against approved maximum disturbance limits and used for annual compliance reporting. Mapping is updated as pre-clearance surveys are completed to confirm the presence or absence of core habitat.

**Habitat quality scoring**

The DAWE EOP and How to Use the Offsets Assessment Guide do not provide habitat quality survey guidelines or a methodology on how to calculate the habitat quality scores other than to state that the habitat quality score must consider site condition, site context and species stocking rate.

For the purpose of providing context to the quality of habitat assessed within the pipelines study area, the method applied in the EPBC Act Offset calculator has been completed. It is

recognised that this method does not equate to impact criteria as per the EPBC Act Significant Impact Guidelines, however it does provide useful information to inform the suitability of habitat within the study area for the various MNES species. The 'Habitat Quality' from the EPBC Act Offset calculator uses three components: Site Context, Site Condition and Species Stocking Rates. Following advice from the DCCEEW, these components have been weighted as 30%/30%/40% respectively, resulting in an overall score out of 10 (i.e. 3+3+4), and calculated using the methodology summarised below.

**Site Context**

Site Context has been calculated using a subset of attributes from the Queensland '*Guide to determining terrestrial habitat quality*' (DEHP 2017). Using these attributes, the 'Site context' will score out of a maximum 56 and be converted into a score out of three for inclusion into the calculator. For example, a site context score of 44 would be converted for use in the EPBC Act calculator as 2.36; (44/56) x 3. Using the DEHP (2017) methodology, 'site context' is an estimation of the extent of remnant habitat within one kilometre of the BioCondition site. Following advice from DotEE, 'context' was modified to include both remnant and regrowth vegetation (when considered suitable for the target species) based on a buffer distances of 20 km for koala.

**Site Condition**

Site Condition has also been calculated using the attributes from DEHP (2017). Each attribute is evaluated by comparing the BioCondition data against published benchmarks for the Brigalow Belt Bioregion (Queensland Herbarium 2019). Where benchmarks are not available, BioCondition site data from the ecology assessment for the Surat Gas Project Supplementary EIS (3D Environmental and Ecosmart Ecology, 2013) was used if suitable benchmark data had been collected. Where no benchmark data was available surrogate REs were utilised and were supplemented with site-based observations of vegetation condition and disturbance. These attributes provide a score out of a possible 100 and have been converted to a score out of three for inclusion in the EPBC Act Offset calculator.

**Species Stocking Rates**

The Habitat Index value from the '*Guide to determining terrestrial habitat quality*' (DEHP 2017) is not directly related to the species stocking rate. Therefore, the species stocking rate has been determined separately, based on the presence of species records and usage of the site. 'Species Stocking Rates' have been evaluated as a score out of four as advised by DCCEEW using the following attributes:

- Presence of the species detected on or adjacent to site (out of a maximum score of 10),
- Species usage of the site (i.e. dispersal, foraging or breeding; out of a maximum score of 15), and
- The role/importance of the species population on site (out of a maximum score of 15) based on whether or not it is a key source population for breeding, a key source population for dispersal, necessary for maintaining genetic diversity and near the limit of the species range.

## Attachment 1.1. 3D Environmental and Ecosmart Ecology. (2017). Surat Gas Project Terrestrial Ecology Report. Report prepared for Arrow Energy Pty Ltd, June 2017.

Please see file supplied separately

## Attachment 1.2. Surat Gas Project; BioCondition and Habitat Quality Score Assessment Report; September 2021

Please see file supplied separately

## Attachment 1.3. Habitat Quality Assessment Report, Killara Offset Area, Umwelt; July 2020

Please see file supplied separately

## Attachment 1.4. Targeted Fauna Survey Report, Killara Offset Area, Umwelt; December 2020

Please see file supplied separately

# Attachment 2. Contributing authors and CVs

| Name | CV attached | |
|---|---|---|
| David Gatfield | Y | Technical specialist – ecologist undertook field assessments |
| Alan Key | Y | Plan preparation |
| Grant Paterson | Y | Plan preparation |
| Col Seiler | Third generation landowner, 50 years' experience | Landowner – history of land management |

# Attachment 2.1. David Gatfield

David is a Senior Ecologist with 11 years' experience in the planning and implementation of flora and fauna field surveys, including targeted monitoring for threatened species. He has extensive experience across a range of industries including mining, coal seam gas, renewables, transport, infrastructure and government sectors.

David has extensive knowledge of the Commonwealth and Queensland environmental offset framework. He has demonstrated experience in the preparation and delivery of biodiversity offset strategies, offset delivery plans and management plans. David has extensive experience in the delivery of potential offset properties to satisfy federal conditions, using spatial habitat modelling and land brokers to identify, assess and secure land-based offsets. David has an intimate working knowledge of the EPBC Act *Environmental Offsets Policy* (2012) and the Queensland *Environmental Offset Act 2014*. He is accredited under BioCondition survey methodology required for the determination of terrestrial habitat quality in Queensland.

A focus of David's career has been within the Queensland resource and infrastructure sectors, delivering ecological impact and approval documents, monitoring surveys and management plans. David has extensive experience working on major Projects, including the design and implementation of offset programs. David also has an in-depth working knowledge of the EPBC Act assessment framework, having managed numerous EPBC Act approvals, facilitated regulator engagement and delivered referral documents. This experience allows Projects to streamline the Commonwealth approval, reducing the risk of lengthy or unforeseen approval delays. His experience extends across controlled and non-controlled Projects.

Throughout his career, David has been responsible for the management and implementation of baseline ecology field surveys and targeted threatened species surveys. He has led numerous large scale and technically complex ecological projects across Queensland, New South Wales, and the Northern Territory. David has considerable experience working in remote locations and is able to implement detailed health and safety plans to ensure the safe operation of survey teams

David is an accomplished Project Manager based in the Umwelt, Brisbane office.

| | |
|---|---|
| Qualifications/Affiliations: | Bachelor of Science, Griffith University,<br>Member of Birds Queensland and Australia<br>Member, Ecological Society of Australia |
| Years Experience: | 11 years |
| Specialisation: | Biodiversity offsets<br>EPBC approvals and referral documents<br>Baseline ecology surveys<br>Flora and fauna<br>Regional ecosystem mapping and fauna habitat modelling<br>Aquatic ecosystems<br>Rehabilitation monitoring |

Project Experience

**Prairie and Picardy Offset Suitability Assessment | Arrow Energy | 2019 | Ecologist**

As part of their broader Bowen Gas Project, Arrow required investigation into the offset suitability of several properties within the Bowen Basin. David led the ecological assessment, determining habitat condition and mapping the extent of vegetation communities. David provided advice with regard to the suitability of each property as an offset within Arrow Energy's offset portfolio

**Red Hill Offset Project | BMA | 2016 | Ecologist**

As part of the SEIS, David prepared the Project's offset strategy (conceptual) and begun investigating potential offset properties within BMA land holdings and the region. Following approval of the offset strategy and the Red Hill project, David was responsible for undertaking habitat condition assessments within several pre-identified properties to determine the suitability in providing an offset for potential impacts on koala and ornamental snake. These properties were reviewed and the proposed offset for Stage 1 activities was identified. David was responsible for liaising with regulatory bodies and preparing the supporting offset delivery plans.

**Lady Loretta Mine Biodiversity Offset Strategy | Glencore | 2019 | Ecologist**

In accordance with EA conditions, the Lady Loretta Mine near Mt Isa, Qld requested a review and update to their Biodiversity Offset Strategy. This update involved a review of the previous strategy, along with performed and proposed Project activities. David led this update, which involved providing advice to Glencore on the ecological risks of the Project. Significant residual impact assessments for threatened fauna were completed as part of the Offset Strategy.

**Bohle Plains Environmental Offsets | EDQ | 2018 | Ecologist**

David was the Technical lead, responsible for the collection of baseline data and vegetation condition assessments. David also led targeted surveys for black-throated finch (southern) (*Poephila cincta cincta*). Additional responsibilities included the identification of potential offset areas, land management measures, weed identification and technical report. David was required to meet with numerous Government stakeholders to deliver the Project.

**Surat Gas Project | Arrow Energy | 2018 | Ecologist**

As the Project Manager, David was responsible for identifying and assessing suitable offset properties for impacts on both the Surat and Bowen Projects. This process required the spatial modelling of habitat values, with properties containing overlapping values preferentially targeted. Numerous reports were prepared including property assessments, offset management plans and offset delivery plans.

**Kidston Connection Project | Powerlink | 2018 | Ecologist**

An approximate 250 km powerline proposed from Mount Fox to Kidston mine, to support a proposed renewables industry hub. David led the terrestrial fauna program, identifying threatened species and mapping habitat across the alignment. David prepared technical reports, including biodiversity offset advice papers.

**Deniliquin Ethanol EIS Plains Wanderer (*Pedionomus torquata*) Impact Assessment and Offset Strategy | Dongmun Greentec | 2015 | Ecologist**

This Project considered the potential impacts on the plains wanderer as a result of a proposed development. As part of this assessment, David reviewed field surveys and performed self-assessments for impact under the State and Federal guidelines. Offset advice was prepared for the proponent following these assessments.

**Bajool-Port Alma Road Upgrade Significant Impact Assessment | AECOM Australia | 2019 | Ecologist**

Bajool Port Alma Road required safety upgrades and protection from regular tidal inundation. As part of this assessment, David provided key technical advice on Commonwealth matters including the potential provision on offsets, specifically threatened birds. David prepared significant impact assessment documentation and prepared a significant species management plan for the Yellow Chat.

**Coopers Gap Wind Farm | AGL | 2017 | Ecologist**

An expansion of an approved wind farm was proposed, located in the Surat Basin. The expansion required consideration of potential impacts to ecological values. David was the lead fauna ecologist, responsible for baseline surveys, technical reporting and potential impact assessment for the Stage 2 surveys. David also provided offset assessments including maximum offset liability.

**Dulacca Wind farm | RES | 2018 | Ecologist**

A large wind farm proposed in the Surat Basin required assessment for ecological constraints David was responsible for leading the ecology scope including baseline ecology surveys and bird and bat utilisation assessments. David was the lead author and prepared the Project's EPBC referral. David also provided offset assessments including maximum offset liability.

**Lot 68, Flora and Fauna Investigation | Economic Development Queensland (EDQ) | 2017 | Ecologist**

This Project is located in Yarwun, Qld and was being considered for potential development opportunities (not yet identified). As such, the ecological values of the property were assessed, and potential development constraints were identified. David’s role on this Project included baseline flora and fauna surveys, including RE mapping and significant impact assessments.

**Haughton River Bridge Upgrade | Transport Main Roads | 2017 | Ecologist**

This Project considered the duplication of the Houghton River Bridge south of Townsville. Numerous ecological values were known to the area including listed regional ecosystems, marine plants and threatened bird and bat species. David was responsible for leading the flora and fauna assessment, completing field surveys and reporting.

# Attachment 2.2. Alan Key

Alan has been the Managing Director of Earthtrade since its inception in 2007. Alan supports clients with a strategic approach to biodiversity offsets, aligning future growth projects and corporate strategy with a solution enabling projects to proceed with regulatory and budgetary certainty.

Prior to pioneering Earthtrade, Alan spent 21 years at the Queensland Departments of Primary Industries, and Natural Resource Management, in the fields of soil conservation, sustainable agriculture and vegetation management, including assisting to manage the brigalow catchment study for eleven years; a long-term monitoring study of the changes in soil loss, salinity and nutrients, when catchments are cleared for pasture production and cropping. Furthermore, in his role as a Soil Extension Officer over the course of his tenure, Alan was part of the team that introduced controlled traffic farming into Central Queensland.

Due to this extensive experience, Alan was involved in the formulation of Queensland's

Regional Vegetation Management Codes for clearing under the *Vegetation Management Act 1999*.

Over the last decade, in his role as Managing Director at Earthtrade, Alan has secured the two largest koala offsets in South East Queensland, as part of more than 85 biodiversity offset projects secured by Earthtrade overall. Alan has supported a plethora of community infrastructure projects in South East Queensland, the Australian coal industry and associated infrastructure developments in Central Queensland, mineral development projects in North Queensland, as well as residential and commercial developments in various locations across Australia.

Alan has had extensive experience assisting clients with the policy, legal, financial and

operational aspects of over 85 biodiversity offset projects (equating to over AUD$100M in value) to the corporate, government and rural sectors. He also has strong links with landholders in the agricultural, resources, and development sectors, and Indigenous landowners.

Alan is an active member of a number of industry groups and regularly speaks at conferences and at various events held by industry associations, law firms and academia both in Australia and internationally. Alan is also an active advisor for the Business & Biodiversity Offsets Program (BBOP) Advisory Group, a member of Queensland Environmental Law Association, The Environmental Institute of Australia & New Zealand, and has been an executive member of a regional landcare group, a not-for-profit association, for the last 17 years.

Alan has engaged with a widespread and diverse base of clientele on their developmental projects, including Australian landholders, several tier-one law firms and international corporations such as BHP, Total Energy, Hi-Speed Rail 2 London (HS2), Anglo American Coal (AAMC) and Worley Parsons (WSP).

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| **Current industry position** | A leader in the offset industry, Alan has been the Managing Director of Earthtrade since its inception in 2007. With over thirteen years' experience assisting clients on policy, legal, financial and operational aspects of offset solutions in the corporate sector, he also has strong links with landholders in the agricultural, resources, and development sectors, and Indigenous landowners. Alan is an active member of a number of industry groups and regularly speaks at conferences and at various events held by industry, law firms and academia.<br><br>Earthtrade is today Australia's leading offset solutions specialist delivering offsets required by government to meet approval conditions. Alan has experience and a strong understanding of the complex environmental legislation and policy in place at the local, State and Australian Government tiers. |
| **Qualifications** | Associate Diploma Rural Techniques Agriculture - University of Qld (1985)<br><br>Diploma in Financial Planning - Financial Institute of Australasia (2007) |
| **Professional Association Memberships** | Australian Institute of Company Directors<br><br>Business and Biodiversity Offsets Program Advisory Group member<br><br>Queensland Environmental Law Association<br><br>Queensland Resource Council<br><br>Environment Institute of Australia & New Zealand |
| **Professional Recognition, Registrations,<br><br>Licences, Certifications.** | Project Management – IPAA<br><br>Certification in understanding *Vegetation Management Act 1999*; *Land Act 1994* – Part 6; *Integrated Planning Act 1997*; Integrated Development Assessment Systems (IDAS)<br><br>Regional Ecosystems Accreditation (Assessor)<br><br>Certification in understanding Landscape Processes and Hydrology; Acid Sulphate Soils; Geology and Landforms; Dryland Salinity; Effluent Irrigation |
| **Key achievements** | • Successfully transacted the first koala offset obligation in the State of Queensland.<br>• Successfully delivered the two largest koala offset projects in Queensland<br>• Negotiated the first offset project where State and Australian Government matters were co-located on the same site<br>• Negotiated the first offset project where three mining companies collaborated to satisfy their offset requirements on the same portion of land held by Indigenous people.<br>• Negotiated and established a 4,000ha advanced offset for a mining client |

# Attachment 2.3. Grant Paterson

Grant Paterson

Principal Ecologist / Agronomist

Grant comes from a horticultural family with generational connection to farming. His experience with both agronomic aspects and environmental issues around land management have been developed through his compiling of the original Pioneer Catchment Management Strategy and ongoing role as an agronomist /adviser to a range of tree crop growers and broadacre farmers.

Grant is a Department of Environment Accredited Ecologist with extensive expertise in design and implementation of flora and fauna surveys and ecological assessments to meet requirements of the *EPBC Act 1999*.

Grant joined ARE from Aurecon and prior to that the Queensland Department of Natural Resources and Mines (DNRM) and has extensive experience in vegetation assessment, natural resource management, agronomy, vegetation, soils, legislation, policy, approvals and appeals. Whilst at DNRM Grant assisted in the development of Field Methodologies for the assessment of Regional Ecosystems for Vegetation Management Status and Fauna Habitat and BioCondition.

Grant has been with ARE since its establishment and was with Aurecon for 11 and a half years prior to that conducting ecological assessments and reporting, predominantly in Queensland and the Northern Territory.

As Principal Ecologist Grant is responsible for conducting field surveys, site assessments and reporting.

| Qualifications |
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| Bachelor of Applied Science (Horticultural Technology) |
| Specialisation |
| Ex situ Plant Conservation |
| Plant ID |
| Natural Resource Management |
| Agronomy |
| Ecological assessments |
| Landscape design and Management |
| Environmental legislation and policy |
| Years in Industry |
| 30 |

**Experience**

July 2019 to Present
Agri and Environment Solutions Pty Ltd t/a ARE, Mackay QLD
Principal Ecologist

- Provision of agronomic advice to Macadamia, Lychee, Mango and Citrus Orchards in NT, Northern, Central and Southeast Qld.
- Investigation into benefits of cover cropping with peanuts and Soya Beans WRT erosion mitigation, nitrogen fixation and supply to sugar and cereal crops.

- Beechwood property ecological assets assessment
- DTMR 2019/20 weed treatment effectiveness audit
- DTMR 2020 Bushfire fuel load field assessment
- Mt Spencer Offset assessment
- Mt Flora irrigation Project. Project Management and environmental assessment.
- Connors Arc Mining Area Regional Ecosystem assessment and PP survey
- Woorabinda PP Survey
- Golden Grazing Weed Survey
- Riverside Station PMAV application
- Rookwood Weir Offset site ecology assessment
- Slogan Downs PMAV assessment
- Gundamere Station PMAV assessment
- Vella Earthmoving Glendaragh Quarry, P & E Court expert testimony
- Earthtrade Habitat modelling and assessment
- BMA Goonyella TS1 Dam Tree Assessment
- BMC South Walker Creek Old Tailings Dam Tree Assessment
- Velvet Waters PMAV and Horticultural advice
- Wilandspey Vegetation Management Advice and property management assistance.
- AJK Contracting Environmental Advice
- Central Highlands Plant Hire Vegetation Management and Environmental Advice

February 2008 to June 2019 Aurecon Australasia Pty Ltd, Mackay QLD
Principal Environmental Scientist

Ecology Assessment and Management

- Dysart Road Relocation Project, flora and fauna surveys, PMAV application, *Vegetation Management Act 1999* applications, *Nature Conservation Act 1994* applications, EPBC assessment and advice Peak Downs Mine, BMA Coal
- Type A species Relocation Management Plan, Central and Southern Queensland, Santos
- Development of Species Management Plans for management and relocation of Protected Plant species, GLNG pipeline, Santos
- Roma and Fairview Gas field, Water to Grade Ecological assessments, Roma and Injune, Santos
- Nerimbera Quarry vegetation management assessment and threatened species relocation advice, Central Queensland, Readymix
- Lockhart River to Old Mission Road upgrade flora and fauna assessment for REF and EMP, Cape York, Queensland Department of Main Roads
- 18 Mile Ridge to Lilly Creek Road upgrade flora and fauna assessment for REF and EMP, Cape York, Queensland Department of Main Roads
- Jilalan Railyard Expansion vegetation management advice and rehabilitation success assessment and monitoring, Queensland Rail

Water Management

- Review of various Site Based Stormwater Management Plans for urban developments in Mackay
- Development of various aquatic weed management (Water Hyacinth, Water lettuce, Cabomba, Salvinia, Hymenachne and Para Grass and others) plans and strategies for Local Government and corporate clients
- Assist concept development for water supply and wastewater management, Eungella – Mirani Shire Council
- Development of water sensitive urban design and bio-retention area local species lists – Mackay Regional Council, Mackay

- Conduct catchment health analysis assessment for the lagoons catchment - Mackay Regional Botanic Gardens, Mackay
- Development of catchment management plan for the lagoons catchment - Mackay Regional Botanic Gardens, Mackay
- Contribute to water quality sampling plan for the lagoons catchment - Mackay Regional Botanic Gardens
- Supervise post construction management and maintenance of bio-retention cells at Sugar View Residential Development, Mackay
- Supervise post construction management and maintenance of bio-retention cells at Richana Heights Residential Development, Rural View
- Design alternative stream style swales and channels native species selection and layout for northern drains Royal Sands Residential Development, Bucasia
- Review of sedimentation and risk of flooding in Don River - Whitsunday Regional Council, Bowen
- Don River Sand Extraction Study - Whitsunday Regional Council, Bowen
- Road Maintenance Water Extraction Location Licensing - Mackay Regional Council, Pioneer River and coastal catchments, Mackay

### Environmental Assessment and Management

- Landfill rehabilitation planning and capping planning and species selection - Tablelands Regional Council
- Sarina Shire landfill rehabilitation planning and capping planning and species selection - Mackay Regional Council
- Bayersville Landfill rehab success assessment and rectification advice - Mackay Regional Council
- Old landfill rehabilitation requirement assessment - Mackay Regional Council
- Site specific species selection for landfill capping and long-term stability and maintenance for 20+ sites in eight local government areas.
- Assist with development approval for expansion of liquid fertiliser facility - CSR
- Development approvals and management plans for several quarries and riverine sand extraction entities, various clients
- GLNG upstream ecological assessments and Regional Ecosystem map amendments for pipeline, wells and irrigation areas - Fairview, Roma and Arcadia Valley CSG Fields, Santos
- Review of the status, distribution and ecology of *Gonocarpus urceolatus,* methodology development, field surveys and preparation of technical report for reclassification, Santos
- GLNG upstream development of internal approvals process for the CSG fields and procedures for conducting desktop and field assessments, assisting the development of GIS data capture and reporting processes, Santos
- Author of “Type A Species Relocation and Management Plan”, Santos and GLNG Pipelines
- Dysart Road relocation flora and fauna surveys and Reporting for *NC Act*, *VM Act* and EPBC compliance, Moranbah, BMA Coal
- Flora, fauna, fisheries and macroinvertebrate surveys, including bushfire ecology assessments. Including NOI and EPBC Goyder River Road and Bridge realignment, NT Government

### Soils and Site Contamination Assessment

- Soil sampling for Mt Bassett WWTP Stage 2 site contamination assessment - Mackay Regional Council
- Graham Heggie Street and Presto Avenue, Site Contamination Assessments - North Queensland Bulk Ports Mackay

- Cremorne Carpark Site Contamination and Acid Sulphate Soil Assessments - Mackay Regional Council Blue Diamond Diesel Terminal, Site Contamination Assessments - Port of Mackay
- Blue Diamond Diesel Terminal, Site Contamination Assessments - Port of Mackay

Landscape Planning, Design and Implementation

- LPG cylinder refilling and bulk gas transfer station, Landscape Plan Development, Mackay, Origin Energy
- Diesel terminal landscape plan development, Blue Diamond Australia, Mackay
- Member of the Mackay Regional Botanic Garden - Master Planning Committee, Horticultural Reference Group and Advisory Panel since 2000

Bushfire Hazard Assessment

- Sugar View Development Bushfire Hazard Assessment and representations to Department of Community Safety and Department of Natural Resources on setback distances. Mackay, Sugar View Developments
- Bush Fire Hazard Assessments at 21 Defence bases and establishments across Northern Australia, Department of Defence
- Palm Built Development Bushfire Hazard Assessment and representations to Department of Community Safety and Department of Natural Resources on setback distances, Mackay, Palm View Developments

February 1996 to February 2008
Consultant
During this time, Grant was privately employed as a consultant to a number of developers, mining companies of horticultural producers, and other individuals across northern Australia, providing consultancy services, assessment and advice on:

- Crop nutrition and management
- Salvage and relocation of mature brachychiton, cycads, ferns, orchids, ficus, pandanus and other horticulturally desirable or threatened plants for ex situ conservation.
- Environmental Impact Assessments
- Remediation (site stabilisation, erosion control, weed control and offsite effect mitigation)
- Revegetation (species lists, techniques maintenance and implementation)
- Ecological and vegetation assessments
- Flora and fauna surveys
- Environmental monitoring
- Project management and coordination
- Landscape design, construction and maintenance
- Pest and disease control
- Farm business management
- Pre-purchase and due diligence property inspections
- Nursery production and propagation techniques