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Report

Kalgoorlie Regional Renewable Energy Project EPBC Self-Assessment



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Executive Summary

Northern Star EGP Pty Ltd (Northern Star) proposes to construct and operate the Kalgoorlie Regional Renewable Energy Project (the Proposal), located approximately 10 km north-east of the Kalgoorlie-Boulder townsite. The Proposal forms part of Northern Star's emissions reduction strategy and will be situated on mining tenure held by Northern Star Resources Ltd.

Northern Star engaged CDM-Smith to complete an independent *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) self-assessment to inform planning and approvals for the Proposal provide advice on whether an EPBC Act referral is necessary.

The assessment involved the following components:

A desktop assessment to identify Matters and National Environmental Significance (MNES) listed by Department of Climate Change, Energy, the Environment and Water (DCCEEW) with potential to occur in the proposed Development Envelope. The desktop assessment considered the following information sources to determine the likelihood of occurrence of Threatened species and communities:

- A search of the Protected Matters Search Tool (PMST) (Appendix A)
- Literature review of baseline vegetation, flora and fauna surveys
- Review of the bird and bat risk assessment.

Detailed significance assessment of potential impacts to MNES was completed using the criteria from the *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (DoE, 2013). This included species-specific evaluations informed by technical studies and third-party ecological data.

Key findings of the EPBC self-assessment included:

- No Threatened flora species or ecological communities listed under the EPBC Act occur within the Development Envelope or surrounds and none are proposed for clearing.
- A total of eight EPBC Act listed fauna species are considered 'possible' or 'likely' to occur within the Development Envelope. Three species have been recorded in the Study Area and additional three species may utilise the area based on habitats present:
 - Two EPBC Act listed Vulnerable species have been recorded in the area, the Malleefowl and Southern Whiteface. The Proposal is not likely to have a significant impact on either of these species.
 - There are six EPBC Act listed Migratory/Marine species likely to utilise the Development Envelope, five (5) of these species have been recorded in the area. One species that may possibly occur is also listed as Threatened, the Curlew Sandpiper (EPBC Act – Critically Endangered) which is recorded as a rare visitor to permanent water features in the region (not in the Development Envelope).
- No Malleefowl breeding habitat occurs within the Development Envelope, however the species breeds nearby. While the species may visit the Development Envelope during foraging, the core foraging grounds are located outside the Development Envelope and this species is unlikely to be reliant on foraging habitat within the Development Envelope.
- The Southern Whiteface may forage in the area, but suitable hollows are limited in the Development Envelope and the species is unlikely to be breeding in the area. The Goldfields region is dominated by suitable habitat for this species and the Southern Whiteface would not be restricted to or reliant on habitat present in the Development Envelope.
- The Proposal is not likely to have a significant impact on any EPBC Act listed species. No habitat critical for the survival of EPBC listed fauna species, migratory corridors, or significant foraging zones were identified within the proposed Development Envelope.
- Potential impacts from wind turbines operations can be effectively managed through the implementation of a Bird and Bat Adaptive Management Plan (BBAMP) and Construction Environmental Management Plan.

Based on the outcomes of the EPBC assessment, the Proposed Action is unlikely to result in significant impact on important populations of vulnerable species nor will it have a significant impact on habitat critical for the survival of vulnerable or migratory species listed as MNES. Therefore, a referral under the EPBC Act is not warranted at this stage.

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Section 1 Introduction

Northern Star EGP Pty Ltd (Northern Star) proposes to construct and operate the Kalgoorlie Regional Renewable Energy Project (the Proposal). The Proposal is located approximately 10 km north-east of the Kalgoorlie-Boulder townsite and aims to improve energy stability for Northern Star's mining operations and support emissions reduction.

1.1 Proposal

The Proposal would involve approximately 652 hectares (ha) of land disturbance (Indicative Footprint) within a 2,313 ha Development Envelope (Figure 1-1). Key elements of the project include 32 wind turbines and roughly 150 ha of solar arrays, as well as supporting infrastructure e.g. Battery Energy Storage System (BESS), meteorological masts, roads and utilities.

1.2 Purpose and Scope

The purpose of this report is to inform a decision on whether referral of the Proposal to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) is required under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The report outlines the methodology and findings of desktop reviews and field-based investigations undertaken to assess environmental risks. Should proposed activities be significantly modified, expanded, or otherwise significantly altered after this assessment, a reassessment of potential impacts on Matters and National Environmental Significance (MNES) should be undertaken in accordance with the *Significant Impact Guidelines 1.1* (DotE 2013).

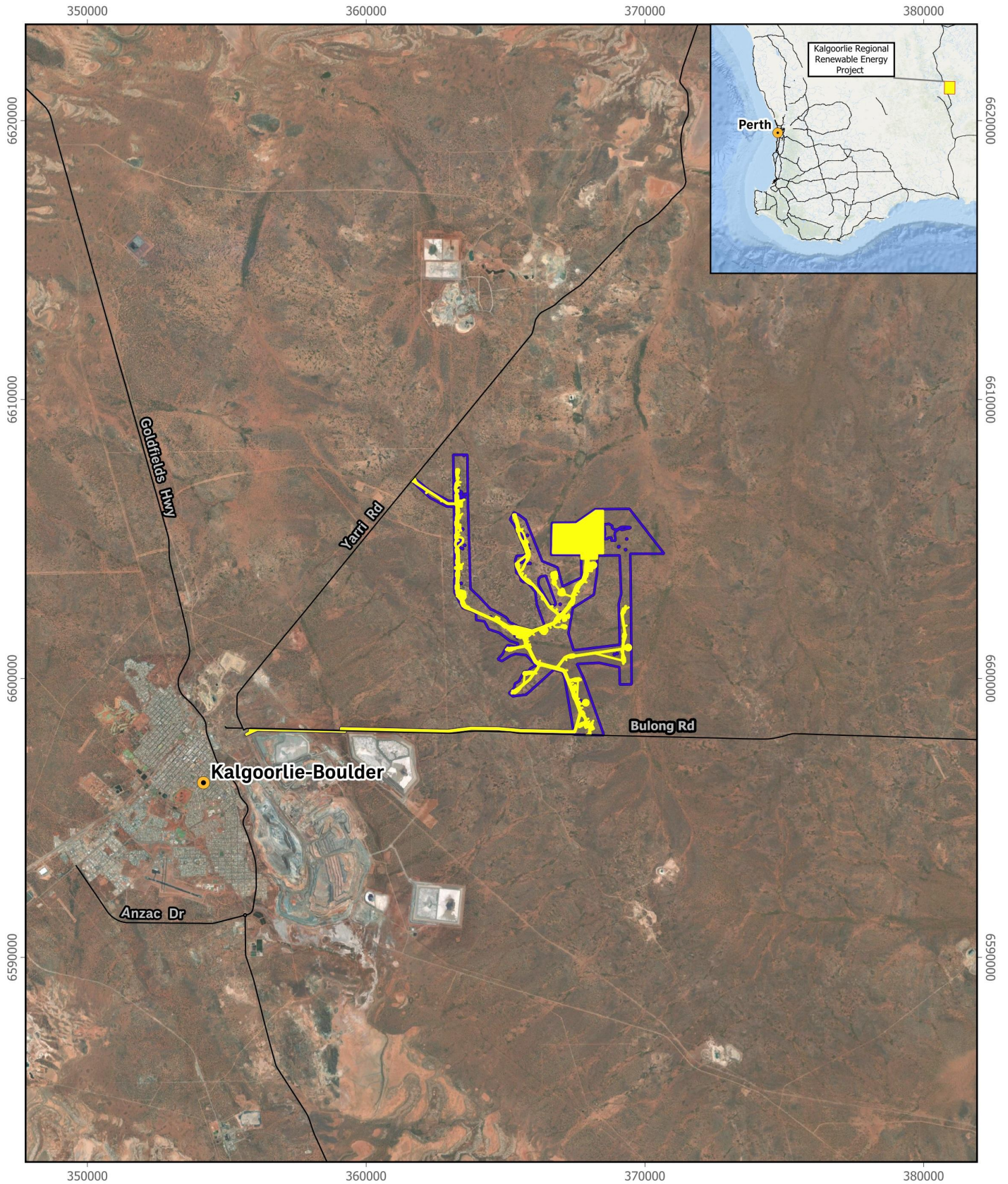


Figure 1-1 Regional Layout

- LEGEND**
- Indicative Footprint
 - Development Envelope
 - Roads
 - Towns



Client: Northern Star Resources
 Project: 1001978
 Data:
 Imagery Esri Satellite, Esri Ocean Basemap



1.3 Legislative Context

1.3.1 EPBC Act

The EPBC Act provides a framework for the protection and management of nationally and internationally significant flora, fauna, ecological communities and heritage. MNES are those protected under the EPBC Act include the following:

- World Heritage Properties
- National Heritage Places
- Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
- The Great Barrier Reef Marine Park
- Commonwealth Marine Areas
- Listed Threatened Ecological Communities
- Listed Migratory Species
- Nuclear Action
- Water resource, in relation to coal seam gas development and large coal mining development.

This self-assessment follows the policies and guidelines described in Section 1.3.2 and examines the likelihood of MNES presence within the Indicative Footprint. It also evaluates whether the Proposal could result in significant impacts on any MNES. The outcomes of this assessment are detailed in Section 3.

1.3.2 Policy and Guidance

This self-assessment has been developed in accordance with the following key policies and guidelines:

- Environment Protection and Biodiversity Conservation Regulations 2000 (Commonwealth)
- Matters of National Environmental Significance: Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999 (DotE 2013).
- Species-specific national plans or guidelines
- Draft Onshore Windfarm Guidance – Best Practice approaches when seeking approval under Australia's national environmental law (DCCEEW 2024b).

Section 2 Methodology

2.1 Desktop Assessment

To determine which MNES are likely to be affected by the Proposal, a comprehensive review of relevant terrestrial fauna, flora, and vegetation surveys conducted between 2022 and 2025 was completed. The desktop assessment informed the identification of potential impacts to listed species and communities and provided a robust baseline for subsequent field investigations.

Each survey incorporated a desktop component, which included analysis of historic records, environmental databases, and the Protected Matters Search Tool (PMST; Appendix A), followed by targeted field surveys to confirm current site conditions and species presence. The collation and cross-referencing of these data sources enabled a high-confidence assessment of habitat availability and species distributions relevant to the Indicative Footprint.

The following reports and assessments were reviewed in support of the MNES analysis:

- Phoenix Environmental Sciences Pty Ltd (Phoenix 2022a): Reconnaissance flora and vegetation survey for the Kalgoorlie Operations Project, prepared for Northern Star Resources Ltd
- Phoenix Environmental Sciences Pty Ltd (Phoenix 2022b): Memo report: regional habitat reconnaissance survey for Critically Endangered Arid Broze Azure Butterfly (*Ogyris subterrestris petrina*) and Priority 1 Inland Hairstreak Butterfly (*Jalmenus aridus*), memo report prepared for KCGM Ltd
- Phoenix Environmental Sciences, Pty Ltd (Phoenix 2024b): Basic fauna and SRE survey and targeted SRE survey for the Fimiston Gold Mine Operations unpublished report prepared for Kalgoorlie Consolidated Gold Mines, Pty Ltd
- Phoenix Environmental Sciences, Pty Ltd (Phoenix 2025a): Basic and targeted terrestrial fauna survey for the Black Flag Wind Farm, prepared for Northern Star Resources Ltd
- Phoenix Environmental Sciences, Pty Ltd (Phoenix 2025f): Targeted survey for *Campnotus* sp. nr. *Terebrans* and *Jalmenus aridus* for the Black Flag Windfarm, prepared for Northern Star Resources Ltd
- Phoenix Environmental Sciences, Pty Ltd (Phoenix 2025e): Targeted Malleefowl survey for the Black Flag Farm Project, prepared for Northern Star Resources Ltd
- Donato Environmental Services (DES 2025) Wind turbine electricity generators: Avian and microbat risk assessment, report to Kalgoorlie Consolidated Gold Mine.

2.2 Likelihood of Occurrence Assessment

The Likelihood of Occurrence (LOO) Assessment is a systematic process that was used to evaluate the probability that a fauna species may be present within the Indicative Footprint. This assessment combines two key variables:

1. Quality of available habitat within the Development Envelope.
2. Proximity of verified fauna sightings in the surrounding region.

Collectively, these factors inform a likelihood rating that supports risk assessment, survey prioritisation, and potential mitigation planning.

Table 2-1 presents a LOO Matrix which categorises habitat within the Development Envelope into one of four classes based on its suitability to support a species:

- Preferred Habitat: Supports the species' foraging, breeding, and successful rearing of young.
- Suitable Habitat: May support foraging and breeding during favourable environmental conditions.
- Marginal Habitat: May support temporary foraging or movement between areas of higher quality habitat.

- Absent Habitat: Does not provide the necessary resources or conditions to support any life stage of the species.

Fauna sighting data is considered across six distance bands: sightings from greater than 1000 km from the Development Envelope to sightings within 4 km of the Development Envelope. These distances provide a spatial context for the species' known distribution and potential range extension.

Table 2-1 Likelihood of Occurrence Matrix (Fauna Records and Habitat)

Likelihood Matrix	Fauna Sightings >1000 km	Fauna Sightings 1000- 500 km	Fauna Sightings 500-100 km	Fauna Sightings 100-10 km	Fauna Sightings 10-4 km	Fauna Sightings Within 4 km
Preferred Habitat within Development Envelope	Highly Unlikely	Unlikely	Low	Possible	Likely	Highly Likely
Suitable Habitat within Development Envelope	Highly Unlikely	Highly Unlikely	Unlikely	Low	Possible	Likely
Marginal Habitat within Development Envelope	Highly Unlikely	Highly Unlikely	Highly Unlikely	Unlikely	Low	Possible
Absent Habitat within Development Envelope	Highly Unlikely	Highly Unlikely	Highly Unlikely	Highly Unlikely	Unlikely	Low

Notes:

Preferred Habitat: Habitat supports species ability to successfully forage, breed and raise young.

Suitable Habitat: Habitat supports species ability to successfully forage and potentially breed in good years.

Marginal Habitat: Habitat supports species ability to forage as adult, transition from one preferred location to another.

Absent Habitat: Available habitat does not support any fauna species life stage.

2.3 Impact Assessment

An environmental impact assessment was conducted to identify potential impacts to MNES associated with the Proposal. This assessment has been prepared in accordance with the *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DoE, 2013) and evaluates whether the Proposal is likely to result in a significant impact on any Matters of National Environmental Significance (MNES) protected under the EPBC Act.

The impact assessment determined the potential for a significant impact based on the significant impact criteria for the relevant conservation code i.e. Vulnerable, Migratory etc.

A **'significant impact'** is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts (DoE 2013).

To be **'likely'**, it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.

If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment.

Section 3 Referral Considerations

The guidelines provide the following considerations to determine if an action requires referral (DoE, 2013):

1. Are there any matters of national environmental significance located in the area of the Proposal (noting that 'the area of the Proposal' is broader than the immediate location where the action is undertaken; consider also whether there are any matters of national environmental significance adjacent to or downstream from the immediate location that may potentially be impacted)?
2. Considering the Proposal at its broadest scope (that is, considering all stages and components of the action, and all related activities, and infrastructure), is there potential for impacts, including indirect impacts, on matters of national environmental significance?
3. Are there any proposed measures to avoid or reduce impacts on matters of national environmental significance (and if so, is the effectiveness of these measures certain enough to reduce the level of impact below the 'significant impact' threshold)?
4. Are any impacts of the Proposal on matters of national environmental significance likely to be significant impacts (important, notable, or of consequence, having regard to their context or intensity)?

3.1 Potential Matters of National Environmental Significance

Protected Matters Search Tool (PMST) results were obtained on 23 April 2025 by CDM Smith to supplement independent database searches, report assessments, and to ensure the currency of species listings conducted for Northern Star between 2022 and 2025. The potential presence of MNES within 10 km radius of the Indicative Footprint is comprehensively documented (Appendix A) (Table 3-1).

The following MNES categories were identified as requiring additional assessment:

- Listed Threatened species
- Listed Migratory species.

Table 3-1 Results of PMST search

Matters of National Environmental Significance - Categories	Count	Description	Relevant Data Sources
World Heritage Places	Zero (0)	The nearest World Heritage Place is Fremantle Prison, more than 400 km west of the Development Envelope.	PMST Map (DCCEEW 2025)
National Heritage Places	One (1)	Goldfields Water Supply Scheme, WA - in buffer zone only Goldfields Water Supply Scheme is located outside the Indicative Footprint, with the nearest point approximately 6 km from the Proposal. The Proposal is not expected to have any impacts to this heritage place. No further assessment required.	PMST Search (Appendix A)

Matters of National Environmental Significance - Categories	Count	Description	Relevant Data Sources
Wetlands of International Importance	Zero (0)	The nearest Wetland of International Importance is the Lake Warden System, more than 350 km south of the Development Envelope.	PMST Map (DCCEEW 2025)
Great Barrier Reef Marine Park	Zero (0)	The Great Barrier Reef is not located within 1,000 km of the Development Envelope.	PMST Map (DCCEEW 2025)
Commonwealth Marine Parks	Zero (0)	The Development Envelope is not within 100 km of the coast	PMST Map (DCCEEW 2025)
Listed Threatened Ecological Communities	Zero (0)	There are no Threatened Ecological Communities within 10 km of the Development Envelope.	PMST Search (Appendix A) Baseline Botanical Surveys (Phoenix, 2023a, 2023b, 2024c, 2025c)
Listed Threatened Species	Nine (9)	A full list of species and likelihood of occurrence is provided in Table 3-2.	PMST Search (Appendix A) Baseline Fauna Surveys (Phoenix, 2023a, 2024a, 2025a, 2025e) Targeted Butterfly Survey (Phoenix 2022b) Bird and Bat Risk Assessment (DES, 2025)
Listed Migratory Species	Seven (7)	A full list of species and likelihood of occurrence is provided in Table 3-2.	PMST Search (Appendix A) Baseline Fauna Surveys (Phoenix 2023a, 2024a) Bird and Bat Risk Assessment (DES 2025)
Nuclear Action	Zero (0)	The Proposal is not a nuclear action.	Client advice
Water Source Related to Coal Seam Gas or Coal Mining	Zero (0)	The Proposal is not related to Coal Seam Gas or Coal Mining	Client advice

3.1.1 Potential Threatened and Migratory Species

A total of 30 EPBC Listed species were assessed for potential occurrence within the Development Envelope. Of these, 7 species are listed as Migratory under the EPBC Act, with an additional six (6) species listed as both Marine and Migratory, and six (6) species listed as Vulnerable (including species such as the Southern Whiteface and Grey Falcon). One species is Critically Endangered (Curlew Sandpiper), and one is listed as Endangered (Night Parrot) (Table 3-2). The assessment outlines critical habitat necessary for the survival of these species.

A detailed review of species-specific ecological requirements was undertaken, informed by the survey documents outlined in Section 2.1 and Table 3-2. This review included species':

- preferred habitats
- behaviours (e.g. feeding or roosting behaviours)
- social structure (solitary or group-living)
- seasonal and climatic distribution.

Of the 30 species assessed for potential occurrence within the Development Envelope:

- seven (7) species were recorded or are highly likely to occur during field surveys or recent observations.
- fourteen (14) species were considered possible, meaning they may visit or traverse the area.
- eight (8) species were deemed as unlikely to occur within the Development Envelope.
- One (1) species was considered highly unlikely to occur (Table 3-2).

Table 3-2 Likelihood of Occurrences of MNES Fauna Species and Their Habitat

Scientific and Common Name	EPBC Act Conservation Status	Preferred Habitat	Habitat Present	Occurrence Summary & Nearest Sighting	Likelihood of Occurrence
Birds					
<i>Leipoa ocellata</i> Malleefowl	Vulnerable	Woodland Shrubland	Suitable habitat present.	Recorded by Phoenix (2023a, 2023a, 2025a, 2025e). No breeding habitat within the Development Envelope but known to breed nearby (nearest active 600 m from Development Envelope). Suitable foraging and dispersal habitat occurs within the Development Envelope.	Likely
<i>Apus pacificus</i> Fork-tailed Swift	Migratory	Species does not land in Australia and sleeps on the wing at night	Suitable habitat present.	Recorded once in the last 10 years (DES 2025). Vagrant visitor	Likely
<i>Cacomantis flabelliformi</i> Fan-tailed Cuckoo	Marine	Woodland	Suitable habitat present.	Recorded during field surveys (DES 2025). Rare in the region but could occur during the passage of migration, moving north. Migrant visitor	Likely
<i>Cacomantis pallidus</i> Pallid Cuckoo	Marine	Woodland Shrubland	Suitable habitat present.	Recorded during field survey (DES 2025). A migrant southward in the summer, but not necessarily every year and only likely during favourable seasons. Migrant visitor	Likely
<i>Merops ornatus</i> Rainbow Bee-eater	Marine	Woodland Shrubland	Suitable habitat present.	Recorded during field surveys (DES 2025). Widespread and common.	Likely

Scientific and Common Name	EPBC Act Conservation Status	Preferred Habitat	Habitat Present	Occurrence Summary & Nearest Sighting	Likelihood of Occurrence
<i>Todiramphus sanctus</i> Sacred Kingfisher	Marine	Woodland	Suitable habitat present.	Recorded during field surveys (DES 2025). Not common, and a passage migrant to the region. Migrant visitor	Likely
<i>Aphelocephala leucopsis</i> Southern Whiteface	Vulnerable	Woodlands Shrubland	Marginal habitat present.	Recorded in the region (DES 2025).	Possible
<i>Chrysococcyx osculans</i> Black-eared Cuckoo	Marine	Woodland Shrubland	Suitable habitat present.	Locally present (DES 2025). Migrant visitor	Possible
<i>Biziura lobata</i> Musk Duck	Marine	Wetlands	No suitable habitat present	Local records at the Kalgoorlie Wastewater Treatment Plant (KWTP) (DES 2025). The species likely confined to the KWTP. Vocal but not recorded during the field surveys. It is not attracted to saline waterbodies that would be present around the region after substantial rainfall.	Unlikely
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	Vulnerable / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Recorded as a passage migrant. Local records at KWTP.	Unlikely
<i>Chlidonias hybrida</i> Whiskered Tern	Marine	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Usually absent during dry conditions, sometimes for years. Rarely present on mine infrastructure water sources. Present at times at the KWTP, during favourable conditions.	Unlikely

Scientific and Common Name	EPBC Act Conservation Status	Preferred Habitat	Habitat Present	Occurrence Summary & Nearest Sighting	Likelihood of Occurrence
<i>Calidris ruficollis</i> Red-necked Stint	Marine / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Recorded on the KCGM tailings systems, usually as a passage migrant in September and October (DES 2025). Migrant visitor.	Low
<i>Charadrius veredus</i> Oriental Plover	Marine / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	The species' presence in the Kalgoorlie districts is not expected. Almost certain to avoid the area during boom conditions, preferring dry bare ground. Species is vagrant to the region.	Low
<i>Pluvialis squatarola</i> Grey Plover	Vulnerable / Marine / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Local records at KWTP	Low
<i>Tringa glareola</i> Wood Sandpiper	Marine / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Migrant visitor Recorded annually at KWTP	Low
<i>Ardea modesta</i> Eastern Great Egret	Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Associated with wetlands and feeds on the ground on aquatic macroinvertebrates and vertebrates. Local record at KWTP	Low

Scientific and Common Name	EPBC Act Conservation Status	Preferred Habitat	Habitat Present	Occurrence Summary & Nearest Sighting	Likelihood of Occurrence
<i>Thinornis rubricollis</i> Hooded Plover	Endangered	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Never sighted on saline tailings systems in 20 years of DES Tailings Storage Facility (TSF) observations. Endemic shorebird that will frequent inland saline lake shorelines.	Low
<i>Actitis hypoleucos</i> Common Sandpiper	Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Four records in desktop assessment within last 10 years. Recorded locally at the KCGM Tailings Storage Facility (TSF) (DES 2025). Possible rare visitor to permanent water features.	Low
<i>Calidris ferruginea</i> Curlew Sandpiper	Critically Endangered / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present nearby but limited to a farm dam.	Historical record 1.3 km north of Development Envelope; possible rare visitor. Single record from the KCGM tailings system, likely as a passage migrant observed in September–October (pers. obs. D. Donato; DES, 2025).	Low
<i>Tringa brevipes</i> Grey-tailed Tattler	Marine / Migratory	Coastal Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Coastal Species, vagrant to the region.	Highly Unlikely
<i>Tringa stagnatilis</i> Marsh Sandpiper	Marine / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	Wetland species Recorded annually (August to October) at the KWTP.	Low

Scientific and Common Name	EPBC Act Conservation Status	Preferred Habitat	Habitat Present	Occurrence Summary & Nearest Sighting	Likelihood of Occurrence
<i>Calidris melanotos</i> Pectoral Sandpiper	Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	No records in desktop assessment within last 10 years. Not recorded during field surveys. Possibly a rare visitor to permanent water features. May traverse Indicative Footprint to salt lakes 7–20 km away (Phoenix 2024a).	Highly Unlikely
<i>Falco hypoleucos</i> Grey Falcon	Vulnerable	Wooded water courses Shrubland	Suitable habitat present.	One desktop record in last 10 years Historical record 6.5 km southwest of Development Envelope. Rare visitor, suitable habitat present within Development Envelope and surrounds.	Unlikely
<i>Motacilla cinerea</i> Grey Wagtail	Migratory	Inland plains Coastal areas	No suitable habitat present.	No records in desktop assessment within last 10 years. Not recorded during field surveys. No nearby records within 100 km. Suitable stream and river habitat absent in the Indicative Footprint (Phoenix 2025a).	Highly Unlikely
<i>Pezoporus occidentalis</i> Night Parrot	Endangered	Grasslands	No suitable habitat present.	No records in last 10 years or nearby (less than 100 km from Indicative Footprint). Long-unburnt spinifex habitat absent from Indicative Footprint. Not recorded during field surveys. The habitat of the region is not suitable for the species and was not recorded using acoustic monitoring (DES 2025).	Highly Unlikely
<i>Polytelis alexandrae</i> Princess Parrot, Alexandra's Parrot	Vulnerable	Woodland	Suitable habitat present.	No records in desktop assessment or field surveys in last 10 years. Nearest record approximately 40 km south west of Indicative Footprint Development Envelope is outside core range.	Highly Unlikely

Scientific and Common Name	EPBC Act Conservation Status	Preferred Habitat	Habitat Present	Occurrence Summary & Nearest Sighting	Likelihood of Occurrence
<i>Tringa nebularia</i> Common Greenshank, Greenshank	Endangered / Migratory	Wetlands	No suitable habitat within Development Envelope Habitat present in Study Area, limited to nearby farm dams.	One desktop record, 1.3 km north east from Development Envelope, in last 10 years. No field survey records. Possible rare visitor to permanent water bodies. Local records at the KCGM TSF (DES 2025).	Low
<i>Calyptorhynchus latirostris</i> Carnaby's Cockatoo	Endangered	Woodland Shrubland	No suitable habitat present.	Vagrant Reported in the gardens of Kalgoorlie, but found south and west of Norseman	Highly Unlikely
Mammals					
<i>Dasyurus geoffroii</i> Western Chuditch	Vulnerable	Forest Woodland Shrublands	Suitable habitat present.	Unconfirmed scat could be from Chuditch. Insufficient refuge habitat (rocky breakaways, hollow logs) for residents. Nearest confirmed record is from 1974 at West Kambalda, 50 km south of Development Envelope. Species may be locally extinct.	Unlikely
Invertebrates					
<i>Ogyris petrina</i> Arid Bronze Azure Butterfly	Critically Endangered	Woodland <i>Camponotus</i> sp. nr. <i>Terebrans</i> colonies	No suitable habitat present.	Known only from Barbalin Nature Reserve and Gidji near Kalgoorlie Nearest record is more than 17.5 km north of Development Envelope.	Highly Unlikely

3.1.2 Terrestrial Fauna Habitat

Nine broad habitat types occur within the Study Area, comprising predominantly woodlands and shrublands dissected by occasional ephemeral drainage line habitats (Figure 3-1, Table 3-3). The most significant fauna habitat includes 'shrublands' with closed canopy and sandy substrate, representing suitable foraging and breeding habitat for Malleefowl (Phoenix 2024a). These fauna habitat types do not occur exclusively within the Study Area but are continuous throughout the East Murchison and Eastern Goldfields subregions (Phoenix 2024a).

There are no permanent water sources located within the Development Envelope, however there are several permanent water sources present in the surrounding region, including the Kalgoorlie Wastewater Treatment Plant (KWTP) located about 10 km southwest of the Development Envelope, farm dams throughout the Black Flag pastoral lease, salt lakes located about 15 km north of the Development Envelope (Figure 3-2) and pit lakes about seven kilometres north of the Development Envelope.

Table 3-3 Fauna Habitats

Habitat type	Description	Extent within Study Area (ha)	Extent within Development Envelope (ha)	Indicative Footprint	
				Extent (ha)	Proportion of Study Area (%)
Open woodland	Open woodland over low mixed shrubs on clay loam plain. High abundance of large fallen logs, large trees with hollows and leaf litter.	4,305.4	1,045.1	350.5	8.1
Shrubland	Shrubland with scattered mallee, <i>Eucalyptus</i> and <i>Allocasuarina</i> on clay loam with gravel or sparse sand. Dense shrubby understory provides cover from predators. High abundance of flowering/seeding shrubs.	3,458.9	280.7	67.3	1.9
Very open/groved woodland	Groved <i>Eucalyptus</i> woodland over mixed shrubs on plains and low hills. Areas of dense vegetation interspersed with open patches.	2,017.9	811.3	199.7	9.9
Floodplain	Floodplain with scattered trees, shrubs and grasses on clay loam. Likely to be seasonally inundated.	386.4	5.8	0.0	0
Drainage line	Drainage line with <i>Eucalyptus</i> over mixed shrubs on clay loam soils. Thick patches of leaf litter.	529.2	151.1	19.7	3.7
Minor breakaway supporting open woodland	Open <i>Eucalyptus</i> woodland over scattered shrubs on stony hill slopes with minor breakaway.	8.2	0	0	0.0
Grassland	Grassland cleared of nearly all upper story vegetation. Sparse <i>Eucalyptus</i> and mulga shrubs.	480.0	6.0	4.5	0.9

Habitat type	Description	Extent within Study Area (ha)	Extent within Development Envelope (ha)	Indicative Footprint	
				Extent (ha)	Proportion of Study Area (%)
Farm dam with permanent pools	Farm dams with permanent pools with scattered low-mid shrubs and grasses on dam walls.	4.0	0	0	0
Cleared	Cleared, infrastructure areas	245.0	12.7	10.3	4.2
TOTAL		11,435.0	2,312.7	652.0	5.7

3.1.2.1 Critical Habitat

'Habitat critical to the survival of a species' refers to areas that are necessary (DotE 2013):

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

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species as habitat critical for that species; and/or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act (DotE 2013).

Critical habitat and important population assessment has only been undertaken for species that are 'Possibly' or more likely to occur in the Development Envelope. There is no habitat critical for the survival of EPBC listed fauna within the Development Envelope. However, there is breeding habitat for Malleefowl located outside the Development Envelope, which may be considered critical habitat.

3.1.2.1.1 Malleefowl

Malleefowl habitat has been described for some locations within the distribution, but these present an incomplete understanding of the habitats likely to be critical to the survival of the Malleefowl. The areas of habitat critical to the survival of the Malleefowl are unable to be spatially delineated (DCCEEW 2024a). The Malleefowl is found principally in the semi-arid to arid zone in shrublands and low woodlands dominated by mallee and associated vegetation. In central Australia, Malleefowl occurred through large areas of mulga (*Acacia aneura*).

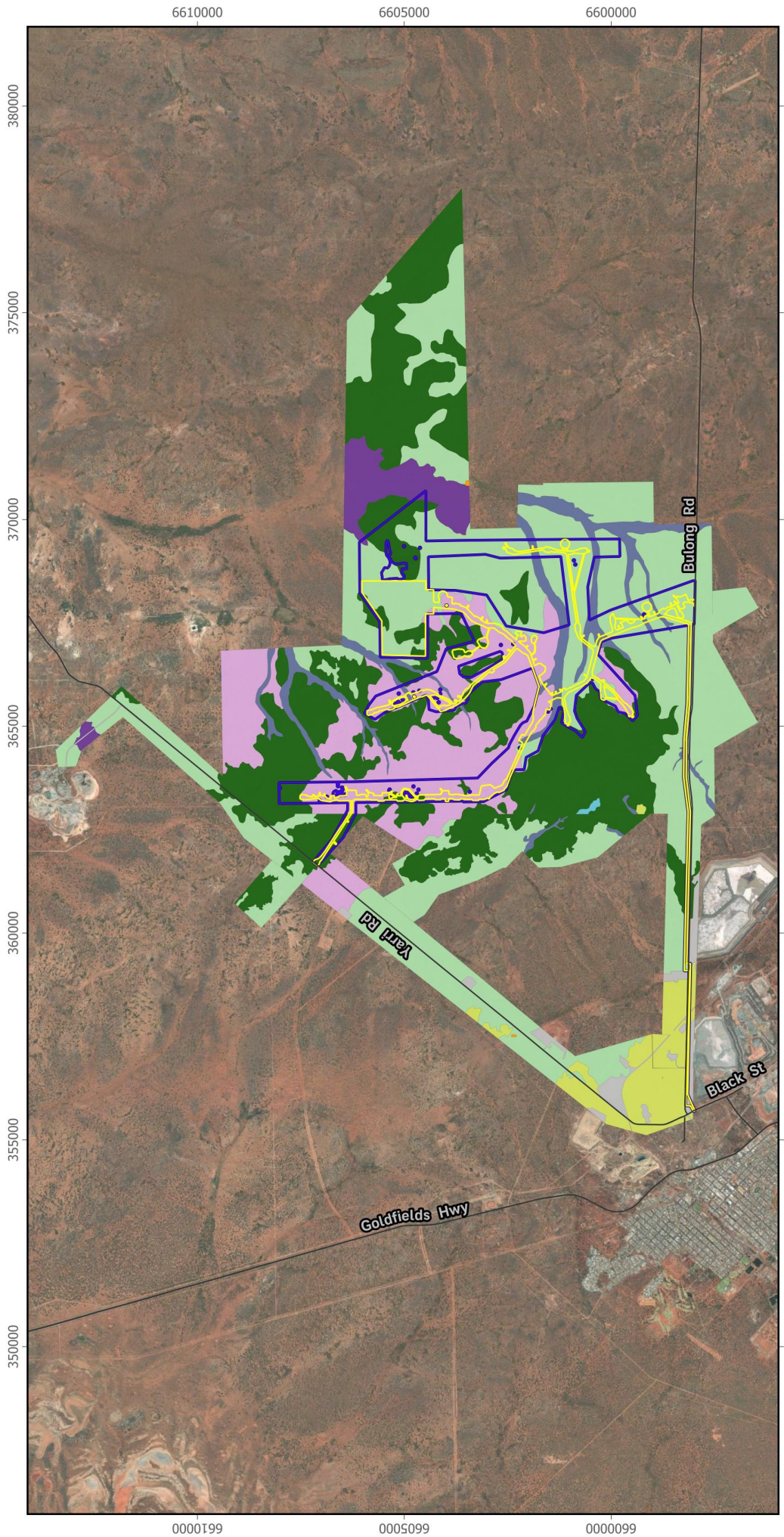


Figure 3-1 Fauna Habitat

- LEGEND**
- Roads
 - Indicative Footprint
 - Development Envelope
 - Fauna Habitat**
 - Cleared
 - Drainage line
 - Farm dam with permanent pools
 - Floodplain
 - Grassland
 - Groved woodland
 - Minor breakaway supporting open woodland
 - Open woodland
 - Shrubland

Scale @A4 1:130000
 Projection: GDA2020 / MGA zone 51

0 2.5 5 km

Client: Northern Star Resources
 Project: 1001978
 Data: Client supplied, PES (2024),
 Imagery ©Esri Satellite

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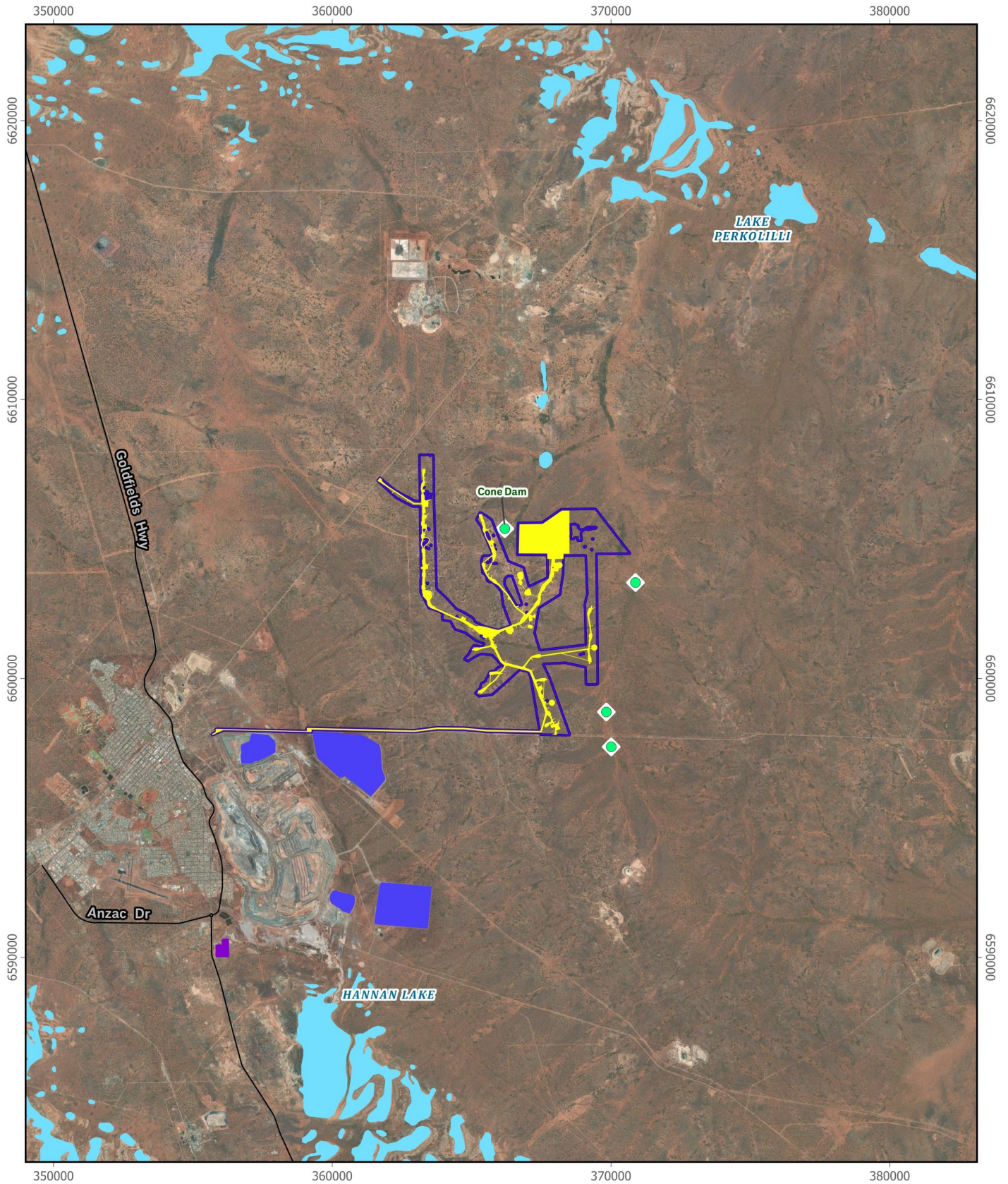


Figure 3-2 Potential Wetland Habitat

- LEGEND**
- Roads
 - Indicative Footprint
 - Development Envelope
- Potential Wetland Habitat**
- Farm Dams
 - Salt Lake
 - Kalgoorlie Wastewater Treatment Plant
 - Tailings Storage Facility (TSF)



Client: Northern Star Resources
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Malleefowl habitat within the Study Area is characterised by a mosaic of foraging and dispersal habitat interspersed with patches of breeding and marginal breeding habitat (Figure 3-3, Table 3 4). These habitats are dominated by a mix of low open Eucalyptus woodlands and casuarina shrublands, and are common and widespread in the region.

Table 3-4 Malleefowl habitat

Habitat Suitability	Description	Extent within Study Area (ha)	Extent within Proposed Development Envelope (ha)	Indicative Footprint	
				Extent (ha)	Proportion of Study Area (%)
High	Breeding habitat	231.6	0	0	0
Moderate (i)	Marginal breeding habitat / Foraging habitat	1,356.6	0	0	0
Moderate (ii)	Foraging and dispersal	4,560.3	1,707.5	385.6	8.5
Low	Marginal foraging and dispersal	5,022.3	592.6	256.1	5.1
None	Not suitable habitat	244.2	12.6	10.3	4.2
TOTAL		11,435.0	2,312.7	652.0	5.7

Critical breeding habitat in the area is associated with areas of higher elevation where underlying soil and vegetation screening are more suitable for the development of nesting mounds. Several Malleefowl nesting mounds have been identified in these areas and the Development Envelope has been designed to avoid these areas. The foraging and dispersal habitat within the Development Envelope is common throughout the surroundings area and is unlikely to be critical for the survival of the local populations.

Phoenix mapped potential Malleefowl habitat within 40 km of the Proposal (Phoenix 2024c) (Figure 3-4). Habitat was mapped more coarsely, based on publicly available data. Habitat types mapped included:

- **Cleared** – areas cleared for roads (other than single-lane unsealed access tracks), mines, and associated infrastructure, water storage dams etc., some partially regenerating as very low or open shrubland; negligible habitat value for Malleefowl
- **Open** – naturally bare or sparsely vegetated areas including lakes, salt lake playa, extensive rock outcrop, scars of recent or intense fires, and sparse shrubland dominated by chenopods or hummock grass; marginal habitat value, unsuitable for breeding, and of low value for foraging, may be used by Malleefowl infrequently for dispersal between other habitat types but associated with increased predation risk due to visual exposure (e.g. Phoenix 2022c).
- **Drainage** – drainage lines with distinct channels or relatively dense fringing vegetation, may be used by Malleefowl for foraging but unlikely to support nesting
- **Suitable** – shrublands and low woodlands not dissected by drainage and with adequate tree/shrub cover to provide leaf litter, thermal shelter and visual screening from predators; presumed to represent foraging and potential nesting habitat for any resident Malleefowl.
- **Suitable (mosaic)** – areas of suitable shrubland/woodland habitat interspersed with scattered areas of clearing (e.g. exploration drill pads and tracks), naturally open patches, and/or drainage lines

- **Open/drainage** – open areas dissected by drainage lines with or without dense vegetation; potential foraging and dispersal habitat, not considered suitable for breeding.

Malleefowl breeding and foraging habitat is common and widespread throughout the region. Malleefowl habitat within 40 km of the Development Envelope has been estimated to comprise mostly Suitable (mosaic) habitat (349,288 ha; 52.2%), Open habitat (170,859 ha; 25.5%), and Open/Drainage habitat (108,070 ha; 16.2%) (Figure 3-4). The remaining area comprises Cleared land (19,951 ha; 3.0%), Suitable habitat (15,483 ha; 2.3%), or Drainage (4,946 ha; 0.7%) (Phoenix 2024c).

The Suitable (mosaic), Suitable, Drainage and Open habitat types all provide habitat for Malleefowl and represent 96% of the area encompassing the proposal. The value of these habitat types varies. The Suitable (mosaic) and Suitable habitat provide both breeding and foraging habitat. The Open and Drainage habitats are unlikely to be suitable for breeding but may provide foraging and dispersal habitat.

3.1.2.1.2 Southern Whiteface

The Southern Whiteface occurs widely across mainland Australia south of the tropics, typically inhabiting open woodlands and shrublands with a grassy or shrubby understorey, particularly in areas dominated by Acacia and Eucalyptus species (DCCEEW 2023a). The species is widespread and common throughout arid and semi-arid regions, including within the Development Envelope (Phoenix 2025a). Southern Whitefaces are considered sedentary but individuals may move to wetter parts of their range during dry years (DCCEEW 2023a).

Habitat critical to the survival of the species is defined as:

- relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both
- habitat with low tree densities and an herbaceous understorey litter cover which provides essential foraging habitat
- living and dead trees with hollows and crevices which are essential for roosting and nesting (DCCEEW 2023a).

The Development Envelope largely consists of open woodlands and shrublands in Very Good to Excellent Condition (Phoenix 2025c) and thus could be considered habitat critical to the survival of the species. However, this does not mean that such habitat is unique. The species' area of occupancy is estimated at 70,000 km² or 7,000,000 ha within a 4,910,000 km² or 491,000,000 ha range (DCCEEW 2023a). The species has not been recorded during surveys of the Study Area but has been recorded in the region. Similar vegetation and habitat surrounds the Development Envelope, particularly to the north and east. The habitat to be retained is arguably no more critical than the extensive habitat to be retained.

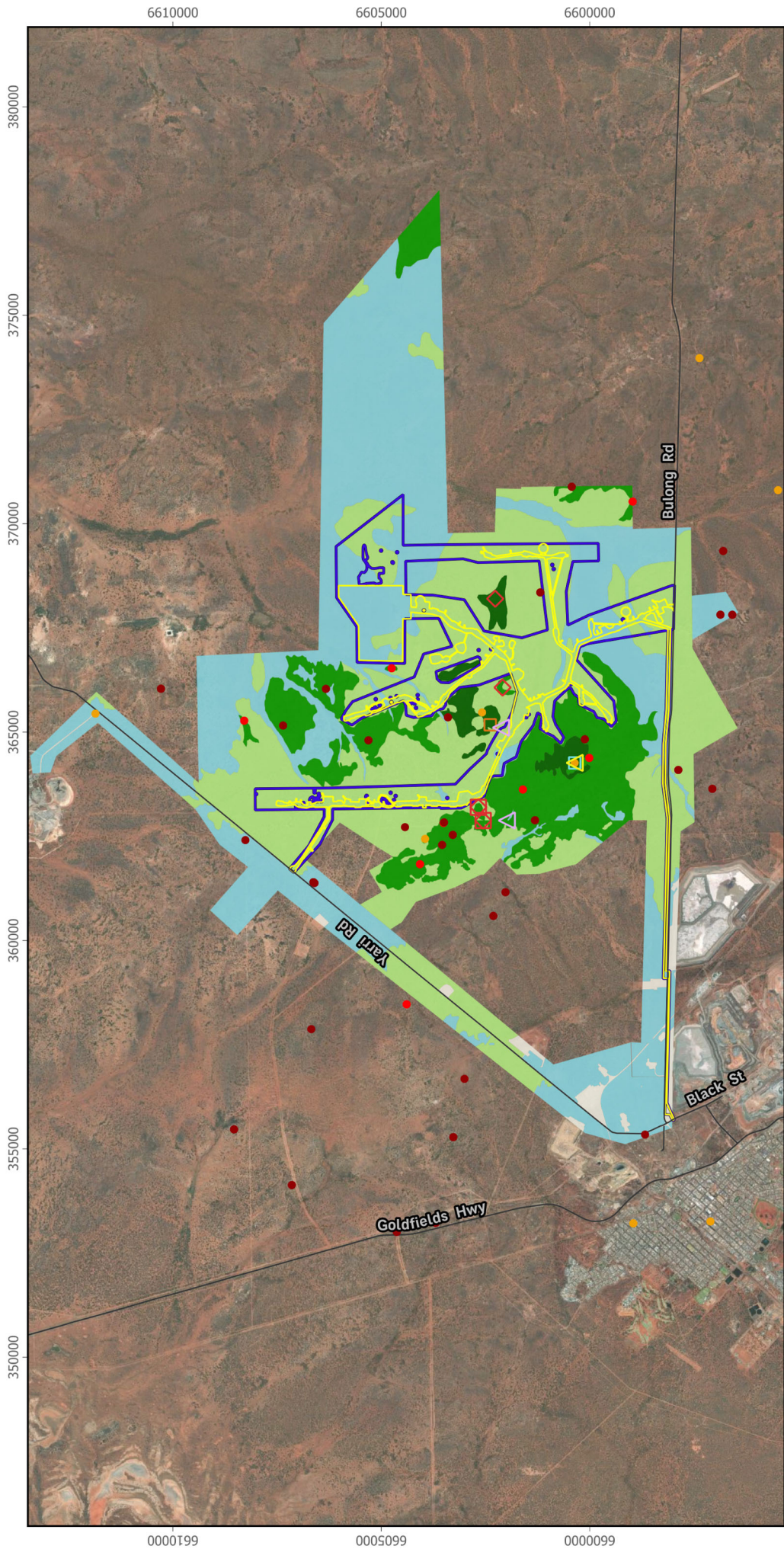


Figure 3-3 Local Malleefowl Habitat

LEGEND

- Roads
- Indicative Footprint
- Development Envelope
- Malleefowl Records
 - DBCA Malleefowl Records
 - ◇ Inactive mound (Subclass 1)
 - ◇ Inactive mound (Subclass 2)
- Malleefowl feather
- Malleefowl foraging evidence
- △ Malleefowl heard calling
- △ Malleefowl track
- Potential Malleefowl Mounds (Andrutt 2025a, 2025b)
 - Likely
 - Possible

Scale @A4 1:130000
 Projection: GDA2020 / MGA zone 51

Client: Northern Star Resources
 Project: 1001978
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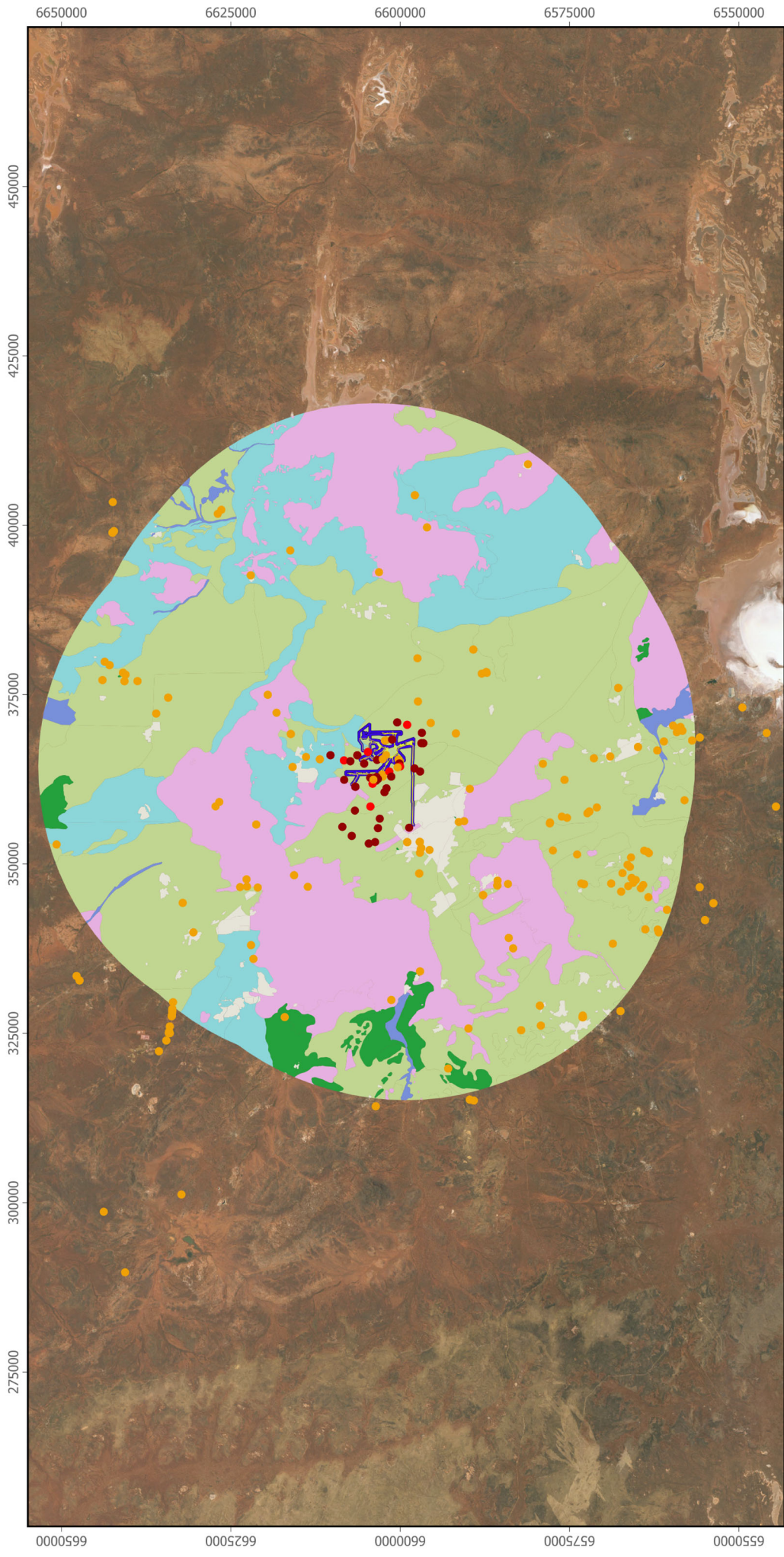


Figure 3-4 Regional Malleefowl Habitat

- LEGEND**
- Indicative Footprint
 - Development Envelope
 - DBCAs Malleefowl Records
 - Potential Malleefowl Mounds (Anditti 2025a, 2025b)
 - Likely
 - Possible
 - Regional Malleefowl Habitat Mapping
 - Suitable
 - Suitable (mosaic)
 - Open
 - Open/drainage
 - Drainage
 - Cleared

Scale @A4 1:800000
 Projection: GDA2020 / MGA zone 51

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3.1.2.2 Important Habitat

Important habitat for a migratory species is described by the *Significant Impact Guidelines 1.1* (DotE 2013) as:

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- habitat that is of critical importance to the species at particular life-cycle stages
- habitat utilised by a migratory species which is at the limit of the species range
- habitat within an area where the species is declining.

Analysis of the potential for Important Habitat for migratory species on the site is provided in Table 3-5. Due to the lack of wetlands in the Development Envelope, it is not important habitat for the majority of the Migratory species listed. Important habitat would include sandy banks and loamy soils generally found along riparian zones. These are not present in the Development Envelope. There are no wetlands in the Development Envelope and thus there is no important habitat for Migratory wetland species.

Table 3-5 Presence of Important Habitat for Migratory Species

Scientific and Common Name	Preferred Habitat	Important habitat present?
<i>Actitis hypoleucos</i> Common Sandpiper	Wetlands	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Apus pacificus</i> Fork-tailed Swift	Species does not land in Australia and sleeps on the wing at night	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Ardea modesta</i> Eastern Great Egret	Wetlands	No. There is no important habitat present within Development Envelope.
<i>Biziura lobata</i> Musk Duck	Wetlands	No. There is no important habitat present within Development Envelope.
<i>Cacomantis flabelliformi</i> Fan-tailed Cuckoo	Woodland	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Cacomantis pallidus</i> Pallid Cuckoo	Woodland; Shrubland	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	Wetlands	No. There is no important habitat present within Development Envelope. Habitat present in Study Area, limited to nearby farm dams.
<i>Calidris ferruginea</i> Curlew Sandpiper	Wetlands	No. There is no important habitat present within Development Envelope. Habitat present in Study Area, limited to nearby farm dams.

Scientific and Common Name	Preferred Habitat	Important habitat present?
<i>Calidris melanotos</i> Pectoral Sandpiper	Wetlands	No. There is no important habitat present within Development Envelope. Habitat present in Study Area, limited to nearby farm dams.
<i>Calidris ruficollis</i> Red-necked Stint	Wetlands	No. There is no important habitat present within Development Envelope.
<i>Charadrius veredus</i> Oriental Plover	Wetlands	No. There is no important habitat present within Development Envelope.
<i>Chlidonias hybrida</i> Whiskered Tern	Wetlands	No. There is no important habitat present within Development Envelope.
<i>Chrysococcyx osculans</i> Black-eared Cuckoo	Wetlands	No. The species is highly mobile, and their nomadic behaviour means it uses habitat periodically and the region does not support an ecologically significant proportion of the population of the species.
<i>Merops ornatus</i> Rainbow Bee-eater	Woodland; Shrubland	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Motacilla cinerea</i> Grey Wagtail	Inland plains; Coastal areas	No. While the species has been recorded, it is a vagrant visitor to Australia, preferring habitats associated with fast flowing streams and rivers (Phoenix 2025b).
<i>Pluvialis squatarola</i> Grey Plover	Wetlands	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Thinornis rubricollis</i> Hooded Plover	Wetlands	No. The region does not support an ecologically significant population, habitat is not critical for any particular life cycle stage and individual birds visit the area as vagrants.
<i>Todiramphus sanctus</i> Sacred Kingfisher	Woodland	No. The species is highly mobile, and their presence in the Indicative Footprint is generally seasonal, linked to rainfall, food availability, and breeding cycles.
<i>Tringa brevipes</i> Grey-tailed Tattler	Coastal Wetlands	No. There is no important habitat present within Development Envelope.
<i>Tringa glareola</i> Wood Sandpiper	Wetlands	No. There is no important habitat present within Development Envelope.
<i>Tringa nebularia</i>	Wetlands	No. There is no important habitat present within Development Envelope.

Scientific and Common Name	Preferred Habitat	Important habitat present?
Common Greenshank, Greenshank		
<i>Tringa stagnatilis</i> Marsh Sandpiper	Wetlands	No. There is no important habitat present within Development Envelope.

3.1.3 Important Populations

An important population for a Threatened Species is defined by the *Significant Impact Guidelines 1.1* (DotE 2013) as a population that is necessary for a species' long-term survival and recovery. This includes populations that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity
- populations that are near the limit of the species range.

3.1.3.1 Malleefowl

The National Recovery Plan for Malleefowl (DCCEEW 2024a) states that:

“All populations and areas occupied by Malleefowl are considered of equal importance for the protection and recovery of the Malleefowl. This is despite any variability of Malleefowl density, population size, conservation challenges relevant to the area, or other factors that may be perceived as discounting the relative importance of an area or population.”

Malleefowl still occur over most of their range, and although populations tend to be sparser in areas with low or highly variable winter rainfall, this is compensated by these areas being extensive. Conversely, Malleefowl densities are highest in remnants of habitat within the wheatbelts, but these areas are usually small and fragmented and will require intensive management in the long term to retain the species.”

Whereas population density and breeding activity have been declining over most of the species range in recent decades, only populations in small reserves have been specifically mentioned as important for conservation (Benshemesh *et al.*, 2020). The Proposal does not intersect any current or proposed conservation reserves.

Based on these criteria, it is concluded that the Malleefowl population in the vicinity of the Development Envelope does not qualify as an important population in the relevant sense.

3.1.3.2 Southern Whiteface

Southern Whiteface had previously been recorded in the region but was not recorded in the recent Phoenix (2022-2025) and DES (2025) surveys. There is no evidence that the species is present or likely to occur in the Development Envelope.

3.2 Impact Assessment and Mitigation

3.2.1 Potential Impacts

Potential for direct and indirect impacts are considered in Table 3-6, along with a range of management actions to mitigate impacts. The effectiveness of these actions in reducing the level of impact varies and while it is often difficult to completely eliminate impacts, the aim is to reduce level of impact to below the threshold of a significant impact for the species.

The detailed design for the Proposal has been developed in parallel with the implementation of baseline environmental surveys and an iterative approach has been taken with the design being modified to avoid potential impacts to significant fauna such as Malleefowl.

A series of management plans have been developed to demonstrate how these controls will be implemented. Management plans relevant to terrestrial fauna include:

- Construction Environmental Management Plan– outlines the frameworks for how potential environmental impacts will be managed during construction
- Bird and Bat Adaptive Management Plan (BBAMP) – provides a framework for mitigating and monitoring potential impacts to birds and bats during operations.

These mitigation measures will be incorporated into the environmental management documentation and contractual obligations for the Proposal.

Table 3-6 Potential Impacts to Fauna

Potential Impact	Management Measures	Assessment of Residual Impact
Potential Direct Impacts		
<p>Loss and or fragmentation of habitat due to vegetation clearing and earthworks</p>	<ul style="list-style-type: none"> ▪ Minimising land clearing as much as possible during the planning and design process and control clearing through an internal Land Disturbance Permit Procedure. ▪ Minimising the chance of over-clearing through the implementation of on-ground controls such as demarcation of the authorised clearing area and environmental values requiring protection within exclusions zones such as Malleefowl nesting mounds. ▪ Minimising clearing of large trees and vegetation associated with drainage lines. 	<p>The initial concept layout would have required a disturbance footprint of up to 1,040 ha. Through refinement of the layout and purposeful avoidance of Malleefowl habitat, the Indicative Footprint has been reduced to 652 ha. No Malleefowl breeding habitat will be cleared, foraging habitat within the Development Envelope comprises a small proportion of available regional habitat, and connectivity between habitat areas will be maintained, therefore residual impacts to Malleefowl are considered low and not significant.</p> <p>The clearing impacts to other MNES similarly represent a small proportion of the available regional habitat and are not considered significant.</p>
<p>Collision or barotrauma from interaction with wind turbine infrastructure</p>	<ul style="list-style-type: none"> ▪ Use of largest turbine available - Large turbines are more visible and have lower blade rotational speeds than smaller turbines. Collision rates also appear to be related to ease of visibility. ▪ Turbines are designed to be widely spaced to reduce the diversionary responses by birds and bats ▪ Site selection to avoid areas between wetlands to minimise migration routes ▪ Implementation of a BBAMP that detects and quantifies impacts to birds and bats ▪ Implementation of a carcass search and carrion removal program ▪ Transmission cabling to connect into the existing transmission line present on site will be underground, hence avoiding/reducing impacts to terrestrial fauna ▪ Curtailment of turbines where practicable in accordance with BBAMP. Includes consideration of timing of curtailment and potential to adjust cut-in speeds during periods of high bat activity. 	<p>The proposed mitigations are expected to reduce the chance of impacts to conservation significant fauna to a level where these do not impact the viability of the species.</p>

Potential Impact	Management Measures	Assessment of Residual Impact
Vehicle strikes during construction and operation	<ul style="list-style-type: none"> Vehicle speed limits Traffic management, including appropriate signage in high-risk areas, such as at locations where Malleefowl are frequently observed or near the J. aridus host plant exclusion zone Report observations of Threatened and Priority fauna (e.g. Malleefowl). 	The proposed mitigations measures are expected to reduce the chance of vehicle strike sufficiently that the potential impact to fauna would be negligible.
Entrapment in open trenches during construction activities	<ul style="list-style-type: none"> Close trenches overnight where practicable. Inspections of open trenches to ensure any entrapped fauna are identified and relocated, where possible. Facilitation of fauna egress in accordance with industry standards 	The proposed mitigations measures are expected to reduce the chance of entrapment sufficiently that the potential impact to fauna would be negligible.
Potential Indirect Impacts		
Increased predation, habitat degradation and competition from introduced flora and fauna	<ul style="list-style-type: none"> Regular inspections to identify evidence of pest fauna activity Responsible waste management to ensure attraction by feral animals (e.g. cats, foxes and wild dogs) is minimised (e.g. ensure bins are covered) Pest control programs implemented as required Carcass and carrion removal programs to minimise potential introduction or spread of meat ants. Vehicle hygiene protocols to ensure vehicles are clean on arrival to site Regular inspection to identify weeds attributable to the Proposal Weed control programs implemented as required 	<p>The Proposal is unlikely to introduce any significant food sources that would attract predators. No on-site accommodation is provided and while there will be offices and a crib room present, responsible management of waste will prevent attracting feral predators.</p> <p>The Proposal will be located on pastoral land where weeds are common and weed hygiene protocols will need to be implemented to ensure impacts from weeds are not exacerbated.</p>
Dust generation during construction, potentially degrading habitat quality	<ul style="list-style-type: none"> Dust suppression using water carts Traffic management – speed limits Progressive clearing 	Dust can be effectively managed with dust suppression using water carts and traffic management protocols such as speed limits. The residual impact to MNES would not be significant.
Noise and vibration, which may cause displacement of sensitive fauna	<ul style="list-style-type: none"> Regular maintenance of equipment, vehicles and machinery in accordance with industry standards Pre-starts and vehicles inspections Night works to comply with industry noise regulations, if required and works will be conducted in accordance with a noise management plan. 	Noise and vibration may cause temporary displacement of fauna. Most of the noise emissions will be during construction. During operations, turbine noise will be low. Displacement of MNES is expected to be short-term and localised, with no impacts expected at the regional scale. MNES may become habituated to the operational noise and return to the area, consequently, impacts to MNES are not expected to be significant.

Potential Impact	Management Measures	Assessment of Residual Impact
Disturbance to fauna from turbine shadows		Shadows cast by the turbines would cover a small portion of the Development Envelope, they are unlikely to have significant impact on the surrounding environment and fauna present.
Disturbance to fauna from artificial light	<ul style="list-style-type: none"> Night works minimised to the duration necessary for safe construction and operation of the facility Use of artificial light will be minimised to only illuminate work areas and lights positioned to minimise spill into surrounding vegetation and fauna habitat. 	Night works will be limited and artificial light spill to the surrounding vegetation will be short-term. With the implementation of the proposed mitigation measures, and the availability of vegetation to provide shelter and refuge from the short term exposure to artificial light, the impacts to MNES from shadows and light spill are not anticipated to be significant.
Altered fire regimes, potentially impacting habitat structure and availability	<ul style="list-style-type: none"> Development and implementation of a fire management and emergency response plan, which will be available at key locations Firefighting equipment is readily available on all vehicles and all facilities. 	The Development Envelope is already subject to fire management as part of the pastoral activities at Black Flag station. Additional fire risks associated with the Proposal can be effectively managed through the implementation of a fire management and emergency response plan. Residual risk of alterations to fire regime are not significant.
Hydrological changes, reducing water availability in fauna habitat	Maintain surface water drainage using appropriate controls such as installation of drains and culverts	The Proposal has been designed to maintain natural surface water drainage using appropriate surface water management infrastructure (e.g. drains and culverts) and the residual risk of indirect impacts to MNES from changes to drainage are not significant.

3.2.1.1 Habitat clearing

Clearing of fauna habitats within the Development Envelope will be approximately as per Table 3-7.

Table 3-7 Habitat Clearing within the Indicative Footprint

Habitat type	Extent within Study Area (ha)	Extent in Development Envelope (ha)	Indicative Footprint	
			Extent (ha)	Proportion of Study Area (%)
Open woodland	5,335.8	1045.1	350.5	6.57%
Shrubland	4,021.0	280.7	67.3	1.67%

Habitat type	Extent within Study Area (ha)	Extent in Development Envelope (ha)	Indicative Footprint	
			Extent (ha)	Proportion of Study Area (%)
Very open/groved woodland	2,052.0	811.3	199.7	9.73%
Floodplain	386.8	5.79	0.0	0.0%
Drainage line	621.3	151.1	19.7	3.17%
Minor breakaway supporting open woodland	8.44	0.0	0.0	0.0%
Grassland	516.4	6.02	4.54	0.88%
Farm dam with permanent pools	1.72	0.0	0.0	0.0%
Cleared	250.7	12.7	10.3	4.11%
TOTAL	13,194.1	2,312.7	652.0	4.93%

3.2.1.2 Collision risk

Species with a moderate to high inherent risk of collision with wind turbines, based on flight behaviour and likelihood of occurrence, or those with suitable habitat present within the Indicative Footprint, have been included in this impact assessment (Table 3-8). The Fork-tailed Swift (*Apus pacificus*) and Rainbow Bee-eater (*Merops ornatus*), both highly mobile aerial species, exhibit moderate inherent collision risk due to their foraging behaviours and flight heights within the rotor-swept zone. These species also have suitable habitat within the Indicative Footprint (approximately 652 ha and 550.2 ha, respectively), justifying inclusion under both collision and clearing impact pathways.

The Malleefowl (*Leipoa ocellata*), was identified by DES (2025) to have a low inherent collision risk due to its ground-dwelling behaviour and limited flight activity, and has suitable low-moderate quality habitat present Indicative Footprint associated with shrubland, woodland and drainage line habitat. With 637.2 ha of suitable habitat proposed to be cleared, Malleefowl has been assessed under the vegetation clearing pathway only (Table 3-8).

The Whiskered Tern (*Chlidonias hybrida*) has no suitable habitat within the Indicative Footprint but is known to fly at heights consistent with wind turbine operation and has a moderate inherent risk of collision. Therefore, this species has been included for assessment under the collision risk pathway only (Table 3-8).

Other species such as the Southern Whiteface (*Aphelocephala leucopsis*), Fan-tailed Cuckoo, Pallid Cuckoo, and Sacred Kingfisher were determined to have low collision risk due to flight behaviour and have been assessed primarily for impacts from habitat removal, with clearing up to 550.2 ha. The Western Chuditch (*Dasyurus geoffroyi*), a ground-dwelling marsupial, is not at risk from turbine collision, but may be indirectly impacted by habitat loss.

All other species assessed as having a low inherent collision risk and no suitable habitat within the Indicative Footprint have also been excluded from further collision risk assessment. These included:

- Common Sandpiper (*Actitis hypoleucos*)
- Musk Duck (*Biziura lobata*)
- Sharp-tailed Sandpiper (*Calidris acuminata*)
- Curlew Sandpiper (*Calidris ferruginea*)
- Pectoral Sandpiper (*Calidris melanotos*)
- Red-necked Stint (*Calidris ruficollis*)

- Oriental Plover (*Charadrius veredus*)
- Grey Wagtail (*Motacilla cinerea*)
- Arid Bronze Azure Butterfly (*Ogyris petrina*)
- Night Parrot (*Pezoporus occidentalis*)
- Grey Plover (*Pluvialis squatarola*)
- Wood Sandpiper (*Tringa glareola*)
- Common Greenshank (*Tringa nebularia*).

As these species are either not expected to occur within the Development Envelope due to lack of habitat or have behaviours that are not expected to bring them into contact with turbine blades under the Proposal. As such, these species have not been considered further in the collision risk assessment.

Table 3-8 Summary of Potential Impacts for species with likelihood to occur within the Indicative Footprint

Scientific and Common Name	EPBC Act Conservation Status	Habitat Present in Indicative Footprint	Potential Impacts	
			Clearing of Suitable Habitat	Collision Risk with Wind Turbines (Inherent/Mitigated)
<i>Aphelocephala leucopsis</i> Southern Whiteface	Vulnerable	Open woodland, Shrubland, Groved woodland	617.5 ha	Low/Low
<i>Apus pacificus</i> Fork-tailed Swift	Migratory	All habitat excluding cleared areas	652 ha	Moderate/Moderate
<i>Cacomantis flabelliformi</i> Fan-tailed Cuckoo	Marine	Woodlands	550.2 ha	Low/Low
<i>Cacomantis pallidus</i> Pallid Cuckoo	Marine	Woodlands	550.2 ha	Low/Low
<i>Calidris ferruginea</i> Curlew Sandpiper	Critically endangered / Migratory	No Suitable Habitat	None	Moderate/Low
<i>Chlidonias hybrida</i> Whiskered Tern	Marine	No Suitable Habitat	None	Moderate/Low
<i>Chrysococcyx osculans</i> Black-eared Cuckoo	Marine	Woodlands	550.2 ha	Low/Low
<i>Dasyurus geoffroii</i> Chuditch Western Chuditch	Vulnerable	Open woodland, Groved woodland	199.7 ha	Not Applicable
<i>Leipoa ocellata</i> Malleefowl	Vulnerable	Open woodland, Shrubland, Drainage Line	642 ha	Low/Low
<i>Merops ornatus</i> Rainbow Bee-eater	Marine	Woodlands	550.2 ha	Moderate/Moderate
<i>Todiramphus sanctus</i> Sacred Kingfisher	Marine	Woodlands	550.2 ha	Low/Low

3.3 Significant Impact Assessment

Significant impact assessment was undertaken for species with a 'possible' or greater likelihood of occurrence based on Table 3-2.

3.3.1 Critically Endangered Species

The one Critically Endangered Species with the potential to occur in the Development Envelope is the Curlew Sandpiper (*Calidris ferruginea*). It is a summer migrant listed as a migratory wetland species and protected under international agreements including the Bonn Convention. Critical habitat is exclusively related to wetlands (TSSC 2015; DCCEE 2023b) and there are no waterbodies and wetlands in the Development Envelope (Figure 3 2). Therefore, habitat in the Development Envelope is not critical to the survival of this species and no important population resides here.

3.3.1.1 Curlew Sandpiper

In Western Australia, it is listed as IA under the *Biodiversity Conservation Act 2016* (BC Act), reflecting its migratory status and international protection.

The species primarily inhabits intertidal mudflats and sheltered coastal areas but is also found around non-tidal swamps, lakes, and lagoons near the coast. Inland occurrences are exceedingly rare, usually limited to ephemeral or permanent water bodies with muddy or sandy edges, where it forages for seeds and invertebrates. Its flight behaviour while foraging is fast and low, close to the ground or water surface; during migration or disturbance, it may fly at heights exceeding 100 metres (DES 2025). The species is rarely recorded on mine tailings systems during September and October as a passage migrant along southern coastal regions, with a single record from the KCGM tailings system. Inland records are typically single-day sightings with nocturnal departure and the species has not been observed at the Kalgoorlie sewage ponds. Historical records indicate a rare presence approximately 1.3 km north of the Indicative Footprint, but no suitable habitat is present within the Indicative Footprint. This species may traverse the Indicative Footprint on the way to salt lakes 7 to 20 km from the Development Envelope.

Due to its migratory nature, infrequent inland records, and absence of suitable habitat within the Indicative Footprint, no significant impact is expected. The collision risk with turbines is assessed as Low following mitigation (DES 2025), and habitat loss is not applicable (Table 3-9).

Table 3-9 Curlew Sandpiper (Critically Endangered – Significant Impact Criteria)

Assessment of Proposal
<p>a) Lead to a long-term decrease in the size of a population</p> <p>The Curlew Sandpiper is a migratory shorebird primarily associated with coastal wetlands and intertidal mudflats. Inland sightings are rare, and the species is not known to occur in significant numbers near the Indicative Footprint. Given that no suitable habitat exists within the Indicative Footprint and there is no evidence of an important population in the area, the Proposal is not expected to lead to a long-term decrease in population size.</p>
<p>b) Reduce the area of occupancy of the species</p> <p>The Indicative Footprint lies outside the species' typical habitat. Inland records of Curlew Sandpiper are both infrequent and temporary, and no suitable habitat (e.g. tidal mudflats, saline wetlands) occurs within the Development Envelope. Therefore, the Proposal will not reduce the area of occupancy of the species.</p>
<p>c) Fragment an existing population into two or more populations.</p> <p>The species is highly migratory and does not maintain resident inland populations in the region. As there is no confirmed or persistent population near the Indicative Footprint, the Proposal will not result in population fragmentation.</p>
<p>d) Adversely affect habitat critical to the survival of a species.</p>

Assessment of Proposal
The Indicative Footprint does not contain habitat critical to the survival of the Curlew Sandpiper. The Development Envelope lacks the intertidal or wetland environments essential to the species' survival. Therefore, the Proposal is not expected to adversely affect any habitat critical to the species.
e) Disrupt the breeding cycle of population.
The Curlew Sandpiper breeds in the high Arctic and does not breed anywhere in Australia. As such, the Proposal will not disrupt the species' breeding cycle.
f) Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Given the absence of suitable habitat within the Indicative Footprint, the Proposal will not result in habitat modification or removal that would affect the species' survival. Therefore, no population-level decline is expected.
g) Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.
No suitable habitat exists within the Indicative Footprint, and the species does not occupy or rely on the Development Envelope. The implementation of biosecurity protocols will further reduce any residual risk. The Proposal will not contribute to the spread of invasive species harmful to the Curlew Sandpiper.
h) Introduce disease that may cause the species to decline
There is no pathway for the Proposal to introduce disease that would affect this migratory species, particularly given its rare and transient presence inland. Therefore, disease introduction is not considered a risk and will not cause the species to decline.
i) Interfere with the recovery of the species.
The Proposal is located outside of the species' preferred habitat and does not pose a threat to existing populations or recovery objectives. As such, it is not expected to interfere with the recovery of the Curlew Sandpiper.

3.3.2 Vulnerable Species

There are two vulnerable species potentially present in the Development Envelope, being Malleefowl and Southern Whiteface. The Southern Whiteface have been recorded in the region, and habitat within the Development Envelope is very similar to the extensive surrounding habitat in terms of suitability for these species and is thus not considered more critical for these species than the surrounding habitat.

The Indicative Footprint has been designed to avoid Malleefowl breeding mounds and high quality habitat. The Proposal is consequently considered unlikely to pose a significant impact to these species (Table 3-12 and Table 3-13).

3.3.2.1 Malleefowl

The Malleefowl is listed as Vulnerable under the EPBC Act. It inhabits semi-arid to arid shrublands and low woodlands, particularly where mallee or acacia species dominate, supported by fertile soils, a dense shrub layer, and abundant food plants (DCCEE 2024a; Phoenix 2024c).

Dense canopy cover is important for foraging Malleefowl, as it offers protection from predation by large raptors and feral species. The Western Australian Goldfields region supports extensive shrubland and low woodland, though habitat quality varies in relation to rainfall and disturbance history.

Malleefowl presence was confirmed during targeted fauna surveys conducted in 2022, 2024, and 2025, with evidence recorded at nine (9) locations outside the Development Envelope. Observations included tracks, foraging signs, shed feathers, and vocalisations, indicating active use of the area by the species (Phoenix 2025e). A total of 32 Malleefowl mounds including two active mounds were identified outside the Indicative Footprint and Development Envelope (Figure 3-3). Foraging evidence was observed in surrounding leaf litter, and an individual was heard calling nearby (Phoenix 2025e). No additional mounds were detected through LIDAR topographic mapping (Anditi, 2024, 2025).

High value habitat identified in the area surrounding the Development Envelope has been excluded from the Indicative Footprint (Figure 3-3, Table 3-10). Habitat within the Development Envelope was assessed as either moderate or low suitability, based on characteristics and the likelihood of supporting breeding activity (Figure 3-3). Habitat suitability categories at a Study Area (local) level are defined as:

- High suitability habitat is characterised by dense vegetation that provides screening and is defined as primary nesting, foraging, and dispersal habitat, that is regarded as habitat critical for the survival of the species.
- Moderate suitability habitat is split into two (2) subcategories based on the habitat attributes:
 - i) suitable for foraging, dispersal, and may contain marginally suitable breeding habitat depending on the combination of the environmental variables
 - ii) suitable for foraging and dispersal (not suitable for breeding).
- Low suitability habitat does not contain enough habitat features for it to be considered suitable for breeding, however it may still be used for dispersal and occasional foraging.

Table 3-10 Habitat Suitability for Malleefowl within Study Area

Habitat Suitability	Description	Extent within Study Area (ha)	Extent within Development Envelope (ha)	Indicative Footprint	
				Extent (ha)	Proportion of Study Area (%)
High	Breeding habitat	231.64	0.0	0.0	0
Moderate (i)	Marginal breeding habitat / Foraging habitat	1,754.3	0.0	0.0	0
Moderate (ii)	Foraging and dispersal	5,541.2	1,707.5	385.6	2.9
Low	Marginal foraging and dispersal	5,416.3	592.6	256.2	1.9
None	Cleared	250.7	12.6	10.3	<0.1
Total		13,194.1	2,312.7	652.1	4.9

At a regional level (defined as a 40 km area around the site), the Indicative Footprint contains less than 0.2% of the Malleefowl suitable (mosaic) habitat and none of the suitable habitat (Table 3-11, Figure 3-4).

Table 3-11 Regional Malleefowl Habitat

Habitat Type	Regional Extent (40 km)	Extent within Development Envelope (ha)	Extent within Indicative footprint (ha)	Percentage of regional habitat (%)
Cleared	19,951	13.1	10.6	0.05
Open	170,858	1.4	0.8	0
Drainage	4,946	0.0	90.9	1.84
Open/drainage	108,070	106.8	0	0
Suitable	15,483	0.0	0	0
Suitable (mosaic)	349,288	2191.4	549.7	0.16

Habitat Type	Regional Extent (40 km)	Extent within Development Envelope (ha)	Extent within Indicative footprint (ha)	Percentage of regional habitat (%)
Total	668,598	2312.7	652	0.10

A total of 642 ha of suitable Malleefowl habitat occurs within the Indicative Footprint; however, this is confined to areas classified as moderate suitability (385.6 ha) and low suitability (256.2 ha) and represents less than 3% of the moderate quality habitat available in the Study Area. All breeding habitat has been avoided. The mapped habitat is consistent with regional habitat distribution patterns and are widespread in the local region. All areas of high suitability habitat are located outside the Development Envelope and no active mounds will be impacted by the Proposal, thereby avoiding direct disturbance to known breeding sites (Table 3-12).

Table 3-12 Malleefowl (Vulnerable – Significant Impact Criteria)

Assessment of the Proposal
<p>a) Lead to a long-term decrease in the size of an important population of a species.</p> <p>The Malleefowl's (<i>Leipoa ocellata</i>) area of occupancy is estimated at approximately 73,000,000 ha (NESPTRH, 2019). The Proposal will result in the clearing of less than 642 ha of moderate to low-quality habitat located on the edge of a township. During field surveys, 32 mounds were identified outside the Development Envelope, including two (2) active mounds, all of which are located within exclusion buffers of at least 50 m to avoid direct disturbance. As discussed in Section 3.1.3.1, the population of Malleefowl utilising the Indicative Footprint has not been identified as an important population. This definition has been limited to populations in small reserves (Benshemesh <i>et al.</i>, 2020).</p>
<p>b) Reduce the area of occupancy of an important population.</p> <p>The population of Malleefowl in the vicinity of the Indicative Footprint is not considered to be an important population and thus the Proposal will not reduce the area of occupancy of an important population.</p>
<p>c) Fragment an existing important population into two or more populations.</p> <p>The population of Malleefowl in the vicinity of the Indicative Footprint is not considered to be an important population and thus the Proposal will not fragment an important population.</p>
<p>d) Adversely affect habitat critical to the survival of a species.</p> <p>The National Recovery Plan (DCCEEW 2024a) acknowledges that habitat critical to the species' survival is not easily defined spatially. High-quality habitat that supports nesting and breeding is considered critical (Section 3.1.2.1.1), and these areas have been intentionally avoided in the Indicative Footprint and Development Envelope. The Indicative Footprint does not include any active or inactive mounds, nor areas assessed as suitable for breeding.</p> <p>As such, the Proposal will not adversely affect habitat critical to the survival of the species, and no significant impact is expected under this criterion.</p>
<p>e) Disrupt the breeding cycle of an important population.</p> <p>The population of Malleefowl in the vicinity of the Indicative Footprint is not considered to be an important population and there are no proposed impacts to mounds. As such, the Proposal will not disrupt the breeding cycle of an important population.</p>
<p>f) Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.</p>

Assessment of the Proposal
<p>The Proposal will result in the removal of up to 652 ha of suitable but non-nesting habitat for the Malleefowl (<i>Leipoa ocellata</i>), located on the edge of a township and within a landscape that retains extensive areas of similar or higher-quality habitat (Figure 3-3, Figure 3-4). Known breeding mounds are outside the Development Envelope and will be. Northern Star's experience at Carosue Dam is that Malleefowl are relatively insensitive to dust and noise, and will build mounds close to mining operations (Bennison, C., pers. comm). A 50 m buffer is therefore considered adequate to protect against indirect impacts such as dust and noise during construction and operation.</p> <p>Malleefowl are known to recolonise post-disturbance in areas where suitable habitat persists, and surrounding habitat remains connected and largely intact. As a result, the Proposal is not expected to significantly reduce the availability or quality of habitat in a way that would lead to a decline in the species at the population level.</p>
<p>g) Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.</p>
<p>Feral predators such as cats and foxes, as well as introduced herbivores like goats, are already known to occur within the Development Envelope. However, the Proposal will not increase the risk of establishment or spread of these invasive species. Northern Star will implement strict hygiene and biosecurity protocols, including prohibiting pets on site, controlling weeds, and enforcing clean-entry requirements for all vehicles and equipment. As such, the Proposal is not expected to introduce or exacerbate the presence of invasive species harmful to Malleefowl.</p>
<p>h) Introduced disease that may cause the species to decline</p>
<p>Animal-borne diseases are not known to be a threat to Malleefowl. To further reduce any potential risk, Northern Star will implement hygiene protocols to prevent the introduction of soil-borne pathogens via construction equipment or personnel. The Proposal is not expected to result in a significant impact as there are no disease-related impacts.</p>
<p>i) Interfere substantially with the recovery of the species</p>
<p>The Proposal avoids areas critical to the recovery of Malleefowl, including direct and indirect impact to known mounds and clearing of high-quality breeding habitat, in accordance with the National Recovery Plan for Malleefowl (DCCEEW 2024a). Vehicle speeds on site will be limited to avoid vehicle strike. Turbine strike would not occur as the species rarely flies and does not typically fly above the treetops (DES 2025). Fire management practices such as fire breaks are already in effect on Black Flag pastoral station and the risk of significantly exacerbating fire risk is low.</p> <p>The proposed clearing of up to 642 ha occurs in moderate to low-quality habitat and will not disrupt key ecological processes essential to the species' recovery. This represents less than 0.2% of the regionally available suitable habitat. No interference with the recovery of the species is expected from the Proposal given the small scale, location, and design of the Indicative Footprint.</p>

3.3.2.2 Southern Whiteface

The Southern Whiteface occurs widely across mainland Australia south of the tropics, typically inhabiting open woodlands and shrublands with a grassy or shrubby understorey, particularly in areas dominated by Acacia and Eucalyptus species (DCCEEW 2023a). The species is widespread and common throughout arid and semi-arid regions, including within the assessment area (Phoenix 2025a).

Ecological field surveys confirmed the presence of suitable habitat both within and adjacent to the Indicative Footprint. Desktop searches also support local records of occurrence. Phoenix (2024a) considers the species likely to occur in Open Woodland and Shrubland habitat types within the Indicative Footprint. While the Southern Whiteface may occasionally forage within the Development Envelope, its characteristic low and fast flight behaviour means the inherent risk of turbine collision is considered by DES (2025) to be low.

The Proposal will result in the clearing of up to 617.5 ha of suitable foraging habitat, although limited hollows suitable for breeding are present. The majority of the vegetation in the vicinity of the site consists of open woodlands and shrublands anticipated to be suitable habitat for the species. Given the species' broad geographic distribution,

ecological adaptability, and the availability of extensive similar habitat in the surrounding landscape, a significant impact is not anticipated. The species is not restricted to the Indicative Footprint or Development Envelope, and none of the significant impact criteria under the EPBC Act for vulnerable species are expected to be met (Table 3-13).

Table 3-13 Southern Whiteface (Vulnerable – Significant Impact Criteria)

Assessment of Proposal
<p>a) Lead to a long-term decrease in the size of an important population of a species</p> <p>The Southern Whiteface is widespread and locally common across arid and semi-arid parts of mainland Australia. The area of occupancy for Southern Whiteface is estimated at 7,000,000 ha (DCCEEW 2023a). Southern Whiteface occurs in the Indicative Footprint and is anticipated occur in shrublands, grasslands and open woodlands in the broader Kalgoorlie area. This species is abundant and widespread across the region and Australia, especially in arid and semi-arid areas (Phoenix, 2025a).</p> <p>The Proposal involves the removal of up to 617.5 ha of suitable habitat. The proposed clearing is limited relative to the species' broader range, and suitable habitat is abundant regionally.</p> <p>Southern Whiteface does not fly at heights that would allow for collision with operating turbines. As a consequence, the Proposal is not expected to have a significant impact on Southern Whiteface as no long-term decrease to the size of the population is expected.</p>
<p>b) Reduce the area of occupancy of an important population.</p> <p>The Southern Whiteface is highly mobile and occupies widespread and connected habitats with an estimated area of occupancy at 70,000 km² (DCCEEW 2023a). The Proposal will not introduce significant barriers to movement, and the species is expected to move freely across the landscape post-construction. Therefore, population fragmentation is not expected.</p> <p>The Proposal is not expected to impact on the area of occupancy important populations of Southern Whiteface.</p>
<p>c) Fragment an existing important population into two or more populations.</p> <p>Up to 617.5 ha of suitable habitat exists within the Indicative Footprint. This suitable habitat is not critical to the survival of the species, given its extensive range and occurrence in numerous similar habitats throughout the arid zone. The habitat to be impacted does not support unique features essential for reproduction or survival.</p> <p>The Proposal is not expected to fragment an important population of Southern Whiteface and no significant impact to this species.</p>
<p>d) Adversely affect habitat critical to the survival of a species.</p> <p>Habitat critical to the survival of Southern Whiteface includes undisturbed open woodland and shrubland with grassy or shrubby understorey and availability of hollows or crevices for nesting. These habitats are extensive throughout the Goldfields region (Phoenix 2025a). The Proposal will clear up to 617.5 ha of this habitat type, primarily for temporary infrastructure (e.g., borrow pits, laydown areas), which will be rehabilitated post-construction. The small scale and temporary nature of the disturbance mean no significant adverse effect is expected.</p>
<p>e) Disrupt the breeding cycle of an important population.</p> <p>Breeding may occur within the Indicative Footprint, typically between July and October, or opportunistically following rainfall. However, there are few trees with suitable hollows in the Development Envelope, possibly due to historic clearing (Donato, D, pers, comm). While localised disturbance may temporarily reduce habitat suitability, extensive alternative habitat occurs in the surrounding landscape. The species is mobile and adaptable and breeding is not expected to be disrupted. As such, the Proposal is not expected to result in a significant impact to the breeding cycle of an important population.</p>
<p>f) Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.</p>

Assessment of Proposal
<p>The Proposal does not involve activities likely to facilitate the introduction of invasive species beyond those already present in the region. Standard mitigation and management measures will be implemented to minimise any such risk. The Proposal will remove up to 570.9 ha and this minor reduction is not expected to modify, destroy, remove, isolate, or decrease the availability or quality of habitat to an extent that would result in population decline. Consequently, a significant impact is not expected.</p>
<p>g) Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.</p>
<p>Feral cats and foxes, known predators of Southern Whiteface, are already present in the local area (Phoenix 2025a). The Proposal will not introduce new invasive species into the Indicative Footprint. Strict biosecurity measures will be implemented, including inspections and cleaning of vehicles and equipment prior to entry. No domestic animals or pets will be allowed on site.</p> <p>The Indicative Footprint is located on an active Pastoral Station, and pastoral weeds are already common in the area. Weed management practices (e.g. inspections of machinery entering the site) will be undertaken to prevent weeds becoming established in the Development Envelope.</p> <p>It is not expected that the Proposal will facilitate the establishment of invasive species harmful to Southern Whiteface. No significant impact from invasive species is expected.</p>
<p>h) Introduced disease that may cause the species to decline</p>
<p>There are no known diseases that pose a current threat to the Southern Whiteface. Hygiene protocols will be implemented to prevent pathogen introduction. Accordingly, disease-related impacts are not anticipated</p>
<p>i) Interfere substantially with the recovery of the species.</p>
<p>No recovery plan is currently in place for the Southern Whiteface. Given the species' widespread distribution, the small area of impact, and the absence of key threatening processes, the Proposal is not expected to interfere with the recovery of the species.</p>

3.3.3 Migratory Species

The Migratory and Marine species present are either:

- Wetland species, for whom there is no significant habitat in the Development Envelope and are unlikely to traverse the Development Envelope on a regular basis; or
- Species such as Fork-tailed Swift and Rainbow Bee-eater with relatively general habitat requirements for whom there is extensive habitat present in the Development Envelope and broader Kalgoorlie region.

In both these cases, the impact of the loss of habitat due to the Proposal is likely to be minimal. For all of these species, the likelihood of impact from the presence of the turbines is considered to be low (DES 2025). For these reasons, no significant impact to these species is anticipated.

3.3.3.1 Fork tailed Swift

Fork-tailed Swift (*Apus pacificus*) is a non-breeding migratory visitor to Australia, typically present between September and April. The species forages aerially for insects, often in association with cyclonic weather systems, and does not land, instead sleeping on the wing at night (DCCEEW 2025). Although not recorded in recent desktop or field surveys within the Indicative Footprint, the species is likely to occur transiently during seasonal storm events.

The Proposal involves the removal of up to 652 ha of suitable habitat. Given the species' high flight speed and agility, the Fork-tailed Swift may face a moderate inherent risk of collision with wind turbines, which remains moderate even after mitigation measures are applied due to the species' flight behaviour and habitat use.

However, the occurrence of the species within the Indicative Footprint is brief and sporadic, resulting in an overall low likelihood of significant population-level impacts. The species has a wide range and a stable population. Therefore, despite habitat removal and moderate collision risk, the Proposal is not expected to cause a significant impact (Table 3-14).

Table 3-14 Fork-tailed Swift (Migratory – Significant Impact Criteria)

Assessment of the Proposal
<p>a) Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species</p> <p>The Proposal includes the removal of up to 652 ha of suitable habitat. While this habitat is used transiently by the species during migration or storm events, it is not breeding habitat. The Indicative Footprint is not expected to be important breeding habitat. The Proposal will remove up to 652 ha of suitable habitat but is not expected to isolate or destroy habitat critical for population viability.</p>
<p>b) Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species</p> <p>Invasive species are not known threats to the Fork-tailed Swift. The Proposal will implement standard invasive species management, reducing any risk of introduction. No significant risk is expected from the Proposal.</p>
<p>c) Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species</p> <p>The Fork-tailed Swift is a non-breeding visitor that forages on the wing and does not land in Australia. Although collision risk with turbines is moderate and remains so after mitigation, the species' brief and sporadic presence means no significant disruption to the lifecycle of an ecologically significant proportion of the population is expected.</p>

3.3.3.2 Rainbow Bee-eater

The Rainbow Bee-eater is listed as a migratory species under the EPBC Act and is also recognised as marine (DES 2025). It exhibits seasonal migration patterns, moving southward across inland Australia during summer and northward to northern Australia and eastern Indonesia in winter (DES 2025).

The species is aerial while foraging, typically using a still-hunting technique from prominent perches to capture flying invertebrates such as bees and dragonflies. It is often recorded in clearings among woodlands, and individuals may remain near vegetation, launching short, low attacks (typically less than 10 m above the canopy) (DES 2025). During migration, it may form loose flocks of up to 20 individuals and can travel at considerable altitude, often following topographic features (DES, 2025).

The Rainbow Bee-eater is common and widespread, with a stable population. It has been recorded within the Indicative Footprint, usually in open or cleared areas within woodland. The Proposal involves the removal of up to 550.2 ha of suitable habitat. Although there is a moderate inherent risk of collision with wind turbines due to the species' flight behaviour, this risk has been reduced by DES (2025) to low following implementation of mitigation measures. Given the species' adaptability and wide distribution, the Proposal is not expected to cause significant impacts to the Rainbow Bee-eater (Table 3-15).

Table 3-15 Rainbow Bee Eater (Migratory – Significant Impact Criteria)

Assessment of the Proposal
<p>a) Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species</p> <p>The Rainbow Bee-eater has been recorded within the Indicative Footprint, typically using open areas or clearings within woodlands for perching and foraging. Up to 550.2 ha of suitable woodland habitat is proposed to be removed by the Proposal. The species is adaptable and widely distributed across much of Australia. While vegetation clearing will occur, the Development Envelope does not represent important or limiting habitat. Similar habitat is available nearby, and the species is expected to continue using the broader landscape. Therefore, the Proposal is not expected to substantially modify, destroy, or isolate important habitat for the Rainbow Bee-eater.</p>

Assessment of the Proposal
<p>b) Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species</p>
<p>The Proposal is not expected to facilitate the introduction or establishment of invasive species in areas of important habitat for the Rainbow Bee-eater. The species is highly mobile, not strongly tied to specific vegetation types, and no critical breeding or foraging habitat exists within the Indicative Footprint. As such, the risk of invasive species impacting the Rainbow Bee-eater is low.</p>
<p>c) Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species</p>
<p>Although the Rainbow Bee-eater may fly at considerable altitudes during migration, it is not known to be a regular passage migrant through the local area. Foraging typically occurs within 10 m above the canopy, and the species shows site flexibility. The risk of turbine collision is moderate inherently but is reduced to low following mitigation (DES 2025). Therefore, the Proposal is not expected to seriously disrupt the lifecycle of an ecologically significant portion of the population.</p>

3.3.3.3 Fan-tailed Cuckoo, Pallid Cuckoo, Black-eared Cuckoo and Sacred Kingfisher

The Fan-tailed Cuckoo (*Cacomantis flabelliformis*), Pallid Cuckoo (*Cacomantis pallidus*), Black-eared Cuckoo (*Chrysococcyx osculans*), and Sacred Kingfisher (*Todiramphus sanctus*) are migratory or nomadic bird species found widely across Australia. These species typically utilise woodlands, open forests, riparian corridors, and lightly timbered areas as habitat, often including modified landscapes such as farmlands and edges of urban environments. The cuckoos are brood parasites, relying on other bird species for nesting, while the Sacred Kingfisher nests in tree hollows, termite mounds, or earth banks. All are highly mobile, and their presence in the Indicative Footprint is generally seasonal, linked to rainfall, food availability, and breeding cycles. Due to their broad habitat preferences and adaptability, they are not dependent on highly restricted or vulnerable habitat types within the Indicative Footprint.

The Proposal will remove up to 550.2 ha of suitable habitat used by these species. Despite this, the habitat is widespread regionally, and the species are resilient and adaptable. There is also a low risk of collision with wind turbines and therefore, the Proposal is not expected to cause significant impacts on these species (Table 3-16).

Table 3-16 Fan-tailed Cuckoo, Pallid Cuckoo, Black-eared Cuckoo and Sacred Kingfisher (Migratory – Significant Impact Criteria)

Assessment of the Proposal
<p>a) Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species</p>
<p>Up to 550.2 ha of woodland habitat will be cleared by the Proposal, but this habitat is neither critical nor limiting at a regional scale. Key habitat features such as remnant vegetation buffers will be retained where practicable. No major alteration to fire, nutrient, or hydrological regimes is expected. Therefore, the Proposal is not expected to substantially modify, destroy, or isolate important habitat for the Fan-tailed Cuckoo, Pallid Cuckoo, Black-eared Cuckoo, or Sacred Kingfisher.</p>
<p>b) Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species</p>
<p>Mitigation measures are in place to prevent invasive species introduction and spread. Although some invasive species (e.g., feral cats, red foxes, invasive herbivores, aggressive birds like the Common Myna, and invasive weeds) may indirectly affect these species by impacting prey or habitat quality, no significant new invasive threats are expected due to the Proposal. Ongoing management and biosecurity protocols will further reduce this risk.</p>
<p>c) Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species</p>
<p>Due to their widespread distribution, generalist behaviour, and ecological resilience, the Proposal is not expected to disrupt the lifecycle of an ecologically significant proportion of any of these species. The Indicative Footprint is not part of known migratory corridors, nesting concentrations, or key foraging areas. The risk of collisions with wind turbines is considered Low for all four (4) species due to their flight behaviour and typically low flight heights within woodland habitats. Standard mitigation measures will further reduce collision risks.</p>

Section 4 Conclusion

The EPBC self-assessment of the Proposal identifies that some removal of suitable habitat associated with MNES will occur (ranging from moderate to up to approximately 652 ha depending on the species). However, the overall impact on listed migratory bird species under the EPBC Act is expected to be low. Many of the species, including Whiskered Tern, Fork-tailed Swift, Rainbow Bee-eater, Fan-tailed Cuckoo, Pallid Cuckoo, Black-eared Cuckoo, and Sacred Kingfisher are highly mobile, have broad or generalist habitat requirements, or utilise ephemeral or widespread habitats within the regional landscape.

Key findings of the EPBC self-assessment included:

- No Threatened flora species or ecological communities listed under the EPBC Act occur within the Development Envelope or surrounds and none are proposed for clearing.
- A total of eight EPBC Act listed fauna species are 'possible' or 'likely' to occur within the Development Envelope. Three species have been recorded in the Study Area and additional three species may utilise the area based on habitats present:
 - Two EPBC Act listed Vulnerable species have been recorded in the area, the Malleefowl and Southern Whiteface. The Proposal is not likely to have a significant impact on either of these species.
 - There are six EPBC Act listed Migratory/Marine species likely to utilise the Development Envelope, five (5) of these species have been recorded in the area. One species that may possibly occur is also listed as Threatened, the Curlew Sandpiper (EPBC Act – Critically Endangered) which is recorded as a rare visitor to permanent water features in the region (not in the Development Envelope).
- No Malleefowl breeding habitat occurs within the Development Envelope, however the species breeds nearby. While the species may visit the Development Envelope during foraging, the core foraging grounds are located outside the Development Envelope and this species is unlikely to be reliant on foraging habitat within the Development Envelope.
- The Southern Whiteface may forage in the area, but suitable hollows are limited in the Development Envelope and the species is unlikely to be breeding in the area. The Goldfields region is dominated by suitable habitat for this species and the Southern Whiteface would not be restricted to or reliant on habitat present in the Development Envelope.
- The Proposal is not likely to have a significant impact on any EPBC Act listed species. No habitat critical for the survival of EPBC listed fauna species, migratory corridors, or significant foraging zones were identified within the proposed Development Envelope.
- Potential impacts from turbines operations can be effectively managed through the implementation of a BBAMP and Construction Environmental Management Plan.

These findings indicate that the Proposal is not expected to cause significant impacts on the listed terrestrial or migratory bird species protected under the EPBC Act. Therefore, a referral under the EPBC Act is not warranted at this stage. Continued implementation of recommended mitigation and monitoring measures will further ensure the protection and conservation of these species in the area.

Section 5 References

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Phoenix Environmental Sciences (Phoenix) (2023b) *Reconnaissance Flora and Vegetation Survey for the Kalgoorlie Operations Project- Prepared for Northern Star Resources Ltd.*

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Phoenix Environmental Sciences (Phoenix) (2025b) *Bird and Bat Risk Assessment for the Black Flag Windfarm Project for the Kalgoorlie Operations- Prepared for Northern Star Resources Ltd.*

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Appendix A
Protected Matters Search Tool



EPBC Act Protected Matters Report

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

Report created: 12-May-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	9
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	41
Commonwealth Heritage Places:	None
Listed Marine Species:	11
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Historic			
Goldfields Water Supply Scheme, Western Australia	WA	Listed place	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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INSECT

[Ogyris petrina listed as Ogyris subterrestris petrina](#)

Arid Bronze Azure [94250]	Critically Endangered	Species or species habitat may occur within area	In feature area
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MAMMAL

[Dasyurus geoffroii](#)

Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area	In feature area
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Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
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Migratory Marine Birds

[Apus pacificus](#)

Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
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Migratory Terrestrial Species

[Motacilla cinerea](#)

Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
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Migratory Wetlands Species

[Actitis hypoleucos](#)

Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
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[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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[Calidris ferruginea](#)

Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
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[Calidris melanotos](#)

Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
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[Tringa nebularia](#)

Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
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Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

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

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - AIRTC KALGOORLIE [50111]	WA	In buffer area only
Defence - AIRTC KALGOORLIE [50110]	WA	In buffer area only
Defence - KALGOORLIE TRAINING DEPOT [50198]	WA	In buffer area only
Defence - KALGOORLIE TRAINING DEPOT [50199]	WA	In buffer area only
Unknown		
Commonwealth Land - [51785]	WA	In buffer area only
Commonwealth Land - [50333]	WA	In buffer area only
Commonwealth Land - [51774]	WA	In buffer area only
Commonwealth Land - [51775]	WA	In buffer area only
Commonwealth Land - [51780]	WA	In buffer area only
Commonwealth Land - [51786]	WA	In buffer area only
Commonwealth Land - [51781]	WA	In buffer area only
Commonwealth Land - [50332]	WA	In buffer area only
Commonwealth Land - [51406]	WA	In buffer area only
Commonwealth Land - [51778]	WA	In buffer area only
Commonwealth Land - [51060]	WA	In buffer area only
Commonwealth Land - [51062]	WA	In buffer area only
Commonwealth Land - [51063]	WA	In buffer area only
Commonwealth Land - [51758]	WA	In buffer area only
Commonwealth Land - [51759]	WA	In buffer area only
Commonwealth Land - [51770]	WA	In buffer area only
Commonwealth Land - [51773]	WA	In buffer area only
Commonwealth Land - [51771]	WA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [51794]	WA	In buffer area only
Commonwealth Land - [51764]	WA	In buffer area only
Commonwealth Land - [51765]	WA	In buffer area only
Commonwealth Land - [51766]	WA	In buffer area only
Commonwealth Land - [51767]	WA	In buffer area only
Commonwealth Land - [51430]	WA	In buffer area only
Commonwealth Land - [51059]	WA	In buffer area only
Commonwealth Land - [51795]	WA	In buffer area only
Commonwealth Land - [51985]	WA	In buffer area only
Commonwealth Land - [51768]	WA	In buffer area only
Commonwealth Land - [51769]	WA	In buffer area only
Commonwealth Land - [50335]	WA	In buffer area only
Commonwealth Land - [50336]	WA	In buffer area only
Commonwealth Land - [51061]	WA	In buffer area only
Commonwealth Land - [50334]	WA	In buffer area only
Commonwealth Land - [51763]	WA	In buffer area only
Commonwealth Land - [51762]	WA	In buffer area only
Commonwealth Land - [51761]	WA	In buffer area only
Commonwealth Land - [51963]	WA	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Protected Area Name	Reserve Type	State	Buffer Status
Kalgoorlie Arboretum	5(1)(h) Reserve	WA	In buffer area only
Lakeside Timber Reserve	5(1)(g) Reserve	WA	In buffer area only

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Goldfields Water Supply Scheme Project	2019/8547	Controlled Action	Post-Approval	In buffer area only
Nava-1 Cable System	2001/510	Controlled Action	Completed	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Sale of Post Office, Hannan Street	2006/3084	Not Controlled Action	Completed	In buffer area only

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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Please feel free to provide feedback via the [Contact us](#) page.

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