Appendix D

Environmental Offset Strategy

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Eva Copper Mine Project

Environmental Offset Strategy (Stage 1)
EVAMP001-EMM-EN-REP-0033

Prepared for Eva Copper Mine Pty Ltd

September 2026

Eva Copper Mine Project

Environmental Offset Strategy (Stage 1) EVAMP001-EMM-EN-REP-0033

Eva Copper Mine Pty Ltd

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Approved by

Berlinda Ezzy
Associate Ecologist
16 September 2026

Level 2 95 North Quay Brisbane QLD 4000
ABN: 28 141 736 558

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Glossary of terms and abbreviations

Terms/acronyms	Definition
ALA	Atlas of Living Australia
AOO	area of occupancy
CPI	Consumer Price Index
DAWE*	Department of Agriculture, Water and the Environment (superseded by DAFF and DCCEEW)
DCCEEW*	Department of Climate Change, Energy, the Environment and Water (Commonwealth) (superseded by NEPA)
DETSI	Department of Environment, Tourism, Science and Innovation (QLD)
DoE*	Department of the Environment (superseded by DCCEEW)
DoEE*	Department of the Environment and Energy (superseded by DCCEEW)
DPI	Department of Primary Industries
DSEWPC*	Department of Sustainability, Environment, Water, Population and Communities (superseded by DCCEEW)
ECMPL	Eva Copper Mine Pty Ltd
EMM	EMM Consulting Pty Ltd
EMP	Environmental Management Plan
EOP	Environmental Offsets Policy
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ha	hectares
JCU	James Cook University
km	kilometres
KTP	Key Threatening Process
Management Activities	Offset related management actions as defined in Section 6
ML	Mining Lease
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
Mt	million tonnes
Mtpa	million tonnes per annum
NC Act	*Nature Conservation Act 1992*
NEPA	National Environment Protection Agency (previously DCCEEW)
NRM	Natural Resource Management
OAG	Offsets Assessment Guide
QUT	Queensland University of Technology
SME	subject matter experts

Terms/acronyms	Definition
SNES Mapping	Species of National Environmental Significance Mapping
TSF	tailings storage facility
WRDs	waste rock dumps

*Any reference to superseded government agencies relates to published documents or existing databases

1 Introduction

1.1 Background

The Eva Copper Mine Project (the Project) is a large-scale open cut copper mining development located in North West Queensland within the North West Queensland Minerals Province (Figure 1.1). The Project, which is under construction, 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.

Harmony commenced preliminary works on site in June 2024 under a Queensland Environmental Authority (EPML00899613), supported by a $20 million Queensland Government 'Mount Isa Mining Accelerator' grant and Prescribed Project designation aimed at expediting the project's development and first production. Preliminary works continued in parallel with delivery of the Project's Feasibility Study and Front End Engineering Design to provide the level of definition required to support a Final Investment Decision. Harmony made a Final Investment Decision in November 2025 and critical path construction commenced immediately leveraging the preliminary works completed between June 2024 and November 2025.

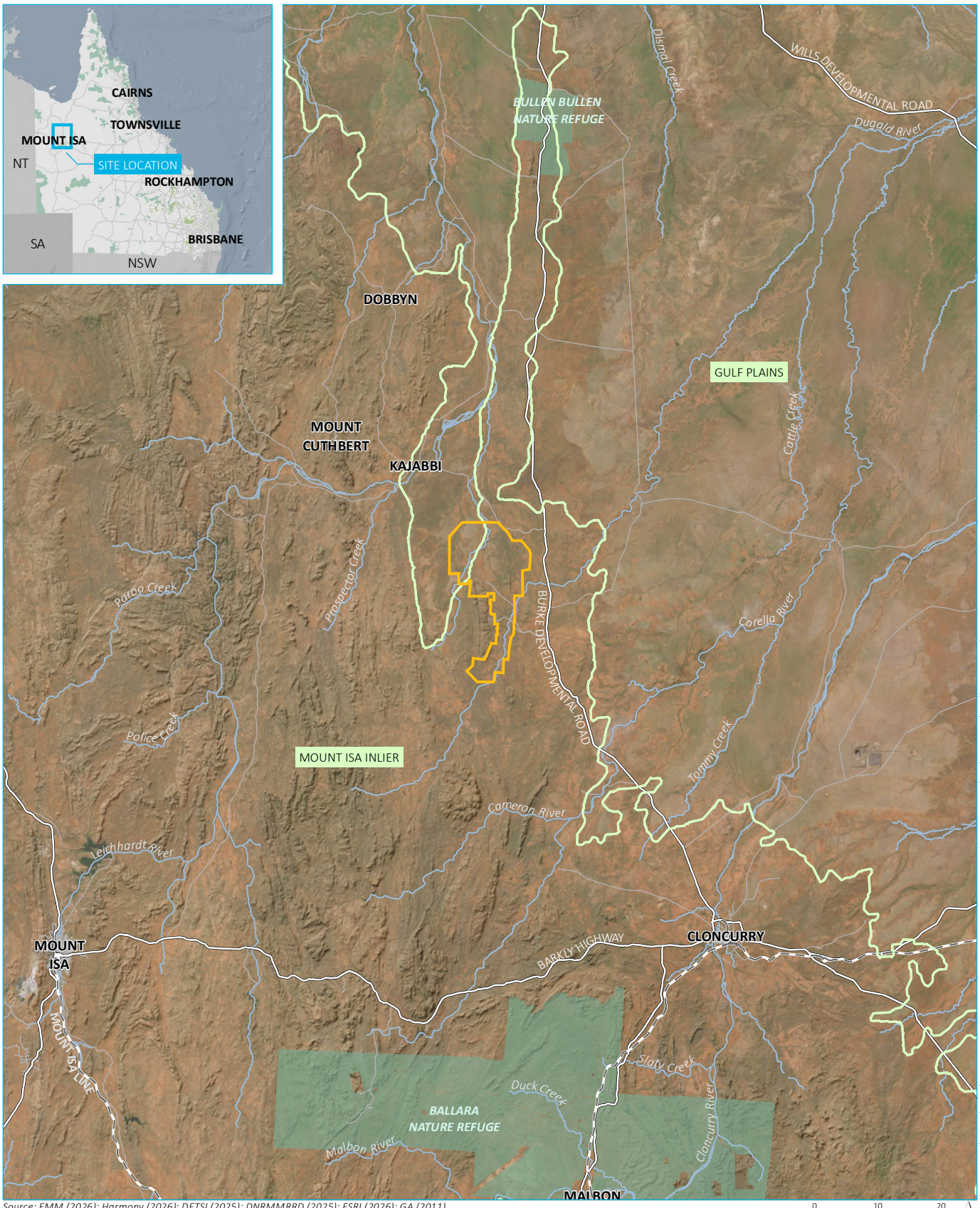
ECMPL has referred the Project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) through a staged referral process. The staged referral process reflects the scale, complexity and critical path development sequencing of the Project. The Stage 1 Referral Action focuses on the post-Final Investment Decision critical path elements of the Project, including initial mining, processing, tailings storage and supporting infrastructure as required to commence operations and deliver first copper concentrate. The remaining Project components are proposed to be assessed through a Stage 2 Referral and these Stage 2 Referral activities are also critical for the viability and continuation of the Project. Environmental offset requirements will also be delivered across two phases aligning with the referrals, with the second phase building on from the first as described by this document.

The total Action Area is 14,285 hectares (ha) which aligns with approved Mining Lease (ML) 90162, ML90163, ML90164, ML90165 and ML90166 as shown in Figure 1.1. Stage 1 represents a total Disturbance Footprint of 1,045.63 ha and Stage 2 will represent the larger, remaining project components with a total Disturbance Footprint of 2,171.22 ha (Figure 1.2).

To support the Stage 1 Referral Action, a combination of desktop assessments and field ecology surveys have been undertaken to understand the biodiversity values present in the Action Area. This has included an analysis of both Commonwealth and State prescribed matters including vegetation communities and threatened flora and fauna species and associated habitats. A summary of the survey methods and results are outlined in the Contemporary Baseline Ecological Values Report (EMM 2026a). Based on those matters of national environmental significance (MNES) that are known or have moderate or greater potential to occur, impact assessments in accordance with *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (the Guidelines, DoE 2013) have been completed to determine if the proposed Disturbance Footprint and the Stage 1 Referral Action activities are likely to cause a significant impact on any MNES.

The impact assessments have concluded that only the Northern Blue-tongued Skink (*Tiliqua scincoides intermedia*), listed as Critically Endangered, is likely to be significantly impacted and require offsets. All impact assessments are included in the Eva Copper Mine Project MNES Impact Assessment (EMM 2026b), with that for the Northern Blue-tongued Skink replicated in Section 4.1.1.

This document presents the Offset Strategy for the Stage 1 Northern Blue-tongued Skink Residual Impacts.



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

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KEY

- Action Area
- Bioregion boundary

Existing environment

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

INSET KEY

- Major road
- National park
- State forest

Project locality and Action Area

Eva Copper Project
Offset Strategy
Figure 1.1

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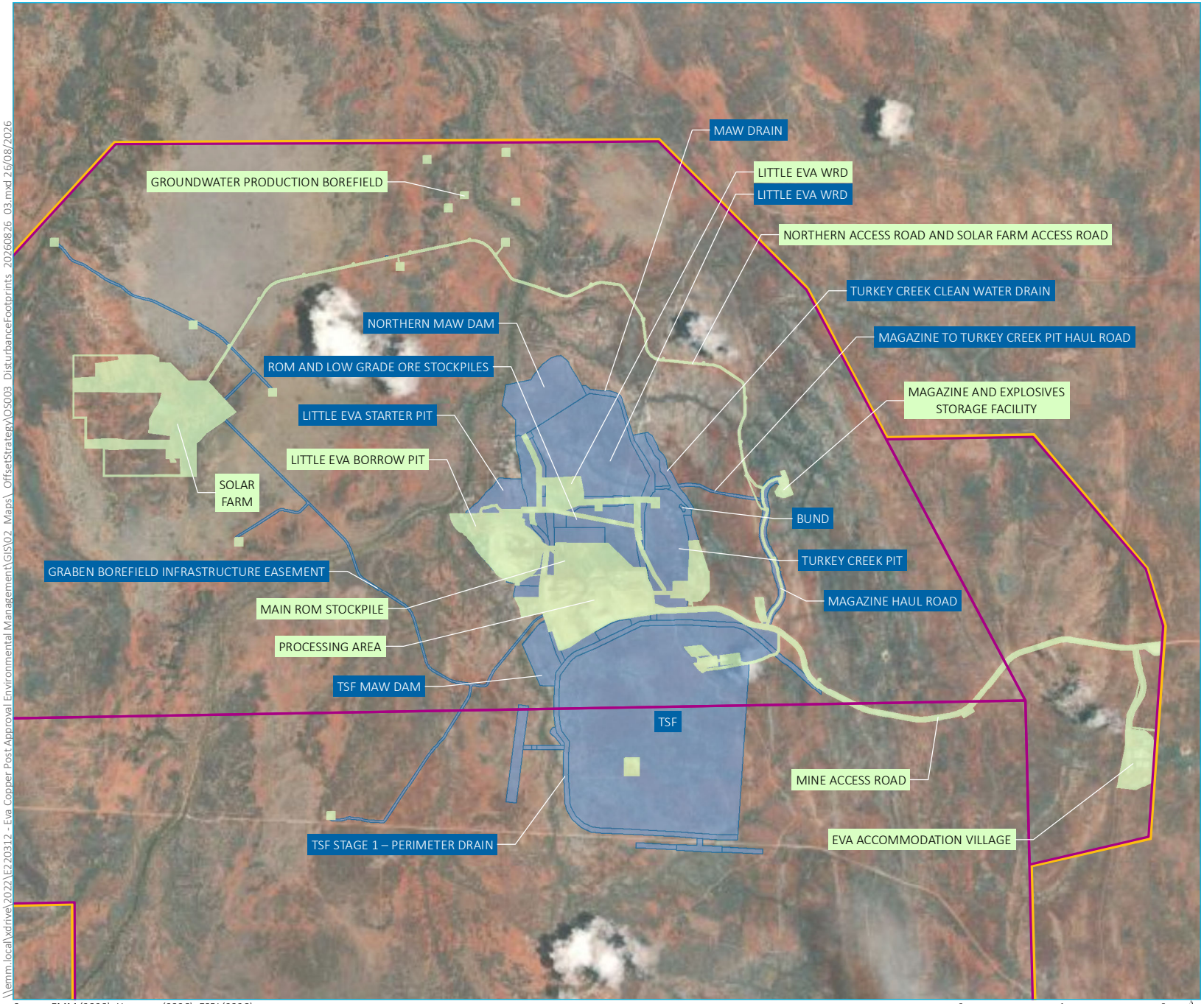

KEY

- Action Area (boundary offset for clarity)
- Mining lease
- Stage 1 Referral Action Disturbance Footprint
- Continuing Activities Disturbance Footprint

Source: EMM (2026); Harmony (2026); ESRI (2026)

0 1 2 km

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Disturbance Footprint

Eva Copper Project
Offset Strategy
Figure 1.2

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1.2 Terminology

Key terms used throughout this report are defined in Table 1.1.

Table 1.1 Terms and definitions

Term	Definition
Action Area	The area encompassing the Project's MLs (ML90162, ML90163, ML90164, ML90165 and ML90166) as illustrated on Figure 1.1. The Action Area includes the Stage 1 Referral Action and Stage 2 Referral.
Continuing Activities	Activities that will continue to be undertaken within areas that have been cleared over the course of 2024, 2025 and early 2026 under an early works and preparatory construction campaign. Alongside activities captured within the Stage 1 Referral, these activities are Critical Path Activities. Continuing Activities are excluded from the Stage 1 Referral Action.
Critical Path Activities	Activities that determine (in the context of the Project) the earliest achievable first copper concentrate production date. Delays to Critical Path Activities directly delay commissioning of the Project and production of concentrate for the Mount Isa smelter.
Disturbance Footprint	The maximum disturbance area necessary to undertake activities associated with the Stage 1 Referral Action, encompassing 696 ha, and extent of existing cleared areas, encompassing approximately 350 ha, as illustrated on Figure 1.2.
Offset Strategy	This document. The offset strategy for the Stage 1 Northern Blue-tongued Skink Residual Impacts
The Project	The development and operation of the Eva Copper Mine Project in its entirety.
Stage 1 Referral Action	Comprising a subset of Project activities that, alongside the Continuing Activities, are Critical Path Activities.
Stage 2 Referral	The balance of the Life of Mine Plan for the Project beyond that of the Stage 1 Referral Action and the Continuing Activities.
Stage 1 Northern Blue-tongued Skink Residual Impacts	The residual impacts to Northern Blue-tongued Skink that result from Disturbance Footprint impacts to Critical Habitat for the species and the Stage 1 Referral Action activities. The Stage 1 Northern Blue-tongued Skink Residual Impacts area to be offset is defined in Table 4.2.
Stage 1 Offset Action Plan	The Offset Plan, as presented by this document, which details offset measures to be implemented to account for the Stage 1 Northern Blue-tongued Skink Residual Impacts. These offset measures are described by the programs in Section 5.2.2 and Action Plan summarised in Section 6.1.

1.3 Authors

This Offset Strategy has been prepared by suitably qualified and experienced environmental professionals. The authors hold relevant professional qualifications and experience in areas of natural resource management, threatened species conservation and environmental offsets.

The primary authors are Berlinda Ezzy – Associate Director and Technical Ecology Lead and Cath Bowler Associate Ecologist from EMM. Lyndy Skea, the Team Lead for Environment with Southern Gulf NRM, has been a contributor to the proposed Offset Strategy and Action Plan Framework given the role Sothern Gulf NRM will play in the implementation of the offset program.

The authors' qualifications and experience are summarised in Table 1.2.

Table 1.2 Suitably qualified authors

Name	Qualification	Relevant experience
Berlinda Ezzy	Bachelor of Applied Science (Natural Systems and Wildlife Management) (Hons) University of Queensland	Berlinda has over 23 years' experience in environmental management, including over 12 years working in biodiversity offsets. Berlinda has worked for local and State governments, and consulting over her career and her work has included threatened species management and policy development, environmental planning and approvals, environmental impact assessments and biodiversity offset delivery. Berlinda has extensive experience in preparing EPBC Act referrals including preparation of offset strategies that meet EPBC Act Environmental Offset Policy. Berlinda's experience includes: • Coordinating surveys for threatened species and communities • Preparing natural resource management plans and offset management plans • Preparing environmental impact assessments including developing measures to avoid and mitigate impacts • Preparing MNES management plans and monitoring programs including for a range of threatened species across regions of Queensland.
Cath Bowler	Doctor of philosophy – Ecology, University of Queensland, 2022 Bachelor of Advanced Science, (Hons Class 1) – Major in Biology (Ecology), University of Queensland, 2017 Accounting for Nature ® Accredited Expert (Flora and Fauna)	Cath has seven years of experience working in environmental management and conservation and prior to her work as a consultant she completed a PhD in plant ecology and ecology modelling. Cath's areas of expertise include environmental planning and approvals, biodiversity offsets including strategy development, offset identification and securing, completing BioCondition surveys and other offset area monitoring and conducting large scale ecology survey programs and reporting.
Lyndy Skea	Bachelor of Environmental Science	Lyndy is an environmental professional and Environment Team Leader with 5 years' experience designing, managing and delivering conservation, biodiversity, threatened species and natural resource management projects across the Southern Gulf region. Lyndy's experience includes project and budget management, stakeholder and landholder engagement, contractor coordination, environmental monitoring, fieldwork planning, risk management, grant development, and monitoring, evaluation and reporting. She works collaboratively with Traditional Owners, landholders, government agencies, research organisations, industry partners and community groups to achieve practical and measurable environmental outcomes. Main projects include: • Grazing for Healthy Rivers and Sawfish Conservation: Delivered riparian fencing and off-stream watering initiatives to improve waterway health, reduce sediment impacts and protect endangered freshwater sawfish habitat. • Protection of the Gulf Snapping Turtle: Managed feral pig control activities to reduce predation on the nests of the endangered Gulf Snapping Turtle. • Feathered Futures Project: Delivered conservation activities to reduce feral cat threats to the Night Parrot, Carpentarian Grasswren and Gouldian Finch. • Carpentarian Grasswren Biodiversity Brightspots Project: Managed proactive fire management, ecological surveys, research and stakeholder engagement to protect Carpentarian Grasswren habitat. • Julia Creek Dunnart Offset Project: Supported the development and delivery of threatened species research, feral cat monitoring and threat-management activities.

Name	Qualification	Relevant experience
		• Riverine Recovery Program: Designed, managed and reported on river restoration projects following major flooding across the Southern Gulf region. • Community Litter Project: Coordinated community involvement in litter and illegal dumping reduction, resulting in more than 13 tonnes of waste being removed with the support of over 239 volunteers.

1.4 Environmental Management Plan Guideline

This Offset Strategy is consistent with requirements set out in the Commonwealth's Environmental Management Plan (EMP) Guidelines (DCCEEW 2024a). The EMP Guidelines provides a framework for information that should be contained with a management plan including; objectives and performance criteria, reporting, roles and responsibilities, a risk assessment and audit and review.

This strategy aligns with the EMP Guidelines as it clearly defines the objectives of the Offset Strategy and performance criteria for the Stage 1 Offset Action Plan. This report also specifies the actions that will be undertaken to achieve those objectives and roles and responsibilities. This Offset Strategy includes a risk assessment and a framework as to how monitoring and reporting will be conducted to measure the success of the offset programs implemented.

Opportunities for corrective and adaptive management after review of monitoring and reporting is also a key component.

This Offset Strategy uses the 'S.M.A.R.T' principle, ensuring that proposed actions are Specific, Measurable, Achievable, Relevant and Time-bound. It outlines specific management actions and outcomes required to address the objectives of the strategy, with measurable performance objectives and completion criteria that will be monitored throughout the programs. The proposed offset programs are directly relevant to the conservation of the species.

Timeframes identified by the strategy provide clear milestones against which progress can be assessed and management actions adapted as required. The Offset Strategy provides a clear and accountable framework for providing the intended offset outcomes over the life of the programs.

2 Purpose

This Offset Strategy outlines a proposed delivery framework that will compensate for the predicted residual impacts to the Northern Blue-tongued Skink as a result of the Stage 1 Referral Action. The Offset Strategy also outlines how the (pending) offset requirements that will result from the Stage 2 Referral will add to and build on the learnings and programs implemented by the Stage 1 Offset Action Plan to maximise conservation gains being achieved and deliver long-term outcomes.

The Northern Blue-tongued Skink is a MNES, listed as Critically Endangered under the Commonwealth EPBC Act and also listed as Critically Endangered under the Queensland *Nature Conservation Act 1992* (NC Act), which is known to occur within the Action Area.

The proposed Offset Strategy has been developed to be consistent with the EPBC Act *Environmental Offsets Policy* (EOP) (DSEWPC 2012), and applicable conservation documents and literature including *Conservation Advice for* the Northern Blue-tongued Skink (DCCEEW 2023), Threat Abatement Plans for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (2017) (DoEE 2017) and Threat Abatement Plan for predation by feral cats (DCCEEW 2024b).

ECMPL has also consulted with Southern Gulf Natural Resource Management Ltd (Southern Gulf NRM) to support identification and scoping of offset measures to ensure they are in accordance with best practice and natural resource management strategies for the region.

An overarching objective of the Offset Strategy is to implement actions that address key threatening processes and knowledge gaps which will have tangible and enduring benefits for the Northern Blue-tongued Skink.

This Offset Strategy:

- details the Northern Blue-tongued Skink's ecology in a local and regional context, including habitat requirements and threats
- outlines the predicted significant residual impacts to the Northern Blue-tongued Skink
- identifies the offset approach and how it meets the EPBC Act EOP
- describes the proposed package of compensatory offset measures delivered by the Stage 1 Offset Action Plan and demonstrates how they will result in tangible and long-term conservation benefits for the Northern Blue-tongued Skink and are consistent with Conservation Advice and literature
- describes additional benefits that will be achieved through delivery of the offset measures including to other MNES and social and economic co-benefits
- defines roles and responsibilities, timing, budgets and performance outcomes
- outlines how Stage 1 Offset Action Plan will be supported and built upon by offsets linked to the Stage 2 Referral
- provides a framework for adaptive management, monitoring and reporting to ensure transparent and effective delivery of offset outcomes over time.

3 Project description and environmental setting

3.1 Description of the Project and Stage 1 Referral Action

The Project, which will be the biggest copper mine in Queensland by volume and 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. Forecast to add $17 billion to the Australian economy over its Life of Mine Plan (LOMP), the Project is an important economic driver and is forecast to provide approximately 35% of the Mount Isa Smelter's copper concentrate feed stock, making it essential to the ongoing viability of the smelter and, in turn, the Townsville refinery as well as numerous downstream industries.

The Mount Isa Smelter's future depends on securing an additional, long-term, reliable concentrate supply by 2028 to replace the previous Mount Isa Copper mine's feed, which ended with the mine's closure in 2025. The Project is one of the few near-term projects with the scale to address the critical loss of feed to the smelter, and opportunity to deliver first copper concentrate production within the window when decisions about the future of the Mount Isa Smelter and Townsville refinery will be most acute, particularly given the term of the current State and Federal Government support package due to end in 2028, coinciding with the current (pre-EPBC) planned first production date of the Eva Copper Mine.

Achieving earliest first production in 2028 from the Project is critical to ongoing operations associated with the Mount Isa Smelter. Accordingly, the Stage 1 Referral Action is designed to support development of Critical Path Activities necessary to achieve commencement of mining operations, mineral processing and first production of copper concentrate. The Stage 1 Referral Action has been identified as a standalone component of the broader Project as any delay to approval and commencement of these activities will directly delay commissioning of the Project and achievement of first production of copper concentrate as critical feed for the smelter.

The broader Project activities comprise additional mining, processing, waste management, tailings storage, water management, infrastructure and ancillary development activities. The additional components form the balance of the Project's overall Life of Mine Plan strategy and are proposed to be assessed through the Stage 2 Referral. Stage 2 Referral activities are critical for the viability and continuation of the Project.

First production Critical Path Activities are supported by the continuation of Project development activities, termed 'Continuing Activities' within work areas that have been cleared within the Action Area over the course of 2024 to 2026.

The Disturbance Footprint associated with the Continuing Activities and the Stage 1 and Stage 2 Referral Actions are collectively and indicatively illustrated in Figure 1.2.

3.2 Local and regional context

The Project 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 (Figure 1.1). The Project is sited on the traditional lands of the Kalkadoon People.

The remote region lies within the semi-arid tropical savannas of north-west Queensland (Felderhof & Gillieson 2006) and is characterised by rugged hills or mountains separated by valleys. Vegetation is dominated by low open woodland over spinifex hummock grassland and riparian areas (ACRIS 2008, EMM 2026a).

The region has unique natural resource values and significant natural resource management (NRM) challenges. While the landscapes are largely intact, natural resource condition has been degraded by weeds, pest animals, fire, erosion or overgrazing (the vast majority of the region is used for grazing cattle) (Southern Gulf NRM 2020). After agriculture, mining and infrastructure dominates regional land use. The invasion of Buffel grass (*Cenchrus ciliaris*) is a key issue regionally. This species outcompetes native grasses and creates a dense, continuous fuel load. This can increase the intensity and frequency of fires, leading to negative biodiversity impacts such as habitat destruction and mortality of fauna such as Northern Blue-tongued Skink. Additionally, disturbed post-fire environments often favour invasive species, such as feral cats, highlighting the perpetual nature of NRM challenges in the region.

The climate is hot and semi-arid, characterised by extreme weather conditions. The wet and dry season pattern is reliable, but duration and intensity can vary significantly between years (Felderhof 2007). 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. Typically, April through to August is considered the 'early or cool dry season', late August to November is the 'late dry or wildfire season' and December through to March is the 'wet season'.

3.3 Northern Blue-tongued Skink distribution, habitat and records

3.3.1 Distribution

The Northern Blue-tongued Skink is known to occur across northern Western Australia, Northern Territory and into North West Queensland (refer to Figure 3.1). The Conservation Advice (DCCEEW 2023) (DCCEEW 2023) for the subspecies includes a caveat in the distribution mapping, acknowledging a sampling gap towards the eastern limit of the subspecies distribution. It is noted in the Conservation Advice there are historic records in the Cloncurry region.

In March 2026, two skinks were observed in the Action Area, with photographic evidence assessed by multiple Subject Matter Experts (SME) concluding that the skinks are, on the balance of evidence, most likely to be the Northern Blue-tongued Skink (Wilson 2026). These records, therefore, indicate the presence of the subspecies at the eastern edge of its modelled distribution.

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 metres (m) (Price-Rees, Brown and Shine 2014).

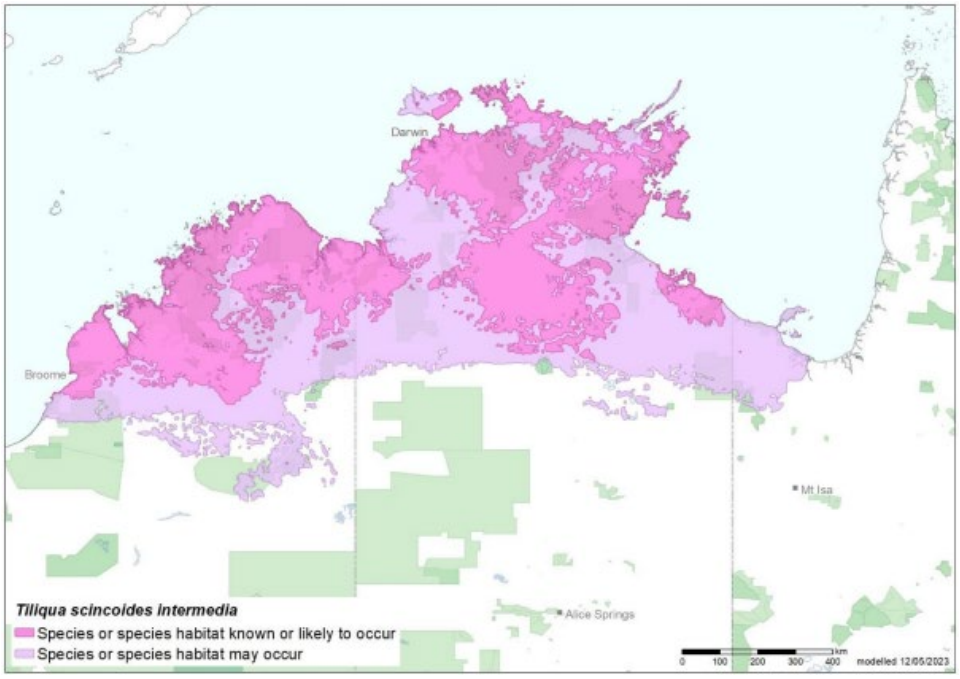


Figure 3.1 Modelled distribution of the Northern Blue-tongued Skink (DCCEEW 2023)

3.3.2 Broad habitat requirements

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 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, and spinifex and tussock grassland (DCCEEW 2023)

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.

Broad habitat types for the subspecies include (DCCEEW 2023):

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

3.3.3 Microhabitat requirements

The Northern Blue-tongued Skink inhabits a broad range of macrohabitats; however, they are more selective in microhabitat requirements. Research by Price-Rees et al. (2013a) 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 et al. (2013a) refers to relatively more developed ground-layer vegetation compared to the surrounding landscape.

The Conservation Advice (DCCEEW 2023) 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 (DCCEEW 2023). Long-distance movements between scattered core habitat patches occur in the mid-morning and late afternoon into the evening (DCCEEW 2023).

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.

3.3.4 Species records in region

The Conservation Advice recognises the Gregory Downs/Cloncurry area as the approximate eastern extent of the Northern Blue-tongue Skink range, however, recognises that the true extent is unclear due to a sampling gap.

Through the completion of desktop assessments to assess the potential presence of the subspecies at its eastern limit, it has been identified there is a mix of records dated over a number of years, some dating back to 1966 and some as recent as 2026. These records are very spread out across the North West Queensland region as shown in Figure 3.2. A summary of validated records within 200 km of the Action Area is provided in Table 3.1.

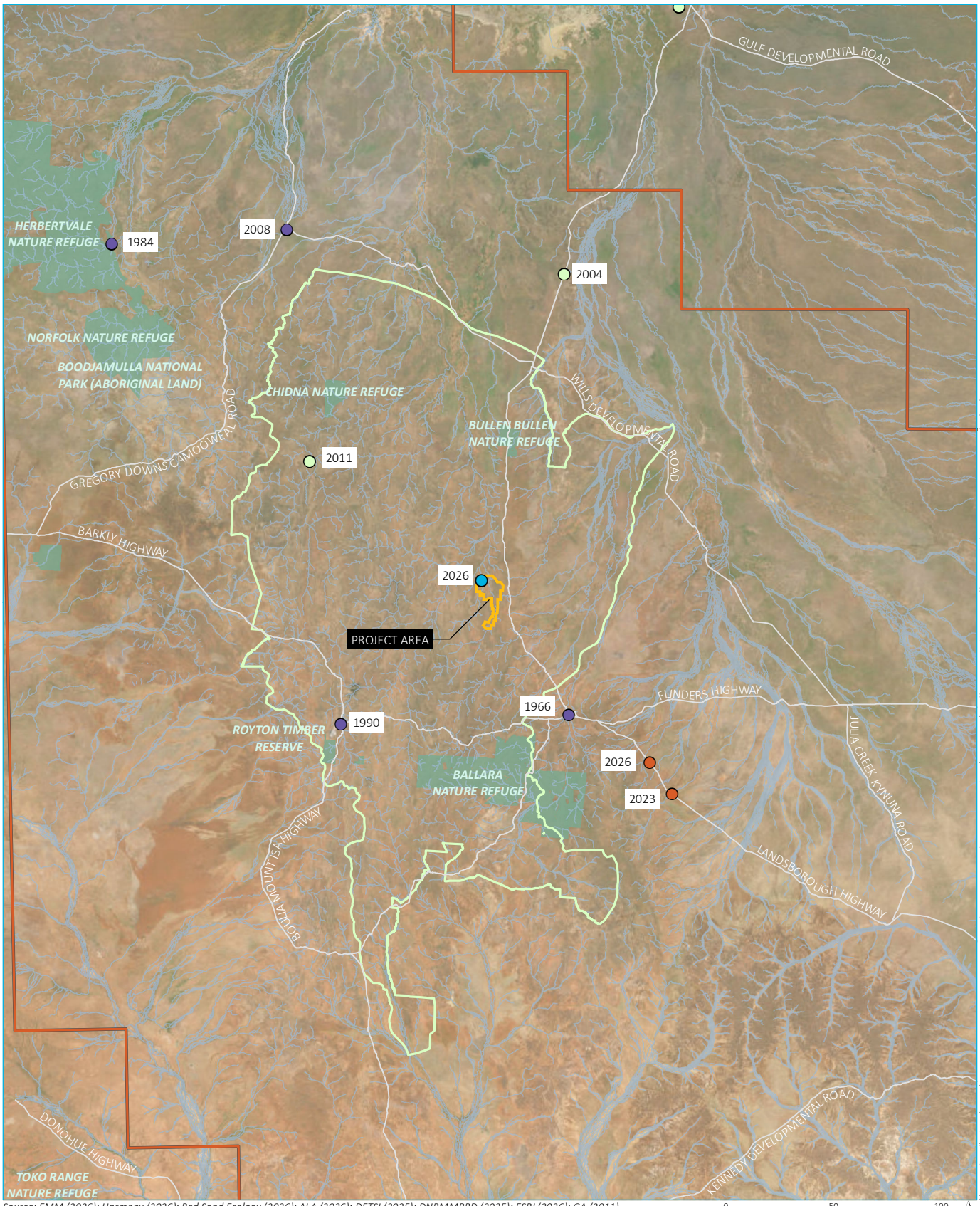
Notably, the most recent records occur within the Action Area (two observations – one SME verified and one with residual uncertainty) and further south-east of Cloncurry (two observations). These records confirm that there is likely to be remnant sub-populations still persisting at this eastern limit of their range but the population numbers, their distribution and long-term viability, particularly with presence of cane toads, is not known.

Four of the records within 200 km are incidental observations on or near roadsides, which likely reflects detection bias of people looking for skinks or reptiles in the region. Noting that lack of records does not necessarily reflect true absence, the scarcity of records may be due to a lack of targeted survey effort for the Northern Blue-tongued Skink in the region, but also a lack of awareness in the broader community and with landholders of this Critically Endangered species. The subspecies, without appropriate field identification tools, could be mistaken for the more common Centralian and Eastern subspecies, which may lead to low detection probability.

Current lack of records for the region supports the need for research and targeted surveys to identify potential populations and map species distribution more accurately. This would have important implications for the success of future management and biodiversity offsetting for the species.

Table 3.1 Northern Blue-tongued Skink records within 200 km of Action Area

Source	Year of record	Broad Location	Notes
ECMPL	2026	Eva Copper Mine Project – Action Area	Incidental observation, confirmed by a SME
ECMPL	2026	Eva Copper Mine Project – Action Area	Incidental observation, SME verification uncertain
iNaturalist	2026	Landsborough Highway, McKinlay	Incidental observation on side of road using free citizen science application (user: Bec) - photos available and confirmed by EMM Ecologist
iNaturalist	2023	Landsborough Highway, McKinlay	Incidental observation on side of road using free citizen science application (user: wiliamscott279) – photos available and confirmed by EMM Ecologist
Wildnet	2011	Mt Gordon, North Mount Isa	Incidental observation by Mark Sanders who is an experienced fauna ecologist. Record confirmed by the Department of the Environment, Tourism, Science and Innovation (DETSI).
Museum provider for OZCAM	2008	Intersection of Gregory Downs Camooweal Road and Wills Developmental Road	Queensland Museum preserved specimen
Wildnet	2004	Burke Development Road, Four Ways	Incidental observation on side of road, Keith R McDonald. Record confirmed by DETSI.
Museum provider for OZCAM	1990	Mount Isa	Australian Museum preserved specimen
Museum provider for OZCAM	1966	Cloncurry	Museums Victoria preserved specimen



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

0 50 100 km

GDA 1994 MGA Zone 54

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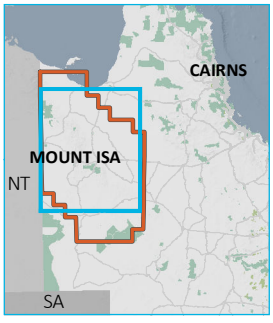


KEY

- Action Area
- North West Minerals Province
- Kalkadoon Native Title Area

Northern Blue-tongued Skink record (source)

- Project survey records
- Verified iNaturalist Australia
- Museum provider for OZCAM
- WildNet - Queensland Wildlife Data

Existing environment

- Major road
- Watercourse (stream order 3 and above)
- National park/reserve

Northern Blue-Tongued Skink records at their eastern distribution

Eva Copper Project
Offset Strategy
Figure 3.2

EMM creating opportunities

3.3.5 Habitat in the Action Area

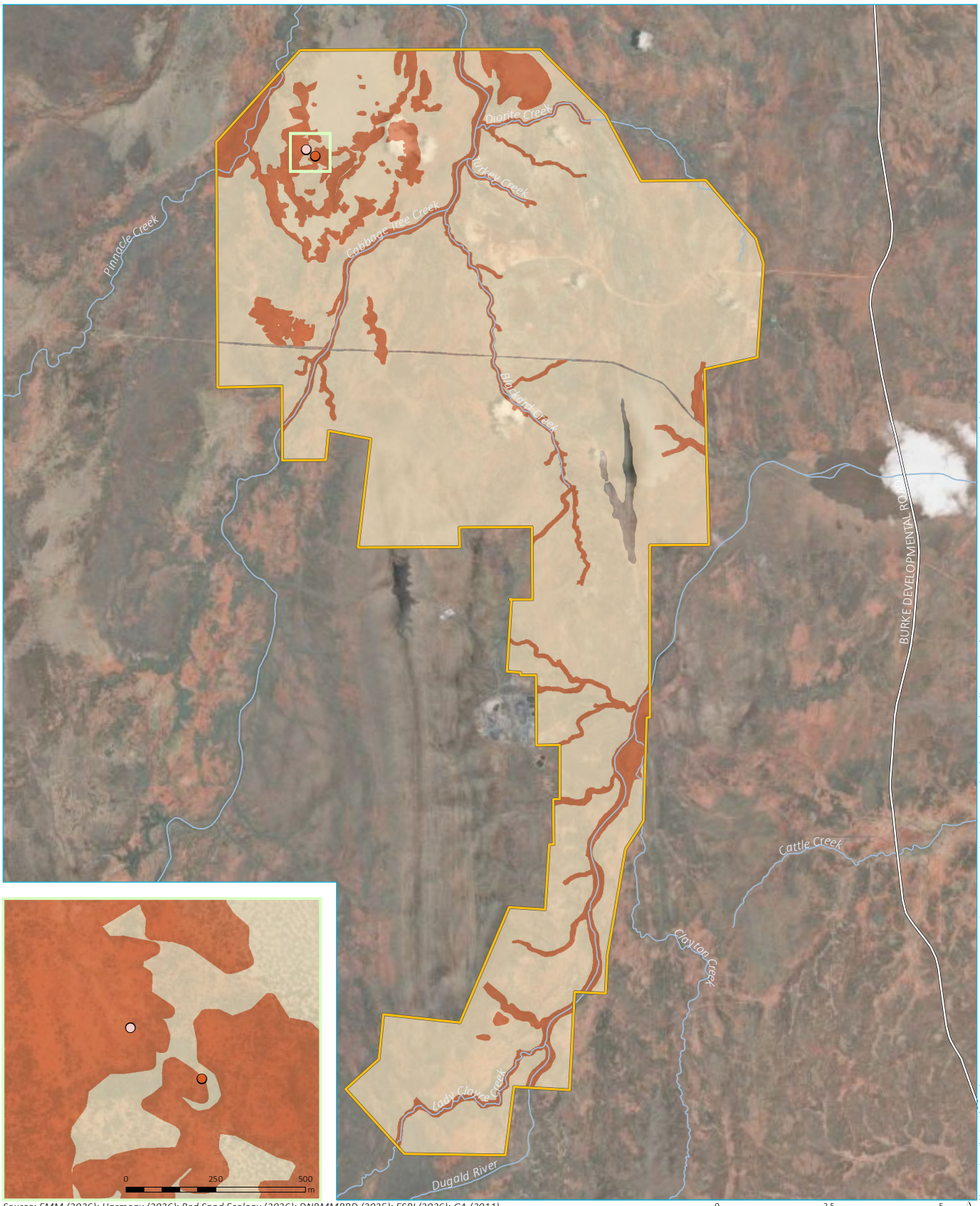
Habitat mapping has been developed for the Northern Blue-tongued Skink across the Action Area based on the documented known habitat and microhabitat requirements.

Habitat in Action Area has been categorised into two types, reflective of the associated habitat purpose and features relevant to the occupancy of the Northern Blue-tongued Skink. These are:

- Critical Habitat
- Habitat.

Further details pertaining to the subspecies habitat requirements, and definitions for each habitat category, are provided in the Eva Copper Mine Contemporary Baseline Ecology Report (EMM 2026a). Habitat mapping has been prepared across the Action Area and was used to support a significant impact assessment for the Northern Blue-tongued Skink as detailed in Section 10.6.3 of the MNES Impact Assessment Report (EMM 2026b) and Table 4.1 in this Offset Strategy.

The extent of Northern Blue-tongued Skink habitat across the Action Area is shown in Figure 3.3.



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

Action 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 habitat within the Action Area

Eva Copper Project
Offset Strategy
Figure 3.3

EMM
creating opportunities

4 Impacts

4.1 Northern Blue-tongued Skink impacts

4.1.1 Significant Impact Assessment

An assessment of significance has been undertaken in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (the Guidelines, DoE 2013). This has considered the Disturbance Footprint and Stage 1 Referral Action activities, both direct and indirect impact pathways, and assumes that proposed mitigations for the Northern Blue-tongued Skink as detailed in the Eva Copper Mine Project MNES Impact Assessment (EMM 2026b) are implemented.

The findings of the impact assessment are presented in Table 4.1.

Table 4.1 Significant Impact Assessment – Northern Blue-tongued Skink

An action is likely to have a Significant Impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Assessment
Lead to a long-term decrease in the size of a population	The Conservation Advice adopts the EPBC Act convention of using the term population to refer to a subpopulation (DCCEEW 2023a). There have been two observations (one SME verified and one with residual uncertainty) of Northern Blue-tongued Skink within the Action Area which may constitute a population. Limited records of the species are available in the surrounding region, and the closest record is over 50 km away from the Action Area indicate that Northern Blue-tongued Skinks occur within the broader landscape. Currently, there is a lack of available information on the populations of the Northern Blue-tongued Skink in the North West Queensland region due to limited survey effort and challenges associated with detection. As a result, the number of individuals in proximity to the Stage 1 Referral Action and/or population information more broadly is unknown. The distribution and abundance of Northern Blue-tongued Skinks may vary considerably between suitable habitat areas, with high local abundances recorded in some Cane Toad-free locations (Hastings et al. 2019). Therefore, the absence of records from an area cannot necessarily be interpreted as an absence of the subspecies, nor can current records be used to confidently determine population size or connectivity. The Conservation Advice (DCCEEW 2023a) describes the current known distribution of the subspecies as follows: > The Northern Blue-tongued Skink occurs across northern Australia from Eighty Mile Beach in Western Australia (WA), across the southern Kimberley and Top End of the Northern Territory (NT), to approximately the Gregory Downs/Cloncurry area in western QLD. It is not clear where the eastern limit of this subspecies' range occurs in north QLD due to a sampling gap. A morphometric analysis determined that Blue-Tongued Skinks on Cape York Peninsula are from the eastern, rather than northern, subspecies. While the subspecies occurs within the broader landscape, the Action Area occurs within North West Queensland at the known extent of the subspecies' distribution, where information on population size, structure and connectivity is unknown. It is also unclear if individuals recorded within the Action Area form part of a larger connected population or a discrete local population. The Stage 1 Referral Action will directly impact 91.4 ha of Critical Habitat, which provides resources necessary to support persistence of the local population. In contrast, impacts to dispersal habitat are minor in the context of the extensive availability of similar habitat within the Action Area and 10 km buffer, where 102,111.4 ha (99.1 %) would remain available, and is not expected to cause a population decline.

An action is likely to have a Significant Impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Assessment
	The assessment of significant impact is driven by the loss of Critical Habitat, rather than the removal of dispersal habitat. Therefore, the loss of Critical Habitat in the Disturbance Footprint and potential mortality of individuals associated with the Stage 1 Referral Action could contribute to a reduction in the local population. Given the species' Critically Endangered status and the limited information available regarding local population size and distribution, the magnitude of this impact in unknown. Applying the precautionary principle, it is possible that Critical Habitat loss and mortality of any individuals may result in a long-term decrease in the size of the population.
Reduce the area of occupancy of the species	The Action Area contains Critical Habitat and dispersal habitat. Overall, the Disturbance Footprint impacts 4.8 % of available Critical Habitat in the Action Area that provides resources necessary to support occupancy of the subspecies. The Stage 1 Referral Action is likely to reduce the area of occupancy of the Northern Blue-tongued Skink through the permanent loss of Critical Habitat that may support the subspecies. Two individuals (one confirmed, one unconfirmed) were recorded within the Disturbance Footprint, confirming occupancy of Critical Habitat. The Conservation Advice estimates a minimum area of occupancy (AOO) of 704 km² based on verified records, acknowledging that the Northern Blue-tongued Skink likely occupies a substantially larger area due to under-reporting and uncertainty regarding local extirpation associated with Cane Toads (DCCEEW 2023a). The Cloncurry region is considered within the maximum extent of the subspecies range, and the eastern boundary of its extent is not well understood (DCCEEW 2023a). It is considered that the Action Area is within the edge of the subspecies' extent but not within the known AOO. However, the individuals identified in the Action Area would extend the known AOO. The occurrence of Northern Blue-tongued Skink outside the known AOO is, therefore, important in the context of the species' conservation due to its occurrence in North West Queensland. As the subspecies has been confirmed within Critical Habitat that will be impacted at the edge of its distribution, a reduction in the AOO is considered likely. Dispersal habitat within the Action Area and broader landscape is not known to be occupied by the subspecies and was mapped conservatively to capture areas all types of general habitats listed in the Conservation Advice that may provide supplementary habitat. This includes all non-critical woodlands, grassland and riparian communities that occur within the Action Area and broader landscape. Direct impacts to dispersal habitat are not expected to materially influence the AOO, as there are extensive amounts available within the broader landscape (102,111.4 ha; 99.1 %). Any potential reduction in AOO would be associated with impacts to Critical Habitat rather than the removal of dispersal habitat. Mitigation measures, including Cane Toad management, Feral Cat management, grazing management, fire management and habitat rehabilitation, may improve habitat quality and support occupancy within retained and adjacent habitats. While these are considered pragmatic and appropriate measures to reduce significant impact, there is a level of uncertainty as to the effectiveness of these habitat improvements and threat mitigation actions to maintain the subspecies' same occupancy levels. As the impact will result in the permanent loss of occupied habitat and that mapped as Critical Habitat, a reduction in the area occupied by the subspecies is considered likely.

An action is likely to have a Significant Impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Assessment
Fragment an existing population into two or more populations	Currently, there is a lack of available information on the population size and distribution of Northern Blue-tongued Skinks in the Cloncurry region; therefore, it is not possible to determine whether the Action Area supports a discrete population or forms part of a larger connected population. The Northern Blue-tongued Skink is understood to occupy relatively small home ranges. Price-Rees et al. (2013) reported an average home range of approximately 4 ha (range 2–12 ha), with individuals concentrating activity within multiple core areas embedded within a broader home range. Movements between core areas have been recorded, with longer movements (>30 m) occurring, although average movement distances were generally less than 20 m. Daily net displacements of up to 421.6 m have also been documented (Price-Rees et al. 2014). These findings indicate that while the subspecies typically exhibits localised habitat use, individuals are capable of moving between adjacent habitat areas. The Disturbance Footprint and Stage 1 Referral Action activities will result in the loss and modification of suitable habitat; however, it is unlikely they will fragment the population into two or more populations due to the extent of suitable Critical Habitat and dispersal habitat that would be retained in the Action Area and surrounds. Direct impacts to 91.4 ha of Critical Habitat may reduce the extent of habitat available to support the local population; however, the remaining Critical Habitat within and surrounding the Action Area is expected to retain connectivity with 95.2 % remaining within the Action Area and 98.9 % within the Action Area and 10 km buffer. Impacts to dispersal habitat are not expected to fragment the population, as these areas occur within an extensive region of similar habitat that would remain connected across the landscape. The dispersal habitat category was mapped conservatively and includes areas that may provide supplementary or dispersal habitat rather than areas essential to support population persistence. The largest potential for fragmentation impacts to occur would be where an individual's entire home range is removed and there are on-ground constraints that limit dispersal opportunities through physical barriers such as infrastructure or exclusion fencing. Some limited reduction in connectivity may occur due to road infrastructure (such as haul roads and borefield access easements), but this is unlikely to inhibit movement between habitat areas. Survey methods recommended by a Subject Matter Expert include targeted searches for individuals basking on roads and access tracks, indicating that the subspecies may utilise these areas for thermoregulation when conditions are suitable. The Northern Blue-tongued Skink is considered likely to be associated with lower floodplain habitats, while rocky outcrops and strike ridges within the Action Area are not expected to provide suitable habitat and may already function as natural barriers to movement. As such, the Disturbance Footprint is more likely to reduce the extent of available habitat than create a new barrier between populations. Given the extent of retained habitat within the surrounding landscape, fragmentation of an existing population is considered unlikely. Although the Disturbance Footprint will result in the direct loss of 4.8 % of the available Critical Habitat within the Action Area, habitat loss is not the greatest threat to Northern Blue-tongued Skink. The greatest threat is impacts from Cane Toads, followed by cattle, pigs, predation by Feral Cats and inappropriate fire regimes pose a greater threat. The mitigation measures proposed to address threats such as Cane Toads, pest species and fire are expected to reduce the likelihood of indirect impacts causing fragmentation of populations of Northern Blue-tongued Skink. Overall, given the extent of habitat in the Action Area being retained, it is unlikely the Disturbance Footprint and Stage 1 Referral Action activities will fragment any existing populations.

An action is likely to have a Significant Impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Assessment
Adversely affect habitat critical to the survival of a species	The Northern Blue-tongued Skink is known to utilise a range of habitat types but have a preference for complex and less sparse habitats, with habitat critical to the survival of the subspecies including microhabitats that provide suitable refuge and shelter, such as areas of dense vegetation that maintain cool and moist conditions within its distribution (DCCEEW 2023a). Occupied habitat containing features important to the survival and persistence of the subspecies has been identified withing the Action Area and is considered Critical Habitat for this subspecies. While the Disturbance Footprint will also impact areas mapped as dispersal habitat, these areas are mapped conservatively across the landscape, inclusive of all woodlands, grassland and riparian communities that are not included as Critical Habitats. Dispersal habitat is not considered to support the microhabitat requirements for persistent occupation and, therefore, impacts to dispersal habitat are not considered likely to adversely affect habitat critical to the survival of the subspecies. The Disturbance Footprint will result in the permanent loss and modification of 91.4 ha of Critical Habitat known to be occupied by the subspecies, including habitat containing attributes associated with suitable shelter and refuge. It is likely the Disturbance Footprint impacts to Critical Habitat and Stage 1 Referral Action activities will adversely affect habitat critical to that subspecies' survival.
Disrupt the breeding cycle of a population	Northern Blue-tongued Skinks typically mate following their winter brumation period at the end of the dry season between August -September and give birth at the start of the wet season between December–January (DCCEEW 2023a). The Conservation Advice does not identify specific breeding habitats or discrete breeding sites for the Northern Blue-tongued Skink. As a live-bearing species that utilises a range of habitat types (DCCEEW 2023a), breeding is likely to occur throughout suitable habitat where shelter, refuge and foraging resources are available, which are considered to be present within the Critical Habitat mapped within the Action Area. Dispersal habitat was mapped conservatively and includes areas that may facilitate movement or occasional use but are not considered to provide the key resources and conditions required to support persistent occupancy and reproduction. Impacts to dispersal habitat are, therefore, not expected to disrupt the breeding cycle of the local population. However, the Disturbance Footprint will result in the permanent loss and modification of Critical Habitat known to be occupied by the Northern Blue-tongued Skink. While no specific breeding habitats have been identified within the Action Area, the absence of discrete breeding sites suggests that any occupied habitat may contribute to breeding requirements of the subspecies and the removal of 4.8 % of Critical Habitat within the Action Area may reduce the availability of habitat capable of supporting breeding, potentially disrupting the breeding cycle of the local population. Whilst 95.2 % of Critical Habitat is expected to remain available within the Action Area and 98.9 % within the Action Area and 10km buffer, there is uncertainty surrounding population connectivity, habitat use and breeding activity in North West Queensland, it is not possible to determine the extent to which habitat within the Action Area contributes to breeding within the local population. Applying the precautionary principle, it is considered possible that the Disturbance Footprint impacts to Critical Habitat and Stage 1 Referral Action activities have the potential to disrupt the breeding cycle of a population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Currently, there is a lack of available information on the population of the Northern Blue-tongued Skink in the North West Queensland region due to limited survey effort and challenges associated with detection. As a result, the number of individuals in proximity to the Action Area and/or population information more broadly, is currently unknown. The Northern Blue-tongued Skink has a broad distribution across northern Australia, occurring from Western Australia through the Northern Territory and into north-west Queensland (DCCEEW 2023a). Records indicate that the Action Area occurs near the eastern extent of the currently recognised distribution, where the limits of the range remain uncertain due to a recognised sampling gap. The majority of confirmed records (ALA 2026) and current understanding of the subspecies are derived from Western Australia and the Northern Territory, with comparatively less information available for North West Queensland.

An action is likely to have a Significant Impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Assessment
	While the subspecies has been confirmed within the Action Area, extensive areas of potentially suitable habitat remain within the broader landscape and across the species' range where it is more extensively used by the subspecies. The Disturbance Footprint would impact a small proportion of Critical Habitat in relation to the Action Area (4.8 %) and Action Area and wider 10 km buffer (1.1 %), with extensive Critical Habitat remaining available for the species to utilise. The available habitat is also likely to remain connected to larger areas of habitat beyond the Action Area. Dispersal habitat represents a small proportion of the extensive habitat available within the broader landscape. The Northern Blue-tongued Skink utilises a range of habitat types, and comparable dispersal habitat remains widely available throughout the Action Area and broader landscape. Although habitat will be impacted by the Disturbance Footprint and Stage 1 Referral Action activities, it is unlikely to represent a substantial proportion of the habitat available to the subspecies and the Action Area is in a region where the subspecies is more sparsely distributed. In addition, measures are proposed to improve habitat condition within retained areas, including the management of key threatening processes such as Cane Toads, Feral Cats, grazing pressure and fire. While there is uncertainty regarding the extent to which these measures will offset the permanent loss of habitat, they are expected to contribute to the maintenance and improvement of habitat quality within the broader Action Area. Rehabilitation of nearby offset areas may also improve the condition and broader availability of habitat for the Northern Blue-tongued Skink over time. While the Disturbance Footprint will reduce the extent of habitat available to the subspecies, it represents only a small proportion of the regional habitat available and management measures are in place; therefore, it is unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Cane Toads are recognised as the main threat to the Northern Blue-tongued Skink (DCCEEW 2023a). Preliminary surveys confirmed the presence of Cane Toads across multiple locations in the Action Area, including areas that overlap with mapped habitat for Northern Blue-tongued Skink. Preliminary surveys to understand the abundance of Cane Toads within the Action Area were undertaken in 2026. Although the dataset does not comprehensively survey the Action Area, early results indicate that Cane Toad abundance is highest within riparian habitats, moderately high in developed areas such as the Accommodation Village, and low to absent within woodland and clay plain communities. This is consistent with the known ecology of Cane Toads, where riparian areas are at greatest risk of infestation. The Conservation Advice suggests that areas where Northern Blue-tongued Skink persist in the presence of Cane Toads are considered habitat critical to the survival of the subspecies. The majority of Cane Toads are found near riparian areas, and these regions in the Action Area have also been identified as Critical Habitat, therefore, meet the definitions of habitat critical to the subspecies survival. The likelihood of interaction between Northern Blue-tongued Skinks and Cane Toads is substantially lower within areas mapped as dispersal habitat, which are mostly woodland or grassland communities. With the lower habitat value of dispersal areas, reduced likelihood of Cane Toads occurring and implementation of the Cane Toad Management Plan, the Stage 1 Referral Action is not expected to increase Cane Toad abundance within dispersal habitat. Construction activities and associated land disturbance such as vegetation clearing and earthworks may increase habitat suitability for Cane Toads within the Action Area by creating areas of exposed or sparsely vegetated ground that facilitates movement, sheltering and potential breeding. These conditions may be exacerbated by natural seasonal events, particularly wet season rainfall and flooding resulting in ponding. These events will continue to drive Cane Toad establishment and spread within the Action Area unless actively managed. Potential impacts associated with Cane Toads will be managed through implementation of a Cane Toad Management and Monitoring Plan. The plan includes action response triggers to facilitate a management response should Cane Toad activity exceed defined levels within the Action Area. This will be implemented for the duration of construction, operations and through the post mine rehabilitation phases.

An action is likely to have a Significant Impact on a critically endangered or endangered species if there is a real chance or possibility that it will:	Assessment
	Given that the greatest threat to Northern Blue-tonged Skinks is already present within the Action Area, Cane Toads cannot be removed; however, the intention of the plan and its adaptive management measures is to control Cane Toad numbers within the Action Area to minimise the influence of the Stage 1 Referral Action that may benefit Cane Toad abundance. Therefore, the Stage 1 Referral Action is unlikely to result in invasive species that are harmful to becoming established within habitat where they are not already present.
Introduce disease that may cause the species to decline	No diseases have been identified in the Conservation Advice as a key threatening process for the Northern Blue-tongued Skink. The Stage 1 Referral Action is unlikely to introduce disease that may cause the species to decline.
Interfere with the recovery of the species	The Conservation Advice notes that all remnant populations of the Northern Blue-tongued Skink occurring within the distribution of the Cane Toads are considered important populations, as they contribute to the persistence of the species and may act as source populations for dispersing individuals that support recovery (DCCEEW 2023a). The Conservation Advice adopts the EPBC Act convention of using the term population to refer to a subpopulation (DCCEEW 2023a). Critical Habitat within the Action Area is considered to support an important population as it provides the habitat attributes required for population persistence. The loss of Critical Habitat may reduce the capacity of the important population to contribute to the recovery of the species. However, impacts to dispersal habitat are not expected to interfere with recovery due to the extensive availability of similar habitat in the broader landscape. Records from the Action Area and surrounding region confirm the wide ranging but sporadic occurrence of the subspecies. There is limited information available about the abundance and connectivity between populations. Furthermore, the Action Area is located at the farthest extent of their predicted range adding to the sporadic occurrence and use of the area by this species. As the Conservation Advice identifies remnant populations within the Cane Toad distribution as important populations to recovery of the species, the significance of the local population within the Action Area to the subspecies recovery cannot be confidently determined. Riparian habitats are at greatest risk of Cane Toad infestation, and Critical Habitat includes areas of riparian vegetation. Although there have been no records of Northern Blue-tongued Skink in the riparian areas of the Project Area, they contain habitat attributes considered important to the subspecies persistence. An increase in abundance of Cane Toads could put pressure on the local population, potentially reducing habitat quality and interfering with the recovery of the subspecies. A range of measures that are consistent with recovery objectives and management actions identified in the Conservation Advice are proposed. These include active management of Cane Toads, Feral Cats and Feral Pigs, reduction of grazing pressure in Critical Habitat areas and implementation of fire management measures and other weed and pest management. Collectively, these measures are intended to reduce key threatening processes affecting the Northern Blue-tongued Skink and improve the condition of both Critical Habitat and dispersal habitat within the Action Area. While measures that are consistent with recovery objectives are planned, uncertainty remains regarding the contribution of the local population to species recovery and the extent to which proposed mitigation measures will offset the permanent loss of habitat. It is not possible to confidently conclude that the Stage 1 Referral Action activities would or would not interfere with recovery of the species. Applying the precautionary principle, this criterion is considered possible.
Conclusion	The proposed Stage 1 Referral Action is **LIKELY** to result in a Significant Impact to the Northern Blue-tongued Skink.

4.2 Impact area

Table 4.2 summarises the impacts to Northern Blue-tongued Skink Critical Habitat as a result of the Disturbance Footprint and Stage 1 Referral Action activities that will be offset.

Table 4.2 Stage 1 Residual Impacts being offset

MNES	Habitat type	Existing clearing impact area (ha)	Stage 1 Referral Action impact area (ha)	Total impact being offset (ha)
Northern Blue-tongued Skink	Critical Habitat	61.2	30.2	91.4

5 Offset Strategy

5.1 Considerations of relevance to Offset Strategy development

In defining the Offset Strategy, consideration has been given to Northern Blue-tongued Skink ecology and gaps in the documented understanding of the species, key threatening processes, and published conservation advice including recommended recovery actions, and other relevant plans.

The three programs developed, and application of proposed offset measures within each program, are summarised in Sections 5.3.1 to 5.3.3. These sections outline the conservation benefits that will occur to the species from the measures, how they will address high risk threatening processes and deliver a long-term benefit to Northern Blue-Tongue Skink populations, and compensate for residual impacts as a result of the Disturbance Footprint impacts to Critical Habitat and the Stage 1 Referral Action.

The proposed Offset Strategy has been developed in accordance with the EPBC Act EOP and how the offset strategy meets EPBC Act offset principles is set out in Table 6.3.

5.1.1 Northern blue-tongued Skink – species understanding

The ecology and distribution of the Northern Blue-tongued Skink is currently best understood within Western Australia and the Northern Territory, with a specific knowledge gap for the species in Queensland due to a lack of sampling in this region (DCCEEW 2023). The key knowledge gaps in Queensland can be summarised as follows:

- Distribution is poorly known – current Species of National Environmental Significance (SNES) mapping indicates the species or species habitat may occur in the north-west corner of Queensland, extending east to Burketown and south to Gregory, while earlier listing advice and more recent records (Figure 5.1) indicate the species presence further south and east in the Mt Isa-Cloncurry area.

- Very limited contemporary records – Queensland only has a handful of records from the Gulf Region, with most records over a decade old. In comparison, WA and the NT both support long term monitoring sites and ongoing survey programs for remnant populations of the species.

- Lack of Queensland population estimates, habitat associations and refugia locations (including population size, number of subpopulations and population trends or information on occupancy of key habitats). Across WA and the NT, severe population declines have been recorded following cane-toad invasion while persistence after cane-toad invasion is largely unknown in Queensland. This information is critical to the conservation of the species across its range; only a handful of remnant cane-toad-resistant populations are known to persist in Queensland, with more known from the NT though monitoring has demonstrated little to no recovery to date.

- Connectivity and genetics are poorly known; potential remnant populations have not been adequately identified across Queensland.

Consideration of these knowledge gaps for improved species conservation, and specifically increased understanding in Queensland, has informed the Species Research and Monitoring Program and the Capacity Building and Community Engagement Program proposed as part of the offset strategy (see Section 5.2.2).

5.1.2 Threatening processes

A summary of key threatening processes outlined in the Northern Blue-tongued Skink Conservation Advice are outlined below. Consideration of these pressures has informed the Threat Abatement Program proposed as part of the offset strategy (see Section 5.3.2).

The Threat Abatement Program has been developed in consultation with Southern Gulf NRM due to their extensive local knowledge and on-ground experience working with landholders in natural resource management for this region. The threat abatement measures will be implemented by applying best practice techniques and will be consistent with published Commonwealth, State and Regional objectives including:

- Australian Government Threat abatement plans for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (2017) (DoEE 2017)
- Australian Government Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (DSEWPC 2011)
- Australian Government Threat abatement plan for predation by feral cats (DCCEEW 2024)
- Southern Gulf Regional NRM Plan 2022-2032 (Southern Gulf NRM 2022b)
- North West Queensland Regional Biosecurity Plan 2022–2027
- Queensland Invasive Plants and Animals Strategy 2025–2030 (DPI 2024)
- Draft Queensland Feral Pig Management Action Plan 2026-2031.

i Cane Toads

Cane Toads are the greatest threat to the long-term persistence of the Northern Blue-tongued Skink. All stages of the Cane Toad's life cycle are poisonous and Northern Blue-tongue Skink are vulnerable to even small doses of Cane Toad toxins. The biological effects, including lethal toxic ingestion caused by Cane Toads is listed as a key threatening process under the EPBC Act.

The subspecies has few recorded populations persisting after Cane Toad establishment. Remnant subpopulations in Cane Toad impacted areas are likely to have undergone severe decline and fragmentation, reducing their resilience to additional threats such as severe fire, predation by feral cats, and habitat degradation by hard-hoofed animals (namely cattle, Asian water buffalo and feral pigs) (DCCEEW 2023).

Similarly to Northern Blue-tongued Skink, Cane Toads seek refuge in damp areas (DSEWPC 2011) and have become established across an estimated 91% of the subspecies distribution. The Northern Blue-tongued Skink does not learn to avoid Cane Toads after a toxic encounter and there are no feasible eradication or viable options to limit the spread of Cane Toads (Tingley et al. 2017; HRSCEE 2019). Estimated cane toad distribution in proximity to Northern Blue-tongued Skink distribution is shown in Figure 5.1.

Subsequently, conservation and recovery actions for the subspecies should focus on protecting remnant subpopulations and maintaining the integrity of connecting habitat to support persistence, recovery and dispersal of individuals that are resilient to cane toads (Doody et al. 2017; Ward-Fear et al. 2021).

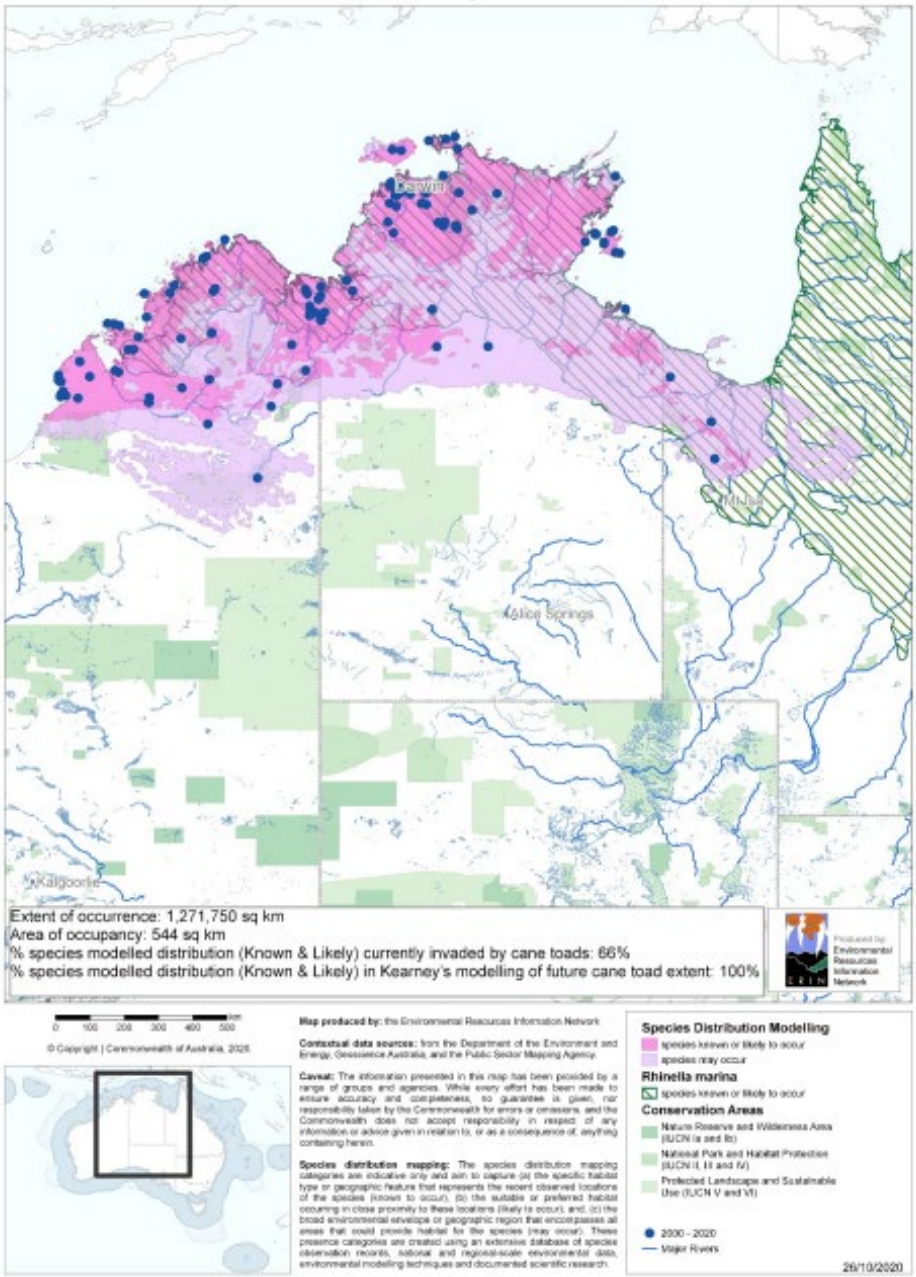

Figure 5.1 Distribution mapping for the Northern Blue-tongued Skink showing cane toad current and known distribution as of October 2020 (DAWE 2021)

ii Feral pigs and cats

Pest animals are a major threat to the economy and biodiversity of North West Queensland. Feral pigs are widely distributed across Northern Australia, and they are still dispersing into parts of east Arnhem Land (NT) and the Kimberley, WA (Mihailou & Massaro 2021).

Feral pigs cause significant structure and vegetation damage to riparian areas, ephemeral wetlands and swamps, and permanent wetland verges which are critical habitat for the Northern Blue-tongued Skink. Habitat degradation by Feral pigs is a listed key threatening process under the EPBC Act, and a specific threat to Northern Blue-tongued Skink (DCCEEW 2023).

Feral cats are also a recognised high risk threat to the subspecies. Although cats are known to prey on Blue-tongued Skinks (Koenig et al. 2002), the diet of feral cats in the tropical savannas of northern Australia is dominated by mammals (Stokeld et al. 2018). Severe fires increase feral cat activity and predation pressure on small fauna in Australia's tropical savannas which can lead to significant population declines (DCCEEW 2023). Feral cats can cause localised fauna extinctions (Frank et al. 2014). Predation by feral cats is listed as a key threatening process under the EPBC Act for a number of MNES.

iii Wild dogs

Across Australia, wild dogs are known to eat reptiles in some regions, especially arid and semi-arid systems, though reptiles occur less often in wild dog diets than in cat diets and often less than in fox diets (Doherty 2018, Vernes 2020, Davis 2015). A nine-year arid-zone study also found dingoes tended to consume reptiles when reptiles were scarce, which the authors flagged as a potential conservation concern if the reptile taxa affected are threatened (Sheldon 2023). While there is no direct evidence of wild dogs predating on the Northern Blue-tongued Skink, they are known to predate on related species including the Eastern Blue-tongue (Franklin 2021).

iv Grazing in riparian zones

Northern Blue-tongued Skinks occur in a variety of habitats; however, spend most of their time in dense vegetation that offers cool, damp or shaded conditions as reprieve from extreme landscapes (DCCEEW 2023). While not riparian specialists, this habitat preference naturally leads the species to have a strong association with riparian zones as they offer reliable shelter, food and movement corridors.

Domestic and feral cattle range freely throughout most of the Northern Blue-tongued Skinks' distribution (DCCEEW 2023). Cattle tend to concentrate around water and can have destructive effects on riparian zones which have limited resilience against grazing (Jansen & Robertson 2001). Cattle trampling removes thick grass and reduces shrub growth (Mihailou & Massaro 2021), directly removing Northern Blue-tongued Skink habitat, increasing the species exposure to predators (Price-Rees et al. 2013a) and fragmenting connectivity pathways.

Grazing in riparian zones simplifies ecosystems, with the removal of riparian vegetation leading to bank instability and increased risk of erosion and sedimentation (Rice et al. 2021). Cattle also spread ground layer weeds that outcompete native flora and increase fire risk (Mihalou & Massaro 2021). Both of these have negative flow-on effects for Northern Blue-tongued Skink and biodiversity more broadly.

As cattle grazing is the predominant land use in the Mount Isa Inlier bioregion, exclusion of livestock from all riparian zones is not practical. There may, however, be opportunity to work with landholders to fence off riparian vegetation and install off-stream watering points to avoid direct impacts to riparian vegetation from cattle.

v Recommended recovery actions

Recovery actions recommended in the Conservation Advice have been considered and have informed the proposed Offset Strategy (see Sections 5.3.1, 5.3.2 and 5.3.3).

Primary conservation objectives, as referenced in the species Conservation Advice (DCCEEW 2023) are:

- detecting subpopulations that are resilient to cane toads in impacted areas and supporting them to recover
- maintaining habitat integrity and connectivity among remnant subpopulations to support population expansion into areas that have become temporarily unoccupied due to cane toad impacts.

Other conservation and management priorities include the following:

- Prioritise areas with habitat critical to the survival of the Northern Blue-tongued Skink for fire and introduced species interventions that support recovery and expansion. Increase management intensity for introduced animals – particularly feral cat and cattle – if fire occurs at a site where the Northern Blue-tongued Skink persists.
- Ensure land custodians, owners and managers are supported (financially, legally, logistically etc.) to implement effective feral animal and fire management interventions that ensure the long-term integrity of habitat critical to survival for the Northern Blue-tongued Skink.
- Raise awareness to ensure land custodians, owners and managers are informed and able to support recovery of the Northern Blue-tongued Skink on the land for which they have custodianship.
- Seek financial support for land custodians, owners, and managers to implement recovery actions on the land for which they have custodianship.
- Share outcomes from targeted survey and monitoring programs among recovery partners, to increase the capacity for adaptive learning and collaboration.
- Encourage the public to report incidental detections of the Northern Blue-tongued Skink, with corroborating photos, to relevant land custodians, owners, and managers.
- Continue to implement standardised long-term population monitoring programs to better understand the long-term impact of cane toads, assess viability of subpopulations, and detect recovery.
- Monitor the impacts of targeted management interventions on remnant subpopulations.

Consideration of these processes, conservation objectives and management priorities has informed the Threat Abatement Program and the Capacity Building and Community Engagement Program proposed as part of the Offset Strategy.

5.2 Offset Strategy development and approach

On review of the Conservation Advice for Northern Blue-tongued Skink and consultation with the National Environment Protection Agency (NEPA) and Southern Gulf NRM, it was identified that an offset delivery approach which focused on the following would deliver a tangible and enduring conservation gain for the species:

- targeted research for Northern Blue-tongued Skink to address key knowledge gaps for the subspecies at its eastern range
- the implementation of a threat abatement program, underpinned by research outcomes and broader species monitoring, across a number of properties to reduce threatening processes on the species and support the maintenance and/or expansion of confirmed populations
- supported by education and capacity building.

As identified in Conservation Advice, there is a data gap and lack of understanding of where remnant subpopulations of Northern Blue-tongued Skink occur at the eastern limit of its range in North West Queensland including down to Mount Isa and Cloncurry. There are a number of historic records dating back to 1960 at Cloncurry; however, more recent records are emerging as shown in Figure 3.2 including two known sightings within the Action Area.

It is critical to understand where these subpopulations are present so they can be better protected and managed in future, and there is a more robust understanding of the subspecies habitat requirements in the Queensland context. No research is occurring in Queensland specifically for the Northern Blue-tongued Skink; therefore, the proposed research would be new and additional, and key to the species improved protection and management in future.

Direct predation from feral cats, habitat degradation by feral pigs and livestock, and inappropriate fire regimes are also high-risk threats to the subspecies and need to be managed to improve the long-term viability of any remnant subpopulations in the region. Efforts in relation to threat abatement will reduce pressure from identified key threatening processes supporting subpopulations and improving habitat quality and functioning.

Capacity building and awareness will support the acquisition of skills that can further underpin and increase the success and sustainability of other facets of the Offset Strategy.

The EPBC Act EOP requires that, in assessing the suitability of an offset, government decision-making be informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty (DSEWPC 2012). Offsets should align with conservation priorities for the impacted protected matter and compensatory measures should inform future decision making for the species.

Through engagement with NEPA and discussions on suitable offset approaches for the Northern Blue-tongued Skink, an offset package that addressed knowledge gaps, threatening processes, and capacity building was developed.

This Offset Strategy outlines a proposed package of complementary actions to support conservation outcomes for Northern Blue-tongued Skink commencing with a targeted species research program, findings of which can then inform on-ground threat abatement actions. Capacity building and community engagement will also underpin delivery and enhance outcomes achieved for both research and threat abatement. The Stage 1 Offset Action Plan will be built on by offsets linked to the Stage 2 Referral. This will support the ongoing delivery of the threat abatement program, monitoring, reporting and capacity building. Further details are set out in Chapter 6.

5.2.1 Offset costing benchmarks

To inform the size of a direct, land-based offset that would be required based on the Stage 1 residual impact area (Table 4.2), and to support the development of comparative offset delivery costs, the DCCEEW *Offset Assessment Guide: Offset Calculator tool* and Queensland DETSI online offset calculator tool were reviewed. A summary is provided below and more detailed justification for the inputs adopted contained in Annexure A.

i EPBC Offsets Assessment Guide

Based on the Northern Blue-tongued Skink Stage 1 residual impact area and a number of habitat quality assumptions (refer Table 5.1), the Offsets Assessment Guide (OAG) was used to determine the scale of offset area that would be required to compensate for the significant residual impacts to Northern Blue-tongued Skink were a direct land-based offset approach proposed.

Under these assumptions, the calculations determined a total offset area of 1,500 ha would be required to deliver a 100% land-based offset. Further justification on the suitability of the OAG inputs and why they are conservative is provided in Annexure A.

Table 5.1 OAG calculator assumptions

OAG component	Assumption
MNES	Northern Blue-tongued Skink – Critically Endangered
Impact area	91.4 ha
Impact area habitat quality	7 out of 10
Offset area	1,500 ha
Risk of Loss	0%
Offset area habitat quality (start)	6 out of 10 (offset site would be chosen from local region around Project and be subject to grazing, riparian zone degradation and a number of other threatening processes such as pest animals that would result in a lower starting score)
Offset area habitat quality (future)	8 out of 10 (increase in habitat quality would occur through removal and/or reduction of grazing, improving condition of habitat through changed land management practices including fire, and reducing threats such as feral cats and wild dogs)
Offset area habitat quality (future without offset)	6 out of 10 (no habitat reduction has been provisioned for)
Confidence in result	80%
Time until ecological benefit	20 years
% of impact offset	100.63%

ECMPL has prepared indicative costings that would be required to deliver a 1,500 ha land-based offset in the North West Queensland Gulf region. The costs account for land acquisition (noting that this only allows for the direct purchase of the required 1,500 ha area), 20 years of active management and monitoring, and administration as summarised in Table 5.2.

Table 5.2 Land-based offset management costs

Component	Inputs and assumptions	Indicative cost
Land purchase	1,500 ha area Land valuation based on 2025 independent report prepared for ECMPL	$307,500
Land management and monitoring	Pest management activities for wild dogs, feral pigs and feral cats for 20-year duration based on representative ~50,000 ha NW Qld/Gulf grazing property. Routine monitoring activities CPI applied to account for inflation in activity costing over 20-year duration	$885,123
Administration and reporting	Allowance for program management and reporting for 20-year duration	$600,000
Contingency	Applied at 10% of sub-total	$179,262
Total		**$1,971,885**

The total cost of the offset under this arrangement was estimated to be $1,971,885 for the 20-year period.

ii Queensland Financial settlement offset calculator

For this scenario, the Queensland DETSI online offset calculator tool was adopted using the Northern Blue-tongued Skink Stage 1 residual impact area. The following inputs have been applied:

- Impact area: 91.4 ha
- Cloncurry Shire Council
- North-west Highlands bioregion
- Mount Isa Inlier subregion
- Threatened animal matter group and selection of McIlwraith leaf-tailed gecko, another Critically Endangered species, (as Northern Blue-tongued Skink was not available as a drop-down option)
- Notional offset area: 365.6 ha.

The total cost for a financial offset under the Queensland tool was $763,558.40 (excluding GST).

ECMPL recognises that there are some constraints with the DETSI financial payment calculator including that the costs have not been updated since 2014 and, therefore, costs associated with offset delivery will have increased, and that the calculator does not differentiate according to species protection listing (i.e. a Critically Endangered species returns the same quantum as a Vulnerable species).

5.2.2 Offset costing

The above costing tools have been combined to derive a quantum for delivery of the Stage 1 Offset Action Plan.

Using the OAG calculated offset area of 1,500 ha as the basis for the offset area, the DETSI offset calculator tool was revised with an assumed impact area of 375 ha in lieu of the 91.4 ha on account that the calculator tool uses a 4:1 multiplier. This serves to return a notional offset area of 1,500 ha consistent with that of the OAG calculator and cognisant of the Northern Blue-tongued Skink Critically Endangered status.

The total cost for a financial offset of this 1,500 ha notional offset area using this approach $2,615,800. Compounded inflation of 34.4% was applied to this figure to account for the date of costing informing the calcualtor.

The resultant total cost f of $3,515,635 will support delivery of the Stage 1 Offset Action Plan. Costs for the continued delivery of some offset program components for their full-term duration will be supported by further from the (pending) Stage 2 Referral.

Southern Gulf NRM will be engaged as a key delivery partner for the Stage 1 Offset Action Plan. A preliminary quote prepared by Southern Gulf NRM to undertake the offset measures contemplated by the Stage 1 Offset Action Plan confirms the appropriateness of the total offset cost proposed.

5.3 Offset programs

5.3.1 Species research and monitoring program

ECMPL will engage Southern Gulf NRM to identify and appoint a research partner to prepare and implement a Northern Blue-tongued Skink Targeted Research and Monitoring Program. Southern Gulf NRM affords access to a well-established network of industry experts and research institutions. These partnerships include organisations such as the Invasive Species Council, CSIRO, James Cook University (JCU) and Queensland University of Technology (QUT). This research partner will conduct a targeted research and monitoring program for the subspecies in line with the information and research priorities listed in the Conservation Advice (DCCEEW 2023).

There is limited information available on the Northern Blue-tongued Skink, specifically in the Queensland context., No studies have been conducted on the subspecies in Queensland and, therefore, the targeted research in this jurisdiction would be new and additional, highlighting the conservation benefit of conducting a research program as part of the Offset Strategy.

The Conservation Advice notes the eastern limit of this subspecies' range is unclear due to a sampling gap. Therefore, research into the subspecies within the region will provide important information to assist with scoping the Threat Abatement Program and defining management actions to be undertaken.

Objectives of the research will be to address key data gaps about the species distribution and habitat, and address the following specific recovery actions identified in the Conservation Advice:

- Improve understanding of the presence and distribution of Northern Blue-tongued Skinks at their eastern limit. A survey program will be developed and targeted surveys conducted aimed to detect and record the Northern Blue-tongued Skink. Surveys will occur in proximity of the Project where records were observed, as well as in the vicinity of other more contemporary records in Cloncurry and Mount Isa regions. Land access will need to be granted from landholders for these surveys to occur.

- Detect subpopulations that are resilient to cane toads in impacted areas and supporting them to recover. Once subpopulations are confirmed, further studies and monitoring would be carried out to determine the presence of cane toads, the density of cane toads in proximity to the individual and/or population, and level of interaction that may be occurring.

- Better understand and document broad habitat types and microhabitats required by Northern Blue-tongued Skinks at their eastern limit in Queensland. By understanding their habitat needs, this will allow their likely distribution to be mapped more accurately and for their habitats to be better managed and conserved. Habitat information will be obtained through conducting vegetation surveys to confirm regional ecosystems (REs) present, and BioCondition surveys and habitat assessments to document the microhabitat attributes in these locations such as grass cover, shrub cover, leaf litter, woody debris and so forth.

- Aim to establish an eDNA barcode in the event of successful identification of individuals during targeted surveys to support future survey work and conservation efforts.

- Share outcomes from targeted surveys and monitoring programs among recovery partners, to increase the capacity for adaptive learning and collaboration.

- Continue to implement standardised long-term population monitoring programs to better understand the long-term impact of cane toads, assess viability of subpopulations, and detect recovery. These continued monitoring programs will be supported by the Stage 2 offset package.

- Involve relevant Traditional Owners through a funded ranger program and build capacity for them to participate in monitoring. This will occur through the capacity building component of the Stage 1 and Stage 2 offset package.

Funding for the 5-year research program will be fully provided by the Stage 1 financial offset.

The 5-year program will be coordinated by Southern Gulf NRM and will include time to select an appropriate research partner and develop a detailed research and monitoring program scope in Year 1, undertake research between Years 2 and 4, and in Year 5 finalise and publish a research paper. Southern Gulf NRM will be responsible for establishing a connection with a suitable research partner, and co-ordination of the program and timing. It is proposed the targeted surveys, and research will initially focus on land around the Action Area and surrounding Cloncurry and Mount Isa regions which is also where contemporary records have been observed. The threat abatement program will integrate the learnings from this research and monitoring to its planned scope and actions, to maximise conservation outcomes that can be achieved both in short and long term.

Presence and activity of Cane Toads will be recorded in areas where Northern Blue-tongued Skink is detected to monitor co-habitation, and permanent monitoring sites will be established where records have been confirmed to track Northern Blue-tongued Skink populations over time. The Conservation Advice notes that Cane Toads are the greatest threat to the long-term persistence of the subspecies. With no viable options to stop ongoing spread of Cane Toads, the primary conservation objective of the Conservation Advice is to detect subpopulations that are resilient to Cane Toads and support them to recover, which will be a focus of the species research program.

Progress reports will be issued to NEPA annually throughout the course of the research and monitoring program. A final report will be delivered in Year 5 after completion of the research in Year 4. The report will be made publicly available on ECMPL's website, Southern Gulf NRM's website and a free to access scientific publication.

The outcomes from this research will deliver tangible and long-term conservation benefits for the Northern Blue-tongued Skink including more accurate records as to where the subspecies is occurring at its eastern limit, its habitat requirements through vegetation surveys and BioCondition assessments so these can be better managed, and assessment as to whether any of these remnant subpopulations are resilient to cane toads. Collectively, this understanding will deliver an improved ability to protect and manage threatening processes to these known populations and monitoring these populations over time.

5.3.2 Threat Abatement Program

ECMPL will engage Southern Gulf NRM to develop and implement a Threat Abatement Program based on the threats identified in the Conservation Advice for the subspecies and drawing on the results of the Species Research Program outlined in Section 5.3.1, ensuring direct and tangible benefits for the Northern Blue-tongued Skink.

The threat abatement work will occur outside the Action Area on properties where Northern Blue-tongued Skink has been confirmed as part of the species research program or through other verified records. Specific properties are not yet known; however, a preference will be given to traditional lands of the Kalkadoon People and local region of the Project. The target area over which the threat abatement actions will occur will be a minimum of 1,500 ha which is the offset area that was derived through application of the OAG (refer Section 5.2).

The activities proposed as part of the Threat Abatement Program will support efforts for the further identification of Northern Blue-tongued Skink populations at their eastern limit, a reduction of predation on individuals, and an improvement in condition of habitat. This further addresses the knowledge gap in species' distribution at their eastern limit, increases management intensity for introduced animals and will aid in maintaining habitat integrity and connectivity among remnant subpopulations to support recovery and expansion; all of which are conservation and recovery objectives from the Conservation Advice for this species.

The toolkit of threat abatement measures targeting known threats to the Northern Blue-tongued Skink will include:

- feral cat control
- feral pig control
- wild dog control
- fire management including cool, mosaic burning
- fencing off riparian areas from livestock and installation of off-stream water points.

Implementation of the Threat Abatement Program will consist of the following:

1. Based on results of the targeted species research program and local knowledge, Southern Gulf NRM will identify suitable properties that are known or likely to support the Northern Blue-tongued Skink and where threat abatement actions could occur.

2. Southern Gulf NRM will engage with those landholders to gauge interest in participation in the program, discuss incentives they would receive, and threat abatement actions that could be delivered.

3. Surveys will occur to assess habitat suitability, pest species present and densities. Once properties are validated as suitable, further engagement will occur with the landholder to agree on the suite of threat abatement measures identified in the toolkit to be applied and contract arrangements. This may include one or all measures listed based on property needs and landholder agreement.

4. A property threat abatement plan will be prepared, including setting out of the timeframe over which works are agreed to occur and set performance criteria to be achieved as a result of the management actions being taken.

Funding for a Pilot Program which will deliver threat abatement activities at a select property/properties for a total duration of four years will be fully provided by the Stage 1 financial offset. The Pilot Program will target a smaller area where management actions can be trialled.

At the conclusion of the Pilot Program, a review of the Threat Abatement Program will be undertaken. This will enable an assessment of the threat abatement actions that have occurred within the Pilot Program, the outcomes achieved and understanding of challenges experienced. Learnings will then be applied to the next phase of the program supporting continued and expanded roll-out. Further details of this adaptive management approach are outlined in Section 6.3. This pause-point also allows for future program phases to further incorporate the outcomes of the species research program which is completed by Year 5.

Future funding from the Stage 2 Referral offset will support expanded implementation of the Threat Abatement Program beyond the Pilot Program across the full extent of identified properties and for the for its full-term duration. The Threat Abatement Program will include a minimum of 10 years' total active abatement with subsequent maintenance and monitoring. The longer-term program implementation will be supported by capacity building initiatives conducted with landholders and land managers and through the ranger program upskilling, both delivered by the Capacity Building Program discussed in Section 5.3.3.

Engagement with landholders, obtaining their support to access the property, and their participation in the Threat Abatement Program will be critical to its success. Southern Gulf NRM will lead this landholder engagement due to their experience and relationships built in the local community. It may take a number of months and property visits to obtain a landholder's support for threat abatement actions to be carried out on their land, finalise the suite of actions that will be carried out, and enter into a contractual agreement. There may be some landholders who decide not to proceed. Therefore, adequate time is required to secure suitable properties prior to on-ground threat abatement actions occurring.

Landholders will be supported both financially and with skilled resources from Southern Gulf NRM to allow use of their property in the offset programs and carry out agreed actions that may include pest animal management, fencing of riparian areas from cattle and/or conduct proactive early dry season mosaic burns. As a result of implementing these threat abatement actions across a number of properties over the duration of the program, landholders' capacity and knowledge will be increased, and work practice changes will occur resulting in compounded long term conservation improvements.

The Threat Abatement Program activities will have benefits to other species who occupy or utilise the improved habitat. Other MNES species that will benefit from these threat abatement actions are discussed in Section 6.4.1 and broader benefits discussed in Section 6.2.

Specifically, the full remit of this program will:

- identify and on-board participating properties, prioritising sites where the subspecies is known or likely to occur and suitable habitat is present
- conduct supporting surveys to inform development of property-scale Threat Abatement Plans, including to establish baseline conditions that can be monitored against, and carry out future monitoring of Northern Blue-tongued Skink populations, pest species and habitat quality over time
- carry out a range of threat abatement actions that will deliver conservation outcomes for the subspecies including a reduction in predation on the subspecies, improvement in condition of habitat and reduced mortality risk from hot bushfires
- deliver practice change and capacity building for landholders and Traditional Owners that can continue beyond the scope (time and scale) of the offset
- include progress reporting during the Pilot Program and thereafter the full-term program delivery, of properties participating in the threat abatement program, works carried out, results of the program over time, monitoring results and learnings that can be built on.

5.3.3 Capacity building and community engagement

Capacity building, community engagement and raising awareness will be delivered through three complementary initiatives executed in tandem. The three initiatives have been developed in line with the recommended stakeholder and community engagement conservation and recovery actions for the Northern Blue-tongued Skink (DCCEEW 2023).

The first will support to a Traditional Owner Ranger Program where participation may occur across monitoring, threat abatement actions and mitigation and land management measures occurring in the Action Area. Capacity building may include training, employment, ensuring access to the right equipment and field-based participation. Through this capacity building, Traditional Owners will be upskilled, supporting opportunity to continue on with a range of land management activities into the future.

The second will deliver a community education and citizen science program in the Southern Gulf NRM areas to raise awareness of Northern Blue-tongued Skink and encourage incidental detections to be reported with supporting photographs and key details through a dedicated platform such as iNaturalist. Uploaded observations can then be validated by a suitably experienced ecologist, and these records will be used to help identify properties for the Threat Abatement Program and/or Research and Monitoring Program. Validated records can also be put into WildNet to ensure they inform future government decision making and regional planning.

The third stream facilitates capacity building with landholders and land managers who become involved in the Threat Abatement Program. They will receive training and develop an improved understanding and experience in sustainable land management practices including pest animal control, fire management and grazing management. These learnings will then be carried through into practice changes delivering a longer-term benefit for Northern Blue-tongued Skink.

Further activities that could be implemented as part of the Capacity Building and Community Engagement Program, include facilitating community engagement activities and field days for landholders in the broader region to raise awareness of the Northern Blue-tongued Skink and other threatened species in this region, and actions they can take to support species conservation.

Funding for the first five years' capacity building and community engagement programs will be fully provided by the Stage 1 financial offset. Continuity and growth of the three initiatives will be supported by the Stage 2 Referral offset, with this program running for a full 20-year duration.

5.3.4 Offset Strategy delivery

Delivery of the Offset Strategy in its entirety is illustrated by Figure 5.2. The Stage 1 Offset Action Plan components of this Offset Strategy are detailed Section 6.1.

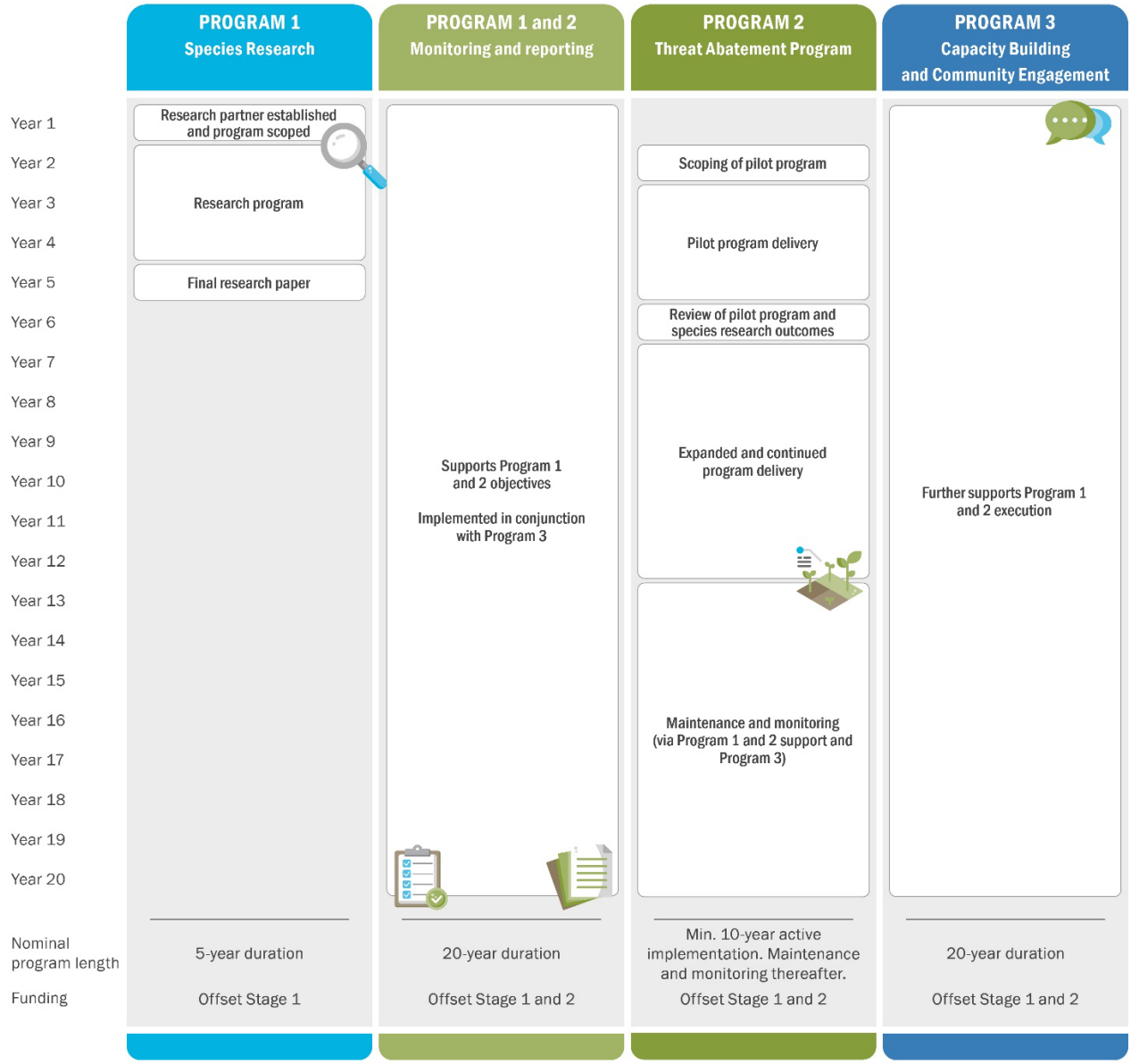

Figure 5.2 Offset Strategy outlook

6 Offset Action Plan Framework

6.1 Stage 1 Offset Action Plan

Details of the actions that will be implemented by the Stage 1 Offset Action Plan are provided in Table 6.1. This also presents key performance outcomes, timing, and roles and responsibilities. Continued implementation and growth opportunities beyond the Stage 1 Offset Action Plan are also presented.

The Stage 1 Offset Action Plan actions are in line with objectives of the Northern Blue-tongued Skink Conservation Advice (DCEEW 2023), the EPBC Act EOP, Commonwealth and regional NRM management strategies and have been informed by preliminary scoping and costings developed in consultation with Southern Gulf NRM.

As described in Section 5.3, the Stage 1 financial offset will provide for:

- the full 5-year Species Research Program
- the scoping, delivery and review of the pilot phase of the Threat Abatement Program
- the initial five years of costs associated with additional monitoring scopes, Capacity Building and Community Engagement Programs, and reporting in relation to the Offset Strategy.

Table 6.1 Stage 1 Offset Action Plan

Offset Package Component	Species Research and Monitoring Program	Threat Abatement Program	Capacity Building & Community Engagement Program
Key Performance Outcomes	Identification of Northern Blue-tongued Skink remnant subpopulations at their eastern limit, supporting future recovery actions and long-term monitoring. Improved understanding and recording of the species' distribution, population dynamics, micro-habitat requirements, and co-existence patterns with cane toads to inform the Threat Abatement Program. Knowledge gaps in Northern Blue-tongued Skink ecology reduced Long-term population monitoring programs established to better understand the long-term impact of Cane Toads, assess viability of subpopulations, and detect recovery.	Reduced pressure from key threatening processes to support maintenance and/or increase in Northern Blue-tongued Skink remnant subpopulations, where confirmed through research program, other monitoring events or validated record. Identification of Northern Blue-tongued Skink remnant subpopulations at their eastern limit, supporting future recovery actions and long-term monitoring. Improved habitat quality and functioning, supporting Northern Blue-tongued Skink persistence and opportunity for recovery. Collateral threat abatement and habitat improvement outcomes for other threatened species with co-habitat requirements including Mertens Water Monitor.	Capacity building has occurred across landholders and Traditional Owners in both their skills to implement land management practices including pest animal control and appropriate fire regimes, monitoring techniques, and knowledge of natural resource management that will have long lasting benefits. Improved awareness across the broader community of the Northern Blue-tongued Skink and resources provided to enable increased reporting of incidental detections of the subspecies, with corroborating photos, to relevant land custodians, owners, and managers. Improved likelihood that remnant subpopulations are identified allowing for their presence to be known, their habitats to be protected and enhanced through future conservation and land management actions.
Indicative funding allocation (Stage 1 financial offset)	$650,000	$1,200,000	$565,635
	Further $1,100,000 in species monitoring shared across species research and threat abatement programs		
Performance Objectives	Complete a collaborative research program with a suitable research partner that improves knowledge for the Northern Blue-tongued Skink and supports its conservation where data gaps occur at their eastern distribution Targeted surveys conducted to detect subpopulations of the subspecies and understand habitat values. Cane Toad cohabitation will be assessed. Findings used to support Threat Abatement Program to ensure best outcomes for the subspecies. Traditional Owners will have opportunities to support long-term monitoring programs and capacity building will occur through involvement in research activity.	Implement threat abatement programs that will reduce the impact of high-risk threats on the Northern Blue-tongued Skink. A toolkit of threats to be managed and reduced will include: • feral cat and feral pig control • wild dog control • fire management • exclusion of cattle from riparian areas. Pilot Program property/properties will be within areas that support suitable habitat for the Northern Blue-tongued Skink and are likely to support populations, determined through preliminary findings from the Species Research Program, validated observations, desktop assessments and other targeted surveys. The first phase will have a focus in proximity to the Action Area and surrounds. Ultimate Threat Abatement Program to support activities over an area consistent with or greater than the 1,500 ha offset area required to compensate for the Stage 1 impacts based on the EPBC OAG calculator. Pilot Program will be a smaller subset. Landholders will be engaged and supported financially to deliver a bespoke suite of threat abatement activities, increasing their knowledge and skills in these areas to enable the conservation gains to be maintained in long term. Landholders will decide on which one action, or combination of actions, will be implemented on their property. Traditional Owners will have opportunities to be involved, and capacity building will occur through delivery of these threat abatement actions.	Support Traditional Owner Ranger programs to build capacity and skills to become involved in land management and conservation programs in the region. Implement a targeted community education program in the Mount Isa and Cloncurry regions to raise awareness of Northern Blue-tongued Skink and its threats. Encourage incidental detections to be reported with supporting photographs through a citizen science platform such as iNaturalist. Also report on Cane Toads particularly in areas they are not known to occur. Build capacity with landholders participating in the Threat Abatement Program and more broadly through running field days and community engagement activities to enable practice changes to occur that will deliver long lasting improvements for Northern Blue-tongued Skink habitats and reduced threats to populations.
Tasks	Establish partnership program with Southern Gulf NRM which will: • identify and engage a research partner in Year 1 • develop a Research Plan and Monitoring Program in Year 1 • identify landholders willing to provide access for at least duration of research program • undertake targeted surveys and habitat assessments to improve understanding of subspecies presence and distribution at its eastern limit and, habitat requirements establish eDNA barcode in the event of successful identification of individual during targeted surveys to support future survey work and conservation efforts • identify critical habitat and microhabitat attributes so occupied habitats are better understood, can be mapped more accurately in the Queensland context, and support future planning and conservation programs • record presence and activity of Cane Toads in areas where subspecies is detected to monitor co-habitation (Do Cane Toads result in a decline in species numbers, or are Northern Blue-tongued Skinks resilient to Cane Toads in that area?)	Establish partnership program with Southern Gulf NRM who will: • scope the Pilot Program in Year 2, guided by the Species Research Program findings • identify properties where the Northen Blue-tongued Skink is known to occur or has a high likelihood of occurrence for participation in the Pilot Program which supports the enhancement of habitat and reduction of threats • conduct supporting surveys, including baseline surveys, to inform development of property-specific Threat Abatement Plan for the Pilot Program and secure landholder agreements for the Pilot Program properties in Year 3 • commence implementation of the Pilot Program property-specific actions as outlined in the Threat Abatement Plan in Year 3 and continue management actions and monitoring for a further three years • complete a review of Pilot Program actions, outcomes and learnings in Year 6 Beyond Stage 1 Action Plan: • progress implementation of future stages of the Threat Abatement Program, inclusive of monitoring and reporting, for the balance of full-term duration and full 1,500 ha • seek to involve relevant Traditional Owners in delivery.	• ECMPL will support and provide funding to a Traditional Owner Ranger program and look to assist ranger involvement in threat abatement activities and monitoring as well as programs delivered within the Action Area. • ECMPL through Southern Gulf NRM will provide funding to landholders to improve their skills and undertake training in land management practices and deliver threat abatement actions on their property. • Establish and promote an iNaturalist Project to collate and verify Northern Blue-tongued Skink records. This will improve understanding of species distribution and presence of populations across a broader region. • Establish a preferred platform to encourage members of the community to report cane toad observations in certain regions where they are low in numbers or not known to be present to be reported. • Deliver community engagement activities and share project outcomes to maintain participation and interest.

Offset Package Component	Species Research and Monitoring Program	Threat Abatement Program	Capacity Building & Community Engagement Program
	Further to targeted research program: • Implement standardised long-term population monitoring programs to better understand the long-term impact of Cane Toads, assess viability of subpopulations, and detect recovery • Seek to involve relevant Traditional Owners in monitoring activities.		
Timing	Targeted research program delivery: Year 1: Selection of appropriate research partner/s and development of detailed research and monitoring program to be submitted to NEPA Years 2–4: implementation of research and monitoring program Year 5: finalisation of research paper and publish online. Beyond Stage 1 Action Plan: • Long-term monitoring continues for 20-year full term, supporting Threat Abatement Program objectives	Pilot Program delivery: Years 2 to 6: Pilot Program inclusive of quantified baseline surveys, landholder engagement and agreements and implementation of property specific Threat Abatement Plans followed by Pilot Program review Beyond Stage 1 Action Plan: • Subsequent scoping and delivery of additional Threat Abatement Programs inclusive of monitoring and reporting activities. • Periodic reports to be submitted to NEPA and published on ECMPL and NRM websites. • Minimum 10 -years of active threat abatement across pilot program and subsequent stage(s) with additional maintenance and monitoring thereafter.	Initial 5-years supportive of monitoring activities and Threat Abatement pilot program delivery Year 1: iNaturalist Project established and launched by Southern Gulf NRM/ECMPL. Establishment of preferred platform to record cane toad observations. Identify schools/community groups/events to deliver workshops and develop schedule for engagement. Years 2–5: Launch iNaturalist Project and engagement workshops. Years 2–5: Deliver funding and training to traditional owners and landholders participating in the programs. Beyond Stage 1 Action Plan: • Year 6 onward for 20-year full term: Scope ongoing capacity building aligned with expansion of Threat Abatement Program beyond Pilot Program delivery
Pre-Commencement Commitments	Prior to commencement of the Stage 1 Referral Action, ECMPL will provide written certification from an authorised officer confirming that the Stage 1 financial offset funding for the Species Research and Monitoring Program has been approved. Procurement of the research partnership to commence following commencement of the Stage 1 Referral Action.	Prior to commencement of the Stage 1 Referral Action, ECMPL will provide written certification from an authorised officer confirming that the Stage 1 financial offset funding for the Pilot Program package has been approved. Heads of Agreement (or similar suitable instrument) with Southern Gulf NRM executed.	Prior to commencement of the Stage 1 Referral Action, ECMPL will provide written certification from an authorised officer confirming that the Stage 1 financial offset funding for the Capacity Building and Community Engagement Program has been approved.
Roles and Responsibilities	Research partner to lead, coordinated by Southern Gulf NRM with program oversight by ECMPL. Southern Gulf NRM will be responsible for establishing connection with suitable research partner, and co-ordination of project and timing.	Southern Gulf NRM as main delivery partner to prepare and implement the Pilot Program with oversight by ECMPL.	ECMPL, Southern Gulf NRM, applicable local governments with program oversight by ECMPL
Continuity beyond Stage 1 Action Plan (ongoing implementation and pipeline opportunities supported by Stage 2 Referral)	Ongoing population monitoring for identified populations of Northern Blue-tongued Skink. Use learnings from this research and population monitoring to inform future recovery actions and incorporate data into regional planning (by others).	Continuation of program implementation informed by outcomes of the Pilot Program and Species Research Program, including opportunity to expand footprints and integrate additional threat abatement opportunities (e.g. cane toad abatement, grazing pressures). Publish monitoring outcomes which can be used to target future investment in priority habitat areas and collaborate with other mining companies and projects linked to the North West Critical Minerals Province.	Build longer-term partnerships and capacity building and training for Traditional Owners, landholders and broader community.
Conservation gain measures and completion criteria	Success will be measured by the following: • Research Plan and Monitoring Program is finalised and approved by end of Year 1 and commenced implementation by start of Year 2. • Remnant subpopulations are surveyed to confirm presence/absence, extent of their occurrence, population dynamics and habitat requirements. • Relationship with cane toads and impact cane toads may be having on populations in region is better understood. • Monitoring sites are established. • Established eDNA barcode for Northern Blue-tongued Skink. • Final report is publicly available the year after completion of three-year research project.	Success will be measured by the following: • Pilot Program scoped by end of Year 2. • Commencement of initial threat abatement actions on Pilot Program property/properties in Year 3. • Continuation of threat abatement actions for Pilot Program in Years 4, 5 and 6. • Monitoring data in Year 6 shows evidence of a measurable reduction in feral animal activity index against baseline surveys which in turn reduces the predation pressure on the Northern Blue-tongued Skink. • Knowledge of habitat occupancy for Northern Blue-tongued Skink increased through monitoring. • Knowledge of effectiveness of threat abatement actions improved through monitoring. • Where agreed, riparian zones are fenced off from cattle to reduce direct impacts on Northern Blue-tongued Skink refuge habitat and monitoring shows improvements to vegetation condition and creek banks.	Success will be measured by the following: • Traditional Owner Ranger participation and training days completed across a range of offset activities. • Landholder participation and training days completed across a range of threat abatement measures. • Establishment and use of the iNaturalist project to record sightings of Northern Blue-tongued Skink by broader community and landholders. • Increased awareness from broader community in Mount Isa and Cloncurry local government areas of Northern Blue-tongued Skink through attendance at community events. • Increase in capacity, understanding and skills of landholders whose properties support the subspecies populations via participation in threat abatement program.

6.2 Monitoring and reporting

6.2.1 Monitoring

This section outlines the monitoring that will be implemented to evaluate the progress and overall success of the conservation measures and actions that are described in this Offset Strategy, and track the Stage 1 Offset Action Plan objectives against the relevant completion criteria for each offset stream (Section 6.1).

The Research and Monitoring Program will outline the targeted survey methods and monitoring approaches that will be applied to detect remnant subpopulations of the species, as well as monitor changes in populations over time. Species monitoring will continue beyond the five year research program for the full 20-year term consistent with the planned duration of other Offset Strategy programs to ensure long-term data is obtained, knowledge gaps continued to be addressed and information shared.

Monitoring methods specific to threat abatement will be developed as part of the overarching Threat Abatement Plan and property specific plans so they are tailored to the management actions being carried out on that property and the baseline information. Monitoring to evaluate success of pest control for example would include remote cameras being put out to detect the changes in presence of pest animals at the same locations and time of year to allow comparisons from a baseline. Measuring changes to habitat including riparian vegetation and bank condition would be done through BioCondition transects and permanent photo monitoring points.

Monitoring methods and frequency will be tailored to the action being undertaken. Monitoring may also include audits which are commissioned by ECMPL to track progress of tasks over course of the Offset Strategy and range of programs.

Monitoring will assist to determine:

- the progress of tasks against the timeframes in which they were assigned
- any changes to presence and/or distribution of Northern Blue-tongued Skink populations detected as part of the targeted species research and ongoing monitoring program
- effectiveness of threat abatement activities including if a decline has occurred in presence and abundance of pest animals, improvement in riparian bank condition from exclusion of livestock or changed fire regimes have improved vegetation condition
- participation in capacity building and community engagement programs
- success of citizen science initiatives including number of sightings registered
- incidents, non-compliances and contingency measures.

An adaptive management approach informed by the results of the monitoring and reporting will be used to ensure that learnings acquired throughout the delivery of the programs are applied on an ongoing basis. This is outlined in Section 6.3.

6.2.2 Reporting

Annual progress reports will be delivered to NEPA by ECMPL over the duration of the Offset Strategy implementation. Progress reports will summarise actions implemented in that reporting period, any issues or corrective actions that may have been applied, monitoring actions and outcomes for that reporting period, and progress of deliverables as set out in the Action Plan Framework across all three programs (Section 6.1). Southern Gulf NRM and any other engaged contractors will also contribute information to the annual progress reports.

Additional reporting deliverables under this Stage 1 Offset Strategy include:

- Northern Blue-tongued Skink Research and Monitoring Program
- Research Paper
- Property specific Threat Abatement Plan(s) for the Pilot Program
- Evaluation report on Pilot Program
- Monitoring reports.

6.3 Adaptive management

An adaptive implementation program will be used to ensure uncertainty is reduced over time and that learnings acquired through program delivery and monitoring inform future phases and improvements to execution.

At the completion of Year 6, a program review will be undertaken by key stakeholders including ECMPL and Southern Gulf NRM to ensure the offset actions are on track to achieving the performance outcomes, there is program effectiveness and efficiencies, and ensure any key learnings are applied to adapt the program accordingly for future phases. In particular the information obtained through implementation of the Research and Monitoring Program will inform the Threat Abatement Pilot Program, and that of the expanded roll out following completion of the final research paper.

On a more regular basis as information becomes available from ongoing monitoring and progress reports, other routine reviews of the proposed offset measures will be carried out, and revised or built upon to maximise the conservation outcomes able to be achieved. Southern Gulf NRM and ECMPL will also have regular progress meetings to discuss progress of the offset strategy and action any identified issues.

If material amendments are identified which are likely to alter the environmental outcomes or performance and completion criteria defined, amendments and justification for the contingency measures will be provided to NEPA in writing for review and approval.

6.4 Additional benefits

6.4.1 Benefit to other MNES

The Offset Strategy is likely to benefit a number of additional MNES as detailed in Table 6.2.

Table 6.2 Benefits of the offset programs to other MNES

MNES benefited by the offset programs	Threat Abatement Program	Species Research Program	Capacity Building and Community Engagement Program
Carpentarian Grasswren (*Amytornis dorotheae*) - Endangered	• Feral cat control will reduce predation pressure on adults, juveniles and nests of this ground-dwelling bird • Fire management will improve the extent and persistence of long-unburnt spinifex habitat required by the species and can promote a mosaic of habitat ages • Feral pig and wild dog control may reduce disturbance to habitat and ground nests	• Targeted surveys for Northern Blue-tongued Skink may record incidental observations of Carpentarian Grasswren and inform where habitat requirements overlap with the skink • Survey planning and habitat assessments may help identify areas where fire management and pest	• Increased regional awareness of threatened species promotes broader biodiversity conservation outcomes • Community awareness and landholder engagement may increase reporting of other MNES and key habitat like potential nesting sites, and key threats

MNES benefited by the offset programs	Threat Abatement Program	Species Research Program	Capacity Building and Community Engagement Program
	• Cattle exclusion reduces trampling and degradation of refugia habitat and maintains ground layer structure	animal control could also support Carpentarian Grasswren recovery priorities.	• Capacity building in fire, grazing and pest animal management will support landscape-scale habitat condition improvements
Merten's Water Monitor (*Varanus mertensi*) - Endangered	• Exclusion of cattle from riparian areas directly benefits the Merten's Water Monitor by improving condition of the riparian and aquatic habitat the species depends on (reducing bank erosion, sedimentation and vegetation lost) • Feral pig control will reduce damage to riparian areas and may reduce disturbance of nesting areas • Fire management will aid in protection of riparian habitat and reduce intense fires on refuge habitat	• Improved reporting of Cane Toad occurrences assists understanding of invasion fronts and potential impacts on Mertens' Water Monitor populations • Targeted surveys and habitat assessments near riparian systems may record incidental observations of Mertens' Water Monitor and relevant habitat attributes, including bank condition, aquatic refuge habitat and disturbance from livestock or feral pigs	
Other species such as Grey Falcon, Plains Death Adder, Forktailed Swift and Painted Honeyeater, and *Dichanthium setosum*	• Feral cat control will reduce predation pressure on small ground-dwelling mammals that are prey for species such as Grey Falcon • Fire management that reduces the risk of extensive, high-intensity wildfire, and maintaining mosaics of different burn intervals, including areas longer unburnt, will assist to maintain ground cover and shelter resources important for threatened small mammals and supports prey species for other threatened species • Exclusion of cattle from riparian areas improves condition of the riparian and aquatic habitats (reducing bank erosion, sedimentation and vegetation lost) • Grazing and fire management additionally promote complexity of groundcover, supporting populations of native grasses as well as supporting insect assemblages providing important foraging resources for many species • Feral cat and feral pig control is likely to support broader prey availability for Grey Falcon and reduce disturbance to riparian and woodland habitats used by a range of native fauna • Feral pig control is likely to reduce habitat disturbance and competition for food resources in riparian and woodland habitats	• Incidental records collected during targeted surveys will improve understanding of threatened fauna occurrence on participating properties where cracking clay and grassland habitats are present • Recording cane toad presence will provide useful contextual information for other species at risk	

6.4.2 Broader environmental benefits

The Offset Strategy is expected to deliver broader environmental benefits beyond targeted outcomes for the Northern Blue-tongued Skink by improving the condition, resilience and ecological function of landscapes in the Cloncurry and broader Southern Gulf region. Threat abatement activities such as feral pig, feral cat and wild dog control, improved fire management and the exclusion of livestock from priority riparian areas will reduce pressure on native fauna, improve ground-layer and riparian vegetation condition, reduce soil disturbance, erosion and sedimentation, and help maintain habitat connectivity across participating properties. These actions will also support improved waterway condition, more stable riparian systems, reduced weed and pest animal impacts, and greater landscape resilience to natural disasters and seasonal disturbance. The reduction of extensive hot fires in the late dry season also prevents the onset of wet season rains causing excess water run-off which leads to increased waterway sedimentation.

When combined with landholder engagement and Traditional Owner participation the program will contribute to long-term natural resource management outcomes that extend beyond individual properties and support broader biodiversity conservation across north-west Queensland.

6.4.3 Social and economic co-benefits

Additional social and economic co-benefits of the proposed Offset Strategy include:

- supporting the delivery of locally led conservation actions through employment, training & development
- retaining skilled workers in the region
- supporting local engagement and collaboration with land managers, Traditional Owners, NRM, government, researchers and industry
- utilising local knowledge and knowledge sharing.

6.4.4 Benefits in-kind

Partnering with Southern Gulf NRM provides significant in-kind value through their expertise, regional knowledge, and established relationships that already support the successful delivery of conservation outcomes in the region.

Southern Gulf NRM can provide proven experience and knowledge in working collaboratively across local, state and Commonwealth governments to develop, implement, monitor, evaluate and report on conservation programs. This experience has been demonstrated through the successful delivery and coordination of endangered species offset projects including the Carpentarian Grasswren (*Amytornis dorotheae*) and the Julia Creek Dunnart *(Sminthopsis douglasi*), and conservation projects for the Largetooth Sawfish *(Pristis pristis*) and the Gulf Snapping Turtle (*Elseya lavarackorum*) that deliver mitigation actions including fire management, and Feral Cat and Feral Pig control. Additionally, they have developed in collaboration with external stakeholders, the North West Regional Biosecurity Plan 2022–2027 and the Southern Gulf Regional NRM Plan 2022–2032, and each quarter, facilitate the Regional Pest and Weeds Taskforce meetings.

Working in conjunction with local land managers will provide their time and on-ground knowledge as in-kind contributions to the project planning, implementation and evaluation components.

In addition to project delivery, Southern Gulf NRM provides access to a well-established network of landholders, industry experts, government departments and research institutions. These partnerships include organisations such as the Invasive Species Council, CSIRO, James Cook University (JCU) and Queensland University of Technology (QUT), enabling projects to draw on the latest scientific knowledge, technical advice and best-practice management approaches.

6.5 Conformance with EPBC Environmental Offsets Policy

The conformance of the proposed offset strategy and specific offset actions with the EPBC Act Environmental Offsets Policy is outlined in Table 6.3.

Table 6.3 Assessment against principles of the EPBC Act EOP

Principles under the EOP	How this Offset Strategy aligns
Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environmental law and affected by the proposed action	The proposed Offset Strategy and supporting Stage 1 Offset Action Plan will deliver an overall conservation outcome that improves the viability of Northern Blue-tongued Skink populations which occur at their eastern range. Contemporary records of Northern Blue-tongued Skink in the Action Area and south-east of Cloncurry have confirmed that there is likely to be remnant sub-populations still persisting at this eastern limit of their range but the population numbers, their distribution, and long-term viability particularly with presence of cane toads, is not known. Lack of records does not necessarily reflect true absence, the scarcity of records may be due to a lack of targeted survey effort for the Northern Blue-tongued Skink in the region, but also a lack of awareness in the broader community and with landholders of this Critically Endangered species. The subspecies, without appropriate field identification tools, could be mistaken for the more common Centralian and Eastern subspecies, which may lead to low detection probability. Current lack of records for the region, and lack of information on habitat requirements in the Queensland context support the need for research and targeted surveys to identify populations and map species distribution more accurately. This would have important implications for the success of future management and biodiversity offsetting for the species. The offset strategy will improve the viability for the Northern Blue-tongued Skink by the following: • Conducting targeted surveys to identify remnant subpopulations that are present in local region of Cloncurry and Mount Isa which is a recognised data gap. • Collecting data on preferred habitats and microhabitats in the Queensland context which is a data gap. This will lead to more accurate habitat mapping for the species which can then be used in context of regional planning and future impact assessments Improving understanding of threats, particularly presence of subpopulations that are occurring in proximity to cane toads and their potential resilience to cane toads. • By filling this knowledge gap about the presence and distribution at its eastern limit more informed decisions can be made for the species future conservation including mapping of populations and their suitable habitats across the region, inform future decision making on regional planning and help to prioritise properties to engage with landholders and provide incentives including financial support to undertake threat abatement programs. • Reducing pest animal impacts on Northern Blue-tongued Skink. • Improving ecological condition of Northern Blue-tongued Skink refuge and dispersal habitats by reducing presence of feral pigs, implementing suitable fire management regimes, and removal of cattle from riparian zones. If these offset actions were not undertaken, there would continue to be a lack of awareness of where the subspecies occurs and threatening processes will continue putting further pressure on these remnant subpopulations.
Suitable offsets must be built around direct offsets but may include other compensatory measures	The Offset Strategy is based on compensatory measures which consist of threat abatement, research and monitoring, and capacity building and community awareness and education. All three offset programs will support each other; learnings will be shared across the Project broadly and are designed so that they can be built on in future stages. The combination of actions proposed are addressing the key threatening processes and recommended recovery actions in the Conservation Advice and will deliver a conservation gain for the Northern Blue-tongued Skink.

Principles under the EOP	How this Offset Strategy aligns
	Similar to a direct, land based offset, the threat abatement actions will result in a reduction of threats and improved habitat quality for the subspecies over at least the same area that would be required for a 100% land based offset. In addition, the Offset Strategy provides for targeted species research and training and capacity building including for traditional owners. These measures will be carried out in a phased manner with the conservation gains made on those properties maintained for 20 years and can then be continued beyond through the capacity building that has occurred with Southern Gulf NRM, landholders and traditional owners. Due to a significant lack of knowledge as to where Northern Blue-tongued Skink subpopulations occur in this region, population dynamics and habitat extents, a typical land based offset is not considered to address the priority actions which are needed at this time. If we don't know where the Northern Blue-tongued Skink is occurring at its eastern limit of distribution, then we can't effectively conserve it. Improving our understanding of where the species is present, population dynamics, its habitat needs and addressing threats are priority actions.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter	The Northern Blue-tongued Skink is Critically Endangered under EPBC Act. In developing the Stage 1 Offset Strategy, an EPBC Act Offset Assessment Guide was prepared to understand the potential scale of land based offset that may be required which takes into account its listing status and area of impact. Further details are provided in Section 5.2.1 on costing benchmarks that, alongside program scoping, have informed the Stage 1 financial offset quantum. This offset strategy has also been informed through consultation with NEPA and Southern Gulf NRM.
Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter	The significant, residual impact to Northern Blue-tongued Skink being offset for Stage 1 is 91.4 ha which related to the area of Critical Habitat impacted and which underpins the Significant Impact outcome. In developing the Stage 1 Offset Strategy an EPBC Act Offset Assessment Guide was prepared to understand the potential scale of land based offset and associated budget that may be required which takes into account its listing status and area of impact. Further details are provided in Section 5.2.1. ECMPL has considered this costing benchmark in defining the offset programs and actions as set out in the Offset Action Plan (Table 6.1) The proposed Offset Strategy and supporting Action Plan are, therefore, of a suitable scale and nature when considering the extent of impacts. The Offset Strategy prioritises actions that are consistent with Conservation Advice, addresses key knowledge gaps and reduces threats to ensure a tangible and meaningful conservation benefit is achieved. Stage 1 will also be built on by Stage 2 as summarised in Table 6.1, adding to the continuing, maturity and scale of the offset programs. Threat abatement actions will occur over at least 1,500 ha, being the offset area required under OAG for Stage 1 impacts. Minimum 10 years of active threat abatement across pilot program and subsequent stage(s) with additional maintenance and monitoring thereafter. Through capacity building and training of landholders and traditional owners over the duration of the Offset Strategy delivery, this will then ensure enduring benefits. The Stage 1 Offset Strategy has also been informed through consultation with NEPA and Southern Gulf NRM.
Suitable offsets must effectively account for and manage the risks of the offset not succeeding	Risks in the delivery of the Offset Strategy programs have been considered and relevant mitigation measures have been included. A risk assessment identifying risks and corrective actions is provided in Section 7. Risks have been reduced through the following: • Engaging Southern Gulf NRM to lead the threat abatement program and research and monitoring program due to their experience in natural resource management, engaging with landholders, and proven ability to successfully deliver these types of conservation programs. • Applying an adaptive management framework (set out in Section 6.3) and delivering the Offset Strategy in phases; therefore, if issues arise corrective actions will be taken in a timely manner and learnings will be applied to future phases.

Principles under the EOP	How this Offset Strategy aligns
	• There will be transparency in the delivery and outcomes of the offset programs and Action Plan through reporting and publishing results which will include any risks and how they have been managed. • The property specific Threat Abatement Plans will include identification of risks and how those risks will be managed and mitigated. Funds will be allocated by ECMPL to support the defined programs and distributed to relevant entities on a staged basis. • Ongoing and regular monitoring will occur to ensure actions are effective and efficient, and performance outcomes are on track to being achieved.
Suitable offsets must be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action)	All measures to be implemented are additional and would not occur if the offset strategy was not in place. No research is occurring in Queensland specific to Northern Blue-tongued Skink and ongoing monitoring of remnant subpopulations at their eastern limit is also not occurring. Landholders may not implement pest reduction programs at the intensity likely delivered by this program, and may also not have the resources or skills needed to effectively manage pest animals on their property. Landholders are not required to manage fire in a way that will reduce impacts on the Northern Blue-tongued Skink or fence livestock from riparian areas. Therefore, the suite of threat abatement actions which may be implemented are additional to what would occur under existing law or regulations.
Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable	ECMPL will engage Southern Gulf NRM to be the lead entity for development and implementation of the Pilot Program stage of the Threat Abatement Program and to coordinate the Research and Monitoring Plan. Southern Gulf NRM is experienced in the implementation of these sorts of programs and has experience, resources and processes to engage with landholders, implement training programs, carry out on-ground works and work with research entities. By ECMPL engaging Southern Gulf NRM to play this role will ensure offsets are delivered efficiently, will be effective including adopting best practice threat abatement methods, and timely. Progress reports will be prepared and provided to NEPA and made available on the ECMPL website and Southern Gulf NRM website. Final research report will also be published in a free to access journal to ensure transparency.
Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	The offset programs and actions summarised in Section 5.2.2 and Section 6.1 have clear objectives, actions and timelines assigned. These will be further detailed and refined through the development of specific plans in Years 1 and 2. Regular monitoring will be completed to confirm the actions have been completed, and are effective in achieving performance outcomes that are set. The plans can be readily audited and reported on. ECMPL will attend regular progress meetings with Southern Gulf NRM over the duration of the Pilot Program and Research and Monitoring Plan to ensure actions are being completed to agreed schedules and funds are being spent in accordance with contractual arrangements. Progress reports will be prepared and provided to NEPA and made available on the ECMPL website and Southern Gulf NRM website. Final research report will also be published in a free to access journal.
In assessing the suitability of an offset, government decision-making will be informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific uncertainty	A variety of data sources, including Commonwealth approved guidance documents and additional information sources (e.g. state guidance documents and scientific literature), have been consulted throughout development of the offset strategy to ensure the best available scientific data and evidence are utilised to plan and deliver the offset. Government documents, scientific literature and regional information to help inform best practice approaches have been clearly referenced throughout the Offset Strategy including Section 5.2.2.

7 Risk assessment

This section provides a risk analysis and risk management and mitigation strategy for the successful implementation of the Offset Strategy and timely achievement of the objectives. It includes a rating of all initial and post-mitigation residual risks in accordance with the most recent risk assessment matrix provided by NEPA.

The key risks have been assessed using qualitative likelihood (Table 7.1) and consequence (Table 7.2) determining the overall resultant risk. The risk assessment matrix is present as Table 7.3.

Table 7.1 Qualitative measure of likelihood

Score	Definition/Rationale
Highly likely (L5)	Is expected to occur in most circumstance
Likely (L4)	Will probably occur during the life of the project
Possible (L3)	Might occur during the life of the project
Unlikely (L2)	Could occur but considered unlikely or doubtful
Rare (L1)	May occur in exceptional circumstances

Note: Likelihood is defined by how likely it is that this event/circumstance will occur after management activities are implemented

Table 7.2 Qualitative measure of consequence

Score	Definition/Rationale
Minor (C1)	Minor risk of failure to achieve the plan's objectives. Minor incident of environmental damage that can be reversed. Results in short-term delays to achieving plan objectives, implementing low-cost, well-characterised corrective actions.
Moderate (C2)	Moderate risk of failure to achieve the plan's objectives. Isolated but substantial instances of environmental damage that could be reversed with intensive efforts. Results in short-term delays to achieving plan objectives, implementing well-characterised, high cost/effort corrective actions.
High (C3)	High risk of failure to achieve the plan's objectives. Substantial instances of environmental damage that could be reversed with intensive efforts. Results in medium0long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective actions.
Major (C4)	The plan's objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidence mitigation strategies. Major loss of environmental amenity and real danger of continuing.
Critical (C5)	The plan's objectives are unable to be achieved, with no evidence mitigation strategies. Severe widespread loss of environmental amenity and irrecoverable environmental damage.

Table 7.3 Risk assessment matrix

Risk Assessment		Consequence				
		Minor (C1)	Moderate (C2)	High (C3)	Major (C4)	Critical (C5)
Likelihood	Highly likely (L5)	Medium	High	High	Severe	Severe
	Likely (L4)	Low	Medium	High	High	Severe
	Possible (L3)	Low	Medium	Medium	High	Severe
	Unlikely (L2)	Low	Low	Medium	High	High
	Rare (L1)	Low	Low	Low	Medium	High

Table 7.4 outlines the key risks identified which may influence the ability of the Offset Strategy to achieve the performance objectives set in Table 6.1, as well as the likelihood of the identified management actions achieving the set management objectives. It outlines feasible mitigation measures to reduce the overall risk and failure of the Offset Strategy.

The initial ratings assume that the risks are untreated, that is, have not been addressed by specific risk mitigation measures other than routine design and operational practice. The residual risk resulting from corrective actions applied to each risk event is then applied.

Table 7.4 Key risks

Management objective/ Desired outcome	Risk	Relevant management action/measures	Initial Risk			Trigger detection and monitoring activities	Feasible/effective corrective actions	Residual risk		
			L	C	RL			L	C	RL
Improve understanding of the presence of subpopulations of Northern Blue-tongued Skink at its eastern distribution	Targeted surveys require properties to access. Landholder participation is not able to be secured, or only a few landholders will agree to access for surveys and future monitoring.	Landholders will be engaged and supported financially to provide land access to their property or parts of their property. The initial access agreement will be to carry out targeted surveys and research on the species. Access may then be permitted to conduct ongoing threat abatement actions and monitoring if the Northern Blue-tongued Skink is confirmed on their property. It is intended that Southern Gulf NRM will be funded to facilitate landholder engagement and agreements due to their presence in the region and relationships they have built with landholders.	L3	C4	High	Trigger detection: • Landholders decline participation or withdraw from the program. Monitoring activity: • Agree approach, financial incentives and support to be provided between Southern Gulf NRM and ECMPL as part of developing the research program. • Review financial incentives or other incentives to get landholders to agree to access. • Southern Gulf NRM to utilise personnel who have a good relationship with landholders and experience talking to landholders. • Consider broadening properties of interest where research and threat abatement could be implemented.	Step 1: Investigate cause of trigger Investigate barriers to participation and identify appropriate corrective actions. Step 2: Implement corrective actions Review and amend incentives and support measures and adjust as required. Corrective actions may include: • Seeking landholder feedback for barriers to participation. • Revised incentives for participation in the research and/or threat abatement program. Look for alternative properties.	L2	C3	Medium

Management objective/ Desired outcome	Risk	Relevant management action/measures	Initial Risk			Trigger detection and monitoring activities	Feasible/effective corrective actions	Residual risk		
			L	C	RL			L	C	RL
	Targeted surveys do not identify any Northern Blue-tongued Skink	Targeted surveys will be undertaken applying suitable survey methods to detect presence of the species. They are a cryptic species and numbers are likely to be low; therefore, there could be challenges to detect populations. Surveys will be focused around areas where the species has been more recently observed.	L3	C3	Medium	Trigger detection: • Surveys are not able to detect the species. Monitoring activity: • Review survey methods and identify alternative survey methods. • Review survey effort. • Consider alternative properties to survey	Step 1: Investigate cause of trigger • Investigate reasons as to why the species is not being detected. Could it be other factors such as climatic conditions? • This could include engaging with other reptile experts about best survey methods and approaches. Step 2: Implement corrective actions • Implement a different survey technique that could be more effective in detecting species • Increase survey effort in right seasonal conditions • Look for alternative properties to survey.	L3	C2	Medium
	Chosen research entity falls behind schedule.	ECMPL will fund Southern Gulf NRM to lead the research program. This will include the engagement of a suitably qualified person or organisation to complete the 5 year research program.	L3	C4	High	Trigger detection: • An agreed milestone or delivery date is not achieved. Monitoring activity: • Southern Gulf NRM to keep in regulator contact with research entity and receive progress updates • Any delays to be reported to NEPA in the annual report including justification for the delay and revised delivery dates.	Step 1: Investigate cause of trigger • Investigate reasons as to why progress or a milestone is delayed. • All relevant parties to meet to discuss any issues and what can be done to resolve them.	L2	C3	Medium

Management objective/ Desired outcome	Risk	Relevant management action/measures	Initial Risk			Trigger detection and monitoring activities	Feasible/effective corrective actions	Residual risk		
			L	C	RL			L	C	RL
		A contract between Southern Gulf NRM and research entity will be put in place that will include agreed timelines and milestones. The research program will be agreed to by NEPA and include annual progress reporting.					Step 2: Implement corrective actions • Provide additional resources or assistance if needed to get things back on schedule. • Prepare a revised timeline for delivery of research program if needed. Discuss and agree with NEPA.			
Threat abatement program delivers a reduction of threatening processes on Northern Blue-tongued Skink at its eastern limit of distribution.	Threat abatement program does not achieve the performance criteria set out in Pilot Program Property Threat Abatement Plan.	Property-specific Threat Abatement Plans will identify priority threats based on baseline surveys. Threat abatement actions will be developed tailored to that property and landholder as outlined in Section 6.1. Measurable reductions from the baseline will be set for each property that may include a % reduction in feral cats and feral pigs over a set duration. Monitoring will occur to assess effectiveness of threat abatement actions and progress towards the performance outcome. The Threat Abatement Program will commence with a Pilot Program scope	L3	C4	High	Trigger detection: • No measurable reduction in threat activity. • No measurable improvement in habitat quality. Monitoring activity: • Ensure baseline surveys produce quantitative metrics that can be measured over time. • Standardised data collection methods for threat activities and records of management effort. • If there is no measurable reduction in threat activity, re-evaluation of management actions will be undertaken and appropriate corrective actions selected and implemented. • Adaptive management will be undertaken and applied to ensure learnings are identified and changes made to deliver the conservation gains being sought.	Step 1: Investigate cause of trigger • Investigate reasons why threats may not be reducing, or improvements set out in property management plans are not being achieved. • Identify appropriate corrective actions. Step 2: Implement corrective actions • Review and amend the property-specific threat abatement plan where required. • Adjust frequency/intensity of threat abatement actions as required. • Change threat abatement methods being applied. • Bring in additional resources if needed.	L2	C3	Medium

Management objective/ Desired outcome	Risk	Relevant management action/measures	Initial Risk			Trigger detection and monitoring activities	Feasible/effective corrective actions	Residual risk		
			L	C	RL			L	C	RL
	Severe weather events such as drought, high rainfall and extensive wildfire can impact on outcomes that can be achieved. A severe weather event may result in a longer timeframe being needed to achieve the performance outcomes, or require changes to the property threat abatement plan.	The threat abatement program will have resilience to severe weather events by identifying how the threat abatement actions will be able to adapt to weather events such as wet and dry seasons, and how bushfire will be managed. Regular monitoring will identify any issues or lack of progress towards performance outcomes and identify corrective actions that may be required.	L2	C3	Medium	Trigger detection: • Damage or alterations to properties with threat abatement plans leading to inability to implement management actions. • Damage or alterations to properties with threat abatement plans leading to management strategies no longer being useful/effective for the area. Monitoring activity: • Progress of the program will be reviewed and if additional time is needed to achieve performance objectives this will be raised with NEPA and the offset strategy revised if needed. • Assess if corrective actions are required to bring threat abatement actions back on track.	Step 1: Investigate cause of trigger • Investigate the planning and preparedness for severe weather events in property specific plans. • Investigate the site post severe weather event to determine corrective actions that are needed. Step 2: Implement corrective actions • Review management actions and, if necessary, modify to address severe weather event/s. For example, an additional monitoring and/or management event may be required following a bushfire event. • Review and update the property specific threat abatement plan. This may include actions required, updated timelines and performance criteria.	L2	C2	Low
Improved awareness across the broader community of the Northern Blue-tongued Skink.	Low participation or engagement in capacity building, training or community activities	Deliver community engagement activities to improve understanding of the subspecies and to encourage incidental observations of the species.	L3	C3	Medium	Trigger detection: • Low attendance in scheduled engagement activities. • No or few incidental sightings added to the platform. Monitoring activity: • Record attendance and participation at community engagement activities.	Step 1: Investigate cause of trigger • Investigate potential barriers to participation. • Consult more broadly across community and with stakeholders.	L2	C2	Low

Management objective/ Desired outcome	Risk	Relevant management action/measures	Initial Risk			Trigger detection and monitoring activities	Feasible/effective corrective actions	Residual risk		
			L	C	RL			L	C	RL
Potential sightings are uploaded to a shared platform to improve understanding of their presence and distribution.						• Participant feedback will be sought regularly and findings will be used to amend future programs. • Adaptive management will be important to ensure learnings are identified and changes made to ensure effectiveness of community engagement.	Step 2: Implement corrective actions • Review and amend future program scope and delivery mechanism plan and adjust actions as required.			
Capacity building and support of a Traditional Owner Ranger Program	Low participation or interest in Traditional Owner Ranger program	ECMPL to support a Traditional Owner Ranger program and look to assist ranger involvement in threat abatement activities, and monitoring as well as programs delivered within the Action Area. ECMPL will provide funding and other in-kind support to assist traditional owners with training, improve their skills and build their knowledge and experience over 20 years in different areas.	L3	C3	Medium	Trigger detection: • Low participation in Traditional Ranger program. • Traditional owner skills and knowledge aren't being advanced. Monitoring activity: • Record number of participants in the programs, training and skills development, involvement in management activities and participant feedback	Step 1: Investigate cause of trigger • Investigate potential barriers to participation. • What changes could be made to have better uptake. • Consult with various traditional owners. Step 2: Implement corrective actions • Review and amend future program scope and delivery mechanisms and adjust actions as required.	L2	C2	Low

8 Roles and responsibilities

The main roles and responsibilities to oversee the Offset Strategy and implementation of the three programs are summarised in Table 8.1.

Table 8.1 Roles and responsibilities

Role	Responsibility
ECMPL	• Oversee delivery of the Offset Strategy • Enter into a contractual arrangement with Southern Gulf NRM regarding their role in delivery of the Research and Threat Abatement programs and funding • Provide funding to deliver the Offset Strategy per the Stage 1 financial offset quantum • Coordinate the capacity building and community engagement program • Lead engagement with Traditional Owners • Ensure annual progress reports are prepared and issued to NEPA • Report and address any non-compliances
Southern Gulf NRM	• Enter into contractual arrangement with ECMPL • Coordinate the delivery of Research and Threat Abatement programs • Engage with landholders and obtain access agreements • Work with landholders and Traditional Owners in relation to implementation of research, monitoring and threat abatement programs • Identify a suitable research partner and engage the research partner. Ensure research program stays on schedule and budget • Prepare and issue annual progress reports to ECMPL • Meet with ECMPL representatives at agreed intervals throughout implementation of the Offset Strategy to discuss progress of tasks, discuss any issues that have arisen and corrective actions that may be required
Landholders	• Agree to land access arrangements and enter into a property specific contract with Southern Gulf NRM • Participate in threat abatement actions • Complete training as relevant • Provide information as required by Southern Gulf NRM in relation to actions implemented on ground
Suitably qualified contractors	• Assist with conducting monitoring programs • Assist with on-ground threat abatement actions such as feral animal control, weed control, installation of fencing and off-stream watering points

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Annexure A

EPBC Offset Assessment Guide Inputs

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A.1 EPBC OAG inputs

Justification for the OAG inputs applied is provided in Table A.1 below.

Table A.1 EPBC OAG inputs

Calculator input	Offset Area
Impact Area	7
Starting Habitat Quality Score	The Queensland Environmental Offsets Policy provides for a rapid score to be used on the impact site if BioCondition transects haven't been completed. This rapid score is a 7 out of 10 and it represents a good condition habitat quality score - where the vegetation condition is getting close to benchmark but it does have some degrading factors and it also recognises some minor threats are applicable. Patch size and connectivity are likely to score well. The Eva Copper Mine impact site is of moderate to good condition overall and grazing has been removed from large portions of the Action Area. There are large patches of remnant vegetation and connectivity including along Cabbage Tree Creek is high. There are some weeds present and there are also some threats occurring including cane toads, feral cats and feral pigs on site that would reduce its score. 7 out of 10 is considered appropriate for the impact site.
EPBC Act Status	Critically Endangered
Time over which loss is averted	20 years This is the time over which potential loss of habitat quality was considered. A conservative approach has been applied and no risk of loss, or reduction in habitat quality was included in the OAG.
Time until ecological benefit	20 years This is the maximum time permitted in the OAG guideline to measure habitat quality gains.
Offset Start area (ha)	1,500
Offset	6
Starting Habitat Quality Score	When identifying a suitable offset property, it would need to support habitat attributes that could sustain the Northern Blue-Tongued Skink, and there would need to be confirmation the species is present or be able to demonstrate it is likely to be present as restoration activities occurred and the habitat improved. Therefore, ECMPL would prioritise locating the offset site in an area where the species was known to occur or be nearby to allow the species to disperse into the offset area. Properties nearby to the Project area would, therefore, be suitable candidates due to confirmed records. The offset site selected would be in a more degraded condition to ensure habitat quality gains could be achieved, threatening processes are stopped and/or reduced, and 'additionality' was demonstrated. Many rural properties adjacent to the Project are cattle grazing properties and have degraded condition states due to grazing including stock coming down to creeks for drinking, but also other land management practices such as inappropriate fire regimes, pest animals and weeds. Cane toads are also likely to be present. These threats lead to a reduced habitat quality score and it has been estimated the offset would start at a 6 out of 10.
Risk of loss (%) without offset	0% No risk of loss has been provided for if the offset was not put in place. This is a conservative position as there could be potential for landholders to clear some native vegetation for infrastructure and property maintenance or to clear regrowth if a Property Map of Assessable Vegetation was in place.

Calculator input	Offset Area
Offset	6
Future quality without offset	A conservative position has been taken and no further reduction in habitat quality has been provisioned for. It is acknowledged there is potential for habitat quality and threats to further increase over time and decrease the habitat quality score. However, given a desktop approach is being taken, and the offset site is being identified as starting in a degraded condition no further decline has been included.
Risk of loss (%) with an offset:	0% No risk of loss without the offset was included. Therefore, no risk of loss was included with the offset.
Confidence in result (%)	90%
Risk of loss	This is because no risk of loss was included.
Confidence in result (%)	80%
Habitat gains	• There is a high degree of confidence the future habitat quality score can be achieved using proven land management and threat abatement techniques. There is strong evidence and existing knowledge from Southern Gulf NRM of existing threats in the region that can be actively managed and reduced including weeds, pest animals, inappropriate fire regimes and grazing. Use of experienced and qualified contractors to undertake the management and monitoring and review the offsets progress also increases the confidence in completion criteria being achieved. • Management actions including weed control, pest animal control and changed fire regimes are known to be effective. • Annual management, monitoring and reporting measures proposed provide increased confidence that the offset areas will improve in habitat quality. Any issues will be identified early and corrective actions implemented.

Australia

SYDNEY
Ground floor 20 Chandos Street
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 1 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA
Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE
Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Suite 8.02 Level 8
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH
Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO
2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER
422 Richards Street Unit 170
Vancouver BC V6B 2Z4
T 604 999 8297

CALGARY
700 2nd Street SW, Floor 19
Calgary AB T2P 2W2

linkedin.com/company/emm-consulting-pty-limited

emmconsulting.com.au