Isaac Plain East Extension Offset Area Monitoring Report 2025

Stanmore Resources Pty Ltd

BASE/

Client:	Stanmore Resources Pty Ltd
Reference:	J0717

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Rev A: Draft for internal review	10/07/2025	Elliot Budd, Brandon Hourigan and Jack Caleo	Craig Streatfeild
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Abbreviations

Abbreviation	Description
AU	Assessment Unit
Base	Base Consulting Group Pty Ltd
DAWE	Department of Agriculture, Water and the Environment
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EDL	Ecologically Dominant Layer
EIS	Environmental Impact Statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
the Guide	*The Guide to Determining Terrestrial Habitat Quality Version 1.2*
ha	Hectares
ID	Isaac Downs
IPE	Isaac Plains East
IPEE	Isaac Plains East Extension
km	Kilometres
MNES	Matters of National Environmental Significance
m	Metres
OAMP	Offset Area Management Plan
the offset area	Isaac Plains East Offset Area
The Project	Isaac Plains East Project
RE	Regional Ecosystem
SAT	Spot Assessment Technique
Stanmore	Stanmore Resources Pty Ltd
WoNS	Weed of National Significance

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1.0 Introduction

1.1 Background

Base Consulting Group Pty Ltd (Base) was engaged by Stanmore Resources Pty Ltd (Stanmore) to prepare this Offset Area Monitoring Report in accordance with the monitoring requirements outlined in the approved Isaac Plains East Extension Offset Area Management Plan (OAMP) for the Isaac Plains East Extension (IPEE) Project. The OAMP addresses Stanmore's offset obligations for impacts to listed Commonwealth fauna species resulting from operations at the Isaac Plains East Extension Project (the Project; EPBC: 2019/8548).

This monitoring report has been prepared to address the requirements of the Project's OAMP. The offset area is located on Mt Spencer Station (Lot 4 SP277438), approximately 60 km south-west of Mackay (Figure 1). The Isaac Plains East Extension Offset Area (referred to as the 'offset area') comprises 839 ha located in the northeast of Mt Spencer Station, adjoining Stanmore's Isaac Downs (ID) and Isaac Plains East (IPE) offset areas. Management actions are being implemented across all three offset areas to provide a coordinated approach to meeting offset obligations.

The Matters of National Environmental Significance (MNES) fauna species requiring offsets for the Project include koala (*Phascolarctos cinereus*), greater glider (*Petauroides volans*), and squatter pigeon (*Geophaps scripta scripta*). Habitat for all three species has been co-located within the 839 ha offset area (Figure 2), consistent with the adjoining offset areas.

This report presents the results of a year 3 interim monitoring survey, which was conducted earlier than the five-year interval specified in the OAMP. This timing supports coordinated monitoring across adjacent offset areas and provides an early opportunity to evaluate the condition of the offset area following implementation of initial management actions. The survey and report have been completed in accordance with Sections 6 (Management Actions) and 7 (Monitoring) of the approved OAMP.

1.2 Purpose and Scope

The primary purpose of this offset monitoring report is to provide an early assessment of habitat condition for the MNES outlined in the OAMP, including the koala, greater glider and squatter pigeon. The results of the assessment will be used to track progress toward the interim performance targets identified for year five in the approved OAMP.

Although the OAMP specifies that formal monitoring is to occur every five years following the baseline survey, this year three monitoring event was undertaken to support consistent data collection across three adjacent offset areas with shared monitoring requirements.

By conducting monitoring at this stage, the report contributes to an improved understanding of habitat response to early management actions and establishes a more robust basis for comparison over time. This is particularly valuable given the limitations associated with the timing of the original baseline surveys, which was undertaken during the early wet season.

The monitoring survey was conducted between 8 and 14 June 2025 within established permanent monitoring sites (habitat quality assessment plots) in accordance with the seasonal timing recommended in the OAMP. This report documents the findings of the year three survey and contributes to the broader objective of tracking ecological condition and management effectiveness throughout the life of the offset.

Applicable monitoring requirements as outlined in the OAMP are shown in Table 1.

Table 1: Monitoring requirements as prescribed in the IPEE Offset Area Management Plan.

Monitoring Type	Monitoring Attributes	Monitoring Frequency	Monitoring Method	Monitoring Locations
Habitat Quality surveys undertaken by suitably qualified ecologists				
Initial habitat quality assessment	Site condition, site context and species stocking rates as outlined in the OAMP.	Initial and baseline assessment was completed from 25th to the 29th October and 22nd to the 28th November 2021.	Visual inspections and detailed habitat quality assessment as per the guide to determining terrestrial habitat quality v1.2 ('the Guide') (DEHP, 2017) and as outlined in the OAMP.	Assessment sites outlined in Section 7.2 of the OAMP.
Ecological Condition	Recruitment of woody perennial species in the ecologically dominant layer (EDL)	Year 1 (offset monitoring report), then every five years until the end of the approval.	As per the methods outlined in the Guide and Section 4.1 of the OAMP. Visual observations and, where relevant, methods outlined in the Guide to determining terrestrial habitat quality and with reference to interim criteria as per the OAMP.	
	Native plant species richness – trees			
	Native plant species richness – shrubs			
	Native plant species richness – grasses			
	Native plant species richness – forbs			
	Tree canopy height			
	Tree canopy cover			
	Shrub canopy cover			
	Native perennial grass cover			
	Organic litter			
	Large trees			

Monitoring Type	Monitoring Attributes	Monitoring Frequency	Monitoring Method	Monitoring Locations
	Coarse woody debris			
	Non-native plant cover (i.e. weeds)			
	Quality and availability of food and foraging habitat			
	Quality and availability of shelter			
Site context	Threats to species (e.g. lack of EDL recruitment, presence of feral animals and weeds etc.).			
	Threats to mobility capacity.			
Species stocking rates/targeted fauna surveys for the MNES	Presence/absence of MNES. MNES abundance and density (where relevant).	Every five years until the completion criteria have been achieved. The survey frequency is justified as changes to vegetation communities and ecosystems and the fauna that inhabit those communities takes time and is generally a relatively slow process.	Refer to Section 7.0 of the OAMP.	
Visual inspection surveys undertaken by the landowner or authorised landowner representative and targeted weed and feral animal surveys undertaken by suitably qualified ecologists.				
Photo points	General vegetation condition and vegetation cover.	Year 1 (following approval of the OAMP and securing the offset area), then every five years until the end of the approval.	Photographs of offset area to be taken from the same location and direction for each monitoring event Section 4.3.	Assessment sites outlined in Section 4.3.
Grazing	Stocking rates, ground cover and fencing.	Stocking rates will be routinely monitored until the end of the approval. Biomass will be monitored annually in the early dry season. Fencing will be monitored during routine land management of the offset area and at least quarterly.	Assessments of the offset area will be undertaken by the landowner/land manager or authorised representative to observe and record grass cover, presence of weeds and pest animals,	Throughout the offset area.

Monitoring Type	Monitoring Attributes	Monitoring Frequency	Monitoring Method	Monitoring Locations
Fire	Presence of fire and extent of burning. Condition of fire breaks.	At least quarterly and following known fire events. Biomass will be monitored annually in the early dry season.	evidence of fire and evidence of unauthorised access. Fire break and fence maintenance activities will be recorded for inclusion in the annual report. Any unplanned fires will also be recorded as well as monitoring results for any planned cool or mosaic burns on habitat. Weed cover will be recorded as per the Level 2B methodology described in the Land Manager's Monitoring Guide (DERM, 2010) (or any subsequent published version of this document or similar recognised methods). This methodology is suitable for landowners to rapidly assess whether weed management measures need to be conducted within the offset area. Detailed assessments as outlined in Section 7.0 of the OAMP, in conjunction with the habitat quality assessments.	
Feral animals	Presence of pest animals, control measures undertaken and success of the control measures.	Visual inspections are undertaken during routine land management. Year 1 (following approval of the OAMP and securing the offset area), then every five years until the end of the approval.		
Weeds/ pest plants	Presence of weeds, control measures undertaken and success of the control measures.	Visual inspections are undertaken during routine land management. Year 1 (following approval of the OAMP and securing the offset area), then every five years until the end of the approval.		
Fencing and site access	Condition of fencing and access tracks.	Visual inspections are undertaken during routine land management.		
Unauthorised impacts to vegetation from activities such as illegal harvesting and illegal access.	Unauthorised clearing or disturbances.	Visual inspections are undertaken during routine land management and at least quarterly.	Observe and record accessibility to the offset site (i.e. condition of fencing), evidence and location of illegal clearing, fire and/or pest animal incursion.	Throughout the offset area and particularly along and adjacent to the road licence easement and the boundary to the Epsom State Forest 2.
Cyclone events	Condition and damage to vegetation and any dead or injured fauna.	Following cyclones or large tropical rainfall events.	Visual throughout the offset area.	Throughout the offset area.

Site Context

Figure 1

BASE/

WHITSUNDAY REGIONAL
SEAFORTH
KUTTABUL
BUCASIA
MACKAY REGIONAL
MACKAY
FINCH
HATTON
GREAT BARRIER REEF
ETON
GLENDEN
SARINA
KOUMALA
NEBO
ISAAC REGIONAL
CARMILA
MORANBAH
PEAK DOWNS HIGHWAY
BRUCE HIGHWAY
LIVINGSTONE SHIRE

Legend

- Offset Area
- Cities / Towns
- Highway / Major Roads
- Local Roads
- Rail
- Local Government Areas
- Nature Refuges
- Protected areas of Queensland

Scale @ A3: 1 : 600000

0 20 40 km

N

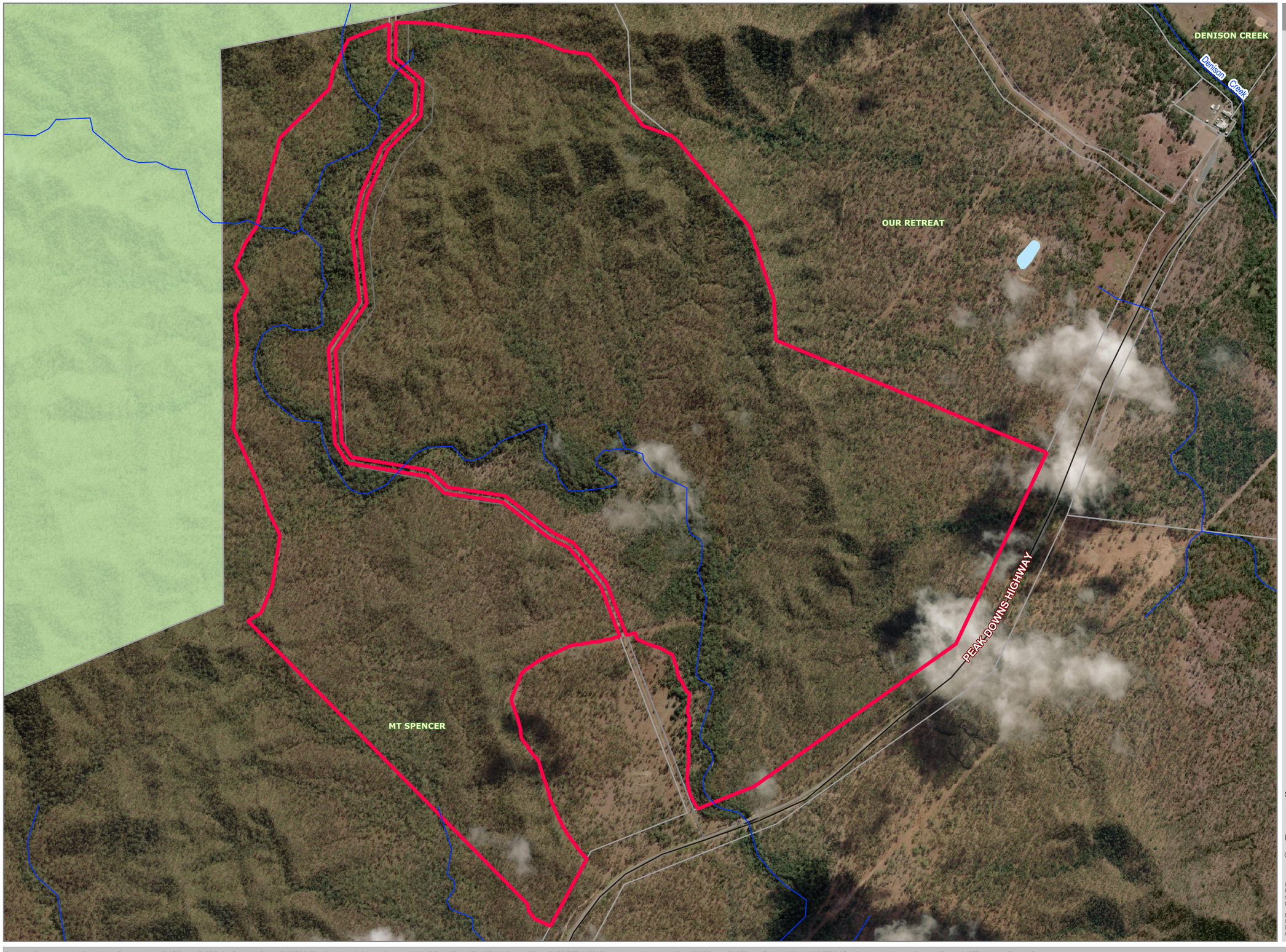
Datum: GDA2020 **Job Number: J0717**

DATA SOURCE:
QSPATIAL 2025; (Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development) 2025; Esri, Nearmap, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community;

Isaac Plains East Extension Offset Area

Figure 2

BASE/



Legend

- Isaac Plains East Extension (IPEE) Offset Area
- DCDB
- Highway / Major Roads
- Local Roads
- Watercourse / Drainage Features
- Protected areas of Queensland

Scale @ A3: 1 : 13500

0 — 0.5 — 1 km

N

Datum: GDA2020 **Job Number: J0717**

DATA SOURCE:
QSPATIAL 2025; (Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development) 2025; Esri, Nearmap, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community;

2.0 Isaac Plains East Extension Offset Area

2.1 Existing Environment

Mt Spencer Station is a beef cattle and cropping property located between the Brigalow Belt and Central Queensland Coast bioregions, straddling the Clarke-Connors Ranges (in the western section) and the Nebo-Connors Ranges (in the eastern section). The Clarke-Connors Ranges sub-region is currently classified as an intact landscape, which reflects the minimal levels of habitat fragmentation that have occurred relative to other bioregions in Queensland. However, the Nebo-Connors Ranges sub-region, in contrast, is currently classified as a fragmented landscape, which generally reflects higher levels of historic disturbance and habitat fragmentation (as outlined in the Guide to determining terrestrial habitat quality v1.2 ('the Guide') (DEHP, 2017)).

The 839 ha offset area is immediately adjacent to the IPE offset area to the southwest, which adjoins the ID offset area farther southwest (Figure 2). Lot 4 SP277438 encompasses 4,810 ha of which 4,693 ha is currently mapped as remnant vegetation.

The southeastern boundary of the offset area is bordered by non-remnant vegetation characterised by a cattle usage area and the Peak Downs Highway (although remnant vegetation occurs on the eastern side of the Highway), with connectivity to adjacent habitat occurring via road underpasses. The remaining boundary to the northwest is bordered by remnant vegetation within Mt Spencer Station, which is adjacent to the Epsom State Forest 2 and Homevale National Park (Figure 2).

3.0 Methodology

3.1 Suitably Qualified Staff

Flora surveys and threatened species habitat monitoring were undertaken by four ecologists with experience in the offset area and in conducting BioCondition assessments within the Brigalow Belt Bioregion. The ecologists were suitably qualified and experienced in assessing the condition of ecological communities, detecting the presence of koala, greater glider and squatter pigeon, and evaluating indicators of ecological function. CVs for lead staff are provided in Appendix A.

3.2 Targeted Fauna Surveys

The habitat quality assessment includes targeted fauna surveys for the koala, greater glider and squatter pigeon undertaken in accordance with the relevant survey guidelines as outlined in the OAMP (BASE, 2020), and are summarised in Table 2.

Fauna surveys, as well as habitat quality assessments, were undertaken by suitably qualified ecologists during the late wet season, from 8 to 14 June 2025, which corresponds to activity periods that support detectability.

Table 2: Survey techniques for MNES species.

MNES	Survey
Koala	**Direct observations:** Nocturnal spotlighting surveys for koalas were undertaken in accordance with the OAMP over four survey nights with a total of 9.65 person hours conducted by two suitably qualified ecologists. **Indirect Survey Methods:** A total of 15 spot assessment technique (SAT) surveys placed at each of the habitat quality monitoring sites were undertaken in accordance with the OAMP during the monitoring event. The location of any tree scratches or observed koalas were recorded and photographed as part of the koala surveys or as incidental records.
Greater glider	Nocturnal spotlight surveys were conducted over four survey nights during periods of known peak activity around suitable habitat of riparian areas. Spotlighting surveys totalled 9.65 person hours and were conducted by two suitably qualified ecologists.
Squatter pigeon	Surveys for the squatter pigeons were undertaken in accordance with the OAMP over five survey days. The number and abundance of squatter pigeons were recorded during the monitoring event.

3.3 Habitat Quality Assessment Plots

Habitat quality was assessed at permanent habitat quality assessment plots established within the offset area, in accordance with the methodology outlined in Section 4.1 of the OAMP. The assessments follow the methodology outlined in the Guide, with modifications to adapt it to the EPBC offsets process. Each assessment site was assigned a total habitat quality score out of 10, derived from a suite of ecological attributes (Table 3) partitioned into three weighted components:

- **Site condition (30% weighting)** - A field-based assessment of vegetation structure, native species richness, and ground layer attributes compared against benchmark (undisturbed) conditions for the relevant regional ecosystem.
- **Site context (30% weighting)** - A landscape-scale assessment using GIS analysis and field observations, evaluating patch size, connectivity, and surrounding land use, along with species-specific spatial considerations.

- **Species stocking rate (40% weighting)** - A direct, species specific measure of the presence of a species.

The first 13 attributes listed in Table 3 are generated from direct measurements taken in the field within a standardised habitat quality assessment plot (HQAP). While these attributes are not a direct or specific measurement of the habitat value for a certain species, they do provide an indication of the overall ecological condition of the community. Ecological condition requirements that are species-specific are captured by the assessment of the quality and availability of food/foraging habitat and shelter attributes in line with the Guide and the methods developed for assessing the impact site.

The OAMP and baseline monitoring report did not provide detailed methods for assessing the following three habitat attributes for each relevant MNES species:

- Quality and availability of food and foraging habitat
- Quality and availability of shelter
- Threats to species

To ensure that scoring for these attributes was measurable, repeatable, and comparable between survey periods, species-specific scoring indices were developed for this assessment (Appendix B). These indices do not alter or replace the scoring framework provided in the Guide. Instead, they are designed to support and clarify the existing framework by providing transparent, evidence-based rationale for how attribute scores were derived.

Version 1.2 of the Guide does not provide detailed guidance on how to assess the individual attributes of food availability, shelter, and threats to species. As such, this assessment adopted a structured approach using species-specific ecological literature to define measurable thresholds that align with the intent and scoring range of the Guide. This ensures that scores remain consistent with the baseline methodology while enhancing transparency and repeatability for future assessments.

The indices were formulated using species-specific literature to define relevant vegetation characteristics and threat parameters for each species. For koalas, the list of locally important food tree species and ancillary habitat tree species was informed by Section 8 of *A review of koala habitat assessment criteria and methods* (Youngentob, Marsh, & Skewes, 2021). Within the offset area, the locally important koala food trees identified are *Eucalyptus crebra* and *E. tereticornis*. Ancillary habitat trees include *Eucalyptus platyphylla*, *Corymbia dallachiana, C. erythrophloia, C. intermedia*, and *C. tessellaris*.

For greater glider assessments, the scoring criteria incorporated both preferred feed and denning tree species as outlined in Section 4 of the *Guide to greater glider habitat in Queensland'* (Eyre, et al., 2022). Preferred food trees within the offset area that meet the criteria of having three or more recorded feeding observations by greater gliders include *Eucalyptus crebra, E. tereticornis*, *Corymbia intermedia*, and *C. tessellaris*.

These rationales also define consistent thresholds for shelter quality and threat levels, enabling a structured and transparent assessment process. The same thresholds were applied across all habitat quality assessment plots to calculate scores for each attribute. This standardised approach improves consistency, supports robust comparisons over time, and enhances transparency in monitoring and reporting. The full Species Habitat Scoring Rationale is provided in Appendix B.

In line with the Guide, the first four attributes associated with site context are calculated using GIS spatial analysis. The last three site context requirements are species-specific and capture the assessment of the threats to species, species mobility capacity and the role of the site in relation to the overall population in Queensland. Table 3 summaries the habitat quality attributes and the methodology behind calculating each attribute.

Table 3: Attributes assessed to determine habitat quality.

Attribute	Assessment Plot
Site condition	
Large trees	100 x 50 m plot
Tree canopy height	100 x 50 m plot
Recruitment of canopy species	100 x 50 m plot
Tree canopy cover (%)	100 m transect
Shrub layer cover (%)	100 m transect
Coarse woody debris	50 x 20 m plot
Native plant species richness (trees)	100 x 50 m plot
Native plant species richness (shrubs)	50 x 10 m plot
Native plant species richness (grasses)	50 x 10 m plot
Native plant species richness (forbs)	50 x 10 m plot
Non-native plant cover	50 x 10 m plot
Native perennial grass cover (%)	1 x 1 m quadrat
Organic litter cover	1 x 1 m quadrat
Quality and availability of food and foraging habitat	100 x 50 m plot
Quality and availability of shelter	100 x 50 m plot
Site context	
Size of patch	GIS post survey
Connectedness	GIS post survey
Context	GIS post survey
Ecological corridor	GIS post survey
Role of site location to overall population	GIS post survey and during the Habitat Quality Assessment Plots
Threats to species	GIS post survey and during the Habitat Quality Assessment Plots

Attribute	Assessment Plot
Species mobility capacity	GIS post survey and during the Habitat Quality Assessment Plots

Species stocking rate as outlined in the EPBC offsets calculator guide, replaces species habitat index from the Guide as a measure of the presence of a species at the impact and offset site. In accordance with requirements from DCCEEW, species stocking rate is assessed on a scale of 0 - 4 as categorised below:

- 0: No evidence the species is present at the site.
- 1: Evidence of species presence at the site during surveys conducted for the purpose of the EPBC environmental assessment.
- 2: There is a statistically significant increase in species density relative to the species density determined for a score of 1 or species density is equal to or greater than the species density at a reference site (not required to be an important population).
- 3: Equivalent to the species density at a reference site associated with an important population.
- 4: Equivalent to the maximum species density measured at a DCCEEW agreed number of reference sites associated with important populations.

To achieve an overall habitat quality score out of 10, site condition and site context are multiplied by a weighting factor out of 10 based on the level of importance attributed to site condition, site context and stocking rate for the MNES in question. DCCEEW determined the weighting factors for these MNES will be 30% for site condition, 30% for site context and 40% for species stocking rate.

3.4 Photo Monitoring

Photo monitoring was undertaken at each HQAP (Figure 3) to allow habitat changes to be visually assessed over time. Photos were taken at three locations along the transect (Appendix C), which include:

- at the 0 m (start) position looking down the transect towards the permanent 100 m marker
- a set of four photos (north, east, south, west) taken at the 50 m point (centre) of the transect
- at the 100 m (end) position facing down the transect towards the 0 m (start) position

The photos taken at each monitoring point is provided in Appendix D.

3.5 Weed Species Monitoring

Seasonal weed monitoring was undertaken in conjunction with the habitat quality monitoring surveys outlined in Sections 7.2 of the OAMP. This method involves establishing a 50 m x 10 m plot and estimating the total cover of exotic and non-native species. Where there are non-native plants present in more than one vegetation layer the cover in each layer was added together.

Photo monitoring was also undertaken in conjunction with weed species monitoring within each HQAP in the offset area, as described in Section 3.4. In addition to the permanent monitoring sites, incidental observations of invasive flora species were recorded during general observations to provide the location of weed infestations that occur away from the monitoring sites.

If trigger levels for weeds are met or exceeded, additional monitoring will be undertaken in conjunction with appropriate weed management measures outlined in Section 6.8 of the OAMP, until the presence and distribution of weeds reduces to baseline levels or below.

3.6 Pest Species Monitoring

Feral animal monitoring surveys were undertaken in conjunction with the habitat quality monitoring surveys outlined in Section 7.2 of the OAMP. Monitoring entailed camera trap monitoring and nocturnal spotlighting surveys (see Figure 3 for locations). Evidence of faecal samples and impacts caused by pest animals was also recorded. A total of three remote camera traps were placed over four nights.

Any evidence of mortality or injury to MNES resulting from pest animals were also recorded during the surveys. If trigger levels for any pest animal species are met or exceeded, additional monitoring will be undertaken in conjunction with appropriate feral animal management measures as outlined within the OAMP, until pest animal presence reduces to baseline levels or below.

3.7 Prescribed Burns and Fuel Loads

Fuel load monitoring for fire management were undertaken in conjunction with the habitat quality monitoring surveys outlined in Sections 7.2 and 7.8 of the OAMP.

Groundcover was monitored at the same permanent habitat quality monitoring sites and were assessed using five 1 m x 1 m quadrats. At each of the quadrats, percentage cover was recorded for each of the following categories: Native perennial grass, native forbs, native shrubs, non-native grass, non-native forbs, leaf litter, bare ground, rock and cryptograms. These percentages were then averaged to give an average percentage cover of each category within the assessment area.

3.8 Limitations

The current monitoring survey was conducted between 8 and 14 June 2025, following the 2024/2025 wet season. This timing is consistent with the OAMP, which recommends surveys be undertaken during or immediately following the wet season, depending on rainfall patterns and site accessibility.

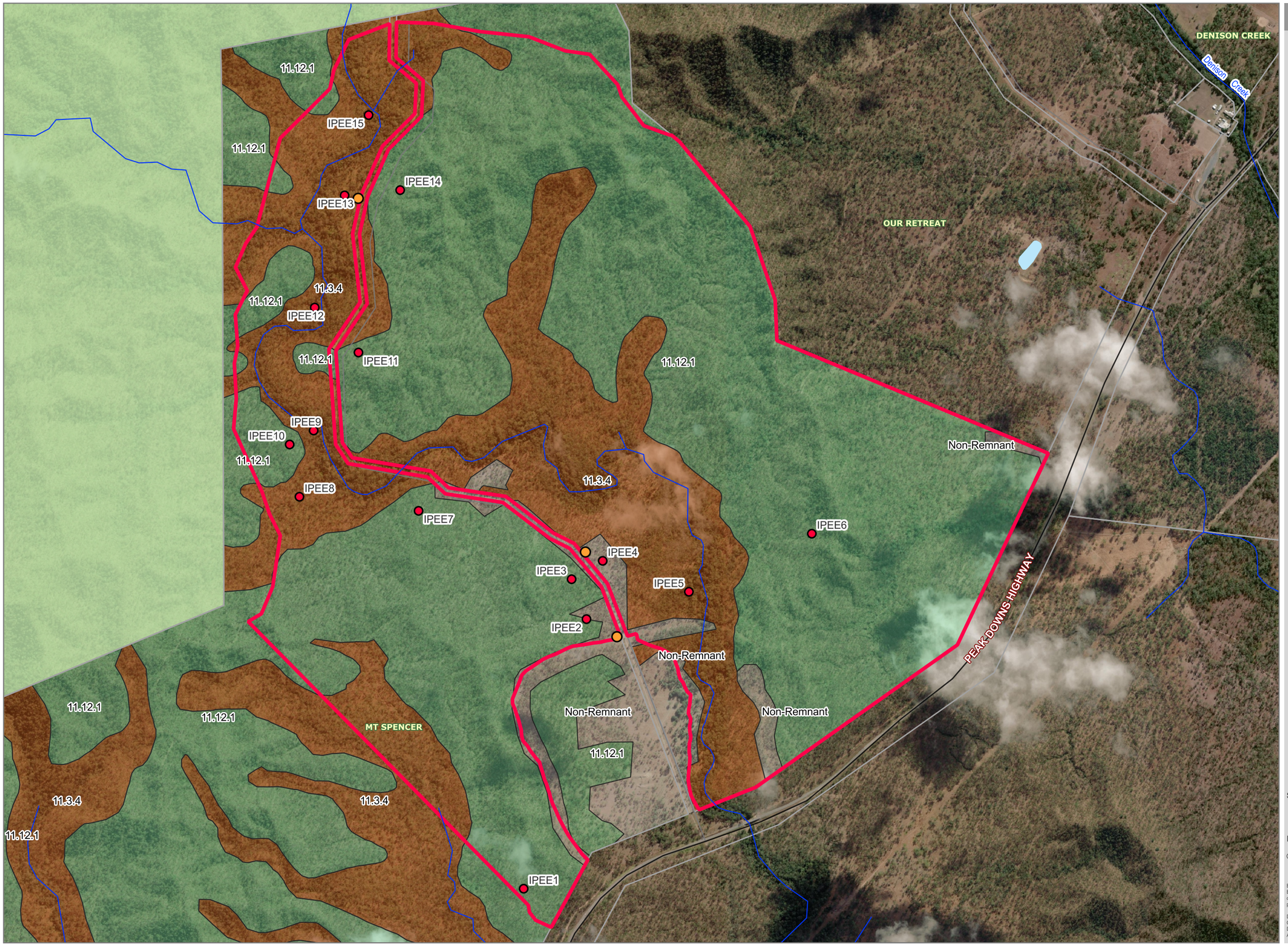
The baseline monitoring survey was conducted in the early wet season, between 25 and 29 October 2021 and 22 and 28 November 2021. Although the November surveys coincided with early rainfall activity and was considered to provide suitable conditions at the time, it preceded the main wet season and may not have fully captured peak vegetation condition typically associated with that period.

As a result, some variation in floristic diversity and ground cover may occur when comparing current and future monitoring data with the baseline. This should be taken into account when interpreting changes in habitat quality, particularly for ground layer vegetation and annual species that are more prominent later in the wet season.

Monitoring Sites

Figure 3

BASE/



Legend

- Isaac Plain East Extension (IPEE) Offset Area
- DCDB
- Highway / Major Roads
- Local Roads
- Watercourse / Drainage Features
- Protected areas of Queensland

Field surveys

- HQAPs
- Remote Camera Trap

Regional Ecosystems

- Category A - of concern
- Category A - least concern
- Category A - non-remnant

Scale @ A3: 1 : 13500

0 0.5 1 km

N

Datum: GDA2020 **Job Number: J0717**

DATA SOURCE:
QSPATIAL 2025; (Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development) 2025; Esri, Nearmap, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community;

4.0 Offset Area Monitoring Results

The surveys were undertaken between 8 June to 14 June 2025, following the methods outlined in Section 3.0. These included a range of systematic and supplementary survey sites, including assessments of vegetation, habitat quality, weeds, pests and the presence and abundance of MNES. Survey methods included the following survey effort:

- 15 habitat quality assessment plots (HQAP), including permanent monitoring locations for:
  - 45 photo monitoring points
  - 15 permanent weed monitoring sites
  - 15 fuel load assessment locations
  - 15 SAT surveys
- three camera traps deployed for four consecutive nights for a total of 12 trap nights
- 9.65 person hours nocturnal spotlighting over four nights

4.1 Targeted Fauna Species

4.1.1 Koala

Targeted koala surveys included both diurnal and nocturnal active searches across the survey area, including within the HQAPs. A total of eight koalas were recorded during the survey period across the offset area.

Of the eight koalas observed, five were observed within vegetation consistent with regional ecosystem (RE) 11.3.4, two within vegetation consistent with RE 11.3.9, and one within RE 11.12.1.

Koala activity levels were also assessed using the Spot Assessment Technique (SAT) (Phillips & Callaghan, 2011). Activity levels are classified as Low, Medium (normal), or High, based on the mean activity values relevant to the East Coast (low) population density category (Table 4).

Table 4: Koala usage categories as described in the Spot Assessment Technique methodology.

Activity Category	Low Use	Medium (Normal) Use	High Use
Area (density)			
East Coast (low)	-	≥ 3.33% but ≤ 12.59%	> 12.59%
East Coast (medium – high)	< 22.52%	≥ 22.52% but ≤ 32.84%	> 32.84%
Western Plains (medium – high)	< 35.84%	≥ 35.84% but ≤ 46.72%	> 46.72%

While koalas were observed within the offset area during other targeted surveys, evidence of usage was only detected during eight of the SAT surveys. The SAT survey conducted at HQAP IPEE11 displayed 13.3% usage, coinciding with the High use category. All other sites where usage was detected were considered to exhibit medium use. As a result, the offset area is considered to fall within the East Coast (low) activity category (Table 5).

Table 5: Koala usage within the offset area.

SAT Survey Number	Percentage	Usage
IPEE1 – AU1	3.3%	Medium (Normal)
IPEE2 – AU1	0%	Low

SAT Survey Number	Percentage	Usage
IPEE3 – AU1	3.3%	Medium (normal)
IPEE4 – AU3	6.6%	Medium (normal)
IPEE5 – AU2	0%	Low
IPEE6 – AU1	0%	Low
IPEE7 – AU1	0%	Low
IPEE8 – AU2	3.3%	Medium (normal)
IPEE9 – AU2	6.6%	Medium (normal)
IPEE10 – AU1	0%	Low
IPEE11 – AU1	13.3%	High
IPEE12 – AU2	0%	Low
IPEE13 – AU2	6.6%	Medium (normal)
IPEE14 – AU1	0%	Low
IPEE15 – AU2	6.6%	Medium (normal)
Average use throughout IPEE offset area	**3.3%**	**Medium (normal)**

4.1.2 Greater Glider

Targeted greater glider surveys were conducted over four consecutive nights using nocturnal spotlighting techniques. Surveys were undertaken by two suitably qualified ecologists in suitable habitat across representative areas of the offset area. A single greater glider was observed during the survey period in a *Corymbia intermedia* within RE 11.3.4 (Figure 4).

The OAMP outlined a commitment to install nest boxes for greater gliders within the offset area, with ongoing monitoring and management. The installation of nest boxes supports the improvement of habitat quality by providing increased breeding habitat and associated success of the species. A total of 48 nest boxes were installed within the offset area. The nest boxes were monitored in conjunction with the habitat quality assessments in June 2025, with. greater glider usage detected in five of the nest boxes. Further details on the utilisation of nest boxes within the offset area is outlined in the Mt Spencer Nest Box Monitoring Report 2025 (Base, 2025).

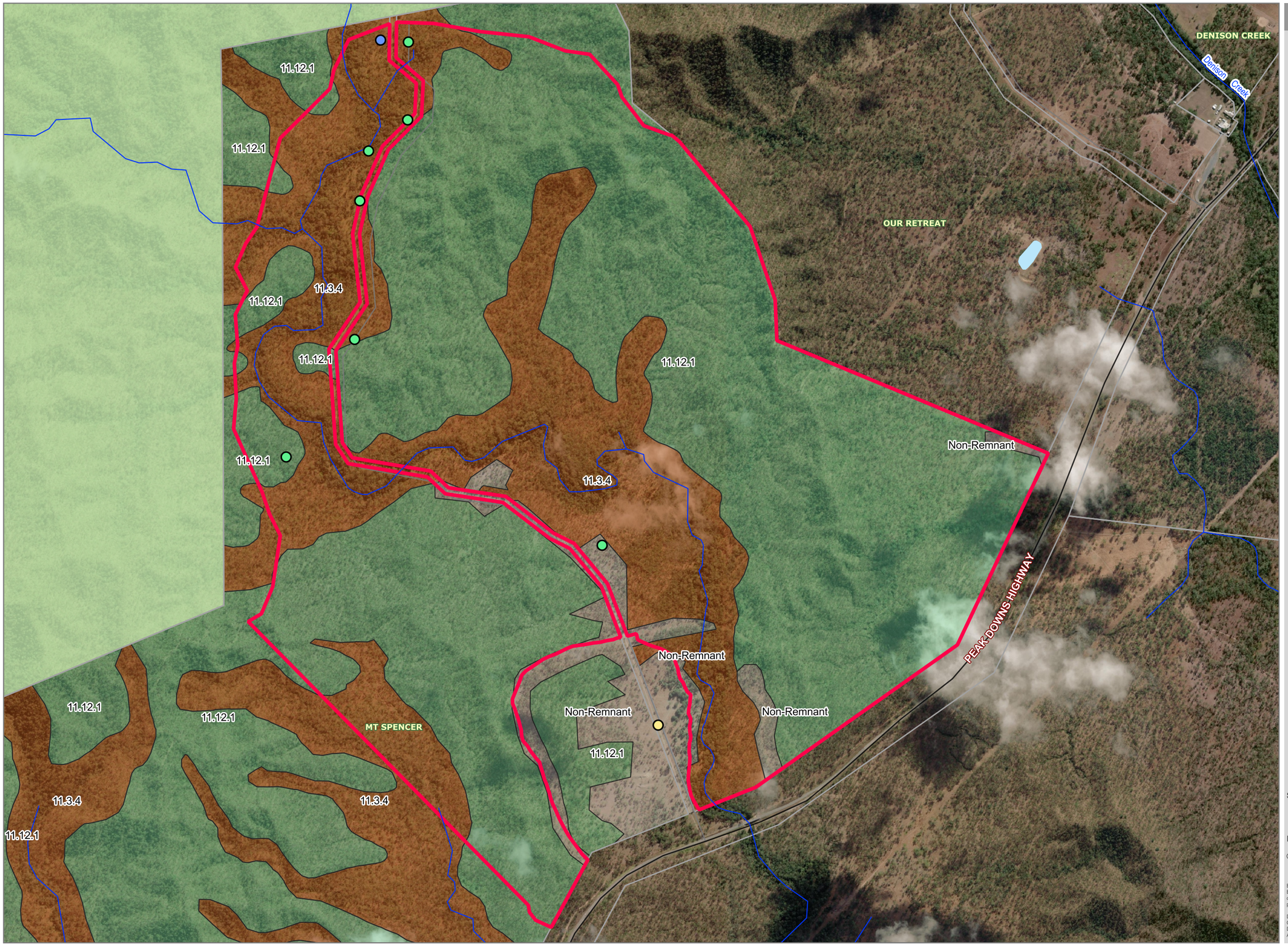
4.1.3 Squatter Pigeon

Squatter pigeons were not observed during any surveys across the offset area, or detected incidentally over the survey period. A squatter pigeon was however, observed within 150 m of the offset area in the adjacent non-remnant vegetation. Squatter pigeons were also detected in the ID offset area, and it is likely that the species traverses between all offset areas due to abundant suitable habitat.

Threatened Species Observations Within the Offset Area

Figure 4

BASE/



Legend

- Isaac Plains East Extension (IPEE) Offset Area
- DCDB
- Highway / Major Roads
- Local Roads
- Watercourse / Drainage Features
- Protected areas of Queensland

Conservation Significant Fauna

- Koala
- Greater glider
- Squatter pigeon

Regional Ecosystems

- Category A - of concern
- Category A - least concern
- Category A - non-remnant

Scale @ A3: 1 : 13500

0 0.5 1 km

N

Datum: GDA2020 **Job Number: J0717**

DATA SOURCE:
QSPATIAL 2025; (Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development) 2025; Esri, Nearmap, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community;

4.2 Habitat Quality Assessment Plot Results

A total of 15 HQAPs were conducted within the offset area to assess habitat condition for koala, greater glider, and squatter pigeon. The habitat quality score (HQS) for each species is based on three components: site condition, site context, and species stocking rate, as defined in the approved OAMP. These components were assessed using BioCondition assessments, species-specific habitat evaluations, and targeted fauna surveys. The weighted scores were combined to generate the final HQS for each species, as summarised in Table 6.

The rounded HQS for both koala and squatter pigeon was 5, while the greater glider scored 6. Site condition and site context values were generally moderate to high across all three species, reflecting consistent vegetation structure, floristic diversity, and landscape connectivity within the offset area.

Presence was confirmed for all three species during the monitoring event. However, in the absence of reference site data and statistically significant population density comparisons, the species stocking rates were assigned a default score of 1 for each species, consistent with the definitions outlined in the OAMP. Detailed habitat quality scores for each HQAP and species are provided in Appendix E.

Table 6: Summary of habitat quality scores for each assessment unit and species for the 2025 survey event.

MNES	AU	Site Condition	Site Context	Stocking Rate	2025 HQS
Koala (*Phascolarctos cinereus*)	AU1 (RE 11.12.1)	2.18	2.19	1.00	5.37
	AU2 (RE 11.3.4)	2.15	2.21		5.36
	AU3 (RE 11.3.9)	1.95	2.04		4.99
	Average Score	2.09	2.14		5.24
	Weighted 2025 HQS	**5.36**			
	Rounded 2025 HQS	**5.00**			
Greater glider (*Petauroides volans*)	AU1 (RE 11.12.1)	2.09	2.51	1.00	5.60
	AU2 (RE 11.3.4)	2.13	2.49		5.62
	AU3 (RE 11.3.9)	1.80	2.46		5.26
	Average Score	2.00	2.49		5.49
	Weighted 2025 HQS	**5.60**			
	Rounded 2025 HQS	**6.00**			
Squatter pigeon (Southern) (*Geophaps scripta scripta*)	AU1 (RE 11.12.1)	1.88	2.11	1.00	4.99
	AU2 (RE 11.3.4)	1.85	2.01		4.86
	AU3 (RE 11.3.9)	1.65	1.98		4.63
	Average Score	1.80	2.06		4.83
	Weighted 2025 HQS	**4.94**			
	Rounded 2025 HQS	**5.00**			

4.3 Photo Monitoring

Photo point monitoring was successfully completed at all 15 HQAP locations during the monitoring event, providing a visual record of habitat condition and structure across the offset area. A total of 90 photographs were captured across the monitoring sites, taken following the standardised method described in Section 3.4, with accompanying metadata (GPS coordinates, date, time, and compass direction) recorded for each photo point to support repeatability in future surveys.

All photo point images are provided in Appendix D.

4.4 Weed Species Monitoring

A total of four 'restricted matter' flora species were observed during the baseline monitoring surveys conducted within the offset area. three are further restricted nationally as Weeds of National Significance (WoNS). Details of restricted matter flora observed during surveys are displayed in Table 7. The weed species were observed through a combination of direct and indirect methods.

Table 7: Restricted matter flora species observed within the offset area.

Common Name	Scientific Name	WoNS	Restricted Matter Under the *Biosecurity Act 2014*
American rat's tail grass	*Sporobolus jacquemontii*	×	✓
Parthenium weed	*Parthenium hysterophorus*	✓	✓
Lantana	*Lantana camara*	✓	✓
Rubber vine	*Cryptostegia grandiflora*	✓	✓

Diversity and cover of weeds was recorded at the 15 sites. A total of 48 non-native species were recorded within the HQAP plots with an average cover of 11.5%. However, weed cover was greatest at sites IPEE2, IPEE6, IPEE7, IPEE8, IPEE9, IPEE10 and IPEE14, with an of 15% non-native plant cover.

The greatest threat of weeds observed are those species listed as restricted matter under the *Biosecurity Act 2014*. with *Lantana camara* being the most abundant of these within the offset area, observed in all three assessment units. Weed diversity and cover recorded according to HQAP locations and relevant MNES matters are summarised below in Table 8.

Table 8: Diversity and densities of invasive flora species per HQAP.

HQAP	Number of Weed Species Identified	Weed Cover
IPEE1 – AU1	19	10%
IPEE2 – AU1	15	15%
IPEE3 – AU1	13	10%
IPEE4 – AU3	19	10%
IPEE5 – AU2	6	2%
IPEE6 – AU1	16	15%

HQAP	Number of Weed Species Identified	Weed Cover
IPEE7 – AU1	15	15%
IPEE8 – AU2	21	15%
IPEE9 – AU2	12	15%
IPEE10 – AU1	14	15%
IPEE11 – AU1	15	5%
IPEE12 – AU2	15	10%
IPEE13 – AU2	12	10%
IPEE14 – AU1	21	15%
IPEE15 – AU2	9	10%

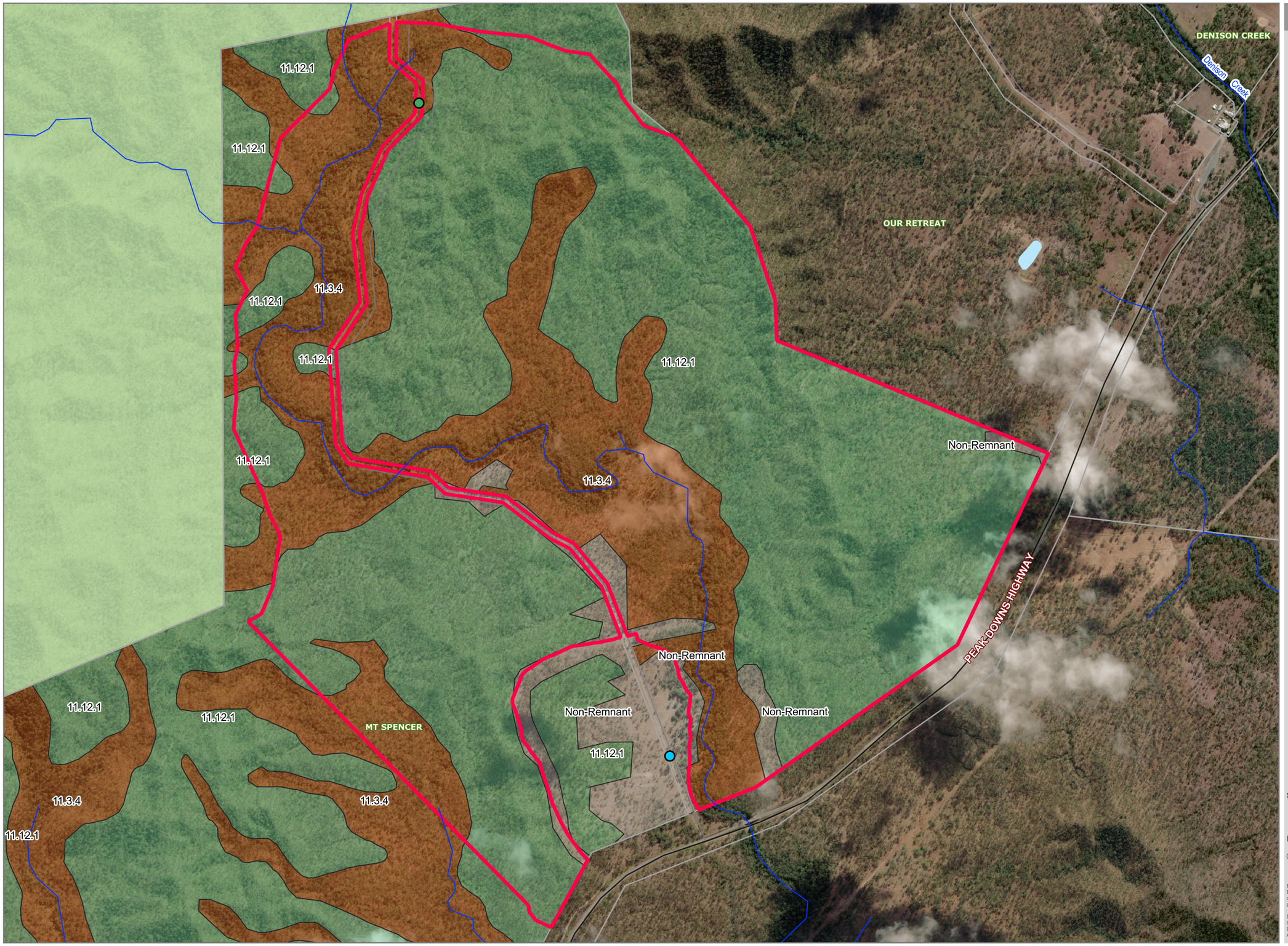
4.5 Pest Species Monitoring Results

Invasive fauna species were not detected within the offset area during the surveys. However, during a spotlighting transect, a cat (*Felis catus*) was observed in the area to the south that has been excluded from the offset area, along the main track that connects to the Peak Downs Highway (Figure 5).

Pest Species Observations Within the Offset Area

Figure 5

BASE/



Legend

- Isaac Plains East Extension (IPEE) Offset Area
- DCDB
- Highway / Major Roads
- Local Roads
- Watercourse / Drainage Features
- Protected areas of Queensland

Pest Species

- Cane toad
- Cat

Regional Ecosystems

- Category A - of concern
- Category A - least concern
- Category A - non-remnant

Scale @ A3: 1 : 13500

0 0.5 1 km

N

Datum: GDA2020 **Job Number: J0717**

DATA SOURCE:
QSPATIAL 2025; (Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development) 2025; Esri, Nearmap, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community;

4.6 Fuel Load Results

Fuel load monitoring was undertaken at each of the 15 HQAPs in accordance with the OAMP to inform fire management strategies and evaluate the need for strategic grazing.

Native perennial grass cover and total grass cover were recorded at each site, consistent with the OAMP's requirement to assess fuel load and determine triggers for further action. As outlined in the OAMP, a native perennial grass cover of less than 30% or greater than 55% is considered a threshold for management intervention, including potential strategic grazing or fire management actions (Table 18 of the OAMP).

Table 9 summarises the percentage of native perennial grass cover, non-native grass cover, and total ground cover at each monitoring site. Native perennial grass cover exceeded the 55% threshold at sites IPEE6, IPEE10 and IPEE15, with the cover dropping below 30% at sites IPEE3, IPEE4, IPEE5, IPEE7, IPEE9 and IPEE14.

Table 9: HQAP quadrat grass cover results.

HQAP	Native Perennial Grass Cover	Non-native Grass Cover	Total Grass Cover
IPEE1 – AU1	44.0%	12.6%	56.6%
IPEE2 – AU1	36.8%	0%	36.8%
IPEE3 – AU1	26.0%	63.0%	89.0%
IPEE4 – AU3	5.8%	60.0%	65.8%
IPEE5 – AU2	4.0%	0%	4.0%
IPEE6 – AU1	70.0%	0%	70.0%
IPEE7 – AU1	25.0%	23.4%	48.4%
IPEE8 – AU2	52.8%	10.8%	63.6%
IPEE9 – AU2	13.2%	0%	13.2%
IPEE10 – AU1	83.6%	0%	83.6%
IPEE11 – AU1	46.0%	1.6%	47.6%
IPEE12 – AU2	38.4%	3.0%	41.4%
IPEE13 – AU2	35.0%	3.0%	38.0%
IPEE14 – AU1	7.0%	8.0%	15.0%
IPEE15 – AU2	63.6%	0%	63.6%

5.0 Discussion

The 2025 monitoring survey provides an early assessment of habitat condition and species use within the offset area and allows for comparison with baseline habitat quality data collected in 2021. The survey also informs the likely trajectory of the offset area in meeting the interim performance targets outlined in the OAMP for year 5.

5.1 Habitat Quality Scores

Habitat quality scores were reassessed across all HQAPs and aggregated for each assessment unit. Overall, HQS for koala, greater glider, and squatter pigeon remained consistent with baseline values. The current weighted scores for koala and squatter pigeon meet the year 5 interim performance target of 5, while the greater glider weighted score of 6 currently exceeds the year 5 interim performance target of 5. Collectively, these results indicate the offset area is on track to achieve the required habitat outcomes for these MNES species (Table 10).

The baseline HQS values used in Table 10 are those provided in Appendix E of the original baseline monitoring report prepared by Ausecology (Ausecology, 2021). During this reporting period, some inconsistencies in the baseline dataset were identified, particularly in relation to the allocation of HQAP sites to their representative REs and assessment units. For example, Table 3-2 of the baseline report indicates seven sites in AU1 (RE 11.12.1), six sites in AU2 (RE 11.3.4), and one site in AU3 (RE 11.3.9). Appendix E is the only section that lists which sites correspond to each assessment unit. However, the tables provided in Appendix E present different numbers than Table 3-2. For instance, the species habitat quality score tables (e.g. Table 5-3) list nine sites in AU1, five in AU2, and one in AU3, while the BioCondition scores table (Table 5-9) records eight sites in AU1, five in AU2, and two in AU3.

To address these discrepancies, the sites were ground-truthed during this survey event, confirming eight sites in AU1, six in AU2, and one in AU3. This provides a consistent basis for future assessments and comparisons (Appendix C).

It remains uncertain whether the inconsistencies in the baseline data impacted the results of the scoring calculations. Notwithstanding, the published baseline scoring values have been retained as the reference point for ongoing monitoring. The results of the current monitoring indicate that habitat quality is being maintained within the offset area and that the interim and long-term performance targets remain achievable.

Table 10: Scoring comparison of the 2025 scores to the OAMP and baseline monitoring habitat quality scores.

MNES	Assessment Unit	OAMP Score	Baseline Monitoring Score (2021)	2025 Monitoring Score
Koala	AU1 – RE 11.12.1	4.8	5.7	5.37
	AU2 – RE 11.3.4	4.9	5.7	5.36
	AU3 – RE 11.3.9	4.3	5.5	4.99
	Weighted HQS	**4.83**	**5.70**	**5.36**
	Rounded HQS	**5.00**	**6.00**	**5.00**
Greater glider	AU1 – RE 11.12.1	4.3	4.7	5.60
	AU2 – RE 11.3.4	4.3	4.7	5.62
	AU3 – RE 11.3.9	3.9	4.5	5.26
	Weighted HQS	**4.29**	**4.70**	**5.60**
	Rounded HQS	**4.00**	**5.00**	**6.00**

MNES	Assessment Unit	OAMP Score	Baseline Monitoring Score (2021)	2025 Monitoring Score
Squatter pigeon	AU1 – RE 11.12.1	5.2	4.7	4.99
	AU2 – RE 11.3.4	5.2	4.5	4.86
	AU3 – RE 11.3.9	4.7	4.5	4.63
	Weighted HQS	**5.17**	**4.64**	**4.94**
	Rounded HQS	**5.00**	**5.00**	**5.00**

5.2 Target Species Presence

The presence of the three target species was confirmed during the 2025 monitoring event by direct observation and evidence of scats and scratches. Koalas were observed in the offset area within all assessment units, and greater glider activity and usage was recorded within RE 11.3.4. Squatter pigeons were detected within 150 m of the offset area, within Mt Spencer Station. These results support the appropriateness of the site for delivering biodiversity outcomes for the MNES species.

While targeted surveys of these species were undertaken during the monitoring event, and their presence recorded, density estimates have not been calculated because the projected future habitat quality score, as outlined in the OAMP, did not include an increase in species stocking rate from a score of 1.

To achieve a stocking rate of 2 or above, surveys must be conducted within a reference population to establish baseline density levels for comparison with the offset area. As outlined in the OAMP, achieving a stocking rate score of 2 or greater requires '*a statistically significant increase in species density relative to the species density determined for a score of 1 or species density is equal to or greater than the species density at a reference site*.'

To support meaningful statistical comparison, approximately 30 surveys would be required both within and outside the offset area. Without this broader sampling effort, the data collected during the current monitoring event are not sufficient to determine a statistically significant change in species density.

5.3 Weed Cover and Species Richness

Weed cover and species richness was recorded at each HQAP to allow comparison with baseline conditions. Across the offset area, most sites recorded an increase in weed cover besides sites IPEE4, IPEE5 and IPEE12 (Table 11). This increase is likely due in part to the timing of the baseline survey, which was conducted at the end of the dry season. During this period, floristic diversity is typically at its lowest, and key identifiable traits such as flowers and seed heads are often absent. As a result, many species could not be identified to species level. This limitation is acknowledged in the baseline report by Ausecology, which notes that not all flora species could be identified due to the absence of key characteristics during the time of the survey (Ausecology, 2021).

At the assessment unit level, between the baseline survey to the 2025 surveys; AU1 increased from an average of 2.85% weed cover to 12.50%, and AU2 increased from 6.72% to 10.33%. This increase of weed cover observed in AU1 and AU2 may reflect seasonal differences in survey timing. The 2025 monitoring was conducted in the late wet season, when a greater number of annual and ephemeral weed species are likely to be present. Alternatively, weed cover within AU3 decreased from average of 32.08% in 2021 to 10.00% in 2025.

Photo point monitoring did not identify any noticeable increase in non-native plant presence in the 2025 photographs compared to the baseline images.

Table 11: Diversity and densities of invasive flora species per HQAP.

HQAP	2021 Baseline		2025 Monitoring		Weed Cover Change Since Baseline
	Number of Weed Species Identified	Weed Cover	Number of Weed Species Identified	Weed Cover	
IPEE1 – AU1	N/A	1.84%	19	10%	+8.16%
IPEE2 – AU1	N/A	4.35%	15	15%	+10.65%
IPEE3 – AU1	N/A	7.55%	13	10%	+2.45%
IPEE4 – AU3	N/A	32.08%	19	10%	-22.08%
IPEE5 – AU2	N/A	14.30%	6	2%	-12.30%
IPEE6 – AU1	N/A	2.70%	16	15%	+12.30%
IPEE7 – AU1	N/A	1.95%	15	15%	+13.05%
IPEE8 – AU2	N/A	0.60%	21	15%	+14.40%
IPEE9 – AU2	N/A	3.55%	12	15%	+11.45%
IPEE10 – AU1	N/A	0.40%	14	15%	+14.60%
IPEE11 – AU1	N/A	3.15%	15	5%	+1.85%
IPEE12 – AU2	N/A	17.00%	15	10%	-7.00%
IPEE13 – AU2	N/A	2.95%	12	10%	+7.05%
IPEE14 – AU1	N/A	0.85%	21	15%	+14.15%
IPEE15 – AU2	N/A	1.90%	9	10%	+8.10%

5.4 Native Crass Cover and Fuel Load

Native perennial grass cover was assessed as a key indicator of fuel load and to inform future fire and grazing management strategies, consistent with the requirements of the OAMP. According to the OAMP, native perennial grass cover thresholds of less than 30% or greater than 55% may trigger corrective action, such as strategic grazing or other fuel management interventions.

In 2025, some variation in native grass cover was observed across the monitoring plots. Sites IPEE6, IPEE10, and IPEE15 exceed the 55% native grass cover threshold, with the cover of native grass falling below 30% at sites IPEE3, IPEE4, IPEE5, IPEE7, IPEE9 and IPEE14.

At the assessment unit level, none exceeded the 55% native grass cover threshold; however, AU3 fell below 30%, making it the only assessment unit with an average native grass cover below the threshold. Since none of the assessment units (AU1, AU2, AU3) exceeded the 55% upper threshold, no corrective action is currently required. Although the OAMP uses the 55% threshold as a trigger for potential action, this value also represents a desirable benchmark for remnant vegetation communities (particularly RE 11.3.4), and meeting or exceeding it should not automatically imply a need for management intervention.

The baseline report did not provide data on native grass cover percentages, so direct comparison to 2021 values is not possible. However, the baseline report does include average fuel load estimates by RE, with values of 12.67 tonnes per hectare (t/ha) for RE 11.3.4, 7.80 t/ha for RE 11.12.1, and 4.10 t/ha for RE 11.3.9.

While the OAMP specifically identifies native perennial grass cover as the key metric for monitoring fuel loads, it is important to also consider non-native grass cover when assessing overall fire risk. Results for native, non-native, and total grass cover for each site have been provided in Section 4.6, Table 9.

When non-native grasses are included, two of the three assessment units (AU1 and AU3) exhibit total grass cover exceeding 55%. AU3 has the highest total grass cover of any assessment unit at 65.80%, but also the lowest native grass cover at 5.80%. This indicates that surface fuels are present across the offset area, despite low native grass cover in some locations. However, percentage cover alone does not provide a complete picture of fuel load, as it does not account for grass height or biomass, which are more accurate surrogates for fire risk. These findings highlight the limitations of using ground cover percentages alone to assess fuel hazard and support the need for adaptive fire and grazing management strategies that consider both cover and biomass characteristics. Ongoing monitoring, particularly of both native and non-native grass cover and structure, will be essential to informing targeted and effective fire risk mitigation across the offset area.

6.0 Conclusion

The 2025 ecological monitoring survey of the IPEE offset area has provided a valuable early indication of the offset's trajectory toward achieving the interim performance targets set for year 5 under the approved OAMP. The survey confirmed the continued presence of all three target MNES species. Habitat quality scores of 5 were recorded for both the koala and squatter pigeon, with the score for greater glider reaching a 6.

Vegetation condition across the offset area remains stable or improving, with moderate to high site condition and site context scores recorded at all monitoring sites. While weed cover increased at many HQAPs, this is likely influenced by seasonal survey timing. The baseline survey was conducted at the end of the dry season, when fewer plant species are identifiable. The 2025 survey occurred in the late wet season, when a greater number of annual and ephemeral weed species are detectable. Continued monitoring and targeted weed control will be important to maintain vegetation condition and limit the spread of invasive species.

Native perennial grass cover varied across the offset area. Some HQAPs exceeded the 55% upper threshold, with other falling below the 30% cover threshold. None of the assessment units recorded an average cover percentage above the 55% threshold. When non-native grasses are included, two of the three assessment units (AU1 and AU3) recorded total grass cover above 55%. This suggests elevated fuel loads may be present in some parts of the offset area.

Although the 55% threshold is used in the OAMP to trigger potential management actions, it is also intended as a benchmark for assessing vegetation condition. Exceeding this benchmark does not necessarily indicate a problem, but rather highlights the need to evaluate other factors such as fuel structure, biomass, and fire history. Management responses should continue to be guided by these broader considerations.

Overall, the findings of this year 3 monitoring event indicate that the IPEE offset area is tracking well against its ecological performance objectives. Ongoing implementation of the OAMP's management actions, combined with regular monitoring and timely adaptive management, will be essential to achieving the long-term conservation outcomes required under the Project's offset obligations.

7.0 References

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APPENDIX A

Suitably Qualified Persons CVs

Brandon Hourigan — Senior Ecologist

Training/Qualifications:

Bachelor of Environmental Science (2018), University of the Sunshine Coast

Hons by Research, 'Functional diversity in urbanised marine landscapes' (2020), University of the Sunshine Coast.

Mining Standard 11 Surface Induction

Prepare to Work Safely in the Construction Industry (White Card)

Apply First Aid and CPR

BioCondition Assessment Training

Inspect and Clean Machinery for Plant, Animal and Soil Material

All-terrain Vehicle (ATV) Certification

Marine Licence (Boat and PWC)

Specialisations:

Ecological surveys (terrestrial and aquatic fauna and flora)

Offset Delivery Plans (State) and Offset Area Management Plans (Commonwealth) including BioCondition and habitat quality assessments.

Species specific EVNT flora and fauna surveys and monitoring for linear, residential, mining and broad scale infrastructure projects.

Years in industry

4

Brandon is a Senior Ecologist with four years practical experience in the areas of flora and fauna surveys throughout Queensland. Brandon's key areas of expertise are the identification and classification of flora and fauna, GIS analytical skills, and the management of threatened species and communities as listed under *Nature Conservation Act 1992* and *Vegetation Management Act 1999.*

Brandon has extensive experience covering a significant portion of Queensland, with a focus on projects in Southeast Queensland (SEQ) and central Queensland, including involvement in some of the state's most significant infrastructure projects. Additionally, Brandon has gained substantial expertise in assessing and developing Offset areas, along with crafting Offset Delivery Plans.

Relevant Projects

- **Awoonga Dam (Gladstone Area Water Board):** Inundation assessments to calculate impacts to potential dam raising activities and consequential offset requirements for fauna and flora. An offset value determination; Ecological Assessments, BioCondition Assessments, Habitat Quality Assessments, Species specific fauna surveys, and Regional Ecosystem classification and remapping exercises to identify the availability of suitable habitat and vegetation communities as potential offset areas.
- **Copperstring 2032 (Powerlink):** ecological assessments: Species specific surveys for listed fauna and flora across a multitude of landscapes, both terrestrial and aquatic. BioCondition and Habitat Quality Assessments to assess the potential impacts to fauna habitat and listed vegetation communities, including the relevance and suitability of offset sites. Habitat and regional ecosystem mapping across extensive areas of Queensland.
- **Rookwood Weir Project:** Assessments of inundation extents to determine impacts to vegetation communities and related offset requirements. Compliance management for approval and conditions, monitoring requirements and timed deliverables.
- **Development application for Hanseath Tourist Park, Palmview**: An Ecological Assessment Report, Fauna Management Plan, and Vegetation Management Plan were produced for the Hanseath Tourist Park in the southeast Queensland region. The surveys conducted as part of this project included Koala Spot Assessment Technique (SAT) surveys to evaluate koala usage of the area. Niche habitat assessments were also carried out to determine their suitability for ENVT species. An extensive treeplot was conducted to assess the impact of the Hanseath Tourist Park development on the vegetation. Additionally, call-playback surveys were conducted to assess threatened amphibian species in the area.
- Offset obligations for **Stanmore Resources'** mining: Offset obligations of Stanmore Resources' mining operations at the Isaac Plains East mine, Isaac Plains East Extension mine, and Isaac Downs mine. This involved conducting BioCondition assessments of threatened native

vegetation communities and evaluating the habitat quality of several species, such as the greater glider, koala, squatter pigeon, and ornamental snake. The resulting Offset Delivery Plans and Offset Area Management Plans were developed to meet the offset obligations of the mining operations.

- **Grinsteads Rd:** Identification and mapping the extent of flora species listed as inherently marine and the requirements incurred by possible impacts of proposed developments.
- **Thornlands Rd:** Identification and mapping of marine plant ecosystems within RAMSAR wetlands. Density plots and species assessments to determine the impacts of proposed marinas and coastal development.
- **Mount View Wind Farm:** Ecological assessments including; bird utilisation surveys (BUS) to aid in impact assessments for turbine operations, vegetation community delineations, and habitat suitability assessments for listed threatened species.
- **Mount James Wind Farm, North Queensland**: Ecological assessments and offset obligations for the development. Several assessments were conducted to evaluate the potential impact of the project on the local environment. Biocondition assessments were used to assess condition of native vegetation communities, while habitat assessments identified the potential habitat of flora and fauna species in the area. Vegetation classification was used to map the various vegetation communities present, and spotlighting surveys were conducted to identify the presence of nocturnal fauna species.
- **Development application for Dolphin waters, Burrum Heads:** In order to assess the potential impact of development at Dolphin Waters in the Burrum Heads area, several environmental assessments were conducted. A Protected Plants Survey, which aimed to identify any protected plant species that may be present in the project area. In addition to the Protected Plants Survey, quaternary assessments were conducted to classify the various regional ecosystems present. The information gathered from these assessments helped inform the development of mitigation measures to minimize the potential impact of the development on the local environment.
- **Bowen Rail Company:** Marine fauna assessments to determine the utilisation and success of installed fish passages as part of the rail upgrades at Abbott Point, Bowen.
- **Beetaloo to East Coast (BEC) Pipeline project:** Complete desktop analysis of all potential environmental and cultural impacts across both Queensland and Northern Territory development areas, to deliver an initial assessment for the project.

Professional Experience

September 2020 to present

Base Consulting Group

Ecologist

- Prepare for field operations by creating daily schedules, drafting Safe Work Method Statements, and organizing team travel logistics, including flights and accommodations.
- Conduct field surveys and prepare reports for Offset Delivery Plans in accordance with the Queensland Environmental Offsets Policy.
- Perform field surveys and report preparation for Offset Area Management Plans under the Commonwealth EPBC Act.
- Carry out field surveys and report preparation for various assessments, such as Environmental Assessment Reports, Environmental Impacts Assessments, Protected Plants Survey Reports, and tree plot activities for Vegetation Management Plans in Southeast Queensland.
- Map Regional Ecosystems, conducting assessments at quaternary, secondary, and tertiary levels, and generate geospatial datasets with field-validated information.
- Utilize QGIS to create figures and maps for diverse reports.
- Execute desktop assessments for flora and fauna values.
- Monitor offset areas, including weed surveys, Species at Risk (SAT) surveys, Habitat Quality Assessments, setting remote camera traps, and conducting spotlighting for EVNT species; report findings accordingly.
- Collaborate with other contractors, particularly Cultural Heritage Teams, in team-based initiatives.

2019 - 2020

University of Sunshine Coast

Honours Project

- Deployed BRUVs (baited underwater remote video stations) throughout SEQ river systems. Collected data to classify fish community assemblages and species richness and analyse against scavenging. Further analyses on the functional diversity of fish assemblages were performed using species traits in conjunction with the BRUV data, with all results being assessed against an increasing gradient of urbanisation.

Research Assistant

- Deployed BRUVs (baited underwater remote video stations) along SEQ beaches to assess the assemblages and species richness of fish, sharks and rays. The data was spatially analysed in comparison to the presence or lack of rocky structure within the surf zone and the impacts of dredge lines in marine ecosystems.

2017

Fiji Museum and Prof. Patrick Nunn

Received a grant as part of the New Columbo Plan

- Discovered and excavated multiple ‘Hillforts’ (ancient village sites) throughout the rural mountains of the coastal province Bua on Vanua Levu, Fiji. Determined traditional methods, food sources, threats and artifacts (e.g. pottery, bones and shell middens). Identified shellfish species from middens amongst mountainous terrestrial habitats and correlated them to appropriate environmental habitats, to assess the impacts of climate change in Fiji 500 years ago.

Elliot Budd

Senior Ecologist

Qualifications:

Bachelor of Science – Zoology and Ecology (Hons), James Cook University, 2018

Certificate of attainment:

Regional Ecosystem and BioCondition Training – Oberonia

Operate and maintain 4WD vehicle – RIIVEH305E

Operate light vehicle – RIIVEH201D

Work safely at heights – RIIWHS204E

Venomous Snake Handling Certificate

Construction White Card

Professional associations:

Australian Society of Herpetologists

Australian Herpetological Society

Ecological Society of Australia

Australian Association of Bush Regenerators

Coastal Dry Tropics Landcare

Elliot is a Senior Ecologist with over 6 years' of specialised experience in the survey, management, and monitoring of threatened species. He conducts comprehensive terrestrial ecology surveys including broad-scale fauna assessments, habitat evaluations, threatened fauna and flora surveys, regional ecosystem ground-truthing, BioCondition and biomass assessments, pest and weed monitoring, and pre-clearance surveys. Elliot also has significant experience in environmental offsets and exchange areas under both state and federal legislation, including offset suitability assessments, the design of offset strategies, preparation of Offset Management Plans, habitat quality assessments, and monitoring of offset areas.

Elliot possesses extensive expertise in spatial analysis and mapping using geographic information systems and is trained in microbat call analysis using Anabat Insight ®. As a member of both the Australian Society of Herpetologists and Australian Herpetological Society, Elliot's primary expertise lies in herpetological studies. For over a decade, he has professionally worked with reptiles, conducting snake relocations, field and laboratory-based research, targeted surveys for threatened species, habitat quality assessments, and general reptile surveys.

Elliot has successfully contributed to diverse projects across multiple sectors including mining, renewable resources (wind and solar), construction, railway, local government, NRM groups, aquaculture, and agriculture, demonstrating his ability to operate effectively in dynamic environments with various stakeholders.

PROJECT EXPERIENCE

April 2024 to present

Base Consulting Group

Elliot has been employed by Base Consulting Group as a Senior Ecologist. His role is to prepare and manage environmental approvals on current and upcoming projects. This ranges from small scale vegetation clearing on residential development to preparing large scale development permits on power infrastructure, renewables and water resource projects.

CopperString 2.0 Power Transmission Line Project (Powerlink) – Ecologist / Suitably Qualified Expert

CopperString 2.0 (now CopperString 2032 and owned by Powerlink) is a planned 840 km electricity transmission line from Woodstock, south of Townsville, to Mount Isa. The project will connect Queensland's North West Minerals Province (NWMP) to the National Electricity Market. Elliot designed and conducted field surveys for threatened fauna and habitat ground-truthing within the Project Area and proposed offset properties, as well as designed habitat quality attributes for environmental offsets. As a suitably qualified expert for the plains death adder (*Acanthophis hawkei*), Elliot contributed to the Stage 1 MNES Management Plan, Stage 1 Species Management Plan, and Stage 1 Impact Site Species Assessment.

Hughenden Wind Farm (Woodside Energy Technologies), Stamford, QLD – Lead Ecologist

Woodside Energy Technologies is proposing to develop a wind farm near Stamford, just south of Hughenden. The project plans to construct up to 121 turbines and connect to the National Electricity Market. Elliot designed and conducted field surveys for threatened fauna and flora, including pink gidgee (*Acacia crombiei*) and Julia Creek dunnart (*Sminthopsis douglasi*), as well as bird and bat utilisation surveys. Elliot was the lead author of the subsequent Ecological Assessment Report and Bird and Bat Management Plan.

Malakoff Wind Farm (Base Carbon), Stamford, QLD – Lead Ecologist

Malakoff Wind Farm is proposing to develop a wind farm in Stamford, just south of Hughenden. The project plans to construct up to 116 turbines and connect to the National Electricity Market. Elliot designed and conducted field

surveys for threatened fauna and flora, including pink gidgee (*Acacia crombiei*) and Julia Creek dunnart (*Sminthopsis douglasi*), as well as bird and bat utilisation surveys. Elliot was the lead author of the subsequent Ecological Assessment Report and Bird and Bat Management Plan.

Glenden Wind Farm (Base Carbon), Glenden, QLD – Lead Ecologist

Glenden Wind Farm is proposing to develop a wind farm in Glenden. The project plans to construct an extensive wind farm and connect to the National Electricity Market. Elliot designed and conducted field surveys for threatened fauna and flora, including greater glider (*Petauroides volans*), koala (*Phascolarctos cinereus*), northern quoll (*Dasyurus hallucatus*), ornamental snake (*Denisona maculata*), and various migratory birds, as well as bird and bat utilisation surveys. Elliot was the lead author of the subsequent Ecological Assessment Report.

July 2019 – April 2024

NGH Consulting / Wild Environmental Consultants – Senior Ecologist

Elliot was responsible for leading and managing the delivery of environmental projects including ecological assessments, species management plans, offset area management plans, significant impact assessments, and threatened species survey reports. This included leading remote and local field investigations, field data collection and analysis, GIS mapping and analysis, technical report writing and reviewing, client engagement, training and providing guidance to junior staff, and project management.

Threatened Frog Surveys (Virid IFC), Paluma, QLD – Project Manager / Lead Ecologist

The Commonwealth Department of Defence proposes to undertake road upgrades to Paluma Road within the Defence Paluma Training Area, located 38 km north-west of Townsville. Elliot led the field team in conducting targeted surveys and habitat assessments for EPBC Act listed frogs and the primary client contact.

Genex Kidston Connection Project (UGL), Greenvale, QLD – Project Manager

UGL has been engaged to establish overhead transmission lines for the Genex Kidston Connection Project, between Mt Fox and Kidston, approximately 270 km north-west of Townsville. Elliot managed a team of fauna spotter catchers and provided expert advice on fauna spotter catcher methodology and procedures for the project and was the primary client contact.

Carmichael Rail Network (Bravus / Martinus Rail), Bowen Basin, QLD - Project Manager / Environmental Advisor / Ecologist / Fauna Spotter Catcher

The Carmichael Rail Network connects the Carmichael Mine with the North Queensland Export Terminal using existing rail infrastructure. The 189-kilometre narrow-gauge line runs between the Galilee Basin and the existing Queensland rail network. Elliot assisted a team of ecologists in conducting targeted ornamental snake, koala and greater glider surveys and BioCondition surveys. Elliot worked as an environmental advisor for Martinus Rail on the project and managed a large team of fauna spotter catchers during clearing earth works. Elliot was also engaged to conduct a critical review of the Carmichael Rail Fauna Connectivity Strategy for the ornamental snake, greater glider, koala, and common death adder.

Burton Coal Mine Expansion (Bowen Coking Coal), Burton, QLD - Project Manager / Lead Ecologist

In 2022 Bowen Coking Coal acquired the mining rights at Burton Coal Mine from New Hope Group. Bowen Coking Coal plan to commence mining at Burton Coal Mine through the expansion of Burton North Pit, Ellensfield South Pit, and Plumtree North Pit. Elliot led the field team in conducting breeding place surveys and active searches for conservation significant species and was the lead author in writing the high-risk species management plan for the project.

Willowbend Development (Maidment Development), Townsville, QLD - Project Manager / Lead Ecologist

Maidment Land Pty Ltd is proposing to develop 'Willowbend Estate', a 559-lot residential development located in Townsville. Elliot conducted a vegetation survey, general ecological assessment, and targeted black-throated finch survey of the proposed area and was the lead author of the subsequent report.

Triumph Gold Project (Sunshine Gold), Gladstone Region, QLD - Ecologist

Sunshine Gold propose to establish a mining tenement at the Triumph Gold mining exploration area. Elliot conducted protected plant surveys for the endangered *Cycas megacarpa*, regional ecosystem ground-truthing surveys and generic fauna surveys using a variety of techniques including pit fall traps, funnel traps, cage traps, Elliott traps, camera traps, bioacustic detectors, and active nocturnal and diurnal searches.

Watsons Lode (New Century Resources), Lawn Hill, QLD - Project Manager / Lead Ecologist

New Century Resources is investigating the potential to undertake open cut mining of a deposit known as Watson's Lodge. Elliot led the field team in conducting generic fauna surveys using a variety of techniques including pit fall traps, funnel traps, cage traps, Elliott traps, camera traps, bioacustic detectors, and active nocturnal and diurnal searches.

Osbourne Mine Expansion (Chinova Resources), Selwyn, QLD - Ecologist

Chinova Resources proposes to reopen Starra Line mines to continue to feed the 2Mtpa copper-gold flotation plant at Osborne, 150 km south of Cloncurry. Elliot co-led the field team in conducting targeted *Pseudantechinus mimulus* surveys and generic fauna surveys using a variety of techniques including pit fall traps, funnel traps, cage traps, Elliott traps, camera traps, bioacustic detectors, and active nocturnal and diurnal searches.

Threatened Ecological Community Assessment (Reef Catchments), Mackay Whitsunday Isaac Region, QLD - Project Manager / Lead Ecologist

Reef Catchments Ltd are a Natural Resource Management group covering the Mackay Whitsunday Isaac region. Reef Catchments required a strategic regional assessment of the condition of TECs within the Mackay Whitsunday Isaac Natural Resource Management Region. Elliot conducted assessments of 30 *Melaleuca viridiflora* and 30 beach scrub threatened ecological communities across the Mackay Whitsunday Isaac region and was the lead author on the two subsequent reports.

Environmental Offset Area Monitoring (Claredale Pastures), Clare, QLD - Project Manager / Ecologist

Claredale Pastures is a family owned and run property set on the grounds previously occupied by the Burdekin Agricultural College, in Clare, North Queensland. As well as livestock, the Mio family grow sugar cane and beans and run harvesting and earthmoving operations. Elliot conducts regular targeted black-throated finch and bare-rumped sheathtail bat surveys, pest and weed monitoring, and BioCondition surveys as required under the sites Offset Area Management Plan.

Proserpine Prawn Farm (Tassal Group), Proserpine, QLD - Ecologist

Proserpine is Tassal Group's largest prawn farm, with more than 200 hectares of land-based pond systems across the site. Elliot has conducted targeted shorebird surveys, marine plant relocation monitoring, mangrove health monitoring, regional ecosystem and threatened ecological community ground truthing surveys, BioCondition surveys, water quality monitoring, and weed and pest monitoring for a variety of different projects for the Proserpine Prawn Farm.

Toomulla Beach Aquaculture Facility (Ornatas), Toomulla, QLD - Ecologist

The Toomulla Beach Aquaculture Facility operates to produce tropical rock lobster for the national and international market. Elliot has conducted protected plant surveys, fauna surveys, regional ecosystem and threatened ecological community ground truthing surveys, and water quality monitoring for a variety of different projects for the Toomulla Beach Aquaculture Facility.

Ecological Assessment (Virid IFC), Cowley Beach, QLD - Lead Ecologist

Virid IFC was engaged by Stantec to undertake an ecological assessment to inform road works at the Department of Defence property the Cowley Beach Training Area (CBTA). The project scope of works includes maintenance or upgrade works to three existing roads/ tracks at CBTA. Elliot led field surveys within the proposed project area, conducting regional ecosystem ground truthing surveys, protected plant surveys for the vulnerable Myrmecodia beccarii, and fauna surveys.

Telecommunications Upgrade (Vocus), Selheim, QLD - Project Manager / Lead Ecologist

Vocus propose to install a telecommunications antenna and associated fibre cabling at Selheim in the Charters Towers region. Elliot led the field surveys including targeted surveys for the 'vulnerable' vine-thicket fine-lined slider (*Lerista cinerea*) and reporting on the ecological assessment report to determine any potential ecological constraints prior to development.

North Coast Line Upgrade (VEC Civil Engineering), Cassowary Coast, QLD - Ecologist

VEC Civil Engineering have been commissioned by Queensland Rail to carry out the demolition and replacement of 16 timber bridges along the Queensland Rail North Coast Line to improve safety and reliability along the line. Elliot conducted protected plant surveys and threatened ecological community assessments and conducted a significant impact assessment for EPBC Act listed fauna likely to occur within the proposed works.

EMPLOYMENT HISTORY

April 2024 to current – BASE CONSULTING GROUP PTY LTD, TOWNSVILLE – Senior Ecologist

June 2019 – April 2024 – NGH CONSULTING / WILD ENVIRONMENTAL CONSULTANTS, TOWNSVILLE – Senior Ecologist

January 2019 – June 2019 – JAMES COOK UNIVERSITY, TOWNSVILLE – Research Assistant

Mr Jack Caleo — Senior Ecologist

Qualifications:

Bachelor of Marine Science , James Cook Univeristy 2017

Post Graduate Diploma of Geographic Information Science, University of Queensland 2020

Certified suitably qualified person under the Flora Guidelines – Protected Plants

Apply **First Aid and CPR**

BioCondition Assessment Training

Certified Fauna Spotter Catcher 2022 to Current

Certified UTV and ATV Operator

Nationally recognised White Card Cerificate

Specialisation

Ecological surveys (Terrestrial environments.

EVNT flora and fauna survey and monitoring for linear, residential and infrastructure projects.

Offset Delivery Plans (State) and Offset Area Management Plans (Commonwealth) including BioCondition and habitat quality assessment.

Years in industry

4 years 6 months

Jack is a senior ecologist with more than 4 years of practical experience in the areas of flora and fauna surveys throughout Queensland, and the Northern Territory. Jack's main area of expertise is the identification and classification of flora and fauna and the management of threatened species and communities as listed under the *Environment Protection and Biodiversity Conservation Act 1999, Nature Conservation Act 1992* and *Vegetation Management Act 1999.* Jack is also a certified suitably qualified person under the Flora Guidelines – Protected Plants.

Jack has experience in some large infrastructure projects in Queensland including coordinating geotechnical surveys for power projects and dam projects, on-ground flora assessments and development of weed and vegetation management and rehabilitation strategies. Jack has also had experience in Fauna Spotting works in Northern Queensland and Northern Territory.

PROJECT EXPERIENCE

- **CopperString 2.0 Power Transmission Line Project – Powerlink:** CopperString 2.0 (now CopperString 2032 and owned by Powerlink) an approximate 840 km new electricity transmission line from Woodstock, just south of Townsville to Mount Isa. The project will connect Queensland's North West Minerals Province (NWMP) to the National Electricity Market.
- **Burdekin Falls Dam Raising Project – Sunwater:** The Project proposes to raise the existing dam by two metres to increase water supply and support future water demand in the Burdekin and surrounding regions.
- **Dittmer Gold Mine Scoping Project – Dittmer Gold:** Located in the Whitsunday (Mining Lease 100351). The project investigated the environmental constraints within the mining lease area for forward scoping and feasibility studies.
- **Fitzroy River to Glenroy Crossing Project – Red Fox Advisory Pty Ltd:** The Rockhampton Regional Council (RRC) investigation of environmental constraints for the construction of a road bridge to replace the existing low-level causeway crossing on the Fitzroy River at Glenroy.
- **Hughenden Wind Farm Project – Woodside Energy:** Ecological Assessment investigation of the ecological constraints, potential impacts on MNES, MSES and local ecological values.
- **Glen Alpine Wind Farm Project – Woodside Energy:** Ecological Assessment investigation of the ecological constraints, potential impacts on MNES, MSES and local ecological values.
- **Mt James Wind Farm Project – Iberdrola:** Ecological Assessment investigation of the ecological constraints, potential impacts on MNES, MSES and local ecological values.

BASE/

Relevant Project Experience

January 2021 to present

Base Consulting Group

Senior Ecologist

- Preparation for field work including the design of a daily schedule, writing the Safe Work Method Statement, booking flights and accommodation for the team.
- Field surveys and report preparation for Environmental Assessment Reports, Environmental Impacts Assessments, Protected Plants Survey Reports and conduct tree plots for Vegetation Management Plans and Rehabilitation Plans in Southeast Queensland.
- Mapping of Regional Ecosystems including quaternary, secondary and tertiary level assessments and producing geospatial datasets with field verified data.
- Use QGIS to produce figures and maps for various reports.
- Conduct desktop assessments for flora and fauna values.
- Conduct and report on monitoring of impact and offset areas including, weed surveys, SAT surveys, Habitat Quality Assessment, setting remote camera traps and ANABAT/Songmeters, and spotlighting for EVNT species and fauna trapping.
- Project managing and team leader.
- Work as a team with other contractors often Cultural Heritage Teams and Machinery Operators.
- Fauna Spotter Catching works for clearing jobs around Northern Queensland and Northern Territory since 2022.
- Field surveys and report preparation for Species Impact Assessments, EPBC Self-Assessments and Protected Plant Surveys.

RELEVANT PROJECTS

- Ecological assessments and offset obligations for the clearing of vegetation at Byrne Valley, North Queensland – Several assessments were conducted to evaluate the potential impacts on the local environment. Biocondition assessments were used to assess condition of native vegetation communities, while habitat assessments identified the potential habitat of flora and fauna species in the area. Vegetation classification was used to map the various vegetation communities present, and ANABAT/ Songmeters were utilized to identify the presence of nocturnal fauna species.
- Ecological assessments, offset obligations and Geotechnical Surveys for the development of a powerline for CopperString 2.0, North Queensland – Several assessments were conducted to evaluate the potential impact across multiple habitats from Woodstock to Mount Isa. Biocondition assessments were used to assess condition of native vegetation communities, while pre-clearance surveys and habitat assessments were used to identify the potential habitat of flora and fauna species in the area. Vegetation classification was used to map the various vegetation communities present, and timed bird surveys were conducted to identify the presence of avi-fauna species within area of significance. Fauna trapping, timed and meander bird surveys, and spotlighting for MNES species under approved guidelines for specifically targeted species within offset sites under offset approvals.
- Ecological assessments and offset obligations for the offset investigations for the development of the Rookwood weir, Rockhampton – Several assessments were conducted to evaluate potential offset areas across multiple sites within the Fairbairn Dam flood margin lease near Emerald. Biocondition assessments were used to assess condition of native vegetation communities. Vegetation classification was used to map the various vegetation communities present to verify regional ecosystems for potential offsets.
- Ecological assessments and offset obligations for the development of a windfarm at Mt James, North Queensland – Several assessments were conducted to evaluate the potential impact of the Mt James

Windfarm on the local environment. Biocondition assessments were used to assess condition of native vegetation communities, while habitat assessments identified the potential habitat of flora and fauna species in the area. Vegetation classification was used to map the various vegetation communities present, and spotlighting surveys were conducted to identify the presence of nocturnal fauna species.

- Property Map of Assessable Vegetation at Nonda Downs and Channel Downs, Richmond – Vegetation classification of the area was undertaken using the QLD Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities.
- Development application for Bukulla Street, Walcol – An Ecological Assessment Report, Fauna Management Plan, and Vegetation Management Plan were produced for the Bukulla Street infrastructure in the south-east Queensland region. The surveys conducted as part of this project included Koala Spot Assessment Technique (SAT) surveys to evaluate koala usage of the area. Niche habitat assessments were also carried out to determine their suitability for ENVT species. A treeplot was conducted to assess the impact of the development on the vegetation.
- Development application for Gilston Road, Gilston- In order to assess the potential impact of development at Gilston Road in the Gilston area, several environmental assessments were conducted. A Protected Plants Survey, which aimed to identify any protected plant species that may be present in the project area. In addition to the Protected Plants Survey, quaternary assessments were conducted to classify the various regional ecosystems present. Koala Spot Assessment Technique (SAT) surveys to evaluate koala usage of the area. Niche habitat assessments were also carried out to determine their suitability for ENVT species. A treeplot was conducted to assess the impact of the development on the vegetation. A Rehabilitation Plan was also set up for this project.
- Fauna Spotter Catching works for Byrne Valley, North Queensland. Clearing of woodland habitats and the capture and release of native wildlife.
- MNES Monitoring obligations for Bowen Rail Company, Bowen – Environmental monitoring obligations of Bowen Rail Company operations at the Abbot Point Provisioning Yard. This involved conducting water, sediment and dust monitoring and BioCondition assessment of native vegetation communities and evaluating the habitat quality of several species, such as the koala, black throated finch, squatter pigeon, eastern curlew, and Australian painted snipe. The resulting monitoring reports were developed to meet the conditions of the provisioning yard operations.
- Fauna Spotter Catching works for Rio Tinto, Gove. Clearing of woodland habitats and the capture and release of native wildlife.
- Fauna Spotter Catching works for Sunwater, Burdekin Falls Dam. Clearing of woodland habitats and the capture and release of native wildlife.
- Ecological assessments for the development of a mine at Yellow Jack Mine, Greenvale, North Queensland – Several assessments were conducted to evaluate the potential impact of the Yellow Jack Mine on the local environment. Vegetation classification was used to map the various vegetation communities present. Niche habitat assessments were also carried out to determine their suitability for ENVT species, spotlighting surveys and ANABAT/Songmeter surveys were conducted to identify the presence of nocturnal fauna species. Bird Utilisation Surveys were conducted to determine bird species present within the defined project area.
- Ecological assessments for the development of Geotechnical Surveys at Burdekin Falls Dam, North Queensland – Several assessments were conducted to evaluate the potential impact of the Geotechnical Surveys on the local environment. Vegetation classification was used to map the various vegetation communities present, and meander surveys were conducted to identify the presence of ENVT flora species. Niche habitat assessments were also carried out to determine their suitability for ENVT species.
- Ecological assessments for the development of a windfarm at Glen Alpine, North Queensland – Several assessments were conducted to evaluate the potential impact of the Glen Alpine Windfarm on the local environment. Vegetation classification was used to map the various vegetation communities present, and spotlighting and ANABAT/Songmeter surveys were conducted to identify the presence of nocturnal fauna species. Bird Utilisation Surveys were conducted to determine bird species present within the defined project area.

- Ecological assessments for the development of a windfarm at Hughenden, North Queensland – Several assessments were conducted to evaluate the potential impact of the Hughenden Windfarm on the local environment. Vegetation classification was used to map the various vegetation communities present, and spotlighting and ANABAT/Songmeter surveys were conducted to identify the presence of nocturnal fauna species. Bird Utilisation Surveys were conducted to determine bird species present within the defined project area. Protected plant surveys were also conducted to identify and record protected plants.
- Ecological assessments for the development of a causeway bridge at Glenroy Crossing along the Fitzroy River, Rockhampton – Several assessments were conducted to evaluate the potential impact of the causeway on the local environment. Vegetation classification was used to map the various vegetation communities present, and meander surveys were conducted to identify the presence of ENVT flora species. Niche habitat assessments, ANABAT/Songmeter surveys and Bird Surveys were conducted to determine MNES fauna species present within the defined project area. Nocturnal spotlighting for MNES species under approved guidelines for specifically targeted species within were also undertaken.
- Ecological assessments for the scoping of a **gold mine at Dittmer**, Proserpine – Several assessments were conducted to evaluate the potential impact of the gold mine on the local environment. Vegetation classification was used to map the various vegetation communities present, and meander surveys were conducted to identify the presence of ENVT flora species. Niche habitat assessments, Remote Camera trapping, ANABAT/Songmeter surveys and Bird Surveys were conducted to determine MNES fauna species present within the defined project area. Nocturnal spotlighting for MNES species under approved guidelines for specifically targeted species within were also undertaken.
- Ecological assessments, offset obligations and Geotechnical Surveys for the development of a **Burdekin Falls Dam** for the Burdekin Falls Dam Raising Project, North Queensland – Several assessments were conducted to evaluate the potential impact across multiple habitats surrounding the construction and inundation areas of the Burdekin Falls Dam project, as well as potential offset areas. Biocondition assessments were used to assess condition of native vegetation communities, while pre-clearance surveys and habitat assessments were used to identify the potential habitat of flora and fauna species in the area. Vegetation classification was used to map the various vegetation communities present, and timed bird surveys were conducted to identify the presence of avi-fauna species within area of significance. Timed and meander bird surveys, and spotlighting for MNES species under approved guidelines for specifically targeted species within offset sites under offset approvals.
- Fauna Spotter Catching works for **Ravenwood Gold Mine**, North Queensland. Clearing of woodland habitats and the capture and release of native wildlife.
- Offset Monitoring obligations for **Stanmore Coal**, Issac Downs Region – Offset monitoring obligations of three offset areas for the koala, greater glider and squatter pigeon. This involved conducting BioCondition assessment of native vegetation communities and evaluating the habitat quality of several species, such as the koala, greater glider and squatter pigeon. The resulting monitoring reports were developed to meet the conditions of the Offset Area Management Plan.

EMPLOYMENT HISTORY

- January 2021 TO CURRENT- BASE CONSULTING GROUP PTY LTD, BRISBANE – Senior Ecologist.

Leigh Scott — Senior Ecologist

Qualifications:

Bachelor of Science (Botany/Zoology), James Cook University, 2001

Graduate Diploma of Science (Research), James Cook University, 2020

Certificate of attainment:

Level 1 and 2 Fire Fighter PUA20619 certificate II

Chainsaw 1 – Maintain chainsaws – FWPCOT2254 and Trim and cut felled trees – FWPCOT2273

Inspect Machinery for Plant, Animal and Soil Material - RTD2312A Registration No:055

Clean Machinery for Plant, Animal and Soil Material – RTD2313A Registration No:055

Construction industry White Card – CPCCWHS1001 – Card No: 2832889

Licences:

QLD Manual C class driver's licence

Licence No: 034671136

Pest Management Technicians Licence No: PMTO-14045

Remote Piloted Aircraft Licence No: 1097749 (RePL/Drone up to 7kg).

Professional memberships & associations:

Weed Society of Queensland

Society for Growing Australian Plants.

Areas of expertise

Ecology / Botany, Flora and Fauna Field Survey

Pest and Fire Management

Leigh is a Senior Ecologist with 25 years of experience as a natural resource manager. During this time, she has developed and implemented projects related to natural resources, pests, fire and vegetation management. Her expertise includes conducting assessments, managing and monitoring projects, and authoring strategies, implementation and action plans for threatened species listed at the state and federal levels. She has experience in fire management and wildfire suppression, vertebrate and weed pest control, coastal and protected area management. Leigh's field assessment skills include flora and fauna surveys, regional ecosystem ground-truthing, BioCondition assessments, pre-clearance surveys, and GIS layer and map generation.

In previous roles, Leigh has demonstrated her project management skills by successfully working with state and local governments, NGOs, and CQU in various capacities, including project officer, pest management officer, biosecurity officer, natural resource management ranger, researcher, lecturer, and drone pilot. Leigh has conducted research and field surveys on *Paspalidium udum*, a rare and vulnerable wetland grass, the ecology of wild/feral horses, marine turtle protection, and northern quoll populations.

Having worked with a wide range of stakeholders, including federal, state, and local governments, NGOs, industry and community groups, First Nations people, and private clients, Leigh has developed a strong focus on stakeholder and client engagement. Leigh's practical skills are complemented by her experience in

- Local, state and federal government planning and environmental legislation, including policies, procedures, survey guidelines and industry best practices
- Flora and fauna identification, survey and assessment
- Fire management and wildfire risk
- Pest management, mapping and threat abatement
- Licenced drone pilot, Drone mapping and survey
- Community consultation and engagement.

PROJECT EXPERIENCE

March 2024 to present - Base Consulting Group

Base Consulting Group has employed Leigh as a Senior Ecologist. Her role is to prepare, implement, and manage ecological and weed surveys, including monitoring approval conditions for current and upcoming projects. These projects range from small-scale vegetation clearing on residential development to large-scale projects on power infrastructure, renewables and water resources. Leigh fulfils all the requirements of a suitably qualified person under the Flora survey guidelines (2020), has relevant professional qualifications and 25 years of experience designing and implementing management plans, strategies, conducting protected plant surveys, regional ecosystem bio-condition assessments, and authoring technical reports, MNES and MSES assessments. Leigh is a licensed remotely piloted aircraft (RPA) pilot and has conducted fine-scale mapping, monitoring and assessment, and feral horse surveys.

Project:

- **CopperString 2.0 Power Transmission Line Project – Powerlink:** CopperString 2.0 (now CopperString 2032 and owned by Powerlink), approximately 840 km new electricity transmission line from Woodstock, just south of Townsville, to Mount Isa. The project will connect Queensland's Northwest Minerals Province (NWMP) to the National Electricity Market.

- **Burdekin Falls Dam Raising Project – Sunwater:** The Project proposes to raise the existing dam by two meters to increase water supply and support future water demand in the Burdekin and surrounding regions.
- **Dittmer Gold Mine Scoping Project – Dittmer Gold:** Located in the Whitsunday (Mining Lease 100351). The project investigated the environmental constraints within the mining lease area for forward scoping and feasibility studies.
- **Fitzroy River to Glenroy Crossing Project – Red Fox Advisory Pty Ltd:** The Rockhampton Regional Council (RRC) investigation of environmental constraints for the construction of a road bridge to replace the existing low-level causeway crossing on the Fitzroy River at Glenroy.
- **Hughenden Wind Farm Project – Woodside Energy:** Ecological Assessment investigation of the ecological constraints, potential impacts on MNES, MSES and local ecological values.
- **Glenden Wind Farm Project – Base Carbon Pty Ltd:** Ecological Assessment investigation of the ecological constraints, potential impacts on MNES, MSES and local ecological values.
- **Malakoff Wind Farm Project – Base Carbon Pty Ltd:** Ecological Assessment investigation of the ecological constraints, potential impacts on MNES, MSES and local ecological values.

February 2023– March 2024. Ecosure Pty Ltd – Ecologist

Leigh was responsible for managing and developing client proposals, environmental, flora and fauna assessments, and permit applications under State and Federal legislation.

Projects:

- **Greenvale joint military expansion training area** baseline ecological survey and assessment, Greenvale North Queensland.
- **Stanwell Power Station Ecological Assessment**, Stanwell Central Queensland.
- **Keppel Developments Ecological Assessment** and Waterway Mitigation Plan, Yeppoon, Central Queensland.
- **Wambo Wind Farm Weed survey** and washdown audit, Wambo, Western Queensland.

September 2013 – February 2023.

Queensland Parks and Wildlife Service and Partnerships (Lower Burdekin) – Natural Resource Ranger

Leigh was responsible for developing management plans, strategic programs, and technical reports for regional ecosystems, fire, and pest management, aimed at meeting regional and state priorities. Leigh coordinated the implementation of the QPWS values-based framework's regional priorities and strategic directions, wrote plans and planned burns, including all associated reports, produced burn scare maps and monitoring plans, and developed wildfire response plans. Leigh has also used remote-piloted aircraft (RPA) to conduct fire surveillance and burn scar mapping, vegetation monitoring, and surveys.

Project:

- **Bowling Green Bay NP Feral Horse Management Program**, Townsville, North Queensland.
- **Cape Upstart Northern Quoll habitat assessment and population study**, Cape Upstart NP, North Queensland.
- **Implementation of the Key Values Prioritisation Framework.**
- **Implementation of FLAM** fire reporting and GIS management system.
- ***Paspalidium udum* (spongy swamp grass) Townsville Town Common mapping and recovery plan**.

EMPLOYMENT HISTORY

March 2024 TO CURRENT- BASE CONSULTING GROUP PTY LTD, BRISBANE - Senior Ecologist.

February 2023 – March 2024 – ECOSURE Pty Ltd, ROCKHAMPTON – Ecologist.

September 2013 - February 2023 – QUEENSLAND PARKS AND WILDLIFE SERVICE AND PARTNERSHIPS, TOWNSVILLE – NRM Ranger.

June 2011 – September 2013 – DAFF BIOSECURITY QUEENSLAND, TOWNSVILLE – Biosecurity officer

June 2005 -June 2011 – WHITSUNDAY REGIONAL COUNCIL, PROSERPINE – Environment officer/ Pest management officer.

September 2003 – June 2005 – WHITSUNDAY CATCHMENT LANDCARE PROSERPINE – Project officer (Farm forestry, River Trust, healthy waterways and sustainable landscapes)

September 2002 – September 2003 WHITSUNDAY REGIONAL COUNCIL, PROSERPINE – Contract Great Walk Whitsunday Indigenous ranger supervisor/construction supervisor

May 2001 – September 2002 – QUEENSLAND PARKS AND WILDLIFE SERVICE – AIRLIE BEACH– Great Walk Whitsunday Indigenous ranger supervisor/construction supervisor

APPENDIX B

Fauna Habitat Quality Scoring Rationale

Fauna Habitat Quality Scoring Indices

This outlines the criteria used to assess habitat quality for the koala and greater glider, based on modified versions of habitat assessment tools including the *Guide to Determining Terrestrial Habitat Quality: A Toolkit for Assessing Land-Based Offsets under the Queensland Environmental Offsets Policy* (v1.2) and species-specific literature. Each attribute is assessed through field survey data and desktop analysis, then scored against set thresholds to ensure results are repeatable and comparable across monitoring events.

For attributes where the maximum raw score does not equal the standardised offset scoring total (normalised score), the raw score is converted using the following formula:

Adjusted score = (Raw score ÷ Maximum raw score) × Total score (normalised)

For example, where an attribute has a maximum raw score of 10 but the offset assessment requires a total out of 15 (normalised score), the field score is divided by 10 and multiplied by 15.

Koala Habitat Quality Scoring Indices

Threats to species

This index assesses two key threats to koalas: the potential presence of predator species (e.g. dingoes and domestic dogs), and the presence of adverse infrastructure such as roads, dams, and fences. These indicators are assessed based on field observations and site-level mapping.

The combined raw score is out of 10 and is scaled to 15 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 1: Criteria for threats to koala

Indicator	Score	Criteria	Maximum score
Potential for assessment unit to support predator species (dingoes, wild and domestic dogs)	**0**	Predator signs abundant	**5**
	3	Predator signs common	
	5	No predator signs or no more than would be expected in a natural system	
Presence of roads or adverse Infrastructure (pools, dams, fences, rail/road barriers, pipelines)	**0**	Dense network of roads with regular and frequent traffic and/or highway (within or nearby)	**5**
	3	Network of minor roads with regular traffic (within or nearby)	
	5	No vehicle access or minor tracks with infrequent traffic (within or nearby)	
		Total Score	**10**
		Total Score (normalised)	**15**

Quality and availability of food and foraging habitat

This index assesses both the abundance and diversity of locally important food trees (>10 cm DBH), and the abundance of ancillary habitat trees, which contribute to overall habitat structure and usage by koalas. Locally important koala trees and ancillary habitat trees are provided for each bioregion in *A review of koala habitat assessment criteria and methods* (Youngentob et al., 2021).

The combined raw score is out of 40 and is scaled to 10 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 2: Criteria for koala quality and availability of food and habitat required for foraging

Indicator	Score	Criteria	Maximum score
Presence and abundance of locally important koala trees (> 10 cm DBH)	**0** No or sparse locally important koala trees present	Fewer than 10 locally important koala trees in total	**30**
	15 Moderate abundance of locally important koala trees	One species with 10 or more individuals, OR Two or more species with a combined total of 10 to 60 trees	
	30 High abundance of multiple locally important koala tree species	Two or more locally important koala tree species and a combined total of more than 60 trees	
Abundance of ancillary habitat trees (> 10 cm DBH)	**0** No or sparse ancillary habitat trees present	Fewer than 10 individual trees present	**10**
	5 Moderate abundance of ancillary habitat trees	10 or more of one species present OR 10 to 14 of two or more species present	
	10 High abundance of ancillary habitat trees of multiple species	15 or more individuals AND at least two species present	
		Total Score	**40**
		Total Score (normalised)	**10**

Quality and availability of habitat required for shelter

This index assesses shelter availability based on proximity to riparian vegetation (refuge habitat) and the number of trees (>10 cm DBH) that can function as shelter. These indicators provide a surrogate measure of thermal refuge and protection.

The combined raw score is out of 20 and is scaled to 10 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 3: Criteria for koala quality and availability of habitat required for shelter

Indicator	Score	Criteria	Maximum score
Presence and abundance of refuge habitat	**1**	Further than 1 km from riparian vegetation	**10**
	5	Adjacent or less than 1 km to riparian vegetation	
	10	Within riparian vegetation	
Presence and abundance of shelter trees	**1** No or sparse	Fewer than 20 koala shelter trees per site	**10**
	5 Moderate	Between 20 and 59 koala shelter trees per site	
	10 High	60 or more koala shelter trees per site	
		Total Score	**20**
		Total Score (normalised)	**10**

Greater Glider Habitat Quality Scoring Indices

Threats to species

Threats to greater glider habitat are assessed across three indicators: risk of clearing or logging, risk of fragmentation, and risk of fire. These are evaluated using desktop analysis of tenure, land zoning, offset protection, and vegetation mapping, supported by field-level observations where appropriate.

The combined raw score is out of 20 and is scaled to 15 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 4: Criteria for threats to greater glider

Indicator	Score	Criteria	Maximum score
Risk of clearing or selective logging that results in loss of tree hollows	**1** High	E.g. Freehold land, Category X, no offset protections	**10**
	5 Moderate	E.g. Leasehold land, Category B/C/R, uncertain protection or tenure	
	10 Low	E.g. Category A, protected under OMP or secure conservation tenure	
Risk of fragmentation	**1** High	E.g. Freehold land, Category X, no offset protections	**5**
	3 Moderate	E.g. Leasehold land, Category B/C/R, uncertain protection or tenure	
	5 Low	E.g. Category A, protected under OMP or secure conservation tenure	
Risk of fire	**1** High	E.g. No fire plan, high grass and weed cover, not protected under OMP	**5**
	3 Moderate	E.g. Some fuel (grass and weeds) presence, minimal management, not protected under OMP	
	5 Low	E.g. Active fire management and low fuel loads, protected under OMP	
		Total Score	**20**
		Total Score (normalised)	**15**

Quality and availability of food and foraging habitat

This scoring index evaluates foraging habitat suitability based on species composition, tree density, and forest maturity. Assessment of the quality and availability of foraging habitat for greater glider was based on the density of large trees within each survey plot. Tree abundance was evaluated in accordance with the *Guide to Greater Glider Habitat in Queensland* (Eyre TJ, 2022), which identifies large tree benchmarks for greater glider habitat across regional ecosystems. For the Brigalow bioregion, which includes the offset area, the guide indicates a mean density of 14.9 large trees per hectare as the benchmark for greater glider habitat. Appendix B of the guide provides a list of tree species that characterise greater glider habitat in Queensland, partitioned into bioregions.

Preferred food trees were identified based on species listed in the guide that have three or more recorded uses by greater gliders as a food source. Section 4 of the guide provides a list of tree species that characterise greater glider habitat in Queensland, grouped by bioregion, and includes their documented frequency of use. This information was used to refine species selection during habitat assessments and ensure consistency with recognised feeding preferences.

The combined raw score is out of 30 and is scaled to 10 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 5: Criteria for greater glider quality and availability of food and habitat required for foraging

Indicator	Score	Criteria	Maximum score
Presence of preferred food trees	**0**	No preferred tree species	**20**
	5	One preferred species present	
	10	Two preferred species present	
	20	More than two preferred species present	
Abundance of preferred food trees	**1** Low	Fewer than five preferred greater glider food trees per site (0-9 trees per ha)	**5**
	3 Moderate	Five to seven preferred greater glider food trees per site (10-15 trees per ha)	
	5 High	Eight or more preferred greater glider food trees per site (>15 trees per ha)	
Age of forest	**0** Low	Non-remnant No mature trees	**5**
	3 Moderate	Re-growth or selectively cleared with moderate abundance of mature trees	
	5 High	Remnant, intact ecosystem	
		Total Score	**30**
		Total Score (normalised)	**10**

Quality and availability of habitat required for shelter

This index assesses the abundance of hollow-bearing trees as a surrogate for nesting and sheltering opportunities, and the size of the available habitat patch. Larger patches with more abundant hollow bearing trees receive higher scores.

The combined raw score is out of 30 and is scaled to 10 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 6: Criteria for greater glider quality and availability of habitat required for shelter

Indicator	Score	Criteria	Maximum score
Abundance of hollow bearing trees	**5** Low	Less than three hollow bearing trees per site (<6 per hectare)	**20**
	10 Moderate	Three to five hollow bearing trees per site (6-10 per hectare)	
	20 High	More than five hollow bearing trees per site (>10 per hectare	
Size of available patch	**1** Small	Less than 10 km^2	**10**
	5 Medium	10 km^2 to 80 160 km^2	
	10 Large	Greater than 160 km^2	
		Total Score	**30**
		Total Score (normalised)	**10**

Squatter Pigeon Habitat Quality Scoring Indices

Threats to species

Threats to squatter pigeon habitat are assessed across four indicators: risk of habitat loss and fragmentation, weed dominance, overstocking, and predation risk. These factors are evaluated through a mix of desktop analysis (e.g. tenure, land use history, mapping) and field observations (e.g. signs of grazing pressure or predator activity).

The combined raw score is out of 25 and is scaled to 15 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 7: Criteria for threats to squatter pigeon

Indicator	Score	Criteria	Maximum score
Risk of habitat loss and fragmentation	**1** High	Habitat loss or fragmentation likely	**10**
	5 Moderate	Habitat loss or fragmentation possible	
	10 Low	Habitat loss or fragmentation not likely	
Weed dominance	**1**	Weeds species dominant	**5**
	3	Weed species present but not dominant	
	5	No weed species present	
Overstocking	**1** High	High grazing pressure, signs of erosion	**5**
	3 Moderate	Moderate grazing pressure	
	5 Low	Low or no grazing pressure observed	
Predation risk	**1**	Predator signs abundant	**5**
	3	Predator signs common	
	5	No predator signs or no more than would be expected in a natural system	
		Total Score	**25**
		Total Score (normalised)	**15**

Quality and availability of food and foraging habitat

This scoring index evaluates foraging habitat suitability based on proximity to water, grass species diversity, and ground layer structure. Squatter pigeons require a mix of open ground for movement and seed access, native grass diversity for food, and water availability for daily use.

The combined raw score is out of 10 and is scaled to 15 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 8: Criteria for squatter pigeon quality and availability of food and habitat required for foraging

Indicator	Score	Criteria	Maximum score
Within 3 km of permanent water	**0**	Not within 3 km of a permanent water source	**15**
	15	Within 3 km of a permanent water source	
Grass species richness	**0**	Fewer than three native grass species	**5**
	3	Three to 10 native grass species	
	5	Greater than 10 native grass species	
Leaf litter and bare ground cover (%)	**0**	0% - 49% cover	**5**
	3	50% - 59% cover OR 91% - 100% cover	
	5	60% - 90% cover	
		Total Score	**25**
		Total Score (normalised)	**10**

Quality and availability of habitat required for shelter

This index assesses shelter value based on hydrological proximity, land zone, and the presence of suitable ground cover. Squatter pigeons are ground-nesting birds that prefer lightly vegetated ground (generally less than 33%) with nearby access to water and fall within certain geophysical land zones associated with preferred vegetation types.

The combined raw score is out of 25 and is scaled to 10 for offset reporting in accordance with the Guide to determining terrestrial habitat quality V1.2.

Table 9: Criteria for squatter pigeon quality and availability of habitat required for shelter

Indicator	Score	Criteria	Maximum score
Within 1 km of permanent water	**0**	Not within 1 km of a permanent water source	**10**
	10	Within 1 km of a permanent water source	
Land zone 3, 5 or 7	**0**	Site is on land zone 3, 5 or 7	**10**
	10	Site is not on land zone 3, 5 or 7	
Native grass and forb cover (%)	**0**	0% cover 51% - 100% cover	**5**
	3	1% - 9% cover OR 41% - 50% cover	
	5	10% - 40% cover	
		Total Score	**25**
		Total Score (normalised)	**10**

APPENDIX C

Tabulated Site Location Data

Habitat Quality Assessment Plot	Start Coordinates		Centre Coordinates		End Coordinates	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
IPEE1 – AU1	-21.5113	148.7815	-21.5107	148.7816	-21.5104	148.7816
IPEE2 – AU1	-21.4998	148.7846	-21.4994	148.7843	-21.4991	148.7840
IPEE3 – AU1	-21.4978	148.7841	-21.4977	148.7836	-21.4975	148.7832
IPEE4 – AU3	-21.4973	148.7852	-21.4969	148.7850	-21.4967	148.7848
IPEE5 – AU2	-21.4987	148.7886	-21.4982	148.7886	-21.4978	148.7887
IPEE6 – AU1	-21.4962	148.7937	-21.4958	148.7939	-21.4954	148.7940
IPEE7 – AU1	-21.4944	148.7772	-21.4949	148.7771	-21.4952	148.7772
IPEE8 – AU2	-21.4938	148.7723	-21.4941	148.7721	-21.4945	148.7720
IPEE9 – AU2	-21.4919	148.7726	-21.4914	148.7727	-21.4909	148.7727
IPEE10 – AU1	-21.4924	148.7717	-21.4920	148.7716	-21.4915	148.7716
IPEE11 – AU1	-21.4877	148.7747	-21.4881	148.7746	-21.4885	148.7745
IPEE12 – AU2	-21.4866	148.7726	-21.4861	148.7727	-21.4857	148.7728
IPEE13 – AU2	-21.4819	148.7740	-21.4815	148.7740	-21.4810	148.7739
IPEE14 – AU1	-21.4808	148.7764	-21.4812	148.7763	-21.4816	148.7762
IPEE15 – AU2	-21.4785	148.7753	-21.4781	148.7751	-21.4777	148.7750

APPENDIX D

Photo Monitoring Points

IPEE1: Assessment Unit 1 – Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE2: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE3: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE4: Assessment Unit 3 - Regional Ecosystem 11.3.9		
Start	Centre North	Centre East
		
End	Centre South	Centre West
Photo Unavailable		

IPEE5: Assessment Unit 2 - Regional Ecosystem 11.3.4		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE6: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE7: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

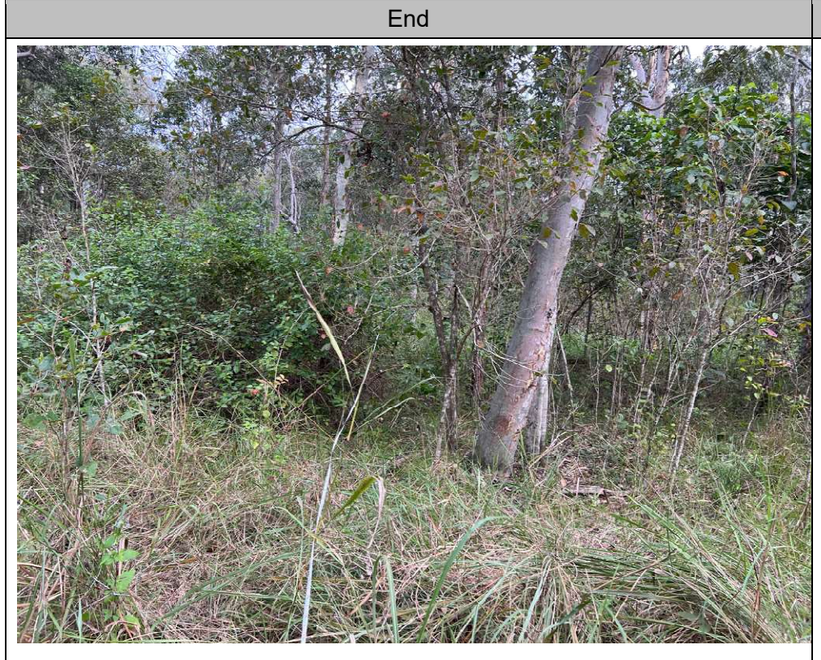
IPEE8: Assessment Unit 2 - Regional Ecosystem 11.3.4		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE9: Assessment Unit 2 - Regional Ecosystem 11.3.4		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE10: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE11: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE12: Assessment Unit 2 - Regional Ecosystem 11.3.4

Start	Centre North	Centre East
		
End	**Centre South**	**Centre West**
		

IPEE13: Assessment Unit 2 - Regional Ecosystem 11.3.4		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE14: Assessment Unit 1 - Regional Ecosystem 11.12.1		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

IPEE15: Assessment Unit 2 - Regional Ecosystem 11.3.4		
Start	Centre North	Centre East
		
End	Centre South	Centre West
		

APPENDIX E

Habitat Quality Scores

OFFSET - Fauna Species

Koala

Assessment Unit - Regional Ecosystem	AU 1 - 11.12.1 (remnant)											
Site Reference	**Benchmark**	IPEE1			IPEE2			IPEE3			IPEE6		
	11.12.1	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score
Site Condition													
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	100	100%	5	100	100%	5
Native plant species richness - trees	**3**	4	133%	5	4	133%	5	7	233%	5	5	167%	5
Native plant species richness - shrubs	**6**	2	33%	3	2	33%	3	1	17%	2.5	9	150%	5
Native plant species richness - grasses	**8**	8	100%	5	4	50%	3	4	50%	3	8	100%	5
Native plant species richness - forbes	**8**	13	163%	5	1	13%	2.5	4	50%	3	25	313%	5
Tree emergant height	**na**	-			-			-			-		
Tree canopy height	**15**	12	80%		13.5	90%		15	100%		11.5	77%	
Tree canopy height subcanopy	**10**	5.5	55%	4	5.5	55%	4	7	70%	5	6.75	68%	4
Tree emergent cover	**na**	0			0			0			0		
Tree canopy cover	**35**	31.8	91%		34	97%		23.1	66%		29.5	84%	
Tree canopy cover subcanopy	**7**	0	0%	2.5	1.5	21%	3.5	10.8	154%	5	12	171%	5
Shrub canopy cover	**4**	0	0%	0	3	75%	5	0.3	8%	0	3.5	88%	5
Native grass cover	**41**	44	107%	5	36.8	90%	3	26	63%	3	70	171%	5
Organic litter	**28**	26.2	94%	5	7.4	26%	3	5	18%	3	15	54%	5
Large trees (euc plus non-euc)	**20**	4	20%	5	12	60%	5	4	20%	5	16	80%	5
Coarse woody debris	**408**	0	0%	0	180	44%	2	55	13%	2	160	39%	2
Non-native plant cover	**0**	10		5	15		5	10		5	15		5
BioCondition Score	80			50			49			46.5			61
Quality and availability of food and foraging habitat	10	10		10	10		10	10		10	10		10
Quality and availability of shelter	10	10		10	10		10	10		10	10		10
Site Condition Score - out of 3													
Site Context													
Size of patch	10	10		10	10		10	10		10	10		10
Connectivity	5	4		4	5		5	5		5	5		5
Context	5	5		5	5		5	5		5	5		5
Ecological corridor	6	0		0	0		0	0		0	4		4
Threats to species	15	7		7	7		7	7		7	15		15
Species mobility capacity	10	10		10	10		10	10		10	10		10
Role of site location	5	1		1	1		1	1		1	1		1
Site Context Score				37			38			38			50
MAX Site Context Score													
Site Context Score - out of 3													

OFFSET - Fauna Species

Koala

Assessment Unit - Regional Ecosystem													
Site Reference	IPEE7			IPEE10			IPEE11			IPEE14			Average
	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Score
Site Condition													
Recruitment of woody perennial species in EDL	100	100%	5	100	100%	5	100	100%	5	100	100%	5	5
Native plant species richness - trees	6	200%	5	8	267%	5	3	100%	5	7	233%	5	5
Native plant species richness - shrubs	2	33%	3	7	117%	5	4	67%	3	5	83%	3	3.4375
Native plant species richness - grasses	6	75%	3	8	100%	5	9	113%	5	5	63%	3	4
Native plant species richness - forbes	17	213%	5	20	250%	5	19	238%	5	26	325%	5	4.4375
Tree emergant height	-			-			-			-			
Tree canopy height	14	93%		12.75	85%		12	80%		10.75	72%		
Tree canopy height subcanopy	5.5	55%	4	6	60%	4	5.5	55%	4	6	60%	4	4.125
Tree emergent cover	0			0			0			0			
Tree canopy cover	48.7	139%		51.5	147%		62.3	178%		43.5	124%		
Tree canopy cover subcanopy	2.7	39%	3.5	21.5	307%	4	5.2	74%	5	7	100%	5	4.1875
Shrub canopy cover	0	0%	0	3.5	88%	5	0	0%	0	0.5	13%	3	2.25
Native grass cover	25	61%	3	83.6	204%	5	46	112%	5	7	17%	1	3.75
Organic litter	18	64%	5	9.4	34%	3	23.8	85%	5	43.4	155%	5	4.25
Large trees (euc plus non-euc)	4	20%	5	18	90%	5	2	10%	5	16	80%	5	5
Coarse woody debris	139	34%	2	325	80%	5	0	0%	0	250	61%	5	2.25
Non-native plant cover	15		5	15		5	5		5	15		5	5
BioCondition Score			48.5			61			52			54	52.6875
Quality and availability of food and foraging habitat	10		10	10		10	10		10	10		10	10
Quality and availability of shelter	10		10	10		10	10		10	10		10	10
Site Condition Score - out of 3													**2.18**
Site Context													
Size of patch	10		10	10		10	10		10	10		10	10
Connectivity	5		5	5		5	5		5	5		5	4.875
Context	5		5	5		5	5		5	5		5	5
Ecological corridor	0		0	0		0	0		0	4		4	1
Threats to species	7		7	15		15	7		7	7		7	9
Species mobility capacity	10		10	10		10	10		10	10		10	10
Role of site location	1		1	1		1	1		1	1		1	1
Site Context Score			38			46			38			41	40.875
MAX Site Context Score													*56*
Site Context Score - out of 3													**2.19**

OFFSET - Fauna Species

Koala

Assessment Unit - Regional Ecosystem	AU 2 - 11.3.4 (remnant)																		
Site Reference	**Benchmark**	IPEE5			IPEE8			IPEE9			IPEE12			IPEE13			IPEE15			Average
	11.3.4	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Score
Site Condition																				
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	80	80%	5	100	100%	5	100	100%	5	100	100%	5	5
Native plant species richness - trees	**4**	19	475%	5	9	225%	5	15	375%	5	18	450%	5	6	150%	5	6	150%	5	5
Native plant species richness - shrubs	**2**	2	100%	5	9	450%	5	7	350%	5	4	200%	5	1	50%	3	2	100%	5	4.66667
Native plant species richness - grasses	**7**	4	57%	3	6	86%	3	8	114%	5	11	157%	5	10	143%	5	8	114%	5	4.33333
Native plant species richness - forbes	**10**	16	160%	5	25	250%	5	15	150%	5	23	230%	5	18	180%	5	14	140%	5	5
Tree emergant height	**na**	-			-			-			-			-			-			
Tree canopy height	**22**	13	59%		18.75	85%		18.5	84%		14	64%		13	59%		15	68%		
Tree canopy height subcanopy	**12**	5.5	46%	3	10	83%	5	10.75	90%	5	5.5	46%	3	5.5	46%	3	6.5	54%	3	3.66667
Tree emergent cover	**na**	0			0			0			0			0			0			
Tree canopy cover	**17**	61.6	362%		48.5	285%		69	406%		66.4	391%		55.6	327%		87.1	512%		
Tree canopy cover subcanopy	**5**	25	500%	3	22.5	450%	3	56	1120%	3	1.5	30%	2.5	0	0%	1.5	4.6	92%	4	2.83333
Shrub canopy cover	**1**	0	0%	0	2	200%	5	10.5	1050%	3	0	0%	0	0	0%	0	0	0%	0	1.33333
Native grass cover	**43**	4	9%	0	52.8	123%	5	13.2	31%	1	38.4	89%	3	35	81%	3	63.6	148%	5	2.83333
Organic litter	**20**	79.4	397%	3	19.4	97%	5	65.6	328%	3	32.2	161%	5	21.2	106%	5	33.6	168%	5	4.33333
Large trees (euc plus non-euc)	**26**	8	31%	5	10	38%	5	28	108%	5	4	15%	5	14	54%	5	16	62%	5	5
Coarse woody debris	**384**	202	53%	5	90	23%	2	1560	406%	2	0	0%	0	116	30%	2	0	0%	0	1.83333
Non-native plant cover	**0**	2		10	15		5	15		5	10		5	10		5	10		5	5.83333
BioCondition Score	80			52			58			52			48.5			47.5			52	51.6667
Quality and availability of food and foraging habitat	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Quality and availability of shelter	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Site Condition Score - out of 3																				**2.15**
Site Context																				
Size of patch	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Connectivity	5	4		4	5		5	5		5	5		5	5		5	5		5	4.83333
Context	5	5		5	5		5	5		5	5		5	5		5	5		5	5
Ecological corridor	6	0		0	0		0	0		0	0		0	0		0	4		4	0.66667
Threats to species	15	15		15	15		15	7		7	7		7	7		7	7		7	9.66667
Species mobility capacity	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Role of site location	1	1		1	1		1	1		1	1		1	1		1	1		1	1
Site Context Score				45			46			38			38			38			42	41.1667
MAX Site Context Score																				*56*
Site Context Score - out of 3																				**2.21**

OFFSET - Fauna Species

Koala

Assessment Unit - Regional Ecosystem	AU 3 - 11.3.9 (remnant)				
Site Reference	**Benchmark**	IPEE4			Average
	11.3.9	Raw Data	% Benchmark	Score	Score
Site Condition					
Recruitment of woody perennial species in EDL	**100**	100	100%	5	5
Native plant species richness - trees	**5**	9	180%	5	5
Native plant species richness - shrubs	**6**	3	50%	3	3
Native plant species richness - grasses	**9**	4	44%	3	3
Native plant species richness - forbes	**9**	5	56%	3	3
Tree emergant height	**na**	-			
Tree canopy height	**18**	13.5	75%		
Tree canopy height subcanopy	**na**	5.5		5	5
Tree emergent cover	**na**	0			
Tree canopy cover	**28**	30.1	108%		
Tree canopy cover subcanopy	**na**	11		5	5
Shrub canopy cover	**1**	0	0%	0	0
Native grass cover	**34**	5.8	17%	1	1
Organic litter	**32**	11	34%	3	3
Large trees (euc plus non-euc)	**15**	4	27%	5	5
Coarse woody debris	**151**	65	43%	2	2
Non-native plant cover	**0**	10		5	5
BioCondition Score	80			45	45
Quality and availability of food and foraging habitat	10	10		10	10
Quality and availability of shelter	10	10		10	10
Site Condition Score - out of 3					**1.95**
Site Context					
Size of patch	10	10		10	10
Connectivity	5	5		5	5
Context	5	5		5	5
Ecological corridor	6	0		0	0
Threats to species	15	7		7	7
Species mobility capacity	10	10		10	10
Role of site location	1	1		1	1
Site Context Score				38	38
MAX Site Context Score					*56*
Site Context Score - out of 3					**2.04**

OFFSET - Fauna Species

Koala

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10
		No	Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Role/importance of species population on site*	Score (Total from supplementary table below)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SRR score (out of 40)					
SRR Score (out of 10)					

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

Final habitat quality score (weighted)	AU1	AU2	AU3	Average/Final
Site Condition score (out of 3)	2.18	2.15	1.95	2.09
Site Context Score (out of 3)	2.19	2.21	2.04	2.14
Species Stocking Rate Score (out of 4)	1.00	1.00	1.00	1.00
Habitat Quality score (out of 10)	*5.37*	*5.36*	*4.99*	*5.24*
Assessment Unit area (ha)	571.0	253.0	15.0	
Total offset area (ha)	839.0	839.0	839.0	
Size Weighting	0.68	0.30	0.02	
Weighted Habitat Quality Score	***3.65***	***1.61***	***0.09***	***5.36***

OFFSET - Fauna Species

Greater glider

Assessment Unit - Regional Ecosystem	AU 1 - 11.12.1 (remnant)												
Site Reference	**Benchmark**	IPEE1			IPEE2			IPEE3			IPEE6		
	11.12.1	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score
Site Condition													
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	100	100%	5	100	100%	5
Native plant species richness - trees	**3**	4	133%	5	4	133%	5	7	233%	5	5	167%	5
Native plant species richness - shrubs	**6**	2	33%	3	2	33%	3	1	17%	2.5	9	150%	5
Native plant species richness - grasses	**8**	8	100%	5	4	50%	3	4	50%	3	8	100%	5
Native plant species richness - forbes	**8**	13	163%	5	1	13%	2.5	4	50%	3	25	313%	5
Tree emergant height	**na**	-			-			-			-		
Tree canopy height	**15**	12	80%		13.5	90%		15	100%		11.5	77%	
Tree canopy height subcanopy	**10**	5.5	55%	4	5.5	55%	4	7	70%	5	6.75	68%	4
Tree emergent cover	**na**	0			0			0			0		
Tree canopy cover	**35**	31.8	91%		34	97%		23.1	66%		29.5	84%	
Tree canopy cover subcanopy	**7**	0	0%	2.5	1.5	21%	3.5	10.8	154%	5	12	171%	5
Shrub canopy cover	**4**	0	0%	0	3	75%	5	0.3	8%	0	3.5	88%	5
Native grass cover	**41**	44	107%	5	36.8	90%	3	26	63%	3	70	171%	5
Organic litter	**28**	26.2	94%	5	7.4	26%	3	5	18%	3	15	54%	5
Large trees (euc plus non-euc)	**20**	4	20%	5	12	60%	5	4	20%	5	16	80%	5
Coarse woody debris	**408**	0	0%	0	180	44%	2	55	13%	2	160	39%	2
Non-native plant cover	**0**	10		5	15		5	10		5	15		5
BioCondition Score	80			50			49			46.5			61
Quality and availability of food and foraging habitat	10	10		10	10		10	10		10	10		10
Quality and availability of shelter	10	10		10	5		5	5		5	5		5
Site Condition Score - out of 3													
Site Context													
Size of patch	10	10		10	10		10	10		10	10		10
Connectivity	5	4		4	5		5	5		5	5		5
Context	5	5		5	5		5	5		5	5		5
Ecological corridor	6	0		0	0		0	0		0	4		4
Threats to species	15	15		15	15		15	15		15	15		15
Species mobility capacity	10	10		10	10		10	10		10	10		10
Role of site location	5	1		1	1		1	1		1	1		1
Site Context Score				45			46			46			50
MAX Site Context Score													
Site Context Score - out of 3													

OFFSET - Fauna Species

Greater glider

Assessment Unit - Regional Ecosystem													
Site Reference	IPEE7			IPEE10			IPEE11			IPEE14			Average
	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Score
Site Condition													
Recruitment of woody perennial species in EDL	100	100%	5	100	100%	5	100	100%	5	100	100%	5	5
Native plant species richness - trees	6	200%	5	8	267%	5	3	100%	5	7	233%	5	5
Native plant species richness - shrubs	2	33%	3	7	117%	5	4	67%	3	5	83%	3	3.4375
Native plant species richness - grasses	6	75%	3	8	100%	5	9	113%	5	5	63%	3	4
Native plant species richness - forbes	17	213%	5	20	250%	5	19	238%	5	26	325%	5	4.4375
Tree emergant height	-			-			-			-			
Tree canopy height	14	93%		12.75	85%		12	80%		10.75	72%		
Tree canopy height subcanopy	5.5	55%	4	6	60%	4	5.5	55%	4	6	60%	4	4.125
Tree emergent cover	0			0			0			0			
Tree canopy cover	48.7	139%		51.5	147%		62.3	178%		43.5	124%		
Tree canopy cover subcanopy	2.7	39%	3.5	21.5	307%	4	5.2	74%	5	7	100%	5	4.1875
Shrub canopy cover	0	0%	0	3.5	88%	5	0	0%	0	0.5	13%	3	2.25
Native grass cover	25	61%	3	83.6	204%	5	46	112%	5	7	17%	1	3.75
Organic litter	18	64%	5	9.4	34%	3	23.8	85%	5	43.4	155%	5	4.25
Large trees (euc plus non-euc)	4	20%	5	18	90%	5	2	10%	5	16	80%	5	5
Coarse woody debris	139	34%	2	325	80%	5	0	0%	0	250	61%	5	2.25
Non-native plant cover	15		5	15		5	5		5	15		5	5
BioCondition Score			48.5			61			52			54	52.6875
Quality and availability of food and foraging habitat	10		10	10		10	10		10	10		10	10
Quality and availability of shelter	5		5	5		5	10		10	10		10	6.875
Site Condition Score - out of 3													**2.09**
Site Context													
Size of patch	10		10	10		10	10		10	10		10	10
Connectivity	5		5	5		5	5		5	5		5	4.875
Context	5		5	5		5	5		5	5		5	5
Ecological corridor	0		0	0		0	0		0	4		4	1
Threats to species	15		15	15		15	15		15	15		15	15
Species mobility capacity	10		10	10		10	10		10	10		10	10
Role of site location	1		1	1		1	1		1	1		1	1
Site Context Score			46			46			46			50	46.875
MAX Site Context Score													*56*
Site Context Score - out of 3													**2.51**

OFFSET - Fauna Species

Greater glider

Assessment Unit - Regional Ecosystem	AU 2 - 11.3.4 (remnant)																		
Site Reference	**Benchmark**	IPEE5			IPEE8			IPEE9			IPEE12			IPEE13			IPEE15			Average
	11.3.4	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Score
Site Condition																				
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	80	80%	5	100	100%	5	100	100%	5	100	100%	5	5
Native plant species richness - trees	**4**	19	475%	5	9	225%	5	15	375%	5	18	450%	5	6	150%	5	6	150%	5	5
Native plant species richness - shrubs	**2**	2	100%	5	9	450%	5	7	350%	5	4	200%	5	1	50%	3	2	100%	5	4.66667
Native plant species richness - grasses	**7**	4	57%	3	6	86%	3	8	114%	5	11	157%	5	10	143%	5	8	114%	5	4.33333
Native plant species richness - forbes	**10**	16	160%	5	25	250%	5	15	150%	5	23	230%	5	18	180%	5	14	140%	5	5
Tree emergant height	**na**	-			-			-			-			-			-			
Tree canopy height	**22**	13	59%		18.75	85%		18.5	84%		14	64%		13	59%		15	68%		
Tree canopy height subcanopy	**12**	5.5	46%	3	10	83%	5	10.75	90%	5	5.5	46%	3	5.5	46%	3	6.5	54%	3	3.66667
Tree emergent cover	**na**	0			0			0			0			0			0			
Tree canopy cover	**17**	61.6	362%		48.5	285%		69	406%		66.4	391%		55.6	327%		87.1	512%		
Tree canopy cover subcanopy	**5**	25	500%	3	22.5	450%	3	56	1120%	3	1.5	30%	2.5	0	0%	1.5	4.6	92%	4	2.83333
Shrub canopy cover	**1**	0	0%	0	2	200%	5	10.5	1050%	3	0	0%	0	0	0%	0	0	0%	0	1.33333
Native grass cover	**43**	4	9%	0	52.8	123%	5	13.2	31%	1	38.4	89%	3	35	81%	3	63.6	148%	5	2.83333
Organic litter	**20**	79.4	397%	3	19.4	97%	5	65.6	328%	3	32.2	161%	5	21.2	106%	5	33.6	168%	5	4.33333
Large trees (euc plus non-euc)	**26**	8	31%	5	10	38%	5	28	108%	5	4	15%	5	14	54%	5	16	62%	5	5
Coarse woody debris	**384**	202	53%	5	90	23%	2	1560	406%	2	0	0%	0	116	30%	2	0	0%	0	1.83333
Non-native plant cover	**0**	2		10	15		5	15		5	10		5	10		5	10		5	5.83333
BioCondition Score	80			52			58			52			48.5			47.5			52	51.6667
Quality and availability of food and foraging habitat	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Quality and availability of shelter	10	5		5	10		10	10		10	10		10	10		10	10		10	9.16667
Site Condition Score - out of 3																				**2.13**
Site Context																				
Size of patch	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Connectivity	5	4		4	5		5	5		5	5		5	5		5	5		5	4.83333
Context	5	5		5	5		5	5		5	5		5	5		5	5		5	5
Ecological corridor	6	0		0	0		0	0		0	0		0	0		0	4		4	0.66667
Threats to species	15	15		15	15		15	15		15	15		15	15		15	15		15	15
Species mobility capacity	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Role of site location	5	1		1	1		1	1		1	1		1	1		1	1		1	1
Site Context Score				45			46			46			46			46			50	46.5
MAX Site Context Score																				*56*
Site Context Score - out of 3																				**2.49**

OFFSET - Fauna Species

Greater glider

Assessment Unit - Regional Ecosystem	AU 3 - 11.3.9 (remnant)				
Site Reference	**Benchmark**	IPEE4			Average
	11.3.9	Raw Data	% Benchmark	Score	Score
Site Condition					
Recruitment of woody perennial species in EDL	**100**	100	100%	5	5
Native plant species richness - trees	**5**	9	180%	5	5
Native plant species richness - shrubs	**6**	3	50%	3	3
Native plant species richness - grasses	**9**	4	44%	3	3
Native plant species richness - forbes	**9**	5	56%	3	3
Tree emergant height	**na**	-			
Tree canopy height	**18**	13.5	75%		
Tree canopy height subcanopy	**na**	5.5		5	5
Tree emergent cover	**na**	0			
Tree canopy cover	**28**	30.1	108%		
Tree canopy cover subcanopy	**na**	11		5	5
Shrub canopy cover	**1**	0	0%	0	0
Native grass cover	**34**	5.8	17%	1	1
Organic litter	**32**	11	34%	3	3
Large trees (euc plus non-euc)	**15**	4	27%	5	5
Coarse woody debris	**151**	65	43%	2	2
Non-native plant cover	**0**	10		5	5
BioCondition Score	80			45	45
Quality and availability of food and foraging habitat	10	10		10	10
Quality and availability of shelter	10	5		5	5
Site Condition Score - out of 3					**1.80**
Site Context					
Size of patch	10	10		10	10
Connectivity	5	5		5	5
Context	5	5		5	5
Ecological corridor	6	0		0	0
Threats to species	15	15		15	15
Species mobility capacity	10	10		10	10
Role of site location	5	1		1	1
Site Context Score				46	46
MAX Site Context Score					*56*
Site Context Score - out of 3					**2.46**

OFFSET - Fauna Species

Greater glider

Species Stocking Rate (SSR)					
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0	5		10
		No	Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10	15
		Not habitat	Dispersal	Foraging	Breeding
Role/importance of species population on site*	Score (Total from supplementary table below)	0	5	10	15
		0	5 - 15	20 - 35	40 - 45
Total SRR score (out of 40)					
SRR Score (out of 10)					

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

Final habitat quality score (weighted)	**AU1**	**AU2**	**AU3**	**Average/Final**
Site Condition score (out of 3)	2.09	2.13	1.80	2.00
Site Context Score (out of 3)	2.51	2.49	2.46	2.49
Species Stocking Rate Score (out of 4)	1.00	1.00	1.00	1.00
Habitat Quality score (out of 10)	*5.60*	*5.62*	*5.26*	*5.49*
Assessment Unit area (ha)	571.0	253.0	15.0	
Total offset area (ha)	839.0	839.0	839.0	
Size Weighting	0.68	0.30	0.02	
Weighted Habitat Quality Score	***3.81***	***1.69***	***0.09***	***5.60***

OFFSET - Fauna Species

Squatter pigeon

Assessment Unit - Regional Ecosystem	AU 1 - 11.12.1 (remnant)											
Site Reference	**Benchmark**	IPEE1			IPEE2			IPEE3			IPEE6	
	11.12.1	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark
Site Condition												
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	100	100%	5	100	100%
Native plant species richness - trees	**3**	4	133%	5	4	133%	5	7	233%	5	5	167%
Native plant species richness - shrubs	**6**	2	33%	3	2	33%	3	1	17%	2.5	9	150%
Native plant species richness - grasses	**8**	8	100%	5	4	50%	3	4	50%	3	8	100%
Native plant species richness - forbes	**8**	13	163%	5	1	13%	2.5	4	50%	3	25	313%
Tree emergant height	**na**	-			-			-			-	
Tree canopy height	**15**	12	80%		13.5	90%		15	100%		11.5	77%
Tree canopy height subcanopy	**10**	5.5	55%	4	5.5	55%	4	7	70%	5	6.75	68%
Tree emergent cover	**na**	0			0			0			0	
Tree canopy cover	**35**	31.8	91%		34	97%		23.1	66%		29.5	84%
Tree canopy cover subcanopy	**7**	0	0%	2.5	1.5	21%	3.5	10.8	154%	5	12	171%
Shrub canopy cover	**4**	0	0%	0	3	75%	5	0.3	8%	0	3.5	88%
Native grass cover	**41**	44	107%	5	36.8	90%	3	26	63%	3	70	171%
Organic litter	**28**	26.2	94%	5	7.4	26%	3	5	18%	3	15	54%
Large trees (euc plus non-euc)	**20**	4	20%	5	12	60%	5	4	20%	5	16	80%
Coarse woody debris	**408**	0	0%	0	180	44%	2	55	13%	2	160	39%
Non-native plant cover	**0**	10		5	15		5	10		5	15	
BioCondition Score	80			50			49			46.5		
Quality and availability of food and foraging habitat	10	5		5	5		5	5		5	5	
Quality and availability of shelter	10	5		5	5		5	5		5	5	
Site Condition Score - out of 3												
Site Context												
Size of patch	10	10		10	10		10	10		10	10	
Connectivity	5	4		4	5		5	5		5	5	
Context	5	5		5	5		5	5		5	5	
Ecological corridor	6	0		0	0		0	0		0	4	
Threats to species	15	1		1	1		1	1		1	7	
Species mobility capacity	10	15		15	15		15	15		15	15	
Role of site location	5	1		1	1		1	1		1	1	
Site Context Score				36			37			37		
MAX Site Context Score												
Site Context Score - out of 3												

OFFSET - Fauna Species

Squatter pigeon

Assessment Unit - Regional Ecosystem														
Site Reference		IPEE7			IPEE10			IPEE11			IPEE14			Average
	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Score
Site Condition														
Recruitment of woody perennial species in EDL	5	100	100%	5	100	100%	5	100	100%	5	100	100%	5	5
Native plant species richness - trees	5	6	200%	5	8	267%	5	3	100%	5	7	233%	5	5
Native plant species richness - shrubs	5	2	33%	3	7	117%	5	4	67%	3	5	83%	3	3.4375
Native plant species richness - grasses	5	6	75%	3	8	100%	5	9	113%	5	5	63%	3	4
Native plant species richness - forbes	5	17	213%	5	20	250%	5	19	238%	5	26	325%	5	4.4375
Tree emergant height		-			-			-			-			
Tree canopy height		14	93%		12.75	85%		12	80%		10.75	72%		
Tree canopy height subcanopy	4	5.5	55%	4	6	60%	4	5.5	55%	4	6	60%	4	4.125
Tree emergent cover		0			0			0			0			
Tree canopy cover		48.7	139%		51.5	147%		62.3	178%		43.5	124%		
Tree canopy cover subcanopy	5	2.7	39%	3.5	21.5	307%	4	5.2	74%	5	7	100%	5	4.1875
Shrub canopy cover	5	0	0%	0	3.5	88%	5	0	0%	0	0.5	13%	3	2.25
Native grass cover	5	25	61%	3	83.6	204%	5	46	112%	5	7	17%	1	3.75
Organic litter	5	18	64%	5	9.4	34%	3	23.8	85%	5	43.4	155%	5	4.25
Large trees (euc plus non-euc)	5	4	20%	5	18	90%	5	2	10%	5	16	80%	5	5
Coarse woody debris	2	139	34%	2	325	80%	5	0	0%	0	250	61%	5	2.25
Non-native plant cover	5	15		5	15		5	5		5	15		5	5
BioCondition Score	61			48.5			61			52			54	52.6875
Quality and availability of food and foraging habitat	5	5		5	5		5	5		5	5		5	5
Quality and availability of shelter	5	5		5	5		5	5		5	5		5	5
Site Condition Score - out of 3														**1.88**
Site Context														
Size of patch	10	10		10	10		10	10		10	10		10	10
Connectivity	5	5		5	5		5	5		5	5		5	4.875
Context	5	5		5	5		5	5		5	5		5	5
Ecological corridor	4	0		0	0		0	0		0	4		4	1
Threats to species	7	1		1	1		1	7		7	1		1	2.5
Species mobility capacity	15	15		15	15		15	15		15	15		15	15
Role of site location	1	1		1	1		1	1		1	1		1	1
Site Context Score	47			37			37			43			41	39.375
MAX Site Context Score														*56*
Site Context Score - out of 3														**2.11**

OFFSET - Fauna Species

Squatter pigeon

Assessment Unit - Regional Ecosystem	AU 2 - 11.3.4 (remnant)																			
Site Reference	**Benchmark**	IPEE5			IPEE8			IPEE9			IPEE12			IPEE13			IPEE15			Average
	11.3.4	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Score
Site Condition																				
Recruitment of woody perennial species in EDL	**100**	100	100%	5	100	100%	5	80	80%	5	100	100%	5	100	100%	5	100	100%	5	5
Native plant species richness - trees	**4**	19	475%	5	9	225%	5	15	375%	5	18	450%	5	6	150%	5	6	150%	5	5
Native plant species richness - shrubs	**2**	2	100%	5	9	450%	5	7	350%	5	4	200%	5	1	50%	3	2	100%	5	4.66667
Native plant species richness - grasses	**7**	4	57%	3	6	86%	3	8	114%	5	11	157%	5	10	143%	5	8	114%	5	4.33333
Native plant species richness - forbes	**10**	16	160%	5	25	250%	5	15	150%	5	23	230%	5	18	180%	5	14	140%	5	5
Tree emergant height	**na**	-			-			-			-			-			-			
Tree canopy height	**22**	13	59%		18.75	85%		18.5	84%		14	64%		13	59%		15	68%		
Tree canopy height subcanopy	**12**	5.5	46%	3	10	83%	5	10.75	90%	5	5.5	46%	3	5.5	46%	3	6.5	54%	3	3.66667
Tree emergent cover	**na**	0			0			0			0			0			0			
Tree canopy cover	**17**	61.6	362%		48.5	285%		69	406%		66.4	391%		55.6	327%		87.1	512%		
Tree canopy cover subcanopy	**5**	25	500%	3	22.5	450%	3	56	1120%	3	1.5	30%	2.5	0	0%	1.5	4.6	92%	4	2.83333
Shrub canopy cover	**1**	0	0%	0	2	200%	5	10.5	1050%	3	0	0%	0	0	0%	0	0	0%	0	1.33333
Native grass cover	**43**	4	9%	0	52.8	123%	5	13.2	31%	1	38.4	89%	3	35	81%	3	63.6	148%	5	2.83333
Organic litter	**20**	79.4	397%	3	19.4	97%	5	65.6	328%	3	32.2	161%	5	21.2	106%	5	33.6	168%	5	4.33333
Large trees (euc plus non-euc)	**26**	8	31%	5	10	38%	5	28	108%	5	4	15%	5	14	54%	5	16	62%	5	5
Coarse woody debris	**384**	202	53%	5	90	23%	2	1560	406%	2	0	0%	0	116	30%	2	0	0%	0	1.83333
Non-native plant cover	**0**	2		10	15		5	15		5	10		5	10		5	10		5	5.83333
BioCondition Score	80			52			58			52			48.5			47.5			52	51.6667
Quality and availability of food and foraging habitat	10	5		5	5		5	5		5	5		5	5		5	5		5	5
Quality and availability of shelter	10	5		5	5		5	5		5	5		5	5		5	5		5	5
Site Condition Score - out of 3																				**1.85**
Site Context																				
Size of patch	10	10		10	10		10	10		10	10		10	10		10	10		10	10
Connectivity	5	4		4	5		5	5		5	5		5	5		5	5		5	4.83333
Context	5	5		5	5		5	5		5	5		5	5		5	5		5	5
Ecological corridor	6	0		0	0		0	0		0	0		0	0		0	4		4	0.66667
Threats to species	15	1		1	1		1	1		1	1		1	1		1	1		1	1
Species mobility capacity	10	15		15	15		15	15		15	15		15	15		15	15		15	15
Role of site location	5	1		1	1		1	1		1	1		1	1		1	1		1	1
Site Context Score				36			37			37			37			37			41	37.5
MAX Site Context Score																				*56*
Site Context Score - out of 3																				**2.01**

OFFSET - Fauna Species

Squatter pigeon

Assessment Unit - Regional Ecosystem	AU 3 - 11.3.9 (remnant)				
Site Reference	**Benchmark**	IPEE4			Average
	11.3.9	Raw Data	% Benchmark	Score	Score
Site Condition					
Recruitment of woody perennial species in EDL	**100**	100	100%	5	5
Native plant species richness - trees	**5**	9	180%	5	5
Native plant species richness - shrubs	**6**	3	50%	3	3
Native plant species richness - grasses	**9**	4	44%	3	3
Native plant species richness - forbes	**9**	5	56%	3	3
Tree emergant height	**na**	-			
Tree canopy height	**18**	13.5	75%		
Tree canopy height subcanopy	**na**	5.5		5	5
Tree emergent cover	**na**	0			
Tree canopy cover	**28**	30.1	108%		
Tree canopy cover subcanopy	**na**	11		5	5
Shrub canopy cover	**1**	0	0%	0	0
Native grass cover	**34**	5.8	17%	1	1
Organic litter	**32**	11	34%	3	3
Large trees (euc plus non-euc)	**15**	4	27%	5	5
Coarse woody debris	**151**	65	43%	2	2
Non-native plant cover	**0**	10		5	5
BioCondition Score	80			45	45
Quality and availability of food and foraging habitat	10	5		5	5
Quality and availability of shelter	10	5		5	5
Site Condition Score - out of 3					**1.65**
Site Context					
Size of patch	10	10		10	10
Connectivity	5	5		5	5
Context	5	5		5	5
Ecological corridor	6	0		0	0
Threats to species	15	1		1	1
Species mobility capacity	10	15		15	15
Role of site location	5	1		1	1
Site Context Score				37	37
MAX Site Context Score					*56*
Site Context Score - out of 3					**1.98**

OFFSET - Fauna Species

Squatter pigeon

Species Stocking Rate (SSR)						
Presence detected on or adjacent to site (neighbouring property with connecting habitat)	Score	0		5		10
		No		Yes - adjacent		Yes - on site
Species usage of the site (habitat type & evidenced usage)	Score	0	5	10		15
		Not habitat	Dispersal	Foraging		Breeding
Role/importance of species population on site*	Score (Total from supplementary table below)	0	5		10	15
		0	5 - 15		20 - 35	40 - 45
Total SRR score (out of 40)						
SRR Score (out of 10)						

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

Final habitat quality score (weighted)	**AU1**	**AU2**	**AU3**	**Average/Final**
Site Condition score (out of 3)	1.88	1.85	1.65	1.79
Site Context Score (out of 3)	2.11	2.01	1.98	2.03
Species Stocking Rate Score (out of 4)	1.00	1.00	1.00	1.00
Habitat Quality score (out of 10)	*4.99*	*4.86*	*4.63*	*4.83*
Assessment Unit area (ha)	571.0	253.0	15.0	
Total offset area (ha)	839.0	839.0	839.0	
Size Weighting	0.68	0.30	0.02	
Weighted Habitat Quality Score	***3.40***	***1.47***	***0.08***	***4.94***