Appendix B

Contemporary baseline ecological values report

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Eva Copper Mine

EVA COPPER MINE PROJECT

Contemporary Baseline Ecological Values Report

EVAMP001-EMM-EN-RE-0031

Eva Copper Mine Project

Contemporary Baseline Ecological Values Report EVAMP001-EMM-EN-REP-0031

Eva Copper Mine Pty Ltd

E260387 RP1

August 2026

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Executive summary

EMM Consulting Pty Ltd (EMM) was commissioned by Eva Copper Mine Pty Ltd (ECMPL) to undertake a comprehensive assessment of the contemporary ecological values within the Eva Copper Mine Project (the Project) in North West Queensland. The purpose of this report is to establish an up-to-date ecological baseline for the Project Area by consolidating previous investigations with contemporary field surveys undertaken between 2021 and 2026. The report provides a single, integrated description of the terrestrial and aquatic ecological values of the Project Area and forms the baseline to inform Project decision making and against which potential environmental impacts of the Project can be assessed.

The Project Area encompasses approximately 14,285 hectares (ha) and supports a diverse range of vegetation communities, fauna habitats, watercourses and groundwater-dependent ecosystems representative of the semi-arid landscapes of North West Queensland. Ecological values within the Project Area have been characterised through desktop assessments, habitat mapping, targeted threatened species surveys, vegetation community mapping, flora and fauna surveys, aquatic ecology investigations, groundwater dependent ecosystem (GDE) assessments and stygofauna sampling. Survey methodologies were undertaken in accordance with relevant Queensland and Commonwealth guidelines.

Ecological surveys identified a range of biodiversity values within the Project Area, including remnant vegetation, riparian ecosystems, watercourses supporting aquatic fauna, groundwater-dependent ecosystems and habitat suitable for a number of threatened flora and fauna species protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Queensland *Nature Conservation Act 1992* (NC Act). Contemporary surveys confirmed the presence of several threatened species, together with a range of other conservation significant flora and fauna. Habitat modelling and mapping were completed for all threatened species assessed as having a moderate or greater likelihood of occurrence to support subsequent impact assessment and avoidance and mitigation measures.

Collectively, the investigations provide a robust and contemporary understanding of the distribution, condition and extent of ecological values across the Project Area. The information presented in this report provides the foundation for the Project's ecological impact assessment, informs environmental management and mitigation measures, supports regulatory approvals, and establishes the benchmark against which future monitoring and environmental performance can be assessed throughout the life of the Project.

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1 Introduction

1.1 Background

The Eva Copper Mine Project (the Project) is a large-scale open cut copper mining operation located in North West Queensland within the North West Queensland Minerals Province. The Project is owned by Eva Copper Mine Pty Ltd (ECMPL), a wholly owned subsidiary of Harmony Gold Mining Company Limited (Harmony). Harmony is a global, sustainable gold and copper mining and exploration company. The Project, which will be the biggest copper mine in Queensland by volume, is a strategically significant project for Australia's sovereign copper supply chain and domestic processing capacity at a time when global copper demand continues to rise.

The Project involves the extraction and processing of approximately 265 million tonnes (Mt) of sulphide and native copper ore with processing rates of up to 20 million tonnes per annum (Mtpa). Mining will occur across multiple open pit mining areas supported by associated infrastructure including waste rock dumps (WRDs), a tailings storage facility (TSF), ore stockpiles, processing infrastructure, water supply infrastructure, mine water management systems, access roads, ancillary facilities and accommodation infrastructure.

The Project has been designed to support the long-term production of copper concentrate and will contribute to Queensland's critical minerals supply chain and regional economic development. On 25 March 2024, the Project was declared a Prescribed Project under section 76E of the *State Development and Public Works Organisation Act 1971* (SDPWO Act) as it represents a significant investment into the local and regional economies of North-West Queensland. The Project Declaration was extended on 11 March 2026.

1.2 Project Area

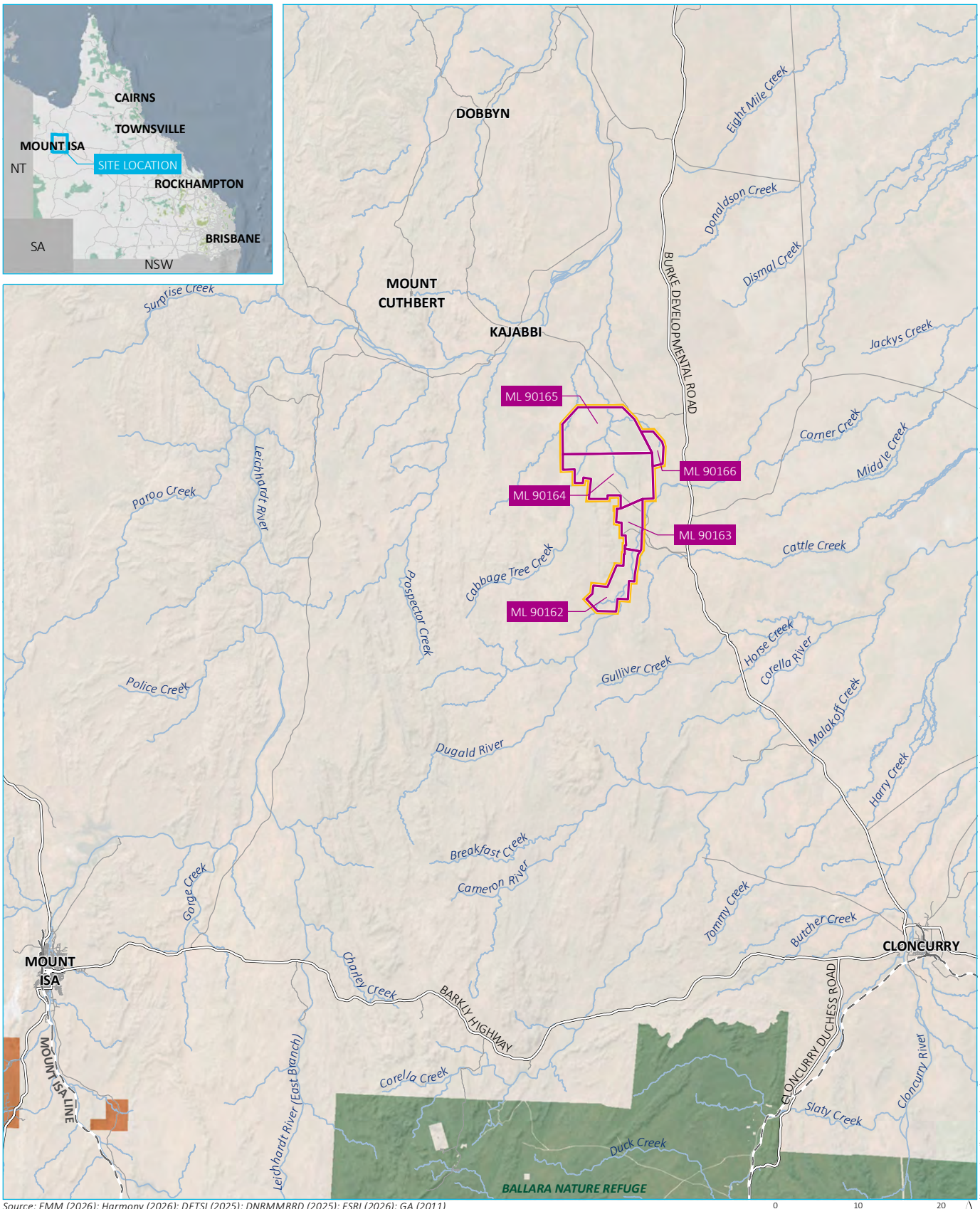
The Project Area is located in North West Queensland, approximately 75 kilometres (km) north-west of Cloncurry on the traditional lands of the Kalkadoon People. The Project Area aligns with Mining Lease (ML) 90162, ML90163, ML90164, ML90165 and ML90166 as illustrated on Figure 1.1.

The Project Area falls within the Cloncurry Shire Council local government area (LGA) and is zoned 'Rural' under the *Cloncurry Shire Planning Scheme 2016*. Land uses within the region surrounding the Project Area include mining activities and cattle grazing.

The Project Area is located in a remote and predominantly uninhabited area with no population centres within 40 km of the Project Area.

The Project Area is situated across the following pastoral lease holdings:

- Roseby Station/Carsland (Harold Henry McMillan)
- Coolullah Station (North Australian Pastoral Company [NAPCo]).



Source: EMM (2026); Harmony (2026); DETSI (2025); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 10 20 km

GDA 1994 MGA Zone 54

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KEY

- Project area (boundary offset for clarity)
- Mining lease

Existing environment

- Rail line
- Major road
- Minor road
- Named watercourse
- Nature reserve
- Timber reserve

INSET KEY

- Major road
- National park
- State forest

Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 1.1

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1.3 Project overview

The Project is proposed to extract up to 265 Mt of sulphide and native copper ore, with an annual average extraction rate of 15.6 Mtpa. Mining will be undertaken using conventional drill and blast and truck and shovel mining methods.

Ore extraction will occur across six deposits referred to as:

- Little Eva
- Turkey Creek
- Blackard
- Bedford
- Scanlan
- Lady Clayre.

Extracted run-of-mine (ROM) ore will be transported by truck from the open cut mining pits via internal haul roads to a ROM stockpile for processing. Up to 20 Mtpa of ore is proposed to be processed through the Project's processing plant infrastructure.

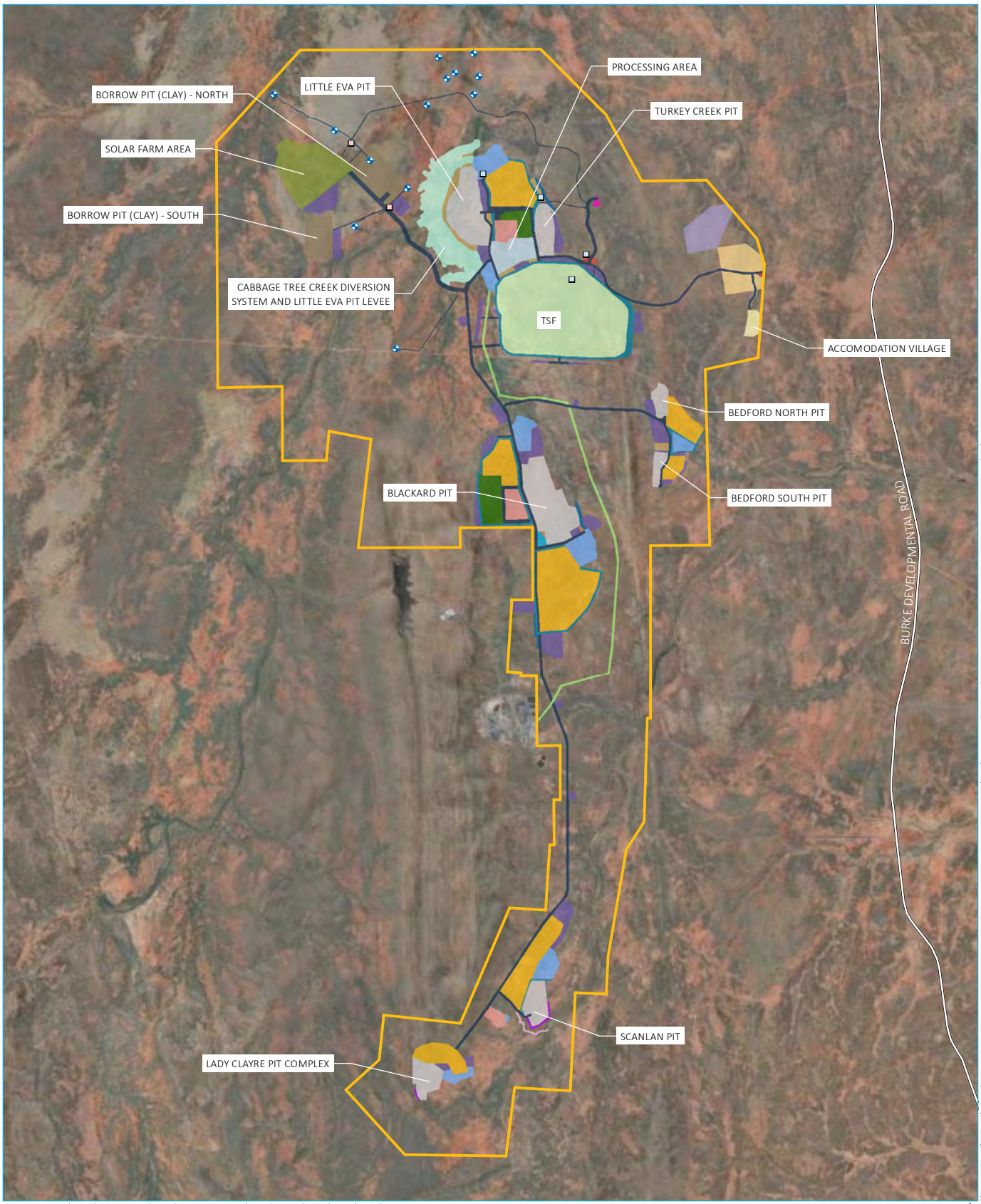
The Project results in the generation of approximately 422 Mt of waste rock from the mining areas to facilitate ore extraction. Waste rock that is non-acid forming (NAF) is will be used in the construction of some on-site infrastructure with surplus waste rock stored in WRDs.

A two-cell TSF with a total ultimate footprint of 512 hectares (ha) and with the capacity to accommodate up to 300 Mt of tailings is proposed to be constructed within the Project Area.

The Project proposes the construction and operation of ancillary infrastructure to support mining operations including:

- an on-site hybrid power solution comprising a diesel based thermal power station, solar farm and Battery Energy Storage System
- watercourse diversions
- material borrow pits
- magazine and explosives facility
- laydown areas
- powerlines
- accommodation facility
- borefields and pipelines for water supply.

The key components of the Project are illustrated in Figure 1.2.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Major road

Project layout

- Pit
- Waste rock dump
- TSF
- Topsoil stockpile
- ROM stockpile
- LGO Stockpile
- Accommodation village
- Solar farm
- Processing area
- Ancillary infrastructure
- Magazine/explosives storage
- Laydown
- Bund
- Levee
- Clean water dam
- Mine affected water dam
- Clean water drain
- Mine affected water drain
- Cabbage Tree Creek diversion and buffer lands
- Diversion
- Borrow pit (clay)
- Borrow pit area (concrete aggregate)
- Borrow pit area (construction)
- Powerline easement
- Roads, tracks and infrastructure easement
- Turkeys nest
- Pump station
- Production bore

Project layout

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 1.2

EMM creating opportunities

1.4 Purpose of this report

EMM Consulting Pty Ltd (EMM) has been commissioned by ECMPL to undertake ecological assessments to evaluate the contemporary baseline ecological values of the Project Area.

The purpose of this report is to provide an up-to-date characterisation of the ecological values within the Project Area. The report consolidates the findings of previous and contemporary ecological investigations and datasets to demonstrate survey extent and adequacy, and establish the current environmental baseline against which potential Project impacts can be assessed.

The report serves as a benchmark for future environmental monitoring and assessment by documenting the current condition, distribution, and ecological function of environmental values within the Project Area. This baseline will enable the measurement of environmental change over time and facilitate the assessment of Project performance against environmental objectives, management measures, and regulatory requirements throughout the life of the Project.

1.5 Project terminology

Key terms are used throughout this assessment to describe the Project, with terminology and description detailed below in Table 1.1.

Table 1.1 Terminology and associated descriptions used in this report

Terminology	Description
The Project	The Eva Copper Mine Project
Project Area	Area encompassing approved ML 90162, ML90163, ML90164, ML90165 and ML90166 as illustrated on Figure 1.2.
Disturbance footprint	The area encompassing all surface disturbance activities associated with the Project encompassing 3,217 ha.
Primary Study Area	A 20 km buffer surrounding the Project Area.
Secondary Study Area	A larger 50 km buffer surrounding the Project Area.

2 Existing environment

2.1 Introduction

The Project is located in North West Queensland, approximately 75 km north-west of Cloncurry within the Cloncurry Shire local government area and on the traditional lands of the Kalkadoon People.

The Project Area occurs within a remote rural landscape characterised by mining and pastoral land uses. The Project Area lies within the Flinders and Leichhardt catchments and forms part of the broader semi-arid to seasonally tropical environment of North West Queensland.

2.2 Climate

Rainfall statistics from the Cloncurry Airport weather station (029141) were accessed via the Bureau of Meteorology (BoM) website. The station records a long-term average annual rainfall of 517.3 millimetres (mm), with annual totals historically ranging from 117.4 mm to 996.8 mm (BoM 2026). This variability is characteristic of the semi-arid to seasonally tropical climate of North West Queensland.

Average monthly rainfall (refer Figure 2.1) is highest between December and March, with January typically the wettest month, receiving approximately 149.7 mm of rainfall on average. Rainfall then declines rapidly through autumn, with monthly averages generally below 10 mm from May to September.

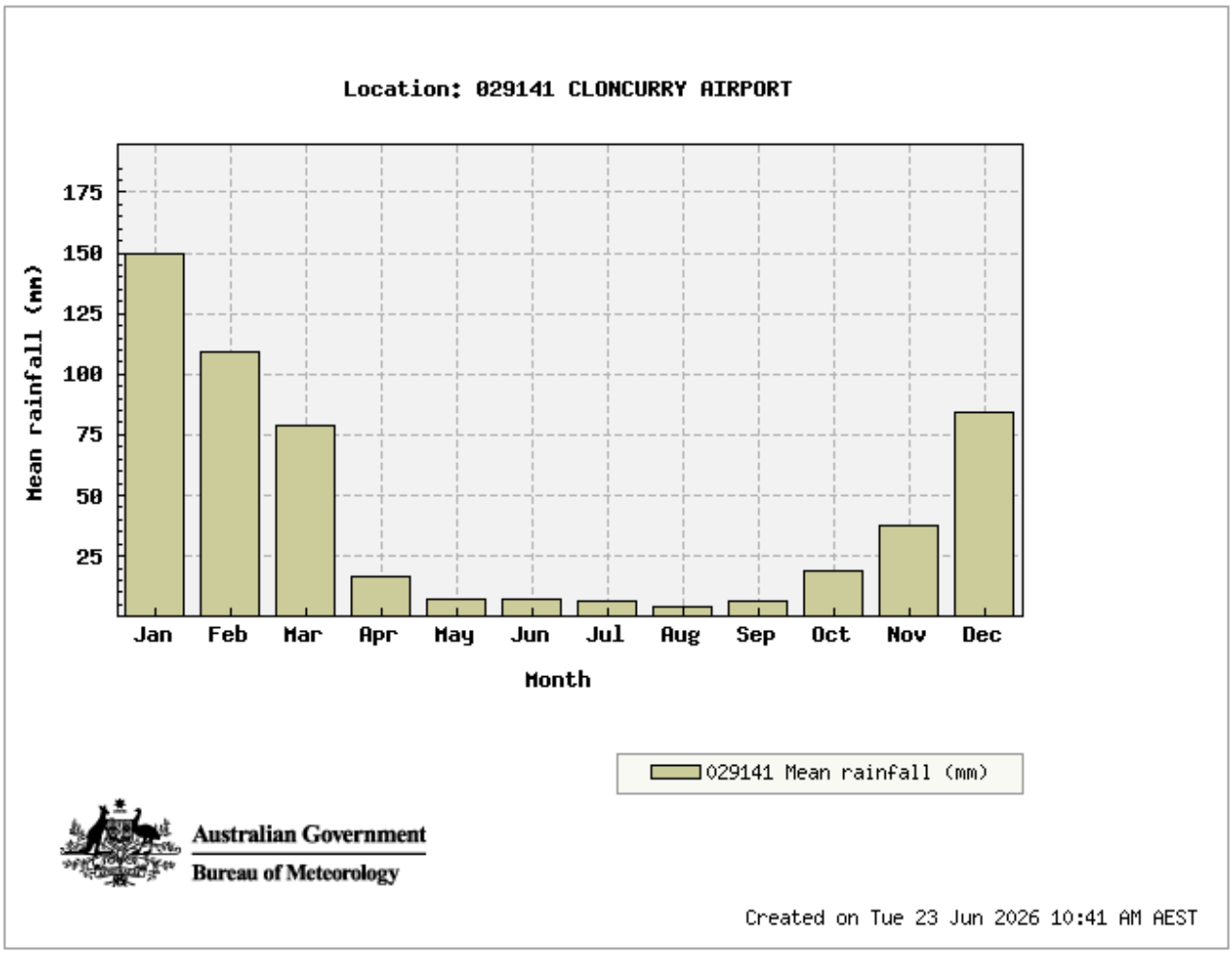


Figure 2.1 Average monthly rainfall Cloncurry Airport weather station (029141) 1978-2026

The climate of the Project Area is characterised by distinct wet and dry seasons, with the majority of rainfall typically occurring between November and April. Rainfall patterns are highly variable both within and between years, with the timing, intensity and spatial distribution of rainfall influenced by seasonal monsoonal activity and broader climatic drivers such as El Niño-Southern Oscillation cycles.

This climatic variability strongly influences hydrological conditions across the Project Area. Higher intensity wet season rainfall can generate substantial runoff and episodic flow within ephemeral drainage systems, while prolonged dry periods are typically characterised by limited runoff, reduced surface water connectivity and increased infiltration and evaporation losses.

2.3 Topography

The Project Area comprises gently undulating plains and broad valleys interspersed with low ridges and localised rocky outcrops. Surface elevations generally range from approximately 170 m Australian height datum (AHD) across lower lying plains to approximately 300 m AHD along elevated strike ridges and rock outcrop systems.

2.4 Geology

The Project Area is located within the Proterozoic rocks of the Mount Isa Province. Most of the Project Area is situated within the Mary Kathleen domain which largely comprises metamorphosed marine sedimentary and volcanic rocks with numerous granite and mafic intrusions. The Project Area falls within the following land zones (QLD Government 2024):

- Land Zone 3 – Recent Quaternary alluvial systems, including closed depressions, paleo-estuarine deposits currently under freshwater influence, inland lakes and associated wave-built lunettes.
- Land Zone 4 – Tertiary-early Quaternary clay deposits, typically forming level to gently undulating plains that are not associated with recent alluvial systems. These areas are predominantly formed on paleo-clay deposits rather than active floodplains
- Land Zone 5 – Tertiary-early Quaternary extensive, uniform near level or gently undulating plains with sandy or loamy soils. Includes dissected remnants of these surfaces. Also includes plains with sandy or loamy soils of uncertain origin, and plateau remnants with moderate to deep soils usually overlying duricrust.
- Land Zone 11 – Metamorphosed rocks, forming ranges, hills and lowlands. Primarily lower Permian and older sedimentary formations which are generally moderately to strongly deformed. Includes low- to high-grade and contact metamorphics such as phyllites, slates, gneisses of indeterminate origin and serpentinite, and interbedded volcanics, corresponding to recent Quaternary alluvial systems with unconsolidated sediments.

A distinct geological transition in the north-west of the Project Area likely influences vegetation and soil characteristics. The north-west area supports tertiary and quaternary alluvium geology and a mix of vertosol and dermosol soils where the moisture holding capacity in this area is generally higher due to the type of soil and geology composition. This area hosts shallow groundwater, with the aquifer responding to seasonal recharge from rainfall and connected to surface water systems. As a result, water levels increase during the wet season.

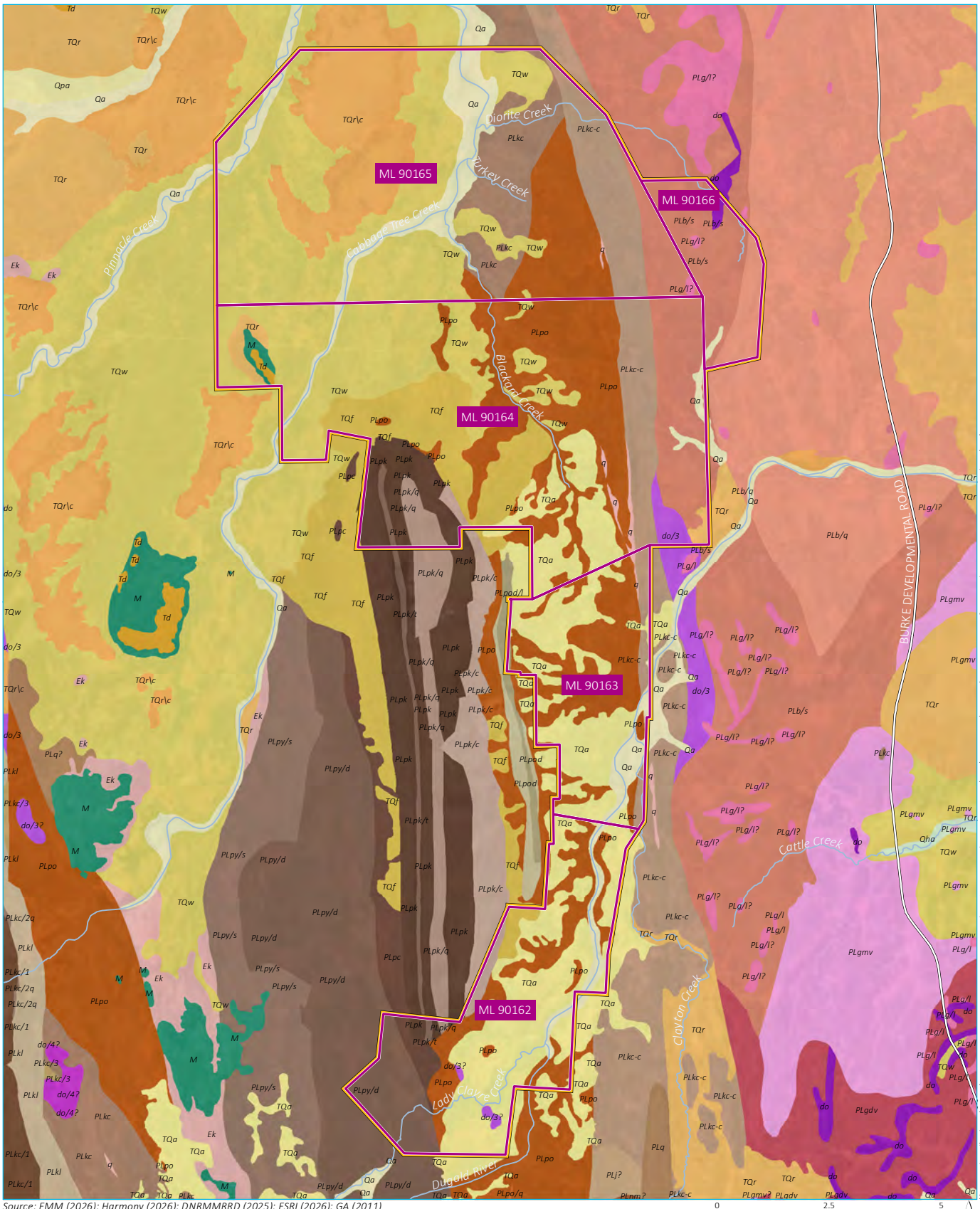
The geological setting of the Project Area is illustrated in Figure 2.2.

2.5 Soils

Soil mapping across the Project Area based on soil surveys commissioned by ECMPL shows it to contain five distinct soil types (Figure 2.3). Soil descriptions below follow the Australian Soil Classification (Isbell 2021), supported by general characteristics described by the Queensland Government (2024).

- Grey Epipedal Vertosol (Burke): Primarily located in the north of the Project Area and comprise heavy cracking clay soils that retain moisture and are often seasonally waterlogged, supporting ephemeral water sources, dense groundcover and low growing vegetation.
- Brown Clastic Lithosolic Rudosol (Barkly): Covering much of the Project Area, these soils are very shallow and rocky overlying hard rock, typically supporting sparse vegetation.
- Brown Clastic Colluvic Rudosol (Knapdale): Restricted mostly to the rocky slopes to the west of the Project Area, these are shallow, rocky soils with patchy plant growth.
- Red Dystrophic Dermosol (Julius): Only a small area of this soil type is present in the centre of the Project Area. These soils are relatively low fertility soils that tend to support patchy grass and vegetation growth.
- Red Eutrophic Dermosol (Malako): This soil type is common through the north-west and central portions of the Project Area. They are relatively fertile soils that support dense grasses and understorey vegetation.

These soil types influence vegetation distribution, drainage behaviour and habitat structure across the Project Area.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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GDA 1994 MGA Zone 54

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KEY

- Project area (boundary offset for clarity)
- Mining lease

Existing environment

- Major road
- Named watercourse

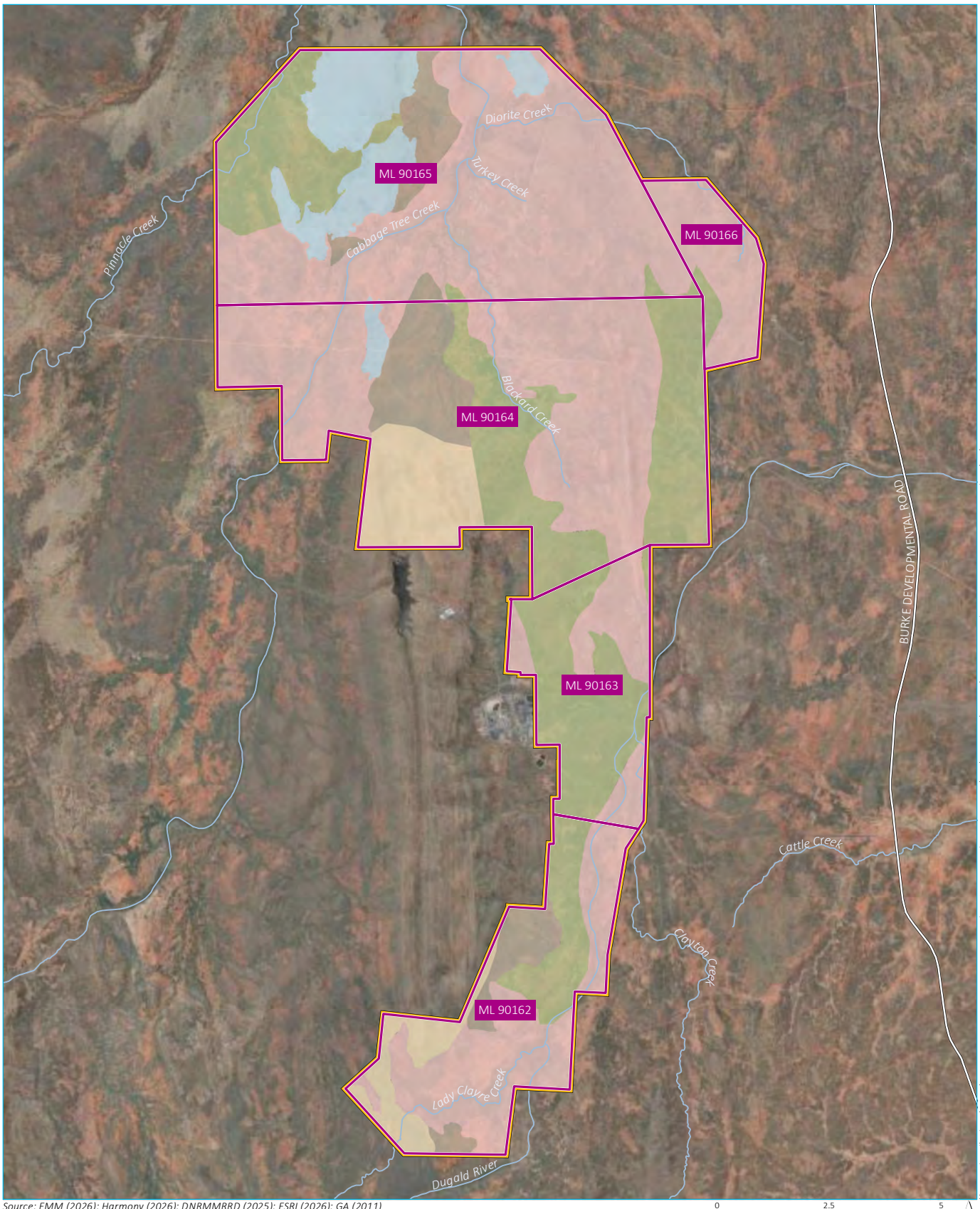
Surface geology

- Boomarra Metamorphics/q (PLb/q)
- Boomarra Metamorphics/s (PLb/s)
- Coocerina Formation (PLpc)
- Corella Formation (PLkc)
- Corella Formation-c (PLkc-c)
- Corella Formation/1 (PLkc/1)
- Corella Formation/2q (PLkc/2q)
- Corella Formation/3 (PLkc/3)
- Dipvale Granodiorite (PLgdv)
- Dugald River Shale Member (PLpod)
- Dugald River Shale Member/l (PLpod/l)
- Kajabbi Formation (Ek)
- Knapdale Quartzite (PLpk)
- Knapdale Quartzite/c (PLpk/c)
- Knapdale Quartzite/q (PLpk/q)
- Knapdale Quartzite/t (PLpk/t)
- Lady Clayre Formation/d (PLpy/d)
- Lady Clayre Formation/s (PLpy/s)
- Lime Creek Metabasalt Member (PLkl)
- M-MI (M)
- Malakoff Granite (PLgwm)
- Mavis Granodiorite (PLgmv)
- Mavis Granodiorite? (PLgmv?)
- Mitakoodi Quartzite? (PLnm?)
- Mount Roseby Schist (PLpo)
- Mount Roseby Schist/q (PLpo/q)
- Overhang Jaspilite? (PLj?)
- PLg/l-MI (PLg/l)
- PLg/l?-MI (PLg/l?)
- Qa-QLD (Qa)
- Qha-QLD (Qha)
- Qpa-QLD (Qpa)
- Quamby Conglomerate (PLq)
- Quamby Conglomerate? (PLq?)
- TQa-QLD (TQa)
- TQf-QLD (TQf)
- TQr-QLD (TQr)
- TQr\c-QLD (TQr\c)
- Td-QLD (Td)
- Wondoola beds (TQw)
- do-MI (do)
- do/3-MI (do/3)
- do/3?-MI (do/3?)
- do/4?-MI (do/4?)
- q-MI (q)

Geological setting of the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 2.2

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

Project area (boundary offset for clarity)

Mining lease

Existing environment

Major road

Named watercourse

Soil management unit

Barkly

Burke

Julius

Knapdale

Malako

Soil mapping within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 2.3

EMM creating opportunities

2.6 Surface water

The Project Area is located within the Flinders and Leichhardt catchments and contains numerous ephemeral drainage systems that ultimately discharge to Cabbage Tree Creek and Dugald River. This is a consequence of the streams being in a climate zone with seasonal rainfall and being in the upper reaches of the catchments, which means they have limited reporting catchment. Ephemeral streams will typically only experience surface water flow during or immediately after heavy or sustained rainfall events (i.e. summer wet season). Following periods of flow, surface water will persist in the form of non-flowing, disconnected pools separated by dry/exposed stream bed.

Cabbage Tree Creek is an ephemeral stream order 5 watercourse traversing the northern ML whilst adjacent to the Little Eva pit location. Dugald River is a stream order 5 watercourse located approximately 1.5 km east of the nearest direct disturbance area. Numerous smaller stream order 1 to 3 drainage features also occur throughout the Project Area.

Mapped watercourses across the Project Area are illustrated in Figure 2.4.

Baseline surface water quality within the Project Area has been characterised using historical monitoring data collected by ECMPL and supplemented by regional datasets from nearby monitoring programs, including the Dugald River system. These data provide a representative understanding of background water quality conditions within key receiving waters, including Cabbage Tree Creek and the upper Dugald River.

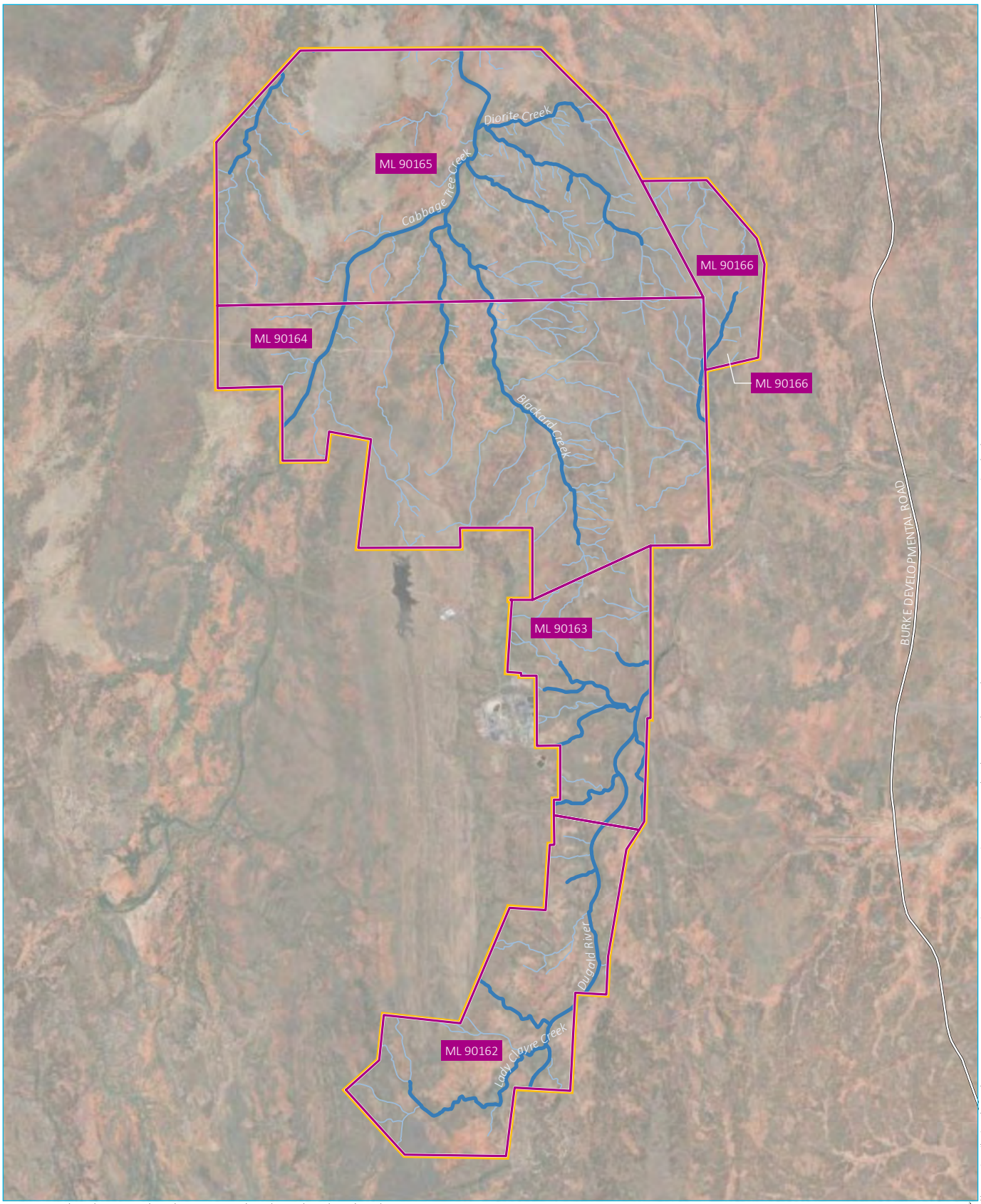
Surface water quality within the Project Area is strongly influenced by the ephemeral nature of local waterways, with flow typically occurring during the wet season (December to March) and water persisting as isolated pools during the dry season. As a result, water quality exhibits high temporal variability, reflecting changes in flow conditions, evaporation, and catchment processes.

Salinity, expressed as total dissolved solids (TDS), is a key indicator of baseline water quality in the receiving environment. Analysis of available data indicates the following:

- Cabbage Tree Creek exhibits relatively low to moderate salinity, with median (P50) Total Dissolved Solid (TDS) concentrations of approximately 180 milligrams per litre (mg/L) and upper percentile (P90) concentrations of approximately 410 mg/L, with a maximum recorded value of 610 mg/L based on 52 samples collected between January 2015 and February 2025.
- Upper Dugald River displays similar but slightly more variable conditions, with median TDS concentrations of approximately 115 mg/L and P90 concentrations of approximately 470 mg/L, with a maximum recorded value of 670 mg/L based on 25 samples collected between May 2016 and February 2025.
- Lower Dugald River, used as a regional comparison, exhibits higher salinity levels, with median TDS concentrations of approximately 265 mg/L and P90 concentrations of approximately 810 mg/L, reflecting cumulative catchment influences over a larger drainage area.

These results indicate that surface waters within the Project Area are generally fresh to slightly brackish, with increasing salinity observed downstream and during periods of reduced flow. In addition to salinity, baseline water quality is characterised by:

- neutral to slightly alkaline pH, consistent with regional geology
- variable turbidity and suspended solids, particularly during flow events when sediments are mobilised
- naturally occurring metals and metalloids, reflecting the mineralised geological setting, with concentrations generally within expected background ranges.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area (boundary offset for clarity)
- Mining lease

Existing environment

- Major road

Watercourse determination

- Watercourse
- Drainage feature

Watercourses within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 2.4

EMM creating opportunities

2.7 Groundwater

The Project Area is located within the Gulf Water Plan area and overlies hydrogeological units associated with the Great Artesian Basin and other regional aquifers. Groundwater occurs within both shallow alluvial systems and deeper fractured rock aquifers, which together form the principal groundwater resources in the Project Area.

Two primary aquifer systems have been identified:

- **Alluvial aquifer (AQ1)**: A shallow, unconsolidated aquifer associated with creek lines and drainage features. Groundwater within this unit is typically unconfined and hydraulically connected to surface water systems. This aquifer supports baseflow contributions to local waterways and is the primary groundwater source for shallow-rooted vegetation and groundwater dependent ecosystems (GDEs).

- **Proterozoic fractured rock aquifer (AQ6)**: A deeper, regionally extensive aquifer hosted within fractured bedrock. Groundwater flow within this unit is structurally controlled, particularly by regional fault systems that influence groundwater movement and connectivity.

The Project proposes to extract non-associated groundwater from the Cambrian Kajabbi Formation within the Landsborough Graben. The target aquifers are not regulated under the *Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017* and do not form part of the regulated Great Artesian Basin groundwater management units. This regulatory position was confirmed by the Queensland Department of Local Government, Water and Volunteers on 31 March 2025. While regulated Great Artesian Basin management units, including the Wallumbilla and Gilbert River formations, occur within the broader region, the Project does not propose any direct extraction from these units. This conclusion is supported by an extensive hydrogeological investigation program comprising exploratory drilling, groundwater monitoring, aquifer testing, geological logging, palynological and petrographic analyses, geophysical investigations and groundwater modelling, which refined the hydrogeological conceptual model and confirmed the distribution and hydraulic characteristics of the target aquifers within the Landsborough Graben.

Within the Landsborough Graben structure present in the Action Area, groundwater behaviour is influenced by fault-bounded compartments, with connectivity between the alluvial and fractured rock aquifers varying spatially.

Project Area groundwater flow directions generally align with surface topography, with shallow groundwater flowing toward major drainage lines including Cabbage Tree Creek and the Dugald River system.

Under pre-development conditions, groundwater levels in the alluvial aquifer are shallow and closely aligned with surface water elevations along creek systems. Groundwater gradients generally follow topographic controls, with flow directed toward local drainage lines.

In the deeper fractured rock aquifer, groundwater flow is influenced by structural features, including major faults that act as preferential pathways or barriers to flow.

The groundwater system is considered relatively stable under baseline conditions, with recharge occurring primarily through rainfall infiltration and episodic streamflow events.

Baseline groundwater quality within the Project Area reflects natural geochemical conditions associated with the mineralised geological setting.

Groundwater within both the alluvial and fractured rock aquifers is generally characterised by:

- neutral to slightly alkaline pH

- moderate salinity, typical of semi-arid environments

- naturally occurring elevated concentrations of some metals, consistent with mineralised host rocks.

Site-specific groundwater quality values have been developed for both the alluvial aquifer (AQ1) and the fractured rock aquifer (AQ6), reflecting baseline conditions and providing a reference framework for impact assessment and monitoring.

The presence of naturally occurring metals is considered to be a function of the regional geology rather than anthropogenic influence. As such, baseline groundwater quality is variable across the Project Area and must be interpreted within the context of natural background conditions.

2.8 Biodiversity

2.8.1 Terrestrial ecology

The Project Area occurs within the Mount Isa Inlier and Armraynald Plains subregions of the North West Highlands and Gulf Plains bioregions respectively and supports a mosaic of woodland, grassland and riparian habitats characteristic of north-west Queensland.

Habitat diversity across the Project Area is strongly influenced by variation in topography, geology, soils and drainage patterns. The landscape comprises gently undulating plains and broad valleys dissected by ephemeral drainage systems, interspersed with strike ridges and rocky outcrop systems. This variation in landform and substrate supports a range of habitat types with differing structural complexity, floristic composition and fauna habitat values.

Vegetation predominantly comprises remnant low open woodland communities dominated by *Eucalyptus leucophylla*, *Eucalyptus leucophloia* and associated *Corymbia* species, with localised Acacia shrublands, spinifex grasslands and riparian woodland associated with ephemeral drainage features including Cabbage Tree Creek and its tributaries.

The drainage systems and associated riparian habitats provide important ecological connectivity across the Project Area and support increased habitat complexity, seasonal water availability and enhanced foraging opportunities for fauna. Rocky ridgelines and outcrop systems also provide sheltering habitat, while woodland and grassland communities support a range of mammal, reptile, bird and amphibian species typical of the broader regional landscape.

Vegetation condition across much of the Project Area remains broadly intact, although localised disturbance associated with historical exploration activities, grazing, pest species and fire is evident.

2.8.2 Groundwater Dependent Ecosystems

GDEs occur where vegetation communities, aquatic habitats or ecological processes rely wholly or partially on groundwater to persist. Within the Project Area, GDE values are most closely associated with the Dugald River, Cabbage Tree Creek and associated drainage features, where groundwater may contribute to the maintenance of riparian vegetation and refuge habitats during extended dry periods.

Riparian corridors support vegetation communities that are structurally distinct from the surrounding woodland and grassland landscapes and provide important habitat resources for a range of fauna species. Isolated waterholes and groundwater-supported habitats can function as drought refuges, maintaining ecological connectivity and supporting biodiversity through periods of reduced surface water availability. While groundwater dependence is expected to vary across the landscape, these habitats represent important ecological features within an otherwise seasonally dry environment.

2.8.3 Aquatic ecology

The Project Area occurs within the Flinders River catchment and contains a network of ephemeral and intermittent waterways, including the Dugald River, Cabbage Tree Creek and associated tributaries. Hydrological conditions are strongly influenced by seasonal rainfall patterns, with flow events typically occurring during the wet season and many watercourses contracting and disconnecting in drier periods.

Aquatic habitats within the Project Area comprise a range of environments including flowing channels during and post-wet season, ephemeral pools, and associated riparian zones. These habitats support native fish and macroinvertebrate communities characteristic of inland river systems of north-west Queensland. The aquatic communities present are adapted to naturally variable flow regimes and seasonal fluctuations in habitat availability that characterise semi-arid river systems throughout the region.

2.8.4 Pest Species and disturbance influences

The Project Area occurs within a landscape that has been influenced by both historical land use practices and natural ecological disturbance processes. Grazing activities, localised vegetation clearing and the presence of introduced flora and fauna have contributed to varying levels of habitat modification across parts of the Project Area.

Introduced fauna known to occur within the broader landscape include feral pigs, feral cats and cane toads, all of which have the potential to affect native species and habitat values through predation, competition, habitat disturbance and altered ecological processes. Introduced plant species are generally restricted to disturbed areas and drainage features, although Buffel Grass is widespread throughout parts of the region and has the potential to alter vegetation composition, fuel loads and fire behaviour.

Fire represents a key ecological process within the Project Area and surrounding landscape. Fire events influence vegetation structure, floristic composition, habitat complexity and resource availability for native fauna. The interaction between fire, rainfall variability and grazing pressure contributes to the dynamic nature of vegetation condition and habitat values across the region. Consequently, ecological communities within the Project Area are generally adapted to episodic disturbance and exhibit varying stages of post-disturbance recovery and regeneration.

3 Legislative context

3.1 Commonwealth legislation

3.1.1 *Environmental Protection and Biodiversity Conservation Act 1999*

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the National Environmental Protection Agency (NEPA) (formerly administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW)) and provides a legal framework to protect and manage plants, animals, habitats and places that are under threat. The EPBC Act covers nine protected Matters of National Environmental Significance (MNES):

- world heritage areas
- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities
- listed migratory species (protected under international agreements)
- Commonwealth marine areas
- Great Barrier Reef Marine Park
- nuclear actions (including uranium mines)
- water resources (that relate to coal seam gas development and large coal mining development).

Under the EPBC Act, a person proposing to take an action that has, will have, or is likely to have a significant impact on an MNES must refer the proposed action to the Commonwealth Minister for the Environment and Water (or their delegate) for consideration. Following referral, the Minister determines whether the action is a controlled action requiring assessment and approval under the EPBC Act, is not a controlled action, or is not a controlled action provided it is undertaken in a particular manner. Where a controlled action determination is made, the action must undergo assessment under the EPBC Act and receive approval before it can proceed.

The EPBC Act also protects the environment when actions are taken:

- on Commonwealth land or impact upon Commonwealth land
- by an Australian Government agency anywhere in the world
- that impact Commonwealth heritage places overseas.

3.1.2 Environmental Offsets Policy 2012

The Commonwealth Environmental Offsets Policy 2012 provides the framework for the use of environmental offsets under the EPBC Act. The policy applies where an action is determined to have a significant residual impact on MNES after all reasonable avoidance, mitigation and management measures have been implemented.

Under the policy, offsets must be directly related to the impacted MNES and provide a conservation gain that is additional to existing obligations and outcomes that would have occurred in the absence of the offset. Offset measures must be effective, scientifically robust, legally secured, and capable of being monitored and enforced for the duration necessary to achieve the intended conservation outcome.

The Commonwealth Offset Assessment Guide supports implementation of the policy by providing a standardised method for quantifying residual impacts and calculating offset requirements for threatened species and ecological communities. Where significant residual impacts are identified, the guide is used to determine the scale and nature of offset measures necessary to achieve compliance with the EPBC Act.

3.1.3 EPBC Act reform and national environmental standards

The Australian Government is undertaking a substantial reform of the EPBC Act in response to the recommendations of the 2020 Independent Review of the EPBC Act (Samuel Review). The reforms are intended to strengthen environmental protection, improve transparency and accountability, streamline assessment and approval processes, and support the Government's broader "Nature Positive" agenda. In November 2025, the Australian Parliament passed the Environment Protection Reform legislation, introducing significant amendments to the EPBC Act.

A key element of the reforms is the establishment of a revised national environmental regulatory framework including National Environmental Standards. The Standards are intended to provide clear, consistent and measurable requirements for environmental assessment, decision-making, approval conditions, compliance and environmental outcomes. The Standards will apply to a range of matters, including MNES, environmental assessment processes, restoration outcomes, compliance and enforcement, and engagement with First Nations peoples.

The reforms also provide for the establishment of new Commonwealth environmental institutions, including the National Environmental Protection Agency and Environment Information Australia. These bodies will be responsible for environmental compliance and enforcement, environmental data management, monitoring and reporting, and supporting decision-making under the reformed legislative framework. The new agencies are expected to commence operation from July 2026.

At the time of preparing this report, the National Environmental Standards remain under development, with draft standards released for consultation but not yet finalised. Consequently, and in accordance with relevant transitional provisions, assessment and approval of actions under the EPBC Act continue (at this stage) to be undertaken in accordance with the existing legislative framework.

3.1.4 *Native Title Act 1993*

The *Native Title Act 1993* (Native Title Act) recognises that Aboriginal people may have rights and interests to certain land and waters which derive from their traditional laws and customs. Native title may be recognised in places where Indigenous people continue to follow their traditional laws and customs and have maintained a link with their traditional country.

The Kalkadoon People have a Native Title claim over the Project Area. A section 31 deed under the Native Title Act and an ancillary agreement between Universal Resources Limited (now Harmony) and the Kalkadoon people was signed on 15 June 2006 and executed by the State of Queensland on 29 June 2006.

3.2 State legislation

3.2.1 *Environmental Protection Act 1994*

The *Environmental Protection Act 1994* (EP Act) is the principal environmental legislation in Queensland and establishes the framework for environmental management, environmental assessment and regulation of environmentally relevant activities. The EP Act seeks to protect Queensland's environmental values while supporting ecologically sustainable development through the prevention, minimisation and management of environmental harm.

3.2.2 *Mineral Resources Act 1989*

The *Mineral Resources Act 1989* (MR Act) provides the legislative framework for exploration, development and mining tenure in the state. It provides a mining tenement holder with exclusive rights to explore, extract, and sell minerals or resources found within the lease area. In accordance with the MR Act, the State (Queensland) is the beneficiary of all mineral resources. These resources can only be mined or extracted by a holder of a mining lease issued under the MR Act.

To obtain a mining lease, individuals or companies must go through a rigorous application process, which typically involves submitting detailed proposals, environmental impact assessments, financial plans, and demonstrating technical capability. The Queensland Government evaluates these applications based on various factors, including the potential economic benefits, environmental considerations, and social impacts.

Once granted, a mining lease gives the holder the right to carry out mining operations for a specified period, usually ranging from several years to several decades, depending on the lease conditions.

The Project Area comprises five mining leases which encompass an area of approximately 14,285 ha. Table 3.1 lists the mining leases applicable to the Project.

Table 3.1 Mining leases

Mining lease	Date granted	Commencement date	Expiry date	Area (ha)
ML 90162	4 October 2012	1 November 2012	31 October 2037	2,097
ML 90163	4 October 2012	1 November 2012	31 October 2037	1,411
ML 90164	13 November 2012	1 December 2012	31 October 2037	5,131
ML 90165	13 November 2012	1 December 2012	31 October 2037	5,030
ML 90166	13 November 2012	1 December 2012	31 October 2037	616

3.2.3 *Planning Act 2016*

In accordance with section 4A of the MR Act, the *Planning Act 2016* (Planning Act) does not apply to development authorised under the MR Act (i.e. on-lease activities), with some minor exceptions.

Approval under the Planning Act is required for any assessable development works proposed off-lease unless determined to be accepted development and undertaken in accordance with relevant accepted development codes.

ECMPL holds operational works Development permit (2409-42574 SDA) under the Planning Act for vegetation clearing off-lease associated with the Eva Mine Access Road).

3.2.4 *Vegetation Management Act 1999*

The purpose of the *Vegetation Management Act 1999* (VM Act) is to regulate the clearing of native vegetation in a way that conserves remnant vegetation in declared areas, ensures clearing does not cause land degradation, prevents the loss of biodiversity and maintains ecological processes.

The VM Act does not apply to clearing within a ML; however, the framework established under the VM Act for the description and mapping of regulated vegetation/Regional Ecosystems (REs) including remnant and high value regrowth applies. Under the VM Act REs are assigned three statuses which are:

- Endangered RE
- Of Concern RE
- Least Concern RE.

These statuses are taken from the Regional Ecosystem Description Database (REDD) provided by the Queensland Government and respective definitions are provided in the VM Act. Within this report, the definition of an RE follows that described by Sattler and Williams (1999) (i.e. a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil).

RE mapping for the Project is presented in Section 5.3.1.

3.2.5 *Nature Conservation Act 1992*

The objective of the *Nature Conservation Act 1992* (NC Act) is the conservation of nature, and the NC Act provides for the gazettal of protected areas including nature refuges, prescribes classes of wildlife and sets out restrictions on the taking or harm to native wildlife without a valid permit. For a proposed activity that will have an unavoidable impact on breeding places of protected animals (which include all classes of native wildlife including least concern) a Species Management Program (SMP) is required to be prepared and approved under the NC Act.

A Low Risk SMP can authorise tampering with animal breeding places for least concern species. A High Risk SMP will authorise tampering for all fauna breeding places including colonial breeders, special least concern and critically endangered, endangered, vulnerable and near threatened (CEEVNT) species.

3.2.6 *Water Act 2000*

A person must not take or supply water to which the *Water Act 2000* (Water Act) applies unless authorised to do so by the Water Act.

The exercise of underground water rights is subject to a number of specific requirements with potential impacts on groundwater to be managed through an adaptive management regime, detailed under Chapter 3 of the Water Act. A key part of the underground water management framework is the requirement for resource tenure holders to prepare an underground water impact report (UWIR).

A UWIR is not required on a ML if the resource tenure holder was authorised to take or interfere with underground water in the area of the resource tenure before 6 December 2016. The MLs relevant to the Project Area were granted prior to 6 December 2016 and as such, there is no requirement for the preparation of a UWIR to support the Project.

A riverine protection permit under the Water Act is generally required to excavate, place fill or destroy any native vegetation in a watercourse unless an exemption applies. Relevant exemptions include:

- where the works comply with the requirements in the Department of Regional Development, Manufacturing and Water's (DRDMW) 'Riverine protection permit exemption requirements, WSS/2013/726, Version 2.02' dated 10 March 2023 (DRDMW 2023)
- where the works are carried out under an environmental authority for a resource activity.

A riverine protection permit may be required to authorise activities that will impact on watercourses or associated riparian habitat should those activities fall beyond the exemption requirements.

In accordance with section 98 of the Water Act, a person may interfere with the flow of water by diversion if:

- the interference is a diversion of a watercourse and is associated with a resource activity
- the impacts of the interference were assessed as part of a grant of an environmental authority for the resource activity
- the environmental authority was granted with a condition about the diversion of the watercourse.

3.2.7 *Fisheries Act 1994*

The *Fisheries Act 1994* (Fisheries Act) plays a key role in regulating waterway barriers and their impact on fish passage, particularly in relation to Waterway Barrier Works (WWBW). The Fisheries Act ensures that infrastructure such as dams, weirs, culverts, and causeways do not obstruct fish movement, which is critical for maintaining healthy aquatic ecosystems and fisheries productivity.

Waterways providing for fish passage are listed as a Matter of State Environmental Significance (MSES) under Schedule 2 of the Environmental Offsets Regulation 2014. This states that any part of a waterway providing for fish passage is a MSES only if the construction, installation or modification of WWBW carried out under an authority will limit the passage of fish along the waterway. Waterways for the purposes of assessing fish passage are limited to those which are mapped in the spatial layer *Queensland waterways for waterway barrier works* by the Department of Agriculture and Fisheries (DAF 2018).

Waterways providing for fish passage have been mapped within the Project Area. Consideration of waterways providing for fish passage habitat is presented in Section 5.4.3.

3.2.8 *Environmental Offsets Act 2014*

The Queensland Environmental Offsets Framework is governed by a range of legislation, policies and guidelines to support a determination as to when environmental offsets are required, and how they are to be delivered. A summary of the framework and guiding principles that apply is provided below.

The Queensland Offsets Framework includes:

- *Environmental Offsets Act 2014* (EO Act)
- Environmental Offsets Regulation 2014 (EO Regulation)
- Queensland Environmental Offsets Policy (QEOP) (version 1.17)
- The *Significant Residual Impact Guideline – for prescribed activities under the Environmental Protection Act 1994*, *Nature Conservation Act 1992* and *Marine Parks Act 2004* (DEHP 2014).

Under the Queensland Environmental Offsets Framework, an environmental offset is required when a Significant Residual Impact (SRI) occurs to an MSES. MSES are prescribed in Schedule 2 of the EO Regulation and include:

- critically endangered, endangered and vulnerable flora and fauna species under the NC Act and their habitats
- special least concern fauna species under the NC Act and their habitats
- endangered and of concern REs under the VM Act
- prescribed regional ecosystems, comprising remnant REs occurring within Category B areas of the regulated vegetation management map
- protected wildlife habitat
- REs that intersect with wetlands and watercourses
- connectivity values
- wetlands of high ecological significance
- protected areas (including nature refuges)
- declared fish habitat areas and waterways providing for fish passage
- legally secured offset areas.

The following SRIs to MSES have been identified as a result of the Project:

- impact to habitat for vulnerable wildlife (the Purple-necked Rock-wallaby, *Petrogale purpureicollis*)
- impact to regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map
- impact to waterways providing for fish passage.

3.2.9 *Biosecurity Act 2014*

The *Biosecurity Act 2014* (Biosecurity Act) establishes the legislative framework for managing biosecurity risks in Queensland, including management of invasive plants, animals and diseases in Queensland. The Biosecurity Act adopts a risk-based approach to biosecurity management and imposes a general biosecurity obligation requiring individuals and organisations to take all reasonable and practical measures to prevent or minimise biosecurity risks. The Biosecurity Act is supported by the Biosecurity Regulation 2016, which identifies prohibited and restricted matter requiring specific management and control measures.

The Act is relevant to the Project as a number of invasive species listed as restricted matter under the biosecurity framework have been recorded within the Project Area and surrounding locality. Contemporary ecological surveys identified feral pigs (*Sus scrofa*) and cane toads (*Rhinella marina*) within the Project Area, while Rubber Vine (*Cryptostegia grandiflora*), a restricted invasive plant, has been recorded opportunistically along sections of Cabbage Tree Creek. These species have the potential to adversely affect environmental values through habitat degradation, competition with native species, impacts to waterway condition and disruption of ecological processes.

Management of restricted pest species within the Project Area is undertaken in accordance with the requirements of the Biosecurity Act.

4 Methodology

4.1 Desktop assessment

The desktop assessment consolidates information from relevant databases, spatial mapping, aerial imagery and published literature to produce an initial characterisation of the ecological values of the Project Area and surrounding landscape. This characterisation informs the field assessment strategy to assess the ecological values present within the Project Area. Desktop assessments include identifying previously recorded threatened species, potential habitat features, mapped vegetation communities and other biodiversity values requiring targeted investigation.

Given updates to threatened species listings and recent field observations of species not previously anticipated to occur within the Project Area, EMM undertook a contemporary desktop review and revised Likelihood of Occurrence (LoO) assessment in May 2026. The purpose of the update was to provide a robust and current assessment of the potential occurrence of threatened flora, fauna and ecological communities listed under the EPBC Act and the NC Act within and surrounding the Project Area.

The desktop assessment included use of the following data sources:

- Commonwealth Protected Matters Search Tool (PMST) Database (Annexure A.1)
- Species Profile and Threats Database (SPRAT)
- RE mapping (Queensland Herbarium)
- DETSI WildNet Database (Annexure A.2)
- BioMaps/WildNet Environmental Reports
- DETSI MSES Report
- Atlas of Living Australia (ALA) species search
- Soil and landzone mapping
- Incidental sightings by Harmony
- DETSI Essential Habitat mapping
- DETSI Regulated Vegetation mapping
- VM Act Watercourse and Drainage Feature map
- Current aerial imagery and historical aerial imagery supplied by QImagery
- Subject Matter Expert (SME) consultation (Annexure G and H).

In addition, a high-level assessment of the potential GDEs within and surrounding the Project Area was undertaken using information from the following sources:

- BOM Groundwater Dependent Ecosystems Atlas
- DETSI WetlandMaps 2.0.

4.2 Likelihood of occurrence

The LoO assessment was undertaken to evaluate the potential for threatened and significant species to occur within the Project Area. This assessment builds on previous LoO evaluations completed for the Project, with several species reassessed and updated based on additional field survey data, refined habitat mapping and updated information.

Historically, a 20 km buffer was applied to the Project Area for the LoO assessment. The LoO assessment for this report considers both the 20 km (Primary Study Area) and a larger 50 km buffer surrounding the Project Area (Secondary Study Area), selected to account for a sparsity of records in the area which is relatively remote.

Flora and fauna species that are known or have a moderate likelihood to occur in or near the Project Area are collectively referred to as 'target species' and were systematically surveyed during the field assessments. Some species that have historically been surveyed as target species were further targeted in the contemporary surveys due to either data gaps or previously sub-optimal survey windows.

The LoO assessment results included in this report represent the most current assessment of species' potential occurrence within the Project Area. Section 5.1.1 outlines the initial LoO assessment results, which was subsequently refined through field surveys and further analysis of habitat preferences, with the revised LoO assessment results presented in Section 5.7.

Based on the findings from the desktop assessment, a LoO assessment was completed for any threatened matters under the EPBC Act and NC Act that have been identified as potentially occurring within the Project Area, incorporating:

- threatened terrestrial and aquatic flora and fauna species listed under the EPBC Act and NC Act
- threatened migratory species listed under the EPBC Act and NC Act
- threatened ecological communities (TECs) listed under the EPBC Act
- contextual information on habitat availability, landscape connectivity and species persistence at a broader scale
- TECs and protected areas have been assessed in terms of their relevance to species habitat requirements and potential connectivity to habitats within the Project Area
- Harmony on-site records
- species records or habitat within the Primary Study Area or Secondary Study Area.

Extensive ecology surveys have been conducted within the Project Area dating back to the time of the Project's original Environmental Impact Statement. Significant contemporary effort has subsequently been completed, including targeted flora and fauna surveys, RE mapping and habitat assessments. This information was incorporated into the LoO assessment.

A Project-specific assessment procedure has been developed that defines assessment criteria, spatial extents, temporal relevance of records, habitat suitability, survey effort to date and likelihood categories (Annexure B). A summary of the matrix is provided in Table 4.1. The criteria capture confirmed records and observations from previous field surveys.

Table 4.1 Summary of likelihood of occurrence criteria and definitions

Likelihood	Brief definition of criteria*
Known	Confirmed sighting or sign of the species within the Project Area from a reputable source.
High	Recent, reliable records occur in or near the Project Area, with high spatial confidence and suitable, preferred, mapped or essential habitat present, or the Project Area is within the species' known distribution.
Moderate	Recent records occur in the Project Area or broader study area, and the Project Area contains suitable, preferred or mapped habitat, may occur within a habitat corridor, or may support occasional movement or dispersal.
Low	Records are limited, uncertain or occur only in the broader study area, and the Project Area provides little, degraded or suboptimal habitat, although occasional movement, dispersal or corridor use cannot be ruled out.
Unlikely	No recent Project Area records are present, the Project Area lacks suitable habitat or is outside the species' known distribution, and available habitat is absent, highly degraded or unlikely to support the species.

* For full definitions of likelihood criteria see Annexure B

4.3 Terrestrial and semi aquatic fauna

Matters known to occur or determined to have high or moderate potential to occur within the Project Area or broader Primary Study Area and Secondary Study Area, were targeted during subsequent field surveys.

Additional species with a low contemporary LoO were also surveyed where they could be assessed concurrently with other species or where previous survey experience and site knowledge indicated that additional field validation was required.

Previous survey effort was reviewed to confirm existing survey adequacy, identify any data gaps, and to inform the scope of additional survey effort to be taken in the latest survey campaign informing this Contemporary Baseline Ecological Value report, if required. High priority areas were identified prior to fieldwork and selected for sub-sampling based on the Project layout and areas requiring more coverage.

All historical and contemporary fauna surveys aimed to detect threatened and invasive species, breeding places and habitat features important to threatened species. Surveys were all undertaken in accordance with relevant survey guidelines. The primary guideline applied was the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland, Version 4.0* (Eyre et al. 2022), as prescribed by the Queensland Government. Survey design was further informed by relevant Commonwealth guidelines and species-specific survey methods where available. The following resources were key:

- Guide to determining terrestrial habitat quality, Version 1.3 (DETSI 2020)
- Survey guidelines for Australia's threatened birds, bats, reptiles, mammals (DEWHA 2010a; DEWHA 2010b; Survey guidelines for Australia's threatened birds, bats, reptiles, mammals (DEWHA 2010a; DEWHA 2010b; DSEWPC 2011a; DSEWPC 2011b)
- Targeted species survey guidelines: Ghost Bat (*Macroderma gigas*), Painted Honeyeater (*Grantiella picta*) and Purple-necked Rock-wallaby (*Petrogale purpureicollis*) (Hourigan 2011; Rowland 2012a; Rowland 2012b).

Fauna surveys comprised a suite of survey techniques. Surveys were implemented across different habitat types, targeting various taxa. Survey techniques and methods used are outlined in Section 4.3.2. Opportunistic observations, including sightings of species and secondary signs (i.e. scats, tracks, feathers and bones) were recorded during field activities.

Contemporary fauna surveys have been conducted throughout the environment adjacent and surrounding the Project between 2021 and 2026. Survey locations were selected to represent suitable habitat for threatened species through all habitat types within the Project Area. Contemporary survey effort was designed to afford coverage of the Project Area, including the disturbance footprint. Fauna survey effort across the Project Area is summarised in Table 4.2 with all survey locations illustrated on Figure 4.1–Figure 4.11.

Table 4.2 Terrestrial and semi aquatic fauna survey effort summary

Survey	Date	Personnel	Effort
Fauna Survey 1	18 – 24 May 2022 Early dry season survey	Sandra Walters Elliot Leach	36 habitat assessments 28 person-hours/63.2 km of bird survey transects 23 person-hour/62.19 km of nocturnal transects 22 Anabat trap nights 166 Elliot trap nights 166 camera trap nights
Fauna Survey 2	7 – 13 August 2023 Dry season survey	Sandra Walters Elliot Leach	20 habitat assessments 20 person-hours/22.3 km of bird survey transects 360 Elliot trap nights 75 pitfall trap nights 120 funnel trap nights 17 camera trap nights 14 Anabat trap nights
Fauna Survey 3 (Purple-necked Rock-wallaby surveys)	27 – 29 September 2023 Suitable survey period for target species	Elliot Leach Michael Forbes	73 km of drone surveys over mapped Purple-necked Rock-wallaby habitat
Fauna Survey 4	27 November – 4 December 2023 Early wet season survey	Sandra Walters Elliot Leach Lindsay Wickson Vanessa Boettcher	38.88 person-hour/118.22 km of nocturnal transects 410 Elliot trap nights 85 pitfall trap nights 106 funnel trap nights 30 camera trap nights 16 Anabat trap nights
Fauna Survey 5	14 – 18 March 2024 Late wet season	Rachel Scott Lindsay Wickson	7 habitat assessments 1 person-hours of bird surveys Animal breeding place surveys
Fauna Survey 6	6 – 10 April 2024 Late wet season	Vanessa Boettcher Sandra Walters Sarah Glauert Elliot Leach	16.07 person-hour/25.6 km of nocturnal transects 94 Elliot trap nights 540 camera trap nights 43 Habitat assessments

Survey	Date	Personnel	Effort
Fauna Survey 7 (Purple-necked Rock-wallaby surveys)	17 – 20 June 2024 Suitable survey period for target species	Sarah Glauert Michael Forbes	83 km of drone surveys over mapped Purple-necked Rock-wallaby habitat
Fauna Survey 8	13 – 18 November 2024 Early wet season	Sandra Walters Rebecca Simpson Vanessa Boettcher Emily Havas	36 habitat assessments 4 person-hours/6.9 km of nocturnal transects 5 person-hours of bird surveys (counts) 244 camera trap nights
Fauna Survey 9 (Purple-necked Rock-wallaby surveys)	23 – 25 July 2025 Suitable survey period for target species	Rebecca Simpson Ann Stray	45 km of helicopter transects over mapped Purple-necked Rock-wallaby habitat
Fauna Survey 10	17 – 23 November 2025 Early wet season survey	Rebecca Simpson Emily Havas Jason Brown	72 bird and bat utilisation (BBUS) surveys 48 song meter trap nights 10 anabat trap nights
Fauna Survey 11 (Mertens' Water Monitor surveys)	31 January – 8 February 2026 Suitable survey period for target species	Red Sand Ecology Harmony Environmental Officers	46.2 km of walking transects targeting Mertens' Water Monitor
Fauna Survey 12	7 – 14 April 2026 Late wet season survey	Rebecca Simpson Emily Havas	72 BBUS surveys 48 song meter trap nights 12 anabat trap nights
Fauna Survey 13 (Northern Blue-tongued Skink surveys)	12 April – 8 May 2026 Late wet – early dry season Suitable survey period for target species	Rebecca Simpson Emily Havas Red Sand Ecology Harmony Environmental Officers	483 camera trap nights 1,166.8 km of vehicle transects 48.6 hours of active search
Fauna Survey 14	18 – 27 May 2026 Early dry season	Rebecca Simpson Ronnie Gardiner	120 song meter trap nights 6 active searches 46 diurnal bird call playback 6 nocturnal bird call playback 15 point count bird survey 57.2 km nocturnal driving transects 8.3 km diurnal driving transects 8.7 km walking spotlighting transect

4.3.1 Survey methods

i Habitat assessments

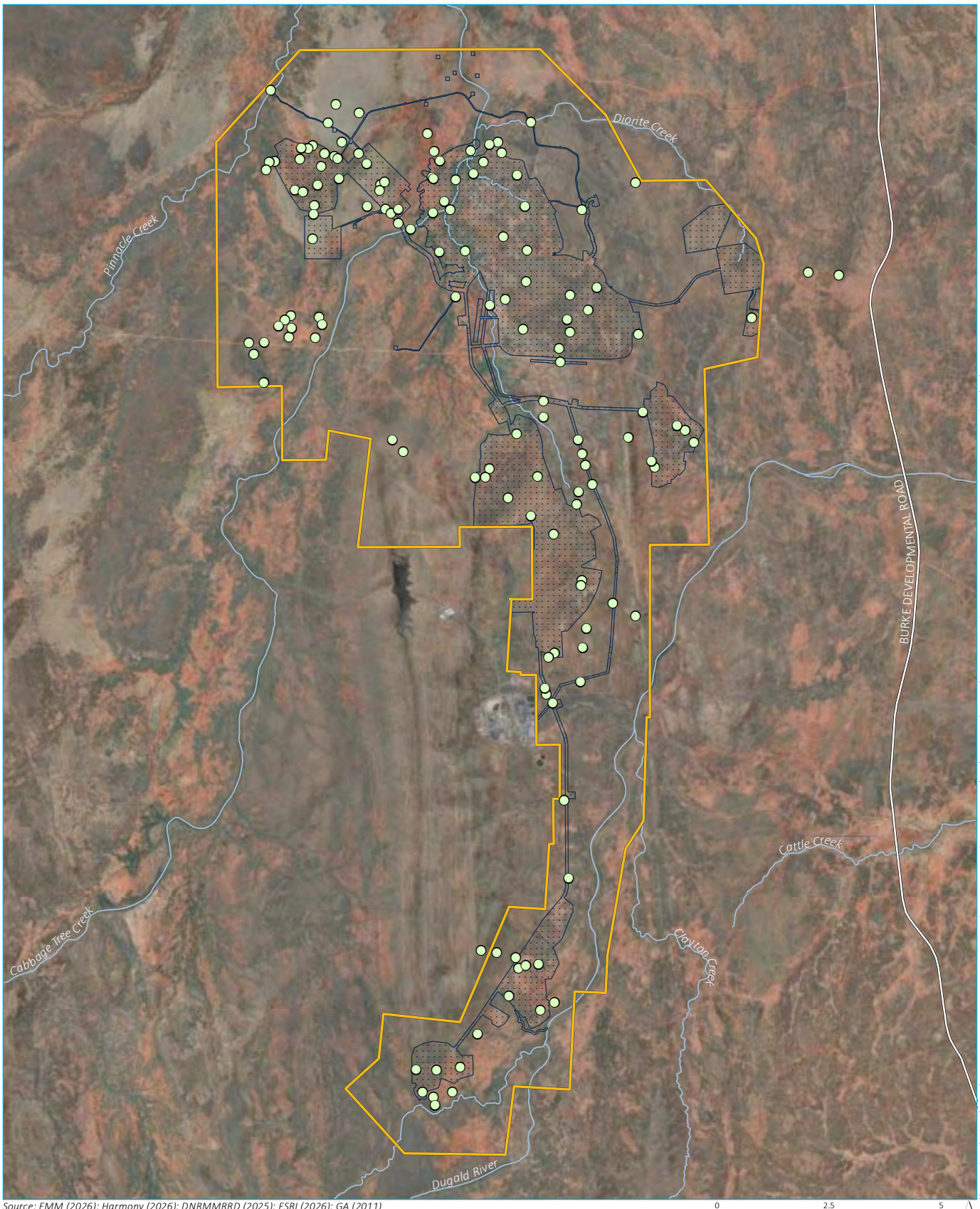
Data was collected using handheld global information system (GIS)-enabled devices, via a rapid assessment form that captures relevant habitat attributes for threatened species.

Fauna habitat was surveyed to characterise broad fauna habitat types and target species-specific habitats and essential micro habitat features. The surveys were conducted primarily on foot consisting of meandering transects through all vegetation communities throughout the Project Area. Attributes that contribute to habitat suitability include:

- RE and RE condition (e.g. remnant, regrowth, non-remnant)

- landform pattern (e.g. rolling hills, undulating plain)
- landform element (e.g. drainage depression, hill slope)
- soil texture
- vegetation cover
- eucalypts (flowering, species)
- hollow-bearing trees
- foraging opportunities
- coarse woody debris and leaf litter
- presence and proximity to water
- habitat connectivity
- presence and severity of threats (e.g. pest species, grazing, fragmentation).

All habitat assessment surveys that have been completed within the Project Area are displayed in Figure 4.1.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Habitat assessment location

Existing environment

- Major road
- Named watercourse

Habitat assessment survey locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.1

EMM creating opportunities

ii Animal breeding place surveys

Breeding habitat (animal breeding places) was recorded as part of the fauna habitat assessments. Features of breeding habitat include:

- hollow logs, trees or branches
- stags
- nests and nest trees
- termite mounds
- course woody debris
- refuge sites.

All animal breeding place surveys that have been completed within the Project Area are displayed in Figure 4.2.

iii Bird survey (transects, point count and call playback)

Targeted bird surveys were undertaken across suitable habitats within the Project Area to detect threatened species. Surveys comprised walking transects, vehicle-based transects, stationary point counts and call playback listening surveys; with all birds observed or heard recorded. Walking transects were conducted in suitable habitat to target raptors such as Red Goshawk and Grey Falcon, including searches for Red Goshawk nests along major tributaries. Vehicle transects were undertaken along existing tracks to detect raptors, with additional searches for Grey Falcon roosting or nesting sites on tall structures and infrastructure.

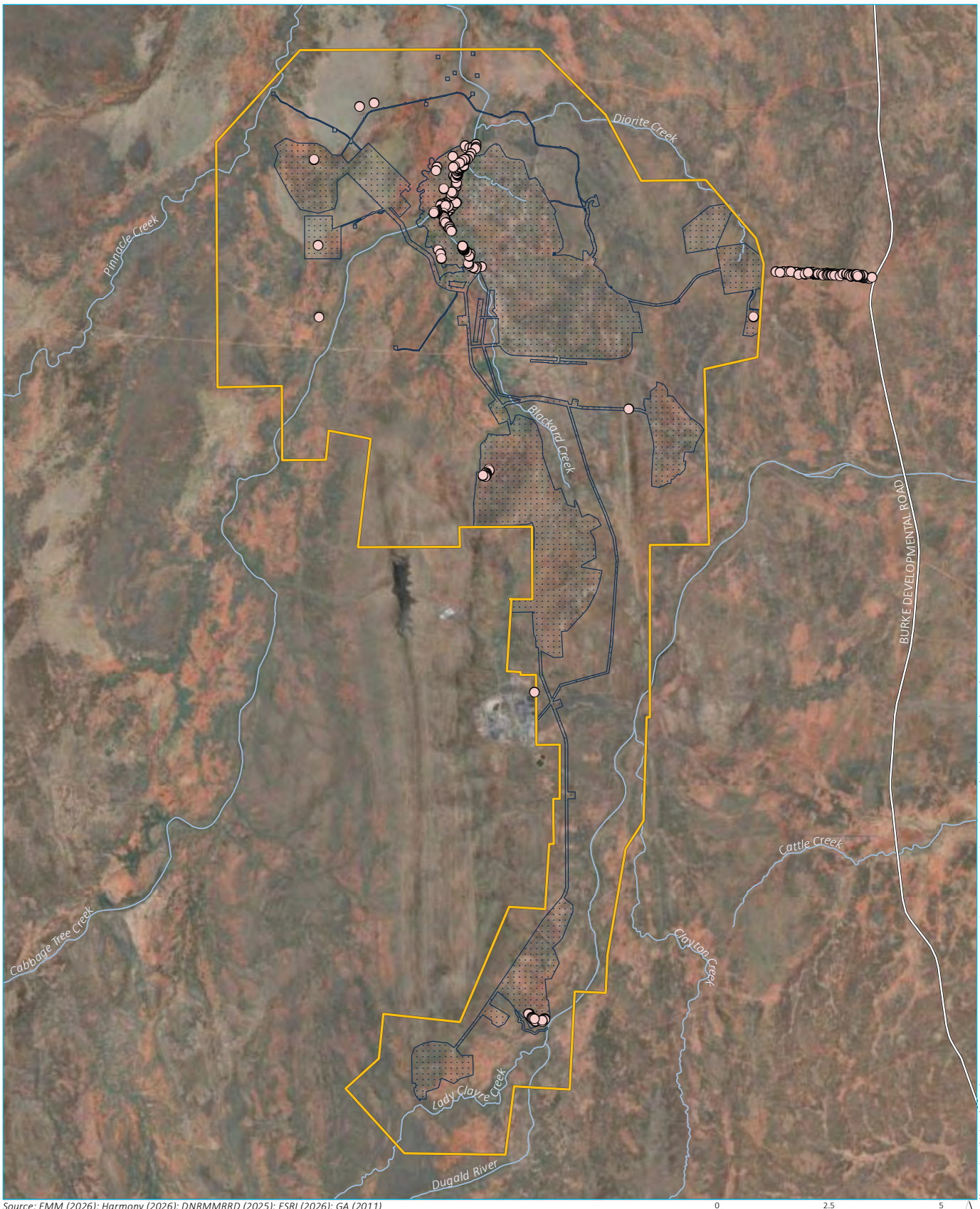
Stationary point count surveys were completed at a range of locations to target both threatened species and general bird diversity. This included vantage point surveys in elevated areas for detecting raptors such as Red Goshawk and Grey Falcon and water source surveys targeting species such as Gouldian Finch and Night Parrot. Call playback listening surveys were undertaken along transects, active searches and individually within suitable habitat to target Carpentarian Grasswren, Painted Honeyeater, Night Parrot, and Red Goshawk. Suitable habitat included mature spinifex grasslands for Carpentarian Grasswren and Night Parrot, areas with abundant mistletoe or flowering eucalypts for Painted Honeyeater, and riparian corridors for Red Goshawk.

All bird surveys that have been completed within the Project Area are displayed in Figure 4.3.

iv Nocturnal surveys (walking transects and vehicle transects)

Nocturnal surveys were undertaken to target fauna species that are most active and detectable at night. Nocturnal transects were conducted to target Purple-necked Rock-wallaby, Mertens' Water Monitor, Julia Creek Dunnart, Plains Death Adder, and Night Parrot. Surveys comprised both walking spotlighting and vehicle-based transects within suitable habitat. Walking spotlighting involved systematic transects and opportunistic meanders using handheld spotlights and head torches fitted with white and red filters. Vehicle transects were conducted along existing tracks at a constant speed of approximately 10 km/hour, with both driver and passenger scanning the road and adjacent habitat for fauna.

All nocturnal surveys that have been completed within the Project Area are displayed in Figure 4.4.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Animal breeding place survey location

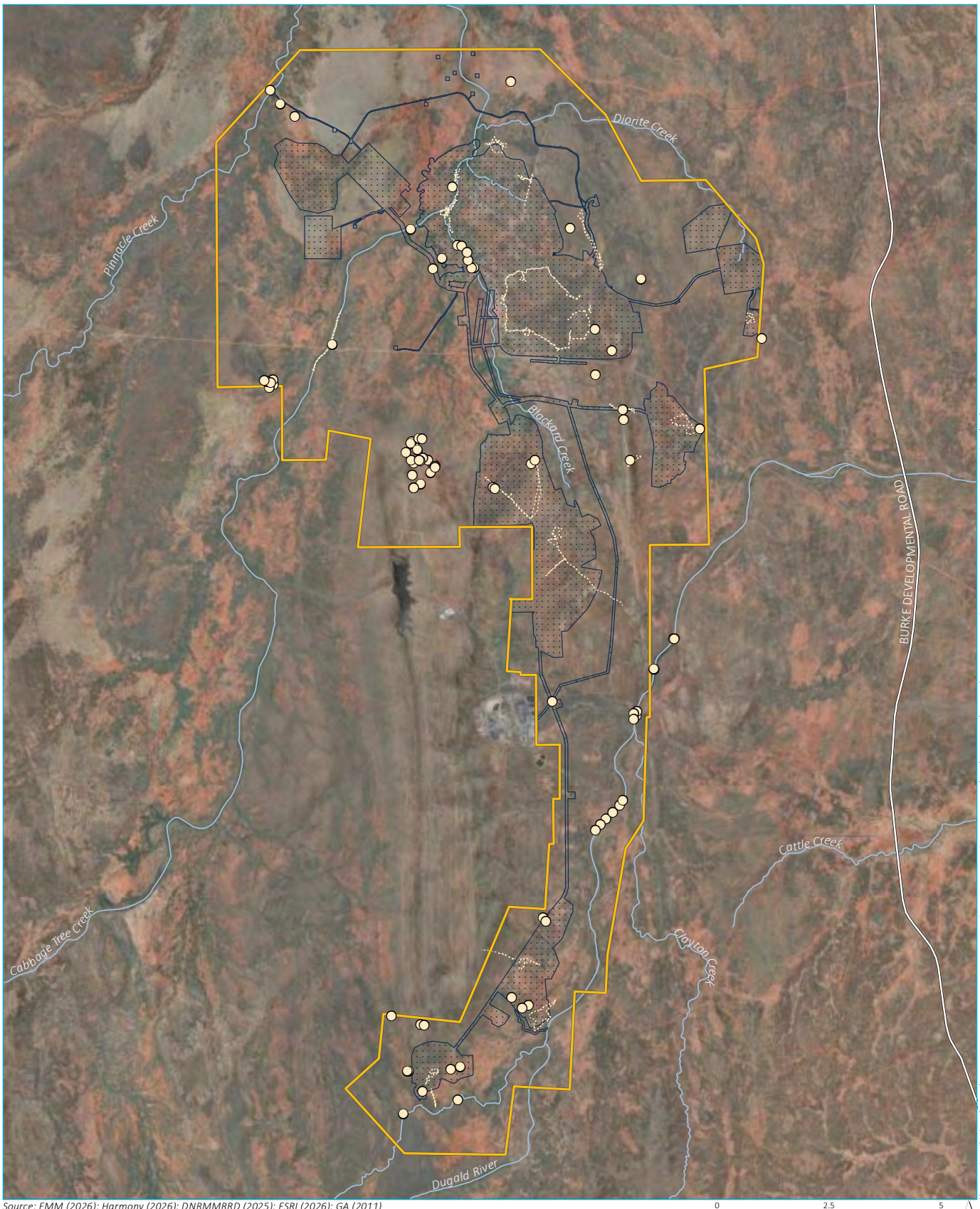
Existing environment

- Major road
- Named watercourse

Animal breeding place survey locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.2

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

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KEY

- Project area
- Project footprint
- Bird survey point
- Bird survey transect

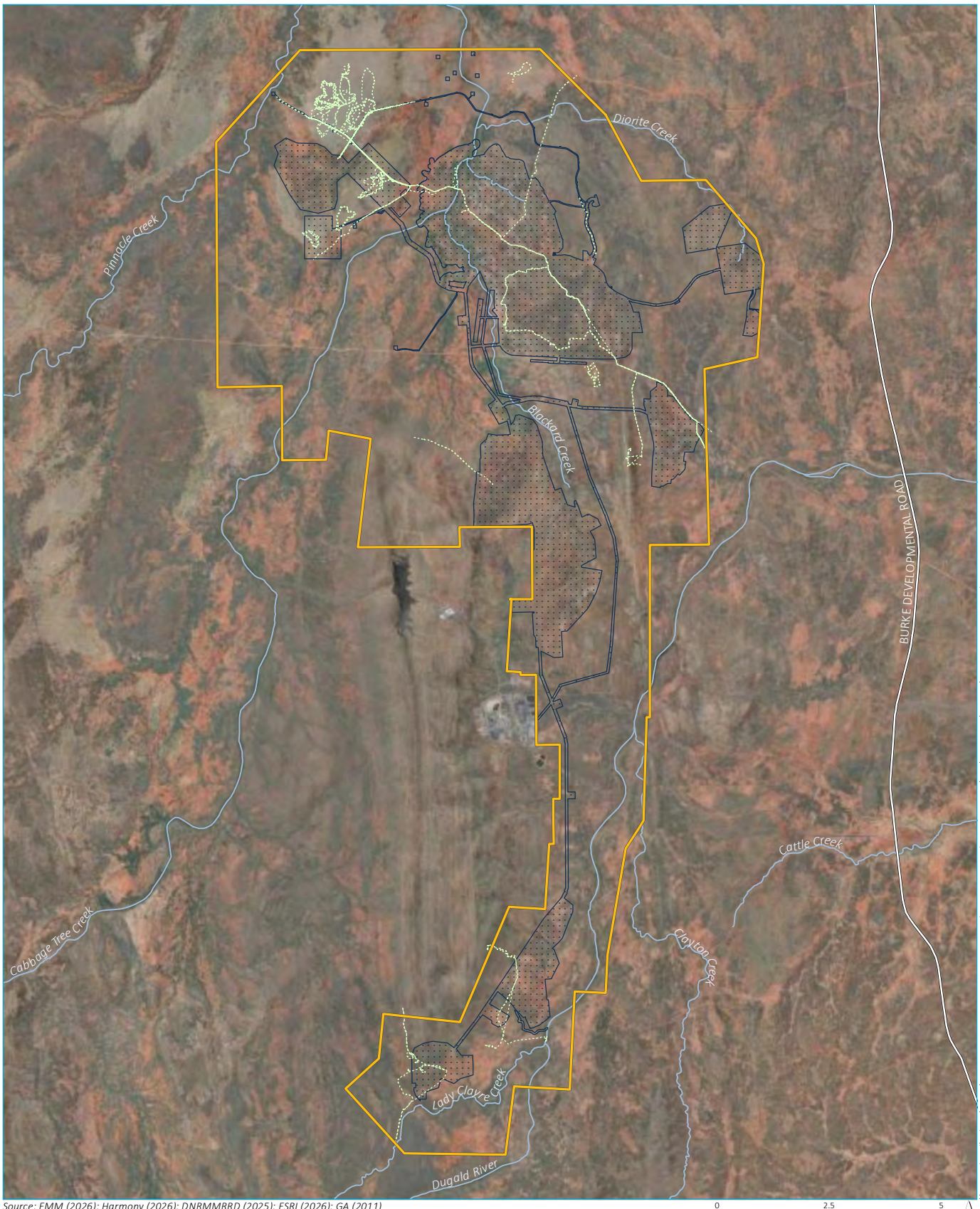
Existing environment

- Major road
- Named watercourse

Bird survey locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.3

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Spotlighting transect

Existing environment

- Major road
- Named watercourse

Nocturnal survey locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.4

EMM creating opportunities

v Diurnal surveys (walking transects and vehicle transects)

Diurnal surveys were undertaken to detect fauna species most active during daylight hours. Surveys comprised both walking and vehicle-based transects within suitable habitat. Vehicle transects were conducted along existing tracks to target species such as Northern Blue-tongued Skink, as well as flying or perched raptors including Grey Falcon and Red Goshawk. Walking transects were also undertaken to target diurnal bird species with a particular focus on raptors such as Grey Falcon and Red Goshawk, within areas of suitable habitat.

All diurnal surveys that have been completed within the Project Area are displayed in Figure 4.5.

vi Anabat ultrasonic monitoring

Acoustic monitoring using Anabat detectors was undertaken to record bat echolocation activity within the Project Area. Anabat detectors were deployed in suitable habitats to target Ghost Bat. Microbats rely on echolocation for orientation and foraging, and though the calls of almost all species are outside the range of human hearing, they can be detected by a specialised recording device known as an Anabat detector. These devices are set to automatically record and store bat calls between dusk and dawn each night. The resulting library of recorded calls can then be processed by an experienced technician and identified to species level where possible.

All Anabat monitoring locations within the Project Area are displayed in Figure 4.6.

vii Physical fauna trapping (pit fall traps, funnel traps and Elliot traps)

A range of fauna trapping techniques was implemented to target small mammals and reptiles within the Project Area.

Pitfall and funnel traps were used to target reptiles and small mammals including Plains Death Adder and Julia Creek Dunnart. A combination of pitfall and funnel traps connected by a drift fence is often referred to as a trapping array. These trapping arrays were set in an area identified with a high level of reptile or small mammal activity. All fauna captured in the pitfalls and funnel traps were manually handled to gain species identification and released at capture site.

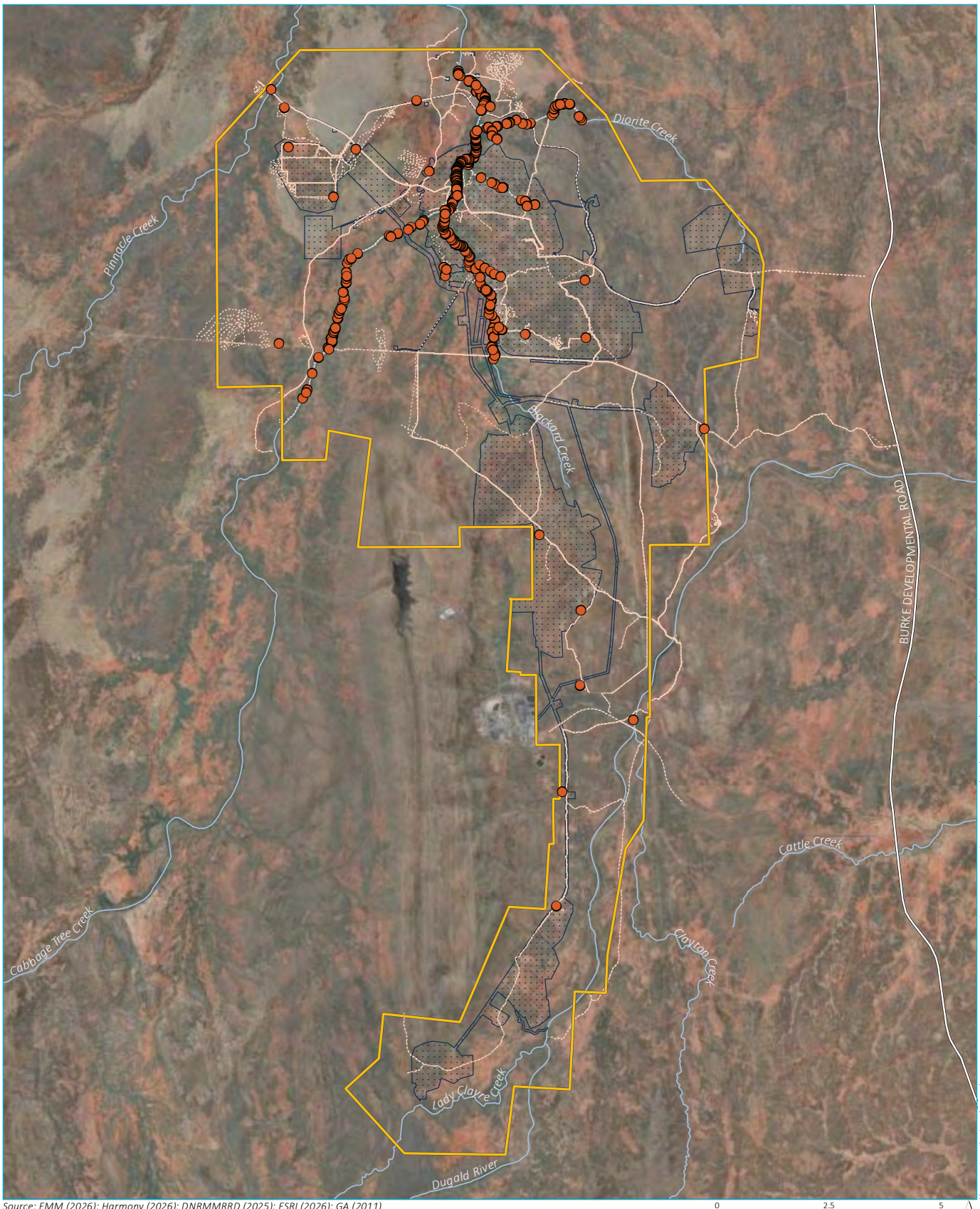
Elliot traps are a small aluminium trap, often used to trap for small mammals. Elliot traps were used to target Julia Creek Dunnart. Elliot traps were set in areas identified to potentially have mammal activity. All Elliot traps were set with a standard bait ball (oats and peanut butter) to attract target species. All individuals captured were manually handled to gain species identification and released at capture site.

All physical trapping locations within the Project Area are displayed in Figure 4.6

viii Passive infrared camera trap monitoring

Remote camera trapping was undertaken using passive infrared (PIR) triggered cameras to survey suitable habitat for the presence of threatened fauna species. Camera deployment locations were informed by on-site reconnaissance and habitat assessments to maximise detection probability. Target species included Northern Blue-tongued Skink, Purple-necked Rock-Wallaby, Mertens' Water Monitor, Gouldian Finch, Julia Creek Dunnart and Short-beaked Echidna. Images captured by the cameras were subsequently reviewed to identify species presence and activity within the Project Area.

All camera trap locations within the Project Area are displayed in Figure 4.6.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Diurnal survey point
- Diurnal survey transect

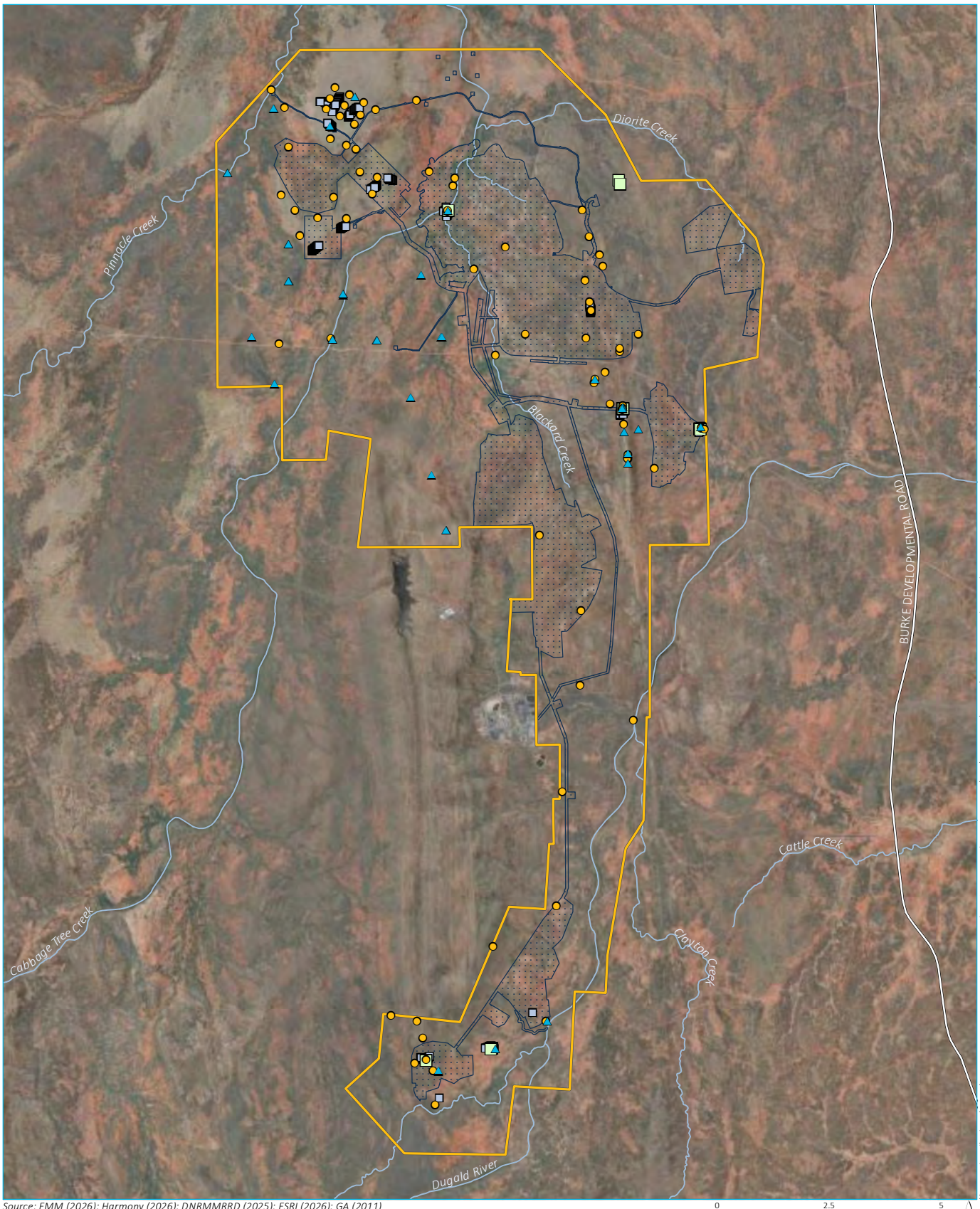
Existing environment

- Major road
- Named watercourse

Diurnal survey locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.5

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

KEY

- Project area
- Project footprint
- Existing environment
- Major road
- Named watercourse
- Anabat location
- Remote camera location
- Elliott trap location
- General trap site location

Anabat, physical trapping and camera trap locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.6

EMM creating opportunities

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ix Thermal drone transects

As part of the long-term monitoring program for Purple-necked Rock-wallaby within the Project Area, aerial drone surveys were undertaken to enable targeted monitoring of the species. Surveys utilised a remotely piloted aircraft (RPA) equipped with a thermal imaging camera to detect animals within suitable habitat. Thermal drone transects were conducted across areas of known and potential Purple-necked Rock-wallaby habitat to maximise detection probability and support ongoing population monitoring.

All thermal drone survey transects completed within the Project Area are displayed in Figure 4.7.

x Active search (for species or signs of species)

In addition to the broader fauna survey methods described throughout this section of relevance to target species, additional active searches were undertaken to detect target fauna species within areas of suitable habitat. These surveys involved systematic searches for individuals and indirect signs of presence, such as scats, feathers, or tracks. Active searches were conducted targeting species including Night Parrot (including targeted feather searches), Mertens' Water Monitor, Northern Blue-tongued Skink, and Purple-necked Rock-wallaby. Survey locations were selected based on habitat suitability to maximise detection likelihood.

All active search surveys that have been completed within the Project Area are displayed in Figure 4.8.

xi Song meter acoustic monitoring

Acoustic monitoring using Song Meter devices was undertaken to target cryptic bird species within the Project Area. Song Meter Mini 2 (SM2) units were deployed in areas of suitable habitat for Carpentarian Grasswren and Night Parrot. These devices recorded ambient acoustic data, which was subsequently analysed to identify species presence based on vocalisations. Locations of SM2 units was guided by habitat suitability for both target species to maximise detection probability.

All Song Meter monitoring locations within the Project Area are displayed in Figure 4.9.

xii Helicopter transects

As part of the long-term monitoring program for Purple-necked Rock-wallaby within the Project Area, helicopter transects were undertaken to enable targeted monitoring of the species. Surveys involved flying a helicopter at 40 km/hr through suitable habitat using visual observation to count individuals present. Helicopter transects were conducted across areas of known and potential Purple-necked Rock-wallaby habitat to maximise detection probability and support ongoing population monitoring.

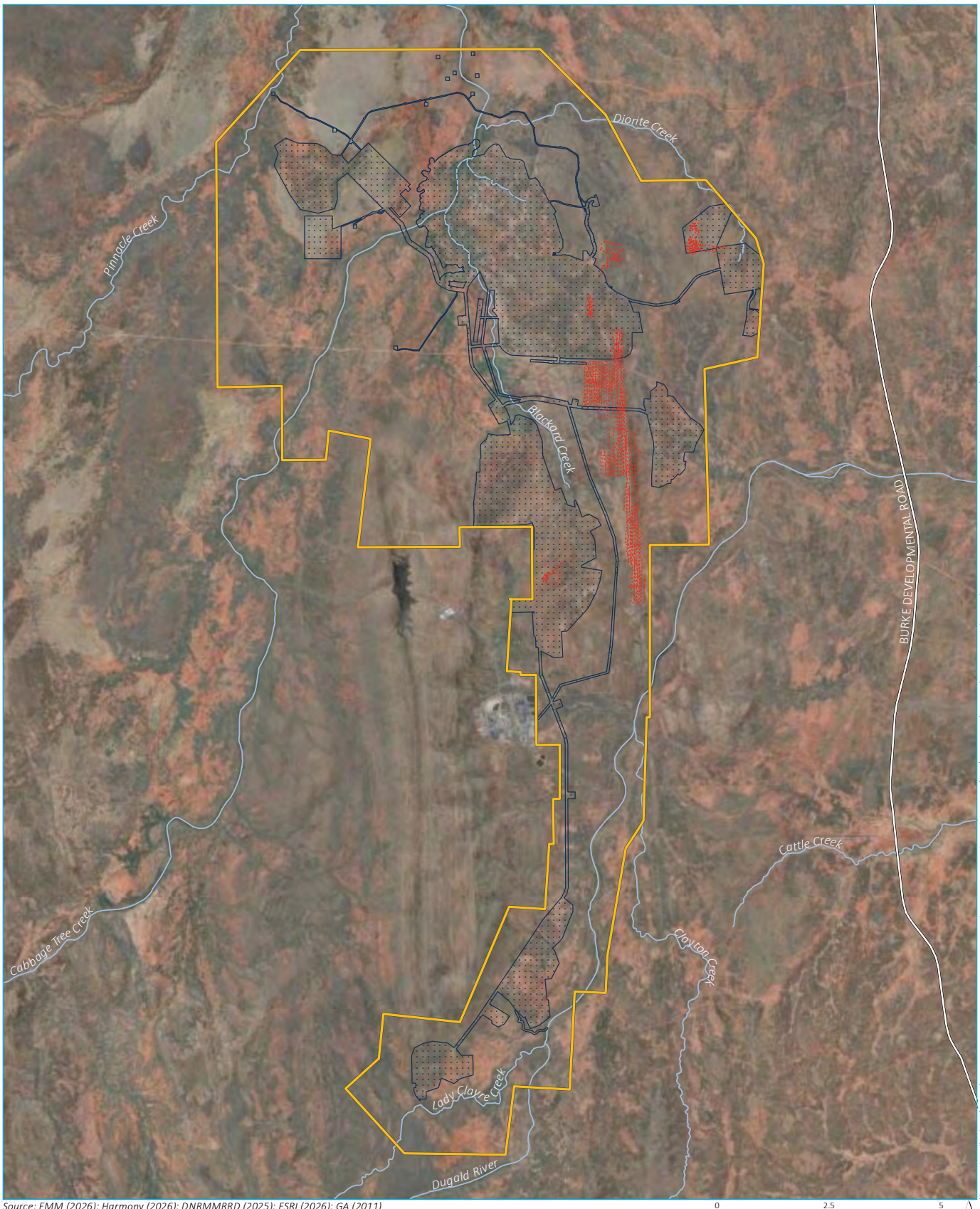
All helicopter survey transects completed within the Project Area are displayed in Figure 4.10.

xiii Bird and bat utilisation survey

Twelve bird and bat utilisation survey [BBUS) monitoring sites were established to assess bird and bat usage within the Project Area and the overlying airspace. To capture seasonal variability in species occurrence, surveys were completed across multiple times of the year. Each survey event involved deployment of a Song Meter at each site for four consecutive nights to target bat species, in conjunction with six bird point count surveys comprising two surveys in the morning, two midday surveys and two afternoon surveys.

While BBUS surveys are not designed to target specific species, survey effort within suitable habitat contributed to detection opportunities for threatened species, including Red Goshawk, Grey Falcon, Painted Honeyeater, Night Parrot, Carpentarian Grasswren, Gouldian Finch and Fork-tailed Swift. BBUS survey methodology was based on the Brett Lane and Associates (2005) *Wind Farms and Birds: Interim Standards for Risk Assessment*.

All BBUS site locations within the Project Area are displayed in Figure 4.11.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Thermal drone survey transect

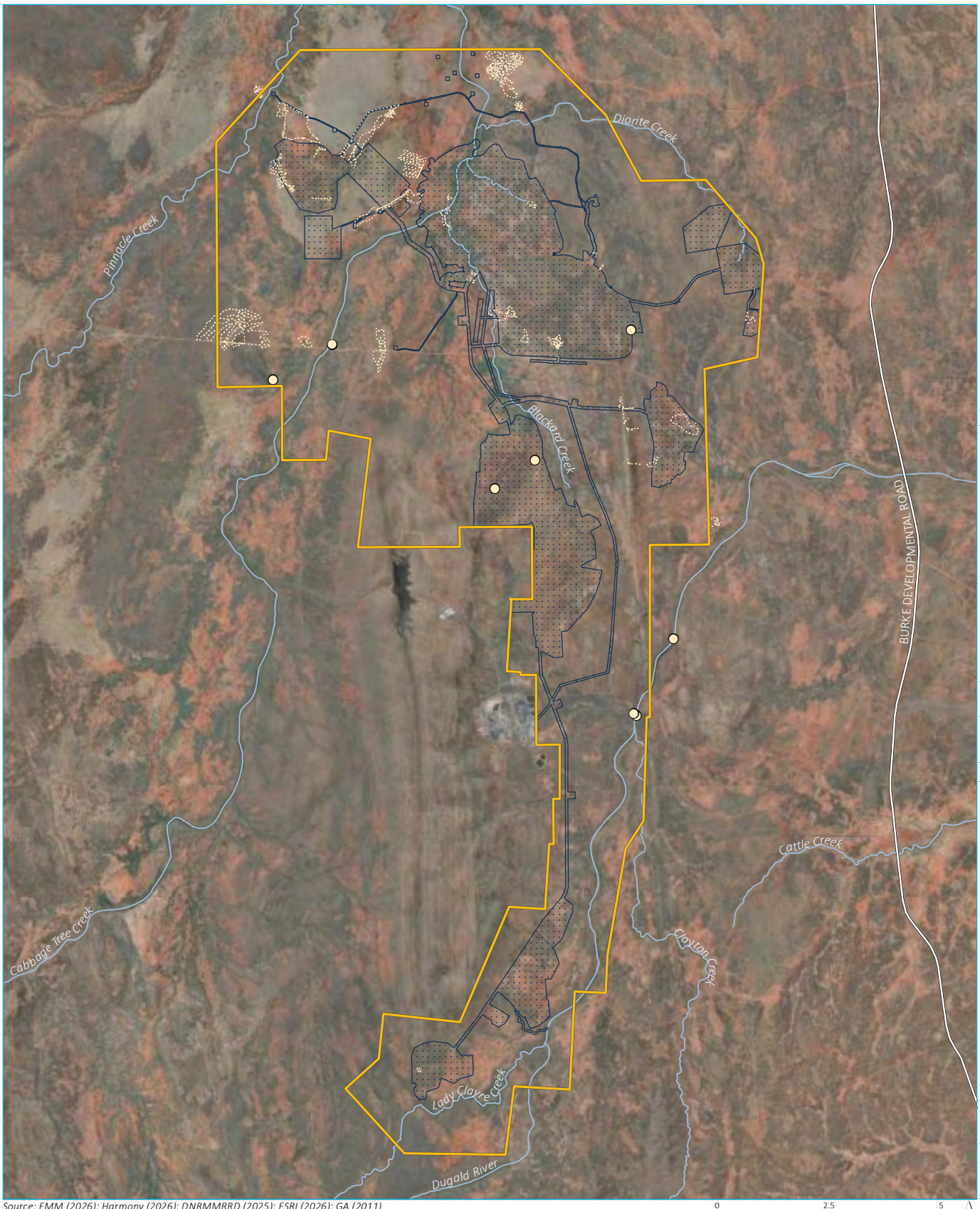
Existing environment

- Major road
- Named watercourse

Thermal drone survey transects

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.7

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Active search point
- Active search transect

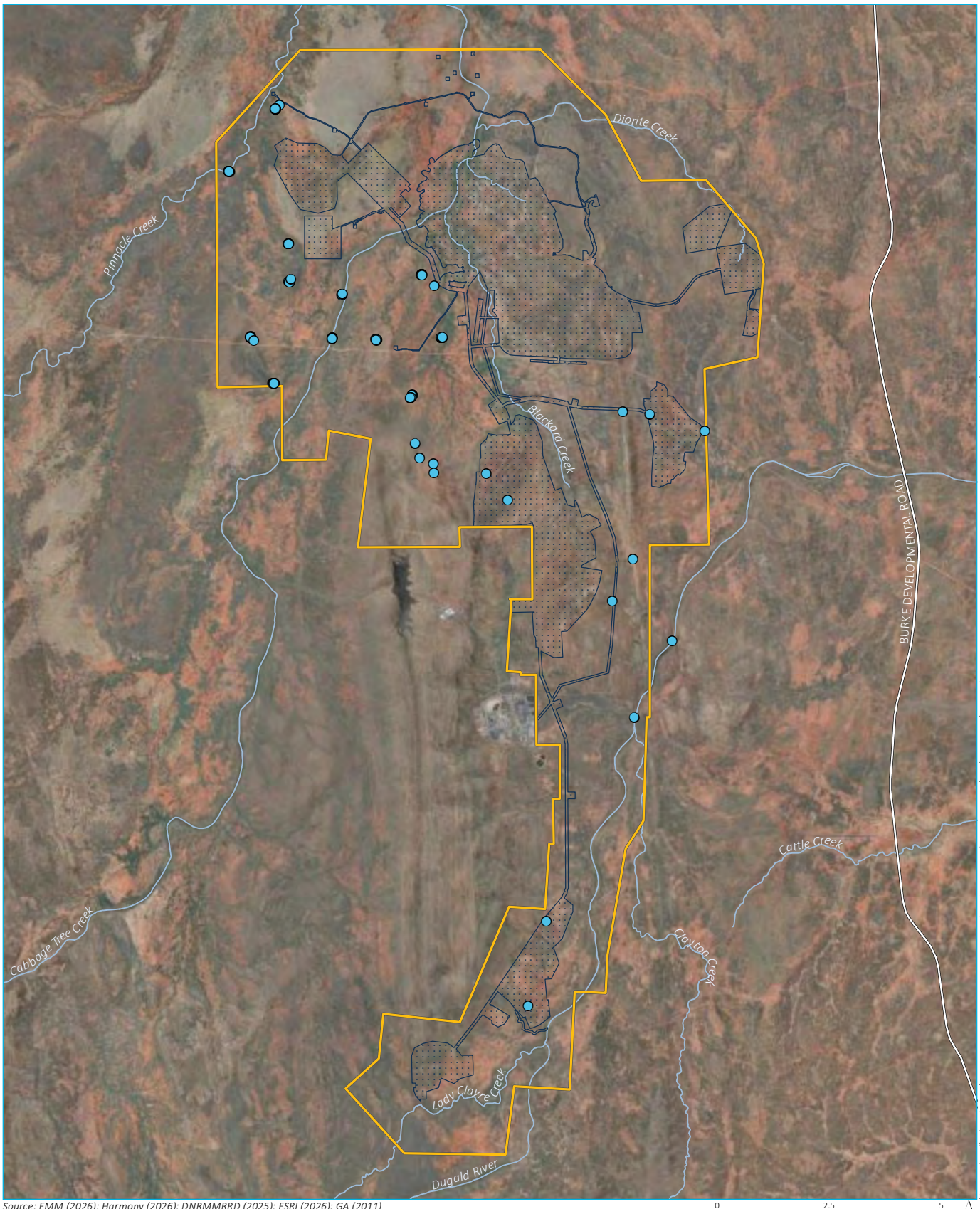
Existing environment

- Major road
- Named watercourse

Active search locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.8

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Song meter monitoring location

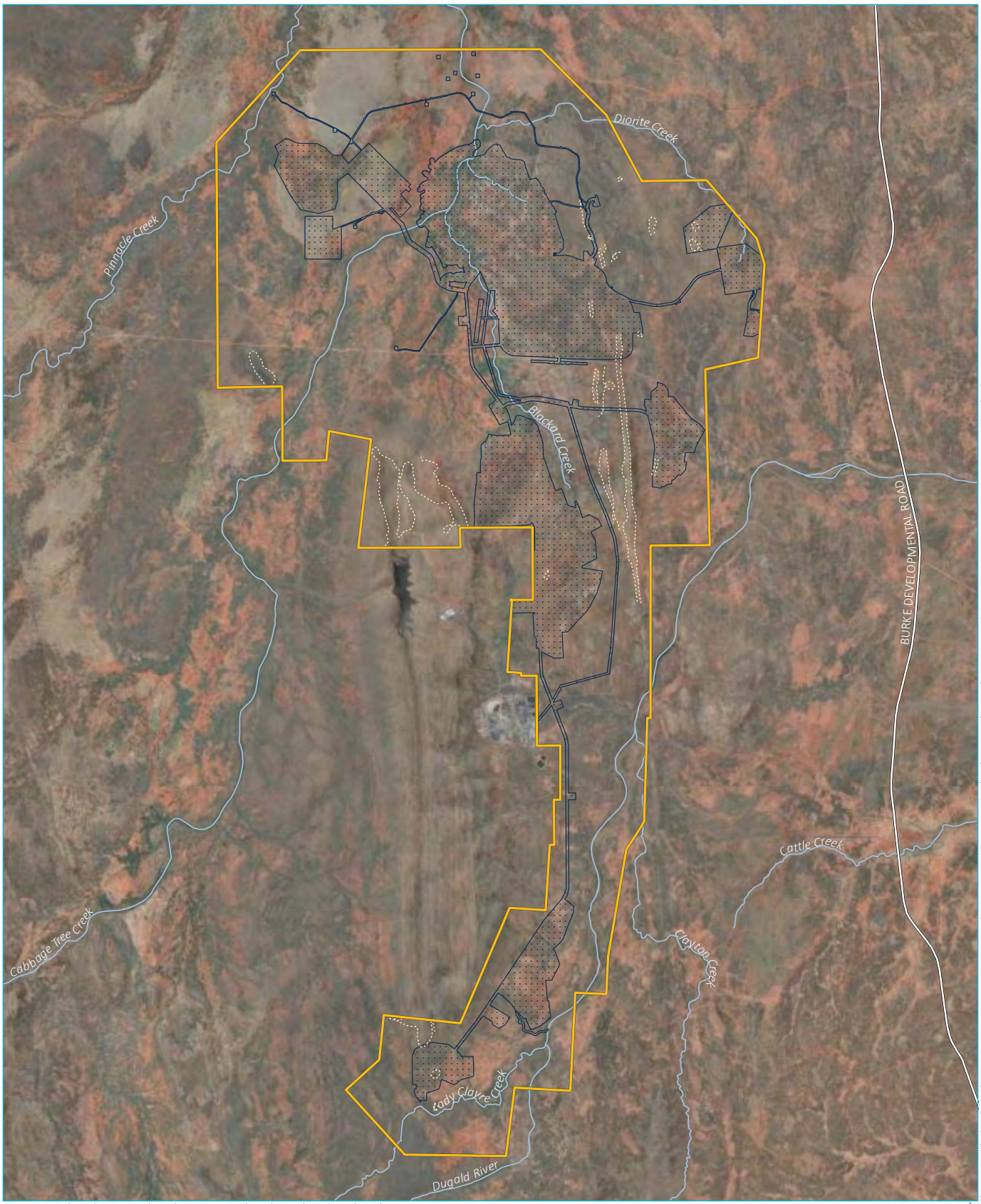
Existing environment

- Major road
- Named watercourse

Song meter monitoring locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.9

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Helicopter survey transect

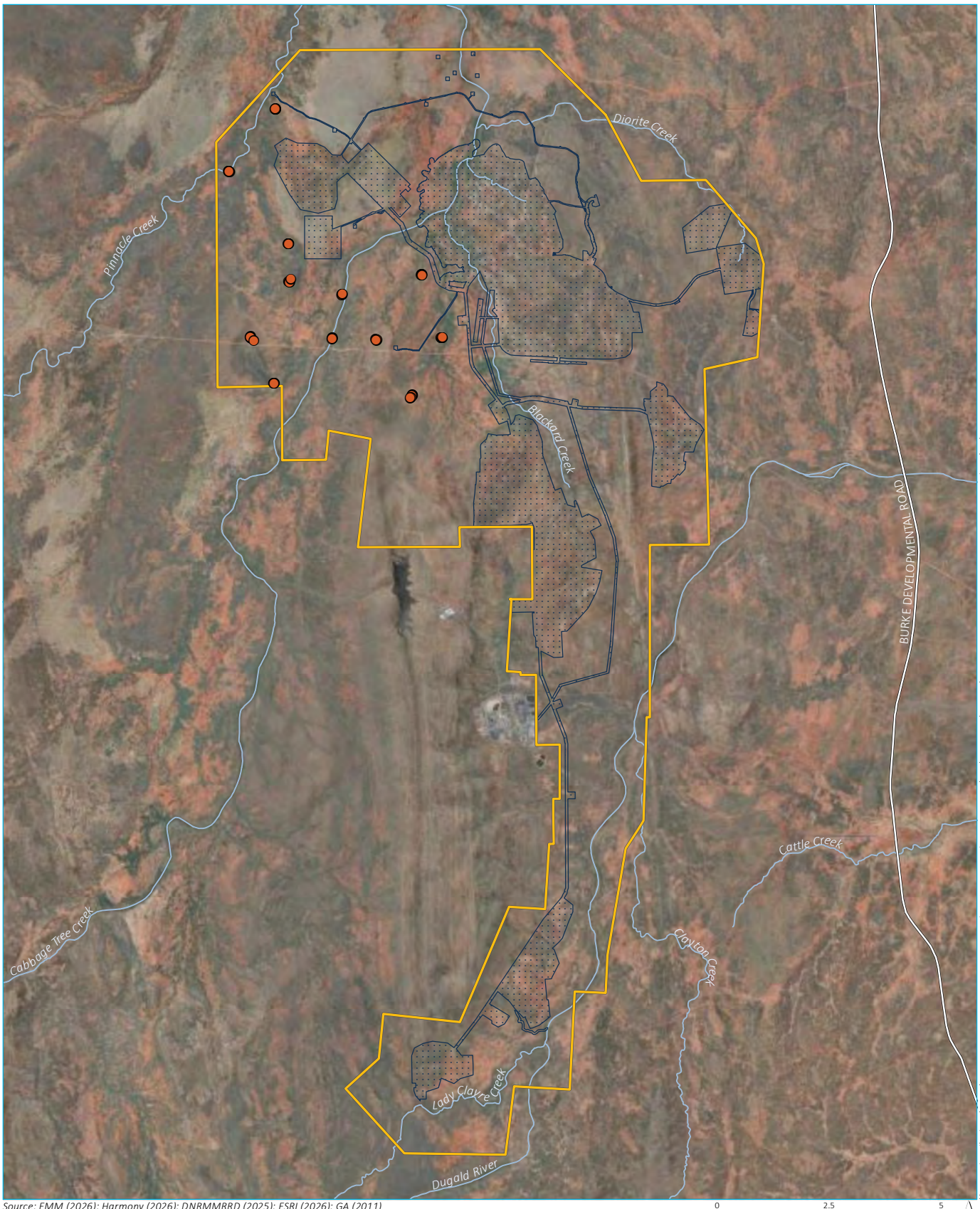
Existing environment

- Major road
- Named watercourse

Helicopter survey transects

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.10

EMM creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- BBUS location

Existing environment

- Major road
- Named watercourse

BBUS locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.11

EMM creating opportunities

xiv Opportunistic observations

Fauna species not detected via other survey methods, including pest species, were recorded as opportunistic observations. Incidental sightings of animal signs such as scat and tracks were recorded as the Project Area was traversed. Ecologists recorded any secondary signs encountered at each site during the survey period, or while walking between sites in the Project Area. Secondary signs can lead to the positive identification of mammals, reptiles and birds. Scats, hair, feathers, bones or nests can often be identified to species level.

4.3.2 Targeted surveys

Target species with specialised breeding, foraging and refuge habitat requirements were assessed by collecting species-specific habitat data in the field as informed, in part, by the SPRAT database, conservation advice, published literature and recovery plans. Targeted surveys completed to date for threatened fauna as well as the relevant guideline and resources used to inform survey methodology is outlined below.

i Threatened birds

Targeted threatened bird surveys have been undertaken in 2022, 2023, 2025 and 2026. Bird surveys were undertaken in accordance with the *Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act* (DEWHA 2010a). Guidelines for detecting birds listed as threatened under the EPBC Act and include a combination of vehicle-based, stationary and walked transects. Targeted bird species recommended survey approached and summary of effort is outlined in Table 4.3

The targeted bird survey program represents a substantial survey effort undertaken across multiple years, seasons and habitat types within the Project Area. Survey methods were informed by the *Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act* (DEWHA 2010a) and incorporated a range of survey techniques, including vehicle-based, stationary and walked transects, to maximise the likelihood of detecting threatened bird species in areas of suitable habitat.

Collectively, the survey effort has provided broad spatial and temporal coverage of the Project Area and generated a robust dataset for characterising the threatened bird assemblage and assessing the likelihood of occurrence of relevant species. The information obtained is considered sufficient to inform the ecological impact assessment and associated decision-making processes for the Project.

Table 4.3 Targeted bird survey methods and effort

Target species	Recommended survey approach via published guidelines	Survey summary
Carpentarian Grasswren (*Amytornis dorotheae*)	The *Survey guidelines for Australia's threatened birds* (DEWHA 2010a) does not explicitly describe targeted surveys for the species. However, recommended methods for surveying inconspicuous passerines include area surveys or transect surveys and broadcast surveys, at 15 hrs for three days for areas less than 50 ha for each survey method. Call playback in suitable habitat is an effective monitoring method for the species (DEWHA 2010a; Southern Gulf NRM 2021), particularly during the early morning (DEWHA 2010a). The Birdlife Northern Queensland Grasswren Survey Methodology (Southern Gulf NRM 2021) outlines a call playback monitoring technique that has been used to successfully monitor the species.	**2022** Bird area searches: 21.5 person hours **2023** Bird area searches: 2.5 person hours **2025** Bird point count: 8.5 person hours **2026** Bird point count: 6 person hours Call playback: 27 surveys Acoustic monitoring: 108 trap nights

Target species	Recommended survey approach via published guidelines	Survey summary
	The survey involves two people standing back-to-back. The call of the Carpentarian Grasswren is played for 20 seconds followed by 30 seconds of silence. If no response is noted the team members switch position and the call is repeated in the opposite direction. This procedure is then repeated with the Kalkadoon Grasswren call. This method is repeated another nine times at 200 m intervals, turning 90 degrees to the left at points 4 and 7. These survey points form three sides of a square 600 m in length, amounting to approximately 10 survey points per site.	**Total effort** Bird area searches: 24 person hours Bird point count: 14.5 person hours Call playback: 27 surveys Acoustic monitoring: 108 trap nights
Red Goshawk (*Erythrotriorchis radiatus*)	In accordance with the *Survey guidelines for Australia's threatened birds* (DEWHA 2010a), surveys conducted inland for Red Goshawk should involve traversing the edges of watercourses and looking for nests within the tallest trees as the species is most likely detected through the presence of nests (DEWHA 2010a). Driving slowly along tracks through woodland scanning groups of tall trees is also an effective method (DEWHA 2010a). The survey effort guide suggests 80 hours of area searches over 10 days (DEWHA 2010a). Call playback during the breeding season has also been successful in detecting the species (DEWHA 2010a), therefore observers should conduct periods of call playback at set intervals along walking transects.	**2022** Bird area searches: 28 person hours **2023** Bird area searches: 18.7 person hours **2024** Bird point count: 6 person hours **2025** Bird point count: 36 person hours **2026** Bird point count: 29.5 person hours Call playback: 4 surveys **Total effort** Bird area searches: 46.7 person hours Bird point count: 71.5 person hours Call playback: 4 surveys
Gouldian Finch (*Chloebia gouldiae*)	The *Survey guidelines for Australia's threatened birds* (DEWHA 2010a) suggest targeted searches around waterholes during the dry season and area searches through areas of suitable habitat for the Gouldian Finch. Guidelines suggest 12 hours of targeted waterhole searches over 4 days, and 20 hours over 5 days of area searches (DEWHA 2010a).	**2022** Bird area searches: 28 person hours **2023** Bird area searches: 18.7 person hours Bird point count: 5 person hours Camera trap: 5 trap-nights **2025** Bird point count: 24 person hours **2026** Bird point count: 20 person hours **Total effort** Bird area searches: 46.7 person hours Bird point count: 49 person hours Camera trap: 5 trap-nights

Target species	Recommended survey approach via published guidelines	Survey summary
Grey Falcon (*Falco hypoleucos*)	There are no specific survey guidelines for Grey Falcon, therefore due to the similarity in habitat used by the Red Goshawk, in particular for breeding, the survey effort for both species was be combined.	**2022** Bird area searches: 28 person hours **2023** Bird area searches: 18.7 person hours **2024** Bird point count: 6 person hours **2025** Bird point count: 36 person hours **2026** Bird point count: 29.5 person hours **Total effort** Bird area searches: 46.7 person hours Bird point count: 71.5 person hours
Night Parrot (*Pezoporus occidentalis*)	The *Survey guidelines for Australia's threatened birds* (DEWHA 2010a), outlines the surveying techniques for Night Parrot which involves a combination of targeted searches at isolated waterholes, evening watches and area searches for feathers around waterholes. Survey effort is not provided in the guidelines. In accordance with guidelines released by the WA Department of Biodiversity, Conservation and Attractions (WADBCA 2024), surveys will also include the deployment of Acoustic Recording Units (ARUs). This method has been used to determine the presence of Night Parrot.	**2022** Walking spotlighting searches: 30.2 km Driving spotlighting searches: 12 km **2023** Walking spotlighting searches: 13 km Driving spotlighting searches: 1.8 km **2024** Walking spotlighting searches: 27.5 km Driving spotlighting searches: 3.7 km **2025** Bird point count: 8.5 person hours 2026 Bird point count: 8 person hours Active search: 3 person hours Call playback 3 person hours Acoustic recorder: 96 trap nights **Total effort** Walking spotlighting searches: 70.7 km Driving spotlighting searches: 17.5 km Bird point count: 16.5 person hours Active search: 3 person hours Call playback 3 person hours Acoustic recorder: 96 trap nights
Painted Honeyeater (*Grantiella picta*)	The species survey guidelines for the Painted Honeyeater (Rowland 2012a) suggests walking area searches during the breeding season through woodland habitat where mistletoes are abundant. Surveys should be undertaken during daylight hours and preferably in the early morning (< 2 hours after sunrise) and late afternoon (< 2 hours before sunset) and avoid inclement weather (i.e. rain and wind) (Rowland 2012a).	**2022** Bird area searches: 28 person hours **2023** Bird area searches: 18.7 person hours **2025** Bird point count: 36 person hours **2026** Call playback: 7 surveys **Total effort** Bird area searches: 82.7 person hours Call playback: 7 surveys

Target species	Recommended survey approach via published guidelines	Survey summary
Fork-tailed Swift (*Apus pacificus*)	No species-specific survey guidelines are available, as such survey methods were adopted from other bird species including bird area searches and bird point counts due to their applicability to a wide range of species.	**2022** Bird area searches: 28 person hours **2023** Bird area searches: 18.7 person hours **2024** Bird point count: 6 person hours **2025** Bird point count: 36 person hours **2026** Bird point count: 24 person hours **Total effort** Bird area searches: 46.7 person hours Bird point count: 66 person hours

ii Threatened mammals

Targeted threatened mammal surveys have been undertaken in 2022, 2023, 2024, 2025 and 2026. Mammal surveys were be undertaken in accordance with the survey guidelines for Australia's threatened mammals (DSEWPC 2011b) and survey guidelines for Australia's threatened bats, (DEWHA 2010b). Targeted mammal species, recommended survey approached and summary of effort is outlined in Table 4.4.

The targeted mammal survey program represents a substantial survey effort undertaken across multiple years, seasons and habitat types within the Project Area and generated a robust dataset for characterising threatened mammal values, assessing the likelihood of occurrence of relevant species and informing the ecological impact assessment for the Project.

Table 4.4 Targeted mammal survey methods and effort

Target species	Recommended survey approach via published guidelines	Survey summary
Ghost Bat (*Macroderma gigas*)	The *Targeted species survey guidelines: Ghost Bat Macroderma gigas (*Hourigan 2011) suggest the following survey methods be used in areas of habitat up to 100 ha in size: • active monitoring with a bat detector and spotlighting, at a rate of 8 hours over 4 nights • harp trapping, at a minimum rate of 8 trap-nights over 4 nights • mist netting (optional), at a minimum rate of 8 mist net hours over 4 nights • roost searches at a rate of two hours per survey day.	**2022** Active monitoring and spotlighting: 9.5 person hours Anabat monitoring: 22 trap-nights **2023** Anabat monitoring: 14 trap-nights Active monitoring and spotlighting: 2 person hours **2025** Anabat monitoring: 8 trap-nights Active monitoring and spotlighting: 1 person hour **2026** Anabat monitoring: 12 trap-nights **Total effort** Active monitoring and spotlighting: 12.5 person hours Anabat monitoring: 46 trap-nights

Target species	Recommended survey approach via published guidelines	Survey summary
Purple-necked Rock-wallaby (*Petrogale purpureicollis*)	The *Targeted species survey guidelines: Purple-necked Rock-wallaby Petrogale purpureicollis* (Rowland 2012b) suggest the following survey methods be used in areas of habitat up to 5 ha in size: Searching for signs (scats, smoothed rock ledges etc.) at a rate of 2 hours per survey day. Infra-red camera trapping in suitable habitat – 5 cameras for 14 nights. Observation surveys, preferably at dawn or dusk, at a rate of 4 hours per survey day. Searching for other inferential evidence, including bones or owl pellets, in suitable areas.	**2022** Active search: 48 person hours Remote camera monitoring: 108 trap-nights **2023** Drone surveys: 2.7 km Remote camera monitoring: 5 trap-nights **2024** Drone surveys: 83 km Remote camera monitoring: 244 trap-nights **2025** Helicopter survey transects: 45 km **Total effort** Active search: 48 person hours Remote camera monitoring: 357 trap-nights Drone surveys: 85.7 km Helicopter survey transects: 45 km
Julia Creek Dunnart (*Sminthopsis douglasi*)	The *Survey guidelines for Australia's threatened mammals* (DSEWPC 2011b) suggests the following survey methods be used in areas of habitat up to 5 ha in size: • Daytime searches for potentially suitable habitat resources, such as Mitchell grass habitat with cracks in the soil that may provide shelter sites. • Collection of predator scats, owl casts or remains in predatory bird/mammal nests/dens. • Hair sampling surveys, as the Julia Creek Dunnart can be identified from hair samples. • Elliott A/E trapping survey conducted according to the technique and effort recommended (100 traps per 5-hectare subject site, set for four or 5 consecutive nights (400 – 500 trap-nights per site)). • Consider the placement of camera traps in suitable habitat as this technique is ideal for cryptic species occurring at low densities – particularly as this species can be readily separated from sympatric Dunnart species.	**2022** Elliot traps: 55 trap-nights Walking spotlighting searches: 30.2 km Driving spotlighting searches: 12 km **2023** Walking spotlighting searches: 13 km Driving spotlighting searches: 1.8 km 2024 Walking spotlighting searches: 27.5 km Driving spotlighting searches: 3.7 km Elliot traps: 94 trap-nights Remote camera monitoring: 540 trap-nights **Total effort** Walking spotlighting searches: 70.7 km Driving spotlighting searches: 17.5 km Elliot traps: 149 trap-nights Remote camera monitoring: 540 trap-nights
Short-beaked Echidna (*Tachyglossus aculeatus*)	No species-specific survey guidelines are available, as such survey methods were adopted from other terrestrial species where surveys where surveys occurred within Short-beaked Echidna habitat.	**2022** Active search: 76 person hours Walking spotlighting searches: 23.3 person hours Driving spotlighting searches: 12 person hours Remote camera monitoring: 166 trap-nights **2023** Walking spotlighting searches: 69 person hours Remote camera monitoring: 47 trap-nights

Target species	Recommended survey approach via published guidelines	Survey summary
		2024 Walking spotlighting searches: 20 person hours Remote camera monitoring: 784 trap-nights **2026** Remote camera monitoring: 483 trap-nights Active searches: 48.6 person hours Vehicle transects: 1166.8 km **Total effort** Active search: 124.6 person hours Walking spotlighting searches: 112.3 person hours Driving spotlighting searches: 12 person hours Vehicle transects: 1166.8 km Remote camera monitoring: 961 trap-nights

iii Threatened reptiles

Targeted threatened reptile surveys have been undertaken in 2022, 2023, 2024, and 2026. Reptile surveys were undertaken in accordance with the survey guidelines for Australia's threatened reptiles (DSEWPC 2011a) and include a combination of remote camera, active search, vehicle-based and walked transects. Targeted reptile species, recommended survey approached and summary of effort is outlined in Table 4.5.

The targeted reptile survey program represents a substantial survey effort undertaken across multiple years, seasons and habitat types within the Project Area. Survey methods were informed by the *Survey guidelines for Australia's threatened reptiles* (DSEWPC 2011a) and incorporated a range of complementary survey techniques, including remote cameras, active searches, vehicle-based transects and walked transects, to maximise the likelihood of detecting threatened reptile species where present.

The cumulative survey effort has provided extensive spatial and temporal coverage of habitats within the Project Area and generated a robust evidence base for characterising threatened reptile values, assessing the likelihood of occurrence of relevant species and informing the ecological impact assessment for the Project.

Table 4.5 Targeted reptile survey methods and effort

Target species	Recommended survey approach via published guidelines	Survey summary
Plains Death Adder (*Acanthophis hawkei*)	No species-specific survey guidelines are available for Plains Death Adder. The *Survey guidelines for Australia's threatened reptiles* (DSEWPC 2011a) outlines general reptile survey techniques but does not prescribe specific survey techniques for any *Acanthophis* species. The *Acanthophis hawkei (Plains Death Adder) Listing Advice* (TSSC 2012a) suggests that survey effort should be large, particularly in populations invaded by Cane Toads. The *Listing Advice* recommends nocturnal vehicle transects in suitable habitat as a survey method. Targeted species survey guidelines for another *Acanthophis* species, *Acanthophis antarticus*, suggests nocturnal vehicle transects as the primary survey effort, and suggests that pitfall and funnel trapping can be completed in addition to vehicle transects (Rowland & Ferguson 2012).	**2022** Walking spotlighting searches: 30.2 km Driving spotlighting searches: 12 km **2023** Walking spotlighting searches: 13 km Driving spotlighting searches: 1.8 km **2024** Walking spotlighting searches: 27.5 km Driving spotlighting searches: 3.7 km **2026** Walking spotlighting searches: 8.7 km Driving spotlighting searches: 57.2 km

Target species	Recommended survey approach via published guidelines	Survey summary
		Total effort: Walking spotlighting searches: 79.4 km Driving spotlighting searches: 74.7 km
Mertens' Water Monitor (*Varanus mertensi*)	The *Survey guidelines for Australia's threatened reptiles* (DSEWPC 2011a) outlines general reptile survey techniques but does not prescribe specific survey techniques for any varanid species. Relevant sections from the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (Eyre et al. 2022) suggest the following general methods for surveying reptiles: Diurnal active search for 2 x 30 person-minute searches within 2 different 50 x 50 m quadrants of the survey site. Camera trapping with 1 camera per site for minimum of 4 nights.	**2021** Aquatic ecology survey of 17 aquatic sites (refer Section 4.5) **2022** Aquatic ecology survey of 17 aquatic sites (refer Section 4.5) Active search: 5.5 person hours **2023** Walking transect: 5 km Remote camera monitoring: 6 trap-nights Active search: 1 person hour **2026** Walking transect: 46.2 km Remote camera monitoring: 6 trap-nights **Total effort** Walking transect: 51.2 km Remote camera monitoring: 12 trap-nights Active search: 6.5 person hours
Northen Blue-tongued Skink (*Tiliqua scincoides intermedia*)	No specific survey guidelines are available for the Northern Blue-tongue Skink. The *Survey guidelines for Australia's threatened reptiles* (DSEWPC 2011a) outline general reptile survey techniques but does not prescribe specific survey techniques for the species.	**2026** Remote camera monitoring: 483 trap-nights Active searches: 48.6 person hours Vehicle transects: 1166.8 km

iv Pest fauna

Targeted Cane Toad monitoring was initiated in 2026. Cane Toad surveys were undertaken in accordance with the *Survey guidelines for Australia's threatened frogs* (DEWHA 2010c) and include visual encounter surveys whilst walking along a transect. Cane Toad recommended survey approached and a summary of effort is outlined in Table 4.6.

As Cane Toads are an invasive species, there are no prescribed survey adequacy requirements or species-specific survey guidelines for assessing their presence or abundance. The monitoring methodology adopted provides a suitable framework for detecting Cane Toads and establishing baseline information for the Project Area. The 2026 surveys should be considered preliminary in nature and provide an important foundation for future monitoring. Ongoing monitoring will improve understanding of Cane Toad distribution, abundance and population trends over time and enable the effectiveness of management actions to be evaluated.

Table 4.6 Targeted Cane Toad survey methods and effort

Target species	Date	Recommended survey approach via published guidelines	Survey summary
Cane Toad (*Rhinella marina*)	9–25 May 2026	No specific state or federal survey guidelines are available for monitoring Cane Toads. While it is acknowledged that Cane Toads are an invasive species, the *Survey guidelines for Australia's threatened frogs* (DEWHA 2010c) has been consulted as it outlines general amphibian survey techniques. In accordance with appropriate amphibian survey methods (DEWHA 2010c), Visual Encounter Surveys (VES) are used to survey for Cane Toads. VES have been successful in surveying amphibian species (DEWHA 2010c).	**2026** Walking/driving transects: 12.8 km

4.3.3 Habitat mapping

For the fauna species identified as known and moderate likelihood of occurrence habitat mapping was undertaken to identify the available habitat with the Project Area. Mapping rules for each species were established to inform the value and utilisation of the habitat considered critical and or habitat that provides a functional role for the species.

4.4 Terrestrial flora

Vegetation community surveys and surveys for threatened flora were designed and implemented in accordance with the following guidelines:

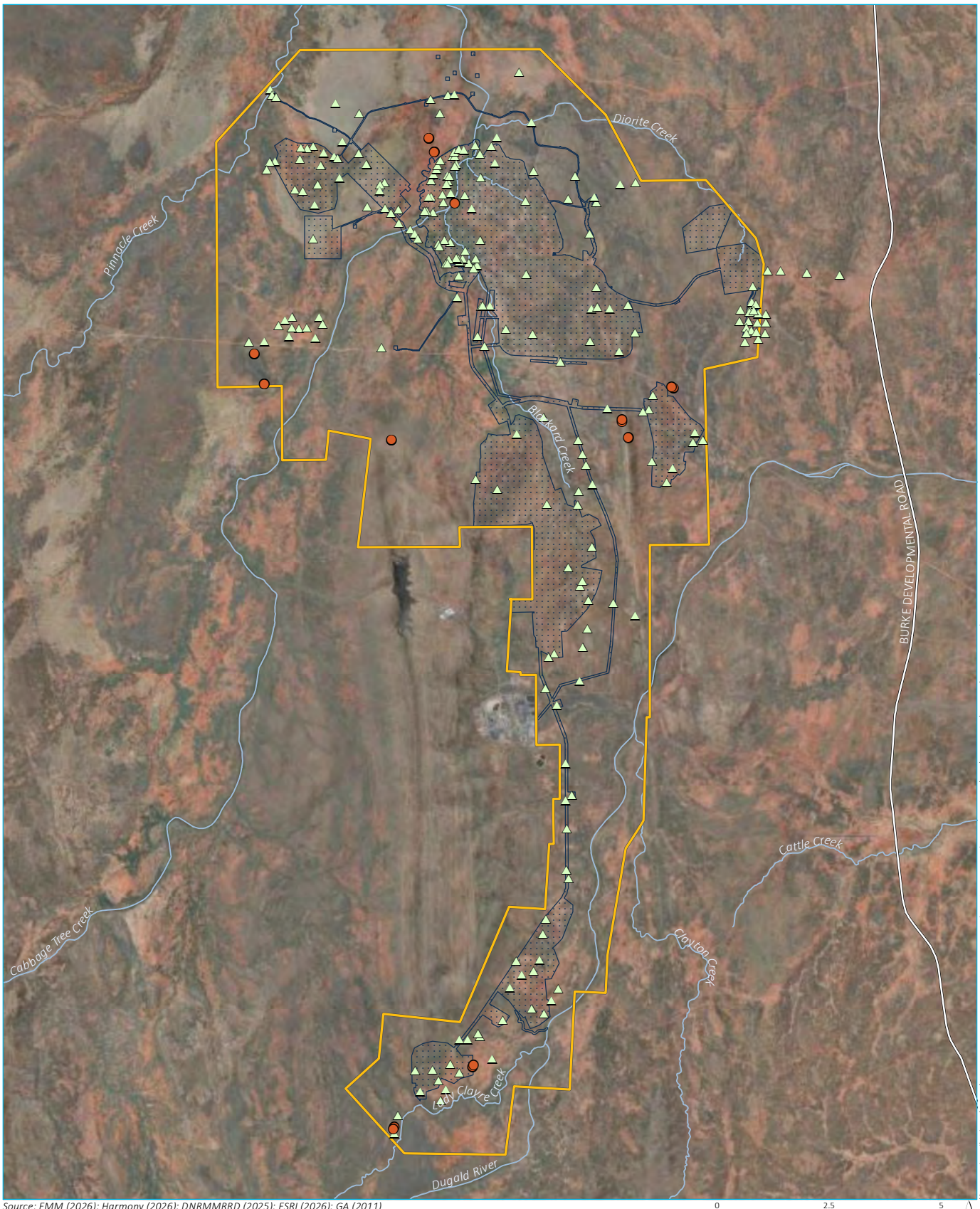
- *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland, Version 7.0* (Neldner et al. 2023)
- BioCondition Assessment Manual (Eyre et al. 2015)
- Guide to determining terrestrial habitat quality, Version 1.3 (DETSI 2020).

Flora surveys have been conducted throughout the Project Area between May 2022 and May 2026 for a total of 228 quaternary assessments. Ten BioCondition survey sites were assessed in August 2023 (dry season) and again in November/December 2023 (early wet season). A summary of total flora survey effort is provided in Table 4.7 and presented on Figure 4.12.

Table 4.7 Flora survey effort summary

Survey	Date	Team	Effort
Flora Survey 1	18–24 May 2022 Early dry season survey	Vanessa Boettcher Sarah Glauert	• 27 Quaternary assessments • 1 BioCondition
Flora Survey 2	7–13 August 2023 Dry season survey	Vanessa Boettcher Rachel Scott	• 27 Quaternary assessments • 10 BioCondition
Flora Survey 3	27 November–4 December 2023 Early wet season survey	Vanessa Boettcher Lindsay Wickson	• 16 Quaternary assessments • 10 BioCondition

Survey	Date	Team	Effort
Flora Survey 4	14–18 March 2024	Rachel Scott Lindsay Wickson	• 44 Quaternary assessments
Flora Survey 5	6–10 April 2024	Vanessa Boettcher Sandra Walters Sarah Glauert Elliot Leach	• 45 Quaternary assessments
Flora Survey 6	13–18 November 2024	Sandra Walters Rebecca Simpson Vanessa Boettcher Emily Havas	• 67 Quaternary assessments
Flora survey 7	18–27 May 2026	Rebecca Simpson Ronnie Gardiner	• 2 Quaternary assessments



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

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KEY

- Project area
- Project footprint

Flora survey monitoring location

- BioCondition site
- Quaternary site

Existing environment

- Major road
- Named watercourse

Flora survey monitoring locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.12

EMM creating opportunities

4.4.1 Survey methods

i Vegetation assessments

Vegetation community survey methods were consistent with the *Methodology for Surveying and Mapping Regional Ecosystems and Vegetation Communities in Queensland, Version 7.0* (Nelder et al. 2023). Quaternary assessments were completed to characterise vegetation structure, species composition and land zone. At each site, data was collected on canopy, midstorey and ground layer composition, vegetation condition and soil characteristics relevant to RE classification. In addition, rapid vegetation assessments were undertaken as required to provide supplementary data on proposed RE classifications and boundaries.

BioCondition assessments were undertaken in accordance with the Queensland Herbarium BioCondition methodology (Eyre et al. 2015).

ii Threatened flora

Targeted threatened flora surveys were not undertaken for the Project Area. Surveys for threatened flora were undertaken on an incidental basis during all field assessments, including BioCondition, quaternary and rapid vegetation assessments.

Potentially occurring threatened flora species were recorded opportunistically during field surveys, with particular attention given to species assessed as having a moderate or higher likelihood of occurrence. Several Special Least Concern species were not considered for survey as these do not require an impact assessment. Species with suitable habitat were retained as having potential to occur regardless of whether they were observed during field surveys.

4.4.2 Ground-truthed Regional Ecosystem mapping

Refinement of the of State mapped REs was undertaken using field data to produce a ground-truthed regional ecosystem (GTRE) map of the Project. This process integrated quaternary and rapid vegetation assessments with desktop interpretation of aerial imagery, and existing RE mapping to refine RE boundaries. GTRE mapping was extrapolated across the Project Area where possible, although mapping confidence decreased with distance from survey sites.

4.4.3 Habitat mapping

For flora species identified as known and moderate likelihood of occurrence habitat mapping was undertaken to identify the available habitat with the Project Area. Only Special Least Concern species that were identified within the Project Area were included in the mapping as these do not require assessment. Mapping rules for each species were established to inform the areas that have the required and or suitable condition for the species to establish and thrive.

4.5 Aquatic ecology

Aquatic ecology field surveys were undertaken by Freshwater Ecology during two survey events conducted in December 2021 and May 2022 to characterise aquatic habitat values and aquatic communities within the Project Area (Table 4.8). Surveys were completed across 17 assessment sites located within the Dugald River, Cabbage Tree Creek and associated tributaries, providing representative coverage of the range of aquatic environments present within the broader study area.

Table 4.8 Aquatic ecology survey effort summary

Survey	Date	Personnel	Effort
Aquatic Ecology Baseline Survey (Round 1)	2–5 December 2021	Timothy Howell (Freshwater Ecology)	Survey of 17 aquatic sites including habitat, water quality, aquatic flora, macroinvertebrates, fish and turtle surveys.
Aquatic Ecology Baseline Survey (Round 2)	17–19 May 2022	Timothy Howell (Freshwater Ecology)	Repeat survey of 17 aquatic sites including habitat, water quality, aquatic flora, macroinvertebrates, fish and turtle surveys to characterise seasonal variation in aquatic ecological values.

Field investigations incorporated aquatic habitat assessments, water quality monitoring, aquatic flora surveys, macroinvertebrate sampling, fish surveys and targeted observations for aquatic reptiles and other aquatic fauna. Aquatic habitat assessments documented channel morphology, flow characteristics, substrate composition, riparian vegetation structure, aquatic macrophyte abundance, instream woody debris, mesohabitat diversity and other habitat attributes relevant to aquatic ecosystem function. Habitat condition was assessed using the Queensland Australian River Assessment System (AUSRIVAS) habitat bioassessment framework (DNRM 2001), which provides a standardised assessment of stream and riparian habitat quality.

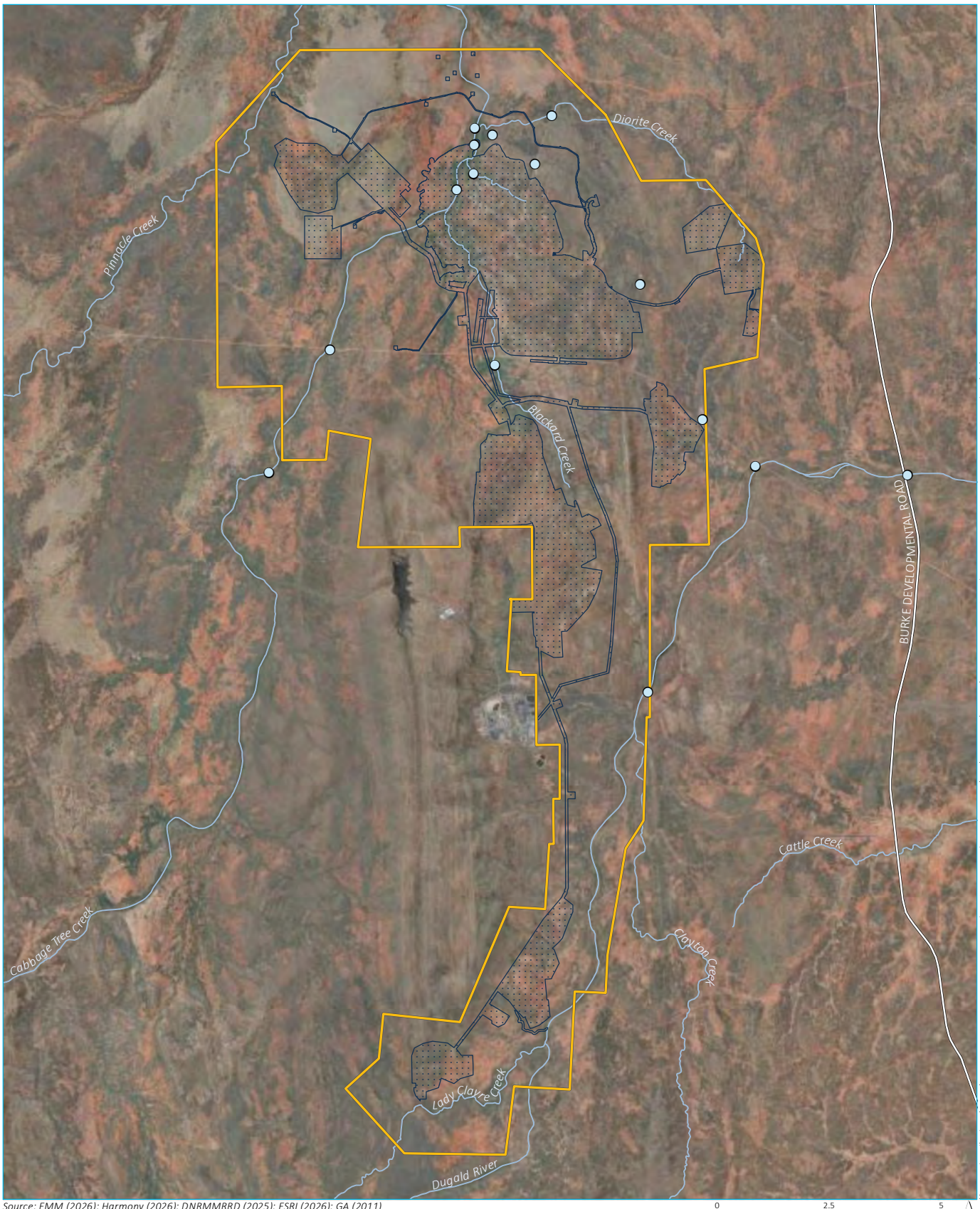
Water quality measurements were collected in situ at sites containing water and included temperature, dissolved oxygen, pH, electrical conductivity and turbidity. Aquatic macroinvertebrates were sampled in accordance with the Queensland AUSRIVAS Sampling and Processing Manual (DNRM 2001) and the Monitoring and Sampling Manual: Environmental Protection (Water) Policy (DES 2018), with sampling targeting the range of available habitat types present at each site. Macroinvertebrate community composition, taxa richness and pollution sensitivity indices were subsequently used to characterise ecological condition and aquatic ecosystem health.

Fish surveys were undertaken using a combination of backpack electrofishing, box trapping and fyke netting techniques, consistent with the Australian Code of Electrofishing Practice (NSW Fisheries 1997) and relevant Queensland aquatic ecology monitoring guidance. Turtle trapping was also undertaken at sites supporting persistent aquatic habitat. Survey methods were selected to maximise detection of fish and other aquatic vertebrate species across a range of habitat types and flow conditions. Collectively, the survey program was designed to provide a robust baseline characterisation of aquatic ecological values and seasonal variability within the Project Area.

Aquatic ecology survey locations are illustrated on Figure 4.13.

4.5.1 Waterway providing for fish passage

Waterways providing for fish passage are listed as an MSES under Schedule 2 of the Environmental Offsets Regulation 2014. This states that any part of a waterway providing for fish passage is a MSES only if the construction, installation or modification of waterway barrier works carried out under an authority will limit the passage of fish along the waterway. Waterways for the purposes of assessing fish passage are limited to those which are mapped in the spatial layer "*Queensland waterways for waterway barrier works*" (WWBW) by the Department of Agriculture and Fisheries (DAF 2018). The outcomes from mapping the waterways providing for fish passage across the Project Area are presented in Section 5.4.3.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Aquatic ecology survey location

Existing environment

- Major road
- Named watercourse

Aquatic ecology survey locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.13

EMM creating opportunities

4.6 Groundwater-dependent ecosystems

GDEs are ecosystems relying on groundwater on a permanent or intermittent basis to meet all or some of their water requirements. GDEs are grouped into three categories based on their type of groundwater reliance:

- **Aquatic GDEs**: dependent on the surface expression of groundwater, e.g. groundwater-fed wetland systems (i.e. swamps) and other surface water bodies (i.e. lakes and rivers).
- **Terrestrial GDEs**: dependent on the subsurface expression of groundwater, e.g. terrestrial vegetation with typically deep-rooted trees.
- **Subterranean GDEs**: occur within caves and aquifers, e.g. stygofauna.

A study undertaken by EMM (2025a) reviewed the potential of GDEs to be present within and around the Project Area. Resources such as the BOM atlas and the wetland mapping were reviewed in addition to evaluating factors such as REs present on site, depth to groundwater table, quality of the available groundwater and the rooting depth of the dominant species related to each RE, as well as information available on the groundwater and surface water connectivity. A field survey was undertaken as part of the study between 11 and 17 September 2025 to collect isotope samples to determine the potential connection between vegetation and groundwater usage (refer Table 4.9; Figure 4.14). The survey was timed to occur during the dry season to best determine a stronger correlation between vegetation, water access and usage. Fifteen GDE assessment sites were selected across the Project Area to represent a range of predicted groundwater dependency levels, from high to negligible potential, including one reference site with no expected groundwater influence. The sites were distributed across different geomorphic settings to provide representative coverage of environmental conditions and enable comparison of potential groundwater-dependent ecosystems and associated impact pathways. The outcomes of the GDE study are presented in Section 5.5.

Table 4.9 GDE site assessment locations

Assessment site	Location/geomorphic position	Number of trees sampled pre-dawn	Surface water/groundwater samples
GDE 1	• Located on upper terrace above Cabbage Tree Creek • West of Little Eva Pit • RE: 1.5.4d low open woodland • Rocky/gravelly soil • DTGW: 10-15 mbgl LOW GDE Potential based on the BOM Atlas	3	Cabbage Tree Creek was dry. WEB07D sampled next to GDE 1
GDE 2	• Located on Diorite Creek • North-east of Turkey Pit • RE: 1.3.7b low open woodland on metamorphics • DTGW: 0-5 mbgl LOW GDE Potential based on the BOM Atlas	3	Diorite Creek was dry. NBMB005 sampled next to GDE 2.
GDE 3	• Located in southern section of mining lease, near Dugald River. • North of Scanlan Pit • Rocky/gravelly soil • RE: 1.5.4d/1.11.2a sparse, open woodland, dominated by Corymbia • DTGW: 5-10 mbgl NON GDE Potential based on the BOM Atlas	3	Dugald River was dry. SC040 sampled in between GDE 3 and GDE 4.

Assessment site	Location/geomorphic position	Number of trees sampled pre-dawn	Surface water/groundwater samples
GDE 4	• Located near Lady Clayre Creek • East of Lady Clayre Pits • RE: 1.5.4a sparse open woodland with few tall trees present. • Situated on red earths • DTGW: 5-10 mbgl NON GDE Potential based on the Bom Atlas	3	Lady Clayre Creek was dry. SC040 sampled in between GDE 3 and GDE 4.
GDE 5 Reference site	• Located near Lady Clayre Creek. • Off-site within the southern drawdown area • RE: 1.3.13 low open woodland, with some riparian species present. Non-creek vegetation dominates and extends close to creek edge. • DTGW: 5-10 mbgl HIGH GDE Potential based on the BOM Atlas	3	Lady Clayre Creek was dry. No groundwater sample collected.
GDE 6	• Situated near non-perennial watercourses. • North-east of Blackard Pit • RE: 1.3.7b/1.11.2a low open woodland on metamorphics • Dominated by creek vegetation, however non-creek species present. • Area to west of GDE trees burnt in 2025 so no trees present only Shrubs resprouting from bases • DTGW: 5-10 mbgl HIGH GDE Potential based on the BOM Atlas	3	Watercourse was dry. BCR474 sampled next to GDE 6.
GDE 7	• Located next to Dugald River. • Adjacent *to* Longamundi waterhole. • RE: 1.3.7b Eucalyptus woodland on channels and levees. • Sandy soil in banks. obvious high flow onto terrace at times with debris built up in places • DTGW: 5-10 mbgl LOW GDE Potential based on the BOM Atlas	3	Longamundi waterhole sampled. No groundwater sample collected.
GDE 8	• Located on Cabbage Tree Creek. • North of large high-potential GDE area. • Sandy and rocky creek bed with low banks on both sides, before jumping up to an upper terrace. • RE: 1.3.7a: Eucalyptus woodland • Grey heavy clay soils • Large, tall remnant trees, little to no ground cover. • Cows have access to location • DTGW: 5-10 mbgl HIGH GDE Potential based on the BOM Atlas	4	Cabbage Tree Creek was dry. WEB03D sampled in vicinity of GDE 8

Assessment site	Location/geomorphic position	Number of trees sampled pre-dawn	Surface water/groundwater samples
GDE 9	• East of Bedford North. • RE: 1.3.7b Eucalyptus woodland on channels and levees. • Located on non-perennial watercourse. • Surrounding regional ecosystem on upper terrace very sparse. • DTGW: 5-10 mbgl NON GDE Potential based on the BOM Atlas	3	No surface water present near GDE site. No groundwater sample collected.
GDE 10	• Off-site to the east of the Project Area within a high potential GDE not affected by drawdown. • RE: 1.11.3a Low open woodland on alluvial and residual soils • Area burnt 2025. many trees resprouting as shrubs at base • DTGW: 10-15 mbgl NON GDE Potential based on the BOM Atlas	3	No surface water or groundwater bore near GDE site.
GDE 11	• Off-site to the west of the Project Area within large high potential GDE area with large, expected drawdown potential • Located on Cabbage Tree Creek • RE: 1.3.7a/1.3.6b/2.3.50a Eucalyptus woodland on channels and levees • High bank on eastern side and low terrace on western side extending a fair way • DTGW: 0-5 mbgl HIGH GDE Potential based on the BOM Atlas	3	Cabbage Tree Creek was dry. No groundwater bore near GDE site.
GDE 12	• Off-site to the east of the Project Area within a high potential GDE. • Riparian area beside Dugald River. • RE: 1.3.7a Eucalyptus woodland on levees and minor drainage lines. • Some water standing in pools • DTGW: 5-10 mbgl LOW GDE Potential based on the BOM Atlas	3	Dugald River sampled. No groundwater bore near GDE site.
GDE 13	• Off-site to the north of the Project Area within large potential drawdown. • RE: 1.11.3a sparse, low open woodland. • Relatively dense shrubby layer of *A. chisolmii*. • DTGW: 10-15 mbgl LOW GDE Potential based on the BOM Atlas	3	No surface water near GDE site. NBMB009 sampled near GDE 13.

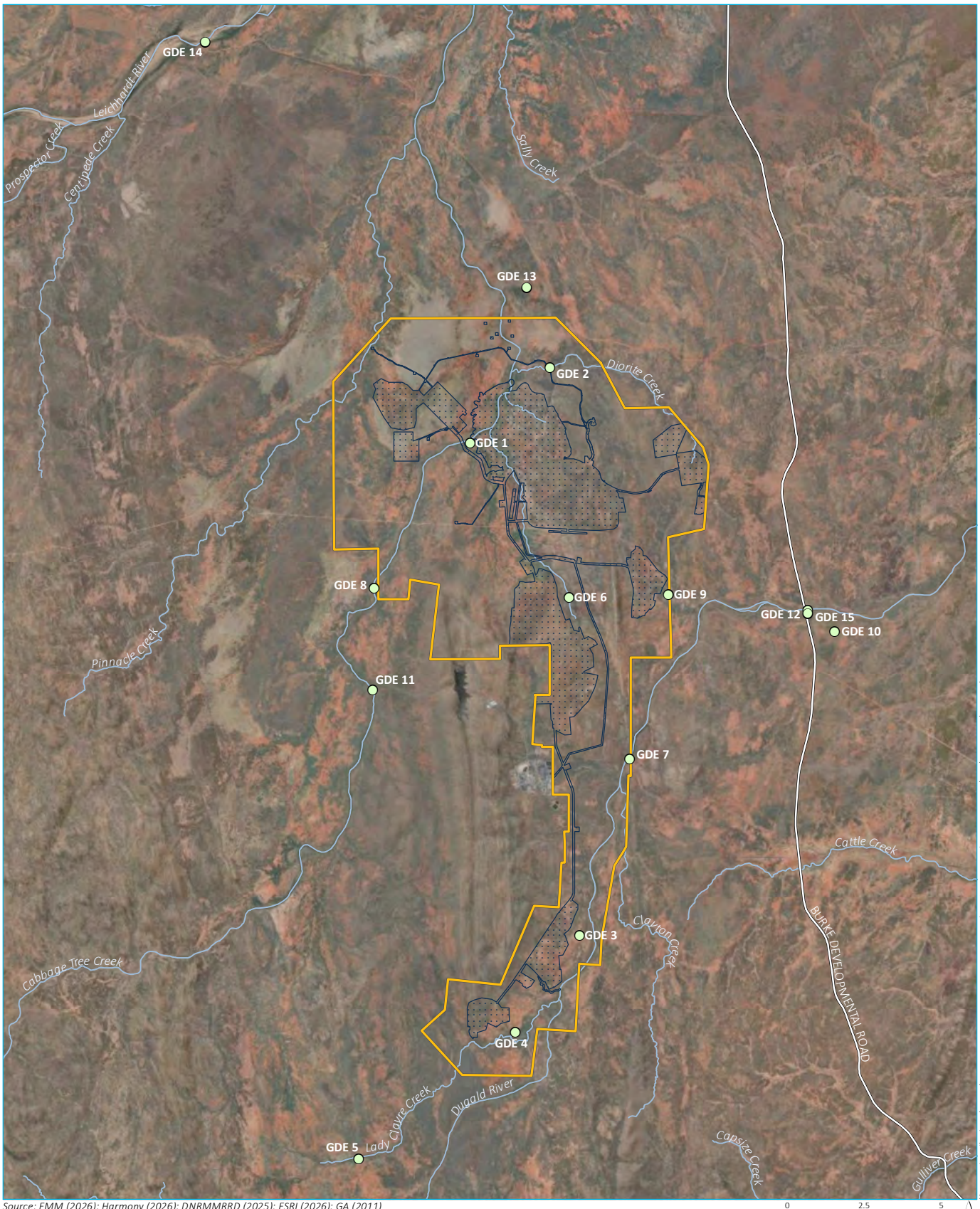
Assessment site	Location/geomorphic position	Number of trees sampled pre-dawn	Surface water/groundwater samples
GDE 14	• Located on Leichhardt River. • Far north of the Project Area within a high potential GDE and drawdown potential. • RE: 1.3.7a/1.3.6a remnant vegetation along creek bed. • Surface water present. • Very weedy ground cover • DTGW: 10-15 mbgl HIGH GDE Potential based on the BOM Atlas	3	Leichhardt River sampled. No groundwater bore near GDE site.
GDE 15 Reference site	• RE: 1.11.3b sparse woodland. Relatively small trees. Dense Triodia in ground layer • DTGW: 10-15 mbgl NON GDE Potential based on the BOM Atlas	3	Dugald River sampled. No groundwater bore near GDE site.

4.6.1 Stygofauna

Freshwater Ecology Consulting (Freshwater Ecology) was engaged to conduct a stygofauna pilot survey for the Project in May 2022 (refer Table 4.10). A total of 14 groundwater bores were selected across the Project Area by Freshwater Ecology for pilot survey sampling consisting of four bores used for cattle watering, nine bores used for groundwater monitoring and one drilled for exploration purposes. Bores were sampled for stygofauna from 18 to 22 May 2022 in accordance with the methods defined in Queensland *Environment Protection (Water) Policy 2009 – Monitoring and Sampling Manual for Biological Assessment* (DES 2018). The bores sampled were from a range of aquifers across the Project Area including alluvium, Fractured Proterozoic rocks, and Kajabbi formation limestone.

Table 4.10 Stygofauna survey effort summary

Survey	Date	Personnel	Effort
Stygofauna Pilot Survey	18–22 May 2022	Timothy Howell (Freshwater Ecology) Garry Bennison (Freshwater Ecology)	Pilot stygofauna survey of 14 groundwater bores distributed across the Project Area.
GDE validation surveys	11–17 September 2025	Ann Stray Lucy Bennett	15 assessment sites including analysis of: • Leaf water potential • Vegetation assessment • Soil moisture potential • Isotope analysis



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Project footprint
- GDE assessment site

Existing environment

- Major road
- Named watercourse

GDE assessment locations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 4.14

EMM creating opportunities

5 Results

5.1 Desktop assessment

The desktop assessment considered Queensland MSES and Commonwealth MNES within the Project Area and 50 km outside the Project Area through the search and review of information accessed through the following:

- Queensland Globe (Queensland Government) was reviewed to identify mapped MSES.
- PMST was used to search for MNES with and outside of the Project Area. The full PMST report is provided in Annexure A.1
- Findings from the ALA search, WildNet (DETSI) search and the other information sources listed in Section 4.2 were used to assess potential occurrence against habitat in the LoO, Search results are compiled in Annexure A.2.
- Peer reviewed materials and previous ground truthed information available from the Project.

5.1.1 Initial likelihood of occurrence

The initial LoO assessment identified the possible occurrence of 26 threatened or conservation significant fauna species, 13 migratory/marine bird species and nine flora species, or their habitat, within the Project Area or buffer areas.

The initial LoO assessment identified 17 species listed under the EPBC or NC Act that are either known to occur or have a moderate likelihood of occurring within the Project Area (Table 5.1). The full results of the initial LoO assessment are presented in Annexure B.

The revised LoO following field surveys is presented in Section 5.7.

Table 5.1 Initial LoO assessment outcomes

Scientific name	Common name	EPBC Act status	NC Act status	LoO
Birds				
Amytornis dorotheae	Carpentarian Grasswren	Endangered	Endangered	**Moderate**
Calidris acuminata	Sharp-tailed Sandpiper	Vulnerable; Marine; Migratory	Vulnerable	Low
Calidris ferruginea	Curlew Sandpiper	Critically Endangered; Marine; Migratory	Critically Endangered	Unlikely
Chloebia gouldiae	Gouldian Finch	Endangered	Endangered	Low
Erythrotriorchis radiatus	Red Goshawk	Endangered	Endangered	Low
Falco hypoleucos	Grey Falcon	Vulnerable	Vulnerable	**Moderate**
Gallinago hardwickii	Latham's Snipe	Vulnerable; Marine; Migratory	Vulnerable	Low
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	**Known**
Malurus coronatus	Purple-crowned fairy-wren	-	Vulnerable	Unlikely
Pezoporus occidentalis	Night Parrot	Critically Endangered	Endangered	Low

Scientific name	Common name	EPBC Act status	NC Act status	LoO
Polytelis alexandrae	Princess parrot	Vulnerable	Least Concern	Low
Rostratula australis	Australian Painted Snipe	Endangered; Marine	Endangered	Low
Tringa nebularia	Greenshank	Endangered; Marine; Migratory	Endangered	Low
Migratory birds				
Actitis hypoleucos	Common Sandpiper	Marine; Migratory	Special Least Concern	Low
Apus pacificus	Fork-tailed Swift	Marine; Migratory	Special Least Concern	**Known**
Calidris melanotos	Pectoral Sandpiper	Marine; Migratory	Special Least Concern	Low
Charadrius veredus	Oriental Plover	Marine; Migratory	Special Least Concern	Low
Glareola maldivarum	Oriental Pratincole	Marine; Migratory	Special Least Concern	Low
Hirundo rustica	Barn Swallow	Marine; Migratory	Special Least Concern	Unlikely
Hydroprogne caspia	Caspian tern	Marine; Migratory	Special Least Concern	Unlikely
Motacilla cinerea	Grey Wagtail	Marine; Migratory	Special Least Concern	Low
Motacilla flava	Yellow Wagtail	Marine; Migratory	Not listed	Unlikely
Pandion haliaetus	Osprey	Marine; Migratory	Special Least Concern	Low
Plegadis falcinellus	Glossy ibis	Marine; Migratory	Special Least Concern	Low
Tringa glareola	Wood Sandpiper	Marine; Migratory	Special Least Concern	Low
Tringa stagnatilis	Marsh Sandpiper	Marine; Migratory	Special Least Concern	Low
Fish				
Pristis pristis	Largetooth Sawfish	Endangered; Migratory	Endangered	Unlikely
Mammals				
Macroderma gigas	Ghost Bat	Vulnerable	Endangered	**Moderate**
Macrotis lagotis	Greater Bilby	Vulnerable	Endangered	Low
Petrogale purpureicollis	Purple-necked Rock-wallaby	-	Vulnerable	**Known**
Sminthopsis douglasi	Julia Creek Dunnart	Vulnerable	Vulnerable	Low
Tachyglossus aculeatus	Short-beaked Echidna	-	Special Least Concern	**Known**
Reptiles				
Acanthophis hawkei	Plains Death Adder	Vulnerable	Vulnerable	**Moderate**
Crocodylus johnsonii	Freshwater Crocodile	Marine	Least Concern	Low
Crocodylus porosus	Estuarine Crocodile	-	Vulnerable	Low
Elseya lavarackorum	Gulf Snapping Turtle	Endangered	Vulnerable	Unlikely
Emydura subglobosa worrelli	Diamond Head Turtle	-	Near Threatened	**Moderate**

Scientific name	Common name	EPBC Act status	NC Act status	LoO
Tiliqua scincoides intermedia	Northern Blue-tongued Skink	Critically Endangered	Critically Endangered	**Known**
Varanus mertensi	Mertens' Water Monitor	Endangered	Endangered	**Known**
Flora				
Brachychiton collinus	Hill Kurrajong	-	Special Least Concern	**Moderate**
Dichanthium setosum	-	Vulnerable	Least Concern	**Moderate**
Eucalyptus nudicaulis	Mt Isa Mallee	Endangered	Endangered	Unlikely
Ipomoea antonschmidii	-	-	Near Threatened	**Moderate**
Livistona rigida	Fan Palm	-	Special Least Concern	**Known**
Najas tenuifolia	Water Nymph	-	Special Least Concern	**Moderate**
Potamogeton crispus	Curly pondweed	-	Special Least Concern	Low
Ptilotus maconochiei	-	-	Near Threatened	Low
Santalum lanceolatum	Northern Sandalwood	-	Special Least Concern	**Moderate**

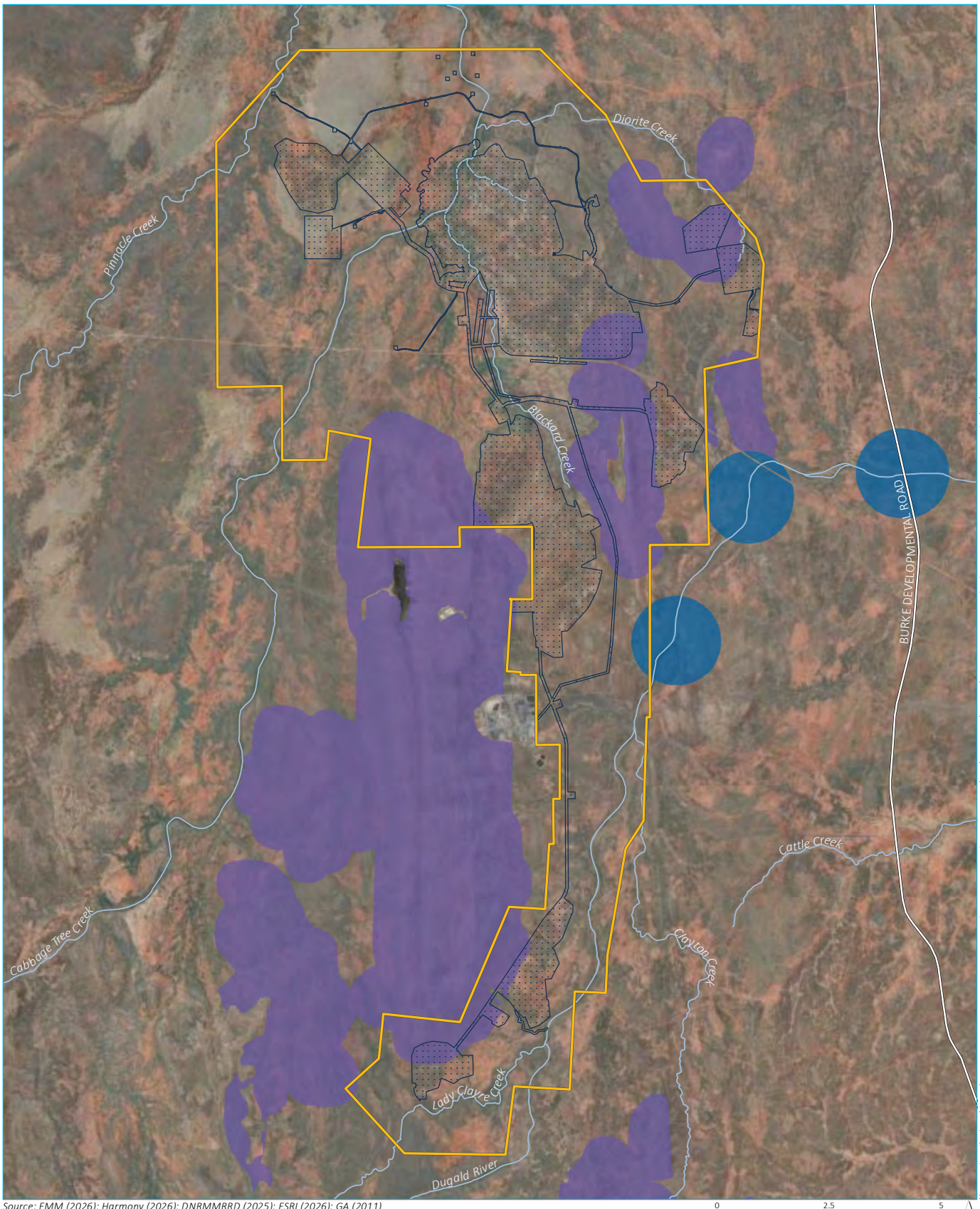
5.1.2 Essential habitat

Essential habitat identifies the habitat of Endangered, Vulnerable or Near Threatened flora or fauna prescribed under the NC Act and/or VM Act.

Essential Habitat mapping within the Project Area is limited to Purple-necked Rock-wallaby and Mertens' Water Monitor. Essential Habitat associated with Purple-necked Rock-wallaby occurs across areas of rocky and strike ridge habitat, while Essential Habitat for Mertens' Water Monitor is associated with the Dugald River, located primarily outside of the Project Area. Mapped Essential Habitat within the Project Area is illustrated on Figure 5.1. The relationship between mapped Essential Habitat and field validated habitat assessments is discussed in Section 6.

5.1.3 Threatened ecological communities

No TECs listed were identified as potentially occurring in the Project Area in the desktop analysis.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Project footprint

Essential habitat mapping

- Mertens' Water Monitor
- Purple-necked Rock-wallaby

Existing environment

- Major road
- Named watercourse

Mapped essential habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.1

EMM creating opportunities

5.2 Fauna

5.2.1 Target threatened species

Six threatened fauna species were confirmed to be present through the course of direct observations or surveys:

- Fork-tailed Swift (*Apus pacificus*); Migratory under the EPBC Act, Special Least Concern under the NC Act
- Mertens' Water Monitor (*Varanus mertensi*); Endangered under the EPBC Act and NC Act
- Painted Honeyeater (*Grantiella picta*); Vulnerable under the EPBC Act and NC Act
- Purple-necked Rock-wallaby (*Petrogale purpureicollis*); Vulnerable under the NC Act
- Short-beaked Echidna (*Tachyglossus aculeatus*); Special Least Concern under the NC Act
- Northern Blue-tongued Skink (*Tiliqua scincoides intermedia*); Critically Endangered under the EPBC Act and NC Act.

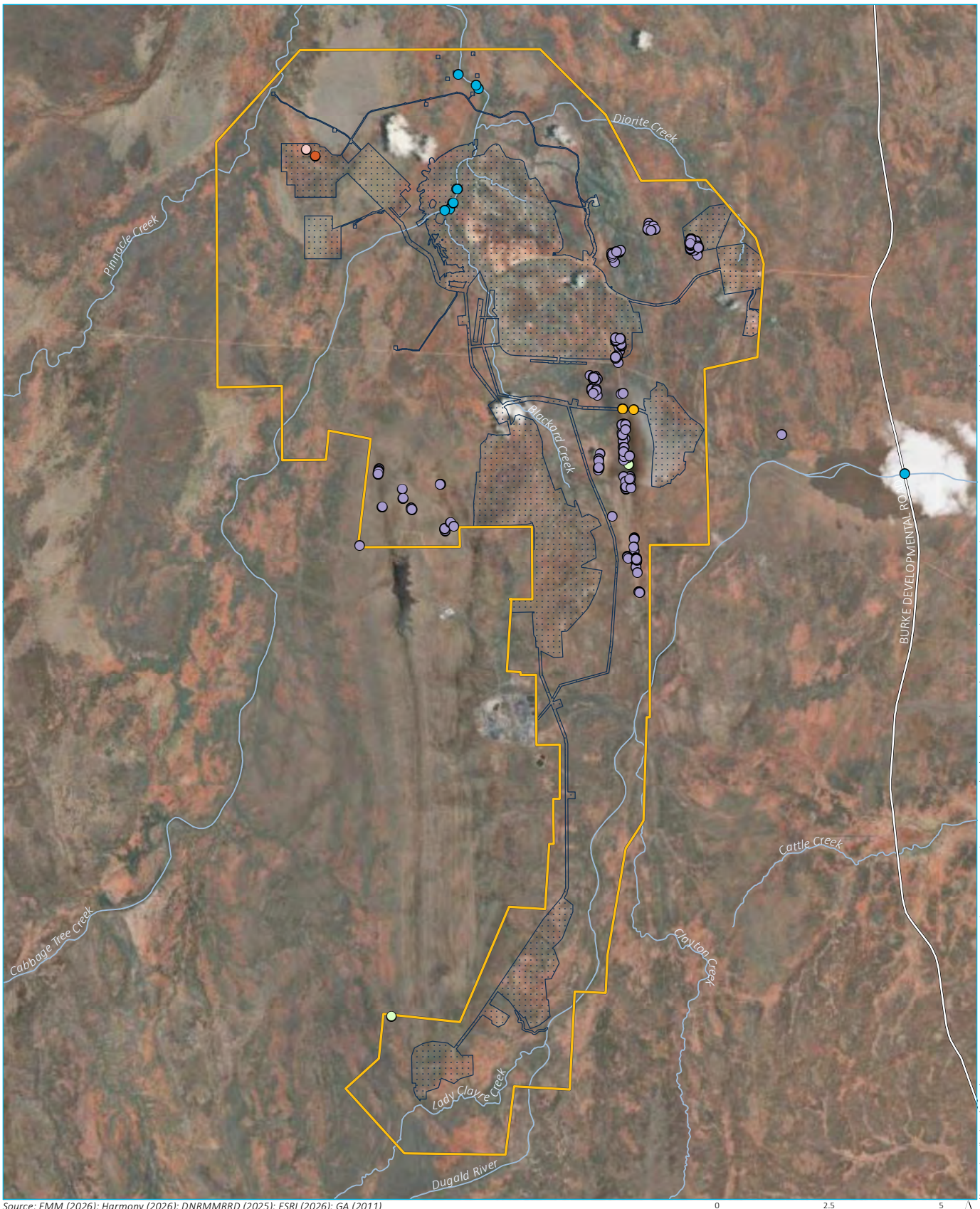
The results of all targeted threatened species surveys to date are summarised in Table 5.2. All threatened fauna observations are included on Figure 5.2.

Each target species is discussed in more details in the following sections.

Table 5.2 Targeted fauna survey results

Target matter	Presence within Project Area	Observation type	Habitat presence within Project Area
Birds			
Carpentarian Grasswren	Not recorded	-	Potential suitable habitat present
Fork-tailed Swift	Confirmed	Active sighting	Confirmed habitat present
Grey Falcon	Not recorded	-	Potential suitable habitat present
Gouldian Finch	Not recorded	-	Potential suitable habitat present; species unlikely to occur; species targeted on a discretionary basis only
Night Parrot	Not recorded	-	Suitable roosting habitat is absent; species unlikely to occur; species targeted on a discretionary basis only
Painted Honeyeater	Confirmed	Active sighting	Confirmed habitat present
Red Goshawk	Not recorded	-	Species unlikely to occur; species targeted on a discretionary basis only
Mammals			
Ghost Bat	Not recorded	-	Potential suitable habitat present
Julia Creek Dunnart	Not recorded	-	Potential suitable habitat present
Purple-necked Rock-wallaby	Confirmed	Active sightings, camera trap detections, scat	Confirmed habitat present
Short-beaked Echidna	Confirmed	Active sightings, scat	Confirmed habitat present

Target matter	Presence within Project Area	Observation type	Habitat presence within Project Area
Reptiles			
Diamond Head Turtle	Not recorded	-	Potential suitable habitat present
Northern Blue-tongued Skink	Confirmed	Active sightings (ECMPL)	Confirmed habitat present
Plains Death Adder	Not recorded	-	Potential suitable habitat present
Mertens' Water Monitor	Confirmed	Active sightings	Confirmed habitat present



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Project footprint
- Existing environment
- Major road
- Named watercourse

Threatened fauna observation (Harmony record)

- Mertens' Water Monitor
- Northern Blue-tongued Skink (SME verified)
- Northern Blue-tongued Skink (SME verification uncertain)
- Painted Honeyeater
- Purple-necked Rock-wallaby
- Short-beaked Echidna

Threatened fauna observations

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.2

EMM creating opportunities

i Carpentarian Grasswren

Carpentarian Grasswren has been surveyed on multiple occasions, with no detections recorded to date. However, given the presence of suitable habitat, a SME was engaged to provide independent advice on the likelihood of occurrence within the Project Area. Henry Stoetzel of Adaptive NRM undertook this assessment as he is a Carpentarian Grasswren SME with research experience on the species' including published work on its habitat requirements, distribution and modelling. The assessment identified areas of suitable habitat within the Project Area. However, the Project Area is located at the edge of the species distribution, and the species limited dispersal capability reduces the species likelihood of recolonisation following historical fire events.

The SME advised that the occurrence of Carpentarian Grasswren within the Project Area cannot be ruled out and confirmed that a moderate LoO was appropriate for the species.

A copy of the SME advice on the Carpentarian Grasswren is provided as Annexure G.

ii Fork-tailed Swift

Fork-tailed Swift was observed during BBUS surveys in November 2025. This species is a non-breeding migrant, rarely found in north-west Queensland. The Fork-tailed Swift may infrequently forage in the airspace over the Project Area. Suitable habitat is present within the Project Area; however, as per DoE (2015a) draft referral guideline for migratory species, the species is exclusively aerial in these habitats.

iii Gouldian Finch

Gouldian Finch was determined to have a low LoO and surveys were undertaken to further validate this assessment. No Gouldian Finch were observed during surveys, though suitable habitat exists within the Project Area. Accordingly, the LoO remains low, and the species is not considered further.

iv Grey Falcon

Grey Falcon was not observed during surveys in the Project Area. Despite this, there is suitable habitat for the species in the Project Area and an ALA record 10 km to the north-east of the Project Area.

v Night Parrot

Night Parrot was not observed during surveys in the Project Area. Given the highly cryptic nature of Night Parrot, a SME was engaged to provide independent advice on the LoO within the Project Area. Nick Leseberg of Adaptive NRM undertook this assessment as he is a recognised Night Parrot SME with extensive experience in the species' ecology, monitoring and conservation. The assessment found several areas of suitable foraging habitat within a 20 km buffer of the Project Area; however, no suitable roosting habitat was present. The SME concluded that Night Parrot occurrence was extremely unlikely and that development associated with the Project will not impact the species (Adaptive NRM 2026).

Therefore, this species was considered to have an unlikely (revised) LoO and is not considered further.

A copy of the SME advice on the Night Parrot is provided as Annexure H.

vi Painted Honeyeater

Painted Honeyeater was confirmed at the northern end of Mt Rose Bee through incidental records of two individuals on 12 August 2023. Painted Honeyeaters are known for their nomadic and vagrant behaviour within this portion of the species' range. It is probable this individual was foraging during the widespread flowering of eucalypt trees during the survey period. Across the Project Area mistletoes were recorded in low numbers at five of the habitat assessment sites (3.5%).

vii Red Goshawk

Red Goshawk was determined to have a low LoO; however, surveys were undertaken concurrently with Grey Falcon surveys to further validate this assessment. No Red Goshawks were observed during surveys, and habitat within the Project Area is considered suboptimal for the species. Accordingly, the LoO remains low, and the species is not considered further.

viii Ghost Bat

Ghost Bat were not detected during targeted surveys. Extensive field surveys have ground-truthed potentially suitable permanent caves and crevices for Ghost Bat roosts within rocky habitat in the south-western portion of the Project Area, including Mount Rose Bee. An adjacent area outside the Project Area was also identified as potential habitat due to its similar RE characteristics, elevation and landscape context. Although this area has not been ground-truthed, it forms part of the same continuous mountain habitat as the surveyed area and is, therefore, considered likely to provide comparable habitat features.

ix Julia Creek Dunnart

Julia Creek Dunnart was not detected during significant survey effort. Surveys were undertaken in suitable habitat at a time when the sympatric Stripe-faced Dunnart (*Sminthopsis macroura*) was recorded in abundance. Despite the presence of suitable habitat, the Project is approximately 50 km north-west of the known range of the species and 70 km from the closest record (ALA 2021). This species was considered to have a low LoO and is not considered further.

x Purple-necked Rock-wallaby

Purple-necked Rock-wallaby is known to occur within the Project Area, with areas of known and potential habitat previously mapped (AARC 2012) and updated by EMM. These areas were reassessed during contemporary surveys, which confirmed the species' presence within the Project Area. Purple-necked Rock-wallabies were recorded at multiple locations, predominantly within strike ridges and other rocky habitats. Habitat assessments identified extensive areas of connected rocky habitat both within and extending beyond the Project boundary. These areas align with mapped Essential Habitat.

xi Short-beaked Echidna

Short-beaked Echidna individuals and scat have been recorded in multiple locations within low open eucalypt woodland, in crevices and within rocky habitat the base of Mount Rose Bee.

xii Diamond Head Turtle

This species was not detected during surveys; however, the Project Area lies within the known distribution and there is potentially suitable habitat located within Longamundi waterhole on the Dugald River and the ephemeral watercourses throughout the Project Area.

xiii Northern Blue-tongued Skink

The Project has had two negative interactions with Northern Blue-tongued Skink in early 2026 during land clearing. The animals were found in close proximity to each other in the north-west of the Project Area within acacia woodland REs, 1.5.16 and 1.5.13 and suitable habitat has been identified within the Project Area. No further Northern Blue-tongued Skink individuals were observed during targeted surveys or on the camera traps.

xiv Plains Death Adder

Survey conditions during the 2026 survey were reported as suboptimal for this species. Previous survey effort was undertaken during optimal survey conditions for extensive surveys that did not detect the species. The Project Area lies within the known distribution of this species and is mapped under the Mt Isa Inlier IBRA subregion, which is associated with this species and suitable habitat is present.

xv Mertens' Water Monitor

A total of six Mertens' Water Monitors were sighted during targeted surveys. Five incidental observations of Mertens' Water Monitor outside of official surveys were also recorded and are included in the general dataset. Whilst there were a total of 11 Mertens' Water Monitor sightings, after reviewing sighting dates and times, it is considered that nine of the sightings were unique, excluding the first incidental sighting.

Suitable habitat and potential burrows and tracks were recorded along ephemeral watercourses, particularly Cabbage Tree Creek and its tributaries and the Dugald River both within and external to the Project Area.

5.2.2 Fauna observations

A total of 173 species have been observed within the Project Area either during surveys or opportunistically. When separating these species into class, there were 122 bird species, 27 mammal species, 21 reptile species and 3 amphibian species.

A compiled list of fauna observations is presented in Annexure F.

5.3 Flora

5.3.1 Regional ecosystems

Extensive GTRE mapping has been undertaken for the Project Area with a focus on the disturbance footprint.

All REs within the Project Area are mapped as 'Least Concern' under the VM Act. There are no prescribed REs that are endangered or of concern within the Project Area. Likewise, there are no prescribed REs that intersect a wetland on the vegetation management wetlands map or regulated vegetation management map, respectively.

RE 1.3.7 is mapped within the Project Area and is classified as a Category B Environmentally Sensitive Area (ESA) due to its Biodiversity Status of 'Endangered' under the VM Act. The RE is also recognised as an 'Endangered' regional ecosystem under the EP Act. Ground-truthed ESAs are illustrated on Figure 5.3.

The detailed quaternary assessment report is provided as Annexure D.

i Ground-truthed Regional Ecosystems

The State RE mapping frequently contains mixed RE polygons due to vegetation communities occurring as a mosaic across the landscape, resulting in polygons that contain multiple REs. This can include watercourse REs that are not separately mapped from the surrounding vegetation. Where possible, RE mapping was refined into homogeneous polygons. Due to limited ground-truthing outside the disturbance footprint, GTRE mapping in these areas was extrapolated based on site knowledge and nearby assessments or remains as State mapped REs.

In the northern MLs, the State RE mapping was considered generally accurate for polygon boundaries and remnant status of vegetation; however, the ground-truthing identified inconsistencies in the REs comprising the heterogenous polygons. Notably, dominant REs within the Project Area were often omitted despite being recorded frequently at quaternary sites.

The southern ML areas have been subject to a Property Map of Assessable Vegetation (PMAV). The RE mapping was largely consistent with the PMAV and only minor changes were made to the mapping.

A GTRE map is depicted in Figure 5.4, which consists of a combination of EMM GTREs, State mapped REs and areas subject to a PMAV.

Vegetation outside of the Project Area has not been ground-truthed.

ii Dominant vegetation communities

Most of the vegetation within the Project Area is mapped within a heterogenous polygon containing Least Concern Regional Ecosystems (RE) 1.11.2a/1.5.13/1.3.7b (Queensland Herbarium 2024). The most frequently ground-truthed communities include low open eucalypt woodlands of the REs 1.11.2a, 1.11.3a and 1.5.4d.

The majority of the Project Area is characterised by one main vegetation group: low open woodland dominated by *Eucalyptus leucophylla* (Photograph 5.1). This community correlates to RE 1.11.3a or 1.5.4d depending on the underlying geology, both of which occur within the Project Area. Where there is older Palaeozoic geology, the RE was 1.11.3a, which was the dominant community in the Project Area. Some very minor areas (often less than 200 m across) of finer clay soil dominated by *Acacia cambagei* were also scattered throughout and these form part of the RE description for these vegetation communities.

Eucalyptus leucophloia low open woodland (RE 1.11.2a) frequently co-occurs within the 1.11.3a woodland making boundaries between the two REs difficult to define. The 1.11.2a community tends to occur at higher elevations and is often associated with strike ridges.

Photograph 5.1 Dominant vegetation community within the Project Area (RE 1.11.3a/1.5.4d)

The north-west of the Project Area contains distinctly different communities, with mixed acacia woodlands and grassland communities, generally occurring on brown cracking clay or red earths. This area comprises large areas of mixed tussock grassland on alluvial clay deposits (RE 2.4.2b), *Eucalyptus pruinosa* low open woodland on sandy soils (RE 1.5.13) and *Acacia cambagei* low open woodland on either sandy (RE 1.5.16) or clay (RE 2.4.3a) soils (Photograph 5.2).

Photograph 5.2 *Acacia cambagei* low open woodland on clay soils (RE 2.4.3a)

There are three main watercourse communities within the Project Area. The vegetation community most commonly observed in riparian areas was either RE 1.3.7a or RE 1.3.7b, both described as *Eucalyptus camaldulensis* fringing woodlands (Photograph 5.3).

Lower-order watercourses generally contain the same flora as the surrounding landscape but in higher densities, with some additional diversity due to periodic water availability. The dominant vegetation community in these areas is RE 1.3.13a described as *Eucalyptus leucophylla* woodland on levees and minor drainage lines (Photograph 5.4).

Photograph 5.3 Typical riparian (RE 12.3.7a) habitat

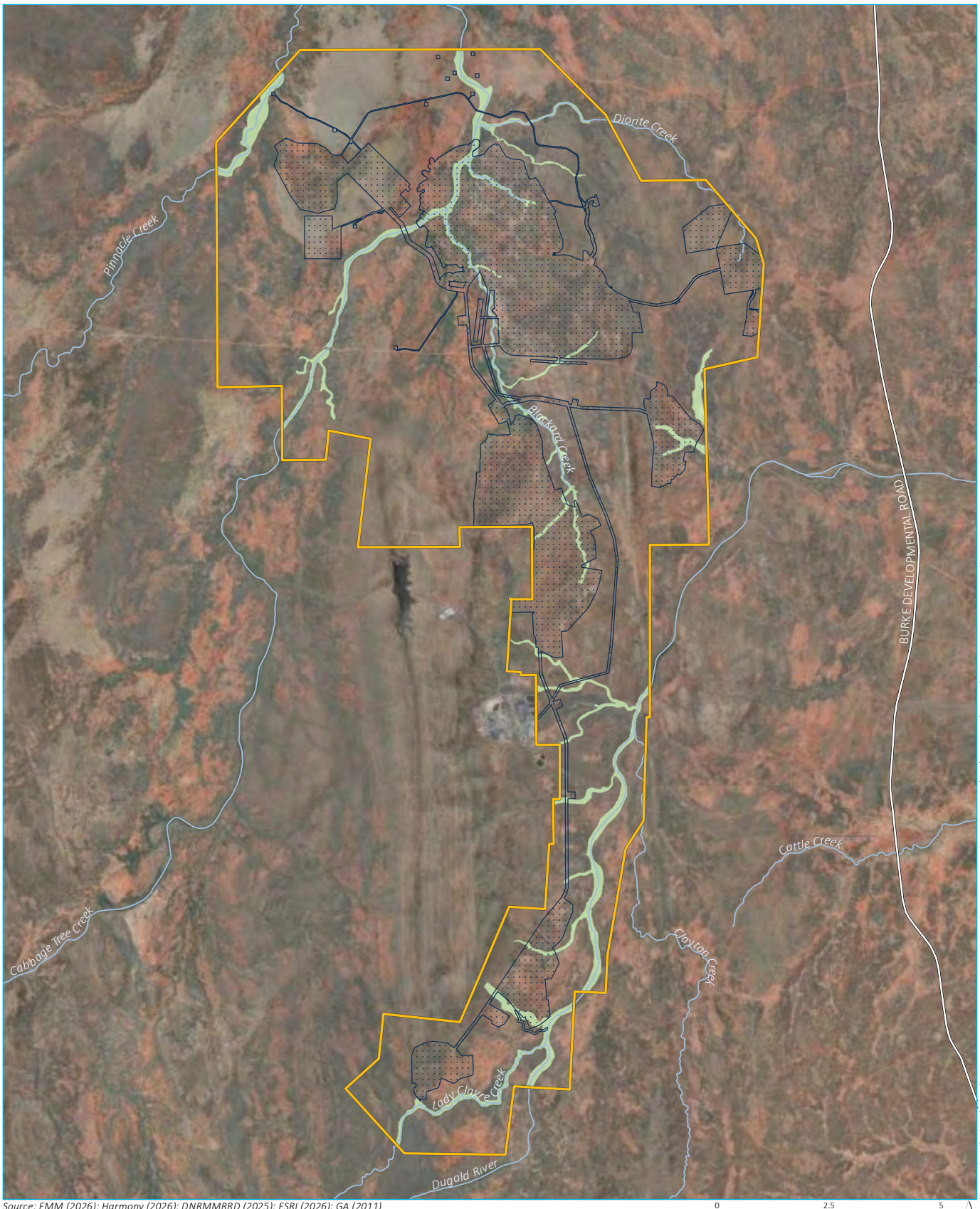
Photograph 5.4 Typical watercourse vegetation composition (RE 1.3.13a)

A summary of the REs within the Project Area is provided in Table 5.3. The total number of hectares of each ground-truthed RE is available in Annexure F.2.

Table 5.3 REs within the Project Area (Queensland Government 2025)

RE	Description
1.3.6	*Corymbia aparrerinja*, *Corymbia terminalis* woodland on sandy levees.
1.3.7	1.3.7a: *Eucalyptus camaldulensis* fringing woodland to closed forest, usually with *Lophostemon grandiflorus* and *Melaleuca leucadendra* and/or *M. fluviatilis*. Occurs on recent levees and channel deposits of major watercourses and larger tributaries. 1.3.7b: *Eucalyptus camaldulensis* fringing woodland, usually with *Lophostemon grandiflorus* and *Melaleuca bracteata* and/or *M. dissitiflora*. Occurs on recent levees and channel deposits of medium and smaller tributaries which are dry for most of the year; alluvial soils.
1.3.13a	Woodland of *Eucalyptus leucophylla*, commonly with *Corymbia terminalis*, *Acacia cambagei*, *Atalaya hemiglauca* and *C. aparrerinja*. Occasional canopy species include *Corymbia confertiflora*, *Lysiphyllum cunninghamii* and *Eucalyptus pruinosa*. The ground layer is a mix of tussock grasses and *Triodia* spp. Occurs on recent levees of larger watercourses and in-channel deposits of ephemeral streams.
1.5.3	*Eucalyptus leucophloia* low open woodland to woodland on sandy and gravelly red soils.
1.5.4d	*Eucalyptus leucophylla* and *Corymbia terminalis* low open woodland to low woodland, over annual grasses with areas of Triodia spp. Occasional *Corymbia aparrerinja, Atalaya hemiglauca* and *Grevillea striata* and small areas of *Acacia cambagei* and *Eucalyptus leucophloia*. Occurs on plains and valley bottoms, red earths, shallow loams, clays and skeletal soils.

RE	Description
1.5.13	*Eucalyptus pruinosa* low open woodland on older alluvial and residual soils.
1.5.15	*Aristida contorta* annual grasslands, usually with *Aristida inaequiglumis*, that are bare for most of the year and can be dominated by forbs. Occurs on older alluvium and residual soils.
1.5.16	*Acacia cambagei* low woodlands on red earths.
1.11.2a	*Eucalyptus leucophloia* low open woodland often with *Corymbia terminalis, C. capricornia, Terminalia aridicola* and *E. leucophylla* with shrub layer of *Acacia* spp. and ground layer of *Triodia* spp. Occurs on steep hills and strike ridges
1.11.3a	*Eucalyptus leucophylla* low open woodland often with *Corymbia terminalis, C. aparrerinja, Eucalyptus leucophloia* and *Atalaya hemiglauca* with scattered shrubs of *Acacia chisholmii* and a sparse ground layer of *Triodia pungens* and tussock grasses. Occurs on broad low hills; metamorphosed igneous rocks.
1.12.3	*Eucalyptus leucophylla* and/or *Corymbia terminalis* +/- *C. aparrerinja* low open woodland on igneous rocks
2.4.2b	Mixed tussock grassland to closed tussock grassland, including combinations of the species *Astrebla* spp., *Eulalia aurea*, *Iseilema* spp. and *Aristida latifolia*. Occasional species include *Dichanthium fecundum*, *Sarga* spp. and *Chrysopogon fallax*. Emergent *Atalaya hemiglauca* may occur. Occurs on Tertiary, high-level alluvial clay deposits. Brown cracking clay soils, commonly gravelly.
2.4.3a	*Acacia cambagei* low woodland. A shrub layer dominated *by A. cambagei* commonly occurs. The ground layer is sparse tussock grasses, including *Aristida latifolia*, *Enneapogon* spp. and *Sporobolus australasicus*. Occurs on undulating, Tertiary high-level alluvial clay deposits, commonly gravelly. Orange to brown clay soils. Not a Wetland.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Project footprint
- Environmentally sensitive area

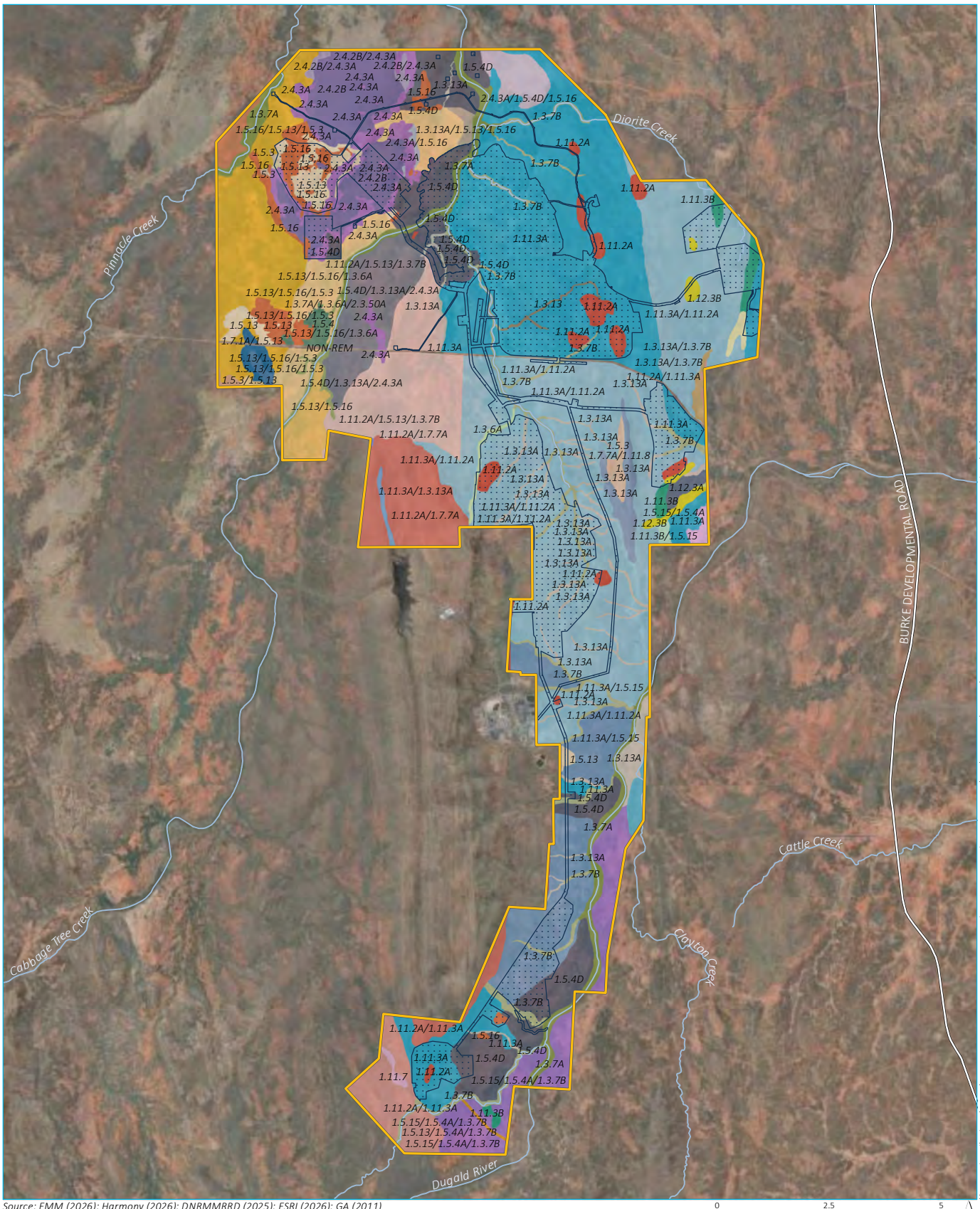
Existing environment

- Major road
- Named watercourse

Environmentally sensitive areas

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.3

EMM
creating opportunities



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Project footprint
- Existing environment
- Major road
- Named watercourse

Ground-truthed regional ecosystem

- 1.11.2a
- 1.11.2a/1.11.3a
- 1.11.2a/1.5.13/1.3.7b
- 1.11.2a/1.7.7a
- 1.11.3a
- 1.11.3a/1.11.2a
- 1.11.3a/1.11.2a/1.7.7a
- 1.11.3a/1.3.13a
- 1.11.3a/1.5.15
- 1.11.3a/1.5.15/11.3.7b
- 1.11.3b
- 1.11.3b/1.5.15
- 1.11.7
- 1.12.1/1.12.3a
- 1.12.3a
- 1.12.3b
- 1.3.13
- 1.3.13a
- 1.3.13a/1.3.7a
- 1.3.13a/1.3.7b
- 1.3.13a/1.5.13/1.5.16
- 1.3.6a
- 1.3.7a
- 1.3.7a/1.3.6a/2.3.50a
- 1.3.7b
- 1.5.13
- 1.5.13/1.5.16
- 1.5.13/1.5.16/1.3.6a
- 1.5.13/1.5.16/1.5.3
- 1.5.13/1.5.4a/1.3.7b
- 1.5.15/1.5.4a
- 1.5.15/1.5.4a/1.3.7b
- 1.5.16
- 1.5.16/1.5.13/1.5.3
- 1.5.3
- 1.5.3/1.5.13
- 1.5.4
- 1.5.4a
- 1.5.4d
- 1.5.4d/1.3.13a/2.4.3a
- 1.7.1a/1.5.13
- 1.7.5a/1.7.1a
- 1.7.7a/1.11.8
- 2.4.2b
- 2.4.2b/2.4.3a
- 2.4.3a
- 2.4.3a/1.5.13
- 2.4.3a/1.5.16
- 2.4.3a/1.5.4d/1.5.16

GTRE mapping
within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.4

EMM
creating opportunities

5.3.2 Broad habitat types

There are five broad habitat types within the Project Area. These include:

- clay plains
- eucalypt and acacia open woodlands
- grassland
- strike ridges/rocky outcrops
- riparian areas.

These habitat types are further described in the following sections and their distribution within the Project Area is mapped in Figure 5.5.

A summary of all REs mapped across the Project Area, their relevant VM structure category and code, and broad habitat group type is provided in Table 5.4 derived from the Queensland Herbarium REDD (2024).

The detailed habitat assessment report is provided as Annexure E.

Table 5.4 RE structure and broad habitat types

RE	VM structure category	VM structure code	Broad habitat type (EMM)
1.3.6	Sparse	Woodland	Riparian
1.3.7	Sparse	Woodland	Riparian
1.3.13	Sparse	Woodland	Riparian
1.5.3	Very sparse	Low open woodland	Eucalypt woodland
1.5.4	Very sparse	Low open woodland	Eucalypt woodland
1.5.13	Very sparse	Low open woodland	Acacia woodland
1.5.15	Grassland	Open tussock grassland	Grassland
1.5.16	Sparse	Low woodland	Acacia woodland
1.7.1	Very sparse	Low open woodland	Eucalypt woodland
1.7.5	Sparse	Low open woodland	Acacia woodland
1.7.7	Very sparse	Low open woodland	Eucalypt woodland, rocky outcrops
1.11.2	Very sparse	Low open woodland	Eucalypt woodland
1.11.3	Very sparse	Low open woodland	Eucalypt woodland
1.11.7	Very sparse	Low open woodland	Acacia woodland
1.11.8	Sparse	Low woodland	Eucalypt woodland, rocky outcrops
1.12.1	Very sparse	Low open woodland	Eucalypt woodland
1.12.3	Very sparse	Low open woodland	Eucalypt woodland
2.4.2	Grassland	Tussock grassland	Grassland, clay plain
2.4.3	Sparse	Low woodland	Acacia woodland, clay plain

i Clay plains

The clay plains within the Project Area are associated with RE 2.4.2b, characterised by relatively treeless tussock grassland (Photograph 5.5 and Photograph 5.6), and RE 2.4.3a which comprises low *Acacia cambagei* (Gidgee) woodland with sparse tussock grasses on clay plains. Clay deposits provide cracking soils, and open interstitial spaces for fauna to inhabit including reptiles, frogs and small mammals. The shrink and swell properties of the clay allow for spaces of refuge, the nature of which is weather and moisture dependent.

Photograph 5.5 Clay plains

Photograph 5.6 Clay plains with cracking soils

ii Eucalypt and acacia open woodlands

Much of the Project Area consisted of eucalypt woodlands and Acacia woodlands with Spinifex or *Aristida* spp. grassland and areas of locally-dominant *Acacia cambagei* (Gidgee). Project Area

a Eucalypt low open woodlands

The eucalypt low open woodland features a naturally low (6–12 m) and very sparse (5–25 %) canopy, predominantly composed of one dominant vegetation community type (RE 1.11.3a), described as *Eucalyptus leucophylla* low open woodland (Photograph 5.7). The height, canopy cover, species composition and skeletal soils constrain the diversity of habitat attributes available.

Eucalypt woodland within the Project Area supports breeding habitat for many fauna assemblages including birds, mammals and reptiles. These woodlands also provide refuge microhabitat attributes such as small tree hollows, decorticating bark, coarse woody debris, leaf litter and arboreal termite mounds as well as a variety of foraging habitat features including flowering eucalypt species for birds and microbats.

Foraging opportunities are also present for the Painted Honeyeater although few and intermittent. The Painted Honeyeater forages almost exclusively on mistletoe berries but will supplement its diet with nectar from flowers and insects. Whilst minimal mistletoe was observed within the eucalypt low open woodland habitat type during field survey, the flowering canopy species provide suitable foraging habitat for the Painted Honeyeater.

Photograph 5.7 Eucalypt low open woodland

b Acacia low open woodlands

Acacia low open woodlands within the Project Area are generally characterised by low and very sparse to sparse canopy cover between 0–40%, reflecting the patchy occurrence of Gidgee typically occurring in stands separated by areas of open grassland (Photograph 5.8). This habitat type most commonly occurs on either sandy (RE 1.5.16) or clay (RE 2.4.3a) soils. The ground layer is typically defined by areas of bare ground and/or tussock grasses and forbs between canopy patches, reflecting the open nature of these communities and relatively low structural complexity.

The acacia woodland is likely to support burrows, coarse woody debris, leaf litter, decorticating bark and/or a low density of hollow-bearing trees. Habitat values are typically limited by the lack of structural complexity, although scattered Gidgee trees provide localised refuge and foraging resources through the accumulation of woody debris and leaf litter. Limited habitat complexity generally restricts the range of fauna species capable of inhabiting this type of woodland to generalist or highly mobile species, such as small common reptiles, large macropods (e.g. Red Kangaroos) and foraging birds.

Photograph 5.8 Low open acacia woodland

iii Grassland

Grasslands within the Project Area are typically associated with RE 1.5.15, characterised by open *Aristida* spp. dominated tussock grassland with very sparse to absent woody vegetation (Photograph 5.9). This community occurs on older loamy and sandy plains of Landzone 5, typically associated with hard-setting red soils. Within the Project Area, RE 1.5.15 frequently co-occurs within eucalypt woodland communities representing areas where canopy cover is absent and the ground layer is dominated by *Aristida* spp. creating a mosaic of grassland habitats.

The open grassland structure supports a range of fauna through the provision of ground-level shelter, foraging opportunities and connectivity for ground dwelling species. Dense tussock grasses create microhabitats that may be utilised for nesting, refuge and thermoregulation.

Photograph 5.9 *Aristida* spp. grassland

iv Strike ridges/rocky outcrops

Mount Rose Bee and other similar elevated areas within the Project Area consist of strike ridges and scree slopes which reach an elevation of 190 m AHD and are important habitat for the vulnerable (NC Act) Purple-necked Rock-wallaby. Although this species has no breeding place as such, it is habitat-specific in terms of utilising rocky areas. Any impact to these areas could influence the breeding potential of Purple-necked Rock-wallaby. The RE associated with this habitat type is 1.11.2a, which is described as Snappy Gum (*Eucalyptus leucophloia*) with Desert Bloodwood (*Corymbia terminalis*) low open woodland on steep hills and strike ridges.

Purple-necked Rock-wallaby were recorded at multiple locations within the Project Area by direct observation, on camera traps and indirectly via scat and smoothed rocks. Purple-necked Rock-wallaby are confined by day to the sandstone strike ridges and boulder piles in the Project Area, where they shelter in cool rocky refugia. At night, the species move down from these rocky areas into the surrounding woodlands and grasslands to forage. Purple-necked Rock-wallaby are likely to regularly move between their rocky refugia and foraging habitat on a regular basis; even isolated boulder piles in the Project Area showed signs of visitation by the species. Longer-range movements through unsuitable habitat may occur on a less regular basis. Photograph 5.10 depicts an example of a strike ridge which exists parallel to Mount Rose Bee.

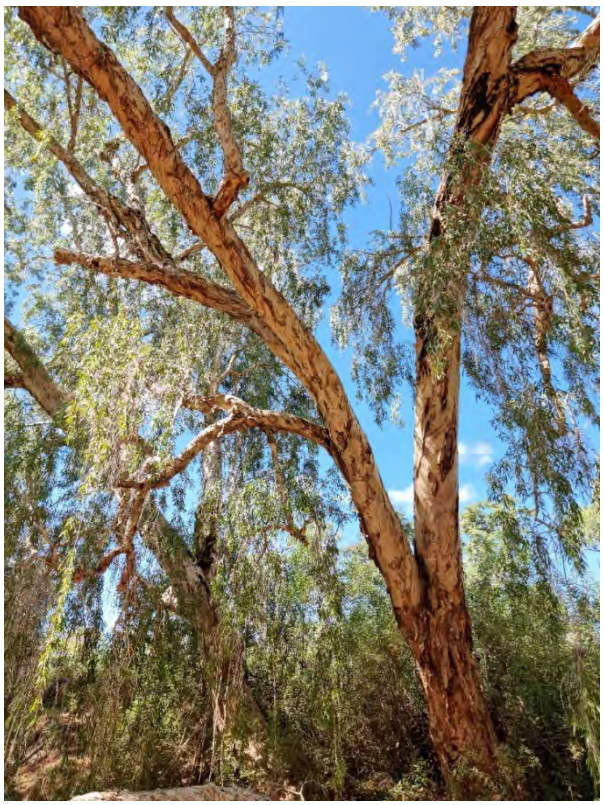
Photograph 5.10 Strike ridge situated parallel to Mount Rose Bee

v Riparian areas

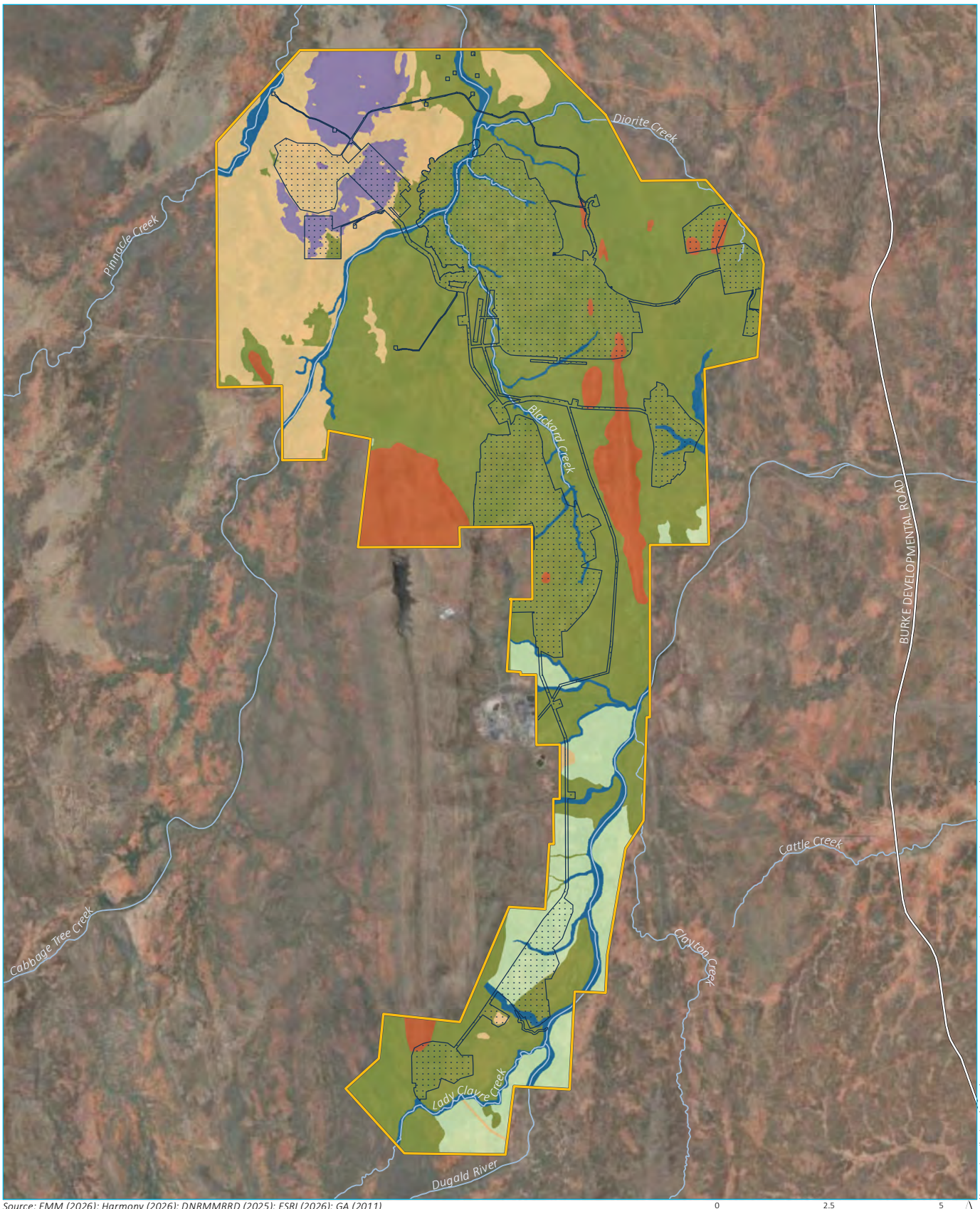
Riparian areas, particularly the Cabbage Tree Creek channel and the surrounding riparian area supports diversity and abundance of fauna. The Project Area intersects multiple watercourses including stream order 1,2,3 and 5. Riparian areas on developed channels comprise either RE 1.3.7a, described as *Eucalyptus camaldulensis* fringing woodland to closed forest on recent levees and channel deposits of major watercourses and larger tributaries, or RE 1.3.7b, described as *Eucalyptus camaldulensis* fringing woodland on channels and levees.

Along creeks containing RE 1.3.7, tall *E. camaldulensis* and *Melaleuca fluviatilis* (see Photograph 5.11 (right)) are common (see Photograph 5.11 (left)). Where the unnamed tributaries of Cabbage Tree Creek, the Dugald River and Diorite Creek reduce in size, the RE was generally confirmed to be RE 1.3.13a or 1.3.6 which are both woodland communities with a much lower density of hollow bearing trees when compared with RE 1.3.7.

Riparian areas within the Project Area likely act as corridors facilitating fauna movement despite seasonal variability across the wider region. These corridors provide established trees for hollows and nesting as well as suitable cover along the banks for nesting, foraging and refuge. A typical riparian area is outlined in Photograph 5.3.



Photograph 5.11 **Riparian area trees *Eucalyptus camaldulensis* (left) and *Melaleuca fluviatilis* (right)**



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

Project area

Project footprint

Existing environment

Major road

Named watercourse

Broad habitat type

Acacia woodland

Clay plain

Eucalypt woodland

Mix eucalypt/grassland

Riparian

Rock/strikeridge

Mapped broad habitat types

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.5

EMM
creating opportunities

5.3.3 Threatened flora

No threatened flora species were recorded during surveys. One species of conservation significance, *Livistona rigida* (Special Least Concern), has been recorded incidentally at one location within the Project Area. Suitable habitat was identified for these species

Threatened or conservation significant flora observations of moderate or known LoO are summarised in Table 5.5, which also lists flora species identified for habitat mapping (Section 6).

Table 5.5 Threatened or conservation significant flora observations

Species	Presence within Project Area	Observation type	Habitat presence within Project Area	Habitat mapping required
Brachychiton collinus	Not recorded	-	Not assessed	No[1]
Dichanthium setosum	Not recorded	-	Potential suitable habitat present	Yes
Ipomoea antonschmidii	Not recorded	-	Potential suitable habitat present	Yes
Livistona rigida	Confirmed	Incidental sighting	Confirmed habitat present	Yes
Najas tenuifolia	Not recorded	-	Not assessed	No[1]
Santalum lanceolatum	Not recorded	-	Not assessed	No[1]

Notes: 1. These species are Special Least Concern and do not require an impact assessment, therefore, were excluded from habitat mapping.

5.4 Aquatic ecology

5.4.1 Fish

Baseline aquatic ecology assessments were completed in December 2021 and May 2022, during which a total of 4,685 fish representing eight native species were recorded from aquatic habitats within the Project Area. All recorded species are native to the Flinders River Basin and are common and widespread within their known distributions. Species richness and abundance were generally higher at sites retaining persistent water, reflecting the importance of refuge habitats during dry-season conditions. Chequered rainbowfish (*Melanotaenia splendida inornata*) was the most abundant species in both years, with a high proportion of juveniles observed, indicating recent recruitment. Other abundant species included north-west glassfish (*Ambassis* spp.), spangled perch (*Leiopotherapon unicolor*) and bony bream (*Nematalosa erebi*). Catfish species were recorded in low to moderate abundance, with silver catfish (*Porochilus argenteus*) most common, while barred grunter (*Amniataba percoides*) was recorded for the first time in 2022 at low abundance. Golden flathead goby (*Glossogobius aureus*) was recorded in moderate abundance, particularly in deeper pool habitats.

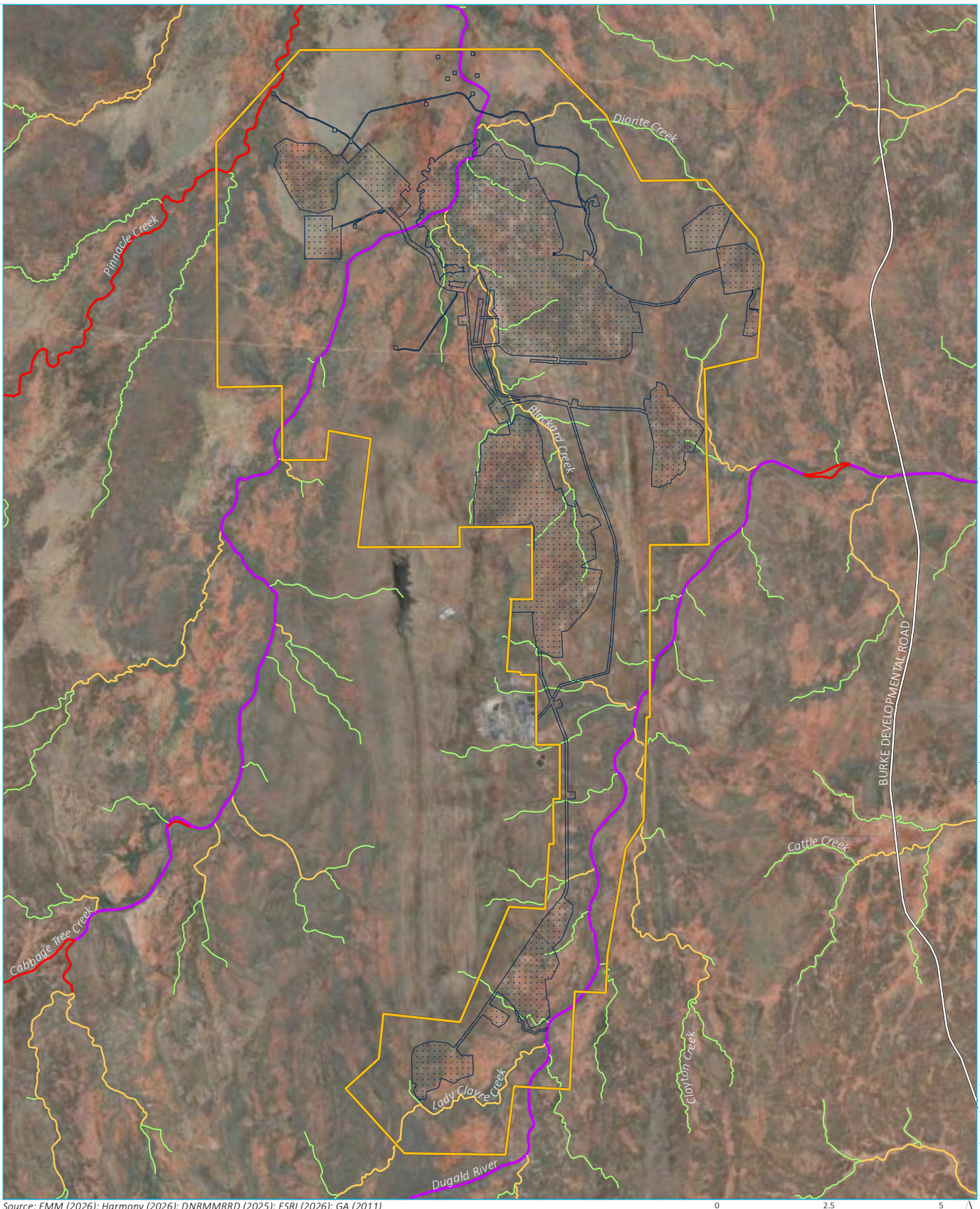
5.4.2 Macroinvertebrates

Inland waterways of north-west Queensland are dominated by ephemeral and intermittent waterways that respond strongly to highly variable rainfall and flow regimes, typical of the region's savannah climate. The hydrological variability influences aquatic biota in these systems, with macroinvertebrates typically restricted to refugial pools that persist after flow events.

Studies completed by Freshwater Ecology (2021) recorded a total of 566 macroinvertebrates from 27 taxa at two Dugald River sites that retained water at the time of sampling. Results indicated moderate richness; however, Plecoptera-Ephemeroptera-Tricoptera (PET) taxas and SIGNAL 2 scores were relatively low, indicating the Project Areas were more dominated by tolerant species rather than sensitive species. These findings are consistent with expectations for ephemeral inland river systems in north-west Queensland.

5.4.3 Waterways providing for fish passage

Mapped waterways providing for fish passage across the Project Area are illustrated on Figure 5.6.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Project footprint
- Existing environment
- Major road

Waterways for fish passage

Risk of impact

- 4 - Major
- 3 - High
- 2 - Moderate
- 1 - Low

Mapped waterways providing for fish passage

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.6

EMM creating opportunities

5.5 Groundwater dependent ecosystems

The initial results of the GDE study (EMM 2025a) suggest that there are a number of potential GDEs within the study area. GDE potential across the study area is illustrated on Figure 5.7. The present results are as follows:

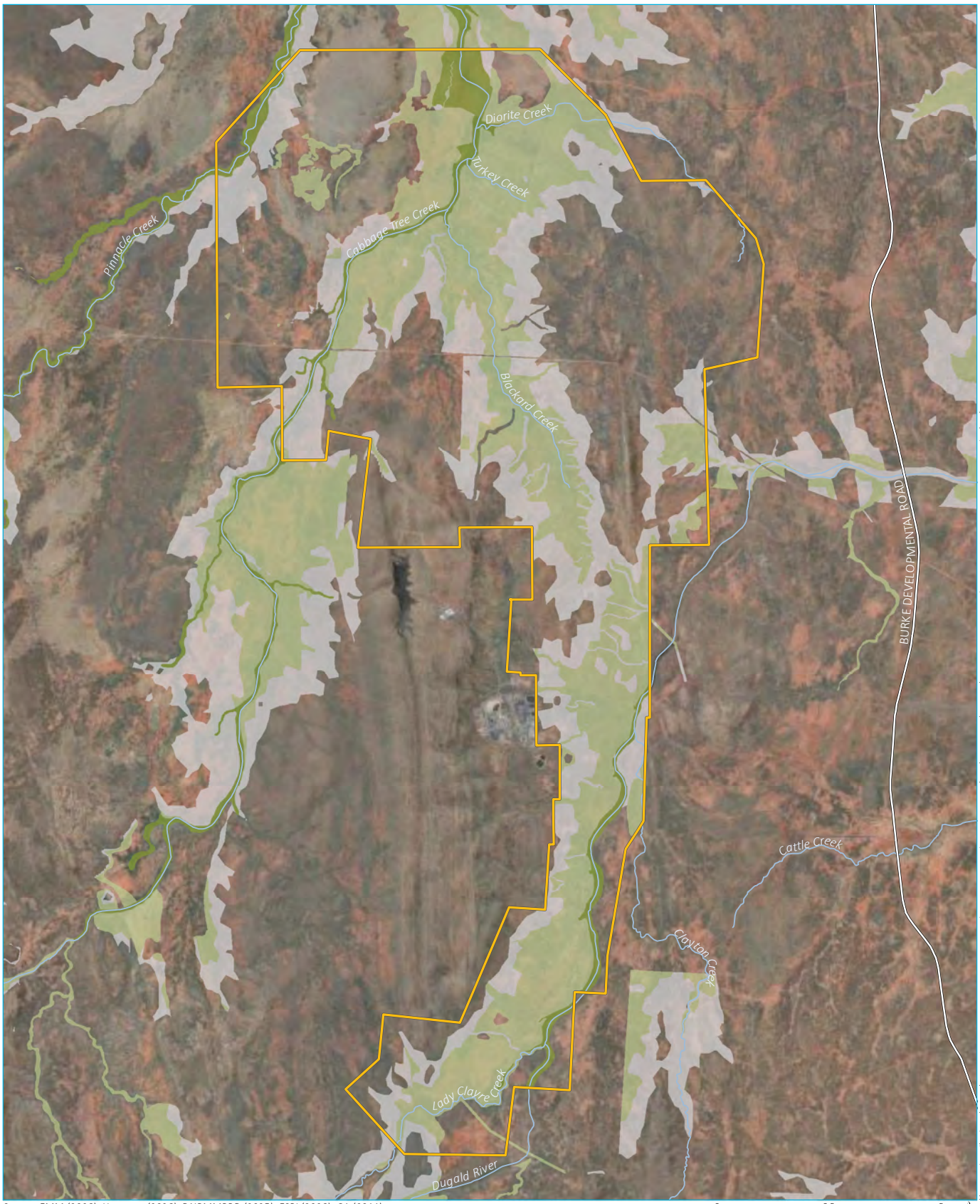
- High potential GDEs are concentrated within riparian zones, particularly Regional Ecosystem (RE) 1.3.7a and 1.3.7b. Areas with deep depth to groundwater (DTGW) (5-20 metres below ground level (mbgl)) that are dominated with *Eucalyptus camaldulensis*, have also been assessed as high potential since these eucalyptus species are known to create deep sinker roots and have been found to be facultative GDE species in other Queensland GDE studies (Thorburn, Mensforth & Walker 1994; Mensforth et al. 1994; Holland et al. 2006; Doody, Overton & Colloff 2019).

- The majority of the 18 *Eucalyptus camaldulensis* sampled during the study had Very High to High leaf water potential (LWP) values well above the wilting point suggesting access to a saturated water source. A total of 10 *Eucalyptus camaldulensis* sampled reported LWP values above -0.5 MPa which is an indicator that the rooting zones are at equilibrium with a source of fresh groundwater. This provides another line of evidence towards this species being dependent on groundwater within the study area.

- RE 1.5.4d, 1.11.2a, and 1.5.13 were assessed as low potential GDEs or undetermined since more lines of evidence are needed to assess groundwater dependence. Stable isotope results (pending at the time of reporting) will assist in interpretation.

- There is a moderate potential for aquatic GDEs to be present along Cabbage Tree Creek to the north of the Northern Borefield, and at isolated pools observed along Dugald River, specifically Longamundi Waterhole.

Overall, the assessment indicates that groundwater dependence within the Project Area is most likely to occur along waterways and in isolated refuge habitats, with lower potential across the broader landscape. Additionally, it is important to note that the GDEs in the Project Area are not considered obligate phenotypes but are facultative varying access to water resources as availability and or related to water quality condition change. Mapping of GDE potential within the Project Area is illustrated on Figure 5.7.



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Existing environment
  - Major road
  - Named watercourse
- Field validated GDE potential
  - High
  - Moderate
  - Low

Field validated GDE potential

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 5.7

EMM creating opportunities

5.5.1 Stygofauna

Results from the analysis of the groundwater samples collected during the 2022 survey for the presence of stygofauna are summarised in Table 5.6.

Table 5.6 Analysis of groundwater samples for the presence of stygofauna

Bore Code	Date Sampled	Stygofauna Taxa	Possible stygofauna	Non-Stygofauna Taxa
LEPB001	20/05/2022	-	-	Various bones from what appears to be a small lizard
Cockatoo	18/05/2022	-	-	1 terrestrial arachnida (spider)
Bottom Camp	22/05/2022	-	15 ostracoda (seed shrimp)	Terrestrial insect head parts
Longamundi	22/05/2022	-		1 arachnida (spider), 1 hemipteran, terrestrial insect head parts
LEPB002	21/05/2022	-	-	Parts of terrestrial insects
Blaggard	21/05/2022	-	21 oligochaeta (worms)	1 terrestrial isopod (wood lice), 64 collembola
BC016	21/05/2022	-		1 collembola
NBMB-009	20/05/2022	-	-	1 isoptera (termite)
NBMB-008	20/05/2022	-	-	Parts of terrestrial insects
TCKR058	19/05/2022	-	-	Parts of terrestrial insects
NBMB-005	20/05/2022	-	-	-
NBMB-006	20/05/2022	-	-	1 terrestrial coleopteran (beetle)
TCKP059	19/05/2022	-	-	Parts of terrestrial insects, some isoptera (termites)
BCR773	18/05/2022	3 amphipoda (family Paramelitidae)	3 oligochaeta (worms)	-

Stygofauna were recorded in a single bore (BCR773) where three specimens of amphipod were recorded.

Oligochaetes (worms) were recorded from two bores. Determining whether these were from the soil or true stygofauna is difficult and would require DNA analysis for certainty. One group recorded at bore Bottom Camp has groups that can be stygofauna (ostracoda – seed shrimp) but this bore had a large diameter entrance (i.e. greater than one metre) and was located close to the Dugald River suggesting these were likely surface water taxa as the cysts are easily transported by wind.

All other fauna recorded were considered stygoxenes (animals which had accidentally fallen into the bores). Most of the stygoxenes were distinct terrestrial fauna (isoptera – termites, coleoptera – beetles, hemipterans – true bugs, arachnids – spiders, isoptera – wood louse). Collembola (springtails) were recorded from two bores. Collembola are typically abundant in soil, and the specimens collected exhibited traits consistent with being terrestrial fauna.

5.6 Pest flora and fauna

5.6.1 Pest flora

Limited exotic flora species have been recorded within the Project Area and most of the weed species present in the Project Area are prevalent throughout the region.

Of the eight species recorded during field surveys, one is classified as a WoNS and restricted Category 3 invasive plant under the Biosecurity Act: Rubber Vine (*Cryptostegia grandiflora*). This species was detected in several areas across the Project, particularly along the Cabbage Tree Creek diversion footprint.

Buffel Grass (*Cenchrus ciliaris*) was documented as the most widespread weed species within the Project Area likely as a result of the historic and ongoing grazing practices. Areas recently subjected to burning were observed to have heightened weed presence, likely due to pioneering weed species rapidly establishing on the newly cleared terrain.

5.6.2 Pest fauna

Pest fauna recorded within the Project Area include Feral Pigs, Cane Toads and Feral Cats, with Dingo activity also observed within the broader landscape.

Cane Toads have been observed incidentally by field personnel and targeted monitoring undertaken in 2026. Preliminary surveys confirmed the presence of Cane Toads across multiple locations, including areas that overlap with known and potential habitat for Mertens' Water Monitor and Northern Blue-tongued Skink. A Cane Toad Management and Monitoring Plan has been established for the Project, which will include Visual Encounter Surveys to assess Cane Toad occurrence and population density, with mitigation and corrective actions to address the population present.

5.7 Revised likelihood of occurrence

Targeted surveys assisted in revising the LoO assessment for one species, Night Parrot. The initial and revised LoO are presented in Table 5.7. All species with a confirmed LoO of moderate or above are denoted in bold text. Habitat Mapping for these species, where relevant, is discussed in Section 6.

Table 5.7 Revised likelihood of occurrence

Scientific name	Common name	EPBC Act status	NC Act status	Initial LoO	Revised LoO
Birds					
Amytornis dorotheae	**Carpentarian Grasswren**	**Endangered**	**Endangered**	**Moderate**	**Moderate**
Calidris acuminata	Sharp-tailed Sandpiper	Vulnerable; Marine; Migratory	Vulnerable	Low	Low
Calidris ferruginea	Curlew Sandpiper	Critically Endangered; Marine; Migratory	Critically Endangered	Unlikely	Unlikely
Chloebia gouldiae	Gouldian Finch	Endangered	Endangered	Low	Low
Erythrotriorchis radiatus	Red Goshawk	Endangered	Endangered	Low	Low
Falco hypoleucos	**Grey Falcon**	**Vulnerable**	**Vulnerable**	**Moderate**	**Moderate**

Scientific name	Common name	EPBC Act status	NC Act status	Initial LoO	Revised LoO
Gallinago hardwickii	Latham's Snipe	Vulnerable; Marine; Migratory	Vulnerable	Low	Low
Grantiella picta	**Painted Honeyeater**	**Vulnerable**	**Vulnerable**	**Known**	**Known**
Malurus coronatus	Purple-crowned fairy-wren	-	Vulnerable	Unlikely	Unlikely
Pezoporus occidentalis	Night Parrot	Critically Endangered	Endangered	Low	Unlikely
Polytelis alexandrae	Princess parrot	Vulnerable	Least Concern	Low	Low
Rostratula australis	Australian Painted Snipe	Endangered; Marine	Endangered	Low	Low
Tringa nebularia	Greenshank	Endangered; Marine; Migratory	Endangered	Low	Low
Migratory birds					
Actitis hypoleucos	Common Sandpiper	Marine; Migratory	Special Least Concern	Low	Low
Apus pacificus	Fork-tailed Swift	Marine; Migratory	Special Least Concern	**Known**	**Known**[1]
Calidris melanotos	Pectoral Sandpiper	Marine; Migratory	Special Least Concern	Low	Low
Charadrius veredus	Oriental Plover	Marine; Migratory	Special Least Concern	Low	Low
Glareola maldivarum	Oriental Pratincole	Marine; Migratory	Special Least Concern	Low	Low
Hirundo rustica	Barn Swallow	Marine; Migratory	Special Least Concern	Unlikely	Unlikely
Hydroprogne caspia	Caspian tern	Marine; Migratory	Special Least Concern	Unlikely	Unlikely
Motacilla cinerea	Grey Wagtail	Marine; Migratory	Special Least Concern	Low	Low
Motacilla flava	Yellow Wagtail	Marine; Migratory	Not listed	Unlikely	Unlikely
Pandion haliaetus	Osprey	Marine; Migratory	Special Least Concern	Low	Low
Plegadis falcinellus	Glossy ibis	Marine; Migratory	Special Least Concern	Low	Low
Tringa glareola	Wood Sandpiper	Marine; Migratory	Special Least Concern	Low	Low
Tringa stagnatilis	Marsh Sandpiper	Marine; Migratory	Special Least Concern	Low	Low
Fish					
Pristis pristis	Largetooth Sawfish	Endangered; Migratory	Endangered	Unlikely	Unlikely
Mammals					
Macroderma gigas	**Ghost Bat**	**Vulnerable**	**Endangered**	**Moderate**	**Moderate**

Scientific name	Common name	EPBC Act status	NC Act status	Initial LoO	Revised LoO
Macrotis lagotis	Greater Bilby	Vulnerable	Endangered	Low	Low
Petrogale purpureicollis	**Purple-necked Rock-wallaby**	**-**	**Vulnerable**	**Known**	**Known**
Sminthopsis douglasi	Julia Creek Dunnart	Vulnerable	Vulnerable	Low	Low
Tachyglossus aculeatus	**Short-beaked Echidna**	**-**	**Special Least Concern**	**Known**	**Known**
Reptiles					
Acanthophis hawkei	**Plains Death Adder**	**Vulnerable**	**Vulnerable**	**Moderate**	**Moderate**
Crocodylus johnsonii	Freshwater Crocodile	Marine	Least Concern	Low	Low
Crocodylus porosus	Estuarine Crocodile	-	Vulnerable	Low	Low
Elseya lavarackorum	Gulf Snapping Turtle	Endangered	Vulnerable	Unlikely	Unlikely
Emydura subglobosa worrelli	**Diamond Head Turtle**	**-**	**Near Threatened**	**Moderate**	**Moderate**
Tiliqua scincoides intermedia	**Northern Blue-tongued Skink**	**Critically Endangered**	**Critically Endangered**	**Known**	**Known**
Varanus mertensi	**Mertens' Water Monitor**	**Endangered**	**Endangered**	**Known**	**Known**
Flora					
Brachychiton collinus	**Hill Kurrajong**	**-**	**Special Least Concern**	**Moderate**	**Moderate[2]**
Dichanthium setosum	**-**	**Vulnerable**	**Least Concern**	**Moderate**	**Moderate**
Eucalyptus nudicaulis	Mt Isa Mallee	Endangered	Endangered	Unlikely	Unlikely
Ipomoea antonschmidii	**-**	**-**	**Near Threatened**	**Moderate**	**Moderate**
Livistona rigida	**Fan Palm**	**-**	**Special Least Concern**	**Known**	**Known[3]**
Najas tenuifolia	**Water Nymph**	**-**	**Special Least Concern**	**Moderate**	**Moderate[2]**
Potamogeton crispus	Curly pondweed	-	Special Least Concern	Low	Low
Ptilotus maconochiei	-	-	Near Threatened	Low	Low
Santalum lanceolatum	**Northern Sandalwood**	**-**	**Special Least Concern**	**Moderate**	**Moderate[2]**

Notes: 1. This species is an aerial forager and does not roost nor breed in Australia. The species has been excluded from habitat mapping.

2. These species are Special Least Concern and do not require an impact assessment, therefore, have been excluded from habitat mapping.

3. Despite being listed as Special Least Concern and not requiring impact assessment, Fan Palm was incidentally recorded in the Project Area, and habitat mapping for this species has been included on this basis.

6 Habitat mapping

Species profiles, habitat definitions and habitat maps are provided for species assessed as having a moderate or higher likelihood of occurrence within the Project Area. Species considered low or unlikely to occur, based on the revised LoO informed by targeted survey outcomes, expert advice and habitat assessments have been ruled out of further assessment and excluded from habitat mapping provided in Section 6.

Flora habitat mapping was restricted to threatened species with a LoO of moderate or above. Species listed as Special Least Concern do not require impact assessment. Therefore, of the flora species listed as Special Least Concern that have been assessed in the LoO, only those that have been recorded in the Project Area (known) have been included in habitat mapping.

The following sections outline the habitat requirements and associated habitat mapping within the Project Area for threatened species identified with moderate or greater likelihood of occurring. These species are summarised in Table 5.7.

6.1 Regional Ecosystems

A summary of all GTRE mapped across the Project Area, as well as their relevant Queensland Herbarium REDD (2024) Vegetation management (VM) structure category and code and broad habitat group type is provided in Table 5.4.

6.2 Species habitat mapping

The following sections outline the habitat requirements and associated habitat mapping within the Project Area for threatened species identified with moderate or greater likelihood of occurring.

This process incorporates current literature, Conservation and Listing Advice for each species (where available), Essential Habitat mapping, SME input, site knowledge and field surveys. A systematic approach to habitat mapping was utilised for each species, by consulting current information, identifying species distribution, broad habitat types, exclusions to occupancy of habitat and then determining potential habitat within the Project Area.

Habitats are categorised under the overarching categories: Critical Habitat or Habitat. Within the categories, habitat types are further defined according to the species' ecology and the way they utilise the habitat.

- **Critical Habitat** is defined in accordance with the species' Conservation Advice, where available, or by the criteria outlined in the Significant Impact Guidelines 1.1 (DoE 2013) (Plate 6.1). Critical Habitat attributes support the essential and long-term function of each species and generally includes breeding or refugia habitat dependent on the ecology of the species.

- **Habitat** includes general breeding, foraging, dispersal or suitable areas not identified as critical to each species persistence. This habitat is typically devoid of required habitat features that support core habitat functionality however, that may provide opportunistic outcomes for each species.

Table 6.1 provides a breakdown of each species habitat category.

Table 6.1 Species habitat category and associated rating

Species	Critical Habitat		Habitat	
Tiliqua scincoides intermedia (Northern Blue-tongued Skink)	Breeding, foraging and refugia		Dispersal	
Varanus mertensi (Mertens' Water Monitor)	Refuge	Breeding and foraging	Dispersal	
Emydura subglobosa worrelli (Diamond Head Turtle)	-		Breeding and foraging	Dispersal
Acanthophis hawkei (Plains Death Adder)	-		Breeding and foraging	Dispersal
Petrogale purpureicollis (Purple-necked Rock-wallaby)			Known	Potential
Apus pacificusa (Fork-tailed Swift)	-		-	
Tachyglossus aculeatus (Short-beaked Echidna)	-		Suitable	
Falco hypoleucos (Grey Falcon)	-		Breeding	Foraging and dispersal
Macroderma gigas (Ghost Bat)	-		Roosting	Foraging and dispersal
Amytornis dorotheae (Carpentarian Grasswren)	Breeding and refugia		Foraging and dispersal	
Grantiella picta (Painted Honeyeater)	-		Foraging	Dispersal
Ipomoea antonschmidii	-		Suitable	
Dichanthium setosum (Bluegrass)	-		Suitable	
Livistona rigida (Fan Palm)	-		Suitable	

What is habitat critical to the survival of a species or ecological community?

'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.

Plate 6.1 Significant Impact Guidelines 1.1 (DoE 2013)

6.3 Limitations/exclusions

Habitat mapping for the species identified in Table 5.7 is limited by available information including literature, Conservation and Listing Advice for each species and field surveys, including ground-truthed regional ecosystems. Outputs of threatened species habitat mapping for the Project Area is subject to the following key limitations:

- Habitat mapping is based on the best available information, including field observations, vegetation mapping, aerial imagery and relevant species ecology. Where there are no species observations, it represents potential suitable habitat and should not be interpreted as a definitive representation of species occupancy or habitat use.
- Where Conservation and/or Listing Advice is not published for a species, literature was reviewed to inform habitat requirements, distribution, biology and exclusions.
- Site specific microhabitat data was consulted to support the classification of each species habitat categories, although these observations were collected during general habitat assessments and vegetation ground-truthing rather than targeted habitat surveys. The data represents broad field observations and should be considered indicative of habitat rather than detailed surveys.
- Ground-truthed vegetation mapping has primarily been undertaken within the Project disturbance footprint and, where possible, extrapolated across the broader Project Area based on site knowledge. Vegetation outside of the Project Area has not been ground-truthed and frequently contains mixed RE polygons which would impact habitat mapping outside of the Project Area if undertaken.
- Fork-tailed Swift is an aerial forager and does not roost nor breed in Australia. The species may occur as an aerial forager across the entirety of the Project Area and has thus been excluded from habitat mapping.
- Additional information has been provided by Subject Matter Experts to support some species habitat mapping outcomes.

6.4 Northern Blue-tongued Skink

The Northern Blue-tongued Skink (*Tiliqua scincoides intermedia*) is a large-bodied terrestrial skink characterised by a broad head, short limbs and a distinctive blue tongue used in defensive displays (DCCEEW 2023a). It is an opportunistic predator and scavenger that feeds on invertebrates and small vertebrates. The subspecies is viviparous, giving birth to live young (DAWE 2021a; Price-Rees, Brown & Shine 2013).

The Northern Blue-tongued Skink is listed as Critically Endangered under the NC Act and the EPBC Act.

6.4.1 Distribution

The Northern Blue-tongued Skink occurs across northern Western Australia, Northern Territory and into north-western Queensland (refer to Figure 6.1). The Conservation Advice (DCCEEW 2023a) for the subspecies includes a caveat in the distribution mapping, acknowledging a sampling gap towards the eastern limit of the subspecies distribution.

Photographs of two skinks observed within the Project Area were assessed by multiple SMEs and it has been concluded that one of the skinks is more likely than not to be a Northern Blue-tongued Skink (Wilson 2026). This records, therefore, confirms the presence of the subspecies at the eastern edge of its modelled distribution and demonstrates the presence of habitat for the subspecies within the Project Area.

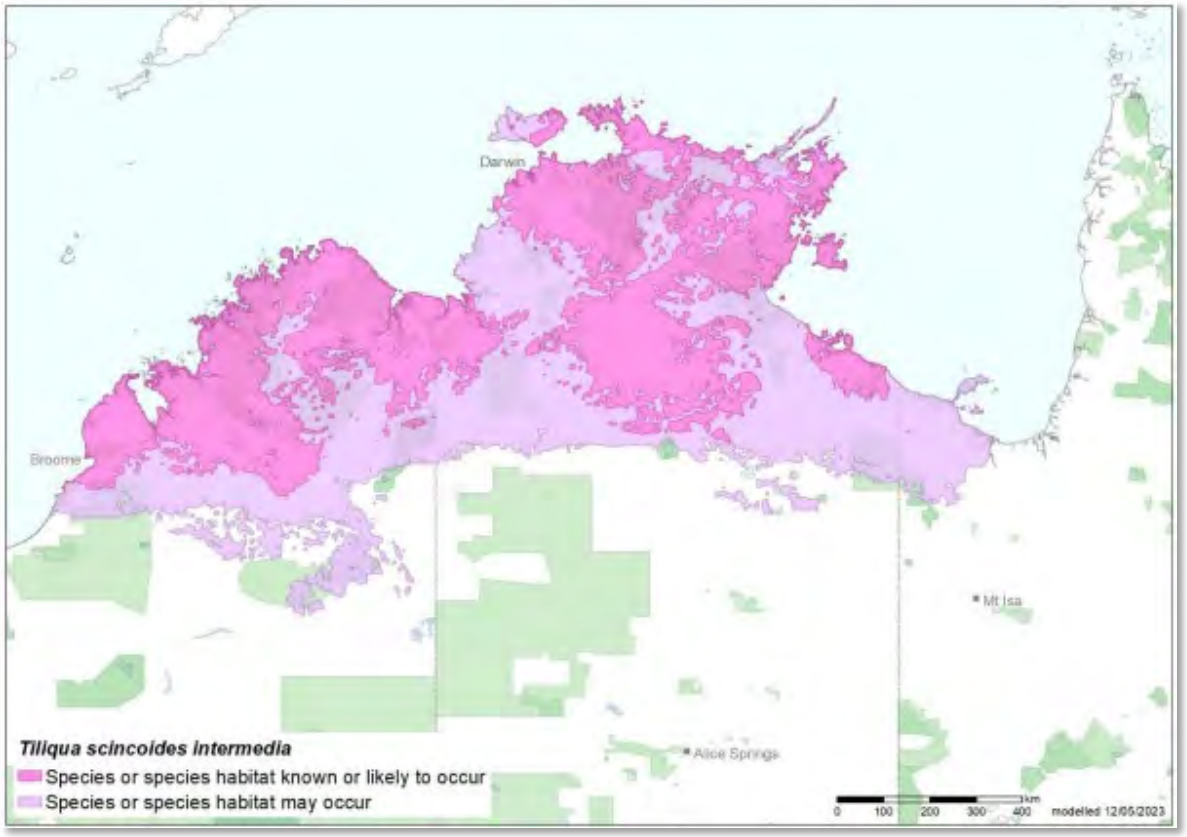


Figure 6.1 Modelled distribution of the Northern Blue-tongued Skink (DCCEEW 2023a)

Across its distribution, the subspecies likely has an average home range of 4 ha (with a range of 2–12 ha); however, only approximately two-thirds of this home range is intensely used by individuals, and average movements are less than 20 m (Price-Rees, Brown & Shine 2014).

6.4.2 Habitat

The Northern Blue-tongued Skink occurs across a broad range of habitats throughout northern Australia. Observations of the subspecies occur from a variety of habitat types (DCCEEW 2023a; Wilson & Swan 2021), including dissected sandstone plateaus and gorges, limestone ranges, granite, basalt and dolerite hills, glacial shale undulations, sand plains, sandy waterways, swamps, cracking clay floodplains and coastal flats. Vegetation communities associated with the subspecies include riparian forest, vine scrub, monsoon rainforest, pandanus-lined gorges, melaleuca forest, eucalypt woodland and savanna, sparse and dense shrubland, and spinifex and tussock grassland (DCCEEW 2023a).

Habitat suitability is, therefore, not constrained by specific habitat type or vegetation communities. Instead, suitable Northern Blue-tongued Skink habitat includes the presence of dense ground level vegetation and shelter that provides cool, shaded and damp conditions. Shelter that is suitable for the subspecies includes grass, shrubs, leaf litter, burrows or underneath anthropogenic debris.

Based on the subspecies broad habitat associations, Northern Blue-tongued Skink has the potential to occur within all habitat types across the Project Area making it difficult to narrow down suitable habitat.

Broad habitat types for the subspecies within the Project Area include (DCCEEW 2023a):

- riparian areas
- eucalypt and acacia woodlands
- grasslands
- strike ridges and rocky outcrops
- black cracking clay soil.

Consequently, large parts of the Project Area may be considered suitable habitat. This conclusion is consistent with advice provided by a reptile SME Steve Wilson. Suitable Northern Blue-tongued Skink habitat will be stratified by microhabitat attributes to determine habitat category classification.

i Microhabitat

Northern Blue-tongued Skinks inhabit a broad range of macrohabitats, however are more selective in microhabitat requirements for key functionality. Research by Price-Rees, Brown and Shine (2013) suggest that this subspecies generally prefers microhabitats in shaded, cool and damp conditions, generally with high grass and leaf litter coverage, low proportion of bare ground and usually within 5 m of trees and/or shrubs. “Higher grass” as described by Price-Rees, Brown and Shine (2013) refers to relatively more developed ground-layer vegetation compared to the surrounding landscape.

The Conservation Advice (DCCEEW 2023a) also suggests an association with seasonal or permanent water noting many observations occur in proximity to these areas. Habitat preferences reported in the literature show some regional variability (e.g. Northern Territory vs Western Australian populations), likely reflecting local environmental conditions. There is limited literature available on habitat preferences for Queensland.

The Northern Blue-tongued Skink often moves multiple times per day among core habitat patches within their small home range and can spend multiple consecutive days in a single core habitat patch (Price-Rees, Brown & Shine 2013; DCCEEW 2023a). Long-distance movements between scattered core habitat patches occur in the mid-morning and late afternoon into the evening (Price-Rees, Brown & Shine 2013; DCCEEW 2023a).

As such, the subspecies exhibits a preference for more densely vegetated, shaded and cool habitat, generally in association with watercourses or damp areas for shelter and refuge and tends to only traverse more open areas during dispersal or for foraging.

ii Habitat considerations relevant to the Project Area

As described in the Conservation Advice, the Northern Blue-tongued Skink can inhabit a wide range of habitat types but has a preference of access to moist areas, cool shade for refuge during extreme heat. The Conservation Advice includes a substantial list of potential habitats. To inform the habitat mapping and the delineation of what is considered either general Habitat or Critical Habitat within the Project Area, each potential habitat identified in the Conservation Advice was reviewed for occurrence and suitability (Table 6.2).

Table 6.2 Habitat listed in the Conservation Advice and presence within the Project Area

Potential habitat groups	Presence in Project n Area	Description
General habitat		
Geologic formations		
Dissected sandstone plateaus and gorges	Not present	-
Limestone ranges	Not present	-
Granite	Some present	Some localised granite occurs in the region
Basalt and dolerite hills	Not present	-
Glacial shale undulations	Not present	-
Sand plains	Present	Relatively flat landscapes with predominately sandy soils occur within the Project Area, generally associated with landzone 5. Local habitat suitability varies depending on soil and vegetation structure and availability of shelter resources.
Sandy waterways	Present	Present particularly within high order streams (≥3). Sandy waterways are also present in lower order streams but are highly ephemeral and lack the shade and vegetation structure preferred by this species.
Swamps	Not present	-
Cracking clay floodplains and coastal flats	Some present	Some cracking clay plains are present; however clay plains containing grassland lack the shade and microhabitat preferences beyond the marginal areas of the clay plain regions.
Vegetation categories		
Riparian forest	Not present	-
Vine scrub	Not present	-
Monsoon rainforest	Not present	-
Pandanus-lined gores	Not present	-
Melaleuca forest	Not present	-
Eucalypt woodland and savanna	Present	Various combination of eucalypt woodland and savanna are present within the Action Area.

Potential habitat groups	Presence in Project n Area	Description
Sparse and dense shrubland	Present	Various types of sparse and dense shrubland are present on site, some regions are considered too sparse for the subspecies microhabitat preferences.
Spinifex and tussock grassland	Present	Various types of spinifex and tussock grassland are present within the Project Area, some regions are considered too sparse for the microhabitat preferences and or are fire affected with reduced cover.
Habitat critical to survival	Areas of dense vegetation that provide cool and moist conditions within otherwise hot, dry, and flammable landscapes that are within the historical distribution of the species are habitat critical to the	
Rainforest and vine thickets	Not present	-
Riparian forests	Not present	-
Well-vegetated creeks, forges and drainage lines	Present	Well vegetated creeks and drainage lines are present on higher order streams within RE 1.3.7 (River Red Gum open woodland) dominated vegetation. Lower-order drainage lines associate with RE 1.3.13a and 1.3.6a are generally not considered well-vegetated, as vegetation structure in these areas was similar to the surrounding landscape, usually open eucalypt woodlands.
Well-vegetated swamps, soaks and springs	Not present	-
Dense thickets within floodplains, grasslands, shrublands, savannas and woodlands	Some present	Vegetation composition is predominantly sparse or very sparse communities. Some limited dense areas are present within shrublands, savanna and woodlands.
Shady thickets in rocky ranges and gorges	Some present	Rocky ranges are present within the Project Area, however in this semi-arid landscape they are high heat exposed landscapes, within the upper catchment areas that would not be retaining water to provide moist areas. Mount Rose Bee is a predominantly sheer cliff face with limited accessible vegetation.
Well-watered and well-vegetated gardens.	Not present	-

6.4.3 Habitat definitions

Critical Habitat and Habitat has been defined for this species. Northern Blue-tongued Skink habitat within the Project Area has been classified into two categories: Critical - breeding, foraging and refugia and Habitat - dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species.

Critical habitat within the Project Area contains key habitat attributes identified in the Conservation Advice as important for the persistence and recovery of the Northern Blue-tongued Skink and may, therefore, contribute to habitat critical to the survival of the species, particularly where Cane Toads are present.

No Critical Habitat has as defined under section 207A of the EPBC Act has been identified in the Register of Critical Habitat for this species (DCCEEW 2023a). Further discussion around the classification of habitat is provided in Section 6.4.4.

i Critical Habitat

a Breeding, foraging and refugia

Critical Habitat represents areas that likely contain the preferred structural and microhabitat attributes that support breeding, foraging and refuge of Northern Blue-tongued Skinks expressly identified in the Conservation Advice as critical to the species' persistence. This habitat is also considered to provide burrows or sleeping sites for individuals if present.

Relevant critical macrohabitat areas within the Project Area as outlined in the Conservation Advice (DCCEEW 2023a; Table 6.2) include:

- well-vegetated creeks, gorges and drainage lines
- dense thickets within floodplains, grasslands, shrublands, savannas and woodlands
- shady thickets in rocky ranges and gorges.

The literature also highlights important microhabitat requirements for the subspecies, with access to water considered essential (DCCEEW 2023a). Most records of the subspecies have occurred in proximity to seasonal or permanent water sources. The species also generally prefers shaded, cool and damp microhabitats, typically with dense grass cover, abundant leaf litter and the presence of scattered trees and shrubs that provide shelter and refuge opportunities.

Critical Habitat was defined by assessing riparian and woodland habitats to understand the differences in habitat characteristics between these areas. The location of Northern Blue-tongued Skink records has been considered when mapping Critical Habitat. RE mapping was used as a consistent and repeatable landscape-scale reference for habitat attributes relevant to the Northern Blue-tongued Skink. As a result, the mapped pattern reflects the natural variation in canopy, provision of habitat and the likelihood of habitat feature occurrence.

Most movements of Northen Blue-tongued Skinks are shorter than 20 m, with longer movements generally associated with dispersal between Critical Habitat areas within the broader home range (Price-Rees, Brown & Shine 2014). This distance is also consistent with the scale at which individuals are likely to visually detect and move to nearby habitat. Recognising that habitat attributes may extend beyond mapped RE boundaries at a local scale, a 20 m buffer was applied to all Critical Habitat areas to account for fine-scale variation in vegetation structure. This approach provides a precautionary representation of Critical Habitat and differentiates between areas that consistently support key habitat attributes and adjacent areas where those attributes occur less frequently or at substantially lower densities. Non-remnant areas can be included within habitat buffers as they may be utilised opportunistically for basking or movement.

Riparian habitats

As the literature identifies well vegetated creeks and drainage line habitats as an important feature for the Northern Blue-tongued Skink, critical riparian habitat has been defined as riparian REs or higher order drainage features that are more likely to support dense vegetation, greater moisture availability and improved habitat connectivity.

Based on site observations, all ground-truthed RE 1.3.7 polygons were included as critical riparian habitat, as these areas consistently supported denser and more structurally complex riparian vegetation. In contrast, RE 1.3.6a and 1.3.13a were observed as typically more ephemeral, related to stream orders 1 and 2 and lacked a diversity of microhabitat features. Vegetation structure in these areas was similar to the surrounding landscape, usually open eucalypt woodlands.

Watercourse stream orders were reviewed to identify drainage lines and watercourses that may not be mapped as RE 1.3.7 but retain moisture and support suitable refuge habitat. Based on site observations, it was determined that any stream order 3 and above watercourses are included in the mapping. Including the stream order parameter also assists in identifying riparian habitat that falls within mixed vegetation polygons, particularly when mapping outside of the Project Area in future assessments.

Woodland habitats

Critical woodlands are defined by their REs, structure categories, landzones and soil types. As the Conservation Advice identifies dense thickets as Critical Habitat and the subspecies is associated with sheltered microhabitats containing dense ground-layer vegetation, the Queensland Government VM REDD database was consulted to provide structure categories (Queensland Herbarium 2024). The Project Area contains a mix of 'sparse', 'very sparse' and 'grassland' structures (Table 5.4).

Critical woodland habitat was mapped as any 'sparse open woodland' vegetation type, as these are more likely to provide microhabitat features important to the subspecies, including fallen timber, leaf litter, shelter sites and denser vegetation. These areas are also more likely to support refuge, movement and connectivity opportunities for the subspecies.

Additionally, only Landzones 4 and 5 are classified as critical woodland habitat. These landzones are generally associated with greater water availability and contain deeper, more fertile soils that can support greater vegetation and ground-layer complexity. This classification is consistent with the occurrence of Malako soils in the northern portion of the Project Area (Figure 2.3), which are associated with relatively fertile landscapes that can support more dense vegetation resulting in woody debris and litter accumulation.

The REs selected as Critical woodland habitats (RE 1.5.16 and 2.4.3) are distinguished from the surrounding landscape by the presence of greater structural complexity and microhabitat availability. Both represent 'sparse' low woodlands, frequently containing clusters of *Acacia cambagei* that contribute fallen timber, coarse woody debris, accumulation of leaf litter and shaded shelter sites. Field observations within critical woodland REs generally recorded ground layer vegetation cover ranging from approximately 25–70% and leaf litter cover ranging from 1–25%. Fallen woody debris were common to occasionally present and small to medium hollow logs were recorded. These attributes provide important habitat features for the Northern Blue-tongued Skink, including refuge, thermoregulation opportunities and protection from predators. This habitat distinction is supported by existing Northern Blue-tongued Skink record occurring within RE 1.5.16, and RE 2.4.3 occurs in close proximity to the record and supports comparable landscape and microhabitat characteristics.

A summary of all REs mapped across the Project Area, their relevant VM structure category and code and broad habitat group type is provided in Table 5.4.

Photograph 6.1 Example Critical Habitat (RE 1.5.16)

ii Habitat

a Dispersal

Relevant general habitat areas that were identified within the Project Area (Table 6.2) as outlined in the Conservation Advice (DCCEEW 2023a) include:

- granite
- sand plains
- sandy waterways
- cracking clay floodplains
- eucalypt woodland and savanna
- sparse and dense shrubland
- spinifex and tussock grassland.

The dispersal habitat is mapped conservatively, guided by the general habitat definitions provided in the Conservation Advice. Therefore dispersal habitat constitutes all woodland, grassland and riparian communities that occur within the Project Area that are not identified as Critical Habitat. These areas may contain reduced functional habitat attributes or lack microhabitat requirements for refuge but provide corridors that may provide movement, breeding, basking or foraging opportunities. Use of dispersal habitat is expected to be transient and opportunistic rather than continuous as the subspecies tends to only traverse more open areas during dispersal or for foraging.

There is likely local variation in dispersal habitat provision of microhabitat features preferred by the subspecies. For example, the dispersal habitat surrounding critical woodland is most commonly RE 1.5.13. General field observations within areas of RE 1.5.13 indicate some structural complexity, with ground vegetation cover ranging from approximately 20 - 85% and leaf litter cover ranging from 1 - 80%. Fallen woody debris was recorded as occasional to common, and small to medium hollow logs were present within some areas. In contrast, grassland clay plain areas (RE 2.4.2b) contained limited refuge features, with hollow logs absent and fallen woody debris rare to absent, though ground cover ranged between 40 - 80% indicating high level of grass coverage in these areas. These observations suggest there may be opportunities for the subspecies to utilise these areas depending on seasonal availability of resources and grass cover, however, are unlikely to provide the shelter preferences in these locations. Photograph 6.2 provides a comparison of Habitat (grassland RE 2.4.2b) transitioning to Critical Habitat, demonstrating the reduction of habitat attributes outside of areas that support a dense canopy. Areas around Mount Rose Bee are excluded from the suitable mapping due to the steep incline and cliff facings that would be difficult for the subspecies to traverse.

Photograph 6.2 Transition from Habitat (left) to Critical Habitat (right) Habitat

6.4.4 mapping considerations

The landscape-scale mapping approach relies on broad parameters and incorporates assumptions for consistent application across the Project Area. As a habitat generalist, the Northern Blue-tongued Skink presents inherent limitations to further habitat refinement. This section discusses the rationale behind the habitat category distinction and presents further justification where supported by observed habitat patterns and ecology.

i Critical Habitat vs Habitat

The distinction between Critical Habitat and the broader Habitat category is strongly supported by the movement ecology presented in the Conservation Advice. Intensive GPS tracking demonstrated that, although Northern Blue-tongued Skinks move across savanna landscapes during the wet season, individuals spent an average of 95% of their time in small, fragmented patches of relatively dense vegetation providing cool, shaded and damp conditions, despite these patches comprising less than 40% of their total home range. The Conservation Advice describes these habitat areas as "oases" that allow individuals to avoid lethal temperatures and predators, access abundant food resources, reduce water loss and obtain protection from low-intensity fire. The Conservation Advice also records that most movements are less than 20 m, that longer-distance movements occur between scattered core habitat patches and that, although individual home ranges extend from approximately 2–12 ha (average 4 ha), only around two-thirds of the home range is intensively used.

This evidence provides a clear ecological basis for distinguishing the areas in which the species concentrates its activity and obtains the resources necessary for persistence from the broader landscape through which individuals may move. Consistent with this evidence, a 20 m buffer has been applied around mapped Critical Habitat to capture the scale at which most movements occur and to recognise that immediately adjoining areas, including some non-remnant areas, may be used opportunistically for movement or basking. The broader Habitat category extends beyond these areas and recognises additional vegetation that may facilitate movement and connectivity between Critical Habitat patches and provide opportunistic foraging opportunities. These areas remain ecologically relevant; however, they do not necessarily possess the dense vegetation, moisture, shelter or refuge characteristics identified by the Conservation Advice as providing the resources required for persistence.

The habitat mapping approach is precautionary by design given that the identification of Critical Habitat is not dependent on confirmed occupancy. The Conservation Advice expressly recognises that habitat critical to survival may be occupied or temporarily unoccupied, with temporarily unoccupied areas potentially providing habitat into which Cane Toad resilient individuals can disperse and from which subsequent recolonisation can occur. Accordingly, the Project mapping identifies areas possessing the relevant critical habitat characteristics irrespective of whether a Northern Blue-tongued Skink has been recorded within an individual habitat polygon. Project records are instead used alongside vegetation structure, hydrology, landzone, soils and field observations as converging lines of evidence to support and refine the site-specific delineation. This approach is particularly appropriate given that the Conservation Advice expressly notes that the spatial distribution of habitat critical to survival had not been mapped at the time of the species assessment.

ii Geology

A distinct geological shift occurs in the north-west of the Project Area which may influence vegetation and soil characteristics and drive local habitat preferences. The observation of the Northern Blue-tongued Skink was recorded within this area, which falls between Cabbage Tree Creek and Pinnacle Creek in an area predominantly containing landzones 4 and 5.

Moisture and seasonally wet areas are large components of this subspecies microhabitat preferences. The two records occur away from mapped watercourses, with the nearest located >1.2 km from a major watercourse (stream order 4) and >300 m from a minor watercourse (stream order 1). This suggests that localised water retention in the areas where the observations were recorded may provide suitable habitat conditions.

The presence of records within this high water retention area increases confidence in the boundaries of the critical habitat mapping.

iii Landzone and soil mapping

Detailed Landzone and soil mapping was used to identify areas with greater moisture retention, refuge potential and connectivity, which underpin Northern Blue-tongued Skink habitat independent of vegetation type.

The record of the subspecies occured within or adjacent to Landzones 4 and 5, with critical habitat mapping also including Landzone 3 (riparian areas) based on habitat characteristics and stream order. All three of these landzones represent alluvial systems associated with higher water availability, indicating a relationship with habitat suitability that is consistent with the subspecies' association with water sources. Accordingly, critical habitat mapping only included these landzones.

Soil types in the north-west (Malako) align with the occurrence of records and are associated with relatively fertile soils that can provide dense vegetation. These soils are more closely aligned with critical woodland habitats. In contrast, within the central and southern Project Area, critical riparian habitat is more closely linked to riparian systems. Soils, therefore, provide a supporting line of evidence for critical woodland habitat.

Some outlying areas where soil type may be less suitable have been retained due to limited ground-truthing and the presence of dense vegetation in the State RE mapping. These areas occur outside the Project disturbance footprint and are, therefore, not expected to be impacted.

iv Microhabitat attributes

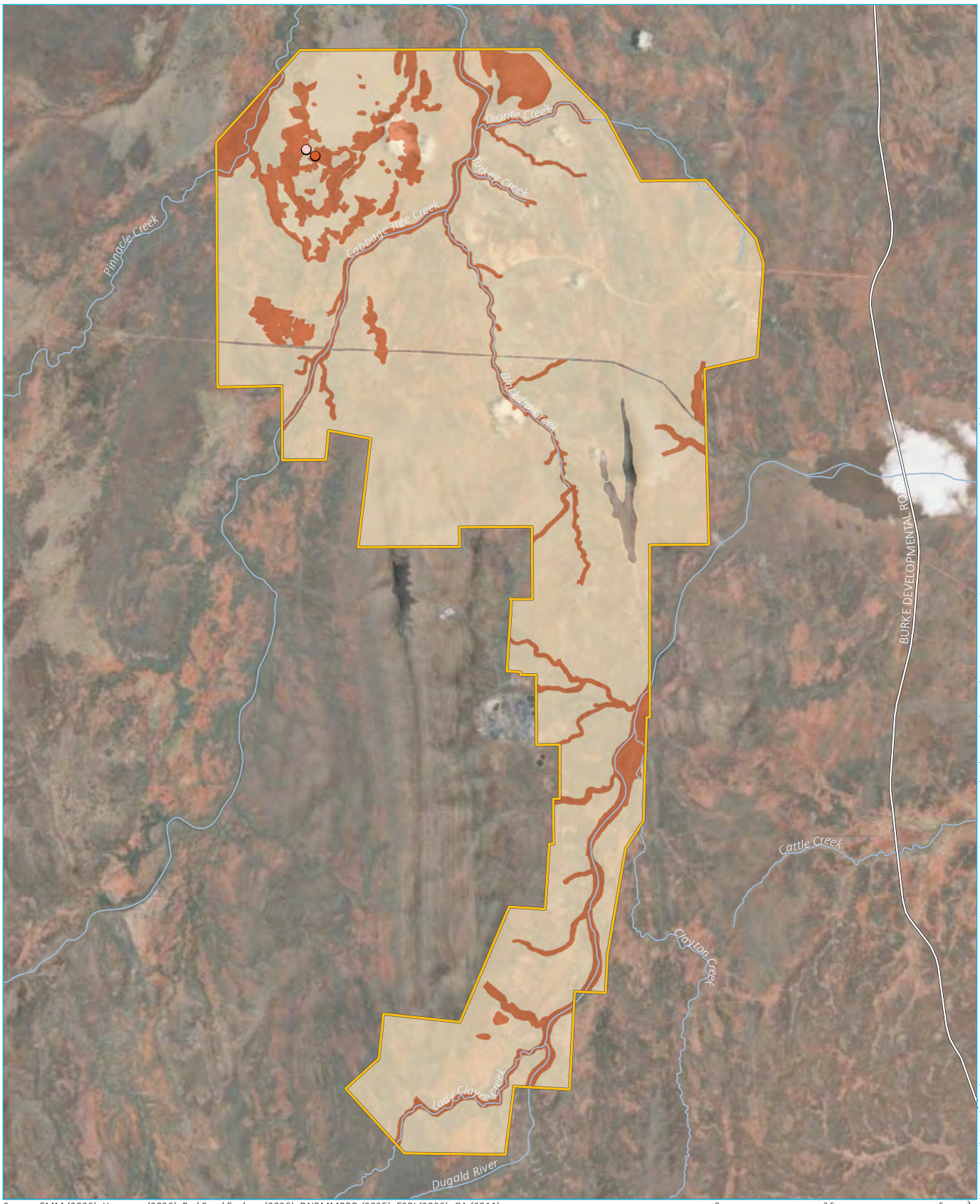
Refinement of habitat mapping may be supported through detailed assessment of microhabitat characteristics within the Project Area. Northern Blue-tongued Skinks are known to utilise sheltered microhabitats, including dense grasses, leaf litter, burrows and under debris and generally avoid areas of extensive bare ground.

6.4.5 Habitat mapping

A summary of the habitat mapping rules and areas of available habitat for the Northern Blue-tongued Skink is provided in Table 6.3, with areas calculated for each type. Habitat mapping across the Project Area for the Northern Blue-tongued Skink is illustrated on Figure 6.2.

Table 6.3 Habitat mapping rules summary

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Critical Habitat – Beeding, foraging and refugia	EMM GTRE layer Stream order	Riparian • Map all polygons of RE 1.3.7 • Map all watercourse REs associated with stream order ≥3 • For mixed RE polygons, assess whether a stream order ≥3 watercourse is present and digitize only the watercourse vegetation component • Buffer all polygons by 20 m	854.9
	EMM GTRE layer	Woodland • Map all 'sparse' remnant RE polygons on landzone 4 or 5 – REs 1.5.16, 2.4.3a • Where mixed polygons occur, the combination of target REs must comprise >50% of mixed polygon • Buffer all polygons by 20 m	1,061.8
Habitat -Dispersal	EMM GTRE layer	Map REs 1.3.6, 1.3.13, 1.5.3, 1.5.4, 1.5.13, 1.5.15, 1.7.1, 1.7.5, 1.11.2, 1.11.3, 1.11.7, 1.12.1, 1.12.3, 2.4.2, 2.4.3. • Where mixed polygons occur, the combination of target REs must comprise >50% of mixed polygon.	12,210.9



Source: EMM (2026); Harmony (2026); Red Sand Ecology (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

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KEY

- Project area
- Northern Blue-tongued Skink observation (Harmony record)
  - SME verified
  - SME verification uncertain
- Northern Blue-tongued Skink habitat
  - Critical habitat
  - Habitat
- Existing environment
  - Major road
  - Named watercourse

Northern Blue-tongued Skink
mapped habitat within the Project area

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Contemporary Baseline Ecological Values Report
Figure 6.2

EMM
creating opportunities

6.5 Merten's Water Monitor

Mertens' Water Monitor (*Varanus mertensi*) is a medium-sized monitor lizard distinguished by its dark colouration with pale spots and bands and laterally compressed tail. It is an active predator that feeds on fish, crustaceans, frogs and other vertebrates (DCCEEW 2023b; DAWE 2021b). The species is oviparous, laying eggs in burrows or nests during the breeding season (DCCEEW 2023b; DAWE 2021b).

The Mertens' Water Monitor is listed as Endangered under the NC Act and the EPBC Act.

6.5.1 Distribution

Mertens' Water Monitor occurs across northern Australia predominantly in tropical climates between the Kimberly (WA) and Cape York (QLD) (Wilson & Swan 2021; Mayes 2006) (refer to Figure 6.3). The extent of occurrence of Mertens' Water Monitor is estimated at 2,000,000 km^2 based on all vetted records (DCCEEW 2023b).

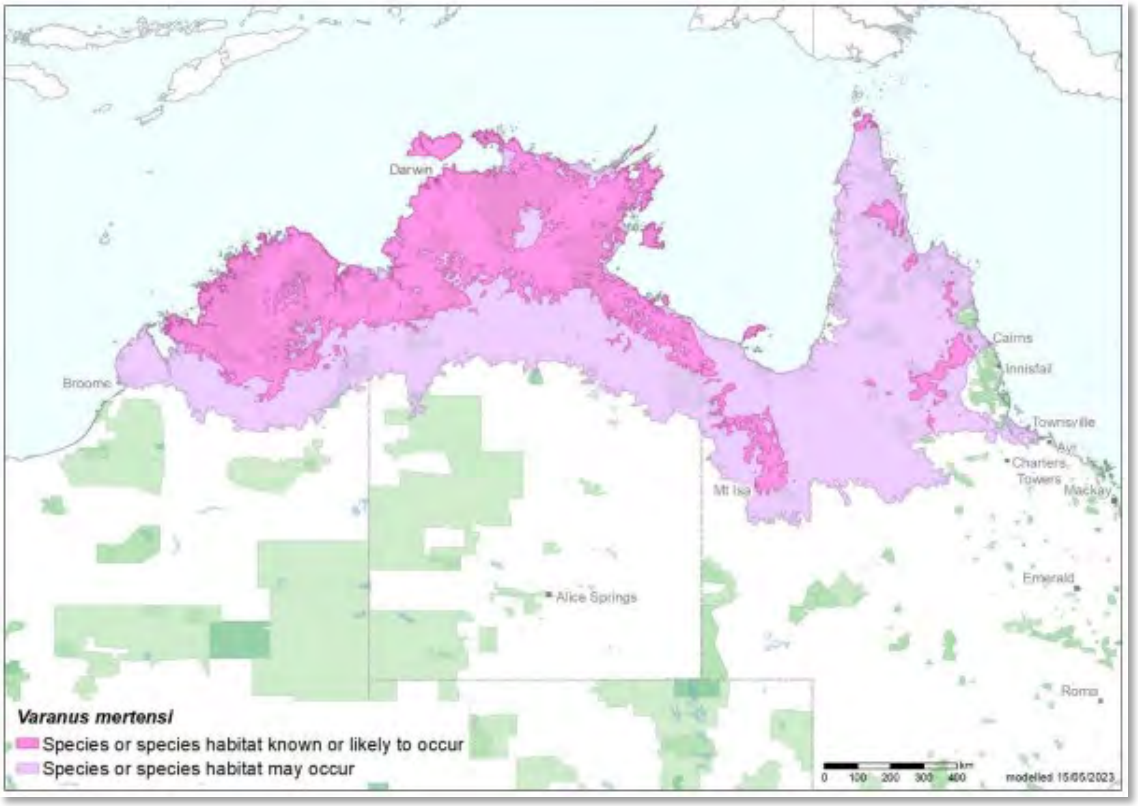


Figure 6.3 Modelled distribution of Merten's Water Monitor (DCCEEW 2023b)

6.5.2 Habitat

Mertens' Water Monitor is a semi-aquatic and arboreal species (Wilson & Swan 2021), and throughout its distribution, it is strongly associated with areas that contain waterbodies. Mertens' Water Monitor are rarely found further than 5 to 10 m from the water's edge (DCCEEW 2023b) except when moving between areas (Mayes 2006). Water is used for daily activities such as foraging and taking refuge, while basking generally occurs near water (Wilson & Swan 2021; DCCEEW 2023b; Mayes 2006). Structures occurring around waterbodies such as trees, dead timber, mud banks and rocks are utilised by the species for basking (DCCEEW 2023b).

Waterbodies utilised by Mertens' Water Monitor, as listed in the Conservation Advice (DCCEEW 2023b), include:

- perennial and semi-permanent pools in upper catchment areas, including springs, seeps, swamps, creeks and gorges
- the margins of permanent streams, rivers and lakes in lower catchment areas
- floodplain billabongs, lagoons, swamps and soaks
- perennial waterholes in woodlands
- man-made irrigation channels and the margins of dams (DCCEEW 2023b).

This close association with aquatic habitat is also reflected in the species' foraging, basking and shelter requirements. Mertens' Water Monitor primarily forages in water and at the water-land interface, consuming predominantly aquatic and riparian prey including freshwater crabs, fish, insects, amphipods and frogs. Consistent with aquatic ecology survey findings, the presence of aquatic prey is significantly higher in areas along higher-order waterways. The Conservation Advice also records the species basking on rocks, mud banks, overhanging branches, dead timber, tree roots and floating vegetation associated with waterbodies, and sheltering in rock hollows and burrows excavated into waterway banks, with burrow entrances generally occurring at water level. These characteristics demonstrate that habitat value for the species is strongly influenced by the presence of aquatic habitat together with the structural features at the water-land interface that provide food, basking and refuge resources.

The Conservation Advice also recognises that Mertens' Water Monitor is active throughout the year, notwithstanding occasional periods of dry-season inactivity. Accordingly, habitat capable of supporting persistence must be considered in the context of the species' requirements beyond short periods of favourable wet-season conditions. Lower-order drainage features that contain water only episodically and of a short temporal nature, cannot, in isolation, provide the aquatic habitat required by the species throughout much of the annual cycle. Their potential value is therefore principally associated with temporary resource availability following rainfall rather than sustained occupation.

A record from the Northern Territory (Rhind et al. 2016) describes a Mertens' Water Monitor nest in the embankment of a seasonally inundated pond, 150 m from an ephemeral stretch of Howard River mapped as stream order 2 (Northern Territory Government 2019). Publicly available reports from other consultancies have described Mertens' Water Monitor habitat as likely confined to watercourses of stream order 4 and above (using a 150 m buffer) based on Department of Resources watercourse and drainage feature mapping (E2M 2024). Others define Mertens' Water Monitor Habitat as any areas of riparian, wetland, watercourse or aquatic habitat (with seasonal variability) in relation to their Project Areas (Cumberland Ecology 2015; 2023; EcOz 2021).

SME input was obtained through detailed consultation with recognised Mertens' Water Monitor and reptile specialist, Steve Wilson. The consultation was used to inform the development of the criteria for assessing habitat within the Project Area. A survey was undertaken by the SME and an EMM ecologist to verify the habitat definitions outlined and provide commentary on the potential Mertens' Water Monitor habitat within the Project Area.

6.5.3 Habitat definitions

Habitat critical to survival of Mertens' Water Monitor includes all areas where this species persists following the establishment of Cane Toads (DCCEEW 2023b). Dugald River is known Mertens' Water Monitor habitat due to the presence of Mertens' Water Monitor records and is listed as *habitat critical to the survival* of Mertens' Water Monitor in the Conservation Advice (DCCEEW 2023b). According to the description of habitat critical to the survival of the Mertens' Water Monitor, it is possible that some habitat within the Project Area where Cane Toads are present may meet this criterion.

Critical Habitat and Habitat has been defined for this species. Merten's Water Monitor habitat within the Project Area has been classified into three categories: Critical – refuge and Critical - breeding and foraging, and Habitat dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species. Further discussion around the classification of Critical Habitat is provided in Section 6.5.4.

i Critical Habitat

a Refuge

Refuge habitat for the Merten's Water Monitor constitutes areas identified as Critical Habitat but are considered essential refuge habitat for the species' survival during the dry season as this habitat is available year-round. These areas align with Essential Habitat mapping for the species. During the dry season, Mertens' Water Monitor are likely to move towards areas containing persistent water, using natural channels as movement corridors between these refuge points. These locations provide year-round or extended dry season water availability. This habitat classification was supported by the SME, noting refuge is considered as the areas the species relies on permanently (permanent rivers and waterholes).

There are currently no known refuge locations within the Project Area, with all areas of Critical Habitat identified to the east of the Project Area in the Dugald River catchment. These areas have been identified as likely to retain persistent water into the dry season but are not observed to be sustained through the entire dry season. Known points of refuge points have been mapped as discrete locations rather than continuous habitat areas, as their extent is highly localised.

b Breeding and foraging

Breeding and foraging habitat for this species and comprises semi-permanent waterholes and associated riparian vegetation that retain water for extended periods and provide connected habitat during the wet season, depending on rainfall frequency and intensity.

Breeding and foraging habitat represent the areas within the Project area that provide the strongest combination of aquatic and riparian habitat attributes relevant to Mertens' Water Monitor. These attributes include greater persistence of water, established riparian vegetation, canopy cover, overhanging vegetation, large woody debris and other features providing foraging, basking and refuge opportunities. These characteristics are consistent with the species' strong association with aquatic environments and the habitat attributes identified in the Conservation Advice and through Project-specific SME assessment. This habitat is utilised by the species seasonally where rain events temporarily increase food and foraging opportunities.

This habitat type is consistent with REs in which the species has been recorded (RE 1.3.7a) and occurs along watercourses with a stream order of 4 or above that contain semi-permanent water. Photograph 6.3 shows an example of Critical Habitat (RE 1.3.7a).

Cabbage Tree Creek was noted by the SME to fulfil the criteria of Critical Habitat holding key resources including a healthy riparian ecology, large Melaleuca that offer shade and overhanging branches and large *Eucalyptus camaldulensis* that contribute to shade, hollows, woody debris, eddies and areas of still water that enhance aquatic ecology. Mertens' Water Monitor habitat is essentially linear, with connectivity a key attribute. The recent records of several Mertens' Water Monitor individuals suggest that Cabbage Tree Creek is a significant periodic foraging area for the species, particularly during favourable wet season conditions. The SME noted that it is highly likely that Mertens' Water Monitor has utilised this watercourse over an extended period (conditions permitting), suggesting it is important preferred habitat for the species.

Importantly, the Conservation Advice states that Mertens' Water Monitors seldom venture more than approximately 5–10 m from the water's edge, except when transiting between core aquatic activity areas. Despite this, the entire mapped extent of the relevant riparian RE associated with the higher-value watercourses has been classified as critical breeding and foraging. The resulting habitat boundary therefore encompasses the aquatic habitat, its immediate margins and a substantially broader riparian vegetation envelope, providing a precautionary allowance for spatial and seasonal variation in habitat use and ensuring potentially important riparian habitat features are not excluded.

Photograph 6.3 Example Critical Habitat (RE 1.3.7a)

ii Habitat

a Dispersal

Dispersal comprises ephemeral watercourses and small tributaries connected to areas of Critical Habitat and the associated riparian vegetation. Dispersal habitat constitutes areas within the Project Area comprising RE 1.3.7b and watercourses with a stream order of 2 or 3. These areas can facilitate dispersal following seasonal rainfall or flooding events. This habitat may be used opportunistically for foraging during the wet season but is less likely to support Mertens' Water Monitor for breeding and or preferred foraging resources beyond sustained rain events (e.g. lower order watercourses that remain dry for most of the year). Unlike Critical Habitat, dispersal habitat does not reliably provide functional connectivity between high value areas, as water presence is temporary and spatially inconsistent.

The lower-order drainage features classified as Habitat – dispersal are ecologically and structurally distinct from the areas mapped as Critical Habitat. The dominant vegetation community associated with these lower-order drainage features is RE 1.3.7b (fringing woodland on recent levees and channel deposits of medium and smaller tributaries which are dry for most of the year) or 1.3.13a (*Eucalyptus leucophylla* woodland on levees and minor drainage lines). These areas occur on lower-order streams and generally lack the concentration of established riparian vegetation, overhanging branches, large woody debris and other aquatic-edge structural features characteristic of the higher-order systems mapped as Critical Habitat. Photograph 6.4 shows a typical RE 1.3.13a drainage channel.

Photograph 6.4 Example RE 1.3.13a drainage channel

Where riparian vegetation occurs along smaller and medium tributaries, including areas of RE 1.3.7b, these systems remain hydrologically distinct from the higher-value watercourses. They are dry for much of the year, with aquatic habitat becoming available principally in response to significant rainfall and subsequently contracting or disappearing as flows cease. The presence of water within the lower-order drainage features across the Project Area is typically limited to hours / days after a significant rain event with loss of connection to the downstream areas of Critical Habitat occurring quickly following cessation of rain. In a drier wet season, these tributaries may not see water at all. Consequently, these areas do not consistently provide the combination of open water, aquatic food resources, basking sites and shelter opportunities expressly identified in the Conservation Advice (DCCEEW 2023) as characteristics of waterbodies providing habitat critical to survival.

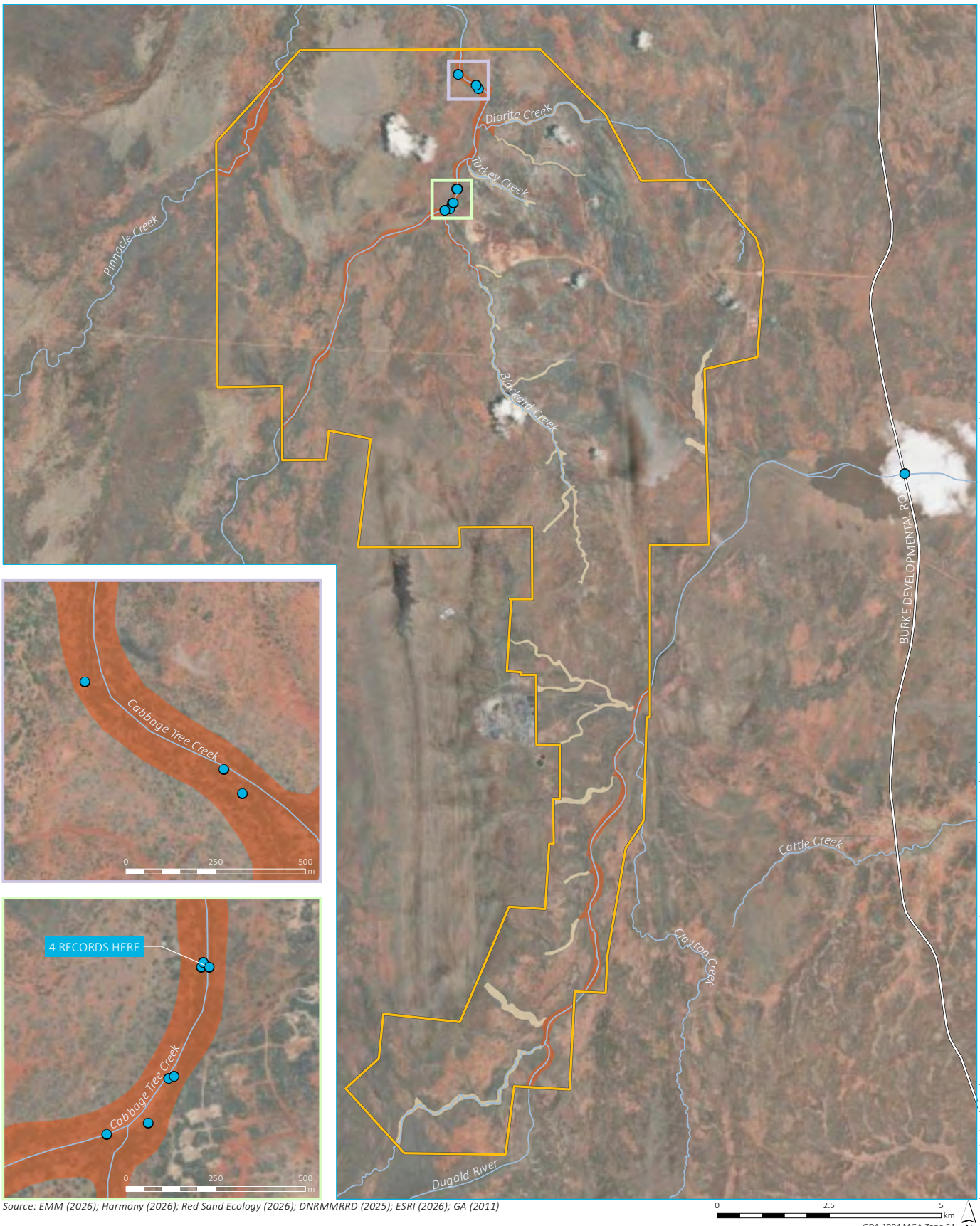
Mertens' Water Monitors were not observed in areas mapped as dispersal habitat during surveys, reinforcing the interpretation that these areas function only as temporary habitat. Dispersal habitat within the Project Area has been mapped conservatively to identify areas that may be used by the species intermittently when environmental conditions are favourable. While these areas do not exhibit the habitat characteristics identified in the Conservation Advice as important for the species, they have been included as a precautionary measure.

6.5.4 Habitat mapping

A summary of the habitat mapping rules for the Merten's Water Monitor is provided in Table 6.4 with the areas calculated for each type. Habitat mapping across the Project Area for the Mertens' Water Monitor is illustrated on Figure 6.4.

Table 6.4 Habitat mapping rules summary

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Critical Habitat - refuge	Queensland Essential habitat mapping	• Queensland Essential habitat mapping, other known permeant water bodies	None in the Project Area (mapped as points)
Critical Habitat – breeding and foraging	EMM_GTREmapping Stream order	• Map RE 1.3.7a • Map watercourses of stream order 4 or above	381.7
Habitat - dispersal	EMM_GTREmapping Stream order	• Map RE 1.3.7b • Map watercourses of stream order 2-3	298.4



Source: EMM (2026); Harmony (2026); Red Sand Ecology (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

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KEY

- Project area
- Mertens' Water Monitor observation (Harmony record)

Mertens' Water Monitor habitat mapping

- Critical habitat
- Habitat

Existing environment

- Major road
- Named watercourse

Mertens' Water Monitor mapped habitat within the Project area

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Figure 6.4

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6.6 Diamond Head Turtle

The Diamond Head Turtle (*Emydura subglobosa worrelli*) is a freshwater turtle characterised by a moderately domed shell, elongated neck and distinctive head markings. It is an omnivorous species feeding on aquatic plants and animals. Reproduction occurs through egg laying, with females nesting in suitable substrates adjacent to water bodies (Petrov et al. 2023).

The Diamond Head Turtle is listed as Near Threatened under the NC Act and is not listed under the EPBC Act.

6.6.1 Distribution

The Diamond Head Turtle occurs in a band from Mt Isa in Queensland to Darwin in Northern Territory.

No Conservation Advice, Listing Advice nor Recovery Plan have been published for the Diamond Head Turtle. The species is listed as Near Threatened under the NC Act only and has not been amended since 2015 where limited research on the relevant biology and distribution is available. Instead, the Jardine River Turtle (*Emydura subglobosa subglobosa*) has been listed as Critically Endangered under the EPBC Act. Since the two species have been assessed to be comparable for habitat use, the habitat description for Jardine River Turtle has been adopted here (DCCEEW 2023c). The Jardine River Turtle occupies small, shallow waterholes up to 1.6 m deep with a range of fringing vegetation.

6.6.2 Habitat

Suitable habitat for the Diamond Head Turtle was assessed to consist of small, shallow waterholes of up to 1.6 m deep (DCCEEW 2023c).

As no species-specific information on seasonal movements was identified, potentially suitable habitats were included, as these areas may become connected during the wet season. Suitable habitat is largely absent from the Project Area; however, habitat occurs in the form of the following:

- Longamundi Waterhole, a permanent waterhole occurring partially within the Project Area.
- Ephemeral drainages occurring across the Project Area and flowing into two main watercourses: Cabbage Tree Creek and Dugald River. During periods of high rainfall, riparian areas may provide habitat for movement between permanent waterbodies.
- Potentially permanent waterbodies were identified to the north of the Project Area, with connectivity to the Project Area during periods of high rainfall. The broader context of waterbodies surrounding the Project Area have been considered in habitat classification.

6.6.3 Habitat definitions

No Critical Habitat has been defined for this species. Habitat for the Diamond Head Turtle within the Project Area has been classified into two general habitat categories: Habitat - breeding and foraging and Habitat - dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species.

i Habitat

a Breeding and foraging

Breeding and foraging habitat for this species is limited to permanent water bodies within fringing vegetation areas that support these water dependent species. As the preferred habitat for the Jardine Turtle has been adopted for this species, it is assumed that breeding and foraging habitat consists of small shallow waterholes up to 1.6 m deep with a range of fringing vegetation (DCCEEW 2023c).

Within the Project Area, breeding and foraging habitat is limited to permanent waterbodies within RE 1.3.7a, such as Longamundi Waterhole.

Potentially permanent waterbodies have been identified to the north of the Project Area and, whilst not mapped, are associated with dispersal habitat located within the Project Area.

b Dispersal

Areas subject to periodic inundation may provide dispersal habitat for the Diamond Head Turtle during periods of high rainfall in the wet season.

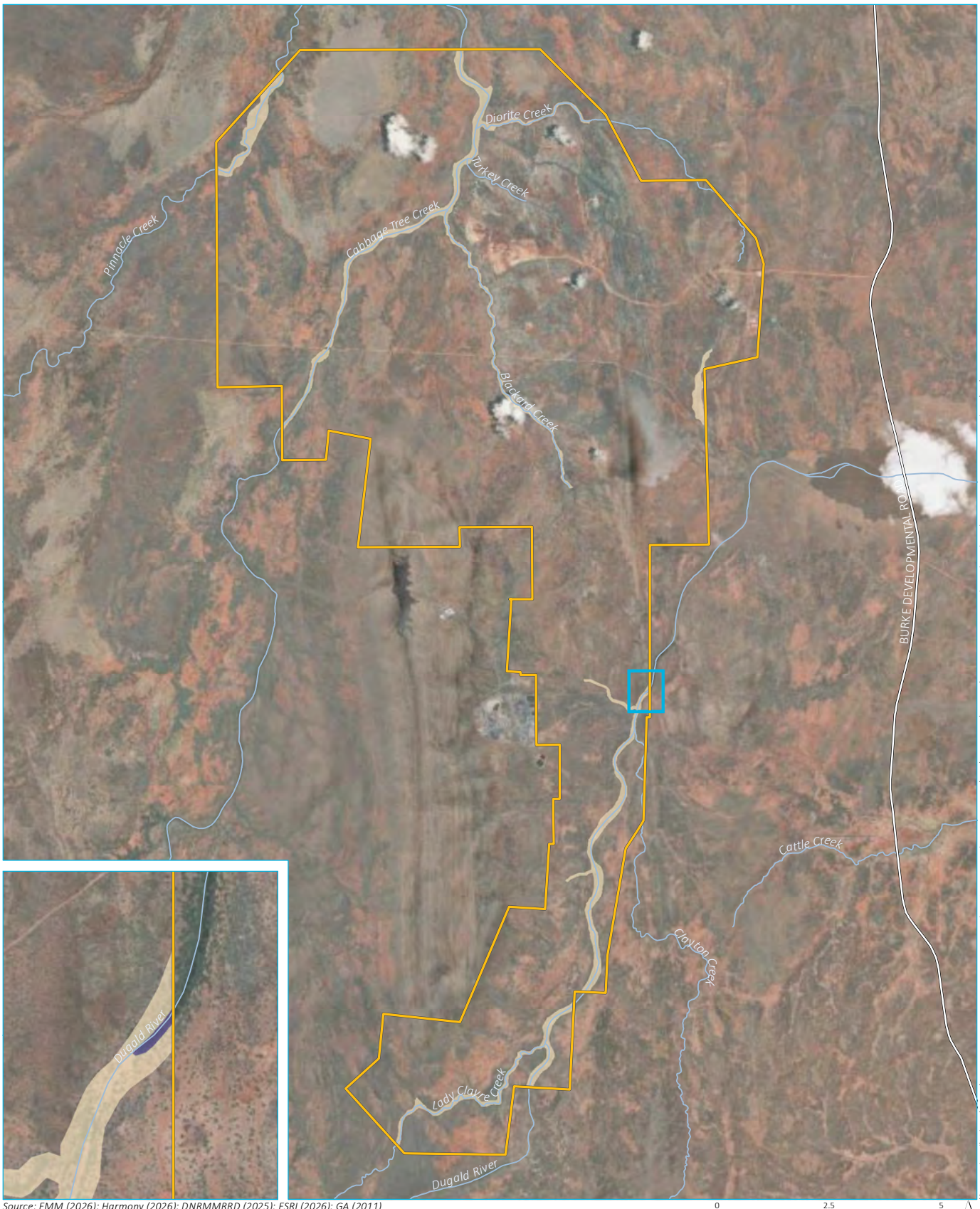
Dispersal habitat is limited to mapped riparian REs within Landzone 3. Based on site observations, only stream order 3 and above watercourses are included in the mapping, as vegetation structure of stream orders 1 and 2 was similar to the surrounding landscape, usually open eucalypt woodlands within minor channels.

6.6.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.5 and areas calculated for each habitat type. Habitat mapping across the Project Area for the Diamond Head Turtle is illustrated on Figure 6.5.

Table 6.5 Habitat mapping rules summary Diamond Head Turtle

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Breeding and foraging	Known permanent waterbodies EMM_GTREmapping	• Digitise Longamundi Waterhole and clip portion overlapping with RE 1.3.7a.	0.4
Habitat - Dispersal	EMM_GTREmapping QLD watercourses	• Map REs with Landzone 3 not otherwise mapped as breeding and foraging habitat: RE 1.3.6, 1.3.7, 1.3.13. • Map all mixed RE polygons containing *dispersal* REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics. • Clip by stream order ≥3.	516.1



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

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KEY

- Project area

Diamond Head Turtle habitat mapping

- Habitat - breeding and foraging
- Habitat - dispersal

Existing environment

- Major road
- Named watercourse

Diamond Head Turtle mapped habitat within the Project area

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Figure 6.5

EMM creating opportunities

6.7 Purple-necked Rock-wallaby

The Purple-necked Rock-wallaby (*Petrogale purpureicollis*) is a medium-sized macropod distinguished by a reddish-purple wash across the neck and shoulders, a pale cheek stripe and a dark dorsal stripe (Rowland 2012b). Like other rock-wallabies, it is highly agile and adapted to navigating steep rocky terrain (Rowland 2012b). Purple-necked Rock-wallabies are marsupials where females typically give birth to a single offspring that completes its early development within the mother's pouch before becoming independent (Johnson & Delean 2002).

The Purple-necked Rock-wallaby is listed as Vulnerable under the NC Act and is not listed under the EPBC Act.

6.7.1 Distribution

No Conservation Advice, Listing Advice nor Recovery Plan have been published for the Purple-necked Rock-wallaby, and as such, information on distribution and habitat is limited.

The Purple-necked Rock-wallaby is largely endemic to north-west Queensland, with the species distribution centred around the Mt Isa, Dajarra and Cloncurry areas (Rowland 2012b) and references therein; refer to Figure 6.6). The Project Area is, therefore, situated within the known distribution of the species.

Figure 6.6 Distribution of the Purple-necked Rock-wallaby (Rowland 2012b)

6.7.2 Habitat

Purple-necked Rock-wallaby inhabit limestone, sandstone and quartzite outcrops, boulder piles, cliffs and gorges, and surrounding vegetated habitats (Rowland 2012b). The species shelters in cool rocky refuges (including caves) during the day and emerges after dark to feed in dry Acacia and Eucalypt woodlands with a spinifex understorey (Eldridge 2012).

Within the Project Area, habitat for the Purple-necked Rock-wallaby has been identified to primarily comprise quartzite strike ridges, boulder piles, cliffs and rocky scree slopes, and is typically (though not always) confined to areas of high topographic relief in the landscape. The species is confined by day to the sandstone strike ridges and boulder piles in the Project Area, where they shelter in the cool rocky refugia. At night they move down from these rocky areas into the surrounding woodlands and grasslands to feed. The species was observed to forage within 150 m of favoured rocky habitat.

6.7.3 Habitat definitions

Purple-necked Rock-wallaby is known to occur throughout the Project Area with areas of 'Known' and 'Potential' habitat previously mapped (AARC 2012) and essential habitat mapped by DETSI. Habitat for Purple-necked Rock-wallaby was refined across the Project Area in stages. Initially, desktop analysis was undertaken, utilising Lidar imagery and fine scale contour mapping to identify all elevated areas likely to be boulder piles or strike ridges, which are favoured habitat for Purple-necked Rock-wallaby. These areas, along with all areas of mapped essential habitat where it intersected the Project Area, were then ground-truthed during 2022 and 2023 field surveys to confirm whether suitable habitat for Purple-necked Rock-wallaby was present.

Purple-necked Rock-wallaby were observed to forage within 150 metres (m) of favoured rocky habitat, so all elevated suitable habitat was buffered by 150 m to encapsulate foraging habitat. Further, where areas of suitable rocky habitat were separated by suitable foraging habitat, those areas were also mapped as Purple-necked Rock-wallaby habitat

Extensive targeted survey and habitat assessment has been undertaken across the Project Area to determine the known and likely areas of habitat for the species. These surveys have allowed for habitat mapping to be generated specific to the Project Area based on field observations and informed by knowledge of the landscape and the species' ecology. Therefore, through the considered, Project specific approach, the habitat mapping generated for the Project supersedes the mapped essential habitat generated by DETSI.

Purple-necked Rock-wallaby habitat within the Project Area has been classified into two habitat categories: *known* and *potential*. A description of each habitat category is provided below, presented in order of decreasing significance to the species. For the purposes of this memorandum, habitat mapping is restricted to the Project Area, with broader regional mapping to be considered for future impact assessments.

Habitat mapping for the Purple-necked Rock-wallaby was most recently revised in 2025. Monitoring of this species is undertaken annually by EMM in accordance with Condition C25 of the EA. Habitat mapping will be reviewed as part of this process and updated where required, consistent with the Monitoring Methodology (EVAMP001-EMM-EN-PLA-0002; EMM 2025b).

No Critical Habitat has been defined for this species. Habitat for Purple-necked Rock-wallaby within the Project Area has been classified into two general habitat categories: Habitat - known and Habitat - potential. A description of each habitat category is provided below, presented in order of decreasing importance to the species.

i Habitat

a Known

Known records of the Purple-necked Rock-wallaby have been mapped as points. Known habitat for the Purple-necked Rock-wallaby comprises the locations in which the species has been recorded plus a 150 m buffer to encompass foraging habitat, as determined through field observations.

b Potential

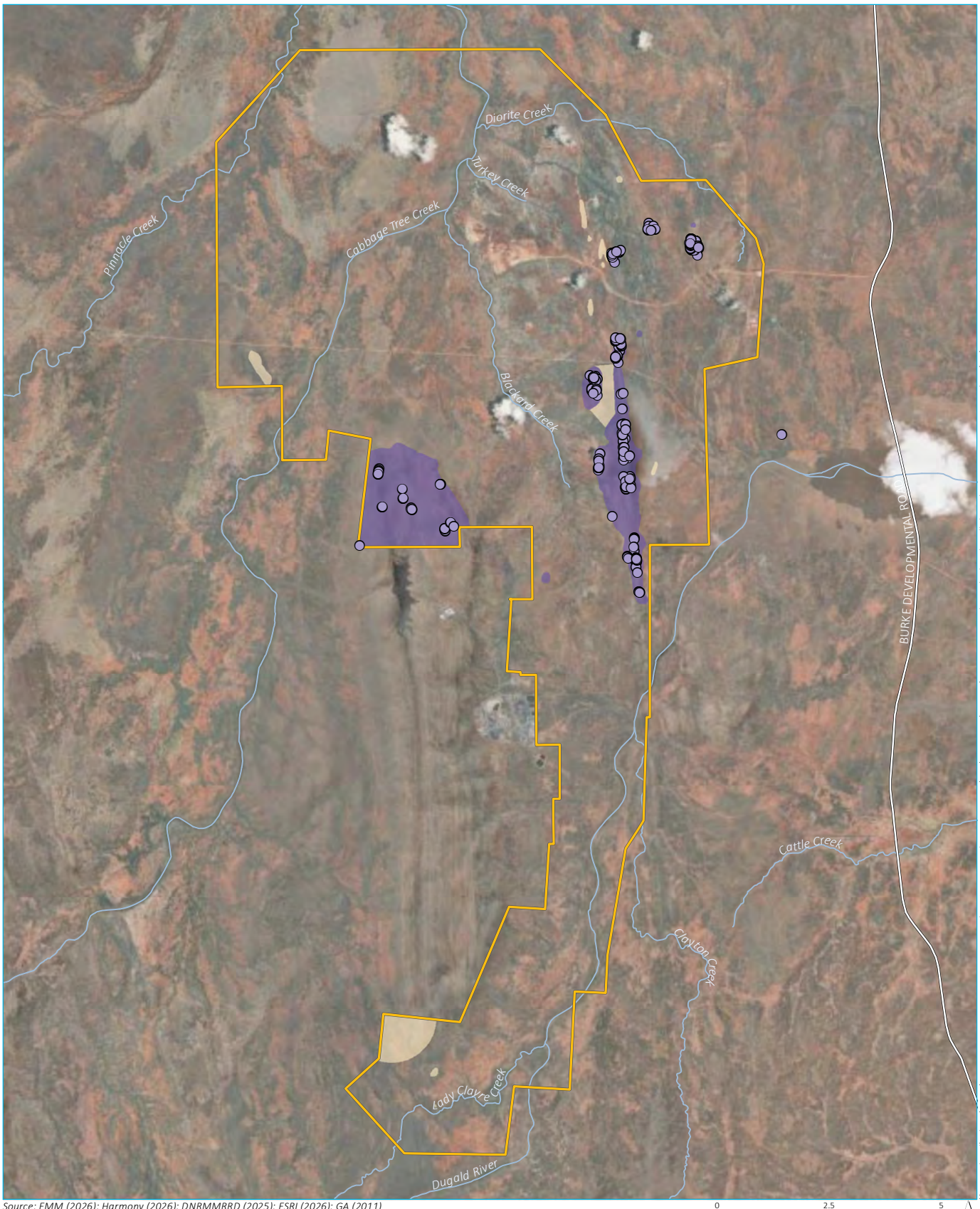
Potential habitat comprises areas containing marginal rocky habitat or foraging/dispersal habitat, lacking natural refuges of cracks or crevices. This habitat has been identified as areas in which the Purple-necked Rock-wallaby may occur due to the availability of marginal habitat; however, the species has not been recorded within this habitat.

6.7.4 Habitat mapping

A summary of the habitat mapping rules for the Purple-necked Rock-wallaby is provided in Table 6.6 and areas calculated for each. Habitat mapping across the Project Area for the Purple-necked Rock-wallaby is illustrated on Figure 6.7.

Table 6.6 Habitat mapping rules summary

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Known	Verified records Ground-truthed habitat Contours Satellite imagery	• Map records as points. • Buffer records by 150 m.	788.0
Habitat - Potential	Ground-truthed habitat Contours Satellite imagery	• Map marginal rocky habitat as per assessment of ground-truthed habitat	192.2



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Purple-necked Rock-wallaby observation (Harmony record)

Purple-necked Rock-wallaby habitat mapping

- Habitat - known
- Habitat - potential

Existing environment

- Major road
- Named watercourse

Purple-necked Rock-wallaby mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.7

EMM creating opportunities

6.8 Plains Death Adder

The Plains Death Adder (*Acanthophis hawkei*) is a highly venomous snake characterised by a broad triangular head, stout body and caudal lure used to attract prey (DSEWPC 2012). It is an ambush predator that feeds primarily on reptiles, frogs and small mammals. The species is viviparous, giving birth to live young (Shine et al. 2014).

The Plains Death Adder is listed as Vulnerable under both the NC Act and the EPBC Act.

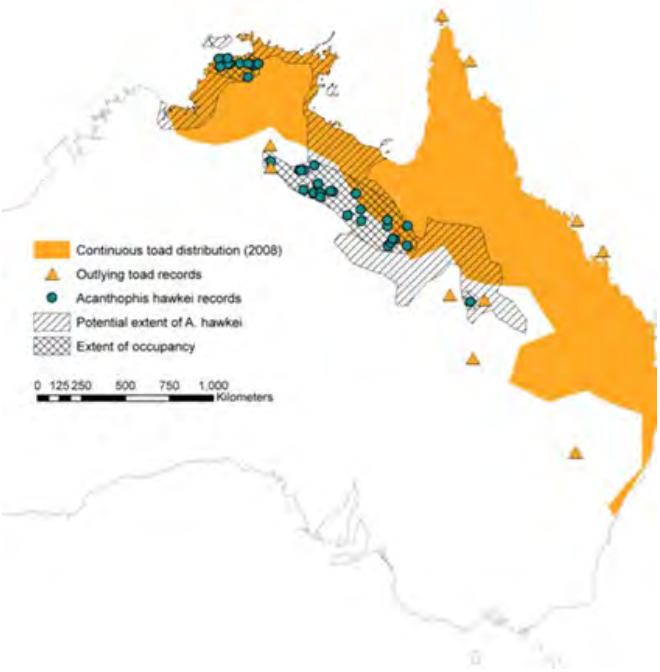
6.8.1 Distribution

Conservation advice for the Plains Death Adder is provided by the Species Profile and Threats Database (DCCEEW 2026a) and outlines the known distribution, habitat preferences and threats to this species.

The Conservation Advice described that the exact distribution of the species is unknown; however, suitable habitat for the Plains Death Adder consists of flat, treeless, cracking-soil riverine floodplains (DSEWPC 2012). The Project Area lies within the 'likely' distribution of the species (DCCEEW 2026a). The potential geographic range of this species extends from western Queensland to north-eastern Western Australia (TSSC 2012a). Analysis of mapping completed by Phillips, Chipperfield and Kearney (2008). Suggests that the Project Area lies on the north-eastern edge of the extent of occupancy for this species.

Fragmented populations of the Plains Death Adder are known to occur in the Mitchell Grass Downs of western Queensland, the Barkley Tableland on the Northern Territory/Queensland border, and east of Darwin in the Northern Territory, displayed in Figure 6.8. (Phillips, Chipperfield & Kearney 2008). The species' extent of occurrence (EOO) is estimated to be approximately 720,000 square kilometres (km^2) and its area of occupancy (AOO) is estimated to be approximately 233,480 km^2 (TSSC 2012a).

This species is described as nomadic and its home range is not defined (TSSC 2012a). During the wet season, it is understood that individuals can move distances ranging from a few meters to a kilometre every 3 to 10 days (TSSC 2012a).



Source: Phillips, Chipperfield & Kearney 2008

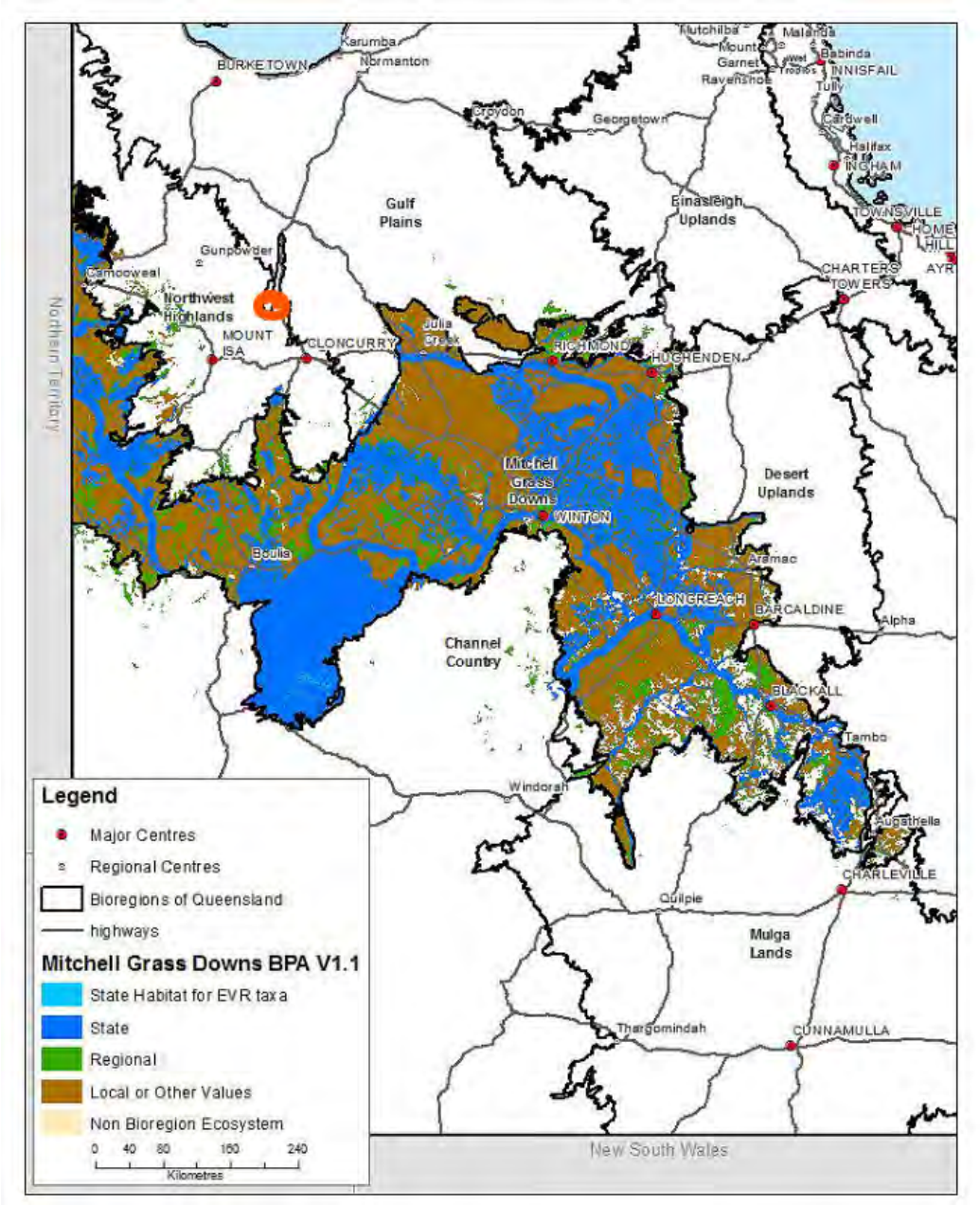
Figure 6.8 Map of extent of occurrence and area of occupancy of the Plains Death Adder (as of 2008), shaded in grey

6.8.2 Habitat

As stated in the Conservation Advice for this species suitable habitat for the Plains Death Adder consists of flat, treeless, cracking-soil riverine floodplains (Cogger 2000) and:

> The distribution of this species overlaps with the EPBC Act-listed threatened ecological community 'The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin'.

It is also noted that their known distribution is associated with the Mitchell Grass Lands bioregion through Queensland. Both Great Artesian Basin and Mitchell Grass Lands are either on the edge of or outside for the Project Area.



Note: Project Area identified by orange circle

Figure 6.9 Mitchell Grass Downs Bioregion within queensland

Soil mapping was conducted across the Project Area based on soil surveys commissioned by ECMPL. This was used to assess the presence of the cracking clay plain soil structure and flood plain regions. Grey Epipedal Vertosol (Burke) soils are cracking clays and are considered suitable for Plains Death Adder habitat due to the formation of soil cracks that provide refuge. Where the Brown Clastic Lithosolic Rudosol (Barkly): Covering much of the Project Area, these soils are very shallow and rocky overlying hard rock, typically supporting sparse vegetation. Rudosols are young soils that form on recent alluvial deposits, scree slopes, or exposed bedrock these areas are most commonly associated with floodplains of the region.

6.8.3 Habitat definitions

No Critical Habitat has been defined for this species. Plains Death Adder habitat within the Project Area has been classified into two general habitat categories: Habitat - breeding and foraging and Habitat - dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species. For the purposes of this habitat mapping, the mapping is restricted to the Project Area, with broader regional mapping to be considered for future impact assessments.

No areas within the Project Area are listed on the EPBC Act Register of Critical Habitat and no formally recognised Critical Habitat has been identified for Plains Death Adder in the Conservation or Listing Advice (DSEWPC 2012; TSSC 2012a).

i Habitat

a Breeding and foraging

Breeding and foraging habitat for this species is aligned with the broad habitat type outlined above and limited to REs overlapping with Burke soils (clay plains), which includes RE 2.4.2 and 2.4.3.

b Dispersal

Dispersal habitat was classified as areas that do not contain habitat features utilised by the Plains Death Adder and likely to be used intermittently for the species' movement through the landscape. The Dispersal habitat was identified through soil mapping of the Barkly soil type that indicated floodplain habitats (can include landzones 3, 4 and 5) but contain very sparse to sparse RE with little tree cover.

Dispersal areas are likely more in association with alluvial soils structures, that interconnect between areas of clay plains.

There are sections of landzone 5 (RE 1.5.15, 1.5.13 and 1.5.4d) in the southern end of the Project Area; however, these areas are isolated from areas of clay plain habitats and are not near or within connected areas to support dispersal, as such they have been excluded from the dispersal habitat.

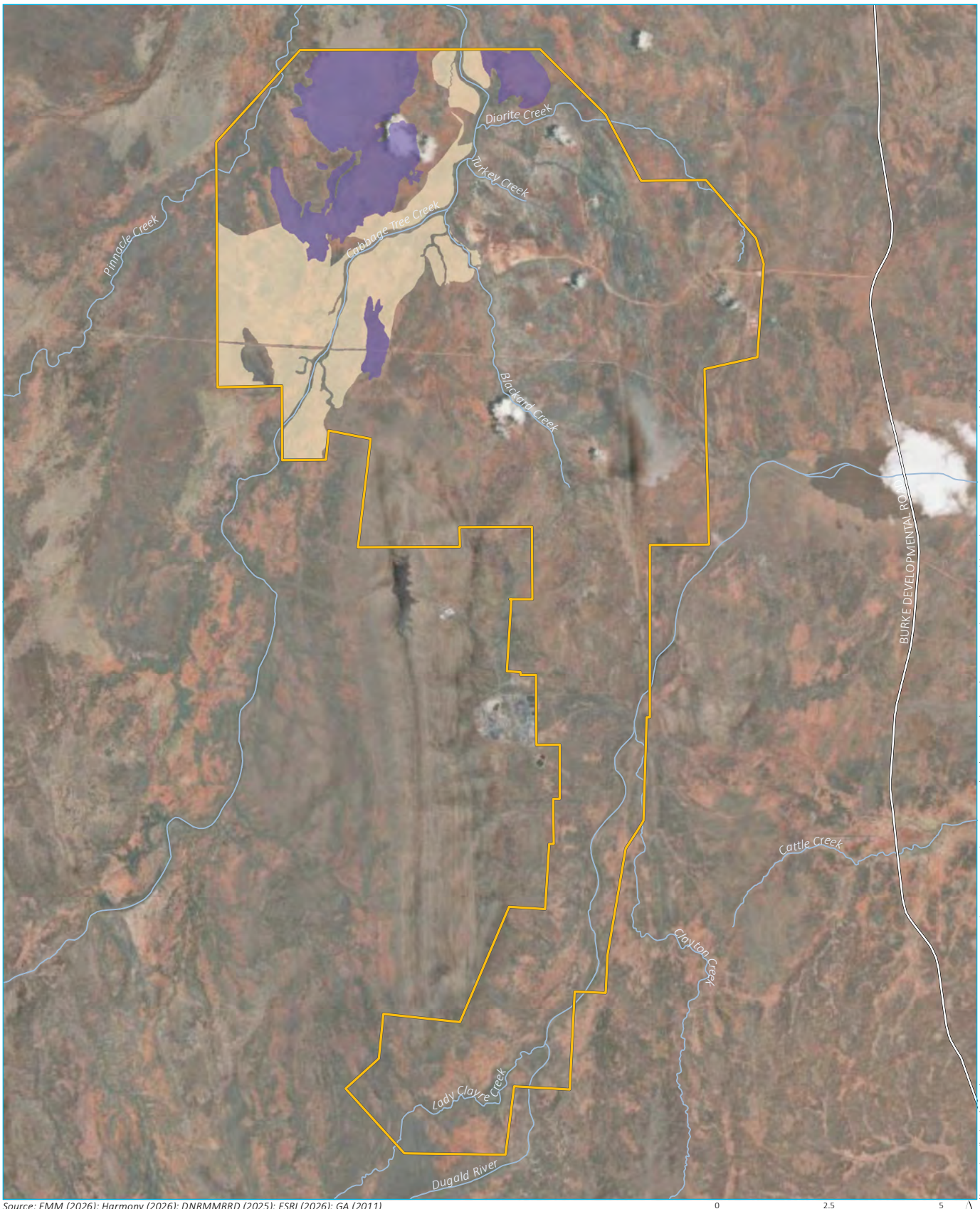
Additionally, there are sections of 1.11.3a that fall within the Barkly soil type but carries a different landzone structure, while trees are sparse the RE is made up of a much more complex canopy that would unlikely suit the species habitat preference.

6.8.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.7. Habitat mapping across the Project Area for the Plains Death Adder is illustrated on Figure 6.10.

Table 6.7 Habitat mapping rules summary for the Plains Death Adder

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Breeding and foraging	EMM_GTREmapping SLSA Soil Types – 2023	• Map RE 2.4.2 and 2.4.3. • Map all mixed RE polygons containing breeding and foraging REs with > 50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristic.	1,099.6
Habitat - Dispersal	SLSA Soil Types – 2023 EMM_GTREmapping structure classification	• Clip to areas that fall within the Burke soil structure. • Map landzone 5 Very Sparse or Grassland REs: 1.5.3, 1.5.4, 1.5.13, 1.5.15, 1.5.16. • Map all mixed RE polygons containing dispersal REs with > 50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristic. • Clip to areas that fall within the Barkly soil structure.	1,668.6



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area

Plains Death Adder habitat mapping

- Habitat - breeding and foraging
- Habitat - dispersal

Existing environment

- Major road
- Named watercourse

Plains Death Adder mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.10

EMM creating opportunities

6.9 Fork-tailed Swift

The Fork-tailed Swift is a migratory aerial insectivore characterised by long sickle-shaped wings and a deeply forked tail (Mankenhorst et al. 2021). It spends much of its life in flight, feeding on airborne insects. The species breeds in Asia and migrates to Australia between October and November (Mankenhorst et al. 2021).

The Fork-tailed Swift is listed as Special Least Concern under the NC Act and as Migratory (Marine) under the EPBC Act.

No Conservation Advice, Listing Advice nor Recovery Plan have been published for this species. As such, suitable habitat for this species has been informed by available literature.

The Fork-tailed Swift (*Apus pacificus*) is a non-breeding visitor to all states and territories of Australia (Higgins 1999). The species is almost an exclusively aerial forager, flying from less than 1 m to at least 300 m above ground and probably much higher. Limited information is available to determine if terrestrial habitat is utilised by this species within Australia and is known to roost on wing. As such, the species may interact with woodland habitat intermittently although not integral for its persistence.

Due to the absence of breeding habitat in Australia and limited use of terrestrial habitats, habitat mapping for this species would be inaccurate and misrepresentative for the species foraging, breeding and roosting habitat and, therefore, has not been completed.

6.10 Short-beaked Echidna

The Short-beaked Echidna (*Tachyglossus aculeatus*) is a monotreme characterised by protective spines, a long tubular snout and specialised adaptations for feeding on ants and termites (DoE 2020,). It is one of only a few egg-laying mammals in the world. Females lay a single egg, which is incubated in a temporary pouch before hatching (DoE 2020).

The Short-beaked Echidna is listed as Special Least Concern under the NC Act and is not listed under the EPBC Act.

6.10.1 Distribution

Short-beaked echidnas are known to occur throughout most of Australia in a variety of different habitats, from the arid zone to rainforests (Augen, Gooden & Musser 2006). Known habitats include forests, woodland, heathlands, grasslands. The species shelters in hollow logs, rock crevices, leaf litter and dense vegetation (DoE 2020), and no specific breeding habitat has been identified. As such the species is considered a widespread, generalist and may utilise any remnant vegetation for foraging, dispersal and breeding.

6.10.2 Habitat

Suitable habitat for the Short-beaked Echidna consists of broad habitat types, including woodland, shrubland and grassland. Remnant vegetation containing foraging and breeding opportunities is identified as containing resources suitable to sustain the species permanently or for dispersal. As discussed above, hollow logs, rock crevices, leaf litter and dense vegetation are broadly utilised the species, which are typically found within remnant woodland and grassland.

Suitable habitat is present in the Project Area in the form of woodland and grassland habitat.

6.10.3 Habitat definitions

No Critical Habitat has been defined for this species. Short-beaked Echidna habitat within the Project Area has been classified as Habitat - suitable with a description provided below. For the purposes of this habitat mapping, the mapping is restricted to the Project Area, with broader regional mapping to be considered for future impact assessments

i Habitat

a Suitable

Suitable habitat for the Short-beaked Echidna within the Project Area consists of all woodland and grassland habitat. Suitable habitat represents areas that may support breeding, foraging and dispersal habitat for this species.

Within the Project Area, suitable habitat includes woodland and grassland REs, as listed in Table 6.8.

6.10.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.8 and habitat areas calculated for each type of habitat. Habitat mapping across the Project Area for the Short-beaked Echidna is illustrated on Figure 6.11.

Table 6.8 Habitat mapping rules summary generalist species

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Suitable	EMM_GTREmapping	• Map REs 1.3.6, 1.3.7, 1.3.13, 1.5.3, 1.5.4, 1.5.13, 1.5.15, 1.5.16, 1.7.1, 1.7.5, 1.7.7, 1.11.2, 1.11.3, 1.11.7, 1.11.8, 1.12.1, 1.12.3, 2.4.2, 2.4.3. • Map all mixed RE polygons containing *suitable* REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics.	14,224.0

Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Short-beaked Echidna observation (Harmony record)

Short-beaked Echidna habitat mapping

- Habitat - suitable

Existing environment

- Major road
- Named watercourse

Short-beaked Echdina mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.11

EMM creating opportunities

6.11 Grey Falcon

The Grey Falcon (*Falco hypoleucos*) is a medium-sized raptor distinguished by its largely uniform pale grey plumage and powerful flight (Mankenhorst et al. 2021; DCCEEW 2020). It is a highly specialised predator that feeds predominantly on birds. The species typically breeds in abandoned stick nests constructed by other bird species (DCCEEW 2020).

The Grey Falcon is listed as Vulnerable under both the NC Act and the EPBC Act.

6.11.1 Distribution

The Grey Falcon is known to occur at low densities across inland arid and semi-arid Australia (DCCEEW 2020). The species is typically found where annual rainfall is less than 500 millimetres (mm); however, the species is known to disperse during years of higher rainfall (DCCEEW 2020).

6.11.2 Habitat

Suitable habitat for the Grey Falcon comprises distinct breeding and foraging habitats. Breeding habitat is identified as tall trees along water courses, particularly in River Red Gums (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*), containing sticknests built by other avian species (DCCEEW 2020). Foraging habitat consists of timbered lowland plains, acacia shrublands, treeless areas, tussock grassland and open woodland.

Suitable breeding and foraging habitat for the Grey Falcon is present in the Project Area in the form of timbered riparian vegetation, woodland and grassland habitat. Mapped Grey Falcon habitat is outlined in Table 6.9.

No areas within the Project Area are listed on the EPBC Act Register of Critical Habitat and no formally recognised Critical Habitat has been identified for Grey Falcon in the Conservation Advice (DCCEEW 2020).

6.11.3 Habitat definitions

No Critical Habitat has been defined for this species. Grey Falcon habitat within the Project Area has been classified into two general habitat categories: Habitat - breeding and Habitat – foraging and dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species. For the purposes of this habitat mapping, the mapping is restricted to the Project Area, with broader regional mapping to be considered for future impact assessments.

i Habitat

a Breeding

Breeding habitat for Grey Falcon within the Project Area consists of riparian vegetation containing suitable eucalyptus trees containing sticknests built by other avian species. Breeding habitat represents areas that may support breeding habitat only.

Within the Project Area, Breeding habitat is limited to RE 1.3.7a, which contains suitable breeding trees throughout the entire RE.

b Foraging and dispersal

Foraging and dispersal habitat represents areas of woodland, grassland and acacia shrubland which provide foraging opportunities for this species.

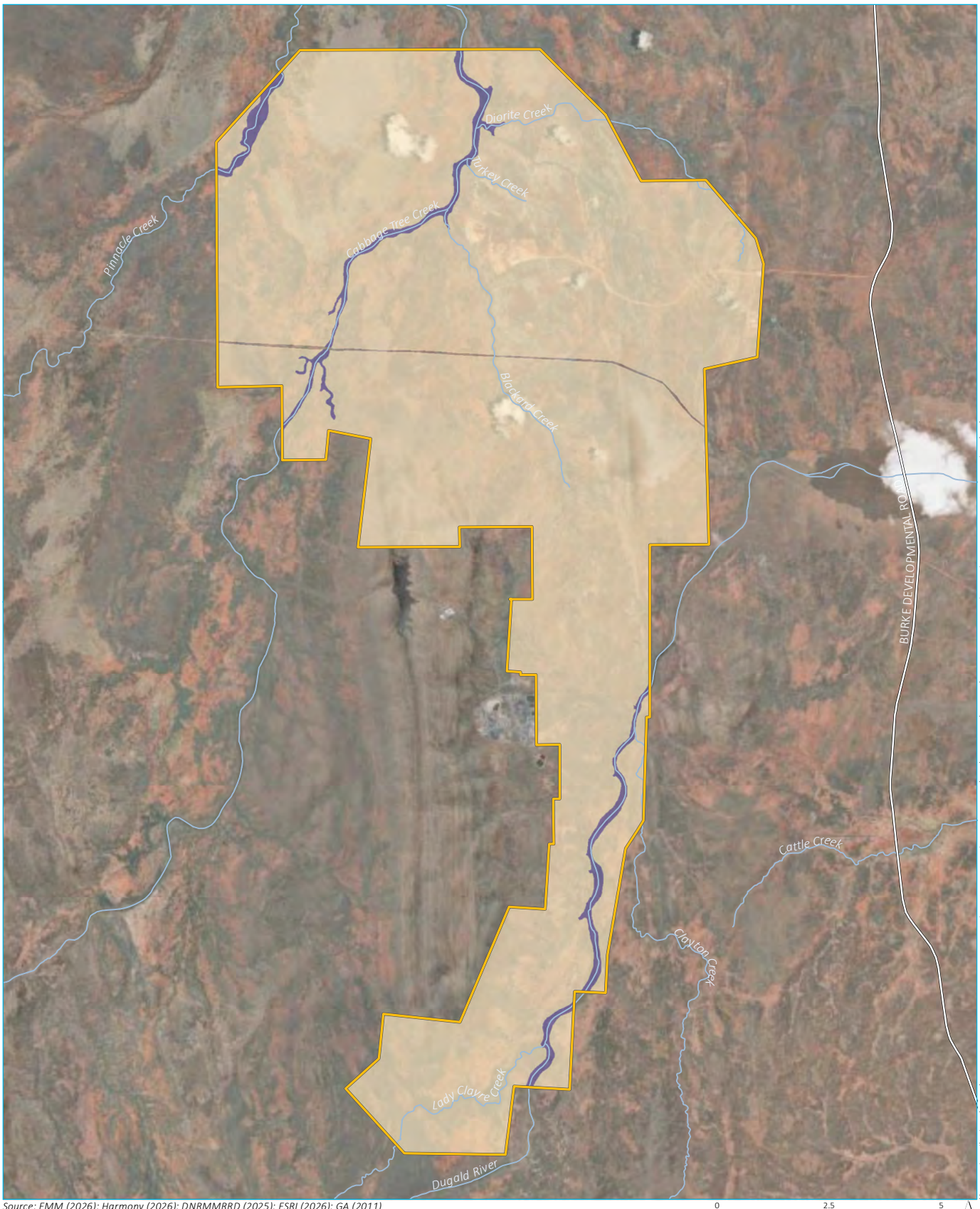
Within the Project Area, foraging and dispersal habitat includes woodland and grassland REs, as listed in Table 6.9.

6.11.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.9, and areas calculated for each habitat type. Habitat mapping across the Project Area for the Grey Falcon is illustrated on Figure 6.12.

Table 6.9 Habitat mapping rules summary Grey Falcon

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Breeding	EMM_GTREmapping	• Map RE 1.3.7a.	387.3
Habitat - Foraging and dispersal	EMM_GTREmapping	• Map REs 1.3.6, 1.3.7b, 1.3.13, 1.5.3, 1.5.4, 1.5.13, 1.5.15, 1.5.16, 1.7.1, 1.7.5, 1.7.7, 1.11.2, 1.11.3, 1.11.7, 1.11.8, 1.12.1, 1.12.3, 2.4.2, 2.4.3. • Map all mixed RE polygons containing *foraging* REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics.	13,836.7



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area

Grey Falcon habitat mapping

- Habitat - breeding
- Habitat - foraging and dispersal

Existing environment

- Major road
- Named watercourse

Grey Falcon mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.12

EMM creating opportunities

6.12 Ghost Bat

6.12.1 Distribution

The Conservation Advice for the Ghost Bat (TSSC 2016a) states:

> The species' current range is discontinuous, with geographically disjunct colonies occurring in the Pilbara Kimberley (including several islands), northern Northern Territory (including Groote Eylandt), the Gulf of Carpentaria, coastal and near coastal eastern Queensland from Cape York to near Rockhampton, and western Queensland (including Riversleigh and Cammoweal districts).

6.12.2 Habitat

The species is known to utilise a network of caves throughout a season and or dictated by weather conditions, where breeding sites often have multiple entries. When not breeding the species dispersal can be wide ranging, upwards of 150 km between permanent roosting sites (Hourigan 2011); however, when breeding the species becomes more sedentary (TSSC 2016a) with localised dispersal 1.9 km from day roost sites (Hourigan 2011). As such, this species is highly mobile and may forage across large areas.

Ghost Bat are aerial hunters and are known to utilise timbered areas for ambush (TSSC 2016a). Tidemann et al. (1985) identified the species will share vantage points across individuals and nights, indicating a home range.

Cave habitat for this species is limited to caves, rock crevices and old mines that are generally natural deep caves or disused mines with stable temperatures ranging 23 °C to 28 °C and a moderate to high relative humidity of 50 to 100% (Pettigrew et al. 1986; Churchill & Helman 1990; Churchill 1991; Armstrong & Anstee 2000; Toop 1985 unpublished data).

The species is likely to utilise all habitat near roosting/maternal caves where suitable woodland is present. As such, all woodland types could be considered potential foraging habitat for this species. Mapped Ghost Bat habitat is outlined in Figure 6.13.

6.12.3 Habitat definitions

No Critical Habitat has been defined for this species. Ghost Bat habitat within the Project Area has been classified into two general categories: Habitat - roosting and Habitat - foraging and dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species. For the purposes of this document, habitat mapping is restricted to the Project Area, with broader regional mapping to be considered for future impact assessments.

No areas within the Project Area are listed on the EPBC Act Register of Critical Habitat and no formally recognised Critical Habitat has been identified for Ghost Bat in the Conservation Advice (TSSC 2016a).

i Habitat

a Roosting

There have been no confirmed Ghost Bat roosts, nor any maternity roosts identified within the Project Area. Therefore, Roosting habitat within the Project Area is defined by a cave/mine/structure containing a potential roost or maternity roost.

Extensive field surveys within the Project Area have ground-truthed potentially suitable permanent cave and crevices in rock habitat in the south-western portion of the Project Area and at Mount Rose Bee. These areas closely align with ground-truthed Purple-neck Rock-wallaby mapping produced by EMM and their Essential Habitat mapping, which has been observed to provide similar habitat features for Ghost Bat.

An additional area of potential roosting habitat has been identified at the southern extent of the Project Area based on desktop assessment. While not ground-truthed, it displays similar RE characteristics, elevation and forms part of a continuous mountain habitat connected to roosting habitat to the north. It is assumed that this is potential Ghost Bat habitat based on ground-truthing of similar habitat within the Project Area.

b Foraging and dispersal

Foraging and dispersal habitat comprises woodland habitat within 2 km of roosting habitat which also provides connectivity throughout the landscape for the Ghost Bat. In lieu of federal guidelines for foraging habitat polygons for cave-dwelling bats, the NSW Biodiversity Assessment Method (BAM; DPIE 2021) bat guidelines have been adopted. A 2 km buffer will be applied to any potential roosting caves identified for this species, as consistent with current literature and guidance. Woodland contained within the buffer area will be considered potential foraging and dispersal habitat.

A potential foraging and dispersal buffer is included to show potential areas the species may use for habitat connectivity.

6.12.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.10 and area calculation for each habitat type. Habitat mapping across the Project Area for the Ghost Bat is illustrated on Figure 6.13.

Table 6.10 Habitat mapping rules summary Ghost Bat

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat – Roosting	Ground-truthed potential habitat	• Map rock habitat in the south-western and southern areas of the Project Area, delineate between ground-truthed and desktop assessed areas. • Map Mount Rose Bee.	812.1
Habitat - Foraging and dispersal	EMM_GTREmapping	• Buffer all roosting habitat by 2 km. • Assign buffer area as 'potential foraging and dispersal buffer'. • Clip all woodland REs within the buffer area and map as *foraging and dispersal.*	5,835.2

Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area

Ghost Bat habitat mapping

- Habitat - roosting
- Habitat - foraging and dispersal
- Potential foraging and dispersal buffer (2 km)
- Desktop assessed roosting habitat mapped to create foraging buffer

Existing environment

- Major road
- Named watercourse

Ghost Bat mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.13

EMM creating opportunities

6.13 Carpentarian Grasswren

The Carpentarian Grasswren (*Amytornis dorotheae*) is a small passerine characterised by cryptic brown plumage, fine streaking and a long graduated tail (Mankenhorst et al. 2021). It primarily feeds on seeds and invertebrates. The species breeds in low, concealed nests, typically producing small clutches of eggs.

The Carpentarian Grasswren is listed as Endangered under both the NC Act and the EPBC Act.

Carpentarian Grasswren has not been recorded within the Project Area during field surveys over four years, including targeted surveys, play call back surveys, acoustic monitoring and general survey efforts. Input from SME concluded that that the Project Area has moderate habitat suitability for Carpentarian Grasswren, but there is a reduced likelihood of the species occurring based on the Project Area being on the far eastern of its distribution and the fire regimes in the area. The moderate likelihood of occurrence is attributed to the presence of potentially suitable habitat within the Project Area.

6.13.1 Distribution

The Carpentarian Grasswren is endemic to the southern Gulf of Carpentaria region of northern Australia. The Project Area lies within the 'likely' distribution of the species (DCCEEW 2026b).

The known distribution of this species is in decline refer Figure 6.14. Historically the species was known from four separate areas between the Tawallah Range/Limmen Bight River in the Northern Territory, Gunpowder in north-west Queensland, Borroloola, Wollogorang, Boodjamulla and Mt Isa. The largest remaining population of Carpentarian Grasswren exists in the Mount Isa region (Harrington 2009). The Project Area lies in the range of records occurring since 1990.

It is understood that individuals disperse and establish new territories through relatively intact landscapes and have potential to occupy stable breeding territories of approximately 1.5 km^2 in size (Garnett, Szabo & Dutson 2011).

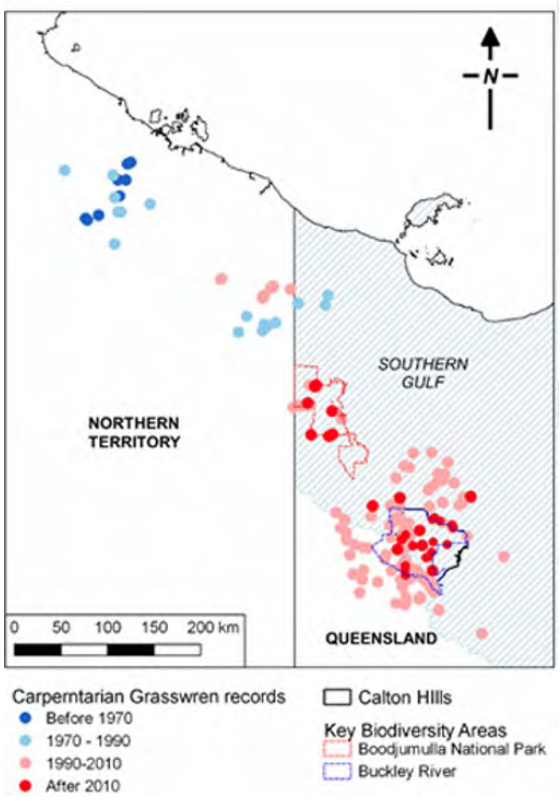


Figure 6.14 Distribution of the Carpentarian Grasswren (Plant & Crowley 2021)

6.13.2 Habitat

In the northern part of its range, the Carpentarian Grasswren is restricted to sandstone outcrops in mature spinifex hummock grassland, while in the southern part of its range it occupies long-unburnt spinifex with stony areas between the hummocks on which grow a range of short grasses, forbs and patchy low trees, and shrubs (Rowley & Russell 1997; McKean 1989). The species forage for seeds and insects on the ground, in rock crevices and in leaf litter beneath spinifex tussocks or shrubs (DoE 2015b). The species also nests within the spinifex and has been suggested to occupy breeding territories around 1.5 km^2 in size (Garnett, Szabo & Dutson 2011).

The Project Area lies in the southern part of the species' range. Research published by the Southern Gulf NRM group (Plant & Crowley 2021) states:

> The Carpentarian Grasswren's restricted habitat consists of siltstone ranges and broken plateaux across the Mount Isa Inlier and Gulf Fall and Uplands bioregions.

Increasing fire frequency is listed as a major threat to this species (Garnett, Szabo & Dutson 2011; Murphy 2011). Largescale wildfires have reduced the availability of suitable mature spinifex habitat in Queensland and the Northern Territory and thus reduced the range and potential dispersal habitat of this species (Plant & Crowley, 2021).

While Carpentarian Grasswrens can use habitat within 3 to 4 years post-fire, research suggests that population persistence is dependent upon long-term fire refugia positioned adjacent to known subpopulations (Stoetzel et al. 2020). Use of these areas is heavily influenced by vegetation regeneration and rainfall levels (Harrington et al. 2009).

The Project Area has been subject to widespread, uncontrolled fires, which may have reduced the availability of long-unburnt spinifex and impacted habitat suitability for this fire-sensitive species. Fire scars over the last five years (June 2021 – June 2026) within the Project Area are included on Figure 6.16, and fire frequency (count) is included on Figure 6.17 illustrating the spatial extent and frequency of recent fire events (NAFI 2026).

Large portions of the Project Area have experienced either one or two large-scale fires over the last five years. These fires occurred in October 2021 and January 2025, both within the late dry to early wet season period, when fire conditions are typically hotter and more extensive. Their extensive footprints suggest a high likelihood of widespread, severe impacts to spinifex, indicating these areas are unlikely to support mature spinifex and limiting the capacity of these areas to regenerate suitable habitat conditions. Areas subject to fire are likely more susceptible to invasive species such as Buffel Grass and Feral Cats which are identified as threats to this species (DCCEEW 2026b).

Photographs captured within the Project Area demonstrate the contrast of fire affected areas compared with unaffected areas. Photograph 6.5 shows an area that was subject to widespread fires twice in the last five years and the progress of regeneration (RE 1.11.3a),

Photograph 6.6 shows a Buffel Grass infested area that would otherwise be expected to have a spinifex ground layer according to its RE (RE 1.11.3b) and Photograph 6.7 shows an area of spinifex that has not been affected by fire in the last five years (RE 1.11.2a).

Photograph 6.5 Areas of RE 1.11.3a subject to two fires in the last 5 years

Photograph 6.6 Buffel infestation (RE 1.11.3b)

Photograph 6.7 Mature spinifex in RE 1.11.2a

6.13.3 Expert consultation

SME advice was provided by Adaptive NRM to guide habitat mapping for the Carpentarian Grasswren and summarised in this section (Adaptive NRM 2026).

A habitat prediction model was produced by Stoetzel et al. (2020) (Figure 6.15), suggesting predicted habitat suitability within and surrounding the Project Area. Survey locations for Carpentarian Grasswren are included in the figure, showing a lack of successful surveys surrounding the Project Area. The Project Area supports habitat for the Carpentarian Grasswren but is loosely connected to the major ranges supporting populations to the west.

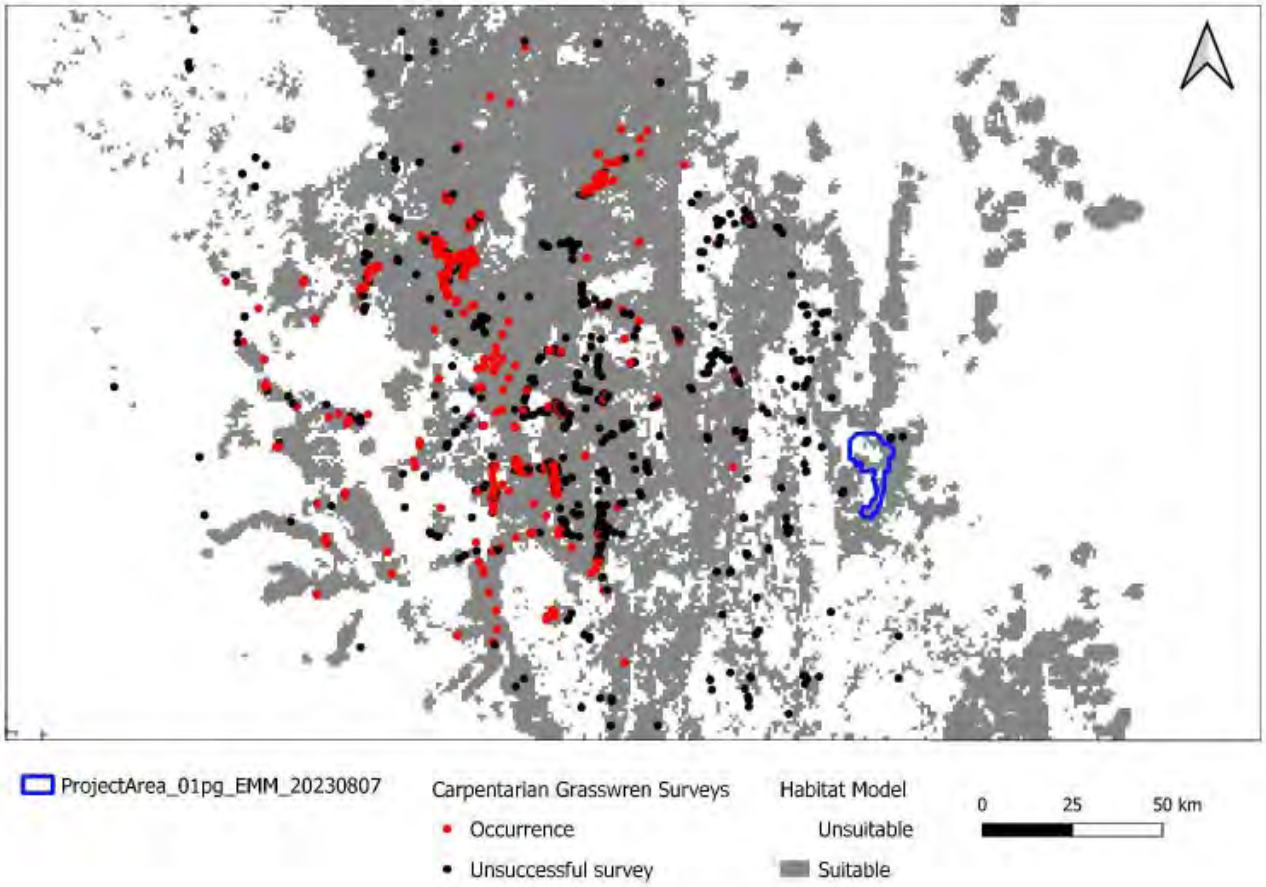


Figure 6.15 Habitat model prediction and Carpentarian Grasswren surveys (Stoetzel et al. 2020)

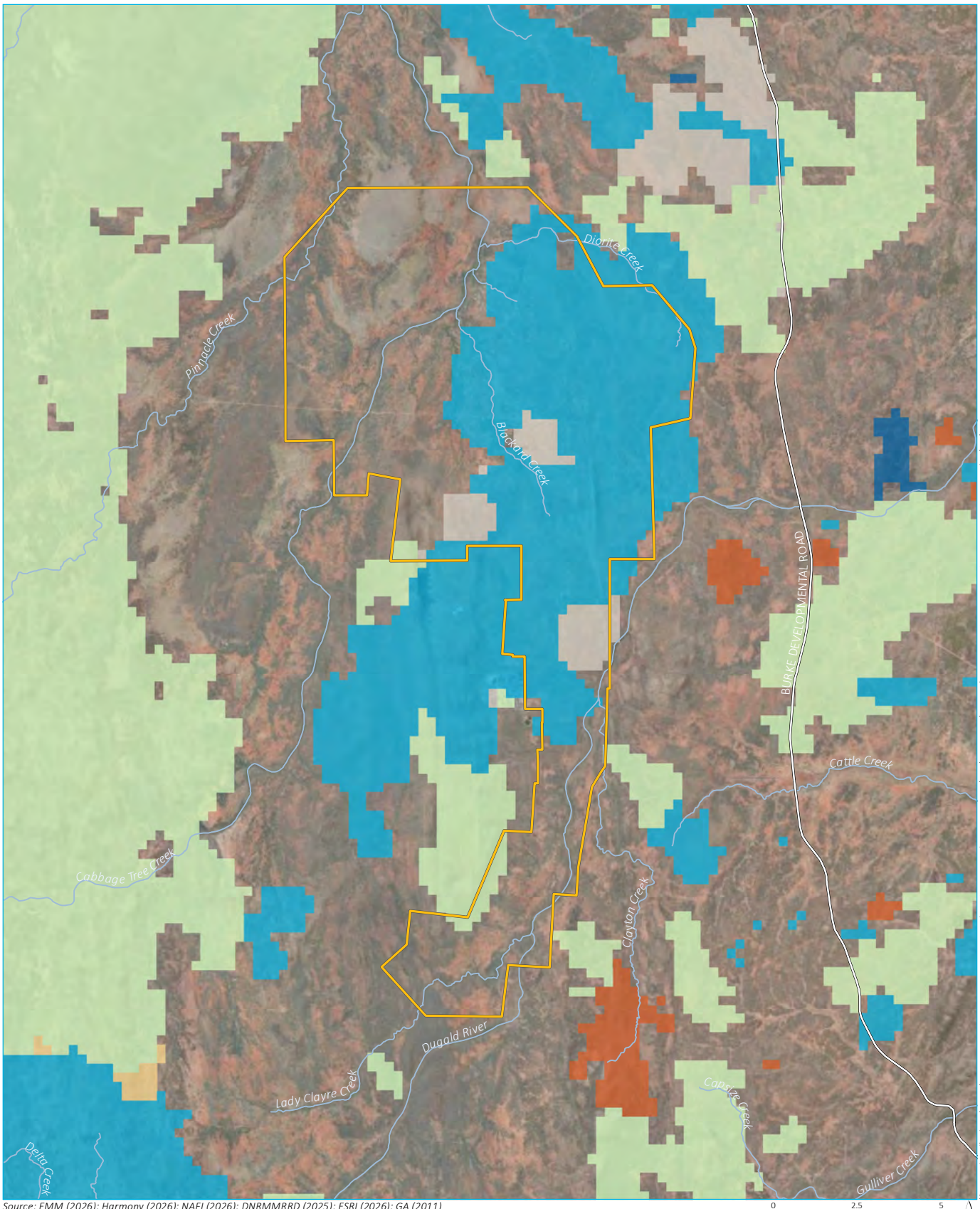
The assessment noted that the Project Area occurs at the eastern extent of the species' known distribution; however, a moderate likelihood of occurrence was assigned due to the presence of suitable Carpentarian Grasswren habitat within the Project Area. Key indicators of suitable habitat include vegetation communities known to support the species, a well-developed *Triodia* hummock grass understory, rocky or skeletal substrates, topographically complex terrain, open to low open eucalypt woodland structure and evidence of natural fire patchiness. The location at the eastern edge of the species' distribution may reduce opportunities for recolonisation.

Adaptive NRM undertook an assessment of the REs within the Project Area to identify vegetation communities most likely to support Carpentarian Grasswren habitat. Potential critical habitat was identified within the Project Area within vegetation communities associated with verified Carpentarian Grasswren records, including RE 1.11.2a, 1.7.1a and 1.7.7a. These communities are typically considered suitable habitat where they occur on rocky ranges, hills, ridgelines and associated undulating terrain supporting a *Triodia*-dominated understory and a naturally patchy fire regime. It was suggested that even where critical habitat represents only 25 to 40% of a

mixed polygon, it may be considered an important habitat feature if it occurs in areas with rocky, topographically complex terrain that promotes natural fire refugia.

While not considered Critical Habitat, RE 1.11.3, 1.11.8, 1.12.1 and 1.12.3 were identified as having habitat value for the Carpentarian Grasswren due to their association with rocky and metamorphic substrates. REs 1.3.6, 1.3.7, 1.3.13, 1.5.13, 1.5.16, 1.5.3, 1.5.4 and 1.7.5 are generally expected to provide suboptimal habitat.

The SME concluded that that the Project Area has moderate habitat suitability for Carpentarian Grasswren, but there is a reduced likelihood of the species occurring based on the Project Area being on the far eastern of its distribution and the fire regimes in the area. Further targeted playback surveys were recommended to determine whether the species is present within the Project Area. It was noted that online resources such as NAFI assist in analysing fire history, but field data would be required to characterise fine-scale fire patterns.



Source: EMM (2026); Harmony (2026); NAFI (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- Existing environment
- Major road
- Named watercourse

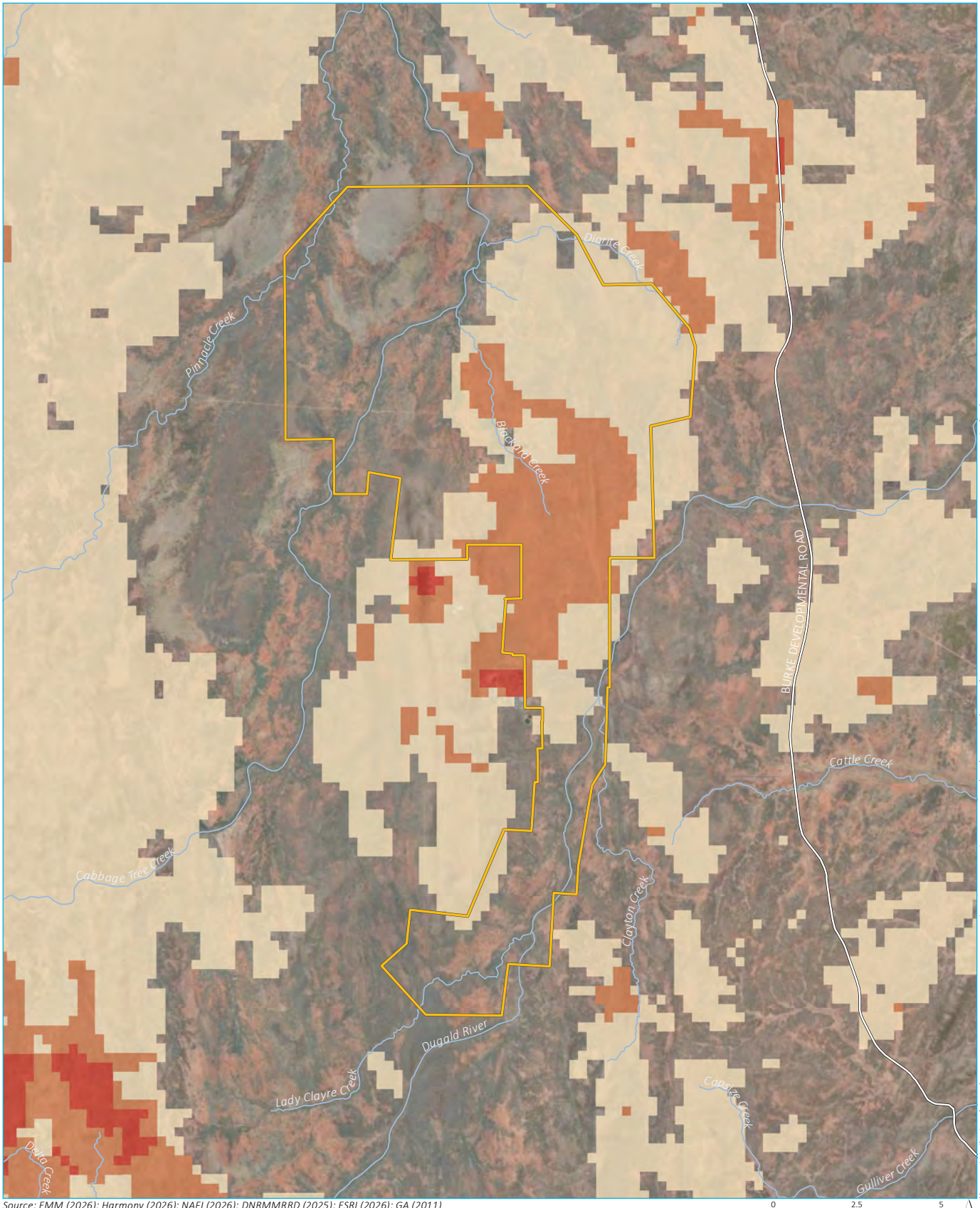
Fire scar mapping over last 5 years

- 2026
- 2025
- 2024
- 2023
- 2022
- 2021

Fire scars last 5 years within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.16

EMM creating opportunities



Source: EMM (2026); Harmony (2026); NAFI (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Existing environment
- Major road
- Named watercourse

Times burnt over last 5 years

- 3
- 2
- 1

Fire frequency (count) and spatial extent of recent fire events

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.17

EMM creating opportunities

6.13.4 Habitat definitions

No areas within the Project Area are listed on the EPBC Act Register of Critical Habitat, and no formally recognised Critical Habitat has been identified for Carpentarian Grasswren in the Conservation Advice (TSSC 2016b). Accordingly, the habitat mapping has considered the definition of habitat critical to survival provided in the Significant Impact Guidelines 1.1 (DoE 2013). The Guidelines identify habitat critical to survival as areas necessary for activities such as foraging, breeding, roosting or dispersal; for the long-term maintenance of the species; to maintain genetic diversity and long-term evolutionary development; or for reintroduction or recovery.

Critical Habitat and Habitat has been defined for this species. Carpentarian Grasswren habitat within the Project Area has been classified into two habitat categories: Critical - breeding and refugia and Habitat - foraging and dispersal. The habitat mapping was based on advice from Adaptive NRM including RE classifications, and mixed polygons were assessed for their association with rocky and topographically complex terrain. The habitat mapping was undertaken conservatively, recognising that fire or disturbance related changes in suitability may be temporary, but habitat has the potential to recover over time.

Fire history mapping was reviewed to help identify areas likely to support persistent Triodia cover and habitat refugia that would provide critical resources for Carpentarian Grasswren.

Vegetation assessments have identified Buffel Grass as broadly occurring across the Project Area. Within the central portions of the Project Area, Buffel Grass was commonly observed in areas consistent with recent large-scale fire disturbance. Site observations show much of the mixed woodland/grassland communities in the southern MLs were dominated by native grasses (besides spinifex) or Buffel Grass. These areas are conservatively mapped as habitat for Carpentarian Grasswren where they occur within REs identified as having potential habitat value for the species.

To inform the habitat mapping and the delineation of what is considered either general Habitat or Critical Habitat within the Project Area, each RE with habitat potential was assessed for its provision of habitat that may be considered critical to the survival of Carpentarian Grasswren (Table 6.11). This table draws from expert advice, and the REs considered for habitat mapping were based on known occupancy requirements and key habitat attributes including Triodia structure, lithology, topographic complexity and fire regime. Any RE not included in the table was considered as unsuitable by the SME and was not included in the habitat mapping.

The SME noted that not all mapped optimal habitat is of equal value for supporting persistent populations. Occupancy is influenced by factors such as disturbance history, connectivity and fire impacts, while fine-scale habitat features, including fire mosaics and rocky refugia, cannot be reliably captured through desktop mapping.

Table 6.11 provides justification on the application of habitat mapping rules within the Project Area. A description of each habitat category is provided below, presented in order of decreasing importance to the species.

Table 6.11 Assessment of REs and mapping justification within the Project Area

Regional Ecosystem	Short description	Substrate / landform	Habitat value (SME commentary)	EMM mapping justifications	Photograph reference within Project Area (if available)
1.11.2a	*Eucalyptus leucophloia* low open woodland	Occurs on hills and ranges on strongly folded metamorphic pre-Cambrian rocks; soils skeletal, some red earths.	Optimal habitat.	Occurs commonly throughout the Project Area, often as discrete patches. Spinifex observed to show a strong association with this RE within the Project Area (Photo 1). Some areas of this RE have been subject to fire and are therefore limited in their canopy cover and regenerating (Photo 2), fire impacts were severe in some areas (Photo 3). This RE commonly co-occurs within RE 1.11.3 and is difficult to delineate at a desktop level. Where it occurs at over 25% of mixed polygons, this RE was assessed for inclusion in Critical Habitat. All areas of this RE were considered for inclusion in Critical Habitat in line with SME advice. Where impacted by fire in the last 5 years, areas were considered Habitat due to their reduced capacity to support mature spinifex.	

Regional Ecosystem	Short description	Substrate / landform	Habitat value (SME commentary)	EMM mapping justifications	Photograph reference within Project Area (if available)
1.7.1a	*Eucalyptus leucophloia* low open woodland on silcrete and lateritic surfaces	Lateritic surfaces and silcrete.	Optimal habitat.	Very limited occurrences within the Project Area. There have been no fire impacts to this RE in the last 5 years within the Project Area. All areas of this RE were considered for inclusion in Critical Habitat in line with SME advice.	
1.7.7a	*Corymbia capricornia* +/- *Eucalyptus leucophloia* or *E. miniata* low open woodland on silcrete	Silcrete.	Optimal habitat.	Limited to the ranges within the central-western edge of the Project Area and Mount Rose Bee. Spinifex observed to show a strong association with this RE within the Project Area, though much of this area has been subject to two widespread fires in the last five years (Photo 1 – fire impacted mixed polygon 1.7.7a/1.11.8). This RE is strongly associated with complex geologies and higher elevations within the Project Area. All areas of this RE were considered for inclusion in Critical Habitat in line with SME advice. Where impacted by fire in the last five years, areas were considered Habitat due to their reduced capacity to support mature spinifex.	

Regional Ecosystem	Short description	Substrate / landform	Habitat value (SME commentary)	EMM mapping justifications	Photograph reference within Project Area (if available)
1.11.3a/b	*Corymbia terminalis* and/or *Eucalyptus leucophylla* low open woodland on metamorphics.	Occurs on metabasalts and dolerites; some felsic metavolcanics; skeletal soils, some shallow loams.	Suboptimal habitat. Rocky metamorphic substrate with spinifex ground layer. Co-occurs with optimal RE in multiple polygons.	Widespread within the Project Area, particularly in the central and southern regions. The ground layer is generally comprised of a combination of spinifex, mixed tussock grasses, mixed native groundcovers or Buffel Grass (Photo 1). Spinifex and Buffel Grass can be locally dominant. Although included in the habitat mapping, this RE commonly co-occurs in mixed polygons with RE 1.5.15 (Aristida grasslands) reducing the overall abundance of spinifex observed and habitat suitability for Carpentarian Grasswren (RE 1.5.15 is unsuitable habitat). The mosaic of the two REs is difficult to delineate, as canopy cover within RE 1.11.3 is sparse, and the transition between woodland and grassland are gradual (Photo 2 – mixed RE 1.11.3b/1.5.15 showing sparse ground layer, likely from fire impacts). RE 1.11.2a commonly co-occurs within this community, therefore mixed polygons of RE 1.11.2a/1.11.3 with over 25% occurrence of RE 1.11.2a were included as Critical Habitat. Although landzone 11, much of this RE occurs on relatively flat landscapes that resemble landzone 5 with limited geological complexity. Areas of this RE have been subject to one or two fires in the last five years. Much of the RE 1.11.3 that occurs in fire affected areas displays regeneration but lacks mature spinifex or structural complexity (Photo 3). This RE was not defined as optimal habitat by the SME and it has therefore been classified as Habitat.	

Regional Ecosystem	Short description	Substrate / landform	Habitat value (SME commentary)	EMM mapping justifications	Photograph reference within Project Area (if available)
1.11.8	*Terminalia aridicola* and/or *Corymbia aspera* low open woodland to low woodland, usually with vine-scrub species, on rock outcrops.	Occurs on rock outcrops on hills and ranges on strongly folded siliceous sedimentary and metamorphic pre-Cambrian rocks.	Suboptimal habitat. Rock outcrops on siliceous sedimentary / metamorphic rocks; supports refuge function. Co-occurs with 1.7.7a.	Very limited occurrence within the Project Area, isolated to areas surrounding Mt Rose Bee. This area has been subject to two widespread fires in the last 5 years and was not defined as optimal habitat by the SME, therefore has been classified as Habitat.	
1.12.1	*Eucalyptus leucophloia* low open woodland on granites.	Occurs on ranges and stony hills and rises on igneous rocks; skeletal soils and some shallow red earths.	Suboptimal habitat. ranges and stony hills on igneous rocks; spinifex dominant ground layer.	Very limited occurrence with the Project Area, present in a single, isolated mixed polygon with RE 1.12.3a in the central-east. This RE has been subject to one widespread fire in the last 5 years and was not defined as optimal habitat by the SME, therefore has been classified as Habitat.	
1.12.3a	*Eucalyptus leucophylla* and/or *Corymbia terminalis* +/- *C. aparrerinja* low open woodland on igneous rocks.	Occurs on ranges and stony hills and rises on igneous rocks; skeletal soils and some shallow red earths.	Suboptimal habitat. Ranges and stony hills on igneous rocks; spinifex dominant. Similar to 1.12.1.	Very limited occurrence with the Project Area, present in several in isolated locations in the central-east. This RE has been subject to one or two widespread fires in the last 5 years and was not defined as optimal habitat by the SME, therefore classified as Habitat.	
1.3.13a	*Eucalyptus leucophylla* woodland on levees and minor drainage lines.	Occurs on recent levees of larger watercourses and in-channel deposits of ephemeral streams.	Lower-value suboptimal habitat. alluvial levee community; spinifex present as secondary component on deeper alluvial soils.	Occurs along most lower-order drainages within the Project Area. Spinifex may be present as a secondary or sparse component. This RE occurs on deeper, alluvial soils that are less suitable. This RE was not included as Habitat as it was considered lower value and does not support the vegetative and geological components required for Carpentarian Grasswren.	

Regional Ecosystem	Short description	Substrate / landform	Habitat value (SME commentary)	EMM mapping justifications	Photograph reference within Project Area (if available)
1.3.6	*Corymbia aparrerinja*, *Corymbia terminalis* woodland on sandy levees.	Occurs on terraces and floodplains on Quaternary alluvium; alluvial soils, some earths and deep yellow podzolics.	Lower-value suboptimal habitat. Quaternary alluvial terraces; sparse *Triodia longiceps*. Potential dispersal corridor.	Occurs in limited locations within the Project Area, generally in association with lower-order drainages or alluvial floodplains. Spinifex may be present as a secondary or sparse component, however, Buffel Grass is common in the RE due to its association with floodplain of RE 1.3.7 which is often subject to infestations. This RE occurs on deeper, alluvial soils that are less suitable. This RE was not included as Habitat as it was considered lower value by the SME and does not support the vegetative and geological components required for Carpentarian Grasswren.	
1.3.7a/b	*Eucalyptus camaldulensis* woodland on channels and levees.	Occurs on recent levees and channel deposits of larger tributaries; alluvial soils.	Lower-value suboptimal habitat. Riparian gorge / community with spinifex; alluvial soils reduce structural habitat value.	Occurs on higher-order creeks and drainages within the Project Area. Spinifex is generally absent and the ground layer is dominated by Buffel Grass. This RE occurs on deeper, alluvial soils that are less suitable. This RE was not included as Habitat as it was considered lower value by the SME and does not support the vegetative and geological components required for Carpentarian Grasswren.	
1.5.13	*Eucalyptus pruinosa* low open woodland on older alluvial and residual soils	Occurs on older alluvial and residual soils.	Lower-value suboptimal habitat.	Spinifex may be present as a secondary or sparse component, often co-occurring with a mix of native or exotic grasses. This RE occurs on deeper soils that are less suitable. This RE was not included as Habitat as it was considered lower value by the SME and does not support the vegetative and geological components required for Carpentarian Grasswren.	

i Critical Habitat

a Breeding and refugia

Breeding and refugia habitat represents critical areas that may support optimal breeding and refugia habitat for the Carpentarian Grasswren. As identified by the Conservation Advice for this species (DoE 2015b), critical habitat areas within the Project Area are limited to long-unburnt spinifex hummocks with sporadic presence of stony substrates.

The critical habitat was mapped considering fire frequency, extent and timing, recognising that recent fires have been extensive and occurred during hotter periods, when fire intensity and vegetation impacts are typically greater. Within the Project Area, critical habitat for this species is associated with unburnt patches of spinifex REs 1.11.2, 1.7.1 and 1.7.7 where mature Triodia-dominated understorey and associated rocky or stony habitat characteristics required for breeding, shelter, refuge and foraging are most likely to be present.

ii Habitat

a Foraging and dispersal

Foraging and dispersal habitat comprises areas of connectivity or opportunistic use between areas of critical habitat. Within the Project Area, foraging and dispersal habitat is limited to REs 1.11.3, 1.11.8, 1.12.1 and 1.12.3, or any areas of REs 1.11.2, 1.7.1 and 1.7.7 that are not included as Critical Habitat.

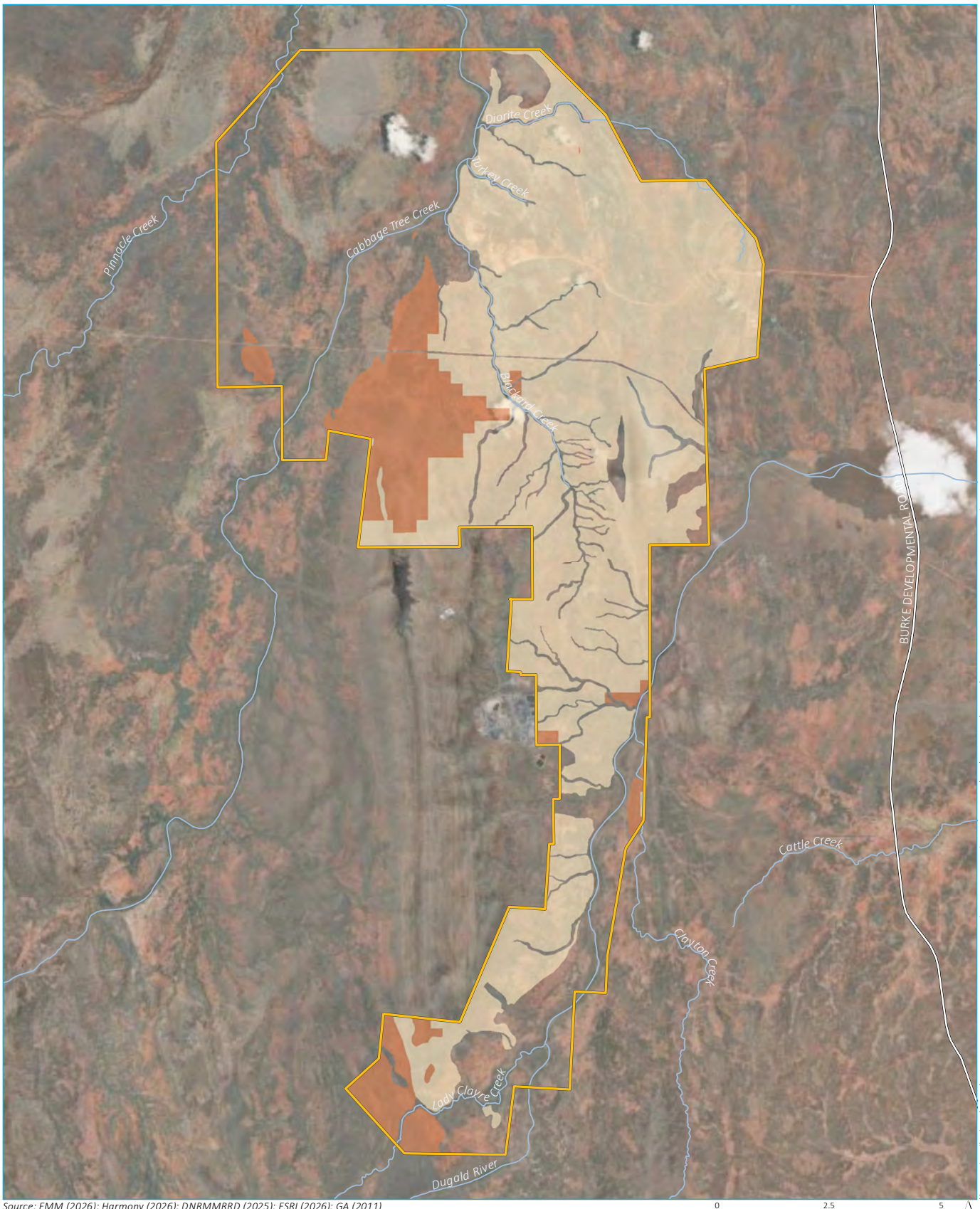
This category incorporates areas that may provide occasional foraging or dispersal opportunities or have the capacity to develop suitable habitat characteristics over time however are not considered to presently provide the combination of habitat attributes and ecological functions that characterise Critical Habitat. The distinction recognises that the potential for a vegetation community to be used by Carpentarian Grasswren does not, in itself, demonstrate that the area is necessary for the survival, persistence or recovery of the species and thus there is a material difference between Critical Habitat and Habitat within the Action Area.

6.13.5 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.12 and areas calculated for each habitat type. Habitat mapping across the Project Area for the Carpentarian Grasswren is illustrated on Figure 6.18.

Table 6.12 Habitat mapping rules summary Carpentarian Grasswren

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Critical Habitat – Breeding and refugia	EMM broad habitat type mapping	• Clip REs 1.7.1, 1.7.7, 1.11.2. • Map all mixed RE polygons containing critical REs with >25% composition. • Remove areas subject to any recent fire (<5 years on Fire Scar Mapping).	1,396.5
Habitat - Foraging and dispersal	EMM_GTREmapping Fire Scar Mapping	• Map any RE 1.11.2, 1.7.1 and 1.7.7 not included in critical. (>25% composition for mixed polygons) • Map REs: RE 1.11.3, 1.11.8, 1.12.1, 1.12.3(>50% composition for mixed polygons).	7,191.0



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area

Carpentarian Grasswren habitat mapping

- Critical habitat
- Habitat

Existing environment

- Major road
- Named watercourse

Carpentarian Grasswren mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.18

EMM creating opportunities

6.14 Painted Honeyeater

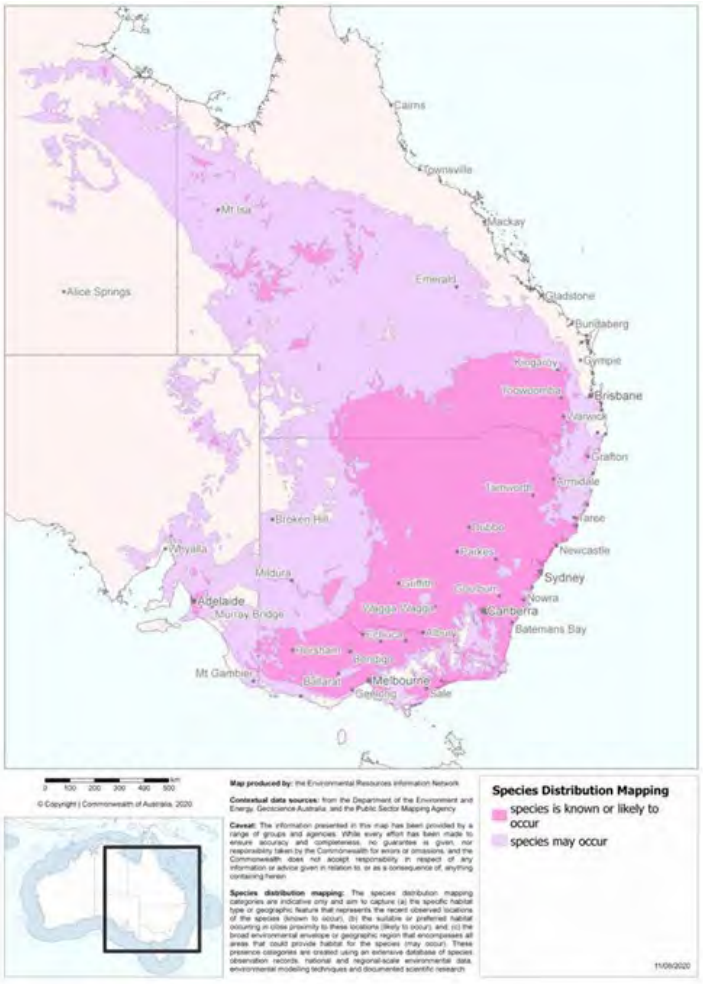
The Painted Honeyeater (*Grantiella picta*) is a small honeyeater distinguished by its striking black, white and yellow plumage and conspicuous red eye (Mankenhorst et al. 2021). Unlike most honeyeaters, it feeds primarily on mistletoe fruits. The species constructs a small cup-shaped nest and generally lays two to three eggs per breeding attempt.

The Painted Honeyeater is listed as Vulnerable under both the NC Act and the EPBC Act.

6.14.1 Distribution

The Painted Honeyeater is endemic to Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory (DAWE 2021b). This figure indicates that suitable habitat in the Project Area 'may' occur within the Project Area. Targeted surveys for this species have confirmed that this species does occur within the Project Area.

The Painted Honeyeater is nomadic and dispersive across its distribution. Its movements are primarily governed by the fruiting of mistletoe, which is aligned with its breeding season (DAWE 2021b). Almost all records of breeding are south of 26°S, on inland slopes of the Great Dividing Range between the Grampians, Victoria and Roma, Queensland (Higgins, Peter & Steele 2001). The Project Area is located outside of the expected breeding range. Any potential breeding events within the Project Area would be opportunistic and driven by localised episodic mistletoe availability, rather than supporting ongoing breeding.



Source: DAWE 2021b

Figure 6.19 Modelled distribution of the Painted Honeyeater

6.14.2 Habitat

The National Recovery Plan for the Painted Honeyeater (DAWE 2021b) indicates that the species has highly specialised habitat requirements:

> Its diet mainly consists of mistletoe fruits, but also includes nectar (from flowering mistletoe, eucalypts and possibly banksias) and arthropods, especially in the non-breeding season … The species inhabits mistletoes in eucalypt forests, woodlands, riparian woodlands of Black Box (Eucalyptus largiflorens) and River Red Gum (E. camaldulensis), box-ironbark yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens. The species prefers woodlands which contain a higher number of mature trees, as these host more mistletoes.

As discussed above, the species is associated with flowering mistletoe in woodland habitat.

The Project Area predominately consists of a mix of eucalypt woodland, acacia woodland, riparian areas and some grassland areas with sporadic occurrences of mistletoe. Dense clusters of mistletoe have been observed primarily in riparian REs within the Project Area. This broad habitat type has been used to inform habitat definitions and habitat mapping rules. Mapped Painted Honeyeater habitat is outlined in Figure 6.20.

6.14.3 Habitat definitions

No Critical Habitat has been defined for this species. Painted Honeyeater habitat within the Project Area has been classified into two general habitat categories: Habitat - foraging and Habitat - dispersal. A description of each habitat category is provided below, presented in order of decreasing importance to the species.

No areas within the Project Area are listed on the EPBC Act Register of Critical Habitat. The National Recovery Plan for Painted Honeyeater identifies woodland habitats containing key mistletoe as food resources, breeding habitat and habitat that facilitates movement between occupied areas as habitat critical to the survival of the Painted Honeyeater (DAWE 2021b). While the Painted Honeyeater has been recorded within the Project Area, mistletoe resources are sparse and habitat attributes identified in the National Recovery Plan as important for breeding are not strongly represented. The Project Area more likely provides only seasonal foraging and movement habitat within its broad area of occupancy rather than important breeding habitat and is, therefore, not considered habitat critical to the survival of the species.

i Habitat

a Foraging

Painted Honeyeater habitat use is strongly influenced by the availability of fruiting mistletoes. Foraging habitat represents areas that provide key foraging resources for this species. This includes RE 1.3.7, which supports the species preferred foraging resource (River Red Gum) and is known to contain mistletoe within the Project Area. In areas where mistletoe has not been ground-truthed, its presence is inferred based on the typical vegetation structure and composition of this RE, which is more likely to support mistletoe and flowering eucalypts. The Painted Honeyeater is unlikely to breed within the Project given the Project Area is outside of the expected breeding range; however, the species may forage in woodland containing dense clusters of mistletoe or flowering eucalypts.

b Dispersal

Dispersal habitat comprises areas that provide connectivity or additional foraging opportunities between areas of the species foraging habitat. This includes acacia and eucalypt woodland across the Project Area. Table 6.12 provides a breakdown of relevant acacia and eucalypt woodland REs.

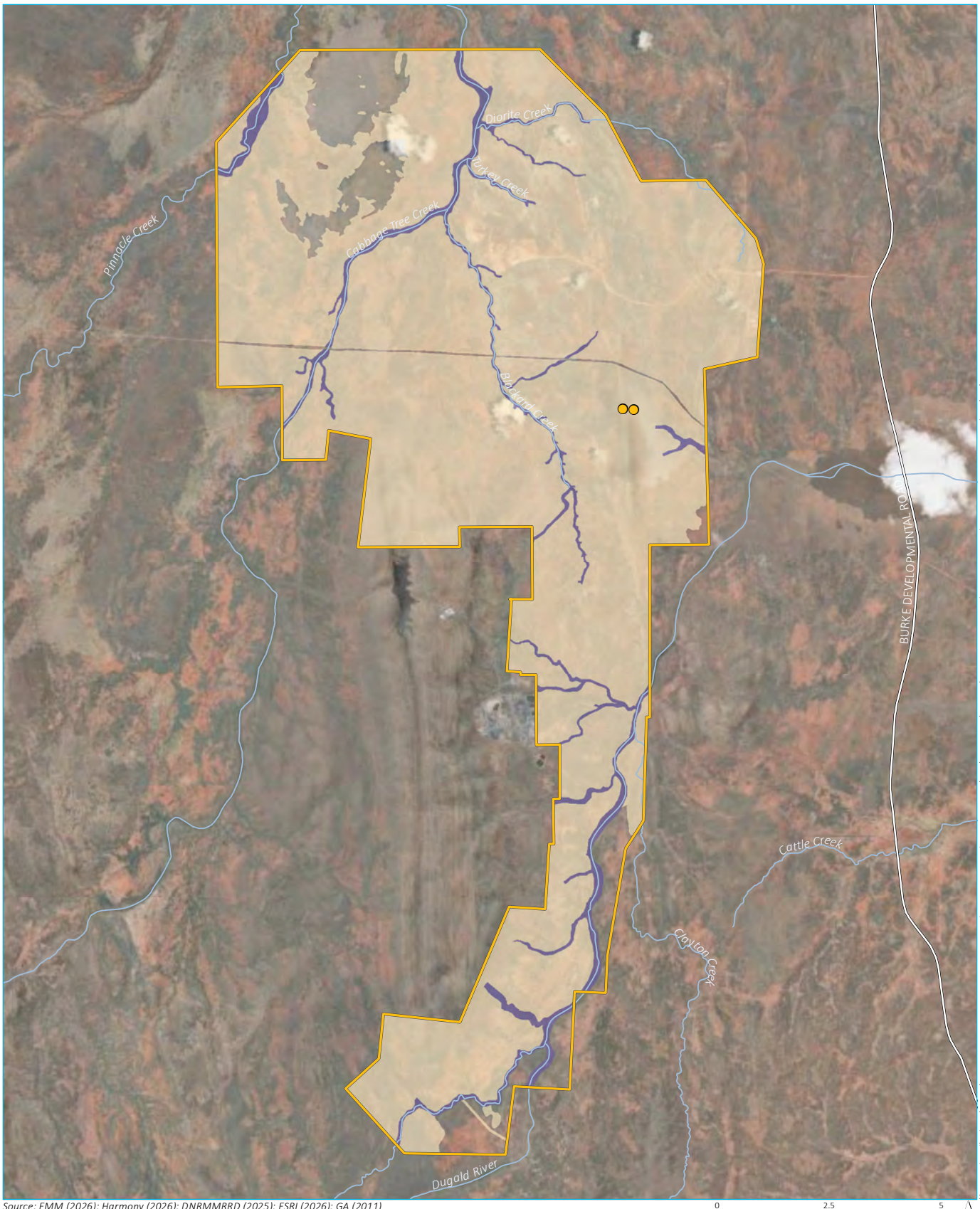
Within the Project Area, dispersal habitat comprises acacia and eucalypt woodland REs not mapped as foraging habitat as outlined in Table 6.13.

6.14.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.13 and areas calculated for each habitat type. Habitat mapping across the Project Area for the Painted Honeyeater is illustrated on Figure 6.20.

Table 6.13 Habitat mapping rules summary Painted Honeyeater

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Foraging	EMM_GTREmapping	• Map RE: 1.3.7. • Map all mixed RE polygons containing foraging REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics.	694.3
Habitat - Dispersal	EMM_GTREmapping	• Map REs: 1.3.6, 1.3.13, 1.5.3, 1.5.4, 1.5.13, 1.5.16, 1.7.1, 1.7.5, 1.7.7, 1.11.2, 1.11.3, 1.11.8, 1.12.1, 1.11.7, 1.12.3, 2.4.3. • Map all mixed RE polygons containing dispersal REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics.	12,441.4



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

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KEY

- Project area
- Painted Honeyeater observation (Harmony record)

Painted Honeyeater habitat mapping

- Habitat - foraging
- Habitat - dispersal

Existing environment

- Major road
- Named watercourse

Painted Honeyeater mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.20

EMM creating opportunities

6.15 *Ipomoea antonschmidii*

Ipomoea antonschmidii is a perennial twining vine in the Convolvulaceae family. It is characterised by climbing stems and funnel-shaped flowers typical of the genus. Reproduction occurs primarily through seed production following seasonal flowering events.

Ipomoea antonschmidii is listed as Near Threatened under the NC Act and is not listed under the EPBC Act.

6.15.1 Distribution

There are minimal records of *Ipomoea antonschmidii* on the Atlas of Living Australia (ALA 2021), indicating a data deficiency or inadequate survey effort within the species distribution. Williams & Clouten (2021) stated:

> Australasian Virtual Herbarium data indicate Ipomoea antonschmidii has been collected in 20 locations from north of Mt Isa in North West Queensland to the Northern Territory – Western Australian border. Seventeen of the 20 collections are from the Northwest Highlands bioregion of Queensland (duplicates of some individual collections are held in multiple herbaria).

6.15.2 Habitat

The habitat of this species is not well described, but appears to be associated with riparian, eucalypt or acacia woodland. The species is, however, sensitive to clearing or disturbance (Williams & Clouten 2021), and as such, any intact woodland habitat may be utilised by the species within the Northwest Highlands bioregion. Within the Project Area, remnant vegetation is subject to ongoing grazing pressure from stock, broadly reducing the condition of the vegetation condition. As such, suitable habitat is available within the Project Area where this species is identified in an REs 'special values' including RE 1.3.13, 1.5.4, 1.7.7 and 1.11.2.

The Project Area predominately consists of a mix of remnant eucalypt woodland, acacia woodland and riparian areas. This broad habitat type has been used to inform habitat definitions and habitat mapping rules. Mapped *Ipomoea antonschmidii* habitat is outlined in Figure 6.21.

6.15.3 Habitat definitions

No Critical Habitat has been defined for this species. *Ipomoea antonschmidii* habitat within the Project Area has been classified as Habitat - suitable. A description of this habitat category is provided below.

i Habitat

a Suitable

Suitable habitat for this species represents areas that contain remnant woodland within any RE which lists the species in its 'special values'. Within the Project Area, remnant vegetation is subject to ongoing grazing pressure from stock, broadly reducing the condition of understorey. As such, suitable habitat comprises only REs outlined in Table 6.14.

6.15.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.14 and total area calculated. Habitat mapping across the Project Area for *Ipomoea antonschmidii* is illustrated on Figure 6.21.

Table 6.14 Habitat mapping rules summary *Ipomoea antonschmidii*

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Suitable	EMM_GTREmapping	• Map REs 1.3.13, 1.5.4, 1.7.7, 1.11.2. • Map all mixed RE polygons containing *suitable* REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics.	3,399.2

Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

N

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KEY

- Project area

Ipomoea antonschmidii habitat mapping

- Habitat - suitable

Existing environment

- Major road
- Named watercourse

Ipomoea antonschmidii mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.21

EMM creating opportunities

6.16 *Dichanthium setosum*

Dichanthium setosum (Bluegrass) is a perennial tussock-forming grass characterised by blue-green foliage and paired flowering racemes. It reproduces primarily through seed production, with flowering and recruitment closely linked to seasonal rainfall conditions.

Dichanthium setosum is listed as Least Concern under the NC Act and Vulnerable under the EPBC Act.

6.16.1 Distribution

The Conservation Advice for *Dichanthium setosum* states that it occurs primarily on the northern tablelands in the Saumarez area, west of Armidale, and 18 to 30 km east of Guyra, and is more rarely found on the north-western slopes, central western slopes and north-western plains of NSW (DoE 2008).

In Queensland this species has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions (DoE 2008). The Project Area lies outside of the known distribution of this species; however, one Queensland Herbarium record occurs in the 50 km buffer of the Project Area, dating to 2018.

As outlined in the Conservation Advice for *Dichanthium setosum* (DoE 2008), the distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities:

- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.
- The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin.
- Bluegrass (*Dichanthium spp*.) dominant grasslands of the Brigalow Belt Bioregions (North and South).
- Brigalow (*Acacia harpophylla* dominant and co-dominant).
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.
- Upland Wetlands of the New England Tablelands and the Monaro Plateau.

6.16.2 Broad habitat type

Dichanthium setosum occurs mostly on heavy soils (mainly cracking clays or alluvium, often gilgai) in woodland to open woodland dominated by Acacia (brigalow) and/or Eucalyptus (Queensland Herbarium 2024). The species is associated with heavy basaltic black soils and stony red-brown hard setting loam with clay subsoil (DoE 2008).

The species can also occur within disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture (DoE 2008). The extent to which this species tolerates disturbance is unknown (DoE 2008).

Soil mapping across the Project Area based on soil surveys commissioned by ECMPL shows it to contain five distinct soil types. Soil descriptions below follow the Australian Soil Classification (Isbell 2021) supported by general characteristics described by the Queensland Government (Queensland Government 2024).

- Grey Epipedal Vertosol (Burke)
- Brown Clastic Lithosolic Rudosol (Barkly)
- Brown Clastic Colluvic Rudosol (Knapdale)

- Red Dystrophic Dermosol (Julius)
- Red Eutrophic Dermosol (Malako).

Within the Project Area, Burke soils provide optimal substrate for *Dichanthium setosum*, followed by Julius and Malako. All areas of the Project have been subject to intermittent livestock grazing, which is likely to have reduced soil quality and has been considered in this assessment. These broad habitat types have been used to inform habitat definitions and habitat mapping rules. Mapped *Dichanthium setosum* habitat is outlined in Figure 6.22 Habitat definitions.

No Critical Habitat has been defined for this species. *Dichanthium setosum* habitat within the Project Area has been classified as Habitat - suitable. A description of this habitat category is provided below.

i Habitat

a Suitable

Suitable habitat represents either eucalypt woodlands or clay associated REs that provide optimal soils for *Dichanthium setosum*. Within the Project Area, all eucalypt woodland RE polygons that overlap with Burke vertosols are considered suitable habitat.

6.16.3 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.15 and total area calculated. Habitat mapping across the Project Area for *Dichanthium setosum* is illustrated on Figure 6.22.

Table 6.15 Habitat mapping rules summary *Dichanthium setosum*

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Suitable	EMM_GTREmapping ECMPL soil mapping	• Map REs 1.5.3, 1.5.4, 1.7.1, 1.7.7, 1.11.2, 1.11.3, 1.11.8, 1.12.3, 2.4.2, 2.4.3. • Map all mixed RE polygons containing *suitable* REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics. • Include only polygons overlapping with Burke soil type.	919.4

Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area

Dichanthium setosum habitat mapping

- Habitat - suitable

Existing environment

- Major road
- Named watercourse

Dichanthium setosum mapped habitat within the Project area

Eva Copper Project
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Figure 6.22

EMM creating opportunities

6.17 Livistona rigida

Livistona rigida (Fan Palm) is a tall palm distinguished by its large fan-shaped leaves and solitary trunk. Mature plants produce conspicuous inflorescences bearing numerous flowers and fleshy fruits. Reproduction occurs through seed production and dispersal by water and fauna.

Livistona rigida is listed as Special Least Concern under the NC Act and is not listed under the EPBC Act.

6.17.1 Distribution

Livistona rigida occurs in far north-western Queensland on the stream systems of the Gregory, Leichardt, Nicholson and Albert rivers. Smaller populations are known to occur in the Northern Territory near Mataranka on the Roper River and South Alligator River (Dowe & Jones 2025). There are 17 records of this species on the Atlas of Living Australia, with 15 of those records located within Queensland catchments draining into the Gulf of Carpentaria (ALA 2021).

6.17.2 Habitat

This species grows along stream and riverbanks and adjacent flat areas with a permanent water supply, in areas ranging from near sea level to 400 m (CSIRO 2020). Field observations of this species within the Project Area indicate that this species is also associated with ephemeral waterways.

The following documents were reviewed to identify associations between REs and *Livistona rigida:*

- The Regional Ecosystem Description Database, version 13.1, Northwestern Highlands (Queensland Herbarium 2024)
- The Regional Ecosystem Description Database, version 13.1, Gulf Uplands (Queensland Herbarium 2024)
- Northwestern Highlands, Selected Regional Ecosystems: Technical Descriptions (Queensland Government 2019).

The following REs were identified as associated with *Livistona rigida:* 1.3.7a, 1.3.9a, 1.3.9b, 1.5.3, 1.10.3, 1.10.6, 2.3.52.

Within the Project Area, *Livistona rigida* is associated with RE 1.3.7, which contains both permanent and ephemeral riparian systems. Remnant vegetation within the Project Area is subject to ongoing grazing pressure from livestock, broadly reducing the condition of understorey.

This broad habitat type has been used to inform habitat definitions and habitat mapping rules.

6.17.3 Habitat definitions

No Critical Habitat has been defined for this species. *Livistona rigida* habitat within the Project Area has been classified as Habitat - suitable. A description of this habitat category is provided below.

i Habitat

a Suitable

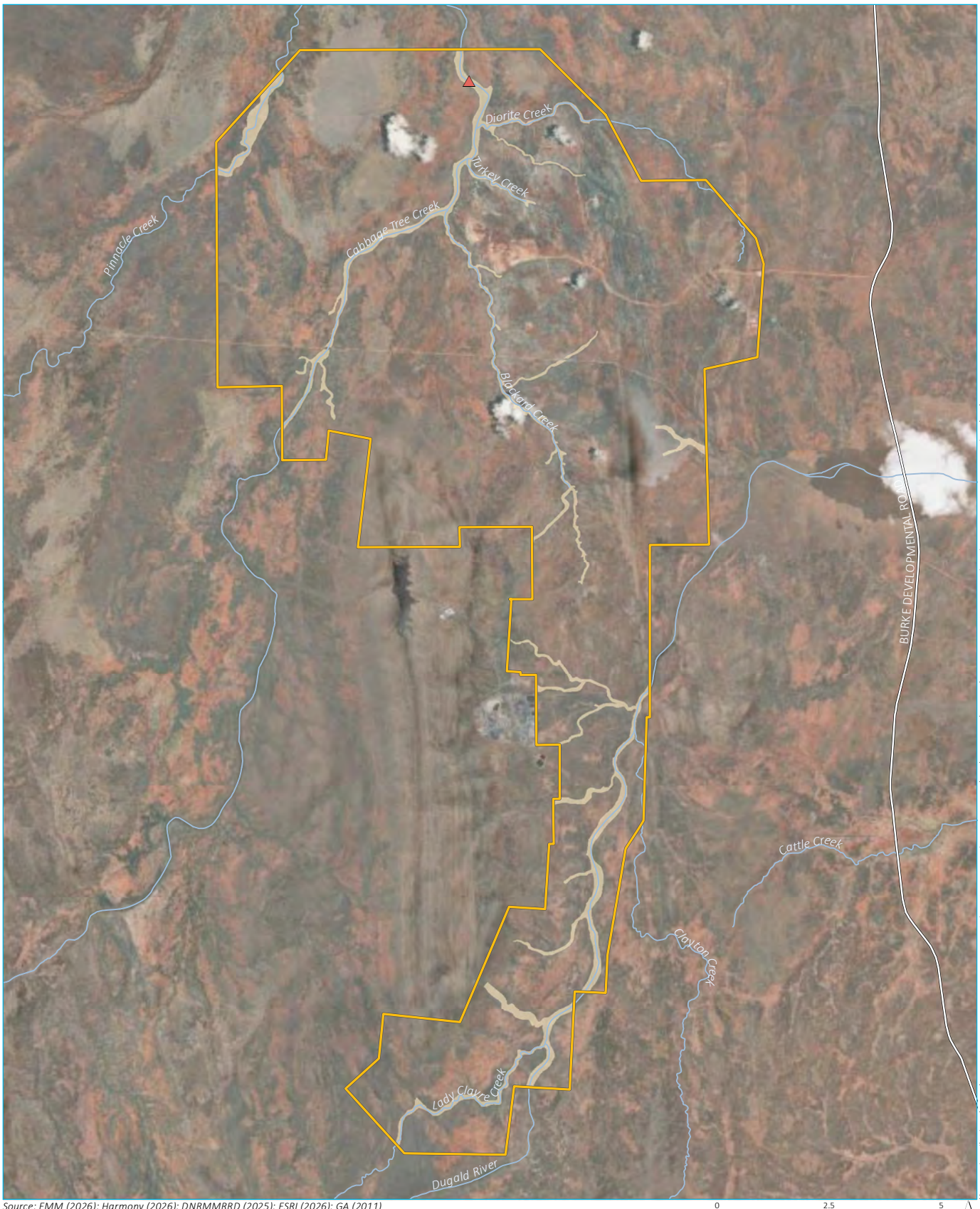
Suitable habitat for this species represents areas that provide potential habitat areas for *Livistona rigida* but have been subject to livestock trampling, reducing understorey condition. Any RE which lists the species in 'special values' is considered suitable habitat. Within the Project Area, this is limited to RE 1.3.7.

6.17.4 Habitat mapping

A summary of habitat mapping rules used is provided in Table 6.16 and total area calculated. Habitat mapping across the Project Area for *Livistona rigida* is illustrated on Figure 6.23.

Table 6.16 Habitat mapping rules summary *Livistona rigida*

Habitat type	GIS source	GIS rules	Habitat within Project Area (ha)
Habitat - Suitable	EMM_GTREmapping	• Map RE 1.3.7. • Map all mixed RE polygons containing *suitable* REs with >50% composition. • Mixed polygons with no dominant RE (>50%) to be assessed manually based on combined RE characteristics.	694.3



Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area
- *Livistona rigida* observation (Harmony record)

Dichanthium setosum habitat mapping

- Habitat - suitable

Existing environment

- Major road
- Named watercourse

Livistona rigida mapped habitat within the Project area

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 6.23

EMM creating opportunities

7 Project Area ecological sensitivities map

An Ecological Sensitivity map has been developed to provide a broader indication of habitat value across the Project Area. The map incorporates species identified as having a moderate to high likelihood of occurrence, where habitat mapping was completed. It compares areas across the site to identify parts of the Project Area with higher ecological value, based on threatened species status and the occurrence of multiple valued habitats. The figure is intended to provide context on existing habitat values and support opportunities for avoidance and mitigation.

A scoring system was developed using a simplified exponential decay approach, with the highest value assigned to Critical Habitat for the highest-ranked threatened species. This reflects the assumption that habitat for a critically endangered species has greater ecological value than habitat for a vulnerable species, and that the loss of equivalent habitat would generally have a greater impact on a more highly threatened species. Where State and Commonwealth listings vary the higher listing category is applied. It is recognised that this approach reflects species conservation status at the time of assessment, acknowledging that listing categories may change over time as new information becomes available or species' conservation status is reassessed.

The values allocated to each listing status and habitat category are presented in Table 7.1. The maximum score applied is 25 points, which reflects both habitat value and threatened species listing status, and provides sufficient variation between scored values for each listing category. Individual species habitat scores are presented in Table 7.2.

The result of the ecological sensitivity mapping is captured in Figure 7.1.

Table 7.1 Habitat scoring

Threatened listing	***Scale of value***				
	Critically Endangered	***Endangered***	***Vulnerable***	***Near Threatened/ Special Least Concern***	***Least Concern***
Critical Habitat	25	12.5	6.25	3.125	0
Habitat	10	5	2.5	1.25	0

Table 7.2 Species and habitat scores

Species	Listing EPBC Act	State NC Act	Habitat category and value ranking			
			Habitat category	Identified value	Habitat category	Identified value
Tiliqua scincoides intermedia (Northern Blue-tongued Skink)	Critically Endangered	Critically Endangered	Critical Habitat	25	Habitat	10
Varanus mertensi (Merten's Water Monitor)	*Endangered*	*Endangered*	Critical Habitat	12.5	Habitat	5
Emydura subglobosa worrelli (Diamond Head Turtle)	-	*Near Threatened*	-	-	Habitat	1.25
Acanthophis hawkei (Plains Death Adder)	*Vulnerable*	*Vulnerable*	-	-	Habitat	2.5
Petrogale purpureicollis (Purple-necked Rock-wallaby)	-	*Vulnerable*	-	-	Habitat	2.5
Tachyglossus aculeatus (Short-beaked Echidna)	-	*Special least concern*	-	-	Habitat	1.25
Falco hypoleucos (Grey Falcon)	*Vulnerable*	*Vulnerable*	-	-	Habitat	2.5
Macroderma gigas (Ghost Bat)	*Vulnerable*	*Endangered*	-	-	Habitat	5
Amytornis dorotheae (Carpentarian Grasswren)	*Endangered*	*Endangered*	Critical Habitat	12.5	Habitat	5
Grantiella picta (Painted Honeyeater)	*Vulnerable*	*Vulnerable*	-	-	Habitat	2.5
Ipomoea antonschmidii	-	*Near Threatened*	-	-	Habitat	1.25
Dichanthium setosum (Bluegrass)	*Vulnerable*	*Least concern*	-	-	Habitat	2.5
Livistona rigida (Fan Palm)	-	*Special least concern*	-	-	Habitat	1.25

Source: EMM (2026); Harmony (2026); DNRMMRRD (2025); ESRI (2026); GA (2011)

0 2.5 5 km

GDA 1994 MGA Zone 54

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KEY

- Project area

Ecological sensitivity

- Higher
- Moderate
- Lower

Existing environment

- Major road
- Named watercourse

Ecological sensitivity map

Eva Copper Project
Contemporary Baseline Ecological Values Report
Figure 7.1

EMM
creating opportunities

8 Conclusion

This report presents a comprehensive and contemporary assessment of the ecological values of the Eva Copper Mine Project Area, consolidating previous investigations with contemporary field surveys undertaken between 2021 and 2026 to provide a single, integrated description of the terrestrial and aquatic ecological values of the Project Area. The investigations encompass terrestrial and aquatic ecosystems, flora, fauna, vegetation communities, groundwater-dependent ecosystems and stygofauna, and have been undertaken in accordance with relevant State and Commonwealth survey guidelines. Collectively, these investigations provide a robust and representative characterisation of the existing ecological environment.

The assessment confirms that the Project Area supports a diverse range of ecological values, including habitat for a number of threatened species and ecological communities protected under Queensland and Commonwealth legislation. Habitat modelling and mapping and species-specific assessments have been completed for all threatened species considered to have a moderate or greater likelihood of occurrence, providing a sound technical basis for subsequent impact assessment, mitigation design and environmental management.

Overall, the information presented in this report establishes a robust contemporary ecological baseline for the Project Area. It provides the foundation for Project decision making, the assessment of direct, indirect and cumulative ecological impacts associated with the Project, supports regulatory approvals, the identification of appropriate avoidance, mitigation and management measures, and establishes a benchmark against which future monitoring and environmental performance can be measured throughout the life of the Project.

Abbreviations

Term	Definition
AHD	Australian height datum
ALA	Atlas of Living Australia
AUSRIVAS	Australian River Assessment System
Biosecurity Act	*Biosecurity Act 2014*
BoM	Bureau of Meteorology
CEEVNT	critically endangered, endangered, vulnerable and near threatened
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DRDMW	Department of Regional Development, Manufacturing and Water's
DTGW	deep depth to groundwater
EMM	EMM Consulting Pty Ltd
EO Act	*Environmental Offsets Act 2014*
EO Regulation	*Environmental Offsets Regulation 2014*
EP Act	*Environmental Protection Act 1994*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Sensitive Area
Fisheries Act	*Fisheries Act 1994*
GDEs	groundwater dependent ecosystems
GIS	global information system
GTRE	ground-truthed regional ecosystem
ha	hectares
Harmony	Harmony Gold Mining Company Limited
km	kilometres
LGA	local government area
LoO	Likelihood of Occurrence
LWP	leaf water potential
mg/L	milligrams per litre
ML	Mining Lease
mm	millimetres
MNES	Matters of National Environmental Significance
MR Act	*Mineral Resources Act 1989*
MSES	Matter of State Environmental Significance
Mt	million tonnes

Term	Definition
Mtpa	million tonnes per annum
NAF	non-acid forming
NAPCo	North Australian Pastoral Company
Native Title Act	*Native Title Act 1993*
NC Act	*Nature Conservation Act 1992*
PET	Plecoptera-Ephemeroptera-Tricoptera
Planning Act	Planning Act 2016
PMAV	Property Map of Assessable Vegetation
PMST	Protected Matters Search Tool
REDD	Regional Ecosystem Description Database
REs	Regional Ecosystems
ROM	run-of-mine
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SME	Subject Matter Expert
SMP	Species Management Program
SPRAT	Species Profile and Threats Database
SRI	Significant Residual Impact
TDS	Total Dissolved Solid
TECs	threatened ecological communities
TSF	tailings storage facility
UWIR	underground water impact report
VM	Vegetation management
VM Act	Vegetation Management Act 1999
Water Act	Water Act 2000
WRDs	waste rock dumps
WWBW	Waterway Barrier Works

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Annexure A
Desktop searches

EMM
creating opportunities

A.1 Protected Matters Search report

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 27-Mar-2026

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	19
Listed Migratory Species:	14

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	8
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis dorotheae Carpentarian Grasswren [558]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Chloebia gouldiae listed as Erythrura gouldiae Gouldian Finch [90091]	Endangered	Species or species habitat known to occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pezoporus occidentalis](#) Night Parrot [59350]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In buffer area only
MAMMAL			
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Macrotis lagotis](#) Greater Bilby [282]	Vulnerable	Species or species habitat may occur within area	In feature area
[Sminthopsis douglasi](#) Julia Creek Dunnart [305]	Vulnerable	Species or species habitat may occur within area	In feature area
PLANT			
[Eucalyptus nudicaulis](#) Mt Isa Mallee [55399]	Endangered	Species or species habitat likely to occur within area	In buffer area only
REPTILE			
[Acanthophis hawkei](#) Plains Death Adder [83821]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Elseya lavarackorum](#) Gulf Snapping Turtle [67197]	Endangered	Species or species habitat may occur within area	In feature area
[Varanus mertensi](#) Mertens' Water Monitor [1568]	Endangered	Species or species habitat known to occur within area	In feature area
SHARK			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Marine Species			
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
[Glareola maldivarum](#) Oriental Pratincole [840]		Species or species habitat may occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat may occur within area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Department of Defence		
DSTG - Cloncurry Airport [DD_1001]	QLD	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Anseranas semipalmata](#) Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Bubulcus ibis as Ardea ibis](#) Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
[Chalcites osculans as Chrysococcyx osculans](#) Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
[Glareola maldivarum](#) Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area	In feature area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundo rustica			
Barn Swallow [662]		Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus			
Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea			
Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat may occur within area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In buffer area only
Reptile			
Crocodylus johnstoni			
Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Ballara	Nature Refuge	QLD	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
CopperString Transmission Line Project, Nth Qld	2019/8416		Post-Approval	In buffer area only
Dugald River Wind Farm	2024/09807		Completed	In feature area
Dugald River Wind Farm ? Optimised Design	2024/10090		Completed	In feature area
Mount Isa Connection Project	2024/10025		Assessment	In buffer area only
Controlled action				
CopperString Project	2010/5581	Controlled Action	Completed	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Dugald River Zinc and Lead Mine extension, Qld	2015/7573	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Extension of the Mount Colin open cut copper mine & development of a new underground copper mine, QL	2013/6958	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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A.2 WildNet results

WN Taxon ID	Kingdom	Class	Family	Scientific name	Common name	NCA status	EPBC status	Superseded	Conservation significant	Establishment	Sensitive species	Area survey lists	Sighting records	Specimen records	Sighting summary
1965	Animalia	Aves	Apodidae	Apus pacificus	fork-tailed swift	SL		No	Yes	QAI	No		2	0	2
1705	Animalia	Aves	Falconidae	Falco hypoleucos	grey falcon	V	V	No	Yes	QA	Yes		3	0	3
1896	Animalia	Aves	Laridae	Hydroprogne caspia	Caspian tern	SL		No	Yes	QAI	No		4	0	4
1564	Animalia	Aves	Maluridae	Amytornis dorotheae	Carpentarian grasswren	E	E	No	Yes	QA	Yes		2	0	2
1569	Animalia	Aves	Maluridae	Malurus coronatus	purple-crowned fairy-wren	V		No	Yes	QA	No		2	2	2
1521	Animalia	Aves	Meliphagidae	Grantiella picta	painted honeyeater	V	V	No	Yes	QA	No		1	0	1
1127	Animalia	Aves	Psittaculidae	Polytelis alexandrae	princess parrot	C	V	No	Yes	VU	No		1	0	1
1874	Animalia	Aves	Scolopacidae	Calidris acuminata	sharp-tailed sandpiper	V	V	No	Yes	QAI	No		1	0	1
1825	Animalia	Aves	Threskiornithidae	Plegadis falcinellus	glossy ibis	SL		No	Yes	QAI	No		3	0	3
888	Animalia	Mammalia	Macropodidae	Petrogale purpureicollis	purple-necked rock-wallaby	V		No	Yes	Q	No		87	1	87
838	Animalia	Mammalia	Tachyglossidae	Tachyglossus aculeatus	short-beaked echidna	SL		No	Yes	QAI	No		10	0	10
584	Animalia	Reptilia	Crocodylidae	Crocodylus porosus	estuarine crocodile	V		No	Yes	QAI	No		1	1	1
66	Animalia	Reptilia	Varanidae	Varanus mertensi	Mertens' water monitor	E	E	No	Yes	QA	No		6	0	6
12375	Plantae	Equisetopsida	Amaranthaceae	Ptilotus maconochiei		NT		No	Yes	NTQ	No		1	1	1
12779	Plantae	Equisetopsida	Arecaceae	Livistona rigida		SL		No	Yes	NTQ	No		9	4	9
9922	Plantae	Equisetopsida	Convolvulaceae	Ipomoea antonschmidii		NT		No	Yes	NTQ	No		6	6	6
14366	Plantae	Equisetopsida	Hydrocharitaceae	Najas tenuifolia	water nymph	SL		No	Yes	NTQ	No		1	1	1
10401	Plantae	Equisetopsida	Poaceae	Dichanthium setosum		C	V	No	Yes	NTQ	No		1	1	1
13099	Plantae	Equisetopsida	Potamogetonaceae	Potamogeton crispus	curly pondweed	SL		No	Yes	NTQ	No		1	1	1
16237	Plantae	Equisetopsida	Santalaceae	Santalum lanceolatum		SL		No	Yes	NTQ	No		8	0	8
13257	Plantae	Equisetopsida	Sterculiaceae	Brachychiton collinus		SL		No	Yes	NTQ	No		6	0	6

Annexure B

Likelihood of occurrence criteria and definitions

EMM
creating opportunities

Table B.1 Likelihood of occurrence criteria and definitions

Likelihood	Definition	Further assessment required?
Known	Confirmed ECMPL sighting (either an individual or sign (e.g. confirmed scat or bone) within the Project Area during a survey by known reputable source.	Yes
High	Recent record (<20 years) within the Project Area by a valid data base AND: • The record is considered valid and there is high spatial confidence of record • There is confirmed preferred habitat available in Project Area AND/OR • the species known distribution is within the Project Area.	Yes
	Recent record (<20 years) within the Project Area by a valid data base AND: • The record is considered valid and there is high spatial confidence of record there is suitable habitat within the Project Area AND/OR • the species has mapped essential habitat in the Project Area or within the Primary Study Area (i.e. 20 km buffer of the Project Area).	
	Recent record (<20 years) within the Primary Study Area 20 km buffer of the Project Area by an unknown source (such as record databases WildNet and Atlas of Living Australia) AND: • the record is considered valid and there is high spatial confidence of the record AND/OR • there is suitable habitat within the Project Area for this species. *Consideration has been given to limitations to sampling effort in the region, the species' detectability (e.g. cryptic species) and fauna species likely to regularly occur within the Project Area during migratory, short-distance season or nomadic movements and their dispersal range, recognising that absence of records does not necessarily indicate absence.*	
Moderate	Recent record (<20 years) within the Project Area by a valid data base AND: • there is suitable habitat AND/OR • preferred habitat is known to be present within the Project Area AND/OR • area of impact may be within habitat corridor.	Yes
	Recent record (<20 years) within the Project Area by a valid data base BUT there is little to no suitable habitat present (or if present, modified and degraded) in the Project Area, HOWEVER the area of impact is within the species habitat corridor.	

Likelihood	Definition	Further assessment required?
	The species has been recorded in the Project Area by a valid data base within 20 years AND: • there is suitable habitat in the Project Area AND/OR • the species has mapped habitat (e.g. essential habitat) in the Project Area AND/OR • preferred habitat is known to be present within the Project Area AND/OR • area of impact may be within habitat corridor.	
	The species has been recorded by valid data base or ECMPL (within the last 20 years) in the Secondary Study Area (50 km buffer of the Project Area) AND: • there is confirmed preferred habitat available AND/OR • the species known distribution is within the Project Area AND/OR • there is suitable habitat in the Project Area AND/OR • the species has mapped habitat (e.g. essential habitat) in the Project Area.	
	The species has been recorded by a valid data base or ECMPL (within the last 20 years) in the Secondary Study Area (50 km buffer of the Project Area) AND: • the Project Area could support the species occasionally during migratory, short-distance season or nomadic movements AND/OR • the Project Area is in species known distribution for dispersal.	
Low	Recent record (<20 years) within the Project Area by an unknown source valid data base BUT: • suitable habitat is not present (or if present, modified and degraded) in the Project Area AND/OR • Provides suboptimal habitat, that may include no connectivity between area of potential habitat/ outside distribution.	No
	The species has been recorded in the Project Area by a valid data base within 20 years BUT: • there is little to no suitable habitat present (or if present, modified and degraded) in the Project Area AND/OR • of impact area may be within habitat corridor.	

Likelihood	Definition	Further assessment required?
	The species has been recorded by a valid data base within (within the last 20 years) in the Secondary Study Area (50 km buffer of the Project Area) AND: • there is no suitable habitat in the Project Area BUT there is suitable habitat in the Secondary Study Area AND • preferred habitat is known in the Secondary Study Area, but not in the Project Area AND/OR • area of impact may be within habitat corridor AND/OR • short-distance season or nomadic movements AND/OR • The Project Area is in species known distribution for dispersal.	
	No records, OR species is considered extinct BUT: • there is confirmed preferred habitat available AND/OR • the species known distribution is within the Project Area. • there is suitable habitat in the Project Area OR • the species has mapped habitat (e.g. essential habitat) in the 50 km Buffer Area • suitable habitat to be present within the Project Area OR • area of impact may be within habitat corridor.	
Unlikely	The Project Area does not contain any records of the species within the last 20 years: • AND there is no suitable habitat for the species • AND the Project Area is outside the species known distribution.	No
	The Secondary Study Area (i.e. 50 km from the Project Area) contains a valid record within the last 20 years BUT there is very little to no suitable habitat present in the Project Area OR there is little suboptimal habitat or areas of habitat present are highly modified and degraded to a point it could not support the species.	
	No records within the Project Area, Primary Study Area or Secondary Study Area, species is considered extinct AND there is little to no suitable habitat present in the Project Area AND the species is either very scarce or absent in the surrounding region. The species is deemed unlikely to occur within the Project Area based on the aforementioned factors.	

Annexure C

Likelihood of occurrence analysis

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Table C.1 Likelihood of occurrence analysis

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Birds																						
Actitis hypoleucos	Common Sandpiper	Special Least Concern	Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species may occur within the Project Area, in the form of riverbeds, open water or sand in riparian areas. No permanent wetland habitat occurs in the Project Area.	The species has been recorded from a wide range of wetland habitats, of varying levels of salinity including marine and wetland habitat. The species typically forages in shallow water and on bare soft mud at the edges of wetlands (Higgins & Davies 1996).	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic birds: Volume 3, Snipe to pigeons. Oxford University Press.	There are no records of this species within the Project Area, primary buffer or secondary buffer. Marginal suitable habitat for this species may occur within the Project Area, in the form of ephemeral riverbeds, although this is not the preferred habitat type for this species. The species is unlikely to occur in the Project area during dry periods.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. Marginal suitable habitat for this species may occur within the Project Area, in the form of ephemeral riverbeds, although this is not the preferred habitat type for this species. The species is unlikely to occur in the Project area during dry periods.	Low	No
Amytornis dorotheae	Carpentarian Grasswren	Endangered	Endangered	Species or species habitat known to occur within area	In feature area	0	0	No	0	No	0	Yes	0	Targeted surveys did not detect this species in the Project area. Targeted surveys were conducted in 2022, 2023, 2025 and 2026. **Total survey effort:** Bird area searches: 24 hours Bird point count: 14.5 hours	Marginal suitable habitat occurs within the Project area. The Project area lies within the known distribution of this species. Areas mapped as RE 1.11.3a have the potential to provide suitable habitat for this species in the form of low open woodlands of *Corymbia terminalis* and/or *Eucalyptus leucophylla* with Acacia spp. dominated shrub layer and ground layer of Triodia spp. and/or tussock grasses, however, previous targeted searches identified that areas of spinnifex have recently been burnt and thus do not provide suitable habitat presently.	The Carpentarian Grasswren is endemic to the southern Gulf of Carpentaria region of northern Australia (Higgins et al., 2001). Historically the species was known from four separate areas between the Tawallah Range/Limmen Bight River in the Northern Territory and Gunpowder in north-west Queensland (McKean & Martin 1989; Murphy et al., 2011); Borroloola, Wollogorang, Boodjamulla and Mt Isa. The Carpentarian Grasswren is confined to sandstone outcrops in mature spinifex (Triodia spp.) hummock grassland in the northern part of its range, while in the southern part of its range it occupies long-unburnt spinifex with stony areas between the hummocks on which grow a range of short grasses, forbs and patchy low trees and shrubs (McKean & Martin 1989; Rowley & Russell 1997). Grasswrens normally abandon burnt areas, unless substantial unburnt pockets of spinifex remain (Garnett et al., 2011), with recolonisation occurring after three to four years depending on levels of rainfall, vegetation regeneration rates and the persistence of nearby source populations (Harrington et al., 2009).	McKean, J. L., & Martin, A. A. (1989). The Carpentarian grasswren, Amytornis dorotheae: Distribution, habitat and conservation status. Emu, 89(2), 73–80. Rowley, I., & Russell, E. (1997). Fairy-wrens and grasswrens: Maluridae. Oxford University Press. Garnett, S. T., Szabo, J. K., & Dutson, G. (2011). The action plan for Australian birds 2010. CSIRO Publishing. Harrington, G. N., Murphy, B. P., & Woinarski, J. C. Z. (2009). Fire, grazing and habitat use by the Carpentarian grasswren (Amytornis dorotheae). Wildlife Research, 36(7), 613–623.	ALA records exist for this species in the secondary buffer of the Project area. The Project area lies within the broader known distribution of this species. Areas mapped as RE 1.11.3a and 1.11.2 have the potential to provide suitable habitat for this species in the form of low open woodlands of *Corymbia terminalis* and/or *Eucalyptus leucophylla* and/or *E. leucophloia* with Acacia spp. dominated shrub layer and ground layer of Triodia spp. and/or tussock grasses, however, targeted searches identified that some areas of spinifex have recently been burnt and thus do not provide suitable habitat. Where mature spinifex occurs within the Project area, this species has moderate potential to occur.	Moderate	ALA records exist for this species in the secondary buffer of the Project area. The Project area lies within the broader known distribution of this species. Areas mapped as RE 1.11.3a and 1.11.2 have the potential to provide suitable habitat for this species in the form of low open woodlands of *Corymbia terminalis* and/or *Eucalyptus leucophylla* and/or *E. leucophloia* with Acacia spp. dominated shrub layer and ground layer of Triodia spp. and/or tussock grasses, however, targeted searches identified that some areas of spinifex have recently been burnt and thus do not provide suitable habitat. Where mature spinifex occurs within the Project area, this species has moderate potential to occur. The species overlaps in habitat with the Kalkadoon Grasswren which has been observed within the Project area on several occasions. The species likelihood of occurring is moderate in line with expert advice.	Moderate	Yes
Apus pacificus	Fork-tailed Swift	Special Least Concern	Marine; Migratory	Species or species habitat likely to occur within area	In feature area	1	0	No	0	No	0	Yes	1	Targeted surveys did not detect this species in the Project area. Targeted species surveys have been conducted from 2022 - 2026. **Total survey effort:** Bird area searches: 46.7 person hours Bird point count: 66 person hours	Suitable aerial habitat known to occur within the Project area. The Project area lies west of the line joining Chinchilla and Hughenden, which is within the known distribution for this species.	There are scattered records of the Fork-tailed Swift in the Gulf Country, and a few records on Cape York Peninsula. In the north-east region there are many records east of the Great Divide from near Cooktown and south to Townsville. They are also widespread but scattered in coastal areas from 20° S, south to Brisbane and in much of the south south-eastern region. They are more widespread west of the Great Divide, and are commonly found west of the line joining Chinchilla and Hughenden. They are found to the west between Richmond and Winton, Longreach, Gowan Range, Maraila National Park and Dirranbandi. They are rarely found further west to Windorah and Thargomindah (Higgins 1999).	Higgins, P. J. (Ed.). (1999). Handbook of Australian, New Zealand and Antarctic birds: Volume 4, Parrots to dollarbird. Oxford University Press.	Confirmed ECMPL sighting within the Project area during BBUS surveys for the Eva Copper Wind Farm. The Project area lies within the known distribution for this species and presents suitable aerial habitat only	Known	Confirmed ECMPL sighting within the Project area during BBUS surveys for the Eva Copper Wind Farm. The Project area lies within the known distribution for this species and presents suitable aerial habitat only	Known	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Calidris acuminata	Sharp-tailed Sandpiper	Vulnerable	Vulnerable; Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species may occur within the Project area, in the form of riverbeds, open water or sand in riparian areas such as Cabbage Tree Creek. No permanent wetland habitat occurs in the Project area, however, during periods of flooding there may be some suitable habitat for this migratory species.	The Sharp-tailed Sandpiper migrates to Australia during the non-breeding season, primarily found along the coast in brackish lagoons, lakes, and other still waters. Inland, it is seen in low numbers, particularly in central and south-western Queensland, where it prefers the muddy edges of flooded grasslands, dams, waterholes, swamps, or lakes (Higgins and Danies 1996). The species is widespread across Australia, inhabiting both freshwater and saline environments, and is also found across the Pacific. It feeds along the edges of mudflats, coastal and inland wetlands, and sewage ponds, and may also forage on agricultural pastures after rainfall. For roosting, it uses rocky and sandy beaches, as well as freshwater and inland saltwater habitats (DCCEEW 2024)	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic birds: Volume 3, Snipe to pigeons. Oxford University Press. Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Sharp-tailed Sandpiper (Calidris acuminata). Australian Government. https://www.dcceew.gov.au	ALA records exist for this species in the secondary buffer of the Project area, with the most recent record dating back to 2004. Though the Project area is outside of the preferred range for this species, marginal suitable habitat for this species may occur within the Project area during periods of high rainfall. The species is unlikely to occur in the Project area during dry periods.	Low	ALA records exist for this species in the secondary buffer of the Project area, with the most recent record dating back to 2004. Though the Project area is outside of the preferred range for this species, marginal suitable habitat for this species may occur within the Project area during periods of high rainfall. The species is unlikely to occur in the Project area during dry periods.	Low	No
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	Critically Endangered; Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species may occur within the Project area, in the form of riverbeds, open water or sand in riparian areas such as Pinnacle Creek. No permanent wetland habitat occurs in the Project area, however, during periods of flooding, there may be some suitable habitat for this migratory species.	This migratory shorebird is found primarily along the coast with widespread distribution inland in small numbers. They can be found inland around ephemeral and permanent water sources with bare edges of sand or mud. They mainly inhabit Australia in the non-breeding season; however, some birds may not migrate North and instead remain in Australia for their first breeding season (Higgins & Davies 1996). Mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (TSSC 2015).	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic birds: Volume 3, Snipe to pigeons. Oxford University Press. Threatened Species Scientific Committee (TSSC). (2015). Conservation advice for *Calidris ferruginea* (curlew sandpiper). Department of the Environment, Australian Government. https://www.environment.gov.au	ALA records exist for this species in the secondary buffer of the Project area, however, these records date back to 1977. Though the Project area is outside of the preferred range for this species, marginal suitable habitat for this species may occur within the Project area during periods of high rainfall. The species is unlikely to occur in the Project area during dry periods.	Unlikely	ALA records exist for this species in the secondary buffer of the Project area, however, these records date back to 1977. Though the Project area is outside of the preferred range for this species, marginal suitable habitat for this species may occur within the Project area during periods of high rainfall. The species is unlikely to occur in the Project area during dry periods.	Unlikely	No
Calidris melanotos	Pectoral Sandpiper	Special Least Concern	Marine; Migratory	Species or species habitat likely to occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species may occur within the Project Area, in the form of riverbeds and flooding plains. No permanent lagoon or estuary habitat occurs in the Project Area, however, during periods of flooding, there may be some suitable habitat for this migratory species.	On migration and in winter, the Pectoral Sandpiper is typically found in freshwater habitats usually coastal or near-coastal, but occasionally farther inland. This includes: coastal lagoons, estuaries, swamps, lakes, creeks, floodplains, and artificial wetlands. Wetlands often have open fringing mudflats, and low, emergent or fringing vegetation.	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic birds: Volume 3, Snipe to pigeons. Oxford University Press. Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Pectoral Sandpiper (Calidris melanotos). Australian Government. https://www.dcceew.gov.au	There are no records of this species within the Project Area, primary buffer or secondary buffer. No wetland habitat occurs within the Project Area.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. No wetland habitat occurs within the Project Area.	Low	No
Charadrius veredus	Oriental Plover	Special Least Concern	Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Suitable habitat for this species is likely present in the Project Area. This species prefers flat inland plains, sparsely vegetated short grass with hard bare ground including claypans. The Project Area is predominantly mapped as low open woodland. Some areas of tussock grasslands on clay plains, mapped as Broad Vegetation Group 30b, occur in the north-west of the Project Area and may provide some suitable habitat for this species.	The Oriental Plover is found generally inland; in open grasslands in arid and semi-arid zones; and less often in estuarine or littoral environments. This species prefers flat inland plains, sparsely vegetated short grass with hard bare ground including claypans, playing fields, lawns and cattle camps. The Oriental Plover may move to lightly-wooded grasslands with the onset of the wet season.	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic birds: Volume 2, Raptors to lapwings. Oxford University Press.	There are no records of this species within the Project Area, primary buffer or secondary buffer. Some areas of tussock grasslands on clay plains, mapped as Broad Vegetation Group 30b, occur in the north-west of the Project Area and may provide some suitable habitat for this species. Due to the lack of records, this species is considered unlikely to occur in the Project Area.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. Some areas of tussock grasslands on clay plains, mapped as Broad Vegetation Group 30b, occur in the north-west of the Project Area and may provide some suitable habitat for this species. Due to the lack of records, this species is considered unlikely to occur in the Project Area.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Chloebia gouldiae	Gouldian Finch	Endangered	Endangered	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys did not detect this species in the Project Area. Targeted searches have been conducted in years 2022, 2023, 2025 and 2026. **Total survey effort:** Bird area searches: 46.7 hours Bird point count: 45 hours Camera trap: 5 trap-nights	Suitable habitat is likely to occur within the Project Area. The Project Area is predominantly mapped as open woodland. This species feeds on a variety of grass seeds and breeds in open woodlands usually within 2-4 km of perennial waterholes or springs.	Gouldian finches may congregate around waterholes when coming to drink, although groups may arrive at waterholes independently. They are regularly observed in mixed flocks with other species of finches, particularly the long-tailed finch (*Poephila acuticauda*). Gouldian finches feed almost exclusively on grass seed and depend on a relatively small number of grass species which seed at different times throughout the year (Dostine & Franklin 2002; O'Malley 2006). In the wet season, they rely on a small number of perennial grass species, consuming the seeds directly off plants as they ripen. In the dry season, they depend on the large volume of annual grass seed that is produced towards the end of the previous wet season and lies dormant on the ground (Dostine et al., 2001) They nest in tree hollows between April-July (although this period is extended is some years), lay an average clutch of five eggs, and may raise several clutches in a season, with productivity averaging 1.5 fledglings per adult per season (Tidemann et al., 1999). When breeding they use small patches of open woodland, usually on ridges dominated by cavity bearing trees such as white northern gum (*Eucalyptus brevifolia*) in the west and Territory salmon gum (*E. tintinnans*) n the east (Tidemann et al., 1992a), with an understory of grasses such as sorghum (*Sarga* spp.), *Schizachyrium* spp. and spinifex (Triodia spp.), and usually within 2-4 km of perennial waterholes or springs (Dostine et al., 2001; O'Malley 2006). After breeding they tend to flock and move across the broader landscape, following grass seed resources (O'Malley 2006). The lifespan of wild Gouldian finches may be relatively short; high adult mortality following breeding is suggested by the very small number of adults (but much higher numbers of juveniles) present towards the end of the year (Legge, pers comm., 2016), and by banding studies that consistently note very low recapture rates (e.g. Woinarski & Tidemann 1992; Legge, pers comm., 2016). A generation time of 2.7 years is derived from an age at first breeding of 1.0 years and maximum longevity in the wild of 4.4 years (Garnett et al., 2011).	Dostine, P. L., & Franklin, D. C. (2002). A grass seed resource for Gouldian finches in the Northern Territory. Wildlife Research, 29(3), 233–242. Dostine, P. L., Franklin, D. C., & others. (2001). Seed resource availability and diet of Gouldian finches in northern Australia. Wildlife Research, 28, 123–134. O'Malley, C. (2006). The ecology and conservation of the Gouldian Finch (Erythrura gouldiae). PhD thesis, Charles Darwin University. Tidemann, S. C., Boyden, J., & Elwood, D. (1992). Breeding biology of the Gouldian Finch. Emu, 92(3), 139–146. Tidemann, S. C., & others. (1999). Reproductive success of Gouldian finches in relation to habitat. Emu, 99(2), 123–131. Woinarski, J. C. Z., & Tidemann, S. C. (1992). Survival and banding studies of the Gouldian Finch. Wildlife Research, 19(5), 521–531. Legge, S. (2016). Personal communication. Garnett, S. T., Szabo, J. K., & Dutson, G. (2011). The action plan for Australian birds 2010. CSIRO Publishing.	There are no records of this species within the Project Area, primary buffer or secondary buffer. Suitable habitat occurs in the Project area. Targeted surveys did not detect this species. Due to the lack of records and absence of individuals during targeted surveys, there is a low likelihood that this species would occur in the Project Area.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. Suitable habitat occurs in the Project area. Targeted surveys did not detect this species. Due to the lack of records and absence of individuals during targeted surveys, there is a low likelihood that this species would occur in the Project Area.	Low	No
Erythrotriorchis radiatus	Red Goshawk	Endangered	Endangered	Species or species habitat known to occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys did not detect this species in the Project Area. Targeted surveys were conducted from 2022 - 2026. **Total survey effort:** Bird area searches: 46.7 person hours Bird point count: 66 person hours	Suitable habitat present within the Project Area. The Project Area lies within the known distribution for this species and includes intact woodlands with a mosaic of open vegetation types, preferred by this species.	The species inhabits coastal and sub-coastal tall open forests and woodlands, tropical savannas traversed by wooded or forested rivers, and the edges of rainforests (Marchant & Higgins 1993). Resident pairs of red goshawks prefer intact, extensive woodlands and forests with a mosaic of open vegetation types that are suitable for fast manoeuvring flight (Marchant & Higgins 1993). Favoured areas appear to contain permanent water, as they are relatively fertile and biologically rich, and support large populations of bird prey species and more likely to have nesting trees. In partly cleared parts of eastern Queensland the species is associated with gorge and escarpment country (Czechura & Hobson 2000; Czechura et al. 2010). Wetlands also constitute important foraging habitat particularly during the winter months when birds begin to congregate as waterbodies begin to dry out. Red goshawks hunt live prey with medium to large sized birds making up 95% of the species' diet, although they also take mammals, reptiles and insects (Czechura & Hobson 2000).	Marchant, S., & Higgins, P. J. (Eds.). (1993). Handbook of Australian, New Zealand and Antarctic birds: Volume 2, Raptors to lapwings. Oxford University Press. Czechura, G. V., & Hobson, R. G. (2000). The Red Goshawk Erythrotriorchis radiatus in Queensland: Distribution, status and conservation. Sunbird, 30(1), 1–10. Czechura, G. V., Hobson, R. G., & others. (2010). Status and ecology of the Red Goshawk in Queensland. Queensland Museum. Cupper, J., & Cupper, L. (1981). Birds of Australia's top end. Angus & Robertson. Aumann, T., & Baker-Gabb, D. J. (1991). The ecology and status of the Red Goshawk in northern	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the known distribution for this species and includes intact woodlands with a mosaic of open vegetation types, preferred by this species. Targeted surveys did not detect this species. Due to the lack of records and extensive targeted surveys for this species, it there is a low likelihood that this species would occur in the Project Area.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the known distribution for this species and includes intact woodlands with a mosaic of open vegetation types, preferred by this species. Targeted surveys did not detect this species. Due to the lack of records and extensive targeted surveys for this species, it there is a low likelihood that this species would occur in the Project Area.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
																Males mostly capture birds the size of the rainbow lorikeet (*Trichoglossus haematodus*) and barshouldered dove (*Geopelia humeralis*), while females commonly kill birds the size of the redtailed black-cockatoo (*Calyptorhynchus banksii*) and blue-winged kookaburra (*Dacelo leachii*) (Cupper & Cupper 1981; Aumann & Baker-Gabb 1991). The species primarily captures its prey by short-stay perch.	Australia. Emu, 91(2), 73–85.				
Falco hypoleucos	Grey Falcon	Vulnerable	Vulnerable	Species or species habitat known to occur within area	In feature area	0	0	No	0	No	0	Yes	0	Targeted surveys did not detect this species in the Project Area. Targeted surveys were conducted from 2022 - 2026. **Total survey effort:** Bird area searches: 46.7 person hours Bird point count: 66 person hours	Suitable habitat known to occur within the Project Area. The Project Area lies within the known distribution for this species. Open woodland with tussock understorey known to occur within the Project Area.	The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses (Garnett et al. 2011; Watson 2011; Schoenjahn 2013, 2018; Janse et al. 2015; Ley and Tynan 2016). The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (Olsen and Olsen 1986; Schoenjahn 2018).	Garnett, S. T., Szabo, J. K., & Dutson, G. (2011). The action plan for Australian birds 2010. CSIRO Publishing. Watson, J. E. M. (2011). The ecology and conservation of Australia's threatened birds. CSIRO Publishing. Schoenjahn, J. (2013). Habitat use and ecology of grassland raptors in northern Australia. PhD thesis, Charles Darwin University. Schoenjahn, J. (2018). Ecology and conservation of northern Australian raptors. Northern Territory Government. Janse, M., et al. (2015). Habitat use by raptors in tropical savannas. Wildlife Research, 42(3), 200–210. Ley, A. J., & Tynan, B. (2016). Distribution and habitat of grassland raptors in Queensland. Sunbird, 46(1), 1–15. Olsen, P., & Olsen, J. (1986). Ecology of raptors in Australian grasslands. Emu, 86(2), 75–82.	This species is known to occur in the secondary buffer of the Project Area, however, targeted surveys for this species did not detect it. Suitable habitat for this species is known to occur within the Project Area, in the form of open woodland with tussock understorey and riparian corridors. Due to the presence of suitable habitat, despite lack of records, the species is considered to possibly occur. It is assumed there is a gap of records due to the remote nature of the Project area.	Moderate	This species is known to occur in the secondary buffer of the Project Area, however, targeted surveys for this species did not detect it. Suitable habitat for this species is known to occur within the Project Area, in the form of open woodland with tussock understorey and riparian corridors. Due to the presence of suitable habitat, despite lack of records, the species is considered to possibly occur. It is assumed there is a gap of records due to the remote nature of the Project area.	Moderate	No
Grantiella picta	Painted Honeyeater	Special Least Concern	Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have detected this species in the Project area. Surveys have been conducted in 2022, 2023 and 2025. **Total survey effort:** Bird area searches: 82.7 person hours	Suitable habitat known to occur within the study area in the form of dry, open eucalypt woodland.	The Painted Honeyeater is a nomadic species, primarily concentrated in the inland slopes of the Great Dividing Range across New South Wales, Victoria, and southern Queensland. It breeds mainly in these areas (DoE 2015). Its key habitats include Boree/Weeping Myall, Brigalow woodlands, box-gum woodlands, and box-ironbark forests. A specialist feeder, it relies on mistletoe fruits, especially those from the genus Amyema, found on eucalypts and acacias (DoE 2015). The species thrives in eucalypt and riparian woodlands, as well as Acacia-dominated woodlands, Paperbarks, Casuarina, and trees on farmland or gardens. It favours woodlands with mature trees, as these host more mistletoes, and is more common in larger woodland blocks than narrow strips. However, it can also breed in narrower roadside strips if ample mistletoe fruit is available (Rowland 2012). Found mostly in dry open woodlands and forests, it is strongly associated with mistletoe, often occurring on plains with scattered eucalypts and remnant trees on farmlands.	Department of the Environment (DoE). (2015). Painted honeyeater (Grantiella picta) — Species profile and threats database. Australian Government. https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl Rowland, P. (2012). Birds of New South Wales: A photographic guide. CSIRO Publishing.	Confirmed ECMPL sighting within the Project area.	Known	Confirmed ECMPL sighting within the Project area.	Known	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Gallinago hardwickii	Latham's Snipe	Vulnerable	Vulnerable	Species or species habitat known to occur within area	In feature area	2	0	Yes	0	Yes	0	Yes	2	Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species within the Project area. No mudflat or estuary habitat occurs in the Project area, however, during periods of flooding, there may be shallow water habitat suitable for foraging.	Latham's snipe feed in soft mudflats or shallow water typically at night, early morning, or evening (BirdLife Australia 2021). The species is omnivorous and feeds on seeds and other plant material (mainly from species in families such as *Cyperaceae, Poaceae, Juncaceae, Polygonaceae, Ranunculaceae and Fabaceae*), and on invertebrates including insects (mainly flies and beetles), earthworms, spiders, and occasionally molluscs, isopods, and centipedes (Frith et al. 1977; Todd 2000). The species feeds by thrusting its long bill into mud with an up and down 'sewing machine' action. Roosting habitat Latham's snipe can roost singly and in aggregations. They shelter during the day in small wetlands including urban water bodies, saltmarshes, as well as creek edges, where there is adequate shallow flooded or inundated substrate. They also use crops and pasture. They mostly are found among dense cover comprising sedges, grasses, lignum, reeds, and rushes. The bird tends to disperse after dusk to forage over larger areas. Breeding habitat Latham's snipes breed in Hokkaido and highland areas of Honshu in Japan, and in Sakhalin and the nearby Kuril Islands of far eastern Russia. Breeding occurs in a variety of grassland habitats including meadowlands, croplands, dry reed and sedge fields, clearings and edges	BirdLife Australia. (2021). Latham's snipe (Gallinago hardwickii). BirdLife Australia. https://birdlife.org.au Frith, H. J., Davies, S. J. J. F., & Parker, S. A. (1977). Observations on the feeding and ecology of Latham's Snipe. Emu, 77(3), 113–121. Todd, S. (2000). Ecology and conservation of Latham's Snipe (Gallinago hardwickii) in Australia. Emu, 100(2), 151–158.	ALA records exist for this species in the secondary buffer of the Project area; however, these records date back to 1977. Though the Project area is outside of the preferred range for this species, marginal suitable habitat for this species may occur within the Project area during periods of high rainfall. The species is unlikely to occur in the Project area during dry periods.	Low	ALA records exist for this species in the secondary buffer of the Project area; however, these records date back to 1977. Though the Project area is outside of the preferred range for this species, marginal suitable habitat for this species may occur within the Project area during periods of high rainfall. The species is unlikely to occur in the Project area during dry periods.	Low	No
Glareola maldivarum	Oriental Pratincole	Vulnerable	Vulnerable; Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	Yes		Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species within the Project Area. No terrestrial wetland occurs within the Project Area. During periods of flooding, the Project Area may provide some suitable foraging habitat in the form of short grassland and floodplains.	In non-breeding grounds in Australia, the Oriental Pratincole usually inhabits open plains, floodplains or short grassland (including farmland or airstrips), often with extensive bare areas (Bravery 1970; Campbell 1920; Carruthers 1968; Garnett 1986; Jaensch 2004; Klapste 1977a; van Tets et al. 1969, 1977). They often occur near terrestrial wetlands, such as billabongs, lakes or creeks, and artificial wetlands such as reservoirs, saltworks and sewage farms, especially around the margins (Boekel 1980; Garnett 1986; Jaensch 1985, 2004; Liddy 1959; Lloyd & Lloyd 1991; Smith 1963a). The species also occurs along the coast, inhabiting beaches, mudflats and islands, or around coastal lagoons (Corben 1972b; Finch & Cox 1974; Garstone 1978; Hobbs & McGill 1973).	Bravery, J. A. (1970). Observations on the Oriental Pratincole in Australia. Emu, 70, 45–52. Campbell, A. J. (1920). Nests and eggs of Australian birds. Sheffield Press. Carruthers, R. K. (1968). Records of Oriental Pratincole in Queensland. Sunbird, 1, 12–15. Garnett, S. T. (1986). Habitat and status of the Oriental Pratincole in Australia. Emu, 86, 45–53. Jaensch, R. P. (1985). Waterbird use of wetlands in arid Australia. Royal Australasian Ornithologists Union. Jaensch, R. P. (2004). Ecology of migratory shorebirds in Australia. CSIRO Publishing. Klapste, J. (1977). Observations of Oriental Pratincole in South Australia. South Australian Ornithologist, 27, 101–104. van Tets, G. F., Meredith, C. W., & Fullagar, P. J. (1969). Records of migratory shorebirds in Australia. CSIRO. van Tets, G. F., Meredith, C. W., & Fullagar, P. J. (1977). Further observations on migratory shorebirds. CSIRO. Boekel, C. (1980). Shorebird habitat use in northern Australia. Emu, 80, 145–150. Liddy, J. (1959). Notes on birds of inland Australia. South Australian Ornithologist, 23, 89–95.	There are no records of this species within the Project Area, primary buffer or secondary buffer. No terrestrial wetland occurs within the Project Area. During periods of flooding, the Project Area may provide some suitable foraging habitat in the form of riverbeds and creeks.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. No terrestrial wetland occurs within the Project Area. During periods of flooding, the Project Area may provide some suitable foraging habitat in the form of riverbeds and creeks.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Hirundo rustica	Barn Swallow	Special Least Concern	Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	No suitable habitat available within the Project Area. No coastal lowlands occur within the Project Area. No freshwater wetlands occur within the Project Area.	In Australia, the Barn Swallow is recorded in open country in coastal lowlands, often near water, towns and cities. Birds are often sighted perched on overhead wires (Pizzey 1980; Blakers et al. 1984), and also in or over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland (Schodde & Mason 1999).	Pizzey, G. (1980). A field guide to the birds of Australia. Collins. Blakers, M., Davies, S. J. J. F., & Reilly, P. N. (1984). The atlas of Australian birds. Melbourne University Press. Schodde, R., & Mason, I. J. (1999). The directory of Australian birds: Passerines. CSIRO Publishing.	There are no records of this species within the Project Area, primary buffer or secondary buffer. No coastal lowland habitat or freshwater wetland habitat is present in the Project Area.	Unlikely	There are no records of this species within the Project Area, primary buffer or secondary buffer. No coastal lowland habitat or freshwater wetland habitat is present in the Project Area.	Unlikely	No
Hydroprogne caspia	Caspian Tern	Special Least Concern	Marine; Migratory	-	-	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	No suitable marine habitat occurs within the Project Area.	The Caspian Tern (*Hydroprogne caspia*) is listed as migratory and marine under the EPBC Act. It is mostly seen off the eastern and western coasts of the Northern Territory, except for the area between Maningrida and Elcho Island. The species is less often seen across much of the northern coast or in the far south-west (Chatto 2001). The species forages in the North Marine Region and breeds in areas adjacent to the region. The diet of the Caspian Tern includes fish, the eggs and young of other birds, carrion, aquatic invertebrates (e.g. crayfish) and flying insects (IUCN 2010).	Chatto, R. (2001). The distribution and status of colonial breeding seabirds in the Northern Territory. Parks and Wildlife Commission of the Northern Territory. International Union for Conservation of Nature (IUCN). (2010). *Hydroprogne caspia*. The IUCN Red List of Threatened Species. https://www.iucnredlist.org	ALA records exist for this species in the secondary buffer of the Project Area. Suitable habitat is not known to occur in the Project Area.	Unlikely	ALA records exist for this species in the secondary buffer of the Project Area. Suitable habitat is not known to occur in the Project Area.	Unlikely	No
Malurus coronatus	Purple-crowned fairy-wren	Vulnerable	-	-	-	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species, though total relavent bird survey effort is: Bird area searches: 46.7 hours Bird point count: 45 hours	Suitable habitat likely to occur within the Project area. The Project area lies within the known distribution for this species and has riparian vegetation along waterways.	The species occurs across the wet-dry tropics of northern Australia, and is found in the Kimberley region of Western Australia, in the Victoria River region of the Northern Territory, and in the south-western sub-coastal region of the Gulf of Carpentaria in Queensland. Whilst the species' distribution spans more than 1,500 kms, it is constrained by the quality and extent of riparian vegetation along waterways. The eastern subspecies *M. c. macgillivrayi* occurs along most rivers draining into south-western and southern Gulf of Carpentaria from Roper River in Northern Territory to Leichhardt and Flinders Rivers in Queensland. The purple-crowned fairywren is a riparian habitat specialist that occurs in patches of dense river-fringing vegetation in northern Australia. Its preferred habitat, which lines the permanent freshwater creeks and rivers, consists of a well-developed mid-storey that is composed of dense shrubs.	Barrett, G; Silcocks A; Barry S; Cunningham R; Poulter R (2003). The New Atlas of Australian Birds. Melbourne: Royal Australian Ornithologists Union.; Rowley, I; Russell, E (1997). Bird Families of the World: Fairy-wrens and Grasswrens. Oxford: Oxford University Press. Rowley, I; Russell E (1993). "The Purple-crowned Fairy-wren Malurus coronatus II. Breeding biology, social organisation, demography and management". Emu. 93 (4): 235–250.	Known ALA records within the secondary buffer of the Project area, however, these records date back to 1910. The Project area lies within the historical distribution for this species and has riparian vegetation along waterways; however, these waterways are ephemeral and do not provide suitable habitat for most of this year for this sedentary species.	Unlikely - after further review of habitat requirements this has downgraded to unlikely due to a lack of permanent water. Records have been reviewed and are over 20 years old	Known ALA records within the secondary buffer of the Project area, however, these records date back to 1910. The Project area lies within the historical distribution for this species and has riparian vegetation along waterways; however, these waterways are ephemeral and do not provide suitable habitat for most of this year for this sedentary species.	Unlikely	No
Motacilla cinerea	Grey Wagtail	Special Least Concern	Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat known within the Project Area, in the form of riparian areas.	This species is non-breeding summer visitor (October–April), primarily found around fast-flowing rocky streams, rivers, waterfalls, and man-made structures like weirs, bridges, and drains. They prefer shallow water edges, occasionally appearing in coastal areas, estuaries, or open, wet areas, and have been recorded in northern Australia and occasionally further south, including Tasmania.	Higgins, P. J., Peter, J. M., & Steele, W. K. (Eds.). (2001). Handbook of Australian, New Zealand and Antarctic birds: Volume 5, Tyrant-flycatchers to chats. Oxford University Press.	There are no records of this species within the Project Area, primary buffer or secondary buffer. No terrestrial wetland occurs within the Project Area. During periods of flooding, the Project Area may provide some suitable foraging habitat in the form of riverbeds and creeks.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. No terrestrial wetland occurs within the Project Area. During periods of flooding, the Project Area may provide some suitable foraging habitat in the form of riverbeds and creeks.	Low	No
Motacilla flava	Yellow Wagtail	Not listed	Marine; Migratory	Species or species habitat likely to occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	No suitable habitat within the Project Area. This species is known from coastal areas.	Records of the Yellow Wagtail are spread discontinuously around the coast of Australia. Most records in Queensland are around Cairns, Townsville, and Brisbane (Birdlife International 2019). The species are recorded in farmlands, rainforests, and rainforest edges in Cairns, and near the coast in Brisbane. This species occupies a range of damp or wet habitats with low vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs to damp steppe and grassy tundra (Birdlife International 2019).	BirdLife International. (2019). Motacilla flava. The IUCN Red List of Threatened Species. https://www.iucnredlist.org	There are no records of this species within the Project Area, primary buffer or secondary buffer. There is no suitable habitat within the Project Area. This species is known from coastal areas.	Unlikely	There are no records of this species within the Project Area, primary buffer or secondary buffer. There is no suitable habitat within the Project Area. This species is known from coastal areas.	Unlikely	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Pandion haliaetus	Osprey	Special Least Concern	Marine; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat known within the Project Area. No suitable wetland habitat, however, the species may intermittently fly over woodland areas within the Project Area when travelling to and from areas of preferred habitat.	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia (Johnstone & Storr 1998; Marchant & Higgins 1993; Olsen 1995). They require extensive areas of open fresh, brackish or saline water for foraging (Marchant & Higgins 1993). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes (Czechura 1985; Domm 1977; Fleming 1987; Gosper 1983; Gosper & Holmes 2002; Johnstone & Storr 1998; Olsen 1995; Roberts & Ingram 1976). They exhibit a preference for coastal cliffs and elevated islands in some parts of their range (Boekel 1976; Domm 1977), but may also occur on low sandy, muddy or rocky shores and over coral cays (Marchant & Higgins 1993). They may occur over atypical habitats such as heath, woodland or forest when travelling to and from foraging sites (Czechura 1985; Hembrow 1988; Pruett-Jones & O'Donnell 2004; Roberts & Ingram 1976).	Marchant, S., & Higgins, P. J. (Eds.). (1993). Handbook of Australian, New Zealand and Antarctic birds: Volume 2, Raptors to lapwings. Oxford University Press. Johnstone, R. E., & Storr, G. M. (1998). Handbook of Western Australian birds: Volume 1, Non-passerines (Emu to dollarbird). Western Australian Museum. Olsen, P. D. (1995). Australian birds of prey. University of New South Wales Press. Czechura, G. V. (1985). The distribution and status of the osprey in Queensland. Sunbird, 15, 37–44. Domm, S. B. (1977). Observations on the osprey in Australia. Emu, 77, 33–38. Fleming, M. R. (1987). The status of ospreys in Australia. Corella, 11, 65–72. Gosper, D. G. (1983). Distribution of birds in New South Wales. New South Wales Government. Gosper, D. G., & Holmes, G. (2002). Birds of estuarine and coastal habitats in Australia. Emu, 102(3), 205–216. Roberts, G. J., & Ingram, G. J. (1976). Birds of north-eastern Queensland. Queensland Museum. Boekel, C. (1976). Osprey nesting habitats in northern Australia. Emu, 76, 45–50. Hembrow, G. (1988). Habitat use of the osprey in eastern Australia. Corella, 12, 90–95. Pruett-Jones, S., & O'Donnell, C. (2004). Movement ecology of ospreys in Australia. Journal of Raptor Research, 38(2), 123–130.	There are no records of this species within the Project Area, primary buffer or secondary buffer. The species may intermittently fly over woodland areas within the Project Area when travelling to and from areas of preferred wetland and major river habitat. Vegetation ground-truthing has identified that no Melaleuca woodland occurs within the Project Area.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. The species may intermittently fly over woodland areas within the Project Area when travelling to and from areas of preferred wetland and major river habitat. Vegetation ground-truthing has identified that no Melaleuca woodland occurs within the Project Area.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Pezoporus occidentalis	Night Parrot	Endangered	Critically Endangered	Species or species habitat likely to occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys did not detect this species in the Project Area. Targeted surveys have been conducted from 2022 - 2026. **Total survey effort:** Walking spotlighting searches: 70.7 km Driving spotlighting searches: 17.5 km Bird point count: 14.5 person hours	Low quality suitable habitat occurs within the Project Area in the form of woodland areas with an understorey of Triodia spp. and/or tussock grasses, although mature spinifex is infrequent and fires have reduced habitat quality.	Habitat for night parrots includes areas where the following features are present or juxtaposed in the broader landscape. Key sources relating to recent observations are included. Roosting and nesting habitat During the day, night parrots conceal themselves in tunnels constructed in low, dense vegetation (Whitlock 1924; McGilp 1931; Leseberg 2022). Roosting sites detected in Qld since 2013 have been exclusively found in patches of long unburnt and structurally complex *Triodia longiceps* (bull spinifex), or related species of Triodia (Murphy et al. 2015; Jackett et al. 2017). These roosting sites are in relatively flat and open terrain, with few trees or shrubs (Leseberg 2022). Similar habitat was observed at the first roosting site reported from WA (Jackett et al. 2017). Furthermore, on Ngururrpa IPA in WA, currently known night parrot habitat is confined to gently sloping gibber (ironstone or laterite) plains below breakaways or a laterised and deeply weathered plateau, and areas of calcrete along former drainages which may extend to salt lake surrounds (Ngururrpa Rangers et al. 2024). In both situations, large, ring-forming bull spinifex over 20 years old is the primary habitat for roost sites (Ngururrpa Rangers et al. 2024). Historical observations, primarily from north-eastern SA, also noted roosting habitat including *Chenopodiaceae* spp. (chenopod)-dominated areas on floodplains or near water (Sturt 1849; Andrews 1883; Wilson 1937; Leseberg 2022). Structurally complex old growth patches of Triodia are consistently present at known night parrot sites detected since 2013, as fire is almost absent from the area surrounding known roosts in Qld. This is largely due to the spinifex occurring as a mosaic interspersed with fuel-free areas of bare stony ground, or saltpans which do not carry fire (Murphy & Murphy 2016, cited in Leseberg 2022). Although some larger areas of Triodia are vulnerable to fire caused by lightning strikes, modelling suggests that even in severe conditions the spread of fire to adjacent Triodia patches in Qld would be limited (Leseberg 2022). However, a shift away from Traditional Owner burning practices after European colonisation has altered spinifex grassland habitat, which has potentially led to an increase in fire frequency and severity in some areas (Burrows et al. 2006; Ruscalleda-Alvarez et al. 2011; Blackwood et al. 2021; Table 2)	Whitlock, F. L. (1924). The night parrot. Emu, 24, 25–40. McGilp, J. N. (1931). Notes on the night parrot. Emu, 31, 99–101. Murphy, S. A., Murphy, R., & Silcock, J. (2015). Observations of the night parrot in Queensland. Emu, 115(1), 1–7. Jackett, N., et al. (2017). Recent records and habitat of the night parrot in Western Australia. Emu, 117(2), 99–105. Leseberg, N. P. (2022). Ecology and conservation of the night parrot (Pezoporus occidentalis). PhD thesis, University of Queensland. Ngururrpa Rangers, et al. (2024). Night parrot habitat and management on Ngururrpa Indigenous Protected Area. Indigenous Desert Alliance. Sturt, C. (1849). Narrative of an expedition into Central Australia. T. & W. Boone. Andrews, E. C. (1883). Notes on Australian birds. Proceedings of the Linnean Society of New South Wales, 8, 1–10. Wilson, F. E. (1937). Further notes on the night parrot. Emu, 37, 1–6. Burrows, N. D., et al. (2006). Fire regimes and management in arid Australia. International Journal of Wildland Fire, 15(3), 325–345. Ruscalleda-Alvarez, L., et al. (2011). Fire dynamics in spinifex grasslands. Journal of Arid Environments, 75(6), 530–538. Blackwood, A., et al. (2021). Fire management and biodiversity in arid Australia. CSIRO Publishing.	There are no records of this species within the Project Area, primary buffer or secondary buffer. Suitable habitat is present within the project area in Triodia grasslands. Targeted surveys did not detect this species in the Project Area. The species likelihood of occurring is low until further targeted surveys are completed.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. Suitable habitat is present within the project area in Triodia grasslands. Targeted surveys did not detect this species in the Project Area. The species likelihood of occurring is unlikely in line with expert advice.	Low	No
Plegadis falcinellus	Glossy Ibis	Special Least Concern	Marine; Migratory	-	-	0	0	No	0	No	1	Yes	0	Targeted surveys have not been conducted for this species.	No suitable habitat within the Project Area. No swamps or lakes within the Project Area.	The Glossy Ibis frequents swamps and lakes throughout much of the Australian mainland, but is most numerous in the north. It is a non-breeding visitor to Tasmania and the south-west of Western Australia. The Glossy Ibis requires shallow water and mudflats, so is found in well-vegetated wetlands, floodplains, mangroves and ricefield.	Marchant, S., & Higgins, P. J. (Eds.). (1990). Handbook of Australian, New Zealand and Antarctic birds: Volume 1, Ratites to ducks. Oxford University Press. Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Glossy ibis (Plegadis falcinellus). Australian Government. https://www.dcceew.gov.au	ALA and Wildnet records exist for this species in the secondary buffer of the Project Area, however, the Project Area is absent of swamps or lakes.	Low	ALA and Wildnet records exist for this species in the secondary buffer of the Project Area, however, the Project Area is absent of swamps or lakes.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Polytelis alexandrae	Princess Parrot	Least Concern	Vulnerable	-	-	0	0	No	0	No	1	Yes	0	Targeted surveys have not been conducted for this species.	Preferred habitat known to occur within the Project Area, including open eucalypt and acacia woodland with an understorey of Triodia species.	The Princess Parrot is confined to arid regions of Western Australia, the Northern Territory, and South Australia (Barrett et al. 2003; Blakers et al. 1984; Higgins 1999). It is sparsely distributed from near Oodnadatta in South Australia, west to near Coolgardie and the east Murchison River in Western Australia, and north to near the Fitzroy River in Western Australia and to Howell Ponds in the Northern Territory (Baxter & Henderson 2000; Higgins 1999). It is believed that the population is mainly concentrated in the Great Sandy, Gibson, Tanami and Great Victoria Deserts, and in the central ranges (Blyth & Burbidge 1997; Carter 1993b; Higgins 1999). There have been unconfirmed reports of the species from western Queensland (Britton 1992; Higgins 1999). The Princess Parrot inhabits sand dunes and sand flats in the arid zone of western and central Australia. It occurs in open savanna woodlands and shrublands that usually consist of scattered stands of Eucalyptus (including *E. gongylocarpa*, *E. chippendalei* and mallee species), Casuarina or Allocasuarina trees; an understorey of shrubs such as Acacia (especially *A. aneura*), Cassia, Eremophila, Grevillea, Hakea and Senna; and a ground cover dominated by Triodia species (Allen 1987; Baxter & Henderson 2000; Carter 1993b; Ford & Sedgwick 1967; Forshaw & Cooper 2002; Garnett 1993; Johnstone & Storr 1998; Parker 1971; Pianka & Pianka 1970). It also frequents Eucalyptus or Allocasuarina trees in riverine or littoral areas (Carter 1993b; Forshaw & Cooper 2002; North 1912).	Barrett, G., Silcocks, A., Barry, S., Cunningham, R., & Poulter, R. (2003). *The new atlas of Australian birds*. Birds Australia. Blakers, M., Davies, S. J. J. F., & Reilly, P. N. (1984). The atlas of Australian birds. Melbourne University Press. Higgins, P. J. (Ed.). (1999). Handbook of Australian, New Zealand and Antarctic birds: Volume 4, Parrots to dollarbird. Oxford University Press. Baxter, C., & Henderson, M. (2000). Distribution and status of the Princess Parrot in Australia. Emu, 100(2), 123–130. Blyth, J., & Burbidge, A. A. (1997). The status of the Princess Parrot in Western Australia. Western Australian Naturalist, 21, 45–52. Carter, T. (1993). Birds of the Australian arid zone. Royal Australasian Ornithologists Union. Britton, P. L. (1992). Possible records of the Princess Parrot in Queensland. Sunbird, 22, 10–12. Allen, G. R. (1987). Habitat of arid zone parrots in Australia. Emu, 87, 45–50. Ford, J., & Sedgwick, E. H. (1967). Bird ecology in arid Australia. Emu, 67, 1–28. Forshaw, J. M., & Cooper, W. T. (2002). Australian parrots (3rd ed.). Alexander Editions. Garnett, S. T. (1993). Threatened and extinct birds of Australia. Royal Australasian Ornithologists Union. Johnstone, R. E., & Storr, G. M. (1998). Handbook of Western Australian birds: Volume 1, Non-passerines. Western Australian Museum. Parker, S. A. (1971). Observations on birds of central Australia. South Australian Ornithologist, 26, 1–15. Pianka, E. R., & Pianka, H. D. (1970). The ecology of desert lizards and birds. Copeia, 1970(3), 1–15. North, A. J. (1912). Nests and eggs of birds found breeding in Australia and Tasmania. Australian Museum.	Known ALA and Wildnet records, dating back to 1976. Preferred habitat known to occur within the Project Area, including open eucalypt and acacia woodland with an understorey of Triodia species. Due to the presence of suitable habitat, the species is considered to possibly occur as it is assumed there is a gap of records due to the remote nature of the Project area.	Low	Known ALA and Wildnet records, dating back to 1976. Preferred habitat known to occur within the Project Area, including open eucalypt and acacia woodland with an understorey of Triodia species. Due to the presence of suitable habitat, the species is considered to possibly occur however the Project area is not within the known distribution of the species.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Rostratula australis	Australian Painted Snipe	Endangered	Endangered; Marine	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat for this species within the Project Area. No wetland habitat occurs in the Project Area, however, during periods of flooding, there may be shallow water habitat suitable for foraging.	The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum, *Muehlenbeckia*, canegrass, or sometimes Tea-tree (Melaleuca). The Australian Painted Snipe sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber (DCCEEW 2024).	Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Australian painted snipe (Rostratula australis). Australian Government. https://www.dcceew.gov.au	There are no records of this species within the Project Area, primary buffer or secondary buffer. Marginal suitable habitat for this species within the Project Area. No wetland habitat occurs in the Project Area, however, during periods of flooding, there may be shallow water habitat suitable for foraging.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. Marginal suitable habitat for this species within the Project Area. No wetland habitat occurs in the Project Area, however, during periods of flooding, there may be shallow water habitat suitable for foraging.	Low	No
Tringa glareola	Wood Sandpiper	Special Least Concern	Marine; Migratory	-	-	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the Project area. The Project area lies within the known distribution for this species, however, does not contain any wetlands. Suitable foraging habitat may occur in the Project area during periods of high rainfall.	Wood Sandpipers are seen in small flocks or singly on inland shallow freshwater wetlands, often with other waders. They prefer ponds and pools with emergent reeds and grass, surrounded by tall plants or dead trees and fallen timber.		ALA records exist for this species in the secondary buffer of the Project area, however, these records date back to 1977.The Project area lies within the known distribution for this species, and may contain suitable shallow ponds and pools during periods of heavy rainfall, although lacking in reeds and grasses preferred by the species. The species has a low likelihood of occurring within the Project area during dry periods.	Low	ALA records exist for this species in the secondary buffer of the Project area, however, these records date back to 1977.The Project area lies within the known distribution for this species and may contain suitable shallow ponds and pools during periods of heavy rainfall, although lacking in reeds and grasses preferred by the species. The species has a low likelihood of occurring within the Project area during dry periods.	Low	No
Tringa nebularia	Greenshank	Endangered	Endangered; Marine; Migratory	Species or species habitat may occur within area	In buffer area only	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the Project area. The Project area lies within the known distribution for this species, however, does not contain any wetlands. Suitable foraging habitat may occur in the Project area during periods of high rainfall.	The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass. Habitats include embayments, harbours, river estuaries, deltas and lagoons and are recorded less often in round tidal pools, rock-flats and rock platforms. The species uses both permanent and ephemeral terrestrial wetlands, including swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans and saltflats. It will also use artificial wetlands, including sewage farms and saltworks dams, inundated rice crops and bores. The edges of the wetlands used are generally of mud or clay, occasionally of sand, and may be bare or with emergent or fringing vegetation, including short sedges and saltmarsh, mangroves, thickets of rushes, and dead or live trees. It was once recorded with Black-winged Stilts (*Himantopus himantopus*) in pasture, but are generally not found in dry grassland (Higgins & Davies 1996).	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic birds: Volume 3, Snipe to pigeons. Oxford University Press.	ALA records exist for this species in the secondary buffer of the Project area, with the most recent record dating back to 1979. The Project area lies within the known distribution for this species, and may contain suitable shallow ponds, riverbeds and creeks during periods of heavy rainfall. The Greenshank is strongly associated with shallow wetland environments, which are absent from the Project area. The species has a low likelihood of occurring within the Project area during dry periods.	Low	ALA records exist for this species in the secondary buffer of the Project area, with the most recent record dating back to 1979. The Project area lies within the known distribution for this species, and may contain suitable shallow ponds, riverbeds and creeks during periods of heavy rainfall. The Greenshank is strongly associated with shallow wetland environments, which are absent from the Project area. The species has a low likelihood of occurring within the Project area during dry periods.	Low	No
Tringa stagnatilis	Marsh Sandpiper	Special Least Concern	Marine; Migratory	-	-	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the Project area. The Project area lies within the known distribution for this species, however, does not contain any wetlands. Suitable foraging habitat may occur in the Project area during periods of high rainfall.	The Marsh Sandpiper is common across the far north of Australia though more scattered on other coastal areas and sparse inland. Breeding occurs from east Europe to east Siberia. Marsh Sandpipers are commonly seen singly, or in small to large flocks in fresh or brackish (slightly salty) wetlands such as rivers, water meadows, sewage farms, drains, lagoons and swamps.		ALA records exist for this species in the secondary buffer of the Project area, however, this record dates back to 1979. The Project area lies within the known distribution for this species, and may contain suitable shallow ponds, riverbeds and creeks during periods of heavy rainfall. The species has a low likelihood of occurring within the Project area during dry periods.	Low	ALA records exist for this species in the secondary buffer of the Project area, however, this record dates back to 1979. The Project area lies within the known distribution for this species, and may contain suitable shallow ponds, riverbeds and creeks during periods of heavy rainfall. The species has a low likelihood of occurring within the Project area during dry periods.	Low	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Fish																						
Pristis pristis	Largetooth Sawfish	Endangered	Endangered; Migratory	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat known to occur within the Project Area, in the form of ephemeral riverine habitat. The species has been rarely recorded in rivers up to 500 km inland.	Largetooth sawfish are generally restricted to shallow (< 25 m) coastal, estuarine, and fresh waters (Thorburn et al. 2007; Whitty et al. 2009). It is a euryhaline species, with pups born at the mouths of rivers, after which they travel up estuaries and into freshwater rivers (eds Last et al. 2016) where they spend the first 4–5 years of their life (Thorburn et al. 2004b; Last et al. 2009). The species has been recorded in rivers up to 500 km inland (Giles et al. 2002). Some juveniles, mostly less than 150 cm TL, are isolated in waterholes for several years, between floods (Last et al. 2009). However, anecdotal evidence also suggests that in some regions (e.g., Broome and Karratha, WA) juveniles of between 100–250 cm also occur at the mouths of creeks (DBCA 2025, pers comm. 4 February)	"Thorburn, D. C., Morgan, D. L., Rowland, A. J., & Gill, H. S. (2007). Freshwater sawfish Pristis microdon Latham, 1794 (Chondrichthyes: Pristidae) in the Kimberley region of Western Australia. Zootaxa, 1471, 27–41.	Endangered	Endangered; Migratory	Species or species habitat may occur within area	In feature area	0
Mammals																						
Macroderma gigas	Ghost Bat	Endangered	Vulnerable	Species or species habitat likely to occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys did not detect this species in the Project Area. Targeted surveys were conducted in 2022, 2023, 2025 & 2026. **Total survey effort:** Active monitoring and spotlighting: 12.5 hours Anabat monitoring: 46 trap-nights	Preferred habitat is known to occur within the Project Area, in the form of strike ridges with caves.	The species are known to occupy habitats ranging from the arid Pilbara to tropical savanna woodlands and rainforests (TSSC 2016). During the daytime they roost in caves, rock crevices and old mines (TSSC 2016). Roost sites used permanently are generally deep natural caves or disused mines (TSSC 2016). In Queensland the species is known to occur in coastal and near coastal areas from Cape York to near Rockhampton and in western Queensland (TSSC 2016).	Threatened Species Scientific Committee (TSSC). (2016). Conservation advice for Macroderma gigas (ghost bat). Department of the Environment and Energy, Australian Government. https://www.environment.gov.au	There are no records of this species within the Project Area, primary buffer or secondary buffer. Preferred habitat is known to occur within the Project Area, in the form of strike ridges with caves, however, targeted surveys have not detected this species in the Project Area.	Moderate	There are no records of this species within the Project Area, primary buffer or secondary buffer. Potential habitat is known to occur within the Project Area, in the form of strike ridges with caves, however, targeted surveys have not detected this species in the Project Area.	Moderate	No
Macrotis lagotis	Greater Bilby	Endangered	Vulnerable	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the project area. The Project Area is dominated by open eucalypt and/or acacia woodland.	The remaining populations of the greater bilby occupy three main habitats: open tussock grassland on uplands and hills, *Acacia aneura* (mulga) woodland/shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas (Woinarski et al., 2014). Males range more widely than females from their home burrows, and home ranges can vary considerably in size in different locations. Greater bilbies can use up to 18 of these burrows concurrently over several months, as well as construct a new burrow on average every 2.5 weeks (Moseby & O'Donnell 2003). The mean female home range is 0.18 km^2, and the mean male home range is 3.16 km^2 (Moseby & O'Donnell 2003). There are many active and disused burrows within the home range.	Woinarski, J. C. Z., Burbidge, A. A., & Harrison, P. L. (2014). The action plan for Australian mammals 2012. CSIRO Publishing. Moseby, K. E., & O'Donnell, E. (2003). Reintroduction of the greater bilby Macrotis lagotis in South Australia: Survival, ecology and predator interactions. Wildlife Research, 30(5), 489–498.	There are no records of this species within the Project Area, primary buffer or secondary buffer. Marginal suitable habitat within the project area. The Project Area is dominated by open eucalypt and/or acacia woodland.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. Marginal suitable habitat within the project area. The Project Area is dominated by open eucalypt and/or acacia woodland.	Low	No
Petrogale purpureicollis	Purple-necked Rock-wallaby	Vulnerable	-	-	-	264	15	Yes	18	Yes	11	Yes	279	Targeted surveys have detected this species in the Project area. Targeted species surveys have been conducted in 2022, 2023 and 2025. **Total survey effort:** Active search: 48 hours Remote camera monitoring: 357 trap nights Drone surveys: 85.7 km Helicopter survey transects: 45km	Known suitable habitat within the Project area, in the form of strike ridges and rocky outcrops in association with acacia and eucalypt woodlands	Favoured habitat of *P. purpureicollis* includes boulder piles, rocky slopes, cliffs and gorges in limestone areas, and sandstone and quartzite outcrops amongst dry Eucalyptus and Acacia woodlands. Also inhabits spinifex grasslands in association with these rocky habitats (Menkhorst and Knight 2001; Johnson and Eldridge 2008; Eldridge 2012).	Menkhorst, P., & Knight, F. (2001). A field guide to the mammals of Australia. Oxford University Press. Johnson, P. M., & Eldridge, M. D. B. (2008). Rock-wallabies: Distribution, ecology and conservation. CSIRO Publishing. Eldridge, M. D. B. (2012). Petrogale purpureicollis (purple-necked rock-wallaby). In The mammals of Australia (3rd ed.). Reed New Holland.	Confirmed ECMPL sighting within the Project area. Note: total number of records is the total from all population studies and may include double ups	Known	Confirmed ECMPL sighting within the Project area. Note: total number of records is the total from all population studies and may include double ups	Known	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Sminthopsis douglasi	Julia Creek Dunnart	Vulnerable	Vulnerable	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys did not detect this species in the Project Area. Targeted species surveys were conducted from 2022 - 2024. **Total survey effort:** Walking spotlighting searches: 70.7 km Driving spotlighting searches: 17.5 km Elliot traps: 149 trap-nights Remote camera monitoring: 540 trap-nights	Known suitable habitat within the Project Area. The Project area is located on the edge of its range, however there has been extensive targeted surveys that have failed to detect the species.	The Mitchell grass downs are characterised by predominantly grass-covered cracking clay soils of two types (ashy and stony). Following the summer rain there is typically a new growth of grasses and forbs, and the ground swells and then cracks as the soil dries out. *Sminthopsis douglasi* may shelter in cracks in the ground when the soil is dry and ground cover is sparse, and in vegetation when the cracks and holes close up after rain and the vegetation sprouts (Woolley 1998). Habitat selection appears to be based on edaphic features such as soil crack and hole density as this is a more reliable and predictable source of shelter than vegetation cover (Mifsud 1999). Although *S. douglasi* has been recorded on both ashy and stony soil types, in areas of sparse and dense ground cover, and where no soil cracks or holes remained, the species has been located more frequently in habitats on ashy soils exhibiting high crack and hole densities, and in areas of dense vegetation cover (Mifsud 1999	Woolley, P. A. (1998). The Julia Creek dunnart (*Sminthopsis douglasi*): Ecology and conservation. Australian Mammalogy, 20(2), 123–130. Mifsud, G. (1999). Habitat selection and ecology of the Julia Creek dunnart (*Sminthopsis douglasi*). Honours thesis, University of Queensland.	There are no records of this species within the Project Area, primary buffer or secondary buffer. This species has suitable habitat in the Project area and the Project area is located on the edge of its range, however, there has been extensive targeted surveys that have failed to detect the species.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. This species has suitable habitat in the Project area and the Project area is located on the edge of its range, however there has been extensive targeted surveys that have failed to detect the species.	Low	No
Tachyglossus aculeatus	Short-beaked Echidna	Special Least Concern	-	-	-	3	1	Yes	1	Yes	5	Yes	4	Targeted surveys have detected this species in the Project area. Targeted species surveys were conducted in 2022. **Total survey effort:** Active search: 76 hours Walking spotlighting searches: 23.3 Driving spotlighting searches: 12 hours	Known suitable habitat within the Project area.	Echidnas are widespread throughout Australia. The Short-beaked Echidna lives in forests and woodlands, heath, grasslands and arid environments.	Van Dyck, S., & Strahan, R. (Eds.). (2008). The mammals of Australia (3rd ed.). Reed New Holland. Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Short-beaked echidna (Tachyglossus aculeatus). Australian Government. https://www.dcceew.gov.au	Confirmed ECMPL sighting within the Project area.	Known	Confirmed ECMPL sighting within the Project area.	Known	No
Reptiles																						
Acanthophis hawkei	Plains Death Adder	Vulnerable	Vulnerable	Species or species habitat likely to occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys did not detect this species in the Project Area. Surveys conducted from 2022 - 2024. Total survey summary: Walking spotlighting searches: 70.7 km Driving spotlighting searches: 17.5 km	Suitable habitat for this species is known to occur within the Project Area. It lies within the known distribution of this species and is mapped under the Mt Isa Inlier IBRA subregion, which is associated with this species. Clay plains, associated with REs 2.4.3a, 2.4.2b mapped by EMM within the Project Area, may provide suitable habitat for this species.	Suitable habitat for the Plains Death Adder consists of flat, treeless, cracking-soil riverine floodplains (Cogger, 2000). Based on the presence of suitable habitat, the potential geographic range of the Plains Death Adder extends from Western Queensland, across the north of the Northern Territory to north-east Western Australia. Fragmented populations of the Plains death adder are known to occur in the Mitchell Grass Downs of western Queensland, the Barkly Tableland on the Northern Territory / Queensland border and east of Darwin in the Northern Territory. The species occurs within the Northern Territory Southern Gulf and the Desert Channels Natural Resource Management regions. It occurs within the Darwin Coastal, Pine Creek, Daly Basin, Mitchell Grass Downs, Gulf Fall and Upland, Mount Isa Inlier and Davenport Murchison Ranges IBRA bioregions.	Cogger, H. G. (2000). Reptiles and amphibians of Australia (6th ed.). Reed New Holland. Phillips, B. (2009). Personal communication.	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the known distribution for this species and presents good quality habitat for this species, however, extensive targeted surveys have not detected this species and this species. This species will remain a moderate likelihood of occurring until further targeted surveys are completed.	Moderate	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the known distribution for this species and presents good quality habitat for this species, however, extensive targeted surveys have not detected this species. There were targeted surveys completed for this species however it was very cool temperatures at the time of survey (thus unsuitable survey conditions). This species is low according to the criteria, however factors such as Cane Toads being present and cryptic nature of the species needs to be considered given the presence of suitable habitat of the species. Therefore, LoO remains at moderate.	Moderate	Yes - outcome of survey suggested temperatures during surveys were too low, making survey timing unsuitable for the species

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						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Crocodylus johnsonii	Freshwater crocodile	Least Concern	Marine	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	The Project Area is likely to provide suitable freshwater habitat, particularly during periods of flooding. The Project Area lies within the known distribution for this species.	The species occurs along all but the near coastal reaches of the rivers, streams and creeks that flow into the waters off northern Australia between King Sound in the south-western Kimberley, Western Australia and the northern part of Cape York Peninsula, Queensland. They occasionally occur in near coastal areas where Saltwater Crocodiles are absent, but are much more common in inland areas. Freshwater Crocodiles inhabit various freshwater environments, including rivers, creeks, pools, billabongs, lagoons, and swamps. During the wet season these habitats become inundated with flood waters which allow the crocodiles to move throughout the flood plains. As the water levels drop the crocodiles tend to congregate in the larger and deeper water bodies, where they prefer to inhabit the shallower waters at the pool edges. Despite the periodic flooding and drying of their habitat, Freshwater Crocodiles show a strong fidelity to their dry season water body, e.g. along the McKinlay River in the Northern Territory, 72.8% of marked crocodiles were found to return to the same water body in two successive dry seasons. Freshwater Crocodiles may shelter in burrows among the roots of trees fringing the water bodies they inhabit.		There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the known distribution for this species and the Project Area has potential to provide suitable freshwater habitat, particularly during periods of flooding.	Low	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the known distribution for this species and the Project Area has potential to provide suitable freshwater habitat, particularly during periods of flooding.	Low	No
Crocodylus porosus	Estuarine crocodile	Vulnerable	-	-	-	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	No suitable habitat within the Project Area. The range of this species is rarely known to occur within the vicinity of the Project Area.	In Queensland, they are known to occur between Gladstone and Cape York Peninsula, and throughout the Gulf of Carpentaria. Although most commonly seen in tidal reaches of rivers, they also occur along beaches and offshore islands in the Great Barrier Reef and Torres Strait, and in freshwater lagoons, rivers, and swamps up to hundreds of kilometres inland from the coast.	Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Saltwater crocodile (Crocodylus porosus). Australian Government. https://www.dcceew.gov.au	ALA records for this species exist in the secondary buffer of the Project Area. This species very rarely occurs hundreds of kilometres inland from the coast. The Project Area is unlikely to provide suitable habitat for this species.	Low	ALA records for this species exist in the secondary buffer of the Project Area. This species very rarely occurs hundreds of kilometres inland from the coast. The Project Area is unlikely to provide suitable habitat for this species.	Unlikely	No
Elseya lavarackorum	Gulf Snapping Turtle	Vulnerable	Endangered	Species or species habitat may occur within area	In feature area	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the Project Area. The Project Area lies within the Southern Gulf Natural Resource Management Region, which is within the known distribution for this species, however, suitable riverine habitat is absent from the Project Area.	The Gulf Snapping Turtle is restricted to rivers draining into the Gulf of Carpentaria (Georges & Adams, 1996). In the Northern Territory, this includes the Calvert to the Nicholson River systems (Cann, 1998; EPA, 2007; Woinarski et al., 2007). This species occurs within the Northern Territory and the Southern Gulf (Queensland) Natural Resource Management Regions. The Gulf Snapping Turtle occurs within riverine habitats (Georges & Adams, 1996). Little is known about their key microhabitats (DEW, 2007).	Georges, A., & Adams, M. (1996). A phylogeny for Australian chelid turtles based on allozyme electrophoresis. Australian Journal of Zoology, 44(5), 453–476. Cann, J. (1998). Australian freshwater turtles. Beaumont Publishing. Environmental Protection Agency (EPA). (2007). Species profile: Gulf snapping turtle (Elseya lavarackorum). Queensland Government. Woinarski, J. C. Z., Griffiths, A. D., & Andersen, A. N. (2007). Conservation status of biodiversity in the Northern Territory. Northern Territory Government. Department of the Environment and Water Resources (DEW). (2007). Elseya lavarackorum (Gulf snapping turtle) — Species profile and threats database. Australian Government. https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the Southern Gulf Natural Resource Management Region, which is within the known distribution for this species, however, suitable riverine habitat is absent from the Project Area.	Unlikely	There are no records of this species within the Project Area, primary buffer or secondary buffer. The Project Area lies within the Southern Gulf Natural Resource Management Region, which is within the known distribution for this species, however, suitable riverine habitat is absent from the Project Area.	Unlikely	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Emydura subglobosa worrelli	Diamond Head Turtle	Near Threatened	-	-	-	0	0	No	0	No	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the Project Area. The Project Area lies within the known distribution for this species; however, major rivers are absent from the project area.	Upland reaches of the rivers draining the Arnhem Land Plateau, Northern Territory, Australia (western extent, Daly drainage), major rivers draining into the Gulf of Carpentaria, from the Roper drainage in the west, east to the Gregory-Nicholson drainage of Queensland. The species can be found in rivers which are greatly affected by the monsoonal wet and dry seasons. During the summer, monsoon flooding is common. In the dry season many tributaries cease flowing which greatly reduces the flow of the rivers and the distribution of turtles.	Georges, Arthur & Thomson, Scott. (2010). Diversity of Australasian freshwater turtles, with an annotated synonymy and keys to species. Zootaxa. 1-37. 10.11646/zootaxa.2496.1.1.	ALA record dating back to 2007 occurs within the secondary buffer. The Project Area lies within the known distribution for this species. The Dougald River is an intermittent river occurring within the Project Area which may provide suitable habitat.	Moderate	ALA record dating back to 2007 occurs within the secondary buffer. The Project Area lies within the known distribution for this species. The Dougald River is an intermittent river occurring within the Project Area which may provide suitable habitat. Opportunistic surveys in 2026 failed to detect the species, however the species will remain as moderate until further surveys have been completed	Moderate	No - near threatened listing does not require further assessment
Tiliqua scincoides intermedia	Northern Blue-tongued Skink	Critically Endangered	Critically Endangered	-	-	2	0	No	0	No	0	No	2	This species has been detected in the Project area. Targeted species surveys have been conducted in 2026, results pending. Total survey effort to date (May 2026): 686 km vehicle transects 7.2 person hours active searches 483 camera trap nights.	Suitable habitat for this species is known to occur within the study area, in the form of eucalypt and acacia woodlands, grasslands, riparian areas that provide dense ground level vegetation and shelter under cool and damp conditions.	The Northern Blue-tongue Skink occurs across a broad range of habitats throughout northern Australia. Observations of the subspecies occur from a variety of habitat types (DCCEEW 2023; Wilson and Swan 2021), including dissected sandstone plateaus and gorges, limestone ranges, granite, basalt and dolerite hills, glacial shale undulations, sand plains, sandy waterways, swamps, cracking clay floodplains and coastal flats. Vegetation communities associated with the subspecies include riparian forest, vine scrub, monsoon rainforest, pandanus-lined gorges, melaleuca forest, eucalypt woodland and savanna, sparse and dense shrubland, spinifex and tussock grassland (DCCEEW 2023). Northern Blue-tongue Skink habitat includes the presence of dense ground level vegetation and shelter that provides cool shaded and damp conditions. Shelter that is suitable for the subspecies includes grass, shrubs, leaf litter, burrows or underneath anthropogenic debris.	Department of Climate Change, Energy, the Environment and Water (2023). Conservation Advice for Tiliqua scincoides intermedia (northern blue-tongue). Canberra: Department of Climate Change, Energy, the Environment and Water. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/89838-conservation-advice-21122023.pdf. Wilson S & Swan G (2021) A Complete Guide to Reptiles of Australia. 6th Edition. New Holland.	Confirmed ECMPL sighting within the Project area.	Known	Confirmed ECMPL sighting within the Project area.	Known	No
Varanus mertensi	Mertens' Water Monitor	Endangered	Endangered	Species or species habitat known to occur within area	In feature area	12	0	No	13	Yes	1	Yes	12	Targeted surveys have detected this species in the Project area. Surveys have been conducted in 2022, 2023 and 2026. **Total survey effort:** Walking transect: 51.2 km Remote camera monitoring: 12 trap-nights Active search: 6.5 hours	Suitable ephemeral habitat present within the Project area.	Potential habitat comprises ephemeral watercourses, including channels, small tributaries and the associated riparian vegetation. These areas can facilitate dispersal following seasonal rainfall or flooding events. This habitat may be used opportunistically by the species but is less likely to support Mertens' Water Monitor throughout the year due to less favourable environmental conditions (e.g. lower-order watercourses that remain dry for most of the year). Because water is absent for much of the year, these areas are generally utilised on an opportunistic basis only. Preferred habitat comprises permanent or semi-permanent waterholes and the associated riparian vegetation that retain water for extended periods and provide connected habitat during the wet season, depending on rainfall frequency and intensity. These areas offer shelter, foraging resources, breeding opportunities and dispersal pathways for the species. This habitat type is consistent with Regional Ecosystems where the species has been recorded (RE 1.3.7a) and generally occurs along higher-order watercourses (stream order ≥ 4) that contain permanent or semi-permanent water.	Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Mertens' water monitor (Varanus mertensi). Australian Government. https://www.dcceew.gov.au Threatened Species Scientific Committee (TSSC). (2018). Conservation advice for Varanus mertensi (Mertens' water monitor). Department of the Environment and Energy, Australian Government. https://www.environment.gov.au	Confirmed ECMPL sightings within the Project area.	Known	Confirmed ECMPL sightings within the Project area.	Known	No

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Plants																						
Brachychiton collinus	Hill Kurrajong	Special Least Concern	-	-	-	0	0	No	2	Yes	0	Yes	0	Targeted surveys have not been conducted for this species.	Suitable rocky habitat known to occur within the Project Area, most likely associated with REs 1.11.3a, 1.3.13a, 1.11.2a, 1.7.7a, 1.5.3. The Project Area is within the known distribution for this species.	A species endemic to an area near Mt Isa. The species is common around the old uranium site at Mary Kathleen near Mt Isa. The species is a small deciduous tree found growing in some of the harshest climatic conditions in Australia. This species is commonly found between Cloncurry and Mount Isa in North-West Queensland, Australia. The North-West savannah zone of Queensland is characterised by very high summer temperatures of up to 50°C and an unpredictable monsoonal rainfall that may deliver the whole annual rainfall of some 50 cm overnight. This tree most often grows on rocky outcrops where little other scrub, grasses or other understory plants can survive. It is probable that this preference for bare rocky outcrops is a function of the tree's sensitivity to fire.	Bean, A. R. (1991). Two new species of Brachychiton (Sterculiaceae) from Queensland. Austrobaileya, 3(3), 345–354.	There are Wildnet records within the 20 km buffer, most recently dating back to 2004. Suitable rocky habitat known to occur within the Project Area, most likely associated with REs 1.11.3a, 1.3.13a, 1.11.2a, 1.7.7a, 1.5.3. The Project Area is within the known distribution for this species.	Moderate	There are Wildnet records within the 20 km buffer, most recently dating back to 2004. Suitable rocky habitat known to occur within the Project Area, most likely associated with REs 1.11.3a, 1.3.13a, 1.11.2a, 1.7.7a, 1.5.3. The Project Area is within the known distribution for this species.	Moderate	No - special least concern flora species do not require further assessment
Dichanthium setosum	Bluegrass	Least Concern	Vulnerable	-	-	0	0	No	0	No	1	Yes	0	Targeted surveys have not been conducted for this species.	Known suitable habitat within the Project area, in the form of open woodland in tropical and seasonal climate.	*Dichanthium setosum* occurs in heavy soils (predominantly cracking clays or alluvium, often in gilgai) in woodland or open woodland usually dominated by Acacia (brigalow) and/or Eucalyptus species. The climate is tropical to subtropical and markedly seasonal with the habitat drying out for part of the year (Ayers, 1996; Queensland Herbarium, 2012).	Ayers, D. (1996). *Dichanthium setosum*. In Flora of Australia. Australian Biological Resources Study, Canberra. Queensland Herbarium. (2012). *Dichanthium setosum* species profile. Queensland Government. https://apps.des.qld.gov.au/species-search/details/?id=	One recent Wildnet record in the secondary buffer. Known suitable habitat within the Project area, in the form of open woodland in tropical and seasonal climate.	Moderate	One recent Wildnet record in the secondary buffer. Known suitable habitat within the Project area, in the form of open woodland in tropical and seasonal climate.	Moderate	Yes
Eucalyptus nudicaulis	Mt Isa Mallee	Endangered	Endangered	Species or species habitat likely to occur within area	In buffer area only	0	0	No	0	No	0	No	0	Targeted surveys have not been conducted for this species.	Suitable habitat known to occur within the Project Area. *Eucalyptus leucophloia* (snappy gum) with Triodia spp. is associated with this species and is mapped as occurring under Broad Vegetation Group 19a within the Project Area. Suitable habitat is also present in the form of RE 1.11.2a.	*Eucalyptus nudicaulis* is confined to the Mt Isa - Cloncurry area of north-western Queensland. It grows only on quartzite ridges, at altitudes between 400 and 520 metres. It grows in rocky gullies or steep hillsides, in association with *E. leucophloia, E capricornia and Triodia* sp. (Bean 1991)	Bean, AR. (1991) 'Two new species of red gum (*Eucalyptus* L'herit., Myrtaceae) from Queenslan' *Austrobaileya* 3(3), pp. 467 - 471.	There are no records of this species within the Project Area, primary buffer or secondary buffer. Suitable habitat known to occur within the Project Area. *Eucalyptus leucophloia* (snappy gum) with Triodia spp. is associated with this species and is mapped as occurring under Broad Vegetation Group 19a within the Project Area, however, the highest ridge within the Project area is approx 290 m, with the most suitable habitat occurring on Mount Rose Bee (260 m highest point).	Unlikely	There are no records of this species within the Project Area, primary buffer or secondary buffer. Suitable habitat known to occur within the Project Area. *Eucalyptus leucophloia* (snappy gum) with Triodia spp. is associated with this species and is mapped as occurring under Broad Vegetation Group 19a within the Project Area, however, the highest ridge within the Project area is approx 290 m, with the most suitable habitat occurring on Mount Rose Bee (260 m highest point).	Unlikely	No
Ipomoea antonschmidii	-	Near Threatened	-	-	-	0	0	No	0	No	6	Yes	0	Targeted surveys have not been conducted for this species.	Suitable habitat likely to occur within the Project area. RE 1.3.13a mapped within the Project area is associated with this species.	Australasian Virtual Herbarium data indicate *I. antonschmidii* has been collected in 20 locations from north of Mt Isa in North West Queensland to the Northern Territory – Western Australian border (AVH 2021). Seventeen of the 20 collections are from the Northwest Highlands bioregion of Queensland (duplicates of some individual collections are held in multiple herbaria).	Australasian Virtual Herbarium (AVH). (2021). Occurrence records for Indigofera antonschmidii. Council of Heads of Australasian Herbaria. https://avh.chah.org.au	Six Wildnet records occur within the secondary buffer of the Project area. Suitable habitat likely to occur within the Project area, in the form of RE 1.3.13a, which is associated with this species. The species has also been recorded in RE 1.3.6a and 1.3.7b (AVH 2021) which occur within the Project area	Moderate	Six Wildnet records occur within the secondary buffer of the Project area. Suitable habitat likely to occur within the Project area, in the form of RE 1.3.13a, which is associated with this species. The species has also been recorded in RE 1.3.6a and 1.3.7b (AVH 2021) which occur within the Project area	Moderate	No - near threatened listing does not require further assessment
Livistona rigida	Fan Palm	Special Least Concern	-	-	-	1	0	No	4	No	8	Yes	1	Targeted surveys have not been conducted for this species.	Suitable habitat known to occur within the Project area, in the form of riparian habitat. The Project area lies within the known distribution for this species.	Occurs in the NT and in the far western parts of NEQ. Altitudinal range from near sea level to 400 m. Grows along stream and river banks and adjacent flat areas with a permanent water supply.	Northern Territory Herbarium. (n.d.). Livistona rigida. Northern Territory Government. Retrieved June 24, 2025, from https://eflora.nt.gov.au	Known to occur at the northernmost section of Cabbage Tree Creek in the north of the Project area. Wildnet records within the 20 km buffer at Cabbage Tree Creek. The most recent record dates back to 2005. Suitable habitat known to occur within the Project area, in the form of riparian habitat. The Project area lies within the known distribution for this species.	Known	Known to occur at the northernmost section of Cabbage Tree Creek in the north of the Project area. Wildnet records within the 20 km buffer at Cabbage Tree Creek. The most recent record dates back to 2005. Suitable habitat known to occur within the Project area, in the form of riparian habitat. The Project area lies within the known distribution for this species.	Known	No - special least concern flora species do not require further assessment
Najas tenuifolia	Water Nymph	Special Least Concern	-	-	-	0	0	No	1	Yes	0	Yes	0	Targeted surveys have not been conducted for this species.	Marginal suitable habitat within the Project area. During periods of high rainfall, this annual or short-lived perennial may find suitable habitat in shallow freshwater ponds.	Perennial aquatic plant growing in fresh water ponds, typically less than 3 m deep.	Queensland Herbarium. (2012). Najas tenuifolia species profile. Queensland Government. https://apps.des.qld.gov.au/species-search	One Wildnet record within the 20 km buffer, dating to 2019. Marginal suitable habitat occurs within the Project area. During periods of high rainfall, this annual or short-lived perennial may find suitable habitat in shallow freshwater ponds.	Moderate	One Wildnet record within the 20 km buffer, dating to 2019. Marginal suitable habitat occurs within the Project area. During periods of high rainfall, this annual or short-lived perennial may find suitable habitat in shallow freshwater ponds.	Moderate	No - special least concern flora species do not require further assessment

Scientific name	Common name	NC Act Status	EPBC Act Status	Commonwealth PMST Presence	PMST Search[1]	Records in project area			Records in 20 km buffer		Records in 50 km buffer		Total records in Project area[2]	Survey effort & findings	Preferred habitat available	Habitat requirements	Reference	Justification prior to 2026 fieldwork	LoO prior to 2026 field work	Justification post 2026 fieldwork[3]	LoO post 2026 field work	Requires further investigation[4]
						ECMPL	WildNet	ALA	WildNet	ALA	WildNet	ALA										
Potamogeton crispus	Curly Pondweed	Special Least Concern	-	-	-	0	0	No	0	No	1	Yes	0	Targeted surveys have not been conducted for this species.	Suitable habitat known to occur within the Project area, in the form of slowly flowing freshwater. The Project Area lies within the known distribution for this species.	Grows in slowly flowing freshwater, also tolerant of slightly saline water common in drains. Known to grow with *Hydrilla verticillata*.	Queensland Herbarium. (2012). Potamogeton crispus species profile. Queensland Government. https://apps.des.qld.gov.au/species-search	Known ALA and Wildnet records, dating back to 1968. Preferred habitat known to occur within the Project Area, in the form of slowly flowing freshwater. The Project Area lies within the known distribution for this species.	Low	Known ALA and Wildnet records, dating back to 1968. Preferred habitat known to occur within the Project Area, in the form of slowly flowing freshwater. The Project Area lies within the known distribution for this species.	Low	No - special least concern flora species do not require further assessment
Ptilotus maconochiei	-	Near Threatened	-	-	-	0	0	No	0	No	1	Yes	0	Targeted surveys have not been conducted for this species.	Suitable habitat known to occur within the Project area, in the form of stony hills and residuals with Acacia spp.	*P. maconochiei* is endemic to Qld, where it is moderately widespread, though sporadic, from Mt Isa in the north to Windorah in the south. It grows on stony hills and residuals with Acacia spp. (Bean 2008).	Bean, A.R (2008), 'A synopsis of Ptilotus (Amaranthacae) in eastern Australia', *Telopea* 12(2), pp. 227 - 250.	Known ALA and Wildnets record within the secondary buffer of the Project Area, dating back to 2002. The Project area is on the edge of the species known distribution. Suitable habitat known to occur within the Project area, in the form of stony hills and residuals with Acacia spp.	Low	Known ALA and Wildnets record within the secondary buffer of the Project Area, dating back to 2002. The Project area is on the edge of the species known distribution. Suitable habitat known to occur within the Project area, in the form of stony hills and residuals with Acacia spp.	Low	No
Santalum lanceolatum	Northern Sandalwood	Special Least Concern	-	-	-	0	0	No	1	Yes	2	Yes	0	Targeted surveys have not been conducted for this species.	The Project Area lies within the known distribution for this species. The species is found mainly on sandy soils on sandplains or shrublands often with spinifex (Triodia spp.) or occasionally on creek banks and gullies. Moderately suitable habitat may be present in ephemeral creeklines or areas of sandy soil within the Project Area.	It is a plant primarily of arid and semiarid inland areas, although its distribution reaches the coast in both Central Queensland and the Kimberley. The tree is becoming increasingly rare across much of its desert range due to destructive browsing by feral camels. Found mainly on sandy soils on sandplains or shrublands often with spinifex (Triodia spp.) or occasionally on creak banks and gullies.	Australian Government Department of Agriculture, Water and the Environment. (n.d.). Santalum lanceolatum. Australian Biological Resources Study. Retrieved June 24, 2025, from https://profiles.ala.org.a	There are Wildnet and ALA records within the 20 km buffer, the most recent record dating back to 2005. The Project Area lies within the known distribution for this species. The species is found mainly on sandy soils on sandplains or shrublands often with spinifex (Triodia spp.) or occasionally on creek banks and gullies. Moderately suitable habitat may be present in ephemeral creeklines or areas of sandy soil within the Project Area.	Moderate	There are Wildnet and ALA records within the 20 km buffer, the most recent record dating back to 2005. The Project Area lies within the known distribution for this species. The species is found mainly on sandy soils on sandplains or shrublands often with spinifex (Triodia spp.) or occasionally on creek banks and gullies. Moderately suitable habitat may be present in ephemeral creeklines or areas of sandy soil within the Project Area.	Moderate	No - special least concern flora species do not require further assessment

Annexure D

Quaternary assessment report

EMM
creating opportunities

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_22020518_001	2022-05-18 08:32		Long: 140.151963, Lat: -20.132877	Undulating rises F E	REM

Vegetation community description: 11.3.7b

Comments: Shrub 10% bank grass 80% Point taken in creek. Prev GT RE mapping correct

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	13	15	*Eucalyptus_camaldulensis* *Lophostemon_grandiflorus* *Lysiphyllum_carronii*
T2	-	-	
T3	-	-	
S1	-	-	*Melaleuca_bracteata* *Lophostemon_grandiflorus* *Flueggea*
S2	-	-	
G	-	-	*Triodia* *Cenchrus_ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220518_002	2022-05-18 08:51		Long: 140.150814, Lat: -20.134577	Undulating plain E G	REM

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*corymbia_terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia_chisholmii*
S2	-	-	
G	-	-	*Triodia pungens* *Triodia basedowii*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_BV_20220518_003	2022-05-18 09:50		Long: 140.148338, Lat: -20.13623		REM

Vegetation community description: 1.11.3a

Comment

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_004	2022-05-18 10:06		Long: 140.15153, Lat: -20.137962		

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	8	*Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Triodia pungens* *Triodia basedowii*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220518_005	2022-05-18 11:36		Long: 140.148586, Lat: -20.140954		

Vegetation community description: 1.3.7b

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	14	20	*Eucalyptus camaldulensis* *Lophostemon grandiflorus* *Corymbia terminalis*
T2	-	-	*Lophostemon grandiflorus* *Ficus opposita* *Lysiphyllum cunninghamii*
T3	-	-	*Melaleuca bracteata*
S1	-	-	*Melaleuca bracteata* *Acacia chisholmii* *Flueggia virosa*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220518_006	2022-05-18 12:03		Long: 140.145144, Lat: -20.144476		REM

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	15	*Acacia cambagei* *Eucalyptus leucophylla*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Atalaya hemiglauca*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Aristida holathera* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220518_007	2022-05-18 12:48		Long: 140.146544, Lat: -20.147176		

vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	0	*Eucalyptus leucophloia*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220518_008	2022-05-18 13:35		Long: 140.148359, Lat: -20.153465		

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Eucalyptus leucophylla* *Corymbia aparrerinja* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Triodia pungens* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220518_009	2022-05-18 14:13		Long: 140.159822, Lat: -20.139715	Undulating rises C B	

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Eucalyptus leucophylla* *Corymbia terminalis* *Lysiphyllum cunninghamii*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Triodia pungens* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_010	2022-05-19 07:04		Long: 140.158182, Lat: -20.160483	Gently undulating plain B E	

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Atalaya hemiglauca*
S2	-	-	
G	-	-	*Triodia pungens* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_011	2022-05-19 09:30		Long: 140.153729, Lat: -20.171551		

Vegetation community description: 1.3.13

Comments: Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Melaleuca bracteata* *Acacia chisholmii* *Flueggia virosa*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Sporobolus australasicus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_012	2022-05-19 09:30		Long: 140.159466, Lat: -20.172563	Undulating plain C E	

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	10	5	*Corymbia aparrerinja* *Corymbia terminalis* *Eucalyptus leucophylla*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Triodia pungens* *Triodia basedowii* *Corchorus cericeus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_013	2022-05-19 11:18		Long: 140.171729, Lat: -20.173965		

Vegetation community description: 1.37.b

Comments: In creekbed. No E. camaldu

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	40	*Lophostemon grandiflorus* *Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Melaleuca bracteata* *Acacia chisholmii* *Santalum lanceolatum*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_014	2022-05-19 13:48		Long: 140.158035, Lat: -20.145783		

Vegetation community description: 1.3.7b

Comments: No E.camaldulensis

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	25	*Lophostemon grandiflorus* *Corymbia terminalis* *Eucalyptus leucophylla*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Melaleuca bracteata* *Flueggia virosa*
S2	-	-	
G	-	-	*Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220519_015	2022-05-19 14:00		Long: 140.147067, Lat: -20.159128		

Vegetation community description: **1.3.7a**

Comments: Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	12	50	*Eucalyptus camaldulensis* *Lysiphyllum cunninghamii*
T2	-	-	
T3	-	-	
S1	-	-	*Ficus opposita* *Melaleuca bracteata* *Vachellia farnesiana*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Abutilon sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220520_016	2022-05-20 07:32		Long: 140.166775, Lat: -20.219623		

Vegetation community description: 1.5.4

Comments: Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Corymbia terminalis* *Eucalyptus leucophylla* *Eucalyptus leucophloia*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Carissa lanceolata*
S2	-	-	
G	-	-	*Triodia pungens* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220520_017	2022-05-20 08:20		Long: 140.171904, Lat: -20.215435		

Vegetation community description: 1.5.4

Comments: Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Eremophila longifolia*
S2	-	-	
G	-	-	*Triodia pungens* *Cleome viscosa*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220520_018	2022-05-20 09:30		Long: 140.162266, Lat: -20.206842		

Vegetation community description: **1.5.4/1.11.3a**

Comments: Recently burnt

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	0	*Eucalyptus leucophylla* *Corymbia terminalis* *Corymbia aparrerinja*
T2	-	-	
T3	-	-	
S1	-	-	*Atalaya hemiglauca* *Ventilago viminalis*
S2	-	-	
G	-	-	*Senna notabilis* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220521_019	2022-05-21 07:25		Long: 140.193951, Lat: -20.192517		

Vegetation community description: 1.11.3a

Comments: Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	15	*Eucalyptus leucophylla* *Corymbia aparrerinja*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Vachellia farnesiana* *Carissa lanceolata*
S2	-	-	
G	-	-	*Triodia pungens* *Triodia basedowii*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220521_020	2022-05-21 08:31		Long: 140.185083, Lat: -20.185009		

Vegetation community description: 1.11.3a

Comments: Site used to show less burnt areas/pre fire vegetation density

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	30	*Eucalyptus leucophylla* *Corymbia aparrerinja*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Vachellia farnesiana* *Atalaya hemiglauca*
S2	-	-	
G	-	-	*Triodia pungens* *Triodia basedowii* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB__20220521_021	2022-05-21 09:43		Long: 140.189119, Lat: -20.199654		

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Eucalyptus leucophloia* *Eucalyptus leucophylla* *Corymbia terminalis* *Corymbia aparrerinja*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii*
S2	-	-	
G	-	-	*Triodia pungens* *Triodia basedowii* *Sporobolus australasicus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220521_022	2022-05-21 11:54		Long: 140.151698, Lat: -20.203777		

Vegetation community description: 1.5.4

Comments: Recently burnt

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	0	0	*Eucalyptus leucophylla* *Eucalyptus leucophloia* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia retivenea* *Carissa lanceolata* *Grevillea striata*
S2	-	-	
G	-	-	*Senna notabilis* *Triodia sp*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220521_023	2022-05-21 13:40		Long: 140.205565, Lat: -20.170144		

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	15	*Eucalyptus leucophylla* *Corymbia terminalis* *Corymbia aparrerinja*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Carissa lanceolata* *Atalaya hemiglauca*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Triodia pungens* *Heteropogon contortus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA__VB_20220522_024	2022-05-22 08:22		Long: 140.178309, Lat: -20.142445		

Vegetation community description: 1.11.3a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Eucalyptus leucophylla* *Corymbia terminalis*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Dodonaea lanceolata subsp. sessifolia*
S2	-	-	
G	-	-	*Triodia pungens* *Cenchrus ciliaris* *Corchorus sidioides*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220522_025	2022-05-22 08:56		Long: 140.181627, Lat: -20.142123		

Vegetation community description: 1.11.2a

Comments: Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Corymbia terminalis* *Corymbia aparrerinja* *Eucalyptus leucophloia*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Acacia chippendaleii* *Acacia Acradenia* *Grevillea mimosoides*
S2	-	-	
G	-	-	*Triodia pungens* *Cajanus acutifolius* *Fimbristylis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220523_026	2022-05-23 09:52		Long: 140.142078, Lat: -20.144119		

Vegetation community description: 1.3.6a

Comments: E. Bella present. Hand written notes

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	15	*Corymbia terminalis* *Corymbia bella* *Lysiphyllum cunninghamii* *Eucalyptus leucophylla*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Vachellia farnesiana* *Carissia lanceolata*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Malvastrum americanum*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_VB_20220523_027	2022-05-23 10:37		Long: 140.140511, Lat: -20.145969		

Vegetation community description: 1.3.6a

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla* *Atalaya hemiglauca* *Lysiphyllum cunninghamii* *Corymbia terminalis* *Corymbia aparrerinja*
T2	-	-	
T3	-	-	
S1	-	-	*Acacia chisholmii* *Vachellia farnesiana* *Carissa lanceolata*
S2	-	-	
G	-	-	*Cenchrus ciliaris* *Aristida inaequiglumis*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
Q01RS	2023-08-07 14:12		Long: 140.177894, Lat: -20.176127	Lz 11 - Hills and lowlands on metamorphic rocks	Remnant

Vegetation community description:

Comments: RE 1.11.2a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	0	0	
T1	6	15	*Eucalyptus leucophloia subsp. euroa* *Terminalia aridicola*
T2			
T3			
S1	2	15	*Acacia retivenea subsp. retivenea* *Tephrosia virens* *Acacia chisholmii*
S2			
G		50	*Corchorus sidoides* *Triodia pungens*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
New camp extension	2023-08-08 09:30		Long: 140.206078, Lat: -20.167493	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy clay loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: Soil red-brown. Check Carissa. RE is 1.11.3a - bioregion 1 not in drop-down list

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	0	0	
T1	8	15	*Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis* *Eucalyptus leucophylla*
T2	0	0	
T3			
S1	2	80	*Acacia chisholmii* *Carissa lanceolata*
S2			
G		60	*Triodia pungens* *Cenchrus ciliaris* *Aristida sp.*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
New camp south	2023-08-10 15:09		Long: 140.205097, Lat: -20.171514	Lz 11 - Hills and lowlands on metamorphic rocks Red Silty clay loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: As per north of camp but slightly less acacia chisolmii here and bit more open. See photo on phone can't add here.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	0	0	
T1	7	20	*Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	50	*Acacia chisholmii* *Carissa lanceolata* *Geijera parviflora*
S2			
G		40	*Triodia pungens* *Cenchrus ciliaris* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
New camp south 2	2023-08-10 15:19		Long: 140.206082, Lat: -20.172017	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Regrowth

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: Vanessa B collector. Can't take photos in app, see phone. Area changes slightly to more open area with C. appererinja appearing but then goes back to heavy acacia chisolmii. RE still 1.11.3a.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	13	3	*Corymbia aparrerinja*
T1	7	10	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	5	*Carissa lanceolata* *Hakea lorea subsp. lorea* *Acacia chisholmii*
S2			
G		65	*Cenchrus ciliaris* *Aristida sp.* *Crotalaria novae-hollandiae* *Sclerolaena sp.* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_01	2023-08-11 14:01		Long: 140.140053, Lat: -20.324602	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy clay loam	Remnant

Vegetation community description:

Comments: Vanessa B. RE 1.11.3a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Eucalyptus leucophylla* *Corymbia terminalis* *Acacia cambagei*
T2			
T3			
S1	2	20	*Acacia chisholmii* *Carissa lanceolata* *Atalaya hemiglauca*
S2			
G		40	*Triodia basedowii* *Eragrostis sp.* *Aerva javanica* *Sporobolus australasicus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_02	2023-08-11 14:19		Long: 140.138982, Lat: -20.326747	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy clay loam	Remnant

Vegetation community description:

Comments: Vanessa B. RE 1.11.3a. Soil red-brown with rocky surface. Undulating terrain. Aristida (grass 3) dom here. Shrub layer of Acacia varies in density from scattered to thick.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T2			
T3			
S1	2	30	*Acacia chisholmii* *Carissa lanceolata*
S2			
G		60	*Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_03	2023-08-11 14:56		Long: 140.142961, Lat: -20.32123	Lz 5 - Old loamy and sandy plains Sandy loam	Remnant

Vegetation community description:

Comments: VB. RE 1.5.4. Much sandier soils here. Buffel dominant and also less shrubs, almost no acacia chisolmii at this spot. Maybe likes the lz11 better?

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	30	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	10	*Carissa lanceolata* *Atalaya hemiglauca* *Acacia chisholmii*
S2			
G		30	*Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_04	2023-08-11 15:08		Long: 140.141087, Lat: -20.319553	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	

Vegetation community description:

Comments: VB. RE 1.11.3a. Aristida 1 and Grass 3 (Aristida) dominant here. Much less Acacia here but is patchy and is quite dense in patches.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Eucalyptus leucophylla* *Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	10	*Acacia chisholmii* *Carissa lanceolata*
S2			
G		60	*Aristida sp.* *Cenchrus ciliaris* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_05	2023-08-11 15:25		Long: 140.137232, Lat: -20.320657	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE at this very spot is 1.11.2a I think. It's on a little isolated knoll of rocky hill and is exclusively snappy gum. As soon as go back down onto the flatter area you also get c. terminalis and Euc leucophylla and is back to 1.11.3a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	25	*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1			*Tephrosia virens*
S2			
G		40	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_06	2023-08-11 15:36		Long: 140.133506, Lat: -20.320802	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a. Dense acacia chisholmii. Standard 1.11.3a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Eucalyptus leucophylla* *Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	50	*Acacia chisholmii*
S2			
G		30	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_07	2023-08-12 09:11		Long: 140.134624, Lat: -20.325036	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla* *Acacia cambagei* *Corymbia terminalis*
T2			
T3			
S1	2	30	*Acacia chisholmii* *Vachellia farnesiana*
S2			
G		40	*Triodia pungens* *Aristida contorta* *Enneapogon sp.* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_08	2023-08-12 09:22		Long: 140.138526, Lat: -20.322864	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T2			
T3			
S1	2	10	*Acacia chisholmii* *Carissa lanceolata* *Atalaya hemiglauca*
S2			
G		50	*Triodia pungens* *Aristida contorta* *Enneapogon sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_09	2023-08-12 11:33		Long: 140.150027, Lat: -20.318525	Lz 5 - Old loamy and sandy plains Red Sandy loam	

Vegetation community description:

Comments: VB. Whole poly from BC09 to here is ALL the same - gidgee on sand plain. Limited rock. RE 1.5.4

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	25	*Acacia cambagei* *Atalaya hemiglauca*
T2			
T3			
S1	2	15	*Eremophila mitchellii* *Grevillea striata* *Acacia cambagei*
S2			
G		20	

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_10	2023-08-12 12:11		Long: 140.153874, Lat: -20.304155	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a. Less dominated by spinifex here, more Aristida present. Acacia patchy, some dense some open areas.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	18	1	*Corymbia aparrerinja*
T1	6	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	25	*Acacia chisholmii*
S2			
G		60	*Aristida contorta* *Triodia pungens* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_11	2023-08-12 12:26		Long: 140.156396, Lat: -20.301662	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a but snappys are dominant and does look a bit sandier so could be a 5 but lots of rock and geol map says 11. Less spinifex here also, more Aristida.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	25	*Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	20	*Eremophila sp.* *Acacia chisholmii*
S2			
G		50	*Aristida ingrata* *Aristida contorta* *Enneapogon sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_12	2023-08-12 12:41		Long: 140.15525, Lat: -20.298782	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a. Seems to be no snappy here.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	30	*Acacia chisholmii* *Eremophila sp.* *Atalaya hemiglauca*
S2			
G		50	*Cenchrus ciliaris* *Aerva javanica* *Enneapogon sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_13	2023-08-12 13:03		Long: 140.158947, Lat: -20.300776	Lz 11 - Hills and lowlands on metamorphic rocks	

Vegetation community description:

Comments: VB. RE 1.11.3a all box and bloodwood.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	40	*Acacia chisholmii*
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_13	2023-08-12 13:15		Long: 140.160226, Lat: -20.298613	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a. Buffel dominates here, not much else in ground. Box and bloodwood over dense acacia.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	3	70	*Acacia chisholmii*
S2			
G		50	*Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_14	2023-08-12 13:51		Long: 140.158533, Lat: -20.308407	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description:

Comments: VB. Mapped as 1.5.4 and species match, geol mapped as 5 and could be if includes colluvium. Lots of surface rock. Snappy dominant almost to exclusion of all else.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	25	*Eucalyptus leucophloia subsp. euroa* *Acacia cambagei*
T2			
T3			
S1	1	3	*Atalaya hemiglauca* *Eremophila mitchellii*
S2			
G		30	*Triodia pungens* *Maireana villosa*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_15	2023-08-12 14:07		Long: 140.161174, Lat: -20.309463	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description:

Comments: VB. Point in patch of almost pure gidgee. Patch surrounded by box and bloodwood. Mapped as 5 on geol and is very Sandy. RE 1.5.4

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	10	15	*Acacia cambagei* *Eucalyptus leucophylla*
T2			
T3			
S1	2	20	*Acacia cambagei* *Acacia chisholmii*
S2			
G		30	*Cenchrus ciliaris* *Sporobolus australasicus* *Sporobolus actinocladus* *Enneapogon polyphyllus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_16	2023-08-12 14:28		Long: 140.162684, Lat: -20.306819	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description:

Comments: VB. RE 1.5.4. Gidgee, bloodwood,box with very scattered shrub layer over mostly Salsola kali (not in app drop-down options) and native grasses.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Acacia cambagei* *Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	5	*Eremophila mitchellii* *Acacia cambagei* *Grevillea striata*
S2			
G		20	*Enneapogon polyphyllus* *Aristida contorta* *Sporobolus sp.* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_17	2023-08-12 14:44		Long: 140.164206, Lat: -20.304388	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description:

Comments: VB. RE 1.5.4. This site has been selectively cleared in the past with stumps present and a clear T1 and T2 layer of original and regrow the gidgee. Would still make remnant status though.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Acacia cambagei* *Corymbia terminalis*
T2	4	25	*Acacia cambagei*
T3			
S1	2	15	*Acacia cambagei* *Eremophila mitchellii*
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_18	2023-08-13 07:10		Long: 140.167141, Lat: -20.145338	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Regrowth

Vegetation community description:

Comments: VB. RE 1.11.3a. T2 layer is really just the regrowth of T1. Not sure if has been cleared or just more open area. Rocky surface.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	5	*Corymbia terminalis*
T2	3	10	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T3			
S1	1	10	*Acacia chisholmii*
S2			
G		50	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_19	2023-08-13 07:38		Long: 140.173166, Lat: -20.146072	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. RE 1.11.3a. There is a taller emergent/T1 (couldn't decide) of C terminalis that is about 3-5 m taller than the more dense T2 layer of predominantly Euc leucophylla. Almost exclusively acacia chis in S1 & Triodia ground. Soil brown-grey

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	8	*Corymbia terminalis*
T2	5	20	*Eucalyptus leucophylla* *Corymbia terminalis*
T3			
S1	2	35	*Acacia chisholmii*
S2			
G		40	*Triodia pungens* *Aerva javanica* *Ptilotus sp.* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA23_20	2023-08-13 07:55		Long: 140.172749, Lat: -20.144971	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description:

Comments: VB. Same as QA23_19, have decided it's and E and T1 rather than T1/T2. Taller c. Terminalis are infrequent. Soil same grey-brown. Lots of surface gravel. Trees seem to follow patter of low on rise w taller Ct then equal taller in dips btw rises

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	9	3	*Corymbia terminalis*
T1	6	20	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	35	*Acacia chisholmii* *Tephrosia virens*
S2			
G		50	*Triodia pungens* *Aerva javanica*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW_QA01	2023-08-13 13:32		Long: 140.128977, Lat: -20.33345	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy clay loam	Remnant

Vegetation community description:

Comments: photos in phone. gentle rocky slope. ground height 1m. also aerial javanica

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	5	*Corymbia terminalis*
T2			
T3			
S1	2	30	*Acacia chisholmii* *Corymbia terminalis*
S2			
G		50	*Triodia pungens* *Enneapogon lindleyanus* *Cenchrus ciliaris* *Aristida sp.* *Eragrostis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW_QA02	2023-08-13 13:32		Long: 140.129797, Lat: -20.32977	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy clay loam	Remnant

Vegetation community description:

Comments: photos in phone. gentle rocky slope. ground height 0.4m. predominantly buffel

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	30	*Acacia chisholmii* *Corymbia terminalis* *Eucalyptus leucophylla*
S2	1	5	*Tephrosia virens* *Acacia chisholmii*
G		80	*Triodia pungens* *Cenchrus ciliaris*

North	East
South	**West**

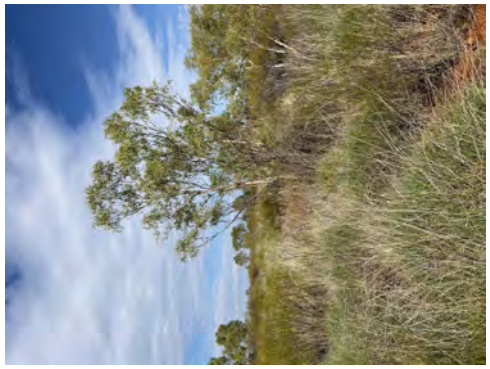
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
LW-BF01	2023-11-30 09:10		Long: 140.203651, Lat: -20.170064	Lz 11 - Hills and lowlands on metamorphic rocks	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: Slope 0 degrees, flat.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	5	*Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2		7	
T3			
S1	1	60	
S2			
G			

North	East
South	**West**
	

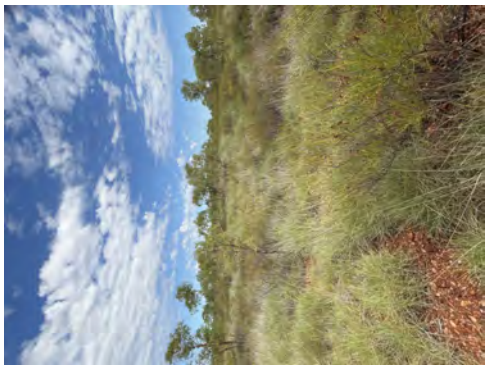
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
LW-BF02	2023-11-30 09:56		Long: 140.20384, Lat: -20.167858	Lz 11 - Hills and lowlands on metamorphic rocks	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: Slope 3 degrees, aspect 350 degrees towards small drainage

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	5	*Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2		7	
T3			
S1	1	60	
S2			
G			

North	East
	
South	**West**

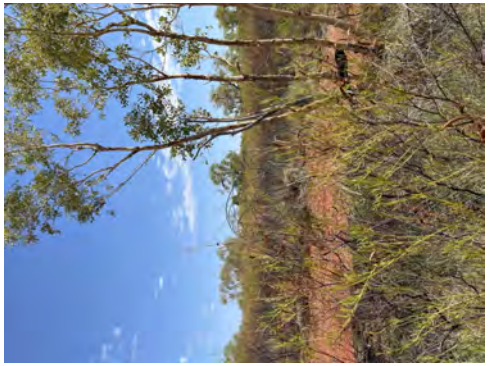
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
LW-BF03	2023-11-30 10:05		Long: 140.20572, Lat: -20.168273	Lz 11 - Hills and lowlands on metamorphic rocks	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: Slope 2 degrees, aspect 80 degrees.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	5	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	80	
S2			
G			

North	East
	
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
LW-BF04	2023-11-30 10:22		Long: 140.206246, Lat: -20.166389	Lz 11 - Hills and lowlands on metamorphic rocks	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: Slope 1 degree, aspect 80 degrees

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2			
T3			
S1	1	15	
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF01	2023-11-30 08:37		Long: 140.205073, Lat: -20.172634	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 2 deg aspect west

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	13	3	*Corymbia aparrerinja*
T1	6	10	*Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	50	*Acacia chisholmii*
S2			
G		65	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF02	2023-11-30 08:55		Long: 140.204779, Lat: -20.174324	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Regrowth

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	10	3	*Corymbia aparrerinja*
T1	6	10	*Corymbia aparrerinja*
T2			
T3			
S1	2	30	*Acacia chisholmii*
S2			
G		25	*Triodia pungens* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF03	2023-11-30 09:06		Long: 140.207602, Lat: -20.173703	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 1 deg aspect west

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	10	5	*Eucalyptus leucophylla* *Corymbia aparrerinja*
T1	6	10	*Eucalyptus leucophylla*
T2			
T3			
S1	2	65	*Acacia chisholmii*
S2			
G		50	*Triodia pungens* *Aristida sp.* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF04	2023-11-30 09:18		Long: 140.209027, Lat: -20.172568	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	12	5	*Corymbia aparrerinja*
T1	6	10	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2			
T3			
S1	2	30	*Acacia chisholmii*
S2			
G		15	*Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF05	2023-11-30 09:27		Long: 140.207201, Lat: -20.172361	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	15	*Corymbia aparrerinja* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	40	*Acacia chisholmii*
S2			
G		15	*Cenchrus ciliaris* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF06	2023-11-30 09:40		Long: 140.207421, Lat: -20.170503	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	15	*Corymbia aparrerinja* *Eucalyptus leucophylla* *Corymbia erythrophloia*
T2			
T3			
S1	2	15	*Carissa lanceolata* *Acacia chisholmii*
S2			
G		15	*Cenchrus ciliaris* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF07	2023-11-30 09:52		Long: 140.209208, Lat: -20.170529	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 1 aspect east

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	60	*Carissa lanceolata* *Acacia chisholmii*
S2			
G		25	*Cenchrus ciliaris* *Aristida sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF08	2023-11-30 10:03		Long: 140.209267, Lat: -20.168751	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat. next to shallow eroded drainage

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	15	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	50	*Vachellia nilotica* *Acacia chisholmii*
S2			
G		35	*Cenchrus ciliaris* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF09	2023-11-30 10:14		Long: 140.207571, Lat: -20.16864	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat. next to shallow eroded drainage

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	35	*Acacia chisholmii*
S2			
G		35	*Cenchrus ciliaris* *Aristida sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF10	2023-11-30 10:24		Long: 140.207146, Lat: -20.16674	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	85	*Acacia chisholmii*
S2			
G		65	*Cenchrus ciliaris* *Aristida sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF11	2023-11-30 10:29		Long: 140.206608, Lat: -20.168037	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: slope 0 flat

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	40	*Acacia chisholmii*
S2			
G		65	*Aristida sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW-BF12	2023-11-30 11:03		Long: 140.206434, Lat: -20.163143	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 11.1.1 - Sporobolus virginicus grassland on marine clay plains

Comments: Village access track. undulating hills

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	10	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	10	*Acacia chisholmii*
S2			
G		70	*Aristida sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-1	2024-03-16 09:04		Long: 140.137969, Lat: -20.14139	Lz 5 - Old loamy and sandy plains Red Clay loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: RS and LW. Weed cover low. Forbes native lavender. Ground cover consist of native wire grasses. E. leuc with C. Termanlis. No pruinosa present but RE is more like 1.5.16

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1		20	*Eucalyptus leucophylla* *Corymbia terminalis* *Acacia cambagei*
T2			
T3			
S1		9	*Acacia chisholmii* *Carissa lanceolata*
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-2	2024-03-16 09:47		Long: 140.138418, Lat: -20.14028		

Vegetation community description:

Comments: RS and LW. Non rem.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
	2024-03-16 09:54		Long: 140.13911, Lat: -20.139262		Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: RS and LW. 1.5.13 remnant t

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-3	2024-03-16 09:59		Long: 140.139277, Lat: -20.138482		

Vegetation community description:

Comments: 1.5.16 remnant - trees historically cleared potentially (TBC)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA TC-4	2024-03-16 10:07		Long: 140.139884, Lat: -20.13753	Lz 5 - Old loamy and sandy plains Red Clay loam	Remnant

Vegetation community description:

Comments: RS and LW. 1.5.16. Unknown shrub 1

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	25	*Acacia cambagei*
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-5	2024-03-16 10:22		Long: 140.14255, Lat: -20.136623		

Vegetation community description:

Comments: 1.5.13 remnant

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
	2024-03-16 10:26		Long: 140.142981, Lat: -20.136592		

Vegetation community description:

Comments: Non rem

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-6	2024-03-16 10:31		Long: 140.142961, Lat: -20.135751		Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: 1.5.16 remnant

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-7	2024-03-16 10:35		Long: 140.143858, Lat: -20.13524		Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: 1.5.13 rem

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-8	2024-03-16 10:46		Long: 140.145017, Lat: -20.135413		

Vegetation community description:

Comments: 1.5.13 regrowth

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-9	2024-03-16 11:18		Long: 140.14744, Lat: -20.134526	Lz 3 - Alluvium Red Sandy clay loam	Remnant

Vegetation community description:

Comments: RE 1.3.7 Remnant. Weeds: passiflora. Some coverage of weeds. Melaleuca spp. weed cover is low (Buffel). Still water in the creek. Plenty of eucs with hollows along waterline.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	18	43	*Eucalyptus camaldulensis subsp. camaldulensis* *Melaleuca leucadendra* *Lophostemon grandiflorus subsp. riparius*
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-010	2024-03-16 12:28		Long: 140.143328, Lat: -20.138249	Lz 5 - Old loamy and sandy plains Brown Sandy clay loam	Remnant

Vegetation community description:

Comments: 1.5.13 rem. More bauhinia present than previous section in blue. Dominant weeds (Buffel)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla*
T2			*Lysiphyllum sp.*
T3			
S1			*Acacia chisholmii*
S2			
G			

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-11	2024-03-16 12:37		Long: 140.143001, Lat: -20.138591		

Vegetation community description:

Comments: 1.3.7 riparian veg remnant. C. Terms also. Eucalyptus aparrerinja

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-12	2024-03-16 12:52		Long: 140.141413, Lat: -20.1405		Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: 1.5.13 rem

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-13	2024-03-16 13:00		Long: 140.141534, Lat: -20.141674	Lz 5 - Old loamy and sandy plains	Non-remnant

Vegetation community description:

Comments: Non rem. All weed

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			*Vachellia sp.*
S2			
G			

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-14	2024-03-16 13:02		Long: 140.141202, Lat: -20.142238		Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: From here until pink line all 1.5.13. ground cover Buffel

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			*Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 12:56		Long: 140.141787, Lat: -20.140603		

Vegetation community description:

Comments: Looks alluvial south side of bank, Euccama

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-13	2024-03-16 14:18		Long: 140.145876, Lat: -20.158096	Lz 3 - Alluvium Red Stony	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: 1.3.7 remnant. Ground cover introduced pasture grass (Chloris) Sandy gravel. T2 tree species 2 is acacia spp. sandpaper fig is S1

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	12	35	*Eucalyptus camaldulensis subsp. camaldulensis*
T2			*Lophostemon grandiflorus subsp. riparius*
T3			
S1			
S2			
G			

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-14	2024-03-16 14:34		Long: 140.144569, Lat: -20.157343	Lz 5 - Old loamy and sandy plains	Regrowth

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: 1.5.13. <5 years fire? regrowth but EDL is the acacia chisholmii

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-15	2024-03-16 14:51		Long: 140.143997, Lat: -20.157969	Lz 5 - Old loamy and sandy plains Red Clay loam	Regrowth

Vegetation community description:

Comments: re 1.5.13. Lots of native grasses. Double check condition - look at benchmarks

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1			*Acacia chisholmii* *Grevillea striata*
S2			
G			*Spinifex sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 14:44		Long: 140.14367, Lat: -20.157267		Regrowth

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 14:47		Long: 140.143923, Lat: -20.157921	Lz 5 - Old loamy and sandy plains	

Vegetation community description:

Comments: Pocket of Acacia sp.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 15:00		Long: 140.143435, Lat: -20.157382	Lz 5 - Old loamy and sandy plains	Regrowth

Vegetation community description:

Comments: Dark green on aerial reflects the high density Acacia chisholmii. Spinifex gc. Shot Crete soil

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 15:03		Long: 140.143233, Lat: -20.157157	Lz 5 - Old loamy and sandy plains Red	Regrowth

Vegetation community description:

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1			*Acacia chisholmii*
S2			
G			

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 15:19		Long: 140.141611, Lat: -20.157446	Lz 5 - Old loamy and sandy plains	Regrowth

Vegetation community description:

Comments: Dense Acacia chishomii, scattered euc/corymbia throughout

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	10	*Corymbia terminalis* *Eucalyptus pruinosa subsp. pruinosa*
T2			
T3			
S1	2	75	*Acacia chisholmii*
S2			
G		10	*Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-16 15:39		Long: 140.143722, Lat: -20.160684	Lz 5 - Old loamy and sandy plains	Regrowth

Vegetation community description:

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	12	*Eucalyptus leucophylla* *Eucalyptus pruinosa subsp. pruinosa* *Corymbia terminalis*
T2			
T3			
S1			
S2			
G			

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-17 07:51		Long: 140.147693, Lat: -20.15863		

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-16	2024-03-17 07:59		Long: 140.147425, Lat: -20.157292	Lz 5 - Old loamy and sandy plains Yellow Sandy clay	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: Double check RE condition. Low weeds Shrub cover is really dense which is consistent with other dark aerials on the map

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1		75	*Acacia chisholmii*
S2			
G			*Spinifex sp.*

North	East
South	**West**
	No photo

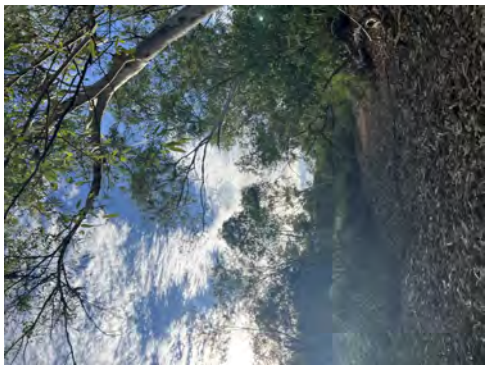
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-16	2024-03-17 08:25		Long: 140.145176, Lat: -20.155685	Lz 3 - Alluvium Dark Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: Gravely sand. No melaleucas. Water still in Creek bed. Buffel on banks

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	20	35	*Eucalyptus camaldulensis subsp. camaldulensis*
T2			*Lophostemon grandiflorus subsp. riparius*
T3			
S1			*Acacia sp.* *Ficus coronata*
S2			
G			

North	East
	
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-17	2024-03-17 09:23		Long: 140.14198, Lat: -20.15397	Lz 5 - Old loamy and sandy plains Red Sandy clay loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: 1.5.13. Acacia chi surrounding bare area on aerial. No weeds Remnant surrounded by regrowth (darker green areas on aerial?)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1			
S2			
G			*Spinifex sp.*

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-17 09:35		Long: 140.140646, Lat: -20.153494	Lz 5 - Old loamy and sandy plains	Regrowth

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: SO1 drainage lines by dense Acachis

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	10	*Eucalyptus pruinosa subsp. pruinosa*
T2			
T3			
S1	2	75	*Acacia chisholmii*
S2			
G			

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-17 09:42		Long: 140.13942, Lat: -20.154191		

Vegetation community description:

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-18	2024-03-17 09:50		Long: 140.1396, Lat: -20.154798	Lz 3 - Alluvium Red Stony	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: Maybe 1.3.7?? No Euccama. No mels. Stony sand. Ground cover Buffel on banks. Some

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	14	22	*Corymbia terminalis* *Lophostemon grandiflorus subsp. riparius* *Bauhinia sp.*
T2			
T3			
S1			*Acacia chisholmii*
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-17 10:58		Long: 140.140975, Lat: -20.158251		

Vegetation community description:

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
CTC GTRE	2024-03-17 11:00		Long: 140.14133, Lat: -20.158244		

Vegetation community description:

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus pruinosa subsp. pruinosa*
T2			
T3			
S1			
S2			
G			

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
	2024-03-17 11:29		Long: 140.146931, Lat: -20.159312		

Vegetation community description:

Comments: 1.3.7 rem. T1 Species 1 euc cama

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-19	2024-03-17 12:20		Long: 140.138326, Lat: -20.147991	Lz 3 - Alluvium Orange Sandy clay loam	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: Weeds on banks (Buffel)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	18	25	*Eucalyptus camaldulensis subsp. camaldulensis* *Corymbia aparrerinja* *Lophostemon grandiflorus subsp. riparius*
T2			*Acacia sp.* *Bauhinia sp.*
T3			*Ficus coronata*
S1			*Ficus coronata*
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-20	2024-03-17 12:39		Long: 140.136928, Lat: -20.147617		Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: 1.5.13 rem. Buffel. Right before it gets dense w acacia

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-21	2024-03-17 12:43		Long: 140.13658, Lat: -20.147691		Regrowth

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: Dense Acachis (consistent with dark green on aerial)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	8	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	3	75	*Acacia chisholmii*
S2			
G			*Spinifex sp.*

North	East
South	**West**
	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-23	2024-03-17 13:05		Long: 140.137878, Lat: -20.144695	Lz 5 - Old loamy and sandy plains Red Sandy clay loam	Remnant

Vegetation community description:

Comments: Buffel and chloris. Dark green is 1.5.16 (gidgee) on aerial and sparse area on aerial is 1.5.13

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	20	*Eucalyptus leucophylla* *Acacia cambagei* *Corymbia terminalis*
T2			
T3			
S1			*Carissa lanceolata*
S2			
G			*Spinifex sp.* *Aristida sp.* *Eragrostis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-24	2024-03-17 13:15		Long: 140.137335, Lat: -20.144791	Lz 5 - Old loamy and sandy plains Red Sandy clay loam	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: Improved pasture grass groundcover (buffel and Chloris sp.)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	40	*Acacia cambagei*
T2			
T3			
S1			
S2			
G			*Sporobolus sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-24	2024-03-17 13:24		Long: 140.140401, Lat: -20.144354	Red Sandy clay loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: 1.5.13 rem. Buffel

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	13	25	*Eucalyptus leucophylla* *Corymbia terminalis* *Bauhinia sp.*
T2			
T3			
S1			
S2			
G			*Spinifex sp.*

North	East
South	**West**

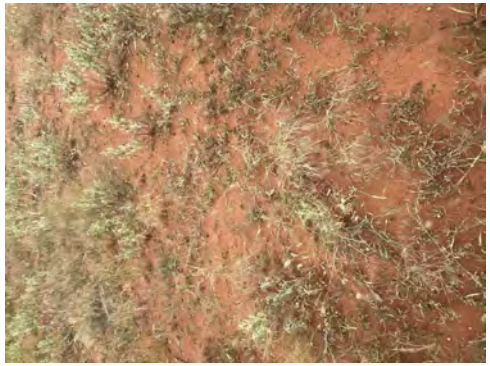
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
Wind farm GTRE	2024-03-17 14:28		Long: 140.109564, Lat: -20.171096	Lz 5 - Old loamy and sandy plains Red	

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: GC = mix of native grass, improved pasture grass (chloris sp.) and Sida sp.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	10	10	*Corymbia terminalis* *Acacia cambagei* *Grevillea sp.*
T2			
T3			
S1	1	10	*Carissa lanceolata* *Acacia sp.*
S2			
G			

North	East
	
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QACTC-26	2024-03-17 14:31		Long: 140.111215, Lat: -20.171055	Lz 5 - Old loamy and sandy plains Red Sandy clay loam	Remnant

Vegetation community description:

Comments: 1.5.13. Rem. Thick Sida cover the further east you walk. Ground cover native grass, Chloris, some Buffel. Spinifex and aristida. Less acacia chisi present in more sparse areas, thicker in areas where there is darker shades on aerial.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Acacia cambagei* *Eucalyptus leucophylla* *Corymbia terminalis*
T2			*Grevillea striata*
T3			
S1			*Acacia chisholmii* *Carissa sp.* *Acacia sp.*
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
AR_QA01	2024-04-06 15:22		Long: 140.209666, Lat: -20.160042	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: VB

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	9	5	*Corymbia terminalis*
T1	6	20	*Eucalyptus leucophylla*
T2			
T3			
S1	2	40	*Acacia chisholmii* *Carissa lanceolata*
S2			
G		80	*Aristida inaequiglumis* *Themeda triandra* *Triodia pungens* *Heteropogon contortus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
AR_QA02	2024-04-06 15:45		Long: 140.212402, Lat: -20.160053	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	9	3	*Corymbia aparrerinja*
T1	6	10	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	10	*Acacia chisholmii* *Carissa lanceolata* *Atalaya hemiglauca*
S2			
G		70	*Cenchrus ciliaris* *Aristida inaequiglumis* *Enneapogon polyphyllus* *Eragrostis sp.*

North	East
South	**West**

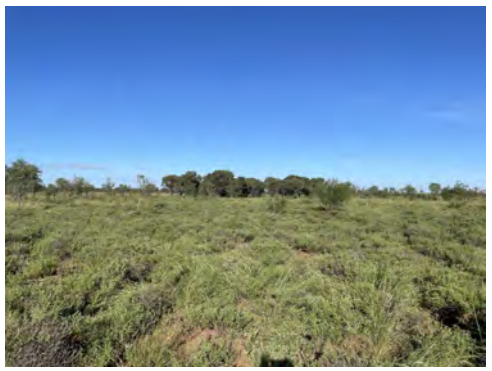
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA01	2024-04-07 08:07		Long: 140.128062, Lat: -20.141861	Lz 4 - Clay plains Brown Clay	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Grassland with scattered shrubs. Trees in distance are small areas of 2.4.3a Gidgee patches. Very heavily trampled and grazed by cattle as evidenced by dominance of forbs over grasses.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1	3	3	*Atalaya hemiglauca* *Vachellia farnesiana*
S2			
G		60	*Ocimum tenuiflorum* *Aristida latifolia* *Astrebla sp.*

North	East
South	**West**
	

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA02	2024-04-07 08:24		Long: 140.127037, Lat: -20.142316	Lz 4 - Clay plains Brown Clay	Remnant

Vegetation community description: 2.4.3 - Acacia cambagei low woodland on Tertiary clay deposits and shallow clay depressions on plateau surfaces

Comments: VB. Small patch of gidgee.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	30	*Acacia cambagei*
T2			
T3			
S1	3	40	*Acacia cambagei*
S2			
G		40	*Sporobolus australasicus* *Aristida latifolia* *Ocimum tenuiflorum* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA03	2024-04-07 08:36		Long: 140.126907, Lat: -20.143519	Lz 4 - Clay plains Brown Clay loam	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	2	*Lysiphyllum carronii* *Acacia cambagei*
T2			
T3			
S1	3	5	*Atalaya hemiglauca* *Vachellia farnesiana*
S2			
G		60	*Ocimum tenuiflorum* *Aristida latifolia* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA04	2024-04-07 09:13		Long: 140.124239, Lat: -20.138167		Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Heavily grazed and trampled.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	9	1	*Atalaya hemiglauca*
T1			
T2			
T3			
S1	2	5	*Atalaya hemiglauca* *Acacia victoriae*
S2			
G		50	*Ocimum tenuiflorum* *Aristida latifolia* *Stylosanthes sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA04	2024-04-07 09:28		Long: 140.124171, Lat: -20.138096	Lz 4 - Clay plains Brown Clay loam	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Heavily grazed and trampled.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	9	1	*Atalaya hemiglauca*
T1			
T2			
T3			
S1	3	5	*Atalaya hemiglauca* *Acacia victoriae*
S2			
G		50	*Aristida latifolia* *Ocimum tenuiflorum* *Brachyachne* *Ptilotus spicatus* *Sida sp.*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA05	2024-04-07 09:48		Long: 140.122484, Lat: -20.135965	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Healthy remnant patch of 1.5.13, lots of good native grass cover and diversity.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	20	*Eucalyptus pruinosa subsp. pruinosa* *Corymbia terminalis* *Lysiphyllum carronii*
T2			
T3			
S1	2	35	*Acacia chisholmii* *Carissa lanceolata* *Flueggea sp.*
S2			
G		70	*Eulalia aurea* *Astrebla sp.* *Aristida inaequiglumis* *Sporobolus australasicus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA06	2024-04-07 10:24		Long: 140.118989, Lat: -20.13356	Lz 4 - Clay plains Greyish Clay	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Grass for ID bothriochloa vs dianthus

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	3	*Atalaya hemiglauca* *Acacia cambagei*
T2			
T3			
S1	2	5	*Carissa lanceolata* *Atalaya hemiglauca* *Acacia victoriae*
S2			
G		50	*Aristida latifolia* *Ocimum tenuiflorum* *Aristida sp.* *Cyperus sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA07	2024-04-07 11:04		Long: 140.117288, Lat: -20.136593	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description:

Comments: VB. Very strange RE, dom canopy tree is C. Appererinja.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	11	12	*Corymbia aparrerinja* *Lysiphyllum carronii* *Eucalyptus pruinosa subsp. pruinosa*
T2	5	10	*Acacia holosericea* *Corymbia aparrerinja*
T3			
S1	2	35	*Carissa lanceolata* *Acacia chisholmii* *Flueggea sp.*
S2			
G		85	*Eulalia aurea* *Cenchrus ciliaris* *Aristida sp.* *Astrebla sp.* *Heteropogon contortus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA08	2024-04-07 11:20		Long: 140.118049, Lat: -20.136932	Red Clay loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Corymbia terminalis in T1 layer. This is more rep of 1.5.13 I think. There is just a bit less pruinosa at the previous site (07). Lots more acacia chisholmii here which may explain the darker pattern on image as quite dense.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	10	15	*Corymbia aparrerinja* *Lysiphyllum carronii* *Eucalyptus pruinosa subsp. pruinosa*
T2	5	8	*Acacia holosericea* *Atalaya hemiglauca*
T3			
S1	2	30	*Acacia chisholmii* *Carissa lanceolata* *Flueggea sp.*
S2			
G		85	*Astrebla sp.* *Aristida sp.* *Abutilon sp.* *Gossypium australe* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA09	2024-04-07 12:18		Long: 140.124342, Lat: -20.146719	Lz 4 - Clay plains Orange Clay	Remnant

Vegetation community description: 2.4.3 - Acacia cambagei low woodland on Tertiary clay deposits and shallow clay depressions on plateau surfaces

Comments: VB. Area is remnant but appears to have been burnt and a lot of the taller matures are dead/stags and regrowth is now the T1.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	30	*Acacia cambagei*
T2			
T3			
S1	2	20	*Acacia cambagei*
S2			
G		40	*Ocimum tenuiflorum* *Aristida sp.* *Ptilotus spicatus* *Enneapogon polyphyllus* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA10	2024-04-07 12:53		Long: 140.112698, Lat: -20.153091	Lz 4 - Clay plains Greyish Clay	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Huge area of 2.4.2. Some encroachment of vachellia.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1	3	3	*Vachellia farnesiana* *Acacia victoriae* *Atalaya hemiglauca*
S2			
G		50	*Ocimum tenuiflorum* *Aristida latifolia* *Brachyachne* *Sida sp.* *Goodenia sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA11	2024-04-07 13:22		Long: 140.113031, Lat: -20.146265	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Could possibly map out 1.5.13 from image as the acacia chisholmii only seems to be present in this Re and that is what is making the image so dark.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	20	*Eucalyptus pruinosa subsp. pruinosa* *Corymbia aparrerinja* *Acacia cambagei*
T2			
T3			
S1	3	30	*Acacia chisholmii* *Atalaya hemiglauca* *Senna artemisioides subsp. oligophylla*
S2			
G		80	*Eulalia aurea* *Aristida sp.* *Astrebla sp.* *Sida sp.* *Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA12	2024-04-07 14:18		Long: 140.108841, Lat: -20.143237	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description:

Comments: VB. Have a look at bioregion 2 REs as this seems more like a land zone 5 than 4. Species are correct though to mapped RE

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Acacia cambagei* *Eucalyptus pruinosa subsp. pruinosa*
T2	5	30	*Acacia cambagei*
T3			
S1	2	15	*Eremophila sp.* *Acacia chisholmii* *Atalaya hemiglauca*
S2			
G		20	*Enneapogon polyphyllus* *Aristida ingrata* *Sporobolus australasicus* *Cyperus gracilis* *Chloris sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA13	2024-04-07 14:38		Long: 140.110518, Lat: -20.143529	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Pruinosa woodland but it integrates patchily with the gidgee and vice versa. Re mapping correct with 1.5.13 and 1.5.16 mixed

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	25	*Eucalyptus pruinosa subsp. pruinosa* *Acacia cambagei* *Atalaya hemiglauca*
T2			
T3			
S1	2	35	*Eremophila sp.* *Acacia chisholmii* *Senna artemisioides subsp. oligophylla*
S2			
G		60	*Eulalia aurea* *Aristida ingrata* *Ptilotus sp.* *Fimbristylis sp.* *Eragrostis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
BP_QA01	2024-04-08 07:56		Long: 140.117634, Lat: -20.125804	Lz 4 - Clay plains Greyish Clay	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Site heavily impacted by grazing, Mitchell grasses appear preferentially grazed so not abundant

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1	3	2	*Acacia victoriae* *Vachellia farnesiana*
S2			
G		80	*Ocimum tenuiflorum* *Aristida latifolia* *Brachyachne convergens* *Astrebla sp.* *Cyperus sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
BP_QA02	2024-04-08 08:10		Long: 140.122652, Lat: -20.127857	Lz 4 - Clay plains Greyish Clay	Remnant

Vegetation community description: 2.4.3 - Acacia cambagei low woodland on Tertiary clay deposits and shallow clay depressions on plateau surfaces

Comments: VB. Small patches of gidgee in grassland. Almost exclusively Gidgee.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	40	*Acacia cambagei*
T2			
T3			
S1	2	10	*Acacia cambagei*
S2			
G		60	*Sporobolus australasicus* *Ocimum tenuiflorum* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA14	2024-04-08 08:45		Long: 140.115025, Lat: -20.13578	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: VB.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	30	*Acacia cambagei* *Grevillea striata*
T2			
T3			
S1	2	15	*Eremophila sp.* *Senna sp.* *Eremophila mitchellii*
S2			
G		25	*Triodia sp.* *Perotis rara* *Aristida hygrometrica* *Fimbristylis sp.* *Eragrostis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA15	2024-04-08 09:00		Long: 140.112825, Lat: -20.134438	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. More open area of pruinosa on image - openness is due to lack of chisholmii understory

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Eucalyptus pruinosa subsp. pruinosa* *Acacia cambagei*
T2			
T3			
S1	2	30	*Eremophila sp.* *Atalaya hemiglauca*
S2			
G		40	*Eulalia aurea* *Sporobolus australasicus* *Bothriochloa sp.* *Fimbristylis sp.* *Aristida latifolia*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA16	2024-04-08 09:22		Long: 140.111523, Lat: -20.134881	Lz 5 - Old loamy and sandy plains Orange Sandy loam	Remnant

Vegetation community description: 1.5.3 - Eucalyptus leucophloia low open woodland to woodland on sandy and gravelly red soils

Comments: VB. Sample grass to add (quite prevalent)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophloia subsp. euroa* *Acacia cambagei*
T2			
T3			
S1	2	15	*Eremophila sp.* *Senna sp.*
S2			
G		50	*Triodia sp.* *Aristida ingrata* *Aristida latifolia* *Aristida hygrometrica*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA17	2024-04-08 09:37		Long: 140.110224, Lat: -20.1348	Lz 5 - Old loamy and sandy plains Orange Sandy loam	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: VB. More open area of gidgee woodland, only one E leuco and one E pruinosa present . Ground so 2 is sample grass from last site.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Acacia cambagei* *Eucalyptus pruinosa subsp. pruinosa* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1			
S2	2	10	*Eremophila sp.* *Senna artemisioides subsp. oligophylla*
G		70	*Sporobolus australasicus* *Aristida hygrometrica* *Sida sp.* *Aristida inaequiglumis*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA18	2024-04-08 09:53		Long: 140.109921, Lat: -20.137036		Remnant

Vegetation community description:

Comments: VB. Area of mixed pruinosa, gidgee and snappy all integrated. No clear RE

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophloia subsp. euroa* *Eucalyptus pruinosa subsp. pruinosa* *Acacia cambagei*
T2			
T3			
S1	2	30	*Eremophila sp.* *Senna artemisioides subsp. oligophylla* *Acacia chisholmii*
S2			
G		40	*Aristida sp.* *Eulalia aurea* *Sporobolus australasicus* *Enneapogon polyphyllus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF-QA19	2024-04-08 10:21		Long: 140.114445, Lat: -20.138404	Lz 4 - Clay plains Greyish Clay	Remnant

Vegetation community description: 2.4.2 - Astrebla spp., Iseilema spp. +/- Aristida latifolia, Eulalia aurea tussock grassland on Tertiary clay deposits

Comments: VB. Small area of clay pan. Encroaching gidgee . Less grazed, more grass.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Acacia cambagei*
T2			
T3			
S1			
S2			
G	Aristida inaequiglumis	80	*Ocimum tenuiflorum* *Astrebla sp.* *Dichapetalum sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA20	2024-04-08 17:16		Long: 140.118366, Lat: -20.140885	Lz 5 - Old loamy and sandy plains Orange Sandy clay	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus pruinosa subsp. pruinosa*
T2			
T3			
S1	3	50	*Acacia chisholmii* *Flueggea sp.* *Atalaya hemiglauca*
S2			
G		80	*Eulalia aurea* *Chrysopogon fallax* *Aristida inaequiglumis*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA21	2024-04-08 17:35		Long: 140.113721, Lat: -20.142205	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Darker due to dense acacia chisholmii

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus pruinosa subsp. pruinosa* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	3	40	*Acacia chisholmii* *Eremophila sp.* *Senna artemisioides subsp. oligophylla*
S2			
G		75	*Eulalia aurea* *Aristida sp.* *Bothriochloa sp.* *Sporobolus australasicus* *Cyperus gracilis*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA21	2024-04-09 08:51		Long: 140.104646, Lat: -20.137488	Lz 5 - Old loamy and sandy plains Orange Sandy clay	Remnant

Vegetation community description: 1.5.3 - Eucalyptus leucophloia low open woodland to woodland on sandy and gravelly red soils

Comments: VB. Area of green on image - green is E. Leucophloia. Dominant here with associated leucophylla.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	30	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2			
T3			
S1	3	30	*Flueggea sp.* *Eremophila sp.* *Carissa lanceolata*
S2			
G		80	*Aristida sp.* *Eulalia aurea* *Heteropogon contortus* *Ocimum tenuiflorum*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA22	2024-04-09 09:37		Long: 140.103515, Lat: -20.137572	Lz 5 - Old loamy and sandy plains Red Clay loam	Remnant

Vegetation community description:

Comments: VB. Also Corymbia terminalis in T1. Area is a real mix of REs 1.5.13 and 1.5.3.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	20	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa* *Eucalyptus pruinosa subsp. pruinosa*
T2			
T3			
S1	3	60	*Acacia chisholmii* *Flueggea sp.* *Senna artemisioides subsp. oligophylla*
S2			
G		40	*Triodia pungens* *Enneapogon sp.* *Aristida sp.* *Sida sp.* *Cassytha sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SF_QA23	2024-04-09 09:59		Long: 140.102819, Lat: -20.139157	Lz 5 - Old loamy and sandy plains Red Clay loam	Remnant

Vegetation community description: 1.5.3 - Eucalyptus leucophloia low open woodland to woodland on sandy and gravelly red soils

Comments: VB. Almost pure leucophloia. West of drainage line is predominantly 1.5.3, almost no pruinosa.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	25	*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	3	30	*Acacia chisholmii* *Senna artemisioides subsp. oligophylla* *Santalum lanceolatum*
S2			
G		70	*Triodia pungens* *Aristida sp.* *Eulalia aurea*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA01	2024-04-09 11:19		Long: 140.113909, Lat: -20.168913	Lz 5 - Old loamy and sandy plains Orange Sandy clay loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: VB. Not mapped RE. Is box/bloodwood community similar to most of site- 1.5.4 due to geology. Dense chisholmii layer.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Corymbia terminalis* *Eucalyptus leucophylla*
T2	5	5	*Eucalyptus leucophylla*
T3			
S1	3	60	*Acacia chisholmii*
S2			
G		60	*Cenchrus ciliaris* *Aristida sp.* *Enneapogon polyphyllus* *Chrysopogon fallax* *Fimbristylis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA02	2024-04-09 12:00		Long: 140.114685, Lat: -20.170316	Lz 5 - Old loamy and sandy plains Orange Sandy loam	Remnant

Vegetation community description:

Comments: VB. Another patch of gidgee on rocky rise, unsure if separate re or part of 1.5.4 a check description.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Acacia cambagei* *Corymbia terminalis*
T2			
T3			
S1	2	5	*Acacia chisholmii* *Atalaya hemiglauca*
S2			
G		50	*Aristida hygrometrica* *Enneapogon sp.* *Aerva javanica* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA03	2024-04-09 12:56		Long: 140.113039, Lat: -20.173043	Lz 5 - Old loamy and sandy plains Orange Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. Site taken at boundary of darker area on image but no RE change, just increased density of acacia chisholmii. Think RE is 1.5.4 as all box/bloodwood on sand plains but check.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Corymbia terminalis* *Eucalyptus leucophylla* *Lysiphyllum cunninghamii*
T2			
T3			
S1	3	40	*Acacia chisholmii* *Acacia holosericea*
S2			
G		75	*Enneapogon polyphyllus* *Aristida hygrometrica* *Cenchrus ciliaris* *Indigofera sp.* *Sida platycalyx*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA04	2024-04-09 14:17		Long: 140.107455, Lat: -20.172721	Lz 5 - Old loamy and sandy plains Orange Sandy clay	Remnant

Vegetation community description:

Comments: VB. Also Corymbia terminalis in T1

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla* *Corymbia aparrerinja* *Acacia cambagei*
T2	5	5	*Acacia holosericea*
T3			
S1	3	40	*Acacia chisholmii* *Acacia holosericea* *Carissa lanceolata*
S2			
G		85	*Eulalia aurea* *Heteropogon contortus* *Aristida sp.* *Sporobolus australasicus* *Evolvulus alsinoides*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA05			Long: 140.10218, Lat: -20.173744	Lz 5 - Old loamy and sandy plains Orange Silty clay loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Almost pure pruinosa woodland.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus pruinosa subsp. pruinosa* *Lysiphyllum cunninghamii*
T2			
T3			
S1	3	25	*Acacia holosericea* *Acacia chisholmii* *Carissa lanceolata*
S2			
G		85	*Cenchrus ciliaris* *Triodia sp.* *Chrysopogon fallax* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA06	2024-04-09 15:17		Long: 140.098865, Lat: -20.173848	Lz 5 - Old loamy and sandy plains Orange Sandy clay loam	Remnant

Vegetation community description: 1.5.3 - Eucalyptus leucophloia low open woodland to woodland on sandy and gravelly red soils

Comments: VB. Same on other side of road and bigger stand of snappy. Pure stand of Euc leucophloia on rocky rise in landscape rising to tabletop mountain. Surrounded on northern side by pruinosa but patch at point is all snappy.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	1	5	*Acacia holosericea* *Eremophila sp.*
S2			
G		60	*Triodia sp.* *Sporobolus australasicus*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA07	2024-04-10 09:02		Long: 140.108091, Lat: -20.168841	Lz 5 - Old loamy and sandy plains Orange Loamy sand	Remnant

Vegetation community description:

Comments: VB. Point taken in creek. Creek is present and in correct location. No RE change for creek veg - same as adjacent. Channel approx 1.2-1.5m deep and up to 2.5m wide.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla* *Acacia cambagei* *Lysiphyllum cunninghamii*
T2	4	5	*Acacia holosericea*
T3			
S1	2	30	*Acacia holosericea* *Eremophila sp.* *Acacia chisholmii*
S2			
G			*Aristida sp.* *Cenchrus ciliaris* *Triodia sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA08	2024-04-10 09:19		Long: 140.106622, Lat: -20.169434	Lz 5 - Old loamy and sandy plains Orange Sandy clay	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: VB. Pure gidgee community. Probably 1.5.16 but check other descriptions.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Acacia cambagei*
T2			
T3			
S1	3	10	*Acacia cambagei* *Eremophila mitchellii*
S2			
G		40	*Aristida hygrometrica* *Triodia sp.* *Enneapogon polyphyllus* *Chloris sp.* *Sclerolaena sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA09	2024-04-10 09:34		Long: 140.105179, Lat: -20.170506	Lz 5 - Old loamy and sandy plains Orange Sandy clay loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: VB. Very small patch of pruinosa appearing here. Enough to map out small polygon of 1.5.13. Must just be due to sandier/lighter soils as more buffel appearing here as well.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus pruinosa subsp. pruinosa* *Acacia cambagei* *Grevillea striata*
T2			
T3			
S1	2	40	*Eremophila sp.* *Senna sp.*
S2			
G		50	*Aristida hygrometrica* *Cenchrus ciliaris* *Triodia sp.* *Sida platycalyx* *Eragrostis sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
WF_QA10	2024-04-10 09:50		Long: 140.108021, Lat: -20.171027	Lz 5 - Old loamy and sandy plains Orange Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. Prob 1.5.4 -check Area of box dominant with bloodwood but is also couple snappy and one pruinosa

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	12	1	*Corymbia aparrerinja*
T1			*Eucalyptus leucophylla* *Acacia cambagei* *Corymbia terminalis*
T2			
T3			
S1	3	40	*Acacia holosericea* *Eremophila sp.* *Acacia chisholmii*
S2			
G		90	*Heteropogon contortus* *Cenchrus ciliaris* *Eulalia aurea* *Aristida sp.* *Chrysopogon fallax*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
TL_QA01	2024-04-10 10:32		Long: 140.128062, Lat: -20.146986	Lz 4 - Clay plains Greyish Clay	Remnant

Vegetation community description: 2.4.3 - Acacia cambagei low woodland on Tertiary clay deposits and shallow clay depressions on plateau surfaces

Comments: VB.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	20	*Acacia cambagei*
T2			
T3			
S1	3	30	*Acacia cambagei*
S2			
G		30	*Aristida sp.* *Sporobolus australasicus* *Sida sp.* *Ocimum tenuiflorum* *Ptilotus sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
TL_QA02	2024-04-10 10:44		Long: 140.129331, Lat: -20.148017	Lz 5 - Old loamy and sandy plains Red Sandy clay loam	Remnant

Vegetation community description:

Comments: VB. Mix of REs here

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Acacia cambagei* *Eucalyptus pruinosa subsp. pruinosa* *Eucalyptus leucophylla*
T2			
T3			
S1	2	15	*Eremophila sp.* *Acacia holosericea* *Acacia cambagei*
S2			
G		40	*Aristida hygrometrica* *Enneapogon polyphyllus* *Sida platycalyx* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
TL_QA03	2024-04-10 11:00		Long: 140.130955, Lat: -20.150024	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description:

Comments: VB. Almost pure box with scattered bloodwood. Ground dom by buffel. Check RE.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	10	*Carissa lanceolata* *Eucalyptus leucophylla* *Acacia chisholmii*
S2			
G		80	*Cenchrus ciliaris* *Indigofera sp.* *Aristida sp.* *Austrostipa sp.* *Stylosanthes sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
TL_QA04	2024-04-10 12:09		Long: 140.143377, Lat: -20.165072	Lz 11 - Hills and lowlands on metamorphic rocks Orange Silty clay	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: VB. Classic 1.11.3a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla* *Atalaya hemiglauca*
T2			
T3			
S1	3	50	*Acacia chisholmii* *Vachellia farnesiana* *Hakea lorea subsp. lorea*
S2			
G		85	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
AR_QA03	2024-04-10 12:53		Long: 140.218075, Lat: -20.160434	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy clay loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: VB.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	12	2	*Corymbia aparrerinja*
T1			*Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	3	60	*Acacia chisholmii*
S2			
G		70	*Heteropogon contortus* *Enneapogon polyphyllus* *Aristida sp.* *Aristida hygrometrica* *Evolvulus alsinoides*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
AR_QA04	2024-04-10 13:16		Long: 140.224992, Lat: -20.160948	Lz 11 - Hills and lowlands on metamorphic rocks Red Silty clay loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: VB. Same RE but very dense acaci chisholmii. Also stonier surface here

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla* *Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	3	60	*Acacia chisholmii*
S2			
G		50	*Heteropogon contortus* *Aristida holathera* *Aristida hygrometrica* *Enneapogon polyphyllus* *Sida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
Delete test			Long: 153.056085, Lat: -27.320634	Lz 11 - Hills and lowlands on metamorphic rocks Greyish Silty clay	Remnant

Vegetation community description: 1.10.4 - Eucalyptus leucophloia low open woodland on sandstone plateaus

Comments: Delete test

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	10	10	*Abelmoschus sp.* *Abroma molle* *Abrophyllum*
T1	20	20	*Abrophyllum*
T2	10	20	
T3			
S1			*Abroma molle*
S2			*Abutilon fraseri*
G		10	

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA01	2024-11-13 18:39		Long: 140.181324, Lat: -20.172261	Lz 11 - Hills and lowlands on metamorphic rocks Red Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: VB

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	10	*Corymbia terminalis*
T2	5	25	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa*
T3			
S1	2	70	*Acacia chisholmii*
S2			
G		70	*Triodia pungens*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA02	2024-11-14 07:29		Long: 140.17527, Lat: -20.187599	Lz 11 - Hills and lowlands on metamorphic rocks Pale Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

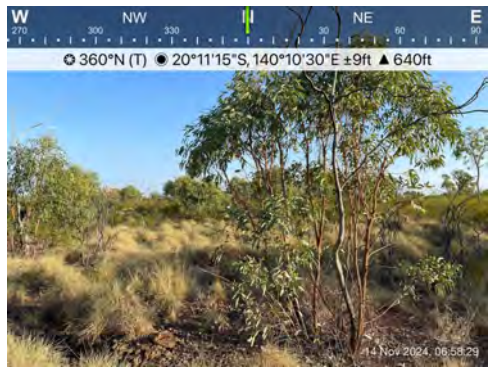
Comments: VB. Is RE 1.11.3a at this spot but grades into 1.11.2a closer to mt roseby ridge.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	8	*Corymbia terminalis*
T2	4	25	*Eucalyptus leucophylla*
T3			
S1	2	40	*Acacia chisholmii*
S2			
G		50	*Triodia pungens* *Enneapogon polyphyllus* *Heliotropium sp.*

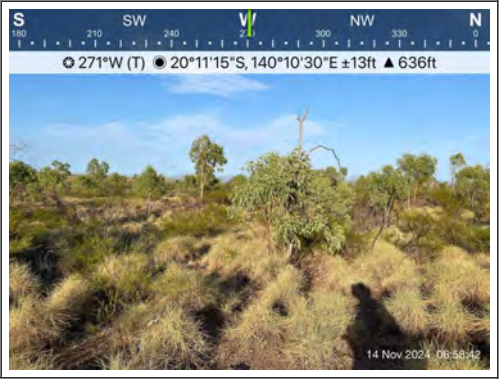
North

East

South



West



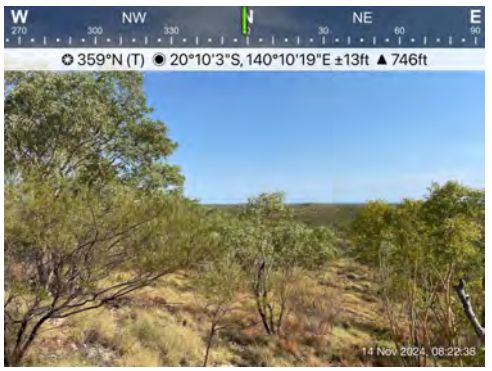
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA03	2024-11-14 08:53		Long: 140.172019, Lat: -20.167509	Lz 11 - Hills and lowlands on metamorphic rocks Red Stony	Remnant

Vegetation community description: 1.11.2 - Eucalyptus leucophloia low open woodland

Comments: VB. RE 1.11.2a on strike ridge, slopes and colluvial outwash area then grades into RE 1.11.3a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	20	*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	10	*Acacia chisholmii*
S2			
G			

North	East
South	**West**
	

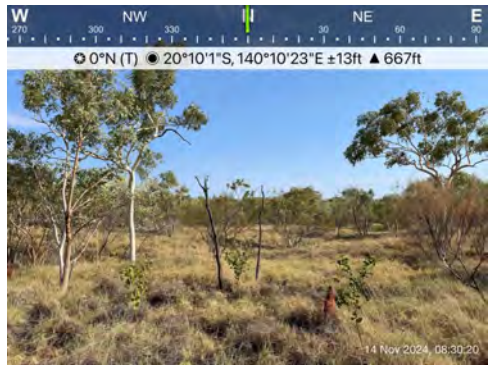
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA04	2024-11-14 09:01		Long: 140.173289, Lat: -20.167134	Lz 11 - Hills and lowlands on metamorphic rocks	Remnant

Vegetation community description: 1.11.2 - Eucalyptus leucophloia low open woodland

Comments: VB. Still RE 1.11.2a on outwash slope

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	5	*Corymbia aparrerinja*
T2	5	25	*Eucalyptus leucophloia subsp. euroa*
T3			
S1	2	15	*Acacia chisholmii*
S2			
G		75	*Triodia pungens*

North	East
	
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA05	2024-11-14 09:11		Long: 140.175949, Lat: -20.167488		

Vegetation community description: 1.11.2 - Eucalyptus leucophloia low open woodland

Comments: VB. No box present. Still RE 1.11.2a even though on the flatter country. Ground surface still very stony.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	10	*Corymbia aparrerinja* *Corymbia terminalis*
T2	5	25	*Eucalyptus leucophloia subsp. euroa*
T3			
S1	2	25	*Acacia chisholmii* *Acacia holosericea*
S2			
G		70	*Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

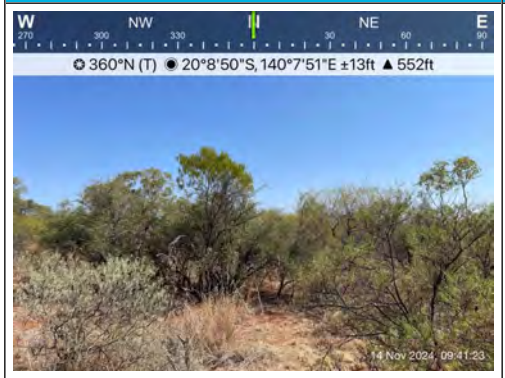
Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA06	2024-11-14 10:13		Long: 140.130911, Lat: -20.147245	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description:

Comments: VB. RE tba

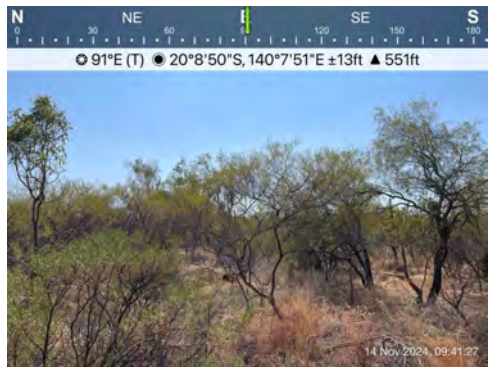
Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	40	*Acacia chisholmii* *Carissa lanceolata* *Eremophila sp.*
S2			
G		40	*Themeda triandra* *Heteropogon contortus* *Cenchrus ciliaris*

North



East

South



West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA07	2024-11-14 10:35		Long: 140.133447, Lat: -20.151307	Lz 3 - Alluvium Pale Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	13	30	*Eucalyptus camaldulensis subsp. camaldulensis* *Lophostemon grandiflorus subsp. riparius* *Melaleuca leucadendra*
T2	6	10	*Lysiphyllum cunninghamii* *Lophostemon grandiflorus subsp. riparius*
T3			
S1	2	20	*Vitex sp.* *Acacia sp.* *Flueggea virosa*
S2			
G		10	*Cyperus sp.* *Cenchrus ciliaris* *Sida sp.*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA08	2024-11-14 11:59		Long: 140.103776, Lat: -20.122986	Lz 3 - Alluvium Pale Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. RE 1.3.7 however no melaleuca at this particular point

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	13	50	*Eucalyptus camaldulensis subsp. camaldulensis* *Lophostemon grandiflorus subsp. riparius*
T2	7	10	*Lysiphyllum cunninghamii*
T3			
S1	3	10	*Flueggea virosa* *Ficus opposita* *Lysiphyllum cunninghamii*
S2			
G		5	*Cenchrus ciliaris* *Heteropogon contortus* *Aristida sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA09	2024-11-14 12:47		Long: 140.104082, Lat: -20.124134	Red Sandy loam	Remnant

Vegetation community description:

Comments: VB. Very dense acacia layer. Check geol map for land zone. Is mapped as 5 but looks 11. RE either 1.5.4 or 1.11.3.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	8	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	80	*Acacia chisholmii* *Grevillea striata*
S2			
G		70	*Triodia pungens*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA10	2024-11-14 13:01		Long: 140.105026, Lat: -20.124545	Lz 5 - Old loamy and sandy plains Red Clay loam	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

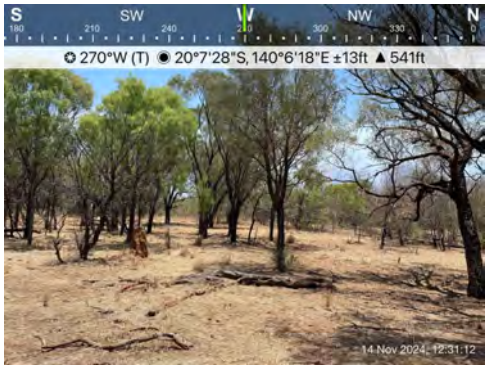
Comments: VB

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	40	*Acacia cambagei* *Atalaya hemiglauca*
T2			
T3			
S1			
S2			
G		10	*Triodia pungens* *Aristida sp.* *Chloris sp.*

North

East

South



West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA11	2024-11-14 15:27		Long: 140.168686, Lat: -20.140717		Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	10	15	*Eucalyptus camaldulensis subsp. camaldulensis* *Lysiphyllum cunninghamii*
T2	4	5	*Lophostemon grandiflorus subsp. riparius* *Acacia sp.*
T3			
S1	2	15	*Acacia chisholmii* *Melaleuca bracteata*
S2			
G		20	*Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA12	2024-11-14 15:47		Long: 140.159384, Lat: -20.129868	Lz 3 - Alluvium Pale Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. They have already cleared the alignment at time of survey.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	12	15	*Eucalyptus camaldulensis subsp. camaldulensis*
T2	4	5	*Ficus opposita*
T3			
S1	2	10	*Melaleuca bracteata* *Acacia sp.* *Flueggea virosa*
S2			
G		20	*Cenchrus ciliaris* *Cyperus sp.* *Sida sp.*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA01	2024-11-14 10:54		Long: 140.134404, Lat: -20.152279	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.11.2 - Eucalyptus leucophloia low open woodland

Comments: EH. Check geology map (mapped as LZ5).

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	0	0	
T1	5	20	*Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	50	*Acacia chisholmii*
S2			
G		55	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA02	2024-11-14 11:11		Long: 140.135053, Lat: -20.153135	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: EH. Check geology map (mapped as LZ5).

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent	0	0	
T1	5	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	60	*Acacia chisholmii* *Atalaya hemiglauca*
S2			
G		70	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA03	2024-11-14 13:27		Long: 140.137947, Lat: -20.125088	Lz 5 - Old loamy and sandy plains Red Sandy clay	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: EH. RE mixed with canopy species from 1.5.13

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	30	*Acacia cambagei* *Eucalyptus leucophylla* *Eucalyptus pruinosa subsp. pruinosa*
T2			
T3			
S1	2	8	*Atalaya hemiglauca* *Carissa lanceolata* *Acacia chisholmii*
S2			
G		40	*Aristida sp.* *Triodia pungens*

North	East
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA04	2024-11-14 13:43		Long: 140.139898, Lat: -20.12802	Lz 3 - Alluvium Brown Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: EH. 1.3.6a

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Corymbia terminalis* *Eucalyptus leucophylla* *Lysiphyllum cunninghamii*
T2	5	10	*Acacia cambagei* *Lysiphyllum cunninghamii*
T3			
S1	3	10	*Flueggea virosa* *Carissa lanceolata* *Acacia chisholmii*
S2			
G		30	*Cenchrus ciliaris* *Heteropogon contortus*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA05	2024-11-14 14:02		Long: 140.141602, Lat: -20.124247	Lz 3 - Alluvium Brown Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: EH.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla x Eucalyptus pruinosa* *Corymbia terminalis* *Lysiphyllum cunninghamii*
T2			
T3			
S1	2	20	*Carissa lanceolata* *Flueggea virosa*
S2			
G		15	*Heteropogon contortus* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA06	2024-11-14 14:37		Long: 140.142955, Lat: -20.12416	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: EH.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Eucalyptus leucophylla x* *Eucalyptus pruinosa* *Corymbia terminalis*
T2			
T3			
S1	2	20	*Carissa lanceolata* *Acacia chisholmii*
S2			
G		65	*Cenchrus ciliaris* *Chrysopogon fallax* *Aristida sp.*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA07	2024-11-14 15:01		Long: 140.171701, Lat: -20.152343	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Limited to creek line

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	65	*Acacia chisholmii*
S2			
G		70	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA08	2024-11-15 07:25		Long: 140.179837, Lat: -20.166781	Lz 11 - Hills and lowlands on metamorphic rocks Brown Silty loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Map darker area in aerial image as 1.11.3. Chisholmi dominant

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	15	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	85	*Acacia chisholmii*
S2			
G		30	*Triodia pungens* *Heliotropium sp.*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA09	2024-11-15 09:40		Long: 140.148451, Lat: -20.166952	Lz 11 - Hills and lowlands on metamorphic rocks Greyish Sandy loam	

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Loose rocky surface, sandy loam below. Patches of gidgee to the east form part of the adjacent RE. Gidgee also occurs approx 300m to west

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	12	10	*Corymbia terminalis*
T2	5	10	*Eucalyptus leucophylla*
T3			
S1	2	50	*Acacia chisholmii*
S2			
G		50	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA10	2024-11-15 11:17		Long: 140.149141, Lat: -20.174916	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Loose rocky surface, sandy loam below. Patches of gidgee to the north

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	15	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T2			
T3			
S1	2	40	*Acacia chisholmii*
S2			
G		50	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA11	2024-11-15 11:35		Long: 140.147685, Lat: -20.172857	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Loose rocky surface, sandy loam below. Patches of gidgee all around, check RE for gidgee patches

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	5	*Corymbia terminalis*
T2	5	10	*Eucalyptus leucophylla* *Corymbia terminalis*
T3			
S1	2	60	*Acacia chisholmii*
S2			
G		40	*Triodia pungens* *Aristida contorta* *Sporobolus sp.* *Aerva javanica* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA12	2024-11-15 12:16		Long: 140.195677, Lat: -20.194019	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	25	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	3	60	*Acacia chisholmii* *Acacia holosericea* *Carissa lanceolata*
S2			
G		70	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA13	2024-11-15 13:44		Long: 140.184118, Lat: -20.187865	Lz 11 - Hills and lowlands on metamorphic rocks Brown Silty loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Recovering from previous bushfire

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	15	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	3	60	*Acacia chisholmii* *Santalum lanceolatum*
S2			
G		60	*Triodia pungens* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA14	2024-11-15 14:52		Long: 140.171003, Lat: -20.226275	Lz 11 - Hills and lowlands on metamorphic rocks Brown Silty loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. Recovering from previous bushfire

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	7	*Corymbia terminalis*
T2	5	15	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T3			
S1	2	70	*Acacia chisholmii*
S2			
G		50	*Triodia pungens* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA15	2024-11-16 07:33		Long: 140.187876, Lat: -20.202424	Lz 11 - Hills and lowlands on metamorphic rocks Brown Silty loam	Remnant

Vegetation community description: 1.11.2 - Eucalyptus leucophloia low open woodland

Comments: EH. RE is 1.11.2a, snappy dominated woodland on quartz, no granite

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	20	*Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T2			
T3			
S1	1	40	*Acacia chisholmii* *Acacia holosericea* *Tephrosia virens*
S2			
G		40	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA16	2024-11-16 11:48		Long: 140.16732, Lat: -20.265552	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: EH. Sandy red soils, flat terrain, less spinifex, buffel dominant. Almost no surface rock. LZ5. Atalaya also present.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	25	*Corymbia terminalis* *Eucalyptus leucophylla* *Corymbia aparrerinja*
T2			
T3			
S1	1	50	*Acacia chisholmii* *Acacia holosericea* *Hakea lorea subsp. lorea*
S2			
G		35	*Triodia pungens* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

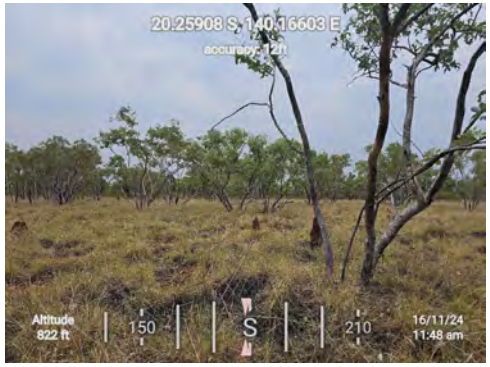
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA17	2024-11-16 12:12		Long: 140.166027, Lat: -20.259078	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.13 - Eucalyptus pruinosa low open woodland on older alluvial and residual soils

Comments: EH. Sandy red soils, flat terrain. likely RE 1.5.13. Almost no surface rock. LZ5. Patches of gidgee to the east

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	30	*Eucalyptus pruinosa subsp. pruinosa* *Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2			
T3			
S1	2	35	*Acacia chisholmii* *Grevillea striata* *Denhamia sp.*
S2			
G		70	*Triodia pungens* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA18	2024-11-16 12:44		Long: 140.166179, Lat: -20.272195	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.15 - Aristida contorta annual grasslands on hard setting red soils

Comments: EH. Sandy red soils, flat terrain. likely RE 1.5.15. Lz5, consistent with geology mapping, check RE. Very recent grazing

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	7	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	1	10	*Acacia chisholmii* *Senna notabilis*
S2			
G		25	*Aristida contorta* *Cenchrus ciliaris*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA19	2024-11-16 12:57		Long: 140.166068, Lat: -20.280478	Lz 5 - Old loamy and sandy plains Brown Sandy loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: EH. Sandy soils, flat terrain. likely RE 1.5.4d. Lz5, consistent with geology mapping. Heavily grazed

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	10	*Corymbia terminalis* *Eucalyptus leucophylla*
T2			
T3			
S1	2	65	*Acacia chisholmii*
S2			
G		70	*Cenchrus ciliaris* *Aerva javanica*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA21	2024-11-16 15:08		Long: 140.152302, Lat: -20.310721	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: EH. Patches of gidgee. surrounded by 1.5.4. Heavily grazed

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	25	*Acacia cambagei* *Corymbia terminalis*
T2			
T3			
S1	1	10	*Eremophila mitchellii*
S2			
G		5	*Cenchrus ciliaris* *Sporobolus australasicus*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA22	2024-11-16 15:41		Long: 140.147375, Lat: -20.313972	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.16 - Acacia cambagei low woodlands on red earths

Comments: EH. Patches of gidgee. surrounded by 1.5.4. Heavily grazed

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	20	*Acacia cambagei*
T2			
T3			
S1	1	10	*Carissa lanceolata* *Eremophila mitchellii* *Atalaya hemiglauca*
S2			
G		15	*Triodia pungens* *Aristida sp.* *Eragrostis sp.*

North	East
	No photo
South	**West**
No photo	No photo

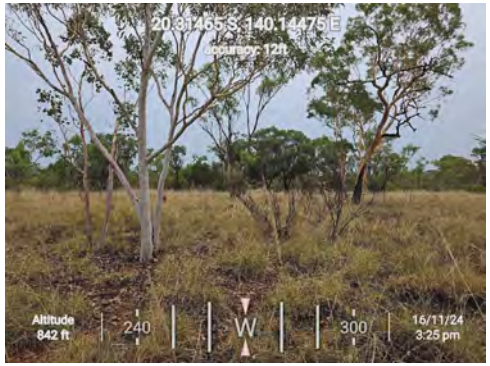
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA23	2024-11-16 15:52		Long: 140.144771, Lat: -20.314644	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: EH. Some patches of gidgee. Likely 1.5.4d

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	30	*Eucalyptus leucophloia subsp. euroa* *Acacia cambagei*
T2			
T3			
S1	2	10	*Carissa lanceolata* *Acacia tenuissima* *Atalaya hemiglauca*
S2			
G		80	*Triodia pungens*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA24	2024-11-16 16:01		Long: 140.143053, Lat: -20.314574	Lz 11 - Hills and lowlands on metamorphic rocks Brown Sandy loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: EH. box and snappy woodland on mapped LZ11 geology

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	25	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	65	*Carissa lanceolata* *Acacia chisholmii* *Acacia holosericea*
S2			
G		60	*Cenchrus ciliaris* *Chrysopogon fallax* *Bothriochloa sp.* *Triodia sp.*

North	East
	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA13	2024-11-15 08:13		Long: 140.173079, Lat: -20.163196	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description:

Comments: VB. RE mapped as 1.3.7b which may be best fit even though no Euc camaldulensis at this point of tributary. Lots of melaleuca bracteata which isn't listed in either 1.3.6 or 1.3.13. Check other REs in office.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	10	*Corymbia terminalis* *Eucalyptus leucophylla* *Corymbia aparrerinja*
T2	5	20	*Melaleuca bracteata* *Flueggea virosa*
T3			
S1	3	20	*Melaleuca bracteata* *Flueggea virosa*
S2			
G		30	*Cenchrus ciliaris* *Triodia pungens* *Abutilon sp.*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA14	2024-11-15 09:21		Long: 140.150359, Lat: -20.166817	Lz 3 - Alluvium	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. Mid size ephemeral watercourse correctly mapped as 1.3.7

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	12	30	*Eucalyptus camaldulensis subsp. camaldulensis* *Lophostemon grandiflorus subsp. riparius* *Lysiphyllum cunninghamii*
T2			
T3			
S1	4	10	*Acacia sp.* *Lophostemon grandiflorus subsp. riparius*
S2			
G		10	*Cenchrus ciliaris* *Cyperus sp.* *Sida sp.*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA15	2024-11-15 09:54		Long: 140.148754, Lat: -20.166736	Lz 11 - Hills and lowlands on metamorphic rocks Orange Sandy loam	Remnant

Vegetation community description:

Comments: VB. Small open rocky patch of sparse gidgee. Unsure of RE.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Acacia cambagei*
T2			
T3			
S1	2	5	*Acacia cambagei* *Eremophila longifolia*
S2			
G		10	*Triodia pungens* *Sporobolus australasicus* *Aristida sp.* *Cenchrus ciliaris*

North

East

South

West

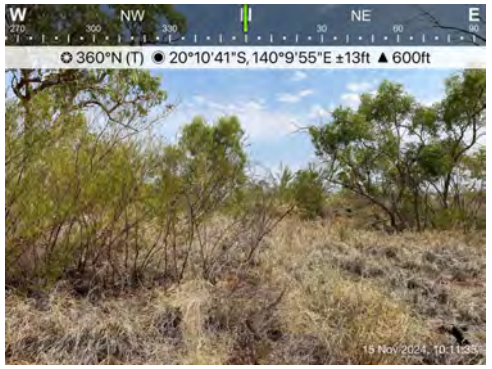
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA16	2024-11-15 10:42		Long: 140.16533, Lat: -20.178159	Lz 3 - Alluvium Brown Stony	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. Best fit RE is 1.3.7 even though has no Euc camaldulensis. Check other lz3 REs that have melaleuca and grandi.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Lophostemon grandiflorus subsp. riparius* *Corymbia terminalis*
T2	4	10	*Eucalyptus leucophylla*
T3			
S1	2	15	*Melaleuca bracteata* *Acacia chisholmii*
S2			
G		10	*Cenchrus ciliaris* *Triodia sp.*

North	East
South	**West**
	

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA17	2024-11-15 12:29		Long: 140.193568, Lat: -20.194485	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	12	15	*Eucalyptus camaldulensis subsp. camaldulensis* *Lysiphyllum cunninghamii* *Eucalyptus leucophylla*
T2			
T3			
S1	2	10	*Vachellia farnesiana* *Acacia chisholmii* *Senna notabilis*
S2			
G		15	*Cenchrus ciliaris* *Indigofera hirsuta*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA18	2024-11-15 13:33		Long: 140.182851, Lat: -20.188286	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. No riparian species such as melaleuca, lophostemon or camaldulensis. Really just a minor drainage depression in box woodland

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	15	*Eucalyptus leucophylla* *Vachellia bidwillii*
T2			
T3			
S1	1	20	*Acacia chisholmii*
S2			
G		60	*Cenchrus ciliaris*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA19	2024-11-15 14:29		Long: 140.176338, Lat: -20.22684	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. Not re 1.3.7 as no 'riparian' species such as melelaueca, lophostemon or camaldulensis. Very minor drainage line with no change in veg from surrounding box woodland.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	20	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	40	*Acacia chisholmii*
S2			
G		30	*Cenchrus ciliaris* *Triodia pungens* *Enneapogon sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA20	2024-11-15 15:24		Long: 140.163663, Lat: -20.236914	Lz 3 - Alluvium Pale Stony	Remnant

Vegetation community description:

Comments: VB. Best fit 1.3.13. Need to determine RE. Is a moderate channel but lacks riparian species. No Euc camaldulensis.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	10	*Eucalyptus leucophylla* *Eucalyptus leucophloia subsp. euroa*
T2	4	2	*Acacia cambagei*
T3			
S1	2	20	*Acacia chisholmii* *Acacia holosericea* *Lysiphyllum cunninghamii*
S2			
G			

North

East

South

West

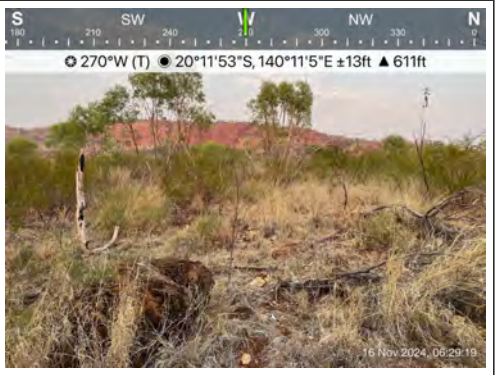
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA21	2024-11-16 07:00		Long: 140.184776, Lat: -20.198298	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. Minor drainage line in box woodland. No riparian species present, just box and bloodwood. Not 1.3.7b.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	20	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	20	*Acacia chisholmii* *Acacia holosericea* *Santalum lanceolatum*
S2			
G		50	*Cenchrus ciliaris* *Triodia pungens*

North	East
	
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA22	2024-11-16 08:18		Long: 140.169298, Lat: -20.223271	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. This is minor drainage line with box and bloodwood so re 1.3.13. No riparian species present. At the convergence downstream 50m it turns into a much bigger channel and has big lophostemon grandiflorus which is more likely best fit 1.3.7

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	10	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	20	*Acacia chisholmii* *Sesbania cannabina* *Flueggea virosa*
S2			
G		50	*Cenchrus ciliaris* *Sida sp.* *Triodia pungens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA23	2024-11-16 08:27		Long: 140.169746, Lat: -20.222348	Lz 3 - Alluvium Red Sand	

Vegetation community description:

Comments: VB. Much larger channel here with big and many lophostemon. Best fit re 1.3.7

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	30	*Lophostemon grandiflorus subsp. riparius* *Lysiphyllum cunninghamii* *Corymbia terminalis*
T2			
T3			
S1	2	20	*Acacia chisholmii* *Flueggea virosa* *Lophostemon grandiflorus subsp. riparius*
S2			
G		20	*Cenchrus ciliaris* *Heteropogon contortus* *Triodia pungens*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA24	2024-11-16 09:23		Long: 140.14713, Lat: -20.201659	Lz 3 - Alluvium Red Stony	Remnant

Vegetation community description:

Comments: VB. RE not clear here. large Corymbia aparrerinja present and also many lophostemon and lysiphyllum. RE 1.3.6a possible but check other RE. No camaldulensis. Medium channel, not minor.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	14	10	*Corymbia aparrerinja*
T2	8	10	*Lophostemon grandiflorus subsp. riparius* *Lysiphyllum cunninghamii*
T3			
S1	2	15	*Acacia holosericea* *Sesbania cannabina* *Flueggea virosa*
S2			
G		40	

North	East
South	**West**

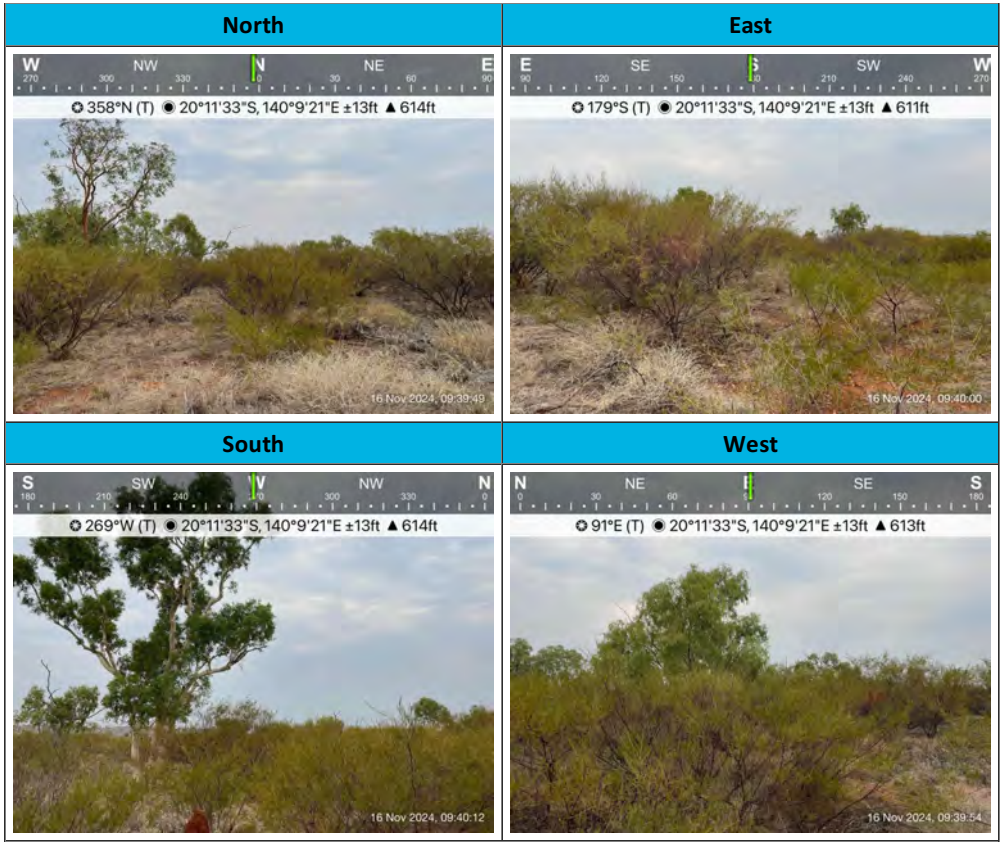
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA20			Long: 140.15598, Lat: -20.192613	Lz 11 - Hills and lowlands on metamorphic rocks Red Silty loam	Remnant

Vegetation community description: 1.11.3 - Corymbia terminalis and/or Eucalyptus leucophylla low open woodland on metamorphics

Comments: VB.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Corymbia terminalis* *Corymbia aparrerinja*
T2	6	20	*Eucalyptus leucophylla*
T3			
S1	2	50	*Acacia chisholmii* *Carissa lanceolata*
S2			
G		70	*Triodia pungens* *Aerva javanica* *Cenchrus ciliaris* *Sida sp.* *Enneapogon polyphyllus*



Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA25	2024-11-16 11:28		Long: 140.165937, Lat: -20.266486	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. Big channel. RE 1.3.7. No big melaleuca though.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	13	30	*Eucalyptus camaldulensis subsp. camaldulensis* *Lophostemon grandiflorus subsp. riparius*
T2	6	10	*Lysiphyllum cunninghamii* *Acacia holosericea* *Lophostemon grandiflorus subsp. riparius*
T3			
S1	2	10	*Acacia holosericea* *Acacia chisholmii* *Carissa lanceolata*
S2			
G		5	*Triodia sp.* *Heteropogon contortus* *Cenchrus ciliaris* *Chrysopogon fallax* *Sesbania cannabina*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA26	2024-11-16 13:30		Long: 140.166545, Lat: -20.282205	Lz 3 - Alluvium Orange Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. Big channel and camaldulensis present just dowsntream of footprint.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	9	10	*Eucalyptus leucophylla* *Lophostemon grandiflorus subsp. riparius* *Eucalyptus camaldulensis subsp. camaldulensis*
T2	5	20	*Melaleuca bracteata* *Acacia holosericea*
T3			
S1	2	10	*Atalaya hemiglauca* *Acacia chisholmii*
S2			
G		10	*Cenchrus ciliaris* *Sida sp.* *Triodia sp.*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA23			Long: 140.160934, Lat: -20.293423	Lz 5 - Old loamy and sandy plains Red Silty loam	Remnant

Vegetation community description: 1.5.15 - Aristida contorta annual grasslands on hard setting red soils

Comments: VB. Small open patch of A. contorta grasssland

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	3	*Eucalyptus leucophylla* *Acacia cambagei*
T2			
T3			
S1	1	5	*Acacia chisholmii* *Carissa lanceolata*
S2			
G		40	*Aristida contorta* *Enneapogon polyphyllus* *Aristida sp.*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA23			Long: 140.147008, Lat: -20.313429	Lz 3 - Alluvium Red Sandy loam	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. Very minor drainage. Box woodland, nil riparian species. Correct RE

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	20	*Eucalyptus leucophylla*
T2			
T3			
S1	2	15	*Acacia chisholmii*
S2			
G		50	*Cenchrus ciliaris* *Triodia sp.*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW_QA01	2024-11-17 08:32		Long: 140.161699, Lat: -20.189288	Lz 3 - Alluvium Brown Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: channel 4m wide bank 1m high. lophostemon and M bracteata in channel. leucophylla dom with scattered leucophloia adjacent up to channel. no camaldulensis present. major channel to west has camaldulenis (1.3.7a)

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	7	20	*Lophostemon grandiflorus subsp. riparius*
T2			
T3			
S1	3	5	*Melaleuca bracteata* *Flueggea virosa* *Acacia chisholmii*
S2			
G	Cenchrus ciliaris	15	*Sida hackettiana* *Tephrosia sp.*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW_QA02	2024-11-17 09:47		Long: 140.169051, Lat: -20.193926	Lz 3 - Alluvium Brown Loamy sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: ground height 0.3m. Narrow incised channel 0.5m wide sloping bank 2m high and 8m wide at high bank in channel. no riparian veg present. Box up to and in channel

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1	4	15	*Eucalyptus leucophylla*
S2	2	45	*Acacia chisholmii* *Tephrosia virens* *Eucalyptus leucophylla*
G	Triodia pungens	15	

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW_QA03	2024-11-17 10:29		Long: 140.169894, Lat: -20.196802	Lz 3 - Alluvium Red Loamy sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: ground height 0.5m. Narrow incised channel 1.0m wide sloping bank 2m high and 10m wide at high bank. no riparian veg present. Box up to and in channel

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	15	*Eucalyptus leucophylla*
T2			
T3			
S1	1	20	*Tephrosia virens* *Acacia chisholmii*
S2			
G	Triodia pungens	65	

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
SW_QA04	2024-11-17 10:49		Long: 140.170651, Lat: -20.199001	Lz 3 - Alluvium Red Loamy sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: ground height 0.5m. Narrow incised channel 1.0m wide sloping bank 2m high and 10m wide at high bank. no riparian veg present. snappy/bloodwood up to and in channel, stony soils. check where 1.3.13 can be absent of leucophylla

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	15	*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1	2	60	*Tephrosia virens* *Acacia chisholmii*
S2			
G	Triodia pungens	50	*Sida sp.* *Pterocaulon redolens*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA27	2024-11-17 08:11		Long: 140.180994, Lat: -20.229319	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. Minor drainage line in box woodland. Upstream at haul road crossing would be same RE.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	4	20	*Eucalyptus leucophylla* *Lysiphyllum cunninghamii*
T2			
T3			
S1	2	30	*Acacia chisholmii* *Acacia holosericea* *Sesbania cannabina*
S2			
G		30	*Cenchrus ciliaris* *Triodia pungens* *Trichodesma zeylanicum* *Sida sp.*

North

East

South

West

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
			Long: 140.162513, Lat: -20.237651		Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. Bigger channel approx 10-12m across the bed. Large lophostemon present and dominant species in channel. Best fitRE 1.3.7b even tho no Euc cam.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	10	25	*Lophostemon grandiflorus subsp. riparius* *Corymbia terminalis* *Eucalyptus leucophylla*
T2	6	5	*Lysiphyllum cunninghamii*
T3			
S1	2	25	*Acacia chisholmii* *Acacia holosericea* *Sesbania cannabina*
S2			
G		30	*Cenchrus ciliaris* *Triodia pungens* *Heteropogon contortus*

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA24			Long: 140.169814, Lat: -20.235718	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. Box woodland on minor drainage channel, no riparian species

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	15	*Eucalyptus leucophylla* *Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1	2	20	*Acacia chisholmii* *Dodonaea sp.*
S2			
G			

North	East
South	**West**

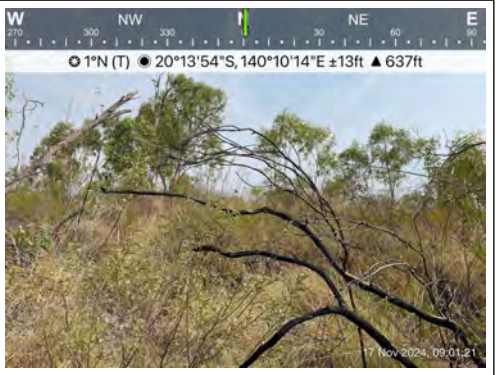
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA28	2024-11-17 09:32		Long: 140.170775, Lat: -20.231917	Lz 3 - Alluvium	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: Very minor channel in box / bloodwood woodland. Creek RE 1.3.13, surrounding veg 1.11.3

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			*Eucalyptus leucophylla* *Corymbia terminalis*
T2			
T3			
S1			*Acacia chisholmii*
S2			
G			

North	East
	
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA29	2024-11-17 09:59		Long: 140.169125, Lat: -20.242468	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. re 1.3.7b big channel with camaldulensis but no melaleuca leuca/fluviatilis.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	11	40	*Eucalyptus camaldulensis subsp. camaldulensis* *Lophostemon grandiflorus subsp. riparius* *Corymbia terminalis*
T2	4	5	*Lysiphyllum cunninghamii* *Acacia holosericea* *Vachellia bidwillii*
T3			
S1	2	15	*Acacia chisholmii*
S2			
G			

North

East

South

West

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA28			Long: 140.16885, Lat: -20.206934	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: VB. Box on minor drainage line, no other canopy species

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	20	*Eucalyptus leucophylla*
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA31	2024-11-17 11:57		Long: 140.169096, Lat: -20.204322	Lz 3 - Alluvium Red Sandy loam	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: Very minor drainage depression. Box and no other canopy.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	20	*Eucalyptus leucophylla*
T2			
T3			
S1			
S2			
G			

North	East
South	**West**

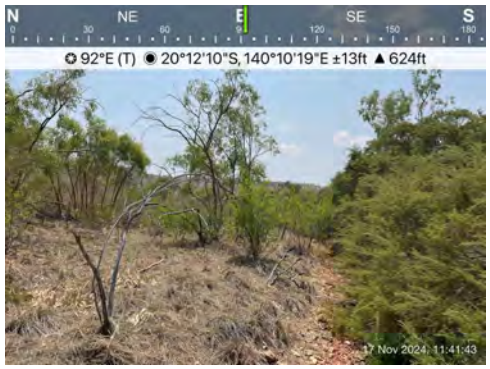
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA32	2024-11-17 12:12		Long: 140.172062, Lat: -20.202892	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.13 - Eucalyptus leucophylla woodland on levees and minor drainage lines

Comments: RE 1.3.13 at footprint. Transitions to 1.3.7 downstream on way to main channel.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	15	*Eucalyptus leucophylla* *Corymbia terminalis* *Eucalyptus leucophloia subsp. euroa*
T2			
T3			
S1			
S2			
G			

North	East
	
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA30	2024-11-17 10:18		Long: 140.16177, Lat: -20.24389	Lz 3 - Alluvium Red Sand	Remnant

Vegetation community description: 1.3.7 - Eucalyptus camaldulensis woodland on channels and levees

Comments: VB. Re 1.3.7b, no big melaleuca present. Haul road crossing approx 200 m further downstream same RE

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	30	*Eucalyptus camaldulensis subsp. camaldulensis* *Lophostemon grandiflorus subsp. riparius* *Lysiphyllum cunninghamii*
T2			
T3			
S1	2	10	*Acacia chisholmii* *Atalaya hemiglauca* *Santalum lanceolatum*
S2			
G			

North

East

South

West

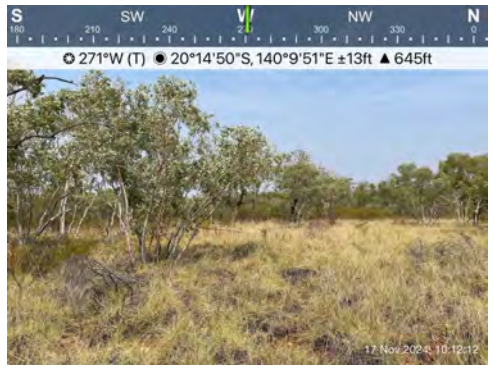
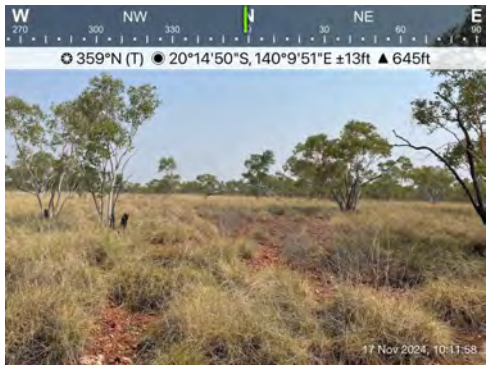
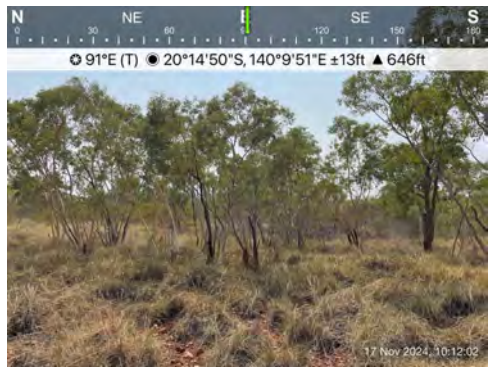
Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
VB_QA27			Long: 140.164219, Lat: -20.247276	Lz 11 - Hills and lowlands on metamorphic rocks Red Silty loam	Remnant

Vegetation community description: 1.11.2 - Eucalyptus leucophloia low open woodland

Comments: VB. Open snappy woodland with occasional terminalis and very sparse shrub layer. Re 1.11.2. On small rise in landscape and slopes down into surrounding box dominated 1.11.3

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	5	15	*Eucalyptus leucophloia subsp. euroa* *Corymbia terminalis*
T2			
T3			
S1	2	5	*Acacia chisholmii* *Acacia holosericea*
S2			
G		40	*Triodia pungens*

North	East
	
South	**West**
	

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
EH_QA20	2024-11-16 13:54		Long: 140.161634, Lat: -20.290347	Lz 5 - Old loamy and sandy plains Red Sandy loam	Remnant

Vegetation community description: 1.5.4 - Eucalyptus leucophylla and/or Corymbia terminalis low open woodland on red earths

Comments: EH. Sandy soils, flat terrain. Possible RE 1.5.4.

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	8	25	*Eucalyptus leucophloia subsp. euroa* *Eucalyptus leucophylla*
T2			
T3			
S1	2	10	*Acacia chisholmii* *Grevillea striata* *Carissa lanceolata*
S2			
G		75	*Triodia pungens*

North	East
No photo	No photo
South	**West**
No photo	No photo

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_May26_01	2026-06-10 11:42		Long: 140.1568, Lat: -20.119709	Greyish Clay	Remnant

Vegetation community description:

Comments: Rocks the size of a 50c coin

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1			
T2			
T3			
S1			
S2			
G		50	*Astrebla sp* *Aristida sp* *Iseilema sp* *Ocimum sp*

North	East
South	**West**

Quaternary Assessment Report

Site ID	Date	Location (description)	Location (GPS)	Landform & soil	Condition
QA_May26_02	2026-06-10 11:43		Long: 140.127174, Lat: -20.175025	Greyish Clay	Remnant

Vegetation community description:

Comments:

Stratum	Height (m) Range (average)	Cover (%)	Dominant species
Emergent			
T1	6	30	*Acacia cambagei* *Eucalyptus leucophylla*
T2			
T3			
S1	1		*Acacia cambagei*
S2			
G		50	*Astrebla sp* *Aristida sp* *Ocimum sp* *Iseilema sp*

North	East
South	**West**

Annexure E

Habitat assessment report

EMM
creating opportunities

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220518_1	2022-05-18 08:32	Long: 140.116027, Lat: -20.129719	Plain	Extremely low (<9m)	A		Remnant

Broad vegetation group:	-
Comments:	no Mitchell grass. cattle pugging present, grassland has been recently grazed. <10 cattle seen within paddock

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	2
Soil crack presence	Deep	**Rocky outcrop**	NA
Soil crack abundance	Common	**Roost sites for microbats**	No
Surface rock	stones 5-40mm scattered throughout	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Shallow	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220518_2	2022-05-18 12:02	Long: 140.170132, Lat: -20.147509	Rises	Very low (9-30m)	J		Remnant

Broad vegetation group:	-
Comments:	low rocky rise. no small scats, many red roo.

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	2	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	30	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	Large rock boulders
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	limestone boulders 1m and smaller rocks 2-50cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220520_1	2022-05-20 14:15	Long: 140.185379, Lat: -20.199527	Low hills	Very low (9-30m)	G		

Broad vegetation group:	-
Comments:	low line of boulders with abundant crevices. abundant older scat, some fresh scat. marginal habitat

Assessment			
Vegetation groundcover (%)	10	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	Large rock boulders
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant volcanic boulders	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Altered fire regime		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220521_1	2022-05-21 14:10	Long: 140.206263, Lat: -20.169496	Plain	Very low (9-30m)	H		

Broad vegetation group:	-
Comments:	bloodwood/turperntile/aristida. not target evnt habitat other than foraging.

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant small stones and rocks	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220521_2	2022-05-21 15:35	Long: 140.191882, Lat: -20.192122	Plain	Very low (9-30m)	H		

Broad vegetation group:	-
Comments:	recent fire, many coppicing trees & crotolaria

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant stones & rocks 5 -10cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Altered fire regime		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220521_3	2022-05-21 15:44	Long: 140.190202, Lat: -20.191146	Plain	Very low (9-30m)	I		

Broad vegetation group:	-
Comments:	minor drainage. recent fire, many coppicing trees & crotolaria

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	stones & rocks 5 -30cm in drainage	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Altered fire regime		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_VB_20220522_0102	2022-05-22 08:58	Long: 140.181611, Lat: -20.142139	Rises	Low (30-90m)	B	1.11.2	

Broad vegetation group:	-
Comments:	Top of small strike ridge between two slightly higher crests

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	3
Soil crack presence	Absent	**Rocky outcrop**	Rocky escarpment
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	90	**Proximity to water**	
Connectivity	Contiguous area (>100 ha)	**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_1	2022-05-22 11:42	Long: 140.142036, Lat: -20.147451	Plain	Extremely low (<9m)	F		

Broad vegetation group:	-
Comments:	cabbage tree creek. large melaleuca and camaldulensis along creek. many hollows, abundant peeling bark

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	50
Native groundcover (%) of total veg. cover	80	**Leaf litter (depth in mm)**	100
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	absent	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Large	**Hollow tree abundance (per ha)**	20
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_2	2022-05-22 13:11	Long: 140.143145, Lat: -20.141333	Plain	Extremely low (<9m)	F		

Broad vegetation group:	-
Comments:	cabbage tree creek. large melaleuca and camaldulensis along creek. many hollows, abundant peeling bark. open water tank on western bank, birds abundant. babbler & raptor nest. many cattle present creek unfenced

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	40	**Leaf litter (% cover)**	50
Native groundcover (%) of total veg. cover	60	**Leaf litter (depth in mm)**	100
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	absent	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	Large	**Hollow tree abundance (per ha)**	40
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_3	2022-05-22 14:16	Long: 140.152258, Lat: -20.13382	Plain	Extremely low (<9m)	H		

Broad vegetation group:	-
Comments:	scattered regrowth camaldulensis along drainage line. large unburnt spinifex with buffel heavily grazed by cattle

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	50	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	50	**Leaf litter (depth in mm)**	5
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	scattered gravel & rocks 5-10cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Unknown
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_4	2022-05-22 14:32	Long: 140.153052, Lat: -20.136039	Plain	Extremely low (<9m)	H		

Broad vegetation group:	-
Comments:	large unburnt spinifex 80cm with regrowth spinifex 20cm scattered buffel heavily grazed by cattle

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	scattered gravel 5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Unknown
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_5	2022-05-22 14:59	Long: 140.150408, Lat: -20.134349	Plain	Extremely low (<9m)	H		

Broad vegetation group:	-
Comments:	large unburnt spinifex 80cm with regrowth spinifex 20cm scattered buffel heavily grazed by cattle

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	80	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered gravel 5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Unknown
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_6	2022-05-22 15:34	Long: 140.149121, Lat: -20.137821	Plain	Extremely low (<9m)	H		

Broad vegetation group:	-
Comments:	unburnt spinifex 40cm very sparse gravel 5cm

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	0
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	0
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	very sparse scattered gravel 5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Unknown
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_7	2022-05-22 15:34	Long: 140.146978, Lat: -20.140183	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	drainage line with eucalyptus. buffel along banks

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	70	**Leaf litter (depth in mm)**	100
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	absent	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Unknown
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Large	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220522_8	2022-05-22 16:34	Long: 140.171317, Lat: -20.167763	Low hills	Low (30-90m)	I		

Broad vegetation group:	-
Comments:	scree slope below strike ridge

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	Rocky escarpment
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant rocks 5-30cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_1	2022-05-23 07:40	Long: 140.167458, Lat: -20.164689	Plain	Extremely low (<9m)	H		

Broad vegetation group:	-
Comments:	scattered bloodwood, turpentine shrub layer, spinifex ground cover approx 30cm tall. unburnt, no weeds

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	100
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	abundant stones 5-10cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_2	2022-05-23 08:33	Long: 140.158098, Lat: -20.162022	Plain	Extremely low (<9m)	H		

Broad vegetation group:	-
Comments:	scattered bloodwood, turpentine shrub layer, spinifex ground cover approx 30cm tall. unburnt, no weeds

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	abundant stones 5-10cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_3	2022-05-23 09:05	Long: 140.153638, Lat: -20.165539	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered bloodwood, regrowth shrub layer, spinifex ground cover approx 40cm tall. recent fire shrubs coppicing, no weeds

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	abundant stones 5-10cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	1
Presence of threat		**Severity of threat**	
Altered fire regime		High	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_4	2022-05-23 09:39	Long: 140.157453, Lat: -20.171516	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered bloodwood, regrowth shrub layer, turpentine, spinifex ground cover approx 40cm tall. unburnt, scattered buffel

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	85	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	abundant stones 5-20cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_5	2022-05-23 10:05	Long: 140.165058, Lat: -20.175411	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered bloodwood, regrowth shrub layer, turpentine, spinifex ground cover, buffel. spinifex approx 30cm tall. unburnt

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	65	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	35	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 5-20cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_6	2022-05-23 10:13	Long: 140.16744, Lat: -20.17225	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered bloodwood, regrowth shrub layer, turpentine, spinifex ground cover, spinifex approx 30cm tall. unburnt

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 5-20cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_7	2022-05-23 10:22	Long: 140.16681, Lat: -20.16964	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered dense turpentine, spinifex ground cover, spinifex approx 30cm tall. unburnt

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	100	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 5-20cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_8	2022-05-23 10:38	Long: 140.158335, Lat: -20.155675	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered eucalyptus, turpentine, spinifex ground cover, 80cm tall. unburnt

Assessment			
Vegetation groundcover (%)	75	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	85	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_9	2022-05-23 10:44	Long: 140.153349, Lat: -20.152888	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered bloodwood, turpentine, buffel ground cover, unburnt. heavily grazed

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	85	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 5-15cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		High	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_9	2022-05-23 10:55	Long: 140.157929, Lat: -20.146892	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered eucalyptus, turpentine, spinifex ground cover, 50cm tall. unburnt

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 5cm, surface rock boulders 1m	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_10	2022-05-23 00:55	Long: 140.16035, Lat: -20.201227	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered burnt bloodwood, minimal ground cover

Assessment			
Vegetation groundcover (%)	15	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	2
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	abundant stones 1-5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Altered fire regime		High	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_11	2022-05-23 12:53	Long: 140.158821, Lat: -20.209211	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered bloodwood, unburnt spinifex 50-60cm high

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	200
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	scattered stones 1-5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_12	2022-05-23 13:11	Long: 140.153992, Lat: -20.205461	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	scattered burnt bloodwood, coppicing, senna in ground layer. burnt within past 1-2 years

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	0
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	0
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	absent	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Altered fire regime		Severe	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_EL_20220523_1	2022-05-23 11:26	Long: 140.156348, Lat: -20.140487	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	Scattered Eucs, Turpentine shrub layer, Buffel in ground layer, scattered Spinifex to approx 1m tall, burnt >2y

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	75	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	25	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	Rare	**Roost sites for microbats**	No
Surface rock	Scattered stones 10-100mm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_EL_20220523_2	2022-05-23 12:02	Long: 140.161725, Lat: -20.186077	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	Open eucalypt woodland - some buffel - cattle yards nearby

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	85	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	Rare	**Roost sites for microbats**	Yes
Surface rock	Abundant small stones >10-60mm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North	East
South	**West**

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SG_2022052_006	2022-05-23 10:41	Long: 140.140706, Lat: -20.145798	Alluvial plain	Extremely low (<9m)			

Broad vegetation group:	-
Comments:	Active cattle grazing

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	2	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	23	**Leaf litter (depth in mm)**	3
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	
Surface rock	0	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	8
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees			

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
FA_SG_20220523_021	2022-05-23 14:06	Long: 140.150023, Lat: -20.199647	Peneplain	Very low (9-30m)			

Broad vegetation group:	-
Comments:	Recent hot fire. Most large standing eucalyptus contain small <5cm hollows

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	2
Native groundcover (%) of total veg. cover	25	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	75%	**Proximity to water**	
Connectivity	Contiguous area (>100 ha)	**Water type**	
Gilgai presence		**Gilgai abundance**	
Hollow log size (mm)	Small	**Hollow tree size (mm)**	1
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	4
Presence of threat		**Severity of threat**	
Koala food trees			

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_13	2022-05-23 14:20	Long: 140.163749, Lat: -20.212859	Plain	Very low (9-30m)	I		

Broad vegetation group:	-
Comments:	scattered burnt bloodwood, coppicing, senna in ground layer. burnt within past 1-2 years

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant stones and rocks 1 - 10cm, occasional boulder small pile 50cm-1m	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	1
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	4
Presence of threat		**Severity of threat**	
Altered fire regime		Severe	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SG_20220523_024	2022-05-23 15:14	Long: 140.161959, Lat: -20.245078	Rises	Very low (9-30m)		1.11.3	

Broad vegetation group:	-
Comments:	Noise from mine low rises rocky, depressions and flat areas clay loams

Assessment			
Vegetation groundcover (%)	45	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	30	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Variable from 90% to 5% see photos	**Proximity to water**	
Connectivity	Contiguous area (>100 ha)	**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees			

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_1	2022-05-24 13:21	Long: 140.163344, Lat: -20.246929	Plain	Very low (9-30m)	I		

Broad vegetation group:	-
Comments:	corymbia terminalis, eucalyptus leucophloia, turpentine shrub layer, spinifex & other grasses. unburnt

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant small stones 1-5cm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
HA_SW_20220523_13	2022-05-23 13:39	Long: 140.14916, Lat: -20.201302	Plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	Scattered E aperinya with hollows, spinifex 200 - 500 tall, northern side of road burnt within last two yearson stony plain

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	0
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	0
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Abundant stones and rocks 10 to 200mm	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	15
Presence of threat		**Severity of threat**	
Altered fire regime		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BC01_HBT01	2023-08-09 09:38	Long: 140.09997, Lat: -20.176277	Hills	High (90-300m)	E	1.7.1a	Remnant

Broad vegetation group:	-
Comments:	RS. Scrappy lancewood on ridge

Assessment			
Vegetation groundcover (%)	10	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	Rocky escarpment
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	70	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BC02_HBT01	2023-08-09 11:15	Long: 140.102071, Lat: -20.182008	Hills	High (90-300m)	K	1.7.1a	Remnant

Broad vegetation group:	-
Comments:	Yes for koala food trees but not key species.

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	Rocky escarpment
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	50	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	16
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		Yes	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BC03	2023-08-09 14:43	Long: 140.129398, Lat: -20.193741	Plain	Very low (9-30m)	K	1.11.3a	Remnant

Broad vegetation group:	-
Comments:	Rachel Scott. Pretty healthy but not overly diverse country. Technically koala food trees but not key species. Undulating terrain, gentle flat slopes,

Assessment			
Vegetation groundcover (%)	55	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	1	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	99	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	40	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		Yes	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA01	2023-08-09 12:09	Long: 140.141539, Lat: -20.325164	Alluvial plain	Very low (9-30m)	F	1.5.16	Remnant

Broad vegetation group:	-
Comments:	open Acacia / Eucalypt woodland with grassy understorey

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	small pebbles and some stony areas	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Pest species		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA02	2023-08-09 12:27	Long: 140.135099, Lat: -20.325087	Plain	Very low (9-30m)	F	1.11.3	Remnant

Broad vegetation group:	-
Comments:	C terminalis / C leucophloia woodland with Triodia Aristida ground cover

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant stones 5-10cm	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BC04_HBT01	2023-08-10 08:01	Long: 140.13862, Lat: -20.135617	Plain	Extremely low (<9m)	K	1.5.13	Remnant

Broad vegetation group:	-
Comments:	Rachel Scott. Some areas very Sandy, others very silty. Technically koala food trees but not key species. Presence of threat is grazing (not clearing) not many weeds about but hs

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	2	**Leaf litter (% cover)**	8
Native groundcover (%) of total veg. cover	98	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	5	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Clearing		Severe	
Koala food trees		Yes	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA03	2023-08-11 10:52	Long: 140.137412, Lat: -20.32612	Plain	Very low (9-30m)	F	1.11.3	Remnant

Broad vegetation group:	-
Comments:	C terminalis / C leucophloia / E leucophylla woodland with sparse grassy ground cover. no spinifex . termite mounds common

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	abundant stones 5-10cm	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA04	2023-08-11 11:19	Long: 140.137755, Lat: -20.327778	Rises	Very low (9-30m)	G	1.11.3	Remnant

Broad vegetation group:	-
Comments:	C terminalis / C leucophloia / E leucophylla woodland with mid dense grassy ground cover of buffel. no spinifex. termite mounds common.

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	80	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	20	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	Large rock boulders
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	abundant stones and boulders	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA05	2023-08-12 14:03	Long: 140.143202, Lat: -20.320167	Plain	Very low (9-30m)	I	1.11.3	Remnant

Broad vegetation group:	-
Comments:	open Acacia / Eucalypt woodland with spinifex understorey. no mistletoe seen

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	small pebbles and stony pavement	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA06	2023-08-12 14:26	Long: 140.15367, Lat: -20.305804	Plain	Very low (9-30m)	I	1.11.3	Remnant

Broad vegetation group:	-
Comments:	open Acacia / Eucalypt woodland with spinifex understorey. no mistletoe seen. many hollows in E leucophloia

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	small pebbles and stony pavement	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	19
Presence of threat		**Severity of threat**	
Altered fire regime		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA07	2023-08-12 14:41	Long: 140.155762, Lat: -20.300287	Plain	Very low (9-30m)	F	1.11.3	Remnant

Broad vegetation group:	-
Comments:	open Acacia / Eucalypt woodland with spinifex understorey. no mistletoe seen.

Assessment			
Vegetation groundcover (%)	85	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	small pebbles and stony pavement	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA08	2023-08-12 15:05	Long: 140.15734, Lat: -20.299701	Plain	Very low (9-30m)	F	1.11.3	Remnant

Broad vegetation group:	-
Comments:	Eucalypt woodland along ephemeral creek. no mistletoe seen.

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	40	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	60	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	rocks and stones in creek	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North	East
South	**West**

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA09	2023-08-12 15:17	Long: 140.159995, Lat: -20.299552	Plain	Very low (9-30m)	F	1.11.3	Remnant

Broad vegetation group:	-
Comments:	Eucalyptus leucophylla woodland along ephemeral drainage. no mistletoe seen. buffel dom in ground layer. many small Hollows in dead box limbs

Assessment			
Vegetation groundcover (%)	75	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	40	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	50	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	rocks and stones common over ground	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Weeds		High	
Koala food trees		No	

North	East
South	**West**

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BC06_HBT01	2023-08-10 11:18	Long: 140.179776, Lat: -20.193539	Hills	High (90-300m)	E		

Broad vegetation group:	-
Comments:	Koala trees only Euc leucophloia and Corymbia terminalis. Fire last year.

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	3	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	97	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	Rocky escarpment
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	90%	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Altered fire regime		High	
Koala food trees		Yes	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA10	2023-08-13 07:28	Long: 140.138074, Lat: -20.320749	Plain	Very low (9-30m)	K	1.11.3	Remnant

Broad vegetation group:	-
Comments:	Eucalyptus terminalis woodland over spinifex on low rocky hill. old mine shafts / diggings present. potential ghost bat roosts. no mistletoe seen.

Assessment			
Vegetation groundcover (%)	75	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	2	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	98	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	Caves
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	rocks and stones common over ground	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North	East
South	**West**

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA11	2023-08-13 09:05	Long: 140.133709, Lat: -20.320657	Low hills	Very low (9-30m)	K	1.11.3	Remnant

Broad vegetation group:	-
Comments:	Eucalyptus leucophylla woodland over spinifex on low rocky hill. old mine shafts / diggings present, have been filled in. no mistletoe seen.

Assessment			
Vegetation groundcover (%)	75	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	50
Soil crack presence	Absent	**Rocky outcrop**	Large rock boulders
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	rocks and stones common over ground	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North	East
South	**West**

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA12	2023-08-13 11:38	Long: 140.163362, Lat: -20.307131	Plain	Very low (9-30m)	K	1.11.3	Remnant

Broad vegetation group:	-
Comments:	dark bands e leucophylla /phloia woodland with eremophila shrub layer. gidgee thru centre of patch

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	85	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	rocks and stones common over ground	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	4
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA13	2023-08-13 11:57	Long: 140.16039, Lat: -20.308776	Plain	Very low (9-30m)	K	1.5.x	Remnant

Broad vegetation group:	-
Comments:	dark bands e leucophylla /phloia and/or gidgee woodland with eremophila shrub layer. gidgee thru centre of patch

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	2
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	rocks and stones common over ground	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	4
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
Eva_HA14	2023-08-13 12:45	Long: 140.155202, Lat: -20.298137	Plain	Very low (9-30m)	K	1.5.x	Remnant

Broad vegetation group:	-
Comments:	no trafficable track under power lines, dense turpentine. ground cover abundant pennisetum buffel variety (purple/black heads)

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	2	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	98	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	rocks and stones sparse over ground	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	4
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North	East
South	**West**

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BC05_HBT01	2023-08-10 09:16	Long: 140.137193, Lat: -20.13208	Plain	Extremely low (<9m)	K	1.5.13	Remnant

Broad vegetation group:	-
Comments:	Rachel Scott. Very Sandy in some areas, others more silty. Threat isnâ€™t clearing it is grazing. Technically koala good trees but not key species. Heavily grazed but otherwise healthy country.

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	1	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	99	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	35	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Clearing		Severe	
Koala food trees		Yes	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-16 09:39	Long: 140.13812, Lat: -20.140836					

Broad vegetation group:	-
Comments:	Mistletoe

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	
Soil crack presence		**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	
Surface rock		**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence		**Gilgai abundance**	
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)		**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-16 09:41	Long: 140.138462, Lat: -20.141175					

Broad vegetation group:	-
Comments:	Small hollows in E. leucophylla <10cm

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	
Soil crack presence		**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	
Surface rock		**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence		**Gilgai abundance**	
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	14
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
No photo	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-16 10:04	Long: 140.139833, Lat: -20.137567					

Broad vegetation group:	-
Comments:	Downed gidgee

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	
Soil crack presence		**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	
Surface rock		**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence		**Gilgai abundance**	
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)		**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-16 11:57	Long: 140.14642, Lat: -20.135507			F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	100m x 50m = small 21 (5-10cm), (10-15 cm) 16 med ium, (>15cm) large 19

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Alluvial sand	**Proximity to water**	<1
Connectivity	Narrow linear patch	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)		**Hollow tree abundance (per ha)**	112
Presence of threat		**Severity of threat**	
Weeds		High	
Koala food trees		Yes	

North	East
No photo	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-17 08:28	Long: 140.145178, Lat: -20.155707				1.3.7	Remnant

Broad vegetation group:	-
Comments:	CTC tributary, wide creek bed ~10m sandy rocky substrate, incised banks 2-5m tall lined with buffel. Creek bed supports mature Euccama. Creek bank supports Acacia sp., Lopgran and sandpaper fig. No gc on bed. Water present. 15 small, 9 med, 14 lg hollows

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Sand/gravel creek bed	**Proximity to water**	<1
Connectivity	Narrow linear patch	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)		**Hollow tree abundance (per ha)**	76
Presence of threat		**Severity of threat**	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-17 10:06	Long: 140.139633, Lat: -20.155909			G		

Broad vegetation group:	-
Comments:	Narrow drainage line 3m wide, incised banks 1 m tall. Gravelly soil. Dom T1, Corterm and Lopgran with occasional E. Leicophylla. Native shrub layer, buffel ground cover on banks, no veg in bank. No water.

Assessment			
Vegetation groundcover (%)	0	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	2
Soil crack presence		**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Gravelly creek bed	**Proximity to water**	<1
Connectivity	Narrow linear patch	**Water type**	Ephemeral
Gilgai presence		**Gilgai abundance**	
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)		**Hollow tree abundance (per ha)**	6
Presence of threat		**Severity of threat**	
Koala food trees			

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
CTC habitat assessment	2024-03-17 12:18	Long: 140.138329, Lat: -20.148			F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	CTC. 12 small, 20 medium, 11 large hollows in 30m x 100m

Assessment			
Vegetation groundcover (%)	55	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	55	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Rocky creek bed	**Proximity to water**	<1
Connectivity	Narrow linear patch	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	Rare
Hollow log size (mm)		**Hollow tree size (mm)**	0
Hollow log abundance (per ha)		**Hollow tree abundance (per ha)**	143
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA02	2024-04-07 08:25	Long: 140.127128, Lat: -20.142336	Alluvial plain	Extremely low (<9m)	A	2.4.3	Remnant

Broad vegetation group:	-
Comments:	

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	45
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Common	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA03	2024-04-07 08:36	Long: 140.126925, Lat: -20.143507	Alluvial plain	Extremely low (<9m)	B	2.4.2	

Broad vegetation group:	-
Comments:	

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Rare	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA01	2024-04-07 08:46	Long: 140.127988, Lat: -20.14179	Alluvial plain	Extremely low (<9m)	B	2.4.2	Remnant

Broad vegetation group:	-
Comments:	

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Occasional
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA04	2024-04-07 09:14	Long: 140.124267, Lat: -20.13804	Alluvial plain	Extremely low (<9m)	A	2.4.2	Remnant

Broad vegetation group:	-
Comments:	

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Occasional
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA05	2024-04-07 09:49	Long: 140.122478, Lat: -20.136001	Alluvial plain	Extremely low (<9m)	E	1.5.13	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Rare
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA06	2024-04-07 10:24	Long: 140.118957, Lat: -20.133609	Alluvial plain	Extremely low (<9m)	B	2.4.2	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	3
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
No photo	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA07	2024-04-07 11:00	Long: 140.117359, Lat: -20.136587	Alluvial plain	Extremely low (<9m)	B	1.5.?	Remnant

Broad vegetation group:	-
Comments:	C.app and scattered mistletoe

Assessment			
Vegetation groundcover (%)	85	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	85	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA08	2024-04-07 11:20	Long: 140.118051, Lat: -20.136985	Alluvial plain	Extremely low (<9m)	B	1.5.13?	Remnant

Broad vegetation group:	-
Comments:	C.app and scattered mistletoe

Assessment			
Vegetation groundcover (%)	85	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
No photo	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA09	2024-04-07 12:19	Long: 140.124342, Lat: -20.146727	Alluvial plain	Extremely low (<9m)	B	2.4.3	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Occasional
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA10	2024-04-07 12:49	Long: 140.112566, Lat: -20.153173	Alluvial plain	Extremely low (<9m)	B	2.4.3	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	2
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Deep	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA11	2024-04-07 13:23	Long: 140.112989, Lat: -20.146314	Alluvial plain	Extremely low (<9m)	B	1.5.13	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	0	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Occasional
Hollow log size (mm)	Small	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA11a	2024-04-07 13:44	Long: 140.112835, Lat: -20.148229	Alluvial plain	Extremely low (<9m)	A	2.4.2	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	1
Soil crack presence	Diverse	**Rocky outcrop**	NA
Soil crack abundance	Common	**Roost sites for microbats**	No
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Diverse	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA12	2024-04-07 14:19	Long: 140.108848, Lat: -20.143302	Alluvial plain	Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	25
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	15
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA13	2024-04-07 14:37	Long: 140.110577, Lat: -20.143661	Alluvial plain	Extremely low (<9m)	I	1.5.13	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Small	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BP_HA01	2024-04-08 07:50	Long: 140.11775, Lat: -20.126077	Alluvial plain	Extremely low (<9m)	A	2.4.2	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Rare	**Roost sites for microbats**	No
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Shallow	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
BP_HA02	2024-04-08 08:11	Long: 140.122683, Lat: -20.127841	Alluvial plain	Extremely low (<9m)	A	2.4.3	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Common	**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Diverse	**Gilgai abundance**	Common
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA14	2024-04-08 08:46	Long: 140.115211, Lat: -20.135909	Alluvial plain	Extremely low (<9m)	I	1.5.16	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
No photo	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA15	2024-04-08 09:05	Long: 140.11273, Lat: -20.134313	Alluvial plain	Extremely low (<9m)	I	1.5.13	Remnant

Broad vegetation group:	-
Comments:	SGlauert

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA16	2024-04-08 09:21	Long: 140.111707, Lat: -20.13498	Alluvial fan	Extremely low (<9m)	E	1.5.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert fringe of snappy gum

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA17	2024-04-08 09:36	Long: 140.110259, Lat: -20.134896	Alluvial fan	Extremely low (<9m)	E	1.5.16	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Pebbles	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Small	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA18	2024-04-08 09:53	Long: 140.109945, Lat: -20.137025	Alluvial fan	Extremely low (<9m)	E		

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	No
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Small	**Hollow tree size (mm)**	1
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	3
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA19	2024-04-08 10:21	Long: 140.114492, Lat: -20.138584	Alluvial fan	Extremely low (<9m)	A	2.4.2	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	NA
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Shallow	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	No
Surface rock	Small pebbles 5%	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Diverse	**Gilgai abundance**	Common
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA20	2024-04-08 17:17	Long: 140.118315, Lat: -20.14103	Alluvial plain	Extremely low (<9m)	I	1.5.13	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	80
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA21	2024-04-08 17:35	Long: 140.113714, Lat: -20.142273			I		

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	75	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	3	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	97	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
No photo	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA21a	2024-04-09 08:51	Long: 140.104656, Lat: -20.137496	Alluvial plain	Extremely low (<9m)	I	1.5.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert babblers

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Small	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Large	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA22	2024-04-09 09:37	Long: 140.103477, Lat: -20.137558		Extremely low (<9m)	B		

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Abundant
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	35
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Some pebble	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence		**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
SF_HA23	2024-04-09 09:57	Long: 140.10278, Lat: -20.139157		Extremely low (<9m)	B	1.5.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Some pebble	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA01	2024-04-09 11:19	Long: 140.113887, Lat: -20.16893			K	1.5.4	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	50	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	50	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	1
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA02	2024-04-09 11:59	Long: 140.114565, Lat: -20.170444					

Broad vegetation group:	-
Comments:	S Glauert gidgee

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	25
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Pebbles 90	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA03	2024-04-09 12:56	Long: 140.113054, Lat: -20.173039			J	1.5.4	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	75	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA04	2024-04-09 14:17	Long: 140.107394, Lat: -20.172828		Extremely low (<9m)	I		

Broad vegetation group:	-
Comments:	S Glauert mistletoe present

Assessment			
Vegetation groundcover (%)	85	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	1
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA05	2024-04-09 14:52	Long: 140.102168, Lat: -20.173947		Extremely low (<9m)	J	1.5.13	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	85	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	35	**Leaf litter (% cover)**	75
Native groundcover (%) of total veg. cover	65	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence		**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	6
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA06	2024-04-09 15:17	Long: 140.098897, Lat: -20.174012	Low hills	Very low (9-30m)	I		

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	45
Native groundcover (%) of total veg. cover	0	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Mid size pebbles to small stones	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	20
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	25
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA07	2024-04-10 09:03	Long: 140.10788, Lat: -20.168662			K	1	

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	90	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	60
Native groundcover (%) of total veg. cover	80	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA08	2024-04-10 09:21	Long: 140.106533, Lat: -20.169461			I	1.5.16	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA09	2024-04-10 09:35	Long: 140.105168, Lat: -20.170598			I	1.5.13	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
WF_HA10	2024-04-10 09:50	Long: 140.108048, Lat: -20.171087			K	1.5.4	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	95	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	35
Native groundcover (%) of total veg. cover	90	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
TL_HA01	2024-04-10 10:32	Long: 140.128146, Lat: -20.147122		Extremely low (<9m)	I	2.4.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert more clay than sand

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	25
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	10
Soil crack presence	Diverse	**Rocky outcrop**	NA
Soil crack abundance	Occasional	**Roost sites for microbats**	Yes
Surface rock	Occasional small pebbles	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Diverse	**Gilgai abundance**	Occasional
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
TL_HA02	2024-04-10 10:44	Long: 140.129313, Lat: -20.148129			I		

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	35	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	80% small pebbles	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	1
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
TL_HA03	2024-04-10 11:01	Long: 140.1309, Lat: -20.150114			I		

Broad vegetation group:	-
Comments:	S Glauert more sand than clay

Assessment			
Vegetation groundcover (%)	80	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	75	**Leaf litter (% cover)**	35
Native groundcover (%) of total veg. cover	25	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
TL_HA04	2024-04-10 12:05	Long: 140.143082, Lat: -20.164913			I	1.11.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert spinifex outside of drainage depression buffel in depressed

Assessment			
Vegetation groundcover (%)	85	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	85	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	None	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
AR_HA03	2024-04-10 12:50	Long: 140.218311, Lat: -20.160307				1.11.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	25	**Leaf litter (% cover)**	25
Native groundcover (%) of total veg. cover	75	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Scattered medium pebbles to small stones	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	6
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
AR_HA04	2024-04-10 13:18	Long: 140.224818, Lat: -20.160922			J	1.11.3	Remnant

Broad vegetation group:	-
Comments:	S Glauert

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	
Soil crack abundance		**Roost sites for microbats**	Yes
Surface rock	Covered small pebbles to small stones occasional small rock	**Proximity to water**	
Connectivity		**Water type**	
Gilgai presence	Absent	**Gilgai abundance**	
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	1
Presence of threat		**Severity of threat**	
Koala food trees			

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA01	2024-11-13 18:14	Long: 140.181988, Lat: -20.172709	Hills	Very low (9-30m)	G	1.11.3a	

Broad vegetation group:	-
Comments:	EH. Small rocky outcrop with low relief. lots of old and fresh PNRW scat in shelters

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	30	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	Rocky escarpment
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Rocky outcrop	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		No	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA02	2024-11-14 10:14	Long: 140.130869, Lat: -20.147231	Plain	Extremely low (<9m)	E	1.5.4	Remnant

Broad vegetation group:	-
Comments:	EH. Area with high shrub cover of A.chisholmsi and sandy soils. scattered E. leucophylla (food source for honeyeaters when flowering). Some honeyeaters noted in area. Termite mounds

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	60	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	8
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA03	2024-11-14 10:35	Long: 140.13351, Lat: -20.151297	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Pardalote nests in bank. Hollow abundance typical of CTC. water source when holding water. Loose/decorticating bark present.

Assessment			
Vegetation groundcover (%)	15	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	100
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA04	2024-11-14 11:56	Long: 140.103801, Lat: -20.123088	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Pardalote / bee eater nests in bank. Hollow abundance typical of CTC. water source when holding water. Loose/decorticating bark present. Flowering Eucs, good spot for birds

Assessment			
Vegetation groundcover (%)	15	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	1
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	50
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA05	2024-11-14 15:46	Long: 140.1593, Lat: -20.129904	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Creekline. Hollows abundant in larger trees. Banks suitable for pardalotes to burrow

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	15	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Large	**Hollow tree abundance (per ha)**	30
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA06	2024-11-15 08:13	Long: 140.17317, Lat: -20.163299	Alluvial plain	Extremely low (<9m)	F		Remnant

Broad vegetation group:	-
Comments:	EH. Creekline with shallow banks. Opportunity for pardalotes etc to burrow but non observed. 2x Stick nests observed in terminalis. Dense shrub layer. No hollows observed but many close to forming on larger terminalis'. Reptile holes dug under terminalis

Assessment			
Vegetation groundcover (%)	65	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	45	**Leaf litter (depth in mm)**	2
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Yes	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	6
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA07	2024-11-15 09:20	Long: 140.150383, Lat: -20.16674	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Well developed channel. Pardalote / bee eater nests in bank. Hollow abundance slightly less than CTC with less large trees. water source when holding water. Loose/decorticating bark present.

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	25
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	30
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA08	2024-11-15 10:38	Long: 140.165397, Lat: -20.178192	Alluvial plain	Extremely low (<9m)	F	1.3.7b	Remnant

Broad vegetation group:	-
Comments:	EH. Well developed channel in some areas. Large trees mostly absent, no hollows observed but small future hollows present. Pardalote / bee eater nests in bank. Water source when holding water. Evidence of small mammals/reptiles digging into upper banks

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	10	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	None	**Hollow tree abundance (per ha)**	0
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA09	2024-11-15 12:28	Long: 140.193723, Lat: -20.194534	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Well developed channel. Large stag with hollows on upper bank. Banks suitable for Pardalote / bee eater nests, some burrows observed. Hollow abundance slightly less than CTC with less large trees.

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	25
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	40
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA10	2024-11-15 13:30	Long: 140.182853, Lat: -20.188327	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel with defined banks in some areas. Likely suitable banks for pardalote nesting. No instream vegetation besides buffel on some banks

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	25	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Weeds		Low	
Koala food trees		Yes	

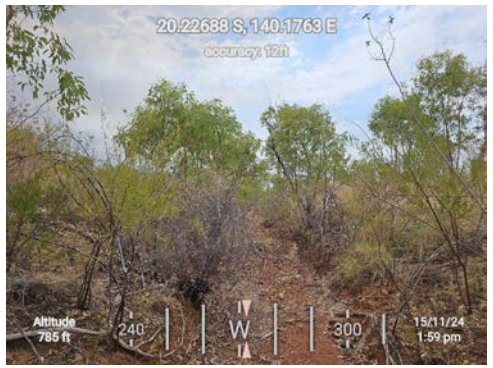
North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA11	2024-11-15 14:27	Long: 140.176307, Lat: -20.226868	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel with defined banks in some areas. No aquatic / riparian vegetation

Assessment			
Vegetation groundcover (%)	20	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA12	2024-11-15 15:19	Long: 140.163771, Lat: -20.236833	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Channel wide with defined banks, reduces in width further to the north and south. No aquatic/ riparian vegetation. high bank >2m in some places. Pardalote burrows in bank. Reptile habitat in rocks and crevices

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_01	2024-11-15 18:57	Long: 140.151091, Lat: -20.297061	Low hills	Very low (9-30m)	H	1.11.?	Remnant

Broad vegetation group:	-
Comments:	RS SW. Foothill of the knapdale ranges. No boulders, spinifex young abundant.

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Abundant	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_02	2024-11-15 19:31	Long: 140.147794, Lat: -20.296634	Low hills	Very low (9-30m)	H	1.11.?	Remnant

Broad vegetation group:	-
Comments:	RS SW. Top of the knapdale range. Large surface rocks up to 70cm across, no boulders. spinifex dominant ground cover. dispersal/foraging but not core habitat

Assessment			
Vegetation groundcover (%)	70	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	0	**Leaf litter (% cover)**	1
Native groundcover (%) of total veg. cover	100	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Abundant	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_03	2024-11-16 09:53	Long: 140.13172, Lat: -20.196155	Hills	Low (30-90m)	H	1.11.?	Remnant

Broad vegetation group:	-
Comments:	RS SW. Occupied small caves. Abundant spinifex (new growth burnt within last 5 years).

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	2	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	98	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	Large rock boulders
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Abundant	**Proximity to water**	1 - 3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	6
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA13	2024-11-16 06:59	Long: 140.184715, Lat: -20.198301	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Channel with partially defined banks. No aquatic / riparian plants. Pardalote / reptile burrows in bank. Reptile habitat in rocks and crevices

Assessment			
Vegetation groundcover (%)	35	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	3
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA14	2024-11-16 08:15	Long: 140.169687, Lat: -20.22229	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Large channel with defined banks. Some riparian plants / veg in channel (ie lophostemon). Pardalote / bee eater burrows in bank. Reptile habitat in rocks and crevices under raised vegetation in stream braids. stream forks into 2x 1.3.13

Assessment			
Vegetation groundcover (%)	35	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	20
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA15	2024-11-16 08:22	Long: 140.169479, Lat: -20.223171	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Channel with partly defined banks. No riparian plants / veg in channel. Bedrock present, soil more densely packed, less suitable for pardalote / bee eater burrows in bank. Canopy drops off, less hollow trees

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Common	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA16	2024-11-16 09:22	Long: 140.147086, Lat: -20.201445	Alluvial plain	Extremely low (<9m)	F	1.3.6a	Remnant

Broad vegetation group:	-
Comments:	EH. Cross check RE. Large channel with not well defined defined banks, very rocky. Some riparian plants / veg in channel (ie lophostemon). 1 pardalote / bee eater burrow in bank. Reptile habitat in rocks and crevices. Large stick nests in Corybia

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	25	**Leaf litter (% cover)**	15
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA17	2024-11-16 10:10	Long: 140.155955, Lat: -20.192626	Hills	Low (30-90m)	C	1.11.3	Remnant

Broad vegetation group:	-
Comments:	EH. termite mounds present. Occasional large tree, hollow bearing.

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	25
Native groundcover (%) of total veg. cover	40	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA18	2024-11-16 11:27	Long: 140.165688, Lat: -20.26649	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Major channel, multiple streams. Pardalote nests in bank. Hollow abundance high, less than CTC. water source when holding water. Loose/decorticating bark present. Stick nest present

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	25	**Leaf litter (% cover)**	35
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	50
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

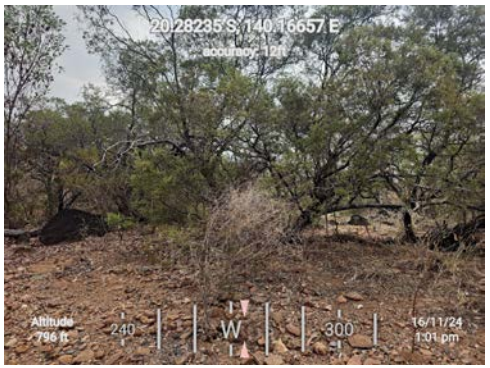
North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA19	2024-11-16 13:29	Long: 140.166526, Lat: -20.282241	Alluvial plain	Extremely low (<9m)	F	1.3.7	Remnant

Broad vegetation group:	-
Comments:	EH. Major channel with developed banks. Very stoney. confluence of two smaller streams. Multiple mistletoes present. grazing / evidence of cattle

Assessment			
Vegetation groundcover (%)	25	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	20	**Leaf litter (% cover)**	35
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Rare	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	40
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA20	2024-11-16 15:36	Long: 140.146885, Lat: -20.31352	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel without well developed banks. creekline terminates to the east where it has been dammed. grazing / evidence of cattle

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	55	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Common	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	25
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_04	2024-11-17 08:32	Long: 140.161709, Lat: -20.189279	Alluvial plain	Extremely low (<9m)	F	1.3.7b	Remnant

Broad vegetation group:	-
Comments:	RS SW.

Assessment			
Vegetation groundcover (%)	15	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	40	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	60	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	Yes
Surface rock	Absent	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Weeds		Moderate	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_05	2024-11-17 09:44	Long: 140.169035, Lat: -20.193863	Alluvial plain	Extremely low (<9m)	E	1.3.13	Remnant

Broad vegetation group:	-
Comments:	RS SW. Previously burnt by severe fire (within last 5 years), no large trees in proximity. All box regrowth. No riparian veg, woodland veg goes right up to the channel.

Assessment			
Vegetation groundcover (%)	15	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Abundant	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	8
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	6
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_06	2024-11-17 10:29	Long: 140.169893, Lat: -20.19674	Alluvial plain	Extremely low (<9m)	E	1.3.13	Remnant

Broad vegetation group:	-
Comments:	RS SW. Previously burnt by severe fire (within last 5 years), one large tree in proximity. All box regrowth. No riparian veg, woodland veg goes right up to the channel.

Assessment			
Vegetation groundcover (%)	65	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	10
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Abundant	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	2
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	2
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
RS_HA_07	2024-11-17 10:54	Long: 140.170614, Lat: -20.199006	Alluvial plain	Extremely low (<9m)	E	1.3.13	Remnant

Broad vegetation group:	-
Comments:	RS SW. One large log, the rest smalls previously bury. Dominant tree is snappy gum. E leukophloia

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	5	**Leaf litter (% cover)**	5
Native groundcover (%) of total veg. cover	95	**Leaf litter (depth in mm)**	5
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Abundant	**Proximity to water**	>3
Connectivity	Contiguous area (>100 ha)	**Water type**	Permanent
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Small	**Hollow tree size (mm)**	6
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	11
Presence of threat		**Severity of threat**	
Altered fire regime		Low	
Koala food trees		No	

North

East

South

West

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA21	2024-11-17 08:11	Long: 140.181098, Lat: -20.229358	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel well developed banks in some areas. Creek bed suitable for pardalote burrows with 1 burrow observed

Assessment			
Vegetation groundcover (%)	55	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	40	**Leaf litter (% cover)**	25
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	20
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA22	2024-11-17 08:38	Long: 140.162459, Lat: -20.237671	Alluvial plain	Extremely low (<9m)	F	1.3.7b	Remnant

Broad vegetation group:	-
Comments:	EH. Large channel with defined banks. Canopy trees frequent along banks and instream. Rocky / woody debris habitat for reptiles. Banks suitable for burrows

Assessment			
Vegetation groundcover (%)	35	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	20
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA23	2024-11-17 09:04	Long: 140.169796, Lat: -20.235756	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel with defined banks. Rocky areas / woody debris habitat for reptiles. Banks suitable for small animal burrows, some observed in bedrock

Assessment			
Vegetation groundcover (%)	50	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	35
Native groundcover (%) of total veg. cover	20	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Common	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Medium	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA24	2024-11-17 09:31	Long: 140.17065, Lat: -20.231922	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel with loosely defined banks. Banks suitable for small animal burrows. Small stick nest in nearby tree

Assessment			
Vegetation groundcover (%)	60	**Fallen woody debris abundance**	Rare
Exotic groundcover (%) of total veg. cover	35	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	25	**Leaf litter (depth in mm)**	15
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Small	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA25	2024-11-17 09:59	Long: 140.16926, Lat: -20.242634	Alluvial plain	Extremely low (<9m)	F	1.3.7b	Remnant

Broad vegetation group:	-
Comments:	EH. Major channel with defined banks. Camaldulensis and Lophostemon present on bank and in creek. Banks suitable for small animal burrows. Woody debris piles / crevices suitable habitat for reptiles

Assessment			
Vegetation groundcover (%)	30	**Fallen woody debris abundance**	Common
Exotic groundcover (%) of total veg. cover	25	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	15
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	35
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA26	2024-11-17 10:16	Long: 140.161673, Lat: -20.243914	Alluvial plain	Extremely low (<9m)	F	1.3.7b	Remnant

Broad vegetation group:	-
Comments:	EH. Major channel with rocky shallow banks. Camaldulensis and Lophostemon present on bank and in creek. Woody debris piles / crevices suitable habitat for reptiles

Assessment			
Vegetation groundcover (%)	35	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	25	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	10	**Leaf litter (depth in mm)**	15
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	10
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	30
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA27	2024-11-17 11:43	Long: 140.168718, Lat: -20.206893	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel lacking defined banks. Canopy vegetation sparse, no riparian species. Small burrows in bank

Assessment			
Vegetation groundcover (%)	35	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	40
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	Large	**Hollow tree size (mm)**	5
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	10
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA28	2024-11-17 11:56	Long: 140.169068, Lat: -20.204399	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Very minor channel lacking defined banks. Canopy vegetation sparse, no riparian species

Assessment			
Vegetation groundcover (%)	45	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	30	**Leaf litter (% cover)**	30
Native groundcover (%) of total veg. cover	15	**Leaf litter (depth in mm)**	20
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Habitat Assessment Report

Site ID	Date	Location (GPS)	Landform element	Landform pattern	Soil Texture	RE Code	RE Condition
EH_HA29	2024-11-17 12:11	Long: 140.172073, Lat: -20.202936	Alluvial plain	Extremely low (<9m)	F	1.3.13	Remnant

Broad vegetation group:	-
Comments:	EH. Minor channel lacking defined banks in some places. Canopy vegetation sparse. Pardalote nest in bank

Assessment			
Vegetation groundcover (%)	40	**Fallen woody debris abundance**	Occasional
Exotic groundcover (%) of total veg. cover	35	**Leaf litter (% cover)**	20
Native groundcover (%) of total veg. cover	5	**Leaf litter (depth in mm)**	10
Soil crack presence	Absent	**Rocky outcrop**	NA
Soil crack abundance	NA	**Roost sites for microbats**	No
Surface rock	Occasional	**Proximity to water**	<1
Connectivity	Contiguous area (>100 ha)	**Water type**	Ephemeral
Gilgai presence	Absent	**Gilgai abundance**	NA
Hollow log size (mm)	None	**Hollow tree size (mm)**	0
Hollow log abundance (per ha)	Medium	**Hollow tree abundance (per ha)**	5
Presence of threat		**Severity of threat**	
Pest species		Low	
Koala food trees		Yes	

North	East
	No photo
South	**West**
No photo	No photo

Annexure F

Compiled survey results

EMM
creating opportunities

F.1 Compiled fauna observations

Table F.1 Compiled fauna observations

Scientific name	Common name	EPBC Act status	NC Act status
Birds			
Struthidea cinerea	Apostlebird	-	Least Concern
Anhinga novaehollandiae	Australasian Darter	-	Least Concern
Ardeotis australis	Australian Bustard	-	Least Concern
Falco longipennis	Australian Hobby	-	Least Concern
Gymnorhina tibicen	Australian Magpie	-	Least Concern
Aegotheles cristatus	Australian Owlet-nightjar	-	Least Concern
Corvus coronoides	Australian Raven	-	Least Concern
Barnardius zonarius macgillivrayi	Australian Ringneck (Cloncurry)	-	Least Concern
Ceyx azureus	Azure Kingfisher	-	Least Concern
Cissomela pectoralis	Banded Honeyeater	-	Least Concern
Geopelia humeralis	Bar-shouldered Dove	-	Least Concern
Milvus migrans	Black Kite	-	Least Concern
Hamirostra melanosternon	Black-breasted Buzzard	-	Least Concern
Melithreptus gularis laetior	Black-chinned Honeyeater (Golden-backed)	-	Least Concern
Coracina novaehollandiae	Black-faced Cuckooshrike	-	Least Concern
Artamus cinereus	Black-faced Woodswallow	-	Least Concern
Thinornis melanops	Black-fronted Dotterel	-	Least Concern
Elanus axillaris	Black-shouldered Kite	-	Least Concern
Climacteris melanurus	Black-tailed Treecreeper	-	Least Concern
Dacelo leachii	Blue-winged Kookaburra	-	Least Concern
Antigone rubicunda	Brolga	-	Least Concern
Falco berigora	Brown Falcon	-	Least Concern
Accipiter fasciatus	Brown Goshawk	-	Least Concern
Lichmera indistincta	Brown Honeyeater	-	Least Concern
Synoicus ypsilophorus	Brown Quail	-	Least Concern
Cacomantis variolosus	Brush Cuckoo	-	Least Concern
Melopscittacus undulatus	Budgerigar	-	Least Concern
Scythrops novaehollandiae	Channel-billed Cuckoo	-	Least Concern

Scientific name	Common name	EPBC Act status	NC Act status
Nymphicus hollandicus	Cockatiel	-	Least Concern
Accipiter cirrocephalus	Collared Sparrowhawk	-	Least Concern
Phaps chalcoptera	Common Bronzewing	-	Least Concern
Oreoica gutturalis	Crested Bellbird	-	Least Concern
Ocyphaps lophotes	Crested Pigeon	-	Least Concern
Epthianura tricolor	Crimson Chat	-	Least Concern
Geopelia cuneata	Diamond Dove	-	Least Concern
Eurystomus orientalis	Dollarbird	-	Least Concern
Stizoptera bichenovii	Double-barred Finch	-	Least Concern
Todiramphus macleayii	Forest Kingfisher	-	Least Concern
Eolophus roseicapilla	Galah	-	Least Concern
Chlamydera nuchalis	Great Bowerbird	-	Least Concern
Rhipidura albiscapa	Grey Fantail	-	Least Concern
Colluricincla harmonica	Grey Shrike-thrush	-	Least Concern
Pomatostomus temporalis	Grey-crowned Babbler	-	Least Concern*
Ptilotula plumula	Grey-fronted Honeyeater	-	Least Concern
Ptilotula keartlandi	Grey-headed Honeyeater	-	Least Concern
Coracina maxima	Ground Cuckoo-shrike	-	Least Concern
Melanodryas cucullata	Hooded Robin	-	Least Concern
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo	-	Least Concern
Mirafra javanica	Horsfield's Bushlark	-	Least Concern
Microeca fascinans	Jacky Winter	-	Least Concern
Myiagra rubecula	Leaden Flycatcher	-	Least Concern
Turnix velox	Little Buttonquail	-	Least Concern
Hieraaetus morphnoides	Little Eagle	-	Least Concern
Philemon citreogularis	Little Friarbird	-	Least Concern
Artamus minor	Little Woodswallow	-	Least Concern
Poephila acuticauda	Long-tailed Finch	-	Least Concern
Grallina cyanoleuca	Magpie-lark	-	Least Concern
Vanellus miles	Masked Lapwing	-	Least Concern
Artamus personatus	Masked Woodswallow	-	Least Concern
Grallina cyanoleuca	Mistletoebird	-	Least Concern
Falco cenchroides	Nankeen Kestrel	-	Least Concern

Scientific name	Common name	EPBC Act status	NC Act status
Philemon corniculatus	Noisy Friarbird	-	Least Concern
Oriolus sagittatus	Olive-backed Oriole	-	Least Concern
Eudynamys orientalis	Pacific Koel	-	Least Concern
Apus pacificus	Pacific Swift	Migratory	Special least concern
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable
Cacomantis pallidus	Pallid Cuckoo	-	Least Concern
Myiagra nana	Paperbark Flycatcher	-	Least Concern
Geopelia placida	Peaceful Dove	-	Least Concern
Falco peregrinus	Peregrine Falcon	-	Least Concern
Centropus phasianinus	Pheasant Coucal	-	Least Concern
Heteromunia pectoralis	Pictorella Mannikin	-	Least Concern
Cracticus nigrogularis	Pied Butcherbird	-	Least Concern
Certhionyx variegatus	Pied Honeyeater	-	Least Concern
Malurus assimilis	Purple-backed Fairywren	-	Least Concern
Merops ornatus	Rainbow Bee-eater	-	Least Concern
Malurus melanocephalus	Red-backed Fairy-wren	-	Least Concern
Todiramphus pyrrhopygius	Red-backed Kingfisher	-	Least Concern
Pardalotus rubricatus	Red-browed Pardalote	-	Least Concern
Aprosmictus erythropterus	Red-winged Parrot	-	Least Concern
Rhipidura rufifrons	Rufous Fantail	-	Least Concern
Cincloramphus mathewsi	Rufous Songlark	-	Least Concern
Pachycephala rufiventris	Rufous Whistler	-	Least Concern
Conopophila rufogularis	Rufous-throated Honeyeater	-	Least Concern
Todiramphus sanctus	Sacred Kingfisher	-	Least Concern
Cacomantis variolosus	Sahul Brush Cuckoo	-	Least Concern
Antigone antigone	Sarus Crane	-	Least Concern
Chalcites lucidus	Shining Bronze-Cuckoo	-	Least Concern
Philemon argenticeps	Silver-crowned Friarbird	-	Least Concern
Mirafra javanica	Singing Bushlark	-	Least Concern
Gavicalis virescens	Singing Honeyeater	-	Least Concern
Geophaps plumifera	Spinifex Pigeon	-	Least Concern
Poodytes carteri	Spinifexbird	-	Least Concern
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	-	Least Concern

Scientific name	Common name	EPBC Act status	NC Act status
Chlamydera maculata	Spotted Bowerbird	-	Least Concern
Circus assimilis	Spotted Harrier	-	Least Concern
Eurostopodus argus	Spotted Nightjar	-	Least Concern
Pardalotus striatus	Striated Pardalote	-	Least Concern
Cacatua galerita	Sulphur-crested Cockatoo	-	Least Concern
Corvus orru	Torresian Crow	-	Least Concern
Petrochelidon nigricans	Tree Martin	-	Least Concern
Psitteuteles versicolor	Varied Lorikeet	-	Least Concern
Daphoenositta chrysoptera pileata	Varied Sitella (Black-capped)	-	Least Concern
Lalage leucomela	Varied Triller	-	Least Concern
Aquila audax	Wedge-tailed Eagle	-	Least Concern
Smicrornis brevirostris	Weebill	-	Least Concern
Gerygone fusca	Western Gerygone	-	Least Concern
Haliastur sphenurus	Whistling Kite	-	Least Concern
Coracina papuensis	White-bellied Cuckooshrike	-	Least Concern
Artamus leucorynchus	White-breasted Woodswallow	-	Least Concern
Artamus superciliosus	White-browed Woodswallow	-	Least Concern
Stomiopera unicolor	White-gaped Honeyeater	-	Least Concern
Ardea pacifica	White-necked Heron	-	Least Concern
Ptilotula penicillata	White-plumed Honeyeater	-	Least Concern
Gerygone olivacea	White-throated Gerygone	-	Least Concern
Lalage tricolor	White-winged Triller	-	Least Concern
Rhipidura leucophrys	Willie Wagtail	-	Least Concern
Acanthiza nana	Yellow Thornbill	-	Least Concern
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	-	Least Concern
Manorina flavigula	Yellow-throated Miner	-	Least Concern
Ptilotula flavescens	Yellow-tinted Honeyeater	-	Least Concern
Taeniopygia guttata	Zebra Finch	-	Least Concern
Mammals			
Zyzomus argurus	Common Rock Rat	-	Least Concern
Taphozous georgeanus	Common Sheath-tailed Bat	-	Least Concern
Macropus robustus	Common Wallaroo	-	Least Concern

Scientific name	Common name	EPBC Act status	NC Act status
Bos taurus	Cow	-	Least Concern
Canis familiaris dingo	Dingo	-	Least Concern
Hipposideros ater	Dusky Leaf-nosed Bat	-	Least Concern
Felis catus	Feral Cat	-	Least Concern
Vespadelus finlaysoni	Finlayson's Cave Bat	-	Least Concern
Chalinolobus gouldii	Gould's Wattled Bat	-	Least Concern
Chaerephon jobensis	Greater Northern Free-tailed Bat	-	Least Concern
Chalinolobus nigrogriseus	Hoary Wattled Bat	-	Least Concern
Scotorepens balstoni	Inland Broad-nosed Bat	-	Least Concern
Vespadelus baverstocki	Inland Forest Bat	-	Least Concern
Nyctophilus geoffroyi	Lesser Long-eared Bat	-	Least Concern
Miniopterus australis	Little Bent-winged Bat	-	Least Concern
Scotorepens greyii	Little Broad-nosed Bat	-	Least Concern
Planigale tenuirostris	Narrow-nosed Planigale	-	Least Concern
Vespadelus caurinus	Northern Cave Bat	-	Least Concern
Chaerephon jobensis	Northern Freetail Bat	-	Least Concern
Ozimops lumsdenae	Northern Free-tailed Bat	-	Least Concern
Petrogale purpureicollis	Purple-necked Rock-wallaby	-	Vulnerable
Macropus rufus	Red Kangaroo	-	Least Concern
Tachyglossus aculeatus	Short-beaked Echidna	-	Least Concern
Sminthopsis macroura	Stripe-faced Dunnart	-	Least Concern
Austronomus australis	White-striped Freetail Bat	-	Least Concern
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	-	Least Concern
Saccolaimus flaviventris	Yellow-bellied Sheath-tailed Bat	-	Least Concern
Reptiles			
Aspidites melanocephalus	Black-headed Python	-	Least Concern
Lialis burtonis	Burton’s Legless Lizard	-	Least Concern
Heteronotia bynoei	Bynoe’s Gecko	-	Least Concern
Pogona vitticeps	Central Bearded Dragon	-	Least Concern
Tiliqua multifasciata	Centralian Blue-tongued Skink	-	Least Concern
Suta suta	Curl Snake	-	Least Concern
Delma tincta	Excitable Delma	-	Least Concern

Scientific name	Common name	EPBC Act status	NC Act status
Chlamydosaurus kingii	Frilled Lizard	-	Least Concern
Amphibolurus gilberti	Gilbert's Dragon	-	Least Concern
Ctenotus lateralis	Gravelly-soil ctenotus	-	Least Concern
Ctenotus pantherinus	Leopard Ctenotus	-	Least Concern
Varanus mertensi	Mertens' Water Monitor	Endangered	Endangered
Tiliqua scincoides intermedia	Northern Blue-tongued Skink	Critically Endangered	Critically Endangered
Ctenotus pulchellus	Red-sided Ctenotus	-	Least Concern
Gehyra robusta	Robust Dtella	-	Least Concern
Varanus acanthurus	Ridge-tailed Monitor	-	Least Concern
Demansia quaesitor	Sombre Whipsnake	-	Least Concern
Delma nasuta	Sharp-snouted Delma	-	Least Concern
Morethia boulengeri	South-eastern Morethia	-	Least Concern
Diplodactylus tesselatus	Tesselated Gecko	-	Least Concern
Diporiphra australis	Tommy Roundhead	-	Least Concern
Amphibians			
Litoria latopalmata	Broad-palmed Rocket Frog	-	Least Concern
Rhinella marina	Cane Toad	-	-
Pelodryas caerulea	Green Tree Frog	-	Least Concern

F.2 Regional ecosystem totals within the Project Area

Table F.2 Regional ecosystem totals within the Project Area

RE	Total area (ha)
1.11.2a	185.14
1.11.2a/1.11.3a	279.46
1.11.2a/1.5.13/1.3.7b	664.85
1.11.2a/1.7.7a	519.69
1.11.3a	2587.14
1.11.3a/1.11.2a	3271.92
1.11.3a/1.11.2a/1.7.7a	44.48
1.11.3a/1.3.13a	17.56
1.11.3a/1.5.15	687.30
1.11.3a/1.5.15/11.3.7b	1.49
1.11.3b	79.96
1.11.3b/1.5.15	11.82
1.11.7	14.76
1.12.1/1.12.3a	22.15
1.12.3a	1.34
1.12.3b	86.76
1.3.13a	260.73
1.3.13a/1.3.7a	0.29
1.3.13a/1.3.7b	27.37
1.3.13a/1.5.13/1.5.16	23.21
1.3.6a	22.86
1.3.7a	347.15
1.3.7a/1.3.6a/2.3.50a	40.14
1.3.7b	307.06
1.5.13	167.92
1.5.13/1.5.16	132.83
1.5.13/1.5.16/1.3.6a	396.93
1.5.13/1.5.16/1.5.3	700.74
1.5.13/1.5.4a/1.3.7b	8.20
1.5.15/1.5.4a	26.63
1.5.15/1.5.4a/1.3.7b	448.78

RE	Total area (ha)
1.5.16	238.16
1.5.16/1.5.13/1.5.3	54.96
1.5.3	44.30
1.5.3/1.5.13	11.90
1.5.4a	77.66
1.5.4d	879.61
1.5.4d/1.3.13a/2.4.3a	382.39
1.7.1a/1.5.13	37.41
1.7.5a/1.7.1a	17.43
1.7.7a/1.11.8	100.02
2.4.2b	588.14
2.4.2b/2.4.3a	24.67
2.4.3a	272.17
2.4.3a/1.5.16	11.19
2.4.3a/1.5.4d/1.5.16	126.94
non-rem	52.06

Annexure G

Subject Matter Expert Advice – Carpentarian Grasswren

EMM
creating opportunities

Eva Copper Mine

Carpentarian Grasswren Habitat and Occurrence Likelihood Assessment

Report to:

EMM Consulting

Prepared by:

Henry Stoetzel

Adaptive NRM

1st July 2026

Executive Summary

The Carpentarian Grasswren (*Amytornis dorotheae*) is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Queensland *Nature Conservation Act 1992*. EMM Consulting (EMM) is undertaking environmental assessments in support of a proposed development project located approximately 75 km north of Cloncurry, Queensland. In EMM's preliminary likelihood of occurrence assessment, the Carpentarian Grasswren was assigned a moderate likelihood of occurrence. This report presents a detailed desktop analysis of habitat within and adjacent to the project area, drawing on Regional Ecosystem (RE) mapping, lithology data, occurrence records, fire history data, and published habitat models, to refine that preliminary assessment.

Analysis of available spatial data confirms the presence of potentially suitable habitat within the project area. The project area contains vegetation communities with a *Triodia*-dominated understory, including RE 1.11.2a, 1.7.1a, and 1.7.7a, which are directly associated with verified Carpentarian Grasswren occurrence records. These communities typically represent suitable habitat when they are associated with topographically complex rocky substrates (i.e., ranges, hills, ridgelines, and associated undulating terrain with high concentrations of drainage lines) that promote rocky substrates, *Triodia* dominance, and natural fire patchiness. Habitat modelling predicts suitable habitat within the project area, and fire history data indicate mature vegetation age classes and fire frequencies consistent with known occupied sites.

The project area is located on the eastern extremity of the species' distribution, outside of the Extent of Occurrence (EOO), and is loosely connected to the major range systems supporting the species further west. This peripheral position has the potential to reduce the overall likelihood of occurrence, as recolonisation from population centres following past fire events may be constrained by the species' limited dispersal capability.

On balance, and consistent with the preliminary assessment, the available evidence supports a moderate likelihood of occurrence of Carpentarian Grasswren within the project area. Targeted playback surveys are recommended to determine whether the species is present.

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Appendix A 17

1. Introduction

EMM Consulting (EMM) is undertaking environmental impact assessment for the Eva Copper Mine Project, a proposed development located approximately 75 km north of Cloncurry, Queensland, within the Mount Isa Inlier bioregion. In the preliminary likelihood of occurrence assessment prepared by EMM, the Carpentarian Grasswren (*Amytornis dorotheae*) was assigned a moderate likelihood of occurrence on the basis of the project area's location within the general distributional range of the species and the presence of broad-scale habitat types considered potentially suitable.

Adaptive NRM was subsequently engaged to undertake a detailed desktop analysis of Carpentarian Grasswren habitat within and adjacent to the project area in order to: confirm or revise the preliminary likelihood of occurrence assessment; characterise the nature and extent of potentially suitable habitat present; assess the landscape-scale context of that habitat in relation to known distribution and population centres; and determine whether targeted field surveys are warranted.

The desktop analysis integrates several spatial datasets including RE mapping, lithology, topographic complexity and geomorphology, Carpentarian Grasswren occurrence data, fire history, and habitat modelling outputs.

2. Species Overview

2.1 Taxonomy and Conservation Status

The Carpentarian Grasswren (*Amytornis dorotheae*) is a small, cryptic passerine endemic to the tropical savannas of northern Australia (Christidis *et al.* 2010, 2013). It is listed as Endangered under the EPBC Act, the Queensland *Nature Conservation Act 1992*, and the Northern Territory *Territory Parks and Wildlife Conservation Act 1976*. These listings reflect the species' restricted distribution, declining population trend, and ongoing threats.

2.2 Distribution

The species' distribution is restricted to the Gulf of Carpentaria hinterland, forming a discontinuous arc from the Mount Isa region of north-western Queensland to Borroloola in the Northern Territory (Stoetzel *et al.* 2020). Four subpopulations have been recognised: Buckley River (Mount Isa region), Boodjamulla, Wollogorang, and Borroloola (Figure 1). Over recent decades, the species has undergone a substantial contraction in distribution. The Borroloola population is now considered likely extinct, and significant declines have occurred across the northern portion of the range (Perry *et al.* 2011, Harrington and Murphy 2015).

The Buckley River population, located north of Mount Isa, currently represents the primary stronghold for the species. The project area is located approximately 75 km north of Cloncurry, which positions it broadly within, or immediately proximate to, the eastern extremity of the species' known distribution. The extent to which the project area is connected to core population centres to the west is an important consideration for assessing likelihood of occurrence (Section 5).

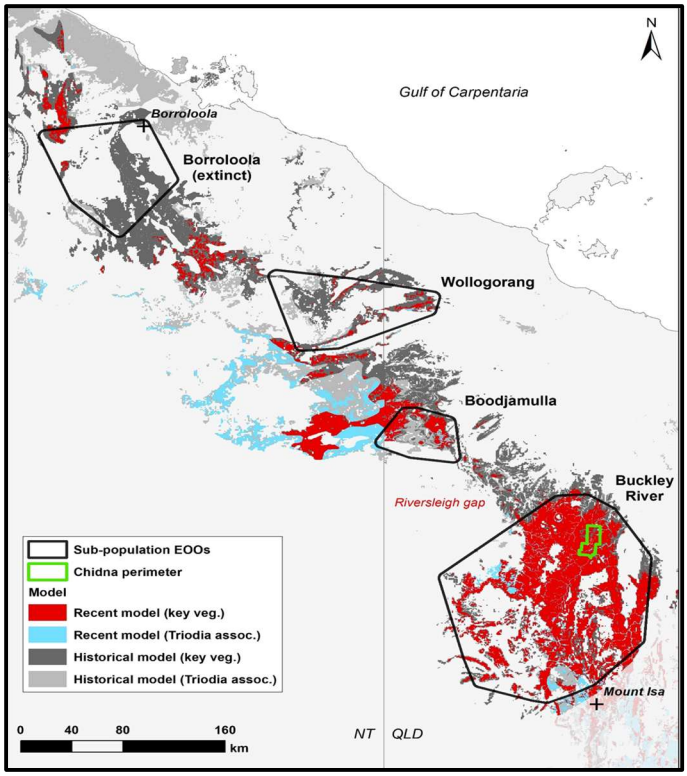

Figure 1: Illustrates distribution model predictions (H. Stoetzel, unpublished), where models trained on contemporary data (post-2016) indicate a contraction towards higher elevation environments that are generally cooler and drier, conditions associated with more stable fire regimes. However, these models are not sufficient for delineating habitat at fine spatial scales. Their coarse resolution limits the ability to detect patchy or subdominant habitat, and they do not adequately represent lower-quality vegetation or lithological classes that may still support the species under certain conditions

2.3 Habitat Requirements

Suitable habitat for the Carpentarian Grasswren is strongly characterised by the presence of a *Triodia*-dominated ground layer within an open eucalypt woodland structure (Harris and Stewart 2009, Perry *et al.* 2011). The species exhibits an obligate dependency on *Triodia* for foraging, nesting, shelter from predators, and microclimatic buffering, particularly during the vulnerable post-fledging juvenile period (H. Stoetzel, unpublished data).

Habitat suitability is strongly linked to vegetation structure (well-developed, mature *Triodia* hummocks providing structural complexity and shelter), lithology and substrate (siliciclastic and metamorphic systems that produce skeletal, low-fertility soils favouring *Triodia* dominance and reduced fuel continuity), topographic complexity (hills, ranges, ridgelines, and drainage features that promote patchy fire behaviour and the persistence of long-unburnt *Triodia*), and fire regime (fine-scale, heterogeneous fire mosaics that retain long-unburnt vegetation, generally ≥10 years since fire, alongside younger post-fire age classes used for foraging and movement). The species exhibits strong site fidelity and limited dispersal capacity, with average home range sizes of approximately 8.7 ha (MCP) to 26.5 ha (KDE), and recolonisation of disturbed areas following fire is expected to be slow or absent where connectivity to source populations is limited (H. Stoetzel, unpublished data).

3. Methodology

The desktop analysis drew on six spatial datasets to characterise habitat within and adjacent to the project area and assess the likelihood of Carpentarian Grasswren occurrence. Regional Ecosystem (RE) mapping (Queensland Herbarium, RE Version 13.1) was used to identify and classify vegetation communities as optimal, sub-optimal, or unsuitable habitat following the framework in Appendix A and summarised in Table 1 and Table 2. Lithology data (Raymond *et al.* 2012) were used to identify siliciclastic and metamorphic substrates associated with species occurrence, and topographic complexity and geomorphology datasets (Amatulli *et al.* 2018, 2019) were used to characterise landform diversity and identify ranges, hills, ridgelines, and drainage concentrations associated with the species' terrestrial ecology and refuge node distribution. Expert-verified Carpentarian Grasswren occurrence data from BirdLife Australia monitoring datasets, the Atlas of Living Australia (ALA), and eBird were used to contextualise the project area's position relative to known records. Fire history data from the North Australian Fire Information (NAFI) database and Queensland Fire History datasets were used to assess time since fire, fire frequency, and the spatial configuration of fire age classes within the project area. Finally, species distribution modelling outputs (Stoetzel *et al.* 2020; H. Stoetzel, unpublished, recalibrated models) were used to assess the distribution of predicted suitable habitat relative to the project area. Habitat was classified into optimal, sub-optimal, and unsuitable categories consistent with the framework in Appendix A, with the RE classifications in Table 1 used as the baseline, and results were interpreted in the context of landscape connectivity, occurrence data, and fire history to inform the overall likelihood of occurrence assessment.

4. Habitat Classification Framework

Vegetation communities within the project area were classified using the three-tier framework described in Appendix A: optimal, sub-optimal, and unsuitable. The Regional Ecosystem codes relevant to the project area are summarised in Tables 1 and 2. Optimal habitat comprises vegetation communities known to support high densities of permanent Carpentarian Grasswren territories based on long-term monitoring data (BirdLife Australia, unpublished). These communities are characterised by well-developed *Triodia* hummock grass understories associated with rocky or skeletal substrates, and an open or low-open eucalypt woodland structure. The presence of any of these communities within the project area is considered a strong indicator of potentially suitable habitat.

Sub-optimal habitat includes vegetation communities that may support the species under certain conditions, particularly where they exhibit a *Triodia*-dominated understory, occur on rocky substrates, and are adjacent to or intermixed with optimal RE cover. These habitats are associated with lower or more variable occupancy but can contribute to territory structure and dispersal corridors between habitat patches.

5. Habitat Assessment

5.1 Regional Ecosystem Mapping

RE mapping confirms the presence of multiple optimal habitat communities within the project area. RE 1.11.2a, 1.7.1a, and 1.7.7a are all present, and their spatial distribution is illustrated in Figure 2. The distribution of these communities is directly and closely associated with verified Carpentarian Grasswren occurrence records within the species' range (BirdLife Australia, unpublished; H. Stoetzel, unpublished). Their presence within the project area is therefore a significant indicator of potentially suitable habitat.

5.2 Lithology, Topographic Complexity and Geomorphology

The lithological composition of the project area is dominated by siliciclastic and metamorphic substrates, including sandstone, metasandstone, and related siliciclastic formations. As outlined in Section 2.3, these lithologies are the strongest broad-scale predictors of suitable Carpentarian Grasswren habitat (Perry *et al.* 2011, Stoetzel *et al.* 2020), reflecting their role in producing skeletal, low-fertility soils that promote *Triodia* dominance, reduced biomass accumulation, and discontinuous fuel structures.

Table 1. Optimal habitat Regional Ecosystem classifications present within the project area.

RE Code	Description	Substrate
1.11.2	*Eucalyptus leucophloia low open woodland, sometimes with Eucalyptus leucophylla, Corymbia terminalis, C. aparrerinja or E. normantonensis, usually with Acacia spp. dominated shrub layer and Triodia spp. and/or tussock grass understory; treeless areas common.*	Hills and ranges on strongly folded Precambrian metamorphic rocks; skeletal soils with some red earths.
1.7.1	*Low open woodland of Eucalyptus leucophloia and/or Corymbia aspera and/or E. normantonensis over Triodia spp.*	Lateritic surfaces and silcrete.
1.7.7	*Low open woodland of Corymbia capricornia, commonly with Eucalyptus leucophloia; Eucalyptus miniata and E. herbertiana commonly present in the north; mixed shrub layer usually including Grevillea wickhamii; ground layer of Triodia spp. and Schizachyrium fragile.*	Silcrete.

Table 2. Sub-optimal habitat Regional Ecosystem classifications present within the project area.

RE Code	Description	Substrate
1.11.3	*Corymbia terminalis / Eucalyptus leucophylla woodland with Acacia spp. dominated shrub layer and Triodia spp. ground layer; includes Acacia shrubland and Triodia grassland.*	Metabasalts and dolerites, with some felsic metavolcanics; hills and rises on metamorphosed igneous rocks; skeletal soils and some shallow loams.
1.11.3	*Corymbia terminalis / Eucalyptus leucophylla woodland with Acacia spp. dominated shrub layer and Triodia spp. ground layer; variant includes Eucalyptus leucophloia and Triodia pungens.*	Metabasalts and dolerites, with some felsic metavolcanics; hills and rises on metamorphosed igneous rocks; skeletal soils and some shallow loams.
1.11.8	*Terminalia aridicola and/or Corymbia aspera woodland with mid-dense shrub layer of Acacia spp. and/or Calytrix brownii, and ground layer of mixed tussock grasses and Triodia spp.*	Rock outcrops on hills and ranges on strongly folded siliceous sedimentary and metamorphic Precambrian rocks.
1.12.1	*Eucalyptus leucophloia low open woodland, sometimes with E. leucophylla, Corymbia terminalis or C. aparrerinja, with Acacia spp. dominated shrub layer and Triodia spp. dominated ground layer; includes treeless Triodia grasslands and Acacia shrublands.*	Ranges and stony hills and rises on igneous rocks; skeletal soils and some shallow red earths.

Table 2. (cont.)

RE Code	Description	Substrate
1.12.3	*Eucalyptus leucophylla low open woodland often with Corymbia terminalis or C. aparrerinja, with Acacia chisholmii shrub layer and hummock grass ground layer of Triodia spp.; includes treeless Triodia grasslands and Acacia shrublands.*	Ranges and stony hills and rises on igneous rocks; skeletal soils and some shallow red earths.
1.3.13	*Eucalyptus leucophylla woodland with Acacia cambagei and mixed ground layer of tussock grasses and Triodia spp.*	Recent levees of larger watercourses and in-channel deposits of ephemeral streams.
1.3.6	*Corymbia aparrerinja / C. terminalis woodland; sparse ground layer with Triodia longiceps.*	Terraces and floodplains on Quaternary alluvium; alluvial soils, some earths and deep yellow podzolics.
1.3.7	*Eucalyptus camaldulensis woodland on watercourses in gorges in Precambrian sandstone formations with ground layer of tussock grasses and Triodia spp.*	Recent levees and channel deposits; variant on watercourses in gorges in Precambrian sandstone formations.
1.3.7	*Eucalyptus camaldulensis woodland with ground layer of tussock grasses and Triodia spp.; riparian context.*	Recent levees and channel deposits of larger tributaries; alluvial soils.
1.5.13	*Eucalyptus pruinosa low open woodland often with Acacia cambagei, with Triodia spp. often present.*	Older alluvial and residual soils.
1.5.16	*Acacia cambagei low woodland with generally sparse ground layer of Triodia longiceps and/or tussock grasses. Bare patches are common.*	Older alluvial and residual soils.
1.5.3	*Eucalyptus leucophloia low open woodland to woodland, sometimes with shrubby understorey dominated by Acacia spp. and usually Triodia spp. dominated ground cover.*	Undulating plateau surfaces, valley infill and outwash plains; sandy and gravelly red soils.
1.5.4	*Eucalyptus leucophylla and/or Corymbia terminalis woodland with areas of Triodia spp. and small areas of Acacia cambagei and Eucalyptus leucophloia.*	Plains and valley bottoms; red earths, shallow loams, clays and skeletal soils.
1.5.4	*Eucalyptus leucophylla and Corymbia terminalis low open woodland to low woodland, over annual grasses with areas of Triodia spp.*	Plains and valley bottoms; red earths, shallow loams, clays and skeletal soils.
1.7.5	*Acacia shirleyi low woodland; use as sub-optimal where mixed with Triodia.*	Lateritic scarps and hills.

Topographic analysis confirms that the project area encompasses topographically complex landforms, including ranges, hills, ridgelines, and associated undulating terrain with high concentrations of drainage lines. These landscape features are consistent with those documented at known Carpentarian Grasswren sites, where topographic complexity promotes the species' predominantly terrestrial mode of movement, provides rocky substrates for thermoregulation and predator avoidance, and generates the patchy fire behaviour necessary for *Triodia* persistence.

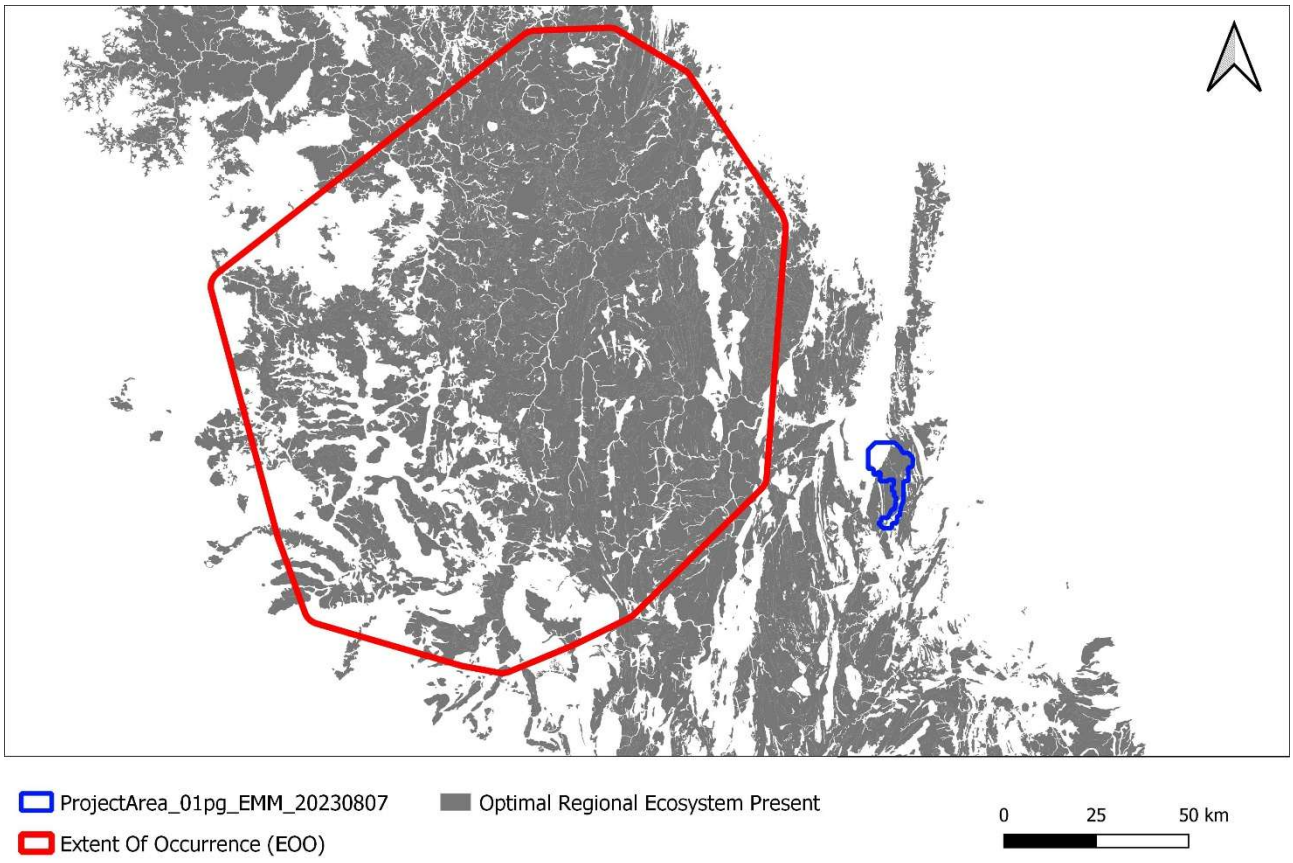

Figure 2: RE mapping of the project area showing the distribution of optimal habitat communities, overlaid with the project boundary and the EOO of the southern population of Carpentarian Grasswren.

5.3 Carpentarian Grasswren Occurrence Data

A review of verified occurrence datasets (BirdLife Australia monitoring, ALA, eBird) in relation to the project area confirms that the project area is located on the eastern extremity of the Buckley River subpopulation's distributional range. The nearest verified occurrence records are associated with the major range systems further to the west of the project area.

While no verified occurrence records are mapped directly within the project area boundary, the species is known to occur in structurally and lithologically comparable habitat within the broader region. The apparent absence of records within the project area itself potentially reflects limited survey effort at this eastern extent of the distribution rather than confirmed absence.

5.4 Fire History

Fire history analysis using available datasets indicates that the project area contains mature vegetation age classes generally consistent with those associated with occupied sites. Time-since-fire data suggest the presence of long-unburnt areas (generally >5 years, and including patches exceeding 10 years since fire), which are associated with the structural complexity required by the species for shelter, nesting, and juvenile concealment.

Fire frequency and late dry-season fire frequency within the project area appear broadly comparable to those documented at known occupied sites within the Buckley River subpopulation. These metrics indicate that the project area has not been subject to the kind of repeated, large-scale homogeneous wildfires that drive habitat loss and local extirpation of the species.

It is important to note that the remote-sensing datasets available for fire history analysis (NAFI, Queensland fire history products) do not capture fine-scale fire patchiness at the resolution required to assess within-territory mosaics. Fine-scale heterogeneity, the spatial interdigitation of burnt and unburnt patches at the scale of individual *Triodia* hummocks and small patches (<10 m²), is a critical determinant of the species' persistence but cannot be reliably assessed using these datasets alone. Field assessment is therefore required to characterise fine-scale fire patterns within optimal and sub-optimal habitat in the project area, and the species absence from the project area and surrounds could reflect unsuitable fire patterns and the habitats present could have supported the species in the past.

5.5 Habitat Modelling

Species distribution modelling outputs (Stoetzel *et al.* 2020; H. Stoetzel, unpublished) predict potentially suitable habitat within the project area (Figure 3). Models trained on contemporary occurrence data indicate that suitable conditions, characterised by appropriate lithology, topographic complexity, and climate, are present, and that the project area falls within the predicted distribution. Published habitat models are not sufficient for delineating habitat at fine spatial scales and some habitat classes have not been adequately surveyed to model probability of occurrence. Their coarse resolution limits the detection of patchy or subdominant habitat, and they do not adequately represent

lower-quality vegetation classes or ecotonal gradients that may still support the species. Model predictions should therefore be interpreted as one line of evidence within a broader assessment, and cannot substitute for field verification.

6. Likelihood of Occurrence

Drawing together the lines of evidence assessed in Section 5, a moderate likelihood of occurrence of Carpentarian Grasswren within the project area is supported. The key factors underpinning this assessment are summarised below.

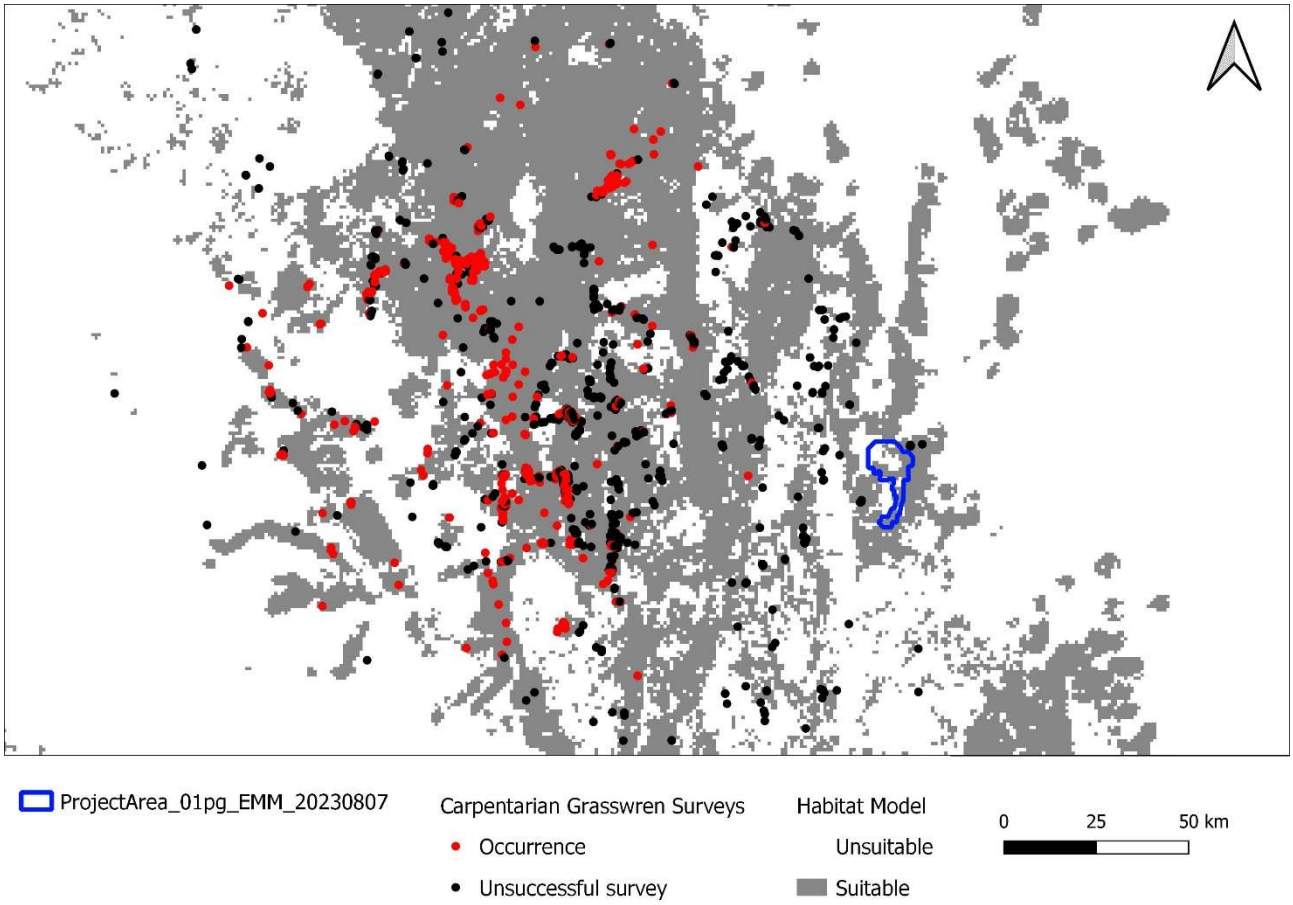

Figure 3: Habitat model prediction (Stoetzel *et al.* 2020) showing predicted suitability within and adjacent to the project area and the relatively loose connection and peripheral position on the largely unsampled eastern extremity of the species range.

6.1 Factors Supporting Occurrence

Suitable vegetation communities are present.

RE 1.11.2a, 1.7.1a, and 1.7.7a are all present within the project area. These optimal habitat communities are directly associated with verified Carpentarian Grasswren occurrence records

elsewhere in the species' range and are characterised by well-developed *Triodia*-dominated understories on appropriate substrates.

Habitat-associated lithological and geomorphological conditions are present.
Siliciclastic and metamorphic lithologies that promote *Triodia* dominance, patchy fuel structures, and the formation of rocky refuge features occur across the project area. Topographically complex landforms, including ranges, hills, and drainage concentrations, are consistent with those associated with occupied sites and support the species' terrestrial ecology.

Habitat modelling predicts suitable conditions.
Model predictions indicate that the project area falls within and proximate to predicted suitable habitat, consistent with the observed lithological and vegetation attributes.

Fire history appears broadly suitable.
Available fire history data indicate the presence of mature vegetation age classes and fire frequencies comparable to known occupied sites. While fine-scale patchiness — a critical determinant of species persistence — cannot be resolved from remote sensing alone, the broad-scale fire regime does not appear to preclude occurrence.

6.2 Factors That May Reduce Likelihood

Peripheral distribution position and connectivity.
The project area is located on the eastern extremity of the Carpentarian Grasswren's distribution and is loosely connected to the major range systems that support the species further to the west. Given the species' very limited dispersal capacity and strong site fidelity, the likelihood of recolonisation from western population centres following past fire events is potentially constrained. If the project area has experienced episodic local extirpation following fire events, recovery may be slow or incomplete, irrespective of the structural suitability of the habitat.

Fine-scale fire patchiness cannot be confirmed remotely.
Fine-scale fire mosaics, the persistence of small unburnt refugia within otherwise burned areas, are a critical functional requirement for species persistence but cannot be adequately assessed from available remote sensing data. It remains possible that fine-scale fire patterns at the project area are less suitable than broad-scale metrics suggest.

Absence of verified occurrence records within the project area.

No verified Carpentarian Grasswren occurrence records are currently mapped within the project area boundary. However, this is potentially attributable to the absence of targeted survey effort at this eastern extent of the distribution rather than confirmed absence. Unoccupied mapped habitat is not unusual for the species given the dynamic nature of habitat availability in response to stochastic fire patterns and limited survey coverage across the range.

6.3 Overall Assessment

On balance, the desktop analysis confirms the preliminary assessment of a moderate likelihood of occurrence of Carpentarian Grasswren within the project area. The combination of optimal habitat communities (RE 1.11.2a, 1.7.1a, and 1.7.7a), appropriate siliciclastic and metamorphic lithologies, topographically complex landforms, supportive fire history metrics, and modelled habitat suitability provides a coherent body of evidence that the project area contains potentially suitable habitat. This is tempered by the project area's peripheral position relative to known population centres and the associated constraints on recolonisation.

A moderate likelihood of occurrence means that the species cannot be discounted and that the presence of the project area within a region known to support the species, combined with the demonstrably suitable habitat characteristics, warrants further investigation through targeted field surveys prior to any clearing or ground disturbance.

7. Conclusion

This desktop habitat assessment confirms the presence of potentially suitable Carpentarian Grasswren (*Amytornis dorotheae*) habitat within the project area, approximately 75 km north of Cloncurry, Queensland. The project area contains optimal habitat Regional Ecosystem communities 1.11.2a, 1.7.1a, and 1.7.7a, which exhibit *Triodia*-dominated understories in association with siliciclastic and metamorphic lithologies, complex topography, and fire history broadly consistent with occupied sites elsewhere in the species' range. Habitat modelling independently corroborates the presence of suitable conditions.

The peripheral distribution position of the project area and the species' limited dispersal capability introduce uncertainty regarding current occupancy, particularly if episodic local extirpation has occurred following past fire events. Fine-scale fire patchiness, a key functional requirement, also cannot be resolved from desktop analysis and requires field assessment.

Consistent with the preliminary assessment, a moderate likelihood of occurrence is maintained. Targeted playback surveys, conducted by observers experienced with the species and under appropriate seasonal conditions, are recommended to determine whether the species is present within the project area. Surveys should be designed in accordance with the detection probability framework and survey design protocols, with a minimum of three survey visits recommended as a baseline.

8. Recommendations

Targeted playback surveys

Targeted playback surveys should be undertaken within optimal and sub-optimal habitat in the project area prior to any clearing or ground disturbance, to confirm or refute the presence of Carpentarian Grasswren.

Survey design

Survey design should follow the standardised protocol used by BirdLife North Queensland: playback transects of approximately 10 points at 200 m spacing, with a minimum of three survey visits (two revisits) to achieve ≥70% cumulative detection probability in occupied habitat.

Survey timing

Survey timing should consider seasonal detectability; surveys are generally most productive during or following sufficient rainfall when vocal activity is elevated. Windy conditions are likely to reduce the effectiveness of playback surveys.

Fine-scale fire assessment

A fine-scale fire assessment should be undertaken during field surveys to characterise the spatial configuration of fire age classes and the availability of unburnt refugia within optimal habitat in the project area.

Connectivity assessment

A connectivity assessment considering the relationship between habitat in the project area and occupied range systems further west, would inform the conservation significance of any occurrence detected, and the probability of recolonisation.

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Appendix A. This appendix provides full descriptions of the optimal and sub-optimal Regional Ecosystem (RE) communities identified within the project area and guidance for interpreting their significance as Carpentarian Grasswren habitat. Classifications draw on long-term monitoring data and field-based habitat assessments across the species' range.

Classification Framework

Habitat quality for the Carpentarian Grasswren is assessed using a three-tier classification: optimal, sub-optimal, and unsuitable. This framework is grounded in empirical occupancy data and reflects the ecological processes governing habitat suitability, specifically the interaction between vegetation structure (*Triodia* dominance and structural complexity), lithology (siliciclastic and metamorphic substrates), topographic complexity, and fire regime. Classification into these tiers guides both desktop assessment and field survey prioritisation.

Definitions

Optimal Habitat

Vegetation communities known to support high densities of permanent Carpentarian Grasswren territories, based on long-term monitoring data (BirdLife Australia, unpublished). Optimal habitat is characterised by well-developed *Triodia* hummock grass understories, rocky or skeletal substrates, and an open or low-open eucalypt woodland structure. Polygons classified as optimal, or where optimal RE codes constitute a significant proportion of a mixed polygon, should be regarded as high quality habitat and prioritised in survey design and impact assessment.

It is important to note that not all mapped optimal habitat is equivalent in its capacity to support persistent populations. Habitat that is currently unoccupied due to recent disturbance, isolation from existing populations, or episodic fire impact may still exhibit optimal structural attributes but not support persistent territories. The presence of fine-scale fire patchiness and rocky refuge features within optimal RE polygons is a key determinant of functional habitat quality that cannot be assessed reliably from mapping alone.

Sub-Optimal Habitat

Vegetation communities that may support the species under certain conditions, but are generally associated with lower or more variable occupancy rates. Sub-optimal communities typically retain some key structural elements — principally the presence of *Triodia* in the understory — but may

exhibit increased soil depth or fertility, reduced rockiness, greater biomass accumulation, or increased dominance of tussock grasses, forbs, shrubs, or trees relative to optimal communities.

Within the sub-optimal tier, habitat value is not uniform. Communities associated with rocky or metamorphic substrates (e.g., RE 1.11.3, 1.11.8, 1.12.1, 1.12.3) are expected to be of higher sub-optimal value given their structural and lithological affinities with optimal habitat. In contrast, alluvial and plateau communities in the 1.3.x and 1.5.x series, where *Triodia* is present as a secondary or sparse component on deeper soils, are expected to function as lower sub-optimal habitat, primarily contributing to foraging areas, movement pathways, or connectivity between patches of higher-quality habitat rather than supporting core nesting and shelter requirements.

Notes on Applying These Classifications

The RE-based classification provides the baseline for habitat assessment but should be applied with an understanding of its limitations. RE mapping is generally too coarse to capture fine-scale habitat variability, ecotonal gradients, or small but functionally important patches of suitable habitat. Polygon-based datasets often fail to represent the spatial arrangement of habitat within heterogeneous mosaics, and proportional cover attributes represent aggregate values that do not reflect the internal distribution of habitat types within a polygon.

A conservative, site-based approach is recommended for field assessment. RE mapping should be used as a guide to prioritise survey areas and interpret landscape context, but it cannot substitute for direct evaluation of *Triodia* hummock structure, fire age class, rocky substrate availability, and the presence of refuge features within individual polygons. The presence or absence of fine-scale fire mosaics within optimal RE polygons is a critical functional determinant that can only be assessed in the field.

Mixed polygons containing both optimal and sub-optimal RE components should not be dismissed as sub-optimal on the basis of the dominant RE code. Where an optimal community constitutes even a minority proportion of a polygon (e.g., 25–40%), the structural habitat it contributes may be disproportionately important if it occurs in topographically complex or rocky areas that naturally resist fire. Such areas may function as refuge nodes and should be field-assessed irrespective of their polygon-level classification.

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Appendix A – Regional Ecosystem Classifications and Habitat Context

Table A1. Optimal habitat Regional Ecosystem communities present within the project area.

RE Code	Variant	Description	Substrate / Landform
1.11.2	a	*Eucalyptus leucophloia low open woodland, sometimes with Eucalyptus leucophylla, Corymbia terminalis, C. aparrerinja or E. normantonensis, usually with Acacia spp. dominated shrub layer and Triodia spp. and/or tussock grass understory; treeless areas common.*	Hills and ranges on strongly folded Precambrian metamorphic rocks; skeletal soils with some red earths.
1.7.1	a	*Low open woodland of Eucalyptus leucophloia and/or Corymbia aspera and/or E. normantonensis over Triodia spp.*	Lateritic surfaces and silcrete.
1.7.7	a	*Low open woodland of Corymbia capricornia, commonly with Eucalyptus leucophloia; Eucalyptus miniata and E. herbertiana commonly present in the north; mixed shrub layer usually including Grevillea wickhamii; ground layer of Triodia spp. and Schizachyrium fragile.*	Silcrete.

Table A2. Sub-optimal habitat Regional Ecosystem communities present within the project area, with indicative habitat value.

RE Code	Variant	Description	Substrate / Landform	Indicative Value
1.11.3	a	*Corymbia terminalis / Eucalyptus leucophylla woodland with Acacia spp. dominated shrub layer and Triodia spp. ground layer; includes Acacia shrubland and Triodia grassland.*	Metabasalts and dolerites, with some felsic metavolcanics; hills and rises on metamorphosed igneous rocks; skeletal soils and some shallow loams.	Higher — rocky metamorphic substrate, *Triodia* ground layer. Co-occurs with optimal RE in multiple polygons.
1.11.3	b	*Corymbia terminalis / Eucalyptus leucophylla woodland with Acacia spp. dominated shrub layer and Triodia spp. ground layer; variant includes Eucalyptus leucophloia and Triodia pungens.*	Metabasalts and dolerites, with some felsic metavolcanics; hills and rises on metamorphosed igneous rocks; skeletal soils and some shallow loams.	Higher — rocky metamorphic substrate, *Triodia* ground layer. Variant with *Triodia pungens*.
1.11.8	—	*Terminalia aridicola and/or Corymbia aspera woodland with mid-dense shrub layer of Acacia spp. and/or Calytrix brownii, and ground layer of mixed tussock grasses and Triodia spp.*	Rock outcrops on hills and ranges on strongly folded siliceous sedimentary and metamorphic Precambrian rocks.	Higher — rock outcrops on siliceous sedimentary / metamorphic rocks; supports refuge function. Co-occurs with 1.7.7a.

Table A2. (cont.)

RE Code	Variant	Description	Substrate / Landform	Indicative Value
1.12.1	—	*Eucalyptus leucophloia low open woodland, sometimes with E. leucophylla, Corymbia terminalis or C. aparrerinja, with Acacia spp. dominated shrub layer and Triodia spp. dominated ground layer; includes treeless Triodia grasslands and Acacia shrublands.*	Ranges and stony hills and rises on igneous rocks; skeletal soils and some shallow red earths.	Higher — ranges and stony hills on igneous rocks; *Triodia* dominant ground layer.
1.12.3	a	*Eucalyptus leucophylla low open woodland often with Corymbia terminalis or C. aparrerinja, with Acacia chisholmii shrub layer and hummock grass ground layer of Triodia spp.; includes treeless Triodia grasslands and Acacia shrublands.*	Ranges and stony hills and rises on igneous rocks; skeletal soils and some shallow red earths.	Higher — ranges and stony hills on igneous rocks; *Triodia* dominant. Similar to 1.12.1.
1.3.13	a	*Eucalyptus leucophylla woodland with Acacia cambagei and mixed ground layer of tussock grasses and Triodia spp.*	Recent levees of larger watercourses and in-channel deposits of ephemeral streams.	Lower — alluvial levee community; *Triodia* present as secondary component on deeper alluvial soils.
1.3.6	a	*Corymbia aparrerinja / C. terminalis woodland; sparse ground layer with Triodia longiceps.*	Terraces and floodplains on Quaternary alluvium; alluvial soils, some earths and deep yellow podzolics.	Lower — Quaternary alluvial terraces; sparse *Triodia longiceps*. Potential dispersal corridor.
1.3.7	a	*Eucalyptus camaldulensis woodland on watercourses in gorges in Precambrian sandstone formations with ground layer of tussock grasses and Triodia spp.*	Recent levees and channel deposits; variant on watercourses in gorges in Precambrian sandstone formations.	Lower — riparian gorge variant with *Triodia*; value may increase where gorge provides topographic refuge.
1.3.7	b	*Eucalyptus camaldulensis woodland with ground layer of tussock grasses and Triodia spp.; riparian context.*	Recent levees and channel deposits of larger tributaries; alluvial soils.	Lower — riparian community with *Triodia*; alluvial soils reduce structural habitat value.
1.5.13	—	*Eucalyptus pruinosa low open woodland often with Acacia cambagei, with Triodia spp. often present.*	Older alluvial and residual soils.	Lower — older alluvial / residual soils; *Triodia* often present but sparse. Low-quality foraging / movement habitat.

Table A2 (cont.)

RE Code	Variant	Description	Substrate / Landform	Indicative Value
1.5.16	—	*Acacia cambagei low woodland with generally sparse ground layer of Triodia longiceps and/or tussock grasses. Bare patches are common.*	Older alluvial and residual soils.	Lower — older alluvial soils; sparse *Triodia longiceps*. Low structural habitat value.
1.5.3	—	*Eucalyptus leucophloia low open woodland to woodland, sometimes with shrubby understorey dominated by Acacia spp. and usually Triodia spp. dominated ground cover.*	Undulating plateau surfaces, valley infill and outwash plains; sandy and gravelly red soils.	Lower — undulating plateau surfaces; *Triodia* dominated ground cover. Value increases where rocky features present.
1.5.4	a	*Eucalyptus leucophylla and/or Corymbia terminalis woodland with areas of Triodia spp. and small areas of Acacia cambagei and Eucalyptus leucophloia.*	Plains and valley bottoms; red earths, shallow loams, clays and skeletal soils.	Lower — plains and valley bottoms; *Triodia* present as minor component. Potential connectivity function.
1.5.4	d	*Eucalyptus leucophylla and Corymbia terminalis low open woodland to low woodland, over annual grasses with areas of Triodia spp.*	Plains and valley bottoms; red earths, shallow loams, clays and skeletal soils.	Lower — plains and valley bottoms; annual grasses dominant with areas of *Triodia*.
1.7.5	a	*Acacia shirleyi low woodland; use as sub-optimal where mixed with Triodia.*	Lateritic scarps and hills.	Lower — *Acacia shirleyi* low woodland; rare sub-optimal use only where mixed with *Triodia*.

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Annexure H

Subject Matter Expert – Night Parrot

EMM
creating opportunities

Eva Copper Mine

Night Parrot Habitat and

Occurrence Likelihood Assessment

Report to:

EMM Consulting

Prepared by:

Nick Leseberg

Adaptive NRM

18th June 2026

Executive Summary

EMM Consulting is undertaking environmental assessments associated with the Eva Copper Mine Project, 75 km northwest of Cloncurry, in Queensland. The project area sits across both the Mount Isa Inlier and Gulf Plains Bioregions.

The project area is 120 km north of the known historical range of the Critically Endangered Night Parrot (*Pezoporus occidentalis*). It is feasible that if suitable habitat exists within the project area Night Parrots could occur there, and the project would need to assess the potential impact of project development on any regional populations of the species.

A desktop analysis of habitat in the landscape surrounding the mine area and associated infrastructure was undertaken, including a buffer of 20 km. Although there are several significant areas of suitable foraging habitat within the landscape, there is no suitable roosting habitat. It is therefore extremely unlikely that Night Parrots occur within the landscape surrounding the project area. Development associated with the project will not impact Night Parrots. No further consideration of Night Parrots is required in relation to this project.

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1. Introduction

EMM Consulting is undertaking environmental assessments related to the Eva Copper Project (the project). The project area is 75 km northwest of Cloncurry, and comprises a mine area, associated mining infrastructure, and support corridors. The project area lies predominantly within the Mount Isa Inlier Bioregion. Some supporting infrastructure lies within the neighbouring Gulf Plains Bioregion.

For projects where the presence of Night Parrots should be considered, it is best practice to conduct a detailed desktop habitat assessment to determine whether Night Parrots may feasibly occur within the project area (DBCA 2024). If suitable habitat occurs within the project area, follow up acoustic surveys are necessary to confirm presence. Conversely, if no suitable Night Parrot habitat is identified and the presence of Night Parrots is deemed unlikely, acoustic surveys are not required (DBCA 2024).

The detailed desktop analysis is a three-step process, and involves:

(1) considering whether the project area is within the feasible distribution of the Night Parrot;
(2) determining whether suitable Night Parrot habitat exists within the project area; and
(3) if suitable Night Parrot habitat exists within the project area, determining whether it exists at the scale necessary to support a population of Night Parrots.

It is important to note that for the purposes of step (3), the project area should include a large buffer around mine and infrastructure sites to account for the distances Night Parrots may move when accessing resources (DBCA 2024).

2. Night Parrot distribution

Night Parrots were formerly found throughout arid central Australia, before undergoing a significant decline and range contraction during the late-19th and early-20th centuries (Leseberg *et al.* 2021). The species is now known from a small area in western Queensland, and the central and northern inland of Western Australia (Leseberg *et al.* 2021, Lindsay *et al.* 2024).

Leseberg *et al*. (2021) assessed the veracity of all historical and contemporary reports of Night Parrots known at the time. It is important to note 'veracity' was not a judgement around whether a report was or was not a Night Parrot, simply a determination of certainty around whether a report was of a Night Parrot. Low veracity reports may still be Night Parrots, they were simply not supported by enough detail to conclude with any confidence. High veracity reports are supported by evidence, such as a detailed description, that reduces doubt the sighting was of a Night Parrot.

There are several historical reports of Night Parrot from the Mount Isa Inlier Bioregion (Fig. 1). A cluster of reported sightings from the early 1990s in the Duchess–Malbon–Selwyn area, 120 km south of the project area (Garnett et al. 1993), are mostly considered of low veracity, although there is one high veracity report from this location (Leseberg et al. 2021). There is an additional high veracity report within the bioregion from 1965, at a location 30 km south-south-west of Mount Isa, 120 km southwest of the project area (Leseberg *et al.* 2021).

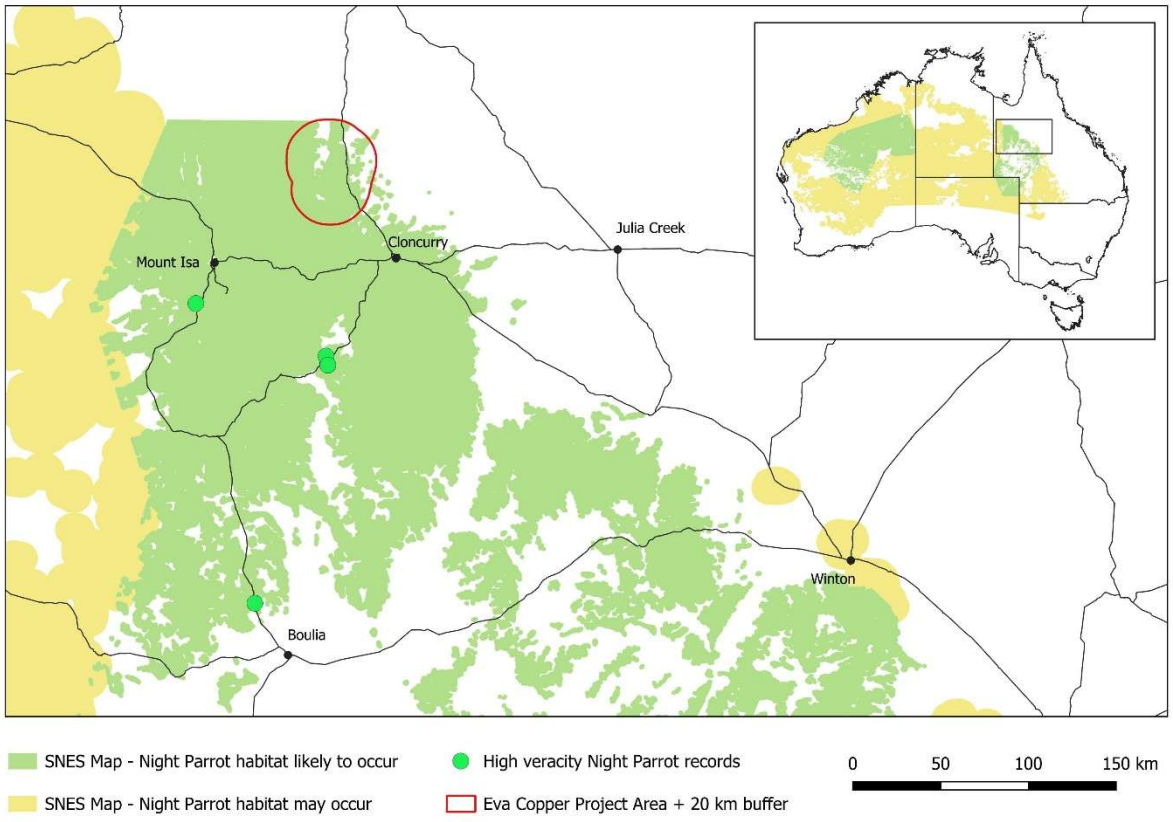

Fig. 1. Historical high veracity records of Night Parrot from the region, including areas of likely habitat based on DCCEEW SNES mapping.

These records represent the northern extent of the Night Parrot's known historical range. Although the project area is beyond this known historical limit, the federal government's Species of National Environmental Significance (SNES) mapping places the project area at the far northern limit of likely Night Parrot habitat in western Queensland (Fig. 1). Given the relative proximity of historical records, and the potential presence of suitable habitat, it is feasible that if suitable habitat exists within the project area, Night Parrots may occur there.

3. Night Parrot habitat

3.1 Night Parrot roosting habitat

Night Parrots in western Queensland, and central and northern Western Australia, establish long-term stable roost sites in long unburnt *Triodia* (Jackett *et al.* 2017, Murphy *et al.* 2017b, Ngururrpa Rangers *et al.* 2024). These sites are also where breeding occurs when conditions are suitable (Murphy *et al.* 2017a), meaning the terms 'roosting habitat' and 'breeding habitat' are interchangeable. 'Roosting habitat' is preferred here as it is a permanent requirement, whereas breeding is dependent on conditions.

Fig. 2. *Triodia* at sites in western Queensland and Western Australia where Night Parrots are known to roost. Note complexity of *Triodia* structure, the openness of the habitat, and the size of the open area.

The patches of *Triodia* where Night Parrots establish roosting sites are very open, and while there may be some scattered shrubs or isolated trees, these sites are practically treeless (Jackett *et al.* 2017, Murphy *et al.* 2017b, Ngururrpa Rangers *et al.* 2024). These open areas are typically large, in the order of several hectares and often more (Jackett *et al.* 2017, Murphy *et al.* 2017b). The total extent or density of *Triodia* at these sites is not critical – some sites support only a dozen hummocks – but the size distribution of hummocks is important; when long unburnt, the species of *Triodia* preferred by Night Parrots develop a distinctive and complex structure consisting of large hummocks approximately 40-50 cm in height. Figure 2 depicts several known Night Parrot roosting sites from Queensland and Western Australia.

Another key feature of suitable roosting habitat is the long-term stability of available habitat at the landscape scale. Fire is the primary disturbance agent influencing habitat availability within *Triodia* systems. The presence of multiple, disjunct patches of suitable roosting habitat at the landscape scale ensures stability is maintained, even if the occasional patch is lost to fire. This availability of multiple patches of suitable roosting habitat at the landscape scale and associated stability of available habitat is a feature of sites where Night Parrots are known to occur (Jackett *et al.* 2017, Murphy *et al.* 2018, Ngururrpa Rangers *et al.* 2024).

3.2 Night Parrot foraging habitat

In addition to suitable roosting habitat, Night Parrots require suitable foraging habitat. Unpublished DNA analyses of faecal samples show that Night Parrots in western Queensland eat a broad array of food plants including grasses (e.g. *Triodia longcieps*, *Uranthoecium truncatum*, *Brachyachne ciliaris*, *Astrebla lappacea*, *Dactyloctenium radulans*) and forbs (e.g. *Trianthema triquetra*) (N. Leseberg unpub. data). The nightly foraging activity of Night Parrots focuses on productive patches where these food plants are relatively abundant (Murphy *et al.* 2017b, Ngururrpa Rangers *et al*. 2024). These productive patches are characterised by their hydrology, relative floristic diversity within an unproductive landscape, and the quick growth response of their vegetation following inundation. They include extensive floodplains inundated by large flood events which may result from rain far upstream, or smaller run-on zones and local depressions only inundated after local rain (e.g. gilgai formations). Like roosting areas, these foraging areas are typically very open, with few, if any, trees or shrubs (Murphy *et al.* 2017b, Ngururrpa Rangers *et al.* 2024).

Night Parrots are known to drink, and recent research and modelling suggests they may be reliant on free-standing water, particularly during hot weather (Kearney *et al.* 2016, Ngururrpa Rangers *et al*. 2024). In more natural landscapes such as the Great Sandy Desert, water availability apparently drives seasonal movements of Night Parrots within the landscape (Ngururrpa Rangers *et al.* 2024). In pastoral landscapes where water is typically permanently available, Night Parrots appear relatively sedentary (N. Leseberg unpub. data).

3.3 Night Parrot habitat matrix

Overlaying the requirement for distinct foraging and roosting habitats is the Night Parrot's physical ability to access the resources it requires. A Night Parrot tracked using a GPS tag over several nights in western Queensland was travelling to feeding and drinking sites up to 10 km from its roost site and moved a minimum of 40 km on one of those nights to access these resources (Murphy *et al.* 2017b). Subsequent research from Queensland and Western Australia support this analysis, suggesting that individual birds may be capable of moving between locations more than 30 km apart in a single night (N. Leseberg unpub. data). These data support the conceptual model developed for Night Parrot occurrence, which requires multiple patches of suitable roosting and foraging habitat within the landscape, ideally within 10 km of each other.

In summary, Night Parrots are only likely to occur at a site if the following conditions are satisfied:

(1) multiple patches of open, long unburnt *Triodia* occur at the landscape scale;
(2) there are extensive floodplains or run-on areas at the landscape scale, supporting a diversity of grasses and forbs;
(3) there is standing water available; and
(4) these resources occur in a matrix, with birds able to access multiple patches of each within approximately 10 km of each other.

4. Identifying suitable Night Parrot habitat within the project area

The appropriate context for considering the impact of development on Night Parrots is the landscape scale at which the species operates. For example, development may impact only a small patch of roosting habitat where no Night Parrots currently occur, but that patch may still be critical for providing long-term availability of roosting habitat at the landscape scale. Given

the distances Night Parrots are known to move, it is necessary to consider a buffer of 20 km around a project area, determine the distribution of suitable habitat within that area, then make conclusions on the likely nature of Night Parrot presence if suitable habitat occurs. In this context the term 'project area' is used to describe the project footprint, and the term 'area of interest' describes the project footprint plus a buffer of 20 km.

4.1 Night Parrot roosting habitat

A two-step process was used to identify areas of potentially suitable roosting habitat within the area of interest. Initially, Regional Ecosystem (RE) mapping (Queensland Herbarium 2024), supplemented with ground-truthed RE (GTRE) mapping available for the project area only, was examined for associations supporting patches of open *Triodia* grassland. Only one such association was identified within the area of interest (Table 1). Because RE mapping does not always capture smaller patches of suitable habitat within other dominant associations, the area of interest was then examined using publicly available high-resolution satellite imagery (Google Earth, Satellites Pro) for the distinctive visual signature of open, long unburnt *Triodia* grassland (Fig. 3). Using a 1 km grid overlaid on the area of interest, any grid square with suitable roosting habitat was classified accordingly.

Table 1. RE associations mapped in the area of interest representing potentially suitable Night Parrot roosting and foraging habitat.

RE	**Description**
1.5.15	*Aristida contorta* **annual grasslands** on hard setting red soils.
2.4.1	*Dichanthium* spp., *Eulalia aurea*, *Chrysopogon fallax* and *Themeda avenacea* in **mixed tussock grasslands** on Tertiary clay plains.
2.4.2	*Astrebla* spp., *Iseilema* spp. +/- *Aristida latifolia*, *Eulalia aurea* **tussock grassland** on Tertiary clay deposits.
2.7.3	***Triodia* spp. grassland** on plateaus on skeletal soils and shallow earths.

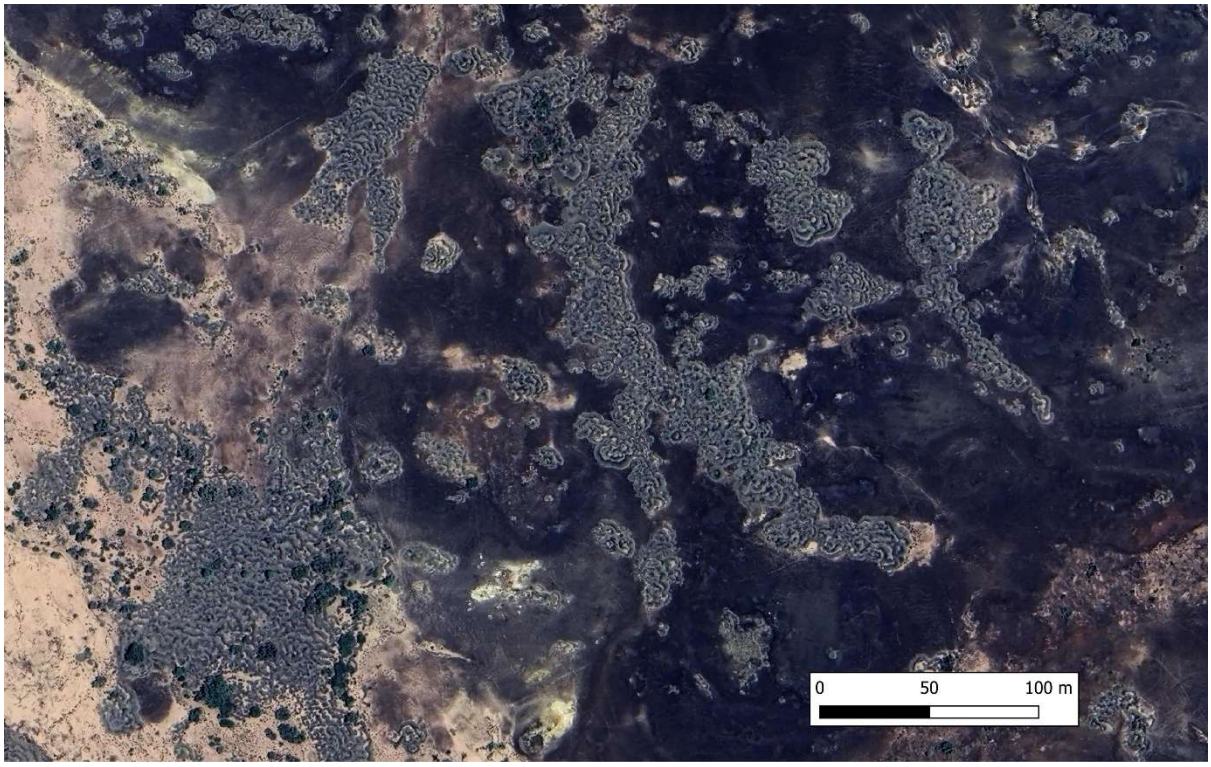

Fig. 3. Satellite image of potential Night Parrot roosting habitat. Note extensive open areas with few trees or shrubs, and distinctive 'coral-reef' appearance of the long unburnt *Triodia*.

4.2 Night Parrot foraging habitat

As for roosting habitat, a two-step process was used to identify areas of potentially suitable foraging habitat. Initially, vegetation associations supporting open grasslands or floodplain were extracted from RE and GTRE mapping (Table 1). Satellite imagery was used to examine these areas, and identify any other open areas not captured in the RE mapping that potentially supported grasslands, or run-on areas that following local rain may support local growth of annual grasses or herbs. Using the same 1 km grid overlaid on the area of interest, grid squares with suitable foraging habitat were classified as 'marginal' foraging habitat if the patch was small in size, isolated, appeared relatively bare, or was not open enough. If the patch was extensive, connected to other suitable foraging habitat, and supported suitable vegetation, it was classified as 'foraging' habitat.

5. Results

5.1 Suitable Night Parrot habitat at the landscape scale

Most habitat within the area of interest was mapped as low, open *Eucalyptus* spp. or *Corymbia* spp. woodland, typical of the habitat that dominates the Mount Isa Inlier Bioregion.

Examination of satellite imagery confirmed this, meaning most of the landscape represents unsuitable Night Parrot habitat.

Only a very small area of potential roosting habitat was identified using RE mapping, in the far north of the area of interest. However, examination of satellite imagery determined this was not suitable roosting habitat due to significant apparent shrub and tree cover. Some very small areas of open *Triodia* spp. were found in the area of interest, but these were typically either within or surrounded by open woodland, making them unsuitable for Night Parrots.

RE and GTRE mapping indicated several isolated patches of potential foraging habitat within the project area, and a large area of potentially suitable foraging habitat along the eastern boundary of the area of interest. Examination of satellite imagery suggested that most of these areas did represent suitable foraging habitat (Fig. 4).

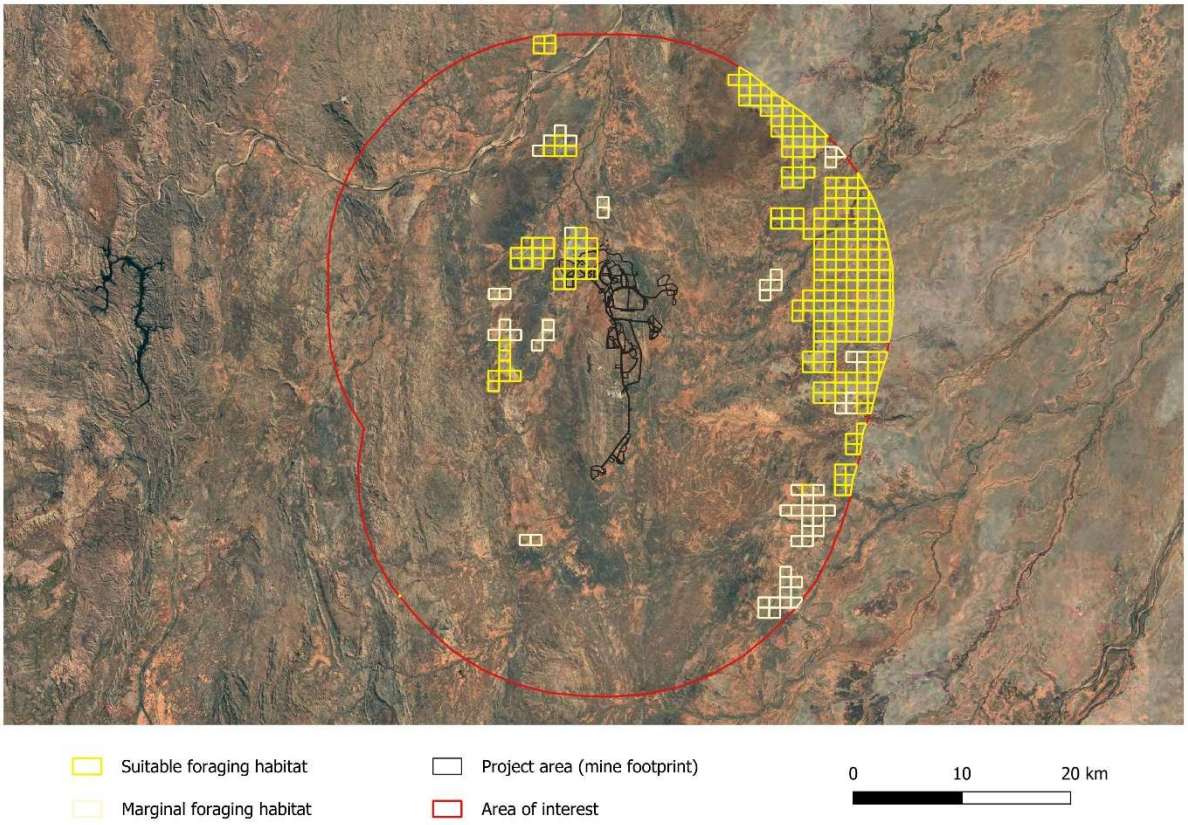

Fig. 4. Spatial distribution of suitable and marginal foraging habitat within the area of interest. Note there is no suitable roosting habitat.

5.2 Likely occurrence of Night Parrot at the landscape scale

There are several smaller patches of suitable foraging habitat in the north of the project area, and throughout the area of interest. The eastern edge of the area of interest is dominated by a large area of suitable foraging habitat. The extent of these patches, coupled with the areas of marginal foraging habitat, is comparable to that of foraging habitat at sites where Night Parrots are known to occur. However, there is no suitable roosting habitat within the landscape. Although there are some associations mapped in the area that support *Triodia*, this analysis could not identify any significant patches with the distinctive visual signature associated with long unburnt *Triodia*. As there is no suitable roosting habitat within the project area or the area of interest, it is very unlikely that Night Parrots are present within the landscape.

6. Conclusion

Although large areas of potentially suitable foraging habitat exist, the absence of suitable roosting habitat within 20 km of the mine area and associated infrastructure means it is very unlikely Night Parrots occur within the project area landscape. The nearest known Night Parrot records are from 120 km south of the project area, and represent the northern limit of known Night Parrot distribution. The presence of likely Night Parrot habitat indicated by SNES mapping is inferred through modelling, and this analysis demonstrates no likely habitat exists. Taken together, these lines of evidence suggest Night Parrots are unlikely to occur in the landscape surrounding the project area, and development associated with the project will have no impact on the species. No further consideration of Night Parrots is required for this project.

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