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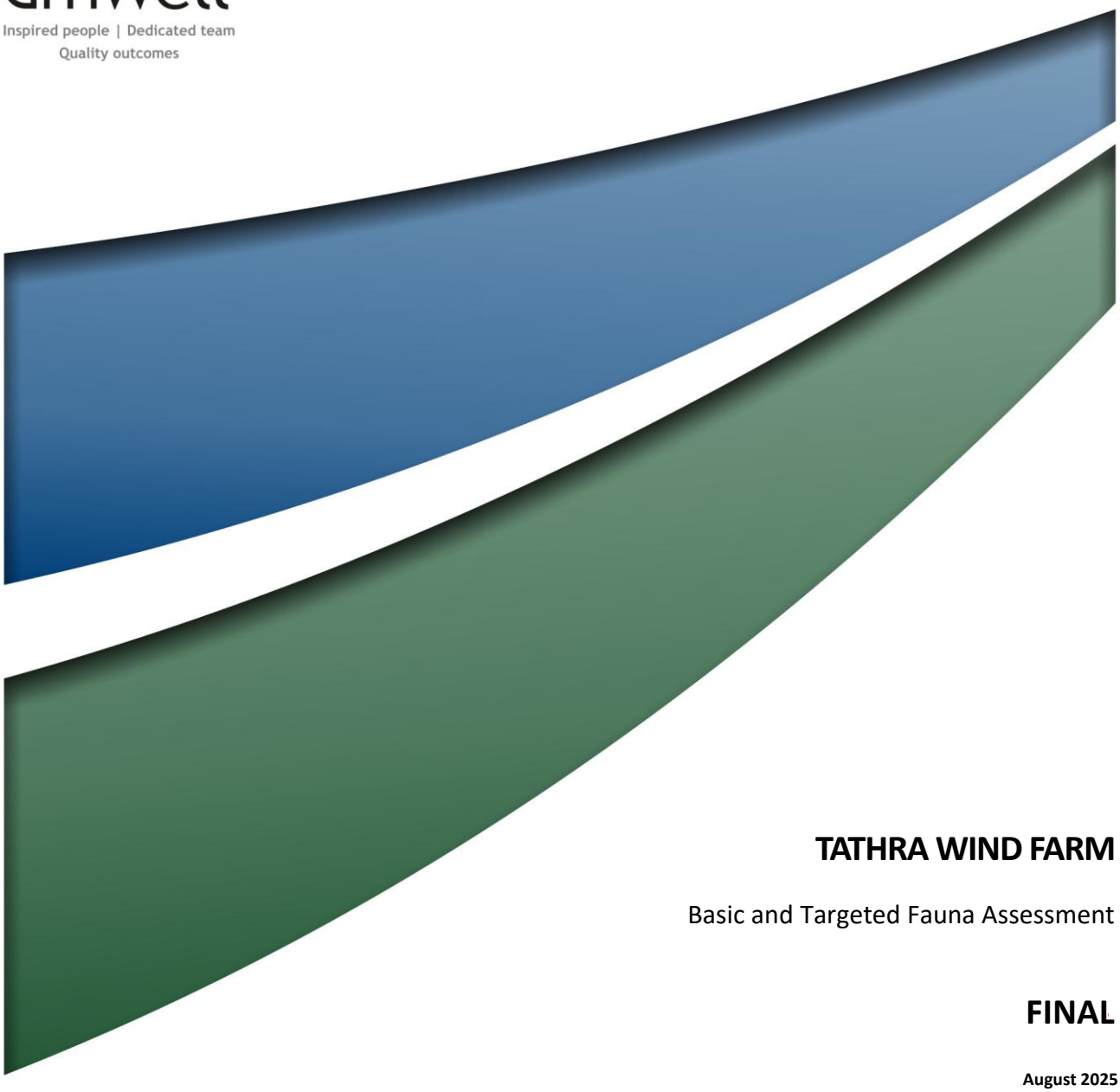

TATHRA WIND FARM

Basic and Targeted Fauna Assessment

FINAL

August 2025

TATHRA WIND FARM

Basic and Targeted Fauna Assessment

FINAL

Prepared by
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on behalf of
SynergyRED

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Report No. R08
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This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Executive Summary

Synergy Renewable Energy Development (SynergyRED) commissioned Umwelt to undertake a Basic vertebrate fauna survey, Targeted Black-Cockatoo and Western Spiny-tailed Skink (*Egernia stokesii badia*) (Vulnerable; Endangered) survey, and Short-range Endemic (SRE) invertebrate fauna desktop assessment for their Tathra Wind Farm project. The Tathra Wind Farm project is located approximately 240 km north of Perth, Western Australia.

Several study areas were delineated for the purpose of this study:

- Basic Fauna Survey Area (Basic FSA) – 18,441.3 ha which was subject to a Basic level vertebrate fauna survey;
- Targeted Fauna Survey Area (Targeted FSA) – 1,263.89 ha area which was subject to Black-Cockatoo and Western Spiny-tailed Skink targeted surveys;
- Desktop Study Area – the combined Basic and Targeted FSAs with a 20 km buffer defined for the purpose of a fauna desktop assessment;
- SRE Desktop Study Area – A 100 km x 100 km square centred on the middle point of the Basic and Targeted FSA defined for SRE desktop assessment.

Desktop Assessment

The vertebrate fauna desktop assessment identified 234 vertebrate fauna species previously recorded within 20 km of the Basic FSA. This total comprised 145 birds, 56 reptiles, 26 mammals and seven amphibians. Twenty-four of these species are of conservation significance.

One conservation significant species identified during the desktop assessment, Carnaby's Black-Cockatoo (*Zanda latirostris*) (Endangered; Endangered), was previously 'Known' to occur within the Basic FSA. Of the remaining species assessed, three were considered to have a 'High' likelihood of occurrence within the Basic FSA, eight had a 'Moderate' likelihood, three had a 'Low' likelihood, and five were considered to have a 'Very Low' likelihood of occurrence.

In total, the Department of Biodiversity, Conservation and Attractions (DBCA) database returned 526 records of Carnaby's Black-Cockatoos (EN) within the Desktop Study Area. Of these, eight records lie within the Basic FSA while one lies within the Targeted FSA. No known roost trees had previously been recorded within the Basic or Targeted FSA, however the DBCA data base contains 68 known and 38 potential Black-Cockatoo roosts within the Desktop Study Area.

The Short-range Endemic (SRE) Desktop Assessment identified 158 Likely and Confirmed SRE species within the SRE Desktop Study Area, comprising 135 Likely and 23 Confirmed SREs. Of the assessed species, 48 were assigned a 'High' likelihood of occurrence, 29 'Moderate', one 'Low', and 80 'Very Low'.

One historic record of *Idiosoma nigrum* (the Shield-backed Trapdoor Spider or Black Rugose Trapdoor Spider) (Vulnerable; Endangered) was detected within the Targeted FSA. This was a trapped individual from 1987 (DBCA, 2024c), although literature on this individual could not be found.

Field Survey

A Basic fauna survey was performed between 28 October and 6 November 2024. A Targeted survey of Carnaby's Black-Cockatoo and Western Spiny-tailed Skink was performed concurrently with the Basic fauna survey, with an additional survey occurring between 19–21 February 2025 to complete Black-Cockatoo nest-tree assessments.

A total of ten broad fauna habitat types were identified within the Basic FSA, reflecting a mix of native vegetation and cleared land. Key natural habitats include Eucalypt and Banksia woodlands, shrublands, and dampland-associated vegetation, with the most extensive habitat type being Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes (2,433.56 ha). Cleared Agricultural Land dominated the area, accounting for over 12,500 ha, highlighting a landscape significantly modified by current and historical land use.

A total of 56 vertebrate fauna species were recorded during the survey, comprising 38 birds, 13 mammals and five reptiles. Of these, one species is listed as conservation significant (Carnaby's Black-Cockatoo (EN)), and four are considered naturalised exotic (Cat, Rabbit, Red Fox and Laughing Kookaburra).

Carnaby's Black-Cockatoo were recorded on 21 occasions throughout the Basic and Targeted FSAs. Twelve of these records were primary observations (visual sightings), and nine were secondary observations (foraging evidence and calls). Flocks of up to 20 individuals were recorded, however the mean flock size was six individuals.

A total of 353 trees that meet the potential Black-Cockatoo nest-tree criteria (Bamford 2020) were recorded within the Targeted FSA. Two of these trees were recorded as Category 2, while 25 trees were recorded as Category 3, 14 as Category 4 and the remaining 312 as Category 5.

Foraging habitat was also assessed for Carnaby's Black-Cockatoo. Overall, a majority of the Targeted FSA is of Negligible to Low foraging value (Site Score 0–2) (97.60%), with an additional 0.85% being ranked as Low to Moderate foraging quality (Site Score 3–4). The best quality foraging habitat (Site Score 5) takes up a relatively small proportion of the Targeted FSA (0.54%).

Foraging habitat scores within the Basic FSA were derived through extrapolation from Targeted FSA mapping results. These indicate that the majority of the Basic FSA (70.5%) supports habitat of Negligible to Low value (Site Scores 0–2), while Moderate to High quality habitat (Site Scores 4–5) comprises 27.0% of the area. Notably, no habitat within either the Basic or Targeted FSAs achieved the highest foraging score of 6.

Western Spiny-tailed Skink was not detected within the Targeted FSA during the survey and no potential refuge sites or latrines were recorded. Post survey, this species is considered to have a Moderate likelihood of occurring within the Basic FSA but a Low likelihood of occurring within the Targeted FSA.

The revised Likelihood of Occurrence assessment completed post field survey identified an additional three vertebrate fauna species as having a High likelihood of occurring within the Basic FSA; Fork-tailed Swift (*Apus pacificus*) (Migratory; Migratory), Peregrine Falcon (*Falco peregrinus*) (Other Specially Protected) and Black-Striped Burrowing Snake (*Neelaps calonotos*) (Priority 3). Fork-tailed Swift may opportunistically and infrequently utilise the air space over the Basic FSA but is not expected to utilise the habitats within. The Peregrine Falcon may use any habitat type with tall trees and tall anthropogenic structures for nesting and may hunt over all habitat types. The Black-Striped Burrowing Snake (P3) is fossorial and cryptic in nature but may occur within sandy habitat types within the Basic FSA.

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Appendix D Results
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1.0 Introduction

1.1 Project Background

Synergy Renewable Energy Development (SynergyRED), a wholly owned subsidiary of Synergy (Electricity Retail and Generation Corporation), is investigating the feasibility of a new renewable energy development, hereafter referred to as Tathra Wind Farm (the Project). The proposed location of Tathra Wind Farm is situated in Eneabba, approximately 240 km north of Perth, Western Australia.

As part of the feasibility study, biological components of the Project must be understood. SynergyRED have engaged Umwelt to identify flora, vegetation, fauna and wetlands of conservation significance to inform the feasibility and design layout. This report outlines the findings of the Basic and Targeted Fauna assessment, and Short-range Endemic (SRE) Desktop assessment.

1.2 Project Area Definitions

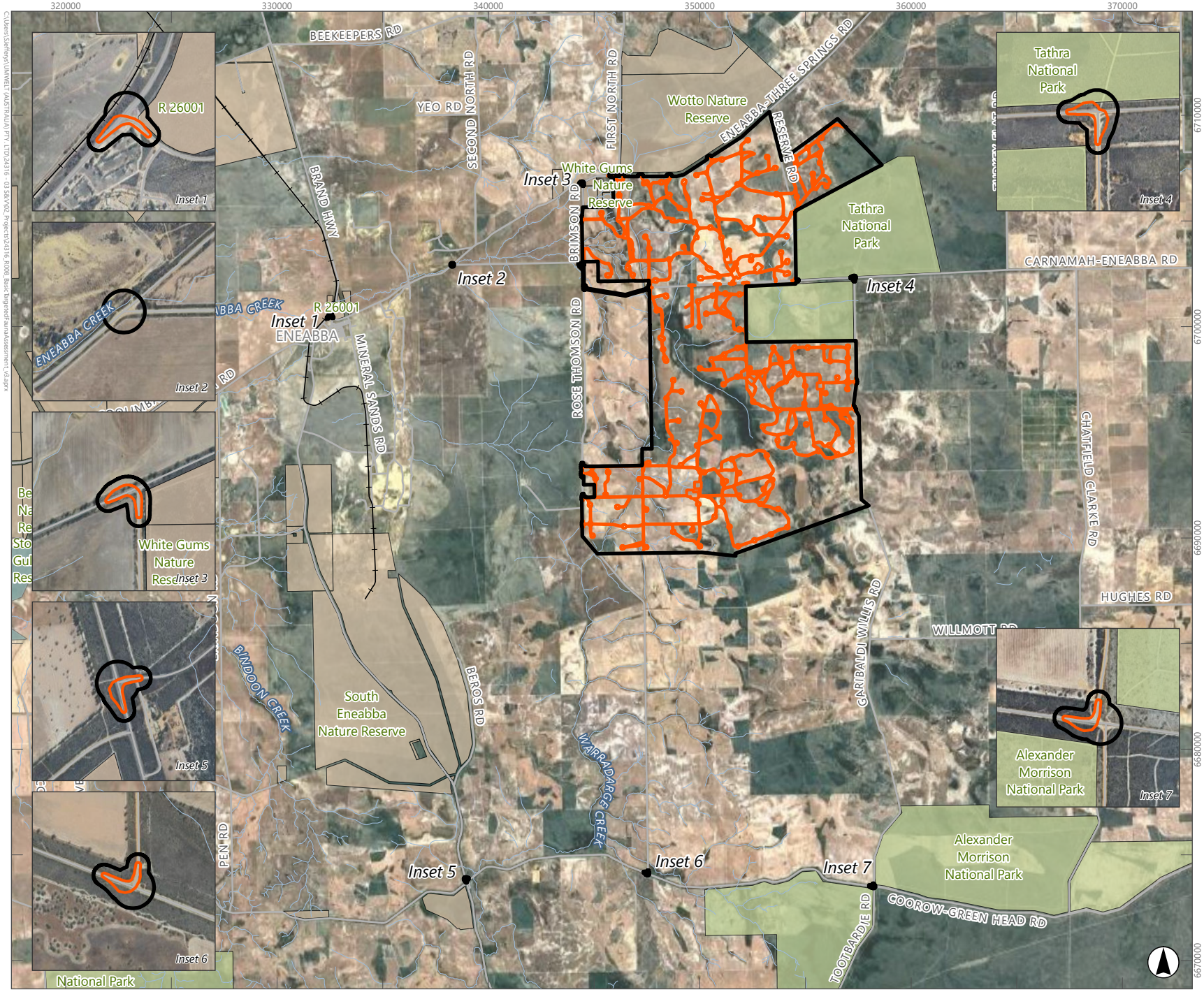
Within the Project, several areas of study have been delineated. The **Basic Fauna Survey Area** (Basic FSA) comprises the 'Tathra Wind Farm' area, and six major road intersections, and is the area subject to a Basic level fauna assessment. This area has been used to assess the existing environmental conditions of the Project. The **Targeted Fauna Survey Area** (Targeted FSA) comprises the proposed development footprint supplied by SynergyRED which includes a series of proposed indicative turbine access roads, the six major road intersections, and 90 m buffered turbine areas. This is the area surveyed as part of the Targeted fauna assessment.

The **Desktop Study Area** comprises the Basic FSA with a 20 km buffer. This area has been used to perform vertebrate fauna desktop assessments. The **SRE Desktop Study Area** comprises a 100 km x 100 km square centred on the middle point of the Basic FSA and has been used to perform the short-range endemic (SRE) invertebrate desktop assessment. Project area definitions are summarised in **Table 1.1** and displayed on **Figure 1.1** and **Figure 1.2.**

Table 1.1 Project Area Definitions

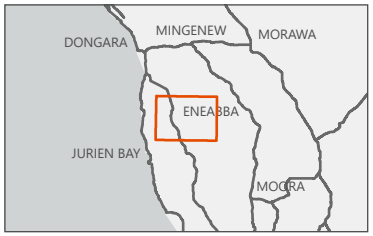
Name	Definition	Extent
Basic FSA	Comprises: • the lots considered for inclusion in the Project; • site access turning circles (approx. 40–100 m buffers) into the lots; • roadside remnant vegetation on selected routes; and • road intersection areas enroute to the Project.	18,441.4 ha
Targeted FSA	Contained entirely within the Basic FSA, comprises: • indicative site layout of access tracks for the Project (as provided by SynergyRED on 1 November 2024 with 30m buffers); • indicative wind turbine locations (90 m buffers); • site access turning circles (10 m buffers) into the lots; and • intersection turning circles (10 m buffers) enroute to the Project.	1,263.9 ha
Desktop Study Area	The combined Basic and Targeted FSA with a 20 km buffer, defined for the purpose of desktop-based searches.	20 km buffer
SRE Desktop Study Area	A 100 km x 100 km square centred on the middle point of the Basic and Targeted FSA defined for Short-range Endemic (SRE) invertebrate desktop-based searches.	100 km x 100 km^2

FIGURE 1.1
Survey Area Location



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve



0 5 10

Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024)

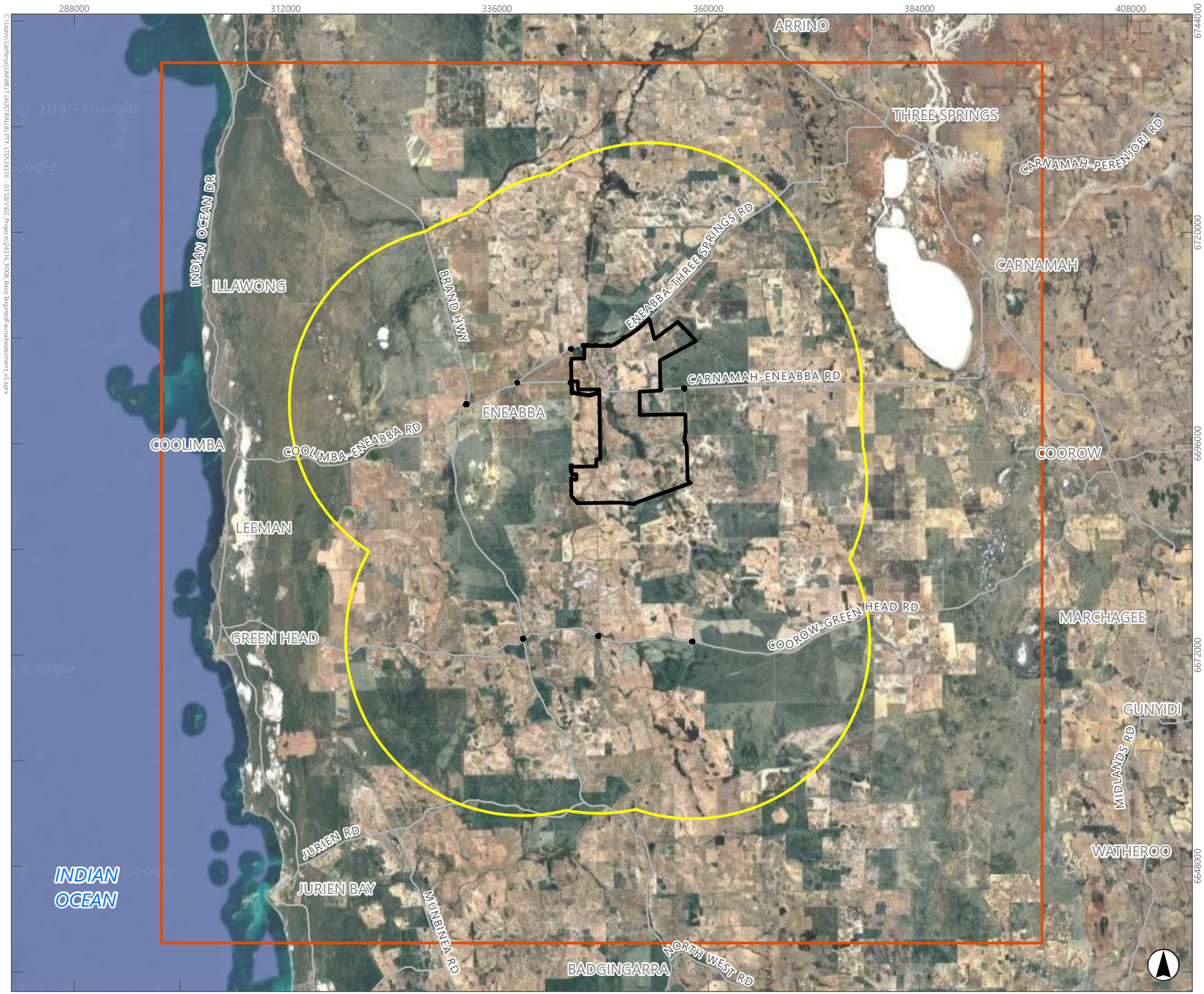


FIGURE 1.2

Fauna and SRE Desktop Study Area

Legend

- Desktop Study Area
- SRE Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Road

0 12 24

Kilometres

Scale 1:600,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024)

1.3 Aims and Objectives

The purpose of this assessment was to undertake a Basic and Targeted terrestrial vertebrate fauna survey to identify the occurrence of terrestrial vertebrate fauna species and their supporting habitats within the Basic and/or Targeted FSA, with a focus on conservation-significant species listed under the *Biodiversity Conservation Act 2016* (BC Act), and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Specifically, the key objectives of the assessment were to:

- Conduct a comprehensive desktop assessment (including database searches and literature review) on vertebrate and invertebrate fauna species potentially occurring within the Basic FSA.
- Map and describe broad fauna habitat types within the Basic FSA, and describe their significance to vertebrate fauna, particularly those of conservation significance.
- Conduct a single season field survey to identify vertebrate fauna species occurring within the proposed impact area (Targeted FSA), with a focus on conservation significant fauna.
- Assess the likelihood and distribution of conservation significant fauna occurring within the Basic FSA.

1.4 Level of Assessment and Relevant Guidance

The vertebrate fauna assessment was undertaken at a Basic and Targeted level as per the *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA, 2020), while the SRE assessment was undertaken at a Desktop level only. The survey and reporting works were carried out in accordance with the following guidelines:

- Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020)
- Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-Cockatoo (DAWE, 2022)
- Scoring system for assessment of foraging value of vegetation for Black-Cockatoos. Revised 5 June 2020 (Bamford, 2020)
- Survey guidelines for Australia's threatened birds. Guidelines for detecting birds listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW, 2010b)
- Survey guidelines for Australia's threatened mammals. Guidelines for detecting mammals as threatened under the EPBC Act (DCCEEW, 2011a)
- Survey guidelines for Australia's threatened reptiles. Guidelines for detecting reptiles listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW, 2011b)
- Survey guidelines for Australia's threatened bats. Guidelines for detecting bats listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW, 2010a)
- Matters of National Environmental Significance Significant impact guidelines 1.1. *Environment Protection and Biodiversity Conservation Act 1999* (DoE, 2013)
- Environmental Factor Guideline: Terrestrial Fauna (EPA, 2016a)
- Technical Guidance: Sampling of short range endemic invertebrate fauna (EPA, 2016b).

2.0 Existing Environment

2.1 Biogeography

The Interim Biogeographic Regionalisation of Australia (IBRA7) classifies Australia's landscapes into 89 large, geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. These areas are further refined to 419 subregions which are more localised and homogenous geological units in each bioregion (DCCEEW, 2023a).

The Basic FSA lies within the Lesueur Sandplain subregion (GS3) of the Geraldton Sandplains bioregion (GES). The Geraldton Sandplain and the Lesueur Sandplain subregion is described by Desmond & Chant (2002) as follows:

"The Geraldton Sandplains bioregion is composed mainly of proteaceous scrub-heaths, rich in endemics, on the sandy earths of an extensive, undulating, lateritic sandplain mantling Permian to Cretaceous strata. Extensive York Gum and Jam woodlands occur on outwash plains associated drainage. The Lesueur Sandplain (GS3) comprises coastal Aeolian and limestones, Jurassic siltstones and sandstones (often heavily lateritised) of central Perth Basin. Alluvials are associated with drainage systems. There are extensive yellow sandplains in south-eastern parts, especially where the subregions overlaps the western edge of the Pilbara Craton. Shrub-heaths rich in endemics occur on a mosaic of lateritic mesas, sandplains, coastal sands and limestones. Heath on lateritised sandplains along the subregions north-eastern margins. The climate is Mediterranean and the subregional area is 1,358,915 ha."

2.2 Climate

The Basic FSA is located within the Lesueur Sandplain IBRA subregion which is classified as having a Mediterranean climate, characterised by hot, dry summers and mild, wet winters. The closest meteorological station with long-term rainfall and temperature data is Carnamah Station (station ID: 008025) (BoM, 2025), located approximately 40 km east of the Basic FSA. Based on information from this station, the long-term annual rainfall since 1887 is 373.52 mm, and the mean maximum daily temperatures range between 18.1°C and 36.2°C. Long-term climate data for Carnamah Station is presented on **Figure 2.1.**

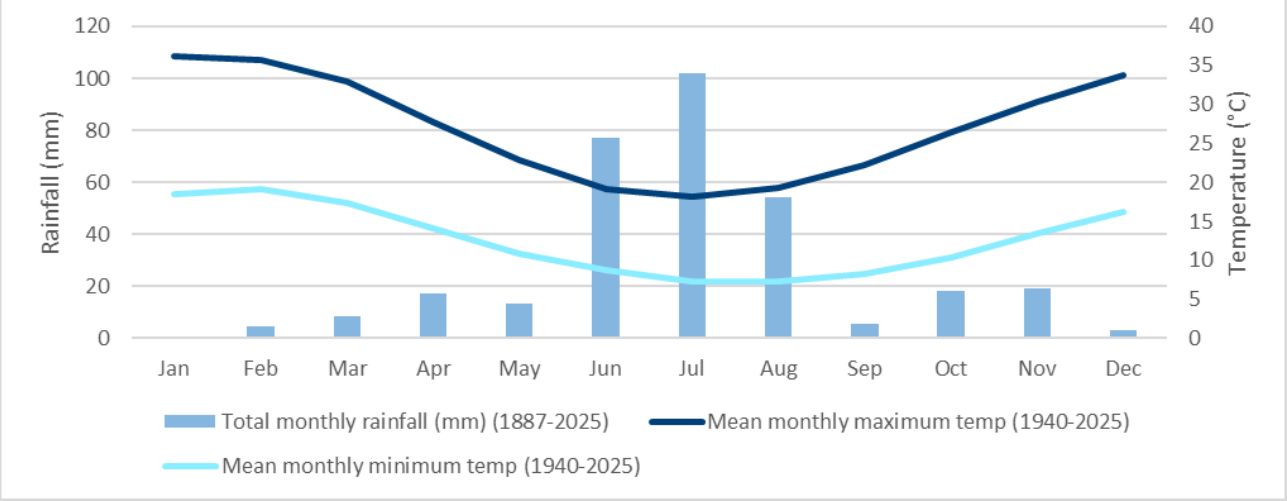


Figure 2.1 Climate Statistics for Carnamah Station (008025) (BoM, 2024)

2.3 Geology

The Basic FSA intersects both the Dandaragan Plateau and Arrowsmith Soil-Landscape Zones of South Western Australia (DPIRD, 2025b; Schoknecht et al., 2004). The Dandaragan Plateau consists of a gently undulating plateau, comprising sandplain and some laterite areas over Cretaceous sediments (Schoknecht et al., 2004). Soils are formed in colluvium and weathered rock, and the plateau is also characteristic of broad, u-shaped valleys 80-150 m deep, which are smaller and v-shaped east of the Gingin Scarp in the south (Schoknecht et al., 2004). The Arrowsmith Zone consists of dissected lateritic sandplains, bounded by the Dandaragan Scarp in the east, and the Gingin Scarp in the south and west (Schoknecht et al., 2004). These plains are on Cretaceous and Jurassic sediments, consisting of sandy and gravelly soils formed in colluvium and rock weathered *in-situ* (Schoknecht et al., 2004). Broad geological mapping of the Basic FSA is presented in **Figure 2.2**.

2.4 Soil Landscape Mapping

Soil landscape mapping of the south-west of Western Australia has been published by the Department of Primary Industries and Regional Development (DPIRD) **(DPIRD, 2025a)**. This database compiles various surveys at different scales varying between 1:20,000 and 1:3,000,000 across the south-west of Western Australia (DPIRD, 2022b). Based on this database, the Basic FSA intersects 24 soil-landscape units, as summarised in **Table 2.1** and presented in **Figure 2.3**.

Table 2.1 Soil Landscape Mapping of the Basic FSA

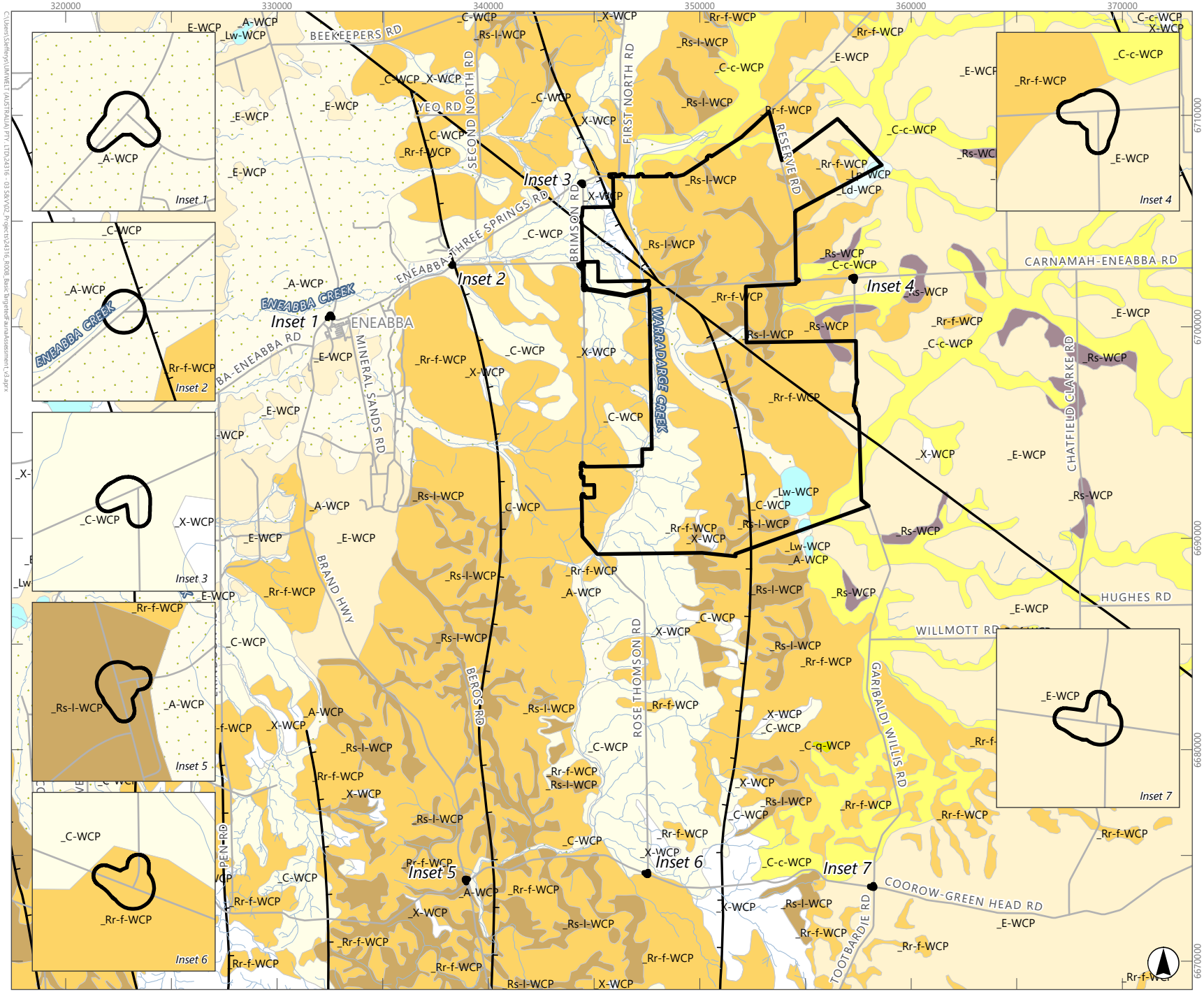
System Unit	Description^	Area Extent (ha) within Basic FSA	Area Extent (ha) within Targeted FSA
Eneabba 221En_2	Sandplain, with occasional areas of low sandy rises; Sandy and gravelly duplex soils and gravelly deep sands on the plain, minor pale deep sands on the rises.	5.5 (0.03%)	1.0 (0.1%)
Coalara 222Co_1	Sand filled alluvial plain, low dunes common; pale and yellow deep sands, some playa soils.	893.4 (4.84%)	12 (0.9%)
Coalara 222Co_2	Long, gently inclined slopes and undulating rises with gravelly ridge crests and minor lateritic outcrops; Sandy gravels and gravelly pale, pale and yellow deep sands.	178.4 (0.97%)	20.2 (1.6%)
Coalara 222Co_3	Plateau remnants, hillcrests and very gently to moderately inclined hillslopes, some moderately inclined breakaway slopes; shallow and deep sandy gravel.	10289.4 (55.8%)	820.3 (64.9%)
Coalara 222Co_3b	Gently inclined upper hillslopes and crests; sandy and shallow gravel with pale sands, duricrust common.	1056.8 (5.73%)	62.5 (4.9%)
Coalara 222Co_3c	Gently to moderately inclined minor breakaway slopes; sandy gravels, sandy duplexes (over pallid zone clays).	240.6 (1.3%)	8.6 (0.7%)
Coalara 222Co_4a	Playa lakes contained by Co1; shallow loams, sandy and loamy duplexes all over pans (clay, silcrete or diatomite).	235.7 (1.28%)	-
Coalara 222Co_4b	Plain, bog iron ore accumulations contained by Co1; red shallow sands and loams over bog iron.	719.7 (3.9%)	11.8 0.9%)
Coalara 222Co_5a	Plain, hillcrests and very gently inclined hillslopes; pale sandy gravels, gravelly pale deep sand, pale and yellow deep sands.	1.3 (0.01%)	0.05 (0.004%)

System Unit	Description^	Area Extent (ha) within Basic FSA	Area Extent (ha) within Targeted FSA
Coalara 222Co_6	Colluvial slopes, very gently to gently inclined hillslopes, minor drainage lines; yellow and pale deep sands.	1089.7 (5.91%)	6.0 (3.35%)
Coalara 222Co_6c	Flat to very gently inclined slopes of very minor sand filled drainage lines within plain (Co7); pale and yellow deep sands.	3.7 (0.02%)	0.9 (0.1%)
Coalara 222Co_7	Upland sandplain; pale and yellow deep sands, gravelly pale deep sand.	313.0 (1.7%)	33.2 (2.6%)
Boothendarra 224Bh_1	Crests and upper slopes of undulating low hills and gravelly rises; Sands, sandy gravels and sandy duplexes with occasional loams and clays.	446.2 (2.42%)	39.4 (3.1%)
Boothendarra 224Bh_2	Dissected breakaways, incised gullies and lateritic outcrops; sandy and loamy gravels, loamy duplexes and some clays.	601.5 (3.26%)	29.3 (2.3%)
Boothendarra 224Bh_3	Residuals, low hillcrests and hillslopes; sandy and loamy gravels, sandy duplexes.	0.4 (0.002%)	0.02 (0.002%)
Boothendarra 224Bh_4	Gently to very gently inclined hillslopes and footslopes; sandy duplexes, deep sands and sandy gravels.	4.3 (0.02%)	0.9 (0.1%)
Boothendarra 224Bh10	Narrow drainage lines and lower footslopes with sandy duplexes and earths and wet soils.	153.5 (0.83%)	4.5 (0.4%)
Boothendarra 224Bh11	Gently to very gently inclined hillslopes and footslopes with sands, sandy gravels and sandy duplexes with occasional loams.	2176.0 (11.8%)	151.9 (12.0%)
Mount Adams 224Ma_7	Narrow valley floors between undulating hills at foot of long gentle slopes; Pale deep sand and Grey deep sandy duplexes with Gravelly pale and Yellow deep sands.	2.5 (0.01%)	-
Mount Adams 224MaX_MINE	Mine. Disturbed land.	0.6 (0.003%)	-
Otorowiri 224Ot_2	Hillslopes with low rises, below scarp; Pale and Yellow deep sands and sandy duplexes.	11.2 (0.06%)	1.4 (0.1%)
Yerramullah 224Ye_2	Plateau residuals, very gently to gently inclined hillcrest and hillslopes; pale sandy gravels, shallow gravel over duricrust, gravelly pale deep sand, pale and yellow deep sands.	3.6 (0.02%)	0.7 (0.1%)
Yerramullah 224Ye_3	Colluvial slopes and some plateau remnants, very gently to gently inclined hillslopes and sand filled minor valleys; pale and yellow deep sands, pale sandy gravels, shallow gravel over duricrust, some sandy duplexes and sandy earths.	13.7 (0.07%)	1.8 (0.1%)
Yerramullah 224Ye_6	Colluvial slopes, very gently to gently inclined mid to lower hillslopes and sand filled minor valleys; pale deep sand, some sandy duplexes and shallow sand over pan or bog iron.	0.6 (0.003%)	0.1 (0.008%)
Total		**18,441.4**	**1263.89**

^Source: DPIRD Soil Landscape Mapping - Best Available (DPIRD-027) (DPIRD, 2025a).

FIGURE 2.2

Broad Geological Mapping of the Study Area



Legend

- Basic Fauna Survey Area (Basic FSA)
- Watercourse
- Fault or shear zone, major; exposed
- Fault or shear zone, major; normal, exposed, tick on downthrown side
- _A-WCP; Alluvial/fluvial unit, WCP
- _C-WCP; Colluvial unit, WCP
- _C-c-WCP; Colluvial unit, WCP
- _C-q-WCP; Colluvial unit, WCP
- _E-WCP; Eolian unit, WCP
- _Ld-WCP; Lacustrine unit, WCP
- _Lp-WCP; Lacustrine unit, WCP
- _Lw-WCP; Lacustrine unit, WCP
- _Rr-f-WCP; Residual or relict unit, WCP
- _Rs-WCP; Residual or relict unit, WCP
- _Rs-l-WCP; Residual or relict unit, WCP
- _X-WCP; Exposed unit, WCP

0 5 10

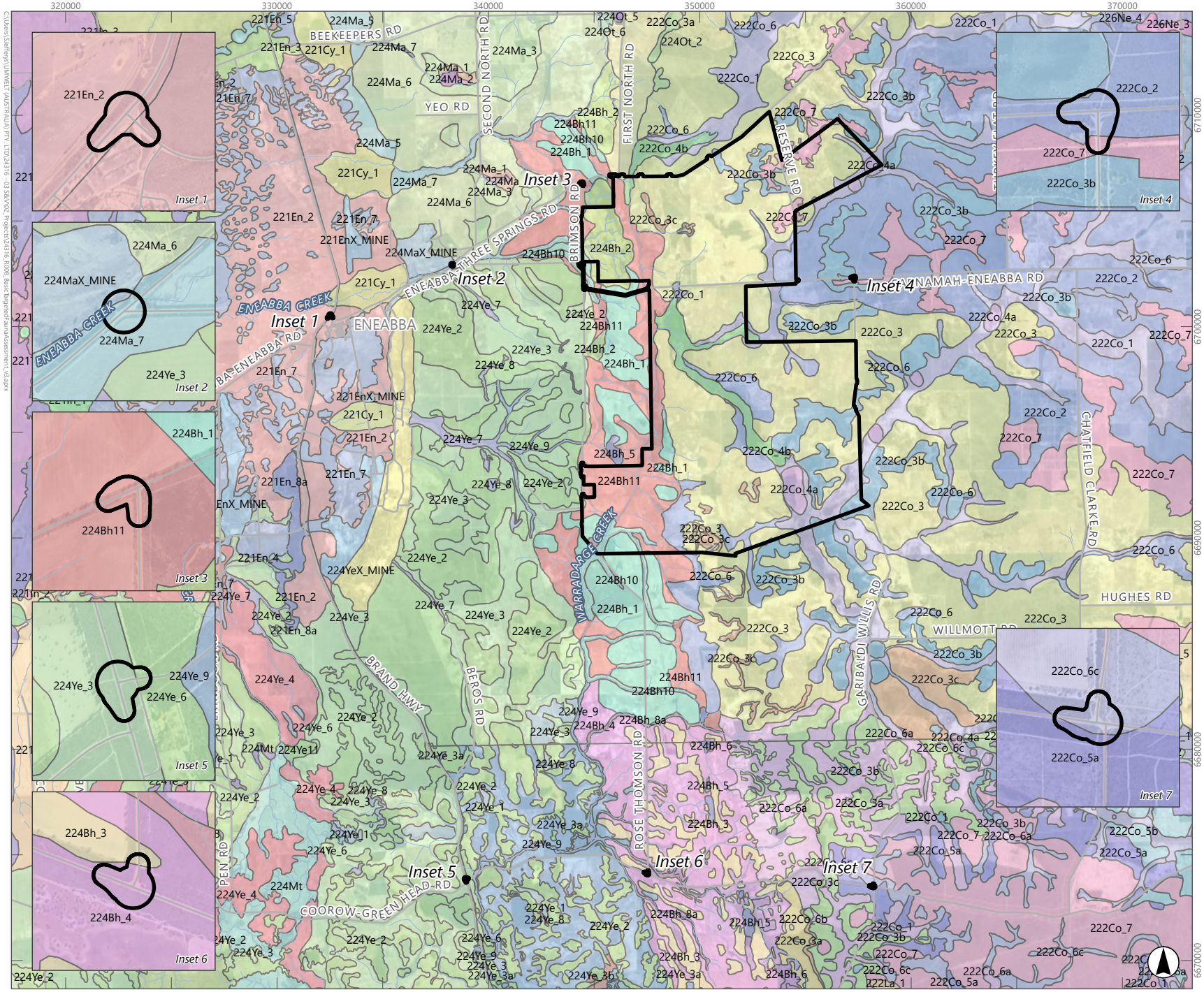
Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: Landgate (2024) | **Data Source:** Landgate (2024), SynergyRED (2024), DMIRS (2020)

FIGURE 2.3

Soil Landscape Mapping of the Study Area



Legend

- Basic Fauna Survey Area (Basic FSA)
- Road
- Watercourse

0 5 10

Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: Landgate (2024) | **Data Source:** Landgate (2024), SynergyRED (2024), DPIRD (2022)

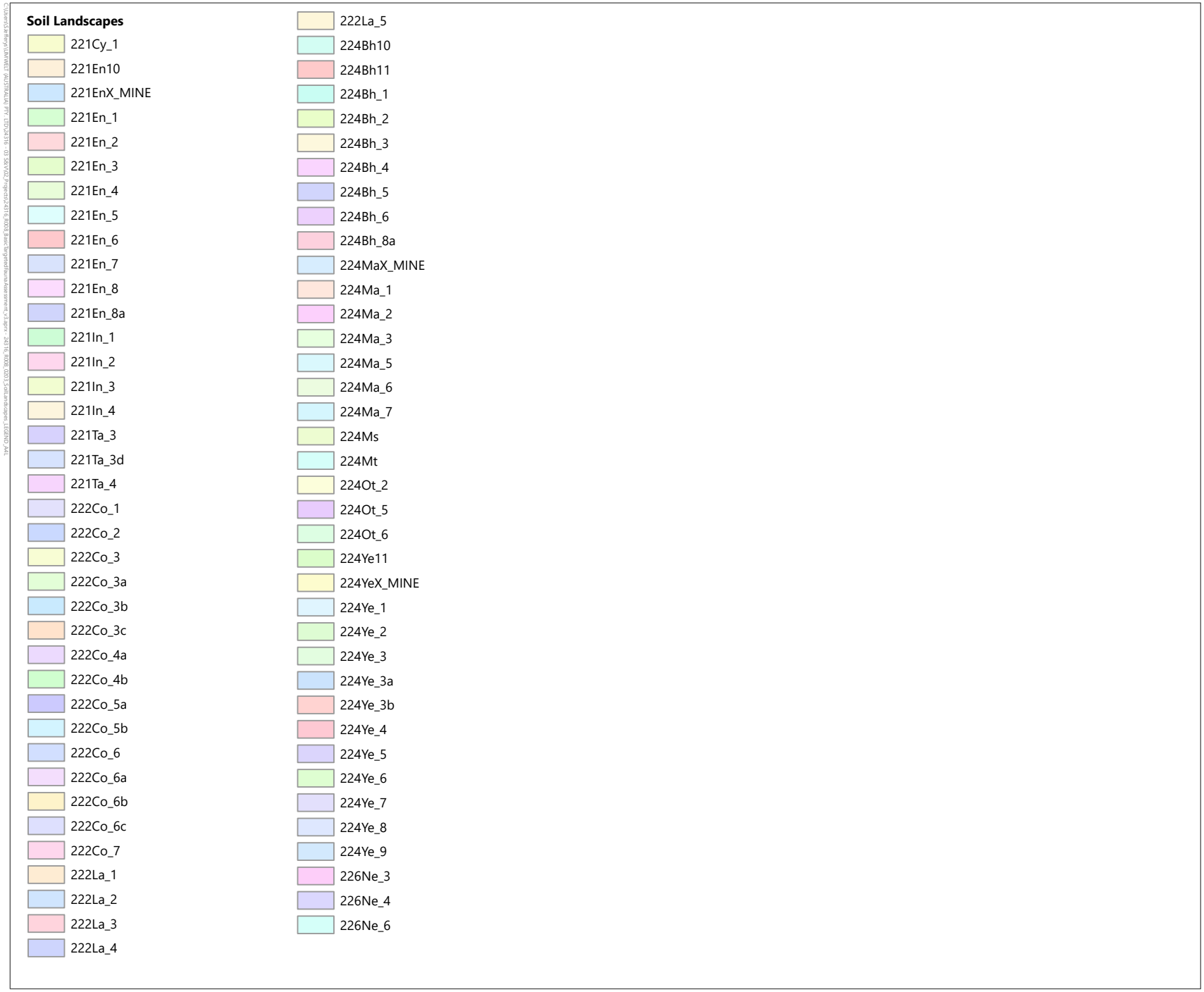


FIGURE 2.3

LEGEND: Soil Landscape Mapping of the Study Area

Image Source: Landgate (2024) | **Data Source:** Landgate (2024), SynergyRED (2024), DPIRD (2022)

2.5 Hydrology and Surface Drainage

The Basic FSA lies across two groundwater catchment areas within the Moore-Hill Rivers Basin; Hill River catchment (located in the majority of the Basic FSA) and Indoon-Logue catchment (located on the western boundary of the Basic FSA). The Hill River catchment is situated between the Nambung River system to the south and the Arrowsmith River to the north. Originating near Badgingarra, it flows westward for approximately 85 km, while its tributary sub-catchments extend nearly 100 km further north. The river discharges into the Indian Ocean about 10 km south of Jurien Bay (DWER, 2025b).

The Indoon-Logue catchment comprises Lake Logue, a large seasonal freshwater lake, and Lake Indoon, a smaller semi-permanent brackish lake. It also includes several shallow ephemeral wetlands located north and south of Lake Logue, along with intermittent creeks and drainage lines. Water recharge occurs through direct precipitation, surface runoff, and discharge from ephemeral drainage (DCCEEW, 2019).

The Basic FSA intersects the Eneabba Creek along its north-western boundary and another unnamed tributary of the Hill River which runs lengthwise south to north through the Basic FSA. The nature of these creeks is unknown, however they are expected to be ephemeral. A dampland also extends for approximately 9.5 km in the central portion of the Basic FSA. It is likely that surface water will drain to the dampland, and ephemeral creeks with the Basic FSA, as well as a small number of dams located on some agricultural properties.

Surface water features and catchment areas are displayed on **Figure 2.4**.

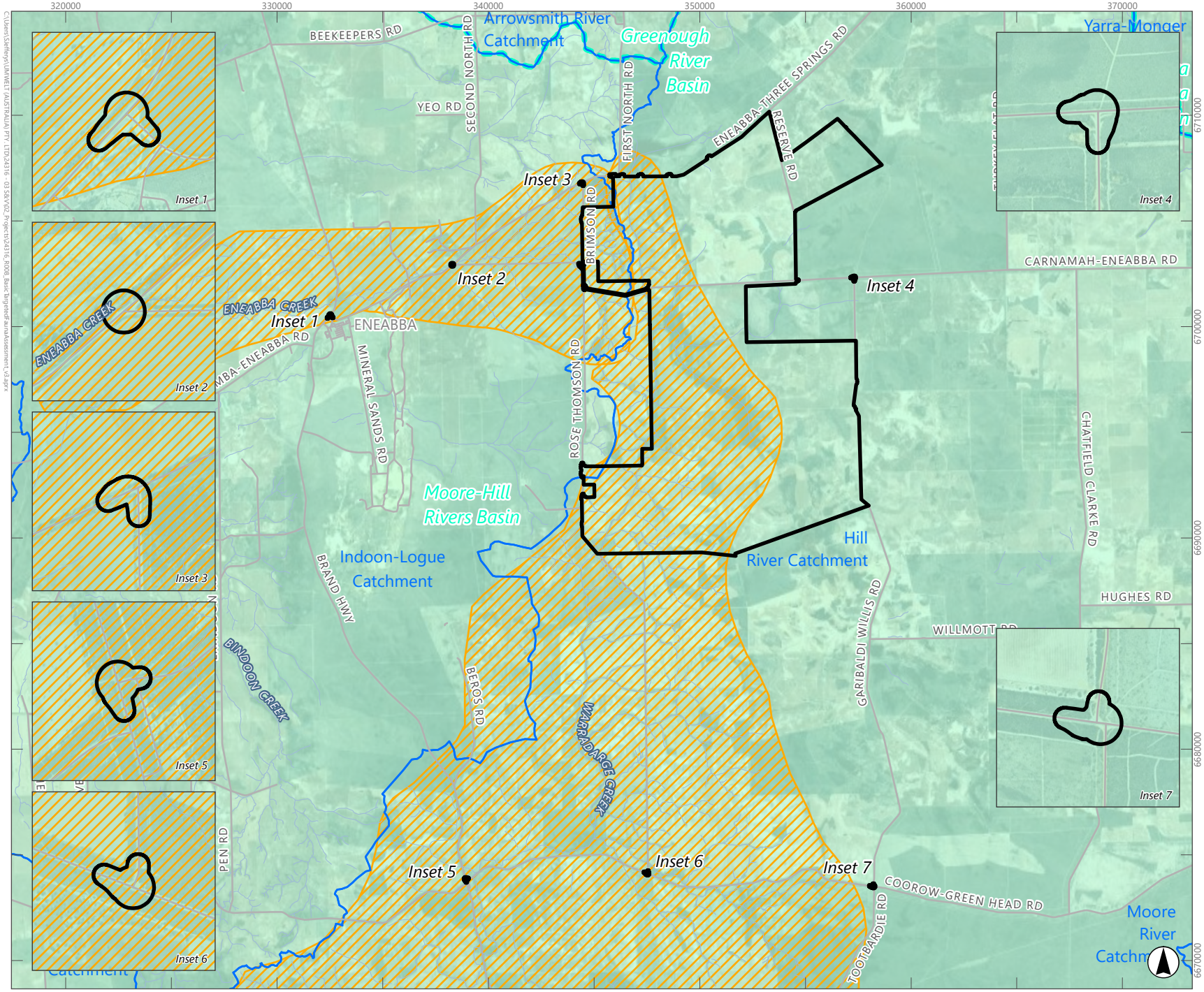


FIGURE 2.4

Surface Water and Hydrology of the Study Area

Legend

- Basic Fauna Survey Area (Basic FSA)
- Road
- Watercourse
- Hydrographic Catchments – Catchments
- Hydrographic Catchments – Basins
- RIWI Act – Surface Water Area
- RIWI Act – Groundwater Area

0 5 10

Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: Landgate (2024) | **Data Source:** Landgate (2024), SynergyRED (2024), DBCA (2025), DWER (2025)

2.6 Pre-European Vegetation

Broad scale (1:100,000) pre-European vegetation mapping for Western Australia was completed at an association level by Beard et al. (1975). This mapping was later adapted and digitised at a scale of 1:300,000 by Beard et al. (2013) and is available from the DataWA website as Pre-European vegetation mapping (DPIRD, 2019). The Government of Western Australia (GoWA) has released vegetation statistics for vegetation system associations (VSAs) that include pre-European extent, current extent, current extent remaining and current extent protected for conservation (DBCA, 2019). The vegetation statistics for vegetation associations intersecting the Basic FSA are presented in **Table 2.2.**

There are four VSAs mapped in the Basic FSA as summarised in **Table 2.2. Table 2.2** also presents the current extent of each VSA in relation to its pre-European extent within the Geraldton Sandplains bioregion (DBCA, 2019). The current extent remaining for Tathra_379 in the Geraldton Sandplains bioregion is below 30% (**Table 2.2**). The remaining VSAs are above the 30% retention threshold. VSAs Tathra_49 and Tathra_379 have below 10% of their current extent protected for conservation.

Table 2.2 Vegetation System Associations of the Basic FSA

Vegetation System Association	Description	Pre-European extent (ha)	Current Extent^ (ha)	Extent Remaining (%)	Current Extent Protected for Conservation (%)	Extent in Basic FSA (ha)
Eridoon_378	Shrublands; scrub-heath with scattered *Banksia* spp, *Eeucalyptus todtiana* & *Xylomelum angustifolium* on deep sandy flats in the Geraldton Sandplain Region	93,523.98	60,826.66	65.04	22.00	8.6 (0.05%)
Tathra_49	Shrublands; mixed heath	39,719.28	14,489.68	36.48	8.03	4,754.3 (25.8%)
Tathra_391	Shrublands; *Melaeuca uncinata* thicket	3,063.14	1,622.19	52.96	21.08	610.8 (3.3%)
Tathra_379	Shrublands; scrub-heath on lateritic sandplain in the central Geraldton Sandplain Region	545,938.38	129,585.93	23.74	5.13	13,067.6 (70.9%)
Total						**18,441.4**

Note: Current extent protected for conservation are considered to be any areas within International Union for Conservation of Nature (IUCN) categories I to IV (DBCA, 2019).

^Current Extent Protected for Conservation as a proportion of Current Extent.

2.7 Land Use and Tenure

The Basic FSA is primarily comprised of leased Crown land that is currently used for agricultural purposes, with the remainder on Freehold land used for agricultural purposes, Shire Road Reserve and small Crown Reserves, as displayed on **Figure 2.5**.

2.8 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are classes or areas of native vegetation where the exemptions for clearing vegetation under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations) do not apply. ESAs are declared by the Minister for Environment under section 51B of the Environmental Protection Act 1986 (EP Act) with the current ESA notice gazetted on 8 April 2005. ESAs of relevance to this project include:

- Declared World Heritage property as defined in section 13 of *EPBC Act*.
- A defined wetland and the area within 50 m of the wetland. Defined wetlands include Ramsar wetlands, conservation category wetlands and nationally important wetlands.
- The area covered by vegetation within 50 m of "rare" (Threatened) flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located.
- The area covered by a Threatened Ecological Community (TEC).
- Bush Forever sites.

The desktop assessment identified 3,752 ESAs within the Desktop Study Area, five of which intersect the Basic FSA (**Figure 2.6**). Two of these intersecting areas represent Threatened Ecological Communities; Ferricrete floristic community (Rocky Springs type) (Critically Endangered); and Assemblages of organic mound springs of the Three Springs area (Critically Endangered) (**Table 2.3**). The other three intersecting records comprise state reserves (**Table 2.4**). ESAs recorded within the Desktop Study Area are presented in **Figure 2.6.**

Table 2.3 Threatened Ecological Communities Intersecting the Basic or Targeted FSA

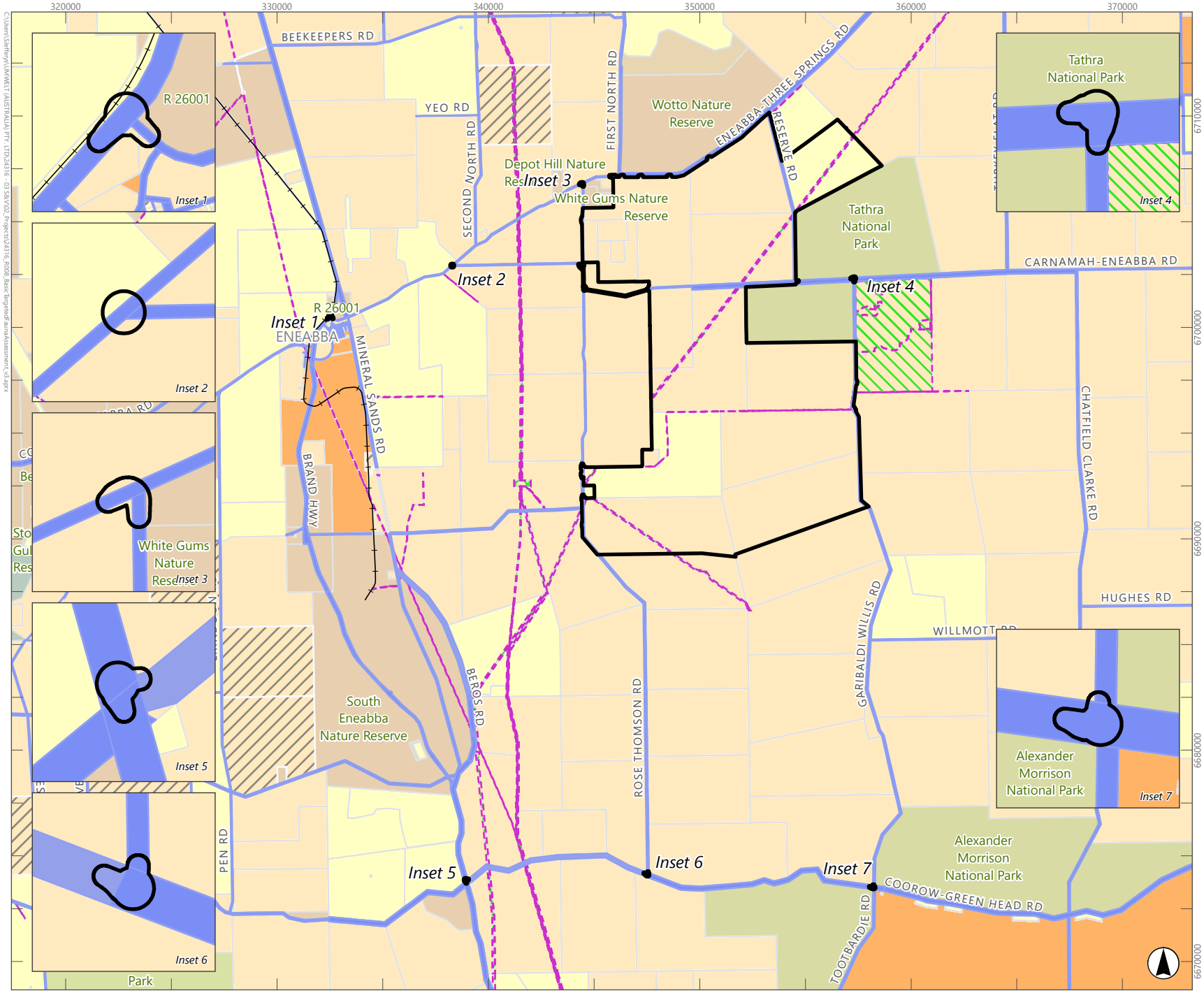
ID	Community Name	EPBC Status	No. Records within Desktop Study Area	Distance of closest record to Basic FSA
Mound Springs (Three Springs area)	Assemblages of organic mound springs of the Three Springs area	CR	26	Buffered TEC overlies the Basic and Targeted FSA
Ferricrete	Ferricrete floristic community (Rocky Springs type)	CR	13	Buffered TEC overlies the Basic and Targeted FSA

Table 2.4 State Reserves Intersecting the Basic FSA

Environmentally Sensitive Area	Type	Distance to Basic FSA
Tathra	National Park	Directly adjacent east of the main body of the Basic FSA. Intersects one road intersection area.
White Gums	Nature Reserve	Directly adjacent west of Basic FSA. Intersects one road intersection area.
Alexander Morrison	National Park	Approx. 14 km south of the main body of the Basic FSA. Intersects one road intersection area

FIGURE 2.5

Land Tenure of the Study Area



Legend

- Basic Fauna Survey Area (Basic FSA)
- Railway
- Property Boundary
- Easements
- Other Interests
- Crown Lease
- Crown Reserve
- Public Road
- Unallocated Crown Land
- Crown Allotment (Type 2)
- Lot on Survey (Type 1)
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve

0 5 10

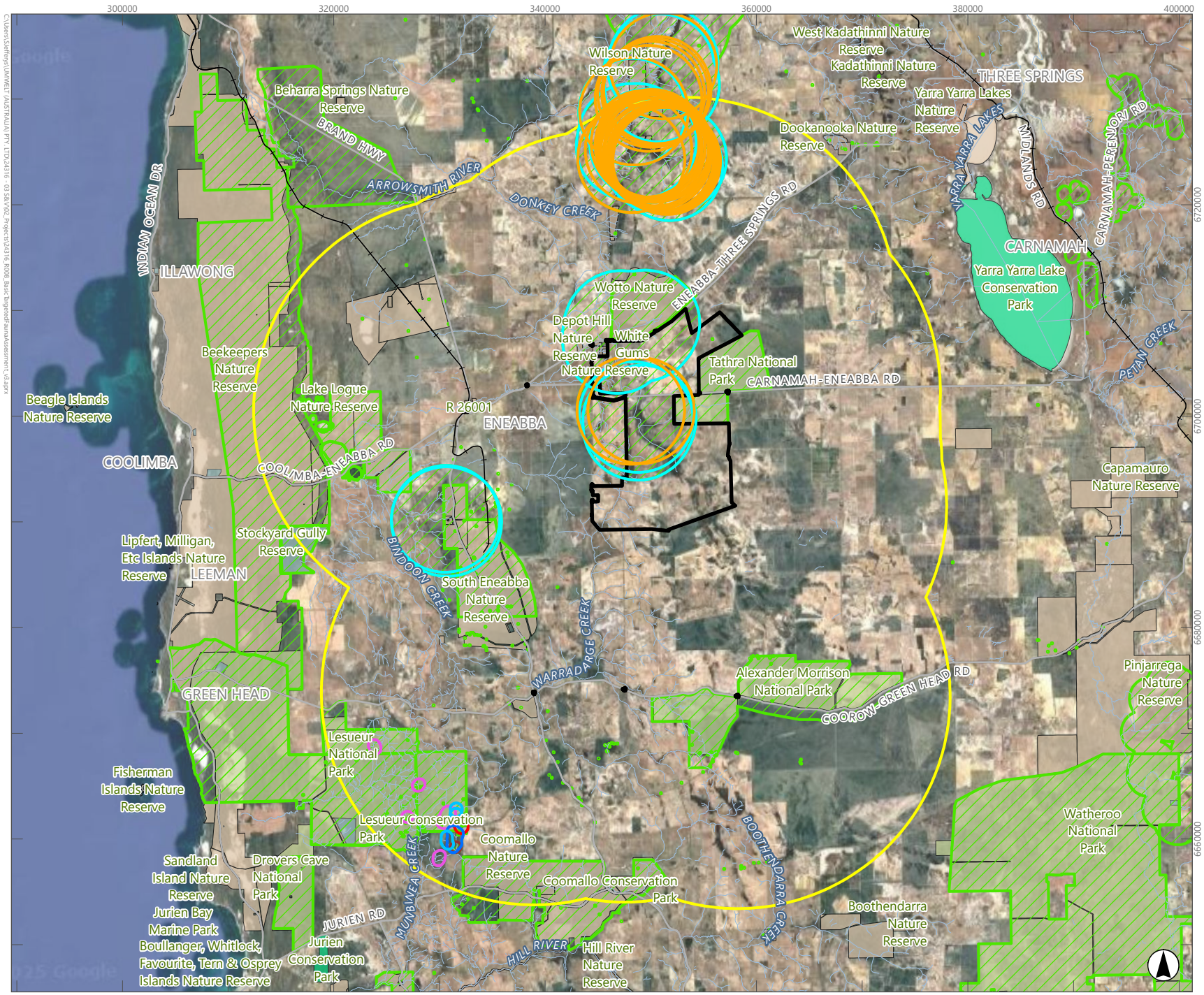
Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: Landgate (2024) | **Data Source:** Landgate (2024), SynergyRED (2024), DBCA (2024)

FIGURE 2.6

Environmentally Sensitive Areas within the Desktop Study Area



Legend

- Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Road
- Railway
- Watercourse
- Clearing Regulations – ESAs
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

TECs

- Ferricrete
- Gp200-170
- Lesueur-Coomallo A1.2
- Lesueur-Coomallo D1
- Lesueur-Coomallo DFGH
- Lesueur-Coomallo M2
- Mound Springs (Three Springs area)

0 10 20

Kilometres

Scale 1:500,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), DWER (2025)

3.0 Methods

3.1 Desktop Assessment

3.1.1 Database Searches

A review of terrestrial vertebrate fauna and relevant invertebrate data for the Desktop Study Area was conducted as part of the desktop assessment. This involved obtaining and reviewing reports from previous biological surveys undertaken in the vicinity, including data from the Index of Biodiversity Surveys for Assessments (IBSA) database (DWER, 2025a). Additionally, relevant regional databases and other sources were examined, as outlined in **Table 3.1**.

Table 3.1 Searches Undertaken for the Desktop Assessment

Aspect	Information Source
Biogeography	Interim Biogeographic Regionalisation for Australia (IBRA) Version 7 (Regions) (DCCEEW, 2023a) Interim Biogeographic Regionalisation for Australia (IBRA) Version 7 (Subregions) (DCCEEW, 2023b)
Climate	Climate Data Online (BoM, 2024)
Soil Landscape Mapping	Soil Landscape Mapping – Best Available (DRIRP-027) (DPIRD, 2025b)
Hydrology	Hydrographic Catchments – Basins (DWER-027) (DWER, 2018a) Hydrographic Catchments – Catchments (DWER-028) (DWER, 2024a) RIWI Act, Groundwater Areas (DWER-034) (DWER, 2018b) RIWI Act, Rivers (DWER-036) (DWER, 2018c) Ramsar Sites (DBCA-010) (DBCA, 2017) Directory of Important Wetlands in Australia - Western Australia (DBCA-045) (DBCA, 2018)
Vegetation	Pre-European Vegetation (DPIRD-006) (DPIRD, 2019) Native Vegetation Extent (DPIRD-005) (DPIRD, 2023) Statewide Vegetation Statistics (DBCA, 2019)
Conservation Significant Fauna	DBCA NatureMap database (DBCA, 2007-) DBCA Threatened and Priority Fauna Database (DBCA, 2024d) Black-Cockatoo Dataset (DBCA, 2024a)
All Vertebrate Fauna	DBCA NatureMap database (DBCA, 2007-) EPBC Protected Matters Search Tool (DCCEEW, 2024) Dandjoo (DBCA, 2024b) Bat Finder (Australasian Bat Society, 2024)
Matters of National Environmental Significance (MNES)	EPBC Protected Matters Search Tool (DCCEEW, 2024)
Short Range Endemic Species	WA Museum Crustaceans database (WAM, 2024b) WA Museum Arachnida and Myriapoda database (WAM, 2024a) WA Museum Mollusc database (WAM, 2024d) WA Museum Insecta database (WAM, 2024c) EPBC Protected Matters Search Tool (DCCEEW, 2024) DBCA NatureMap database (DBCA, 2007-)

3.1.2 Conservation Significance Definitions

3.1.2.1 Significant Vertebrate Fauna

Conservation significant fauna taxa are defined as those that are listed under Federal and/or State legislation, and/or those ranked as Priority species by DBCA. Categories given to fauna protected under State and Commonwealth legislation, and otherwise through DBCA, are summarised in **Table 3.2**. A more detailed description of conservation categories is provided in **Appendix A**.

Table 3.2 Categories Given to Threatened and Priority Fauna

Act/Category	Category	Description
EPBC Act	Extinct in the wild (EW)	Fauna known to survive only in captivity.
	Critically Endangered (CR)	Fauna facing an extremely high risk of extinction in the wild in the immediate future.
	Endangered (EN)	Fauna facing a very high risk of extinction in the wild in the near future.
	Vulnerable (VU)	Fauna facing a very high risk of extinction in the wild in the medium-term future.
	Migratory (MI)	Fauna listed under international agreements to which Australia is a party.
BC Act	Extinct in the wild (EW)	Fauna known to survive only in captivity.
	Critically Endangered (CR)	Fauna facing an extremely high risk of extinction in the wild in the immediate future.
	Endangered (EN)	Fauna facing a very high risk of extinction in the wild in the near future.
	Vulnerable (VU)	Fauna facing a very high risk of extinction in the wild in the medium-term future.
	Migratory (MI)	A subset of the migratory fauna that are known to visit Western Australia that are protected under the international agreements or treaties, excluding species that are listed as Threatened species.
	Conservation dependent fauna (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
	Other specially protected species (OS)	Fauna in need of special protection to ensure their conservation.
DBCA Priority Fauna	Priority 1 (P1)	Poorly known species (on threatened lands).
	Priority 2 (P2)	Poorly known species in few locations (some on conservation lands).
	Priority 3 (P3)	Poorly known species in several locations (some on conservation lands).
	Priority 4 (P4)	Rare, near threatened and other species in need of monitoring.

3.1.2.2 Significant Habitat

Under the EPBC Act and BC Act, significant habitat is defined as habitat critical to the survival, breeding, foraging, or movement of conservation-significant species. This includes areas essential for the long-term persistence of listed significant species or communities, such as breeding sites, feeding areas, and movement corridors. Activities that may impact such habitat require assessment under the relevant legislation. According to EPA guidance (EPA, 2020), significant fauna habitats also include rare or isolated features (e.g. rock piles, caves, springs), areas providing key resources, and habitats that function as ecological linkages, refugia, or support important life stages such as breeding or foraging.

3.1.3 Likelihood of Occurrence Assessment

3.1.3.1 Vertebrate Fauna

A likelihood of occurrence assessment was conducted for conservation significant fauna identified during the desktop review. This assessment considered species biology, distribution, habitat preferences, the availability and quality of suitable habitat, and existing records within or near the Basic and Targeted FSA. Each species was assigned a likelihood ranking (**Table 3.3**) based on these factors, ranging from Known to Very Low, reflecting the probability of the species occurring within the Survey Area.

Table 3.3 Categories for Vertebrate Fauna Likelihood of Occurrence

Likelihood Category	Description
Known	The species has been recorded during the field survey or from recent, reliable records within the Survey Area.
High	The Survey Area contains suitable habitat and there are recent records of the species occurring in close proximity to the Survey Area. OR Species known distribution overlaps the Survey Area which contains suitable habitat.
Moderate	The species is known from the broader area (Desktop Study Area) and some preferred habitat is present within the Survey Area. Aerial foragers and other migratory birds that may overfly the Survey Area are also included in this category.
Low	The species has been recorded within the Desktop Study Area however, there is limited habitat (i.e. quantity, type and quality) within the Survey Area. This may include marginal and isolated habitat with limited ability for the species to access. The species may disperse through the Survey Area infrequently and is unlikely to depend on the habitat for survival.
Very Low	The Survey Area offers limited to no potential habitat for the species, is outside its known range, and/or is lacking broader habitat requirements.

3.1.3.2 Invertebrate Fauna

The likelihood of occurrence assessment was conducted for short-range endemic (SRE) invertebrate species within the Basic FSA using available data, including regional reports, vegetation mapping, records from the Western Australian Museum (WAM), and the Protected Matters Search Tool. Assessments considered habitat suitability at both local and regional scales. Aquatic and marine species were excluded, as the Basic FSA does not support suitable habitat. SRE invertebrates identified during the desktop review were assigned a likelihood ranking (**Table 3.4**), from Known to Very Low, based on proximity of previous records and habitat suitability.

Table 3.4 Categories for SRE Likelihood of Occurrence

Likelihood Category	Description
Known	The species has been confirmed to occur within the Basic FSA from previous records.
High	Habitat for the species is known to occur within the Basic FSA and known records are within 20 km of the Basic FSA.
Moderate	Habitat for the species is known to occur within the Basic FSA and known records are within 50 km of the Basic FSA.
Low	The species has been recorded within 50 km of the Basic FSA, however, the Basic FSA does not contain suitable habitat to support this species.
Very Low	The Basic FSA offers limited to no potential habitat for the species, no records of this species are found within 50 km of the Basic FSA, and/or is lacking broader habitat requirements.

3.2 Field Survey

3.2.1 Survey Timing and Personnel

The Basic and Targeted vertebrate fauna assessment was undertaken between 28 October 2024 and 6 November 2024 by Senior Zoologist Madison Roberts and Graduate Ecologist Indigo Sibanda. Madison has over nine years of experience conducting fauna surveys within the state, including four years surveying for Black-Cockatoo, while Indigo has one year of experience conducting fauna surveys within the state. The Black-Cockatoo survey was also overseen by Principal Zoologist Wesley Bancroft who has over 20 years of experience undertaking Black-Cockatoo surveys in the state. A supplementary survey was carried out by Senior Zoologist Madison Roberts and Senior Ecologist Cielito Marbus from 19 to 21 February 2025 to complete the survey coverage of the Targeted FSA. Cielito has 10 years of experience conducting ecological surveys within the state.

3.2.2 Weather

Daily weather observations recorded from Carnamah Station (Station ID: 008025) were used to describe local rainfall and temperatures preceding the survey (**Table 3.5, Figure 3.1**). Observed mean monthly maximum temperature for the year preceding the survey was higher than long-term annual averages for every month ($\bar{x}\Delta$ = +2.27 °C). Annual rainfall in the year preceding the survey was 52 mm lower than long-term annual rainfall, with June through to August receiving 41.4 mm more than long-term averages for this period alone. The weather conditions experienced during the survey are presented in **Table 3.5** and **Figure 3.1**.

Table 3.5 Temperature and Precipitation Recorded During Survey (Station ID: 8025) (BoM, 2024)

Survey Date		Temperature (°C)		Precipitation (mm)
		Min	Max	
Trip 1	28/10/2024	10.5	34.0	0
	29/10/2024	15.0	38.0	0
	30/10/2024	14.5	38.0	0
	31/10/2024	14.5	39.0	0
	01/11/2024	16.5	36.0	0
	02/11/2024	11.0	36.0	0
	03/11/2024	11.0	36.0	0
	04/11/2024	11.0	28.1	0
	05/11/2024	16.5	25.3	0
	06/11/2024	13.0	39.0	0
	Mean	**13.35**	**35.0**	**0**
Trip 2	19/02/2025	19.5	39.5	0
	20/02/2025	20.5	37.0	4.4
	21/02/2025	17.0	-	0
	Mean	**19.0**	**38.25**	**1.47**

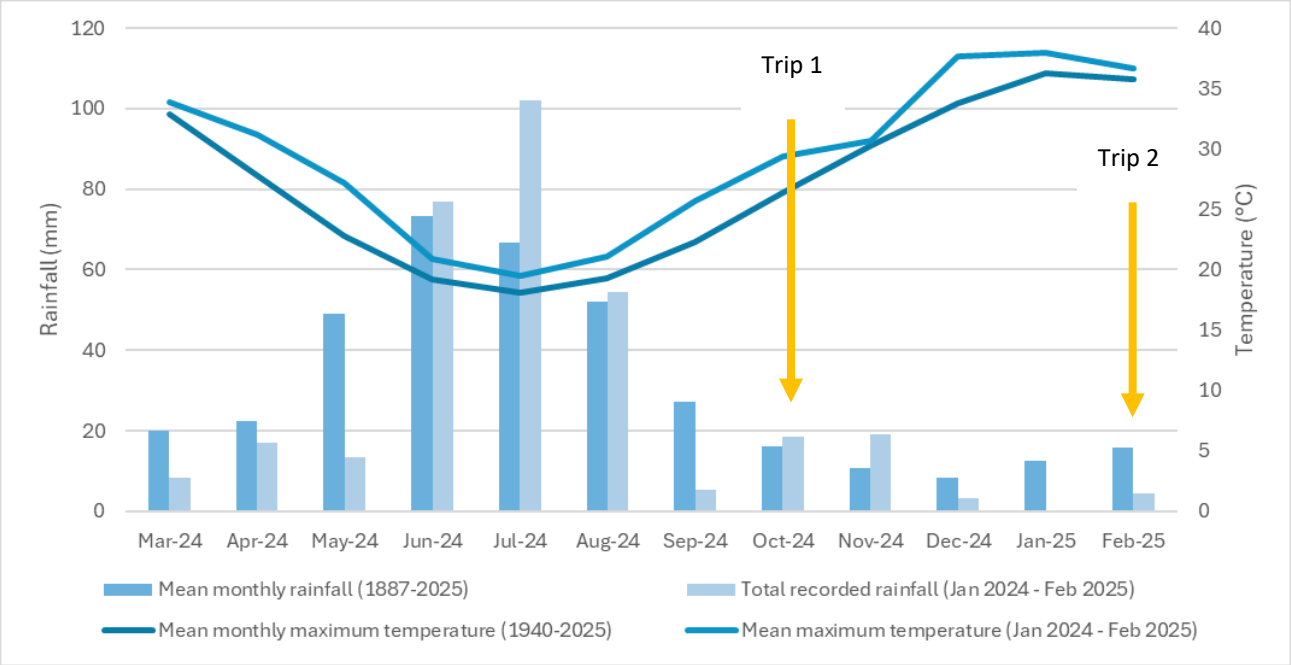


Figure 3.1 Carnamah Station (ID: 008025) mean monthly rainfall (1887-2025), total recorded rainfall (March 2024 – Feb 2025), long-term mean monthly maximum temperatures (1940–2025) and mean monthly maximum temperatures (March 2024 – Feb 2025). Orange arrows indicate survey timing

3.2.3 Sampling Effort

The Basic and Targeted FSAs were surveyed on foot and by light vehicle over 13 days total. In all, six acoustic and ultrasonic detectors (totalling 23 nights recording) and nine remote cameras (totalling 24 days/nights) were deployed. A total of 141 fauna habitat assessment points and 110 Black-Cockatoo habitat assessment points were recorded during this time. Tracklogs and sampling points for both the Basic and Targeted assessments are presented in **Figure 3.2**.

FIGURE 3.2

Track Logs and Sampling Locations

336000 340000 344000 348000 352000 356000 360000 364000 368000

6708000 6704000 6700000 6696000 6692000 6688000

YEO RD
SECOND NORTH RD
ENEABBA-THREE SPRINGS RD
FIRST NORTH RD
BRIMSON RD
RESERVE RD
TURKEY FLAT RD
CARNAMAH-ENEABBA RD
ROSE THOMSON RD
MINERAL SANDS RD
GARIBALDI WILLIS RD
CHATFIELD CLARKE RD
WILLMOTT RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Motion Camera Site
- Ultrasonic Recorder Site
- Black Cockatoo Foraging Habitat Assessment
- General Fauna Habitat Assessment
- Track Log

0 2 4

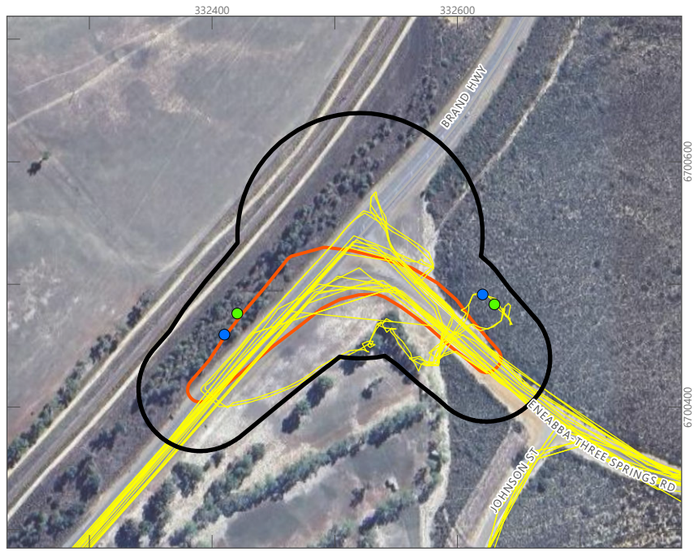
Kilometres

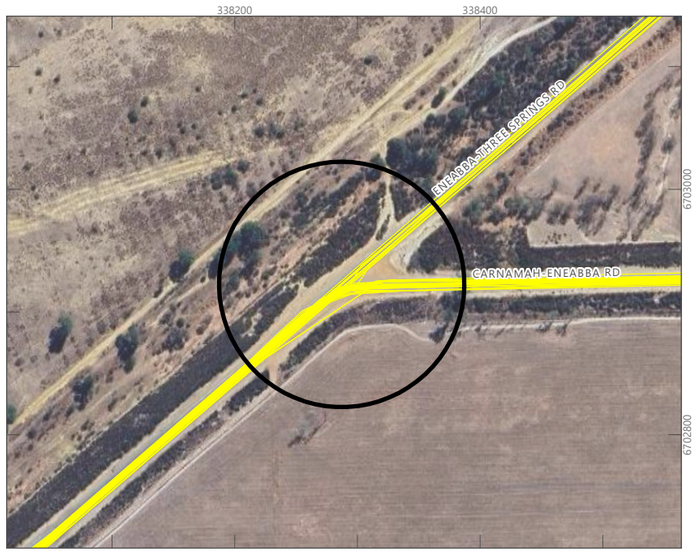
Scale: 1:100,000 at A3
GDA2020 MGA Zone 50

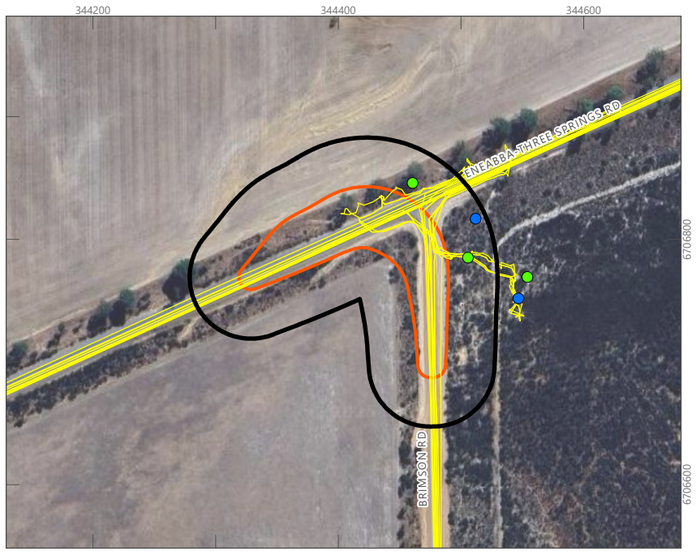
Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), SynergyRED (2024), Umwelt (2024)

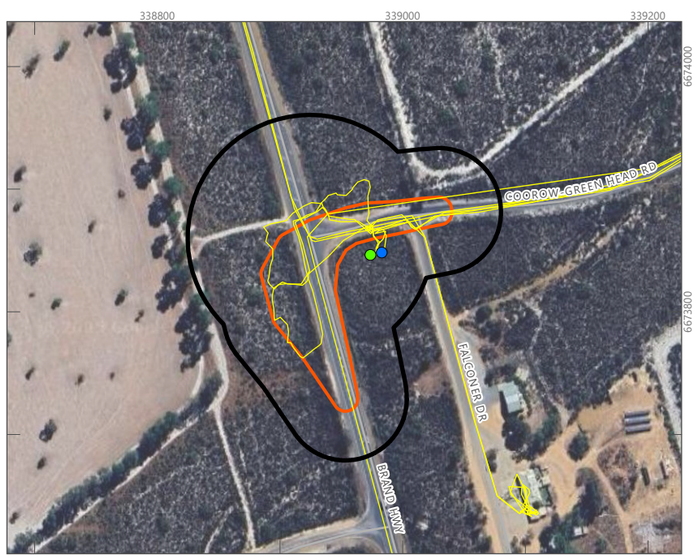
FIGURE 3.2

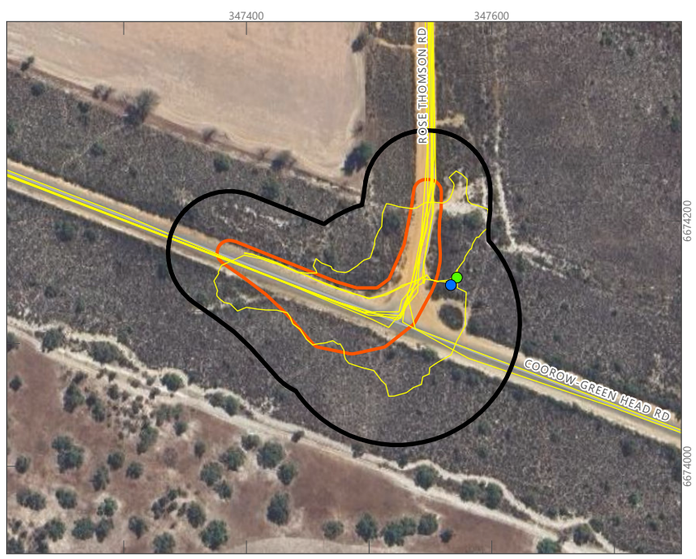
Track Logs and Sampling Locations

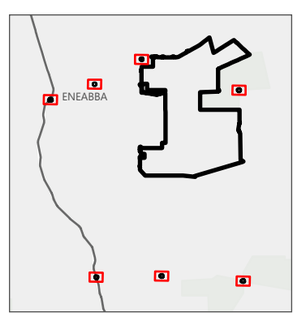












Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Motion Camera Site
- Ultrasonic Recorder Site
- Black Cockatoo Foraging Habitat Assessment
- General Fauna Habitat Assessment
- Track Log

0 100 200 m

Scale: 1:5,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

3.2.4 Habitat Assessment

Habitat assessments were undertaken at 141 locations across the Basic and Targeted FSA during the survey to delineate vertebrate fauna habitats. The characteristics recorded during the habitat assessments include:

- Site information, photo and GPS location
- Vegetation: dominant upper, mid and lower strata species and percentage cover
- Substrate
- Surface water presence
- Habitat components (leaf litter, rocky outcrops, tree hollows etc)
- Disturbance signs
- General habitat condition.

3.2.5 Habitat Mapping

The information derived from the habitat assessments (**Section 3.2.4**) were used to delineate fauna habitats within the Basic FSA which were then mapped accordingly. Locations of habitat assessment points were used in conjunction with aerial imagery, digital elevation models, and soil mapping units to generate discrete fauna habitat polygons using ArcGIS Pro. Mapping boundaries were developed using aerial photography at a scale of 1:5,000 and reflected changes in landform and vegetation patterns visible at this scale. Where appropriate, fauna habitat mapping linework followed that developed for vegetation mapping undertaken as part of the Flora and Vegetation Assessment by Umwelt (Umwelt, 2025).

3.2.6 Acoustic and Ultrasonic Recording

Acoustic and ultrasonic recordings were conducted using six Titley Scientific Ranger recording devices over a total of 23 nights to survey both bat and bird activity over the Basic FSA (**Table 3.6**). Of these, two units were set to record only ultrasonic frequencies to target echolocating bats, while the remaining four units operated in simultaneous mode, capturing both ultrasonic bat calls and audible bird vocalisations.

Recorders were strategically placed across a range of habitats to maximise species detections, with deployment locations selected based on habitat suitability for bats and birds. Each device was programmed for automated overnight recording, with recordings starting approximately 30 minutes before sunset and ending 30 minutes after sunrise each day, capturing nocturnal bat echolocation calls and early-morning bird vocalisations. Each Ranger was deployed for a minimum of three nights. Locations of the acoustic and ultrasonic units deployed during the survey are presented on **Figure 3.2**.

Data from the bat ultrasonic recordings was analysed by Bob Bullen from Bat Call Australia. Acoustic data was analysed by Wesley Bancroft from Umwelt using Kaleidoscope software.

Table 3.6 Acoustic and Ultrasonic Units Deployed During Survey

Site Name	Easting	Northing	Habitat Description	Date Deployed	Date Collected	Date of Last Recording	Nights Active
R5 (U)	348975.73	6701086.30	Tall Shrubland Associated with Dampland	31/10/24	5/11/24	31/10/24	1
R13 (A&U)	356953.25	6709242.28	Wandoo Woodland on Sandy Soil	28/10/24	5/11/24	4/11/24	8
R14 (A&U)	354938.93	6693375.82	Eucalyptus Woodland on Stoney Substrate	30/10/24	4/11/24	1/11/24	3
R20 (U)	357129.12	6694659.40	Eucalyptus Woodland on Stoney Substrate	29/10/24	4/11/24	29/10/24	1
R42 (A&U)	350044.92	6690519.22	Eucalyptus Woodland on Stoney Substrate	3/11/24	5/11/24	4/11/24	2
R43 (A&U)	356130.25	6706915.67	Cleared Agricultural Land (on paddock tree)	28/10/24	5/11/24	4/11/24	8
Total nights deployed							**23**

A = Acoustic (birds), U = Ultrasonic (bats).
Datum: GDA2020, Zone 50.

3.2.7 Remote Camera

Nine Reconyx Hyperfire 2 remote cameras were deployed across the Basic FSA in November 2024 for a total of 46 nights to survey terrestrial fauna, with a particular focus on detecting Western Spiny-tailed Skinks (*Egernia stokesii badia*) and other vertebrate species.

Cameras targeting general habitat were baited with a non-reward scent lure (sardine oil) and were unbaited when targeting log piles or potential denning habitat. Cameras were deployed in a variety of habitat types, with an emphasis on areas providing suitable microhabitats for Western Spiny-tailed Skinks, such as:

- Rocky outcrops and crevices
- Hollow logs and dense vegetation
- Areas with abundant ground debris and shelter opportunities.

Additional cameras were positioned to capture broader fauna activity in open woodlands, shrublands, and riparian zones to ensure a comprehensive assessment of species presence across the Basic FSA. Each camera was mounted at an appropriate height and angle to maximise detection probability. Cameras were set to motion-triggered capture, recording both daytime and nocturnal activity. The GPS coordinates of each camera location were recorded, and a fauna habitat assessment was performed at each deployment location. Deployment details of the cameras are presented in **Table 3.7**.

Images from the remote cameras were analysed manually by Umwelt Zoologists upon returning from the field.

Table 3.7 Remote Cameras Deployed During Survey

Site Name	Easting	Northing	Habitat Description	Date Deployed	Date Collected	Nights Deployed
CAM01	356496.19	6708105.83	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	28/10/24	5/11/24	8
CAM02	352391.92	6696078.03	Eucalyptus Woodland on Stoney Substrate	30/10/24	4/11/24	5
CAM03	354125.90	6691316.75	Tall Shrubland Associated with Dampland	31/10/24	5/11/24	5
CAM04	350072.32	6690514.05	Eucalyptus Woodland on Stoney Substrate	3/11/24	5/11/24	3
CAM05	350014.05	6689874.34	Eucalyptus Woodland on Rocky Hills	3/11/24	5/11/24	3
CAM06	346668.57	6703503.94	Wandoo Woodland on Sandy Soil	28/10/24	5/11/24	8
CAM07	354782.19	6693594.57	Eucalyptus Woodland on Stoney Substrate	29/10/24	4/11/24	6
CAM08	356883.30	6709280.95	Tall Shrubland Associated with Dampland	30/10/24	4/11/24	5
CAM09	348854.64	6705667.47	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	1/11/24	5/11/24	4
Total Survey Effort						**46 nights**

Datum: GDA2020, Zone 50.

3.2.8 Opportunistic Records

Opportunistic records of vertebrate fauna were recorded throughout the field survey. These records include both primary (direct sighting) and secondary (bird call, diggings, scat, tracks, feathers, skins etc.) evidence.

3.2.9 Targeted Sampling – Carnaby's Black-Cockatoo and Habitat Assessment

3.2.9.1 Guidelines

Guidelines for the referral of actions that may result in impact to Black-Cockatoos (for assessment under the EPBC Act) are provided by DAWE (2022). The survey was conducted with strong reference to both the existing guidelines as well as the previous guidelines (DoEE, 2017). Survey methodology also followed the recommendations listed on the DCCEEW's Species Profile and Threats Database (DCCEEW, 2025). Ecological values for Black-Cockatoos within the Targeted FSA were based on the definitions of breeding, foraging and roosting habitat as per the EPBC Act referral guidelines for Black-Cockatoos (DAWE, 2022).

The *Referral Guideline for WA Threatened Black-Cockatoo Species* (DAWE, 2022) provides guidance on assessing breeding habitat, including the identification of known nesting trees, suitable nesting trees (those with hollows), and potential nesting trees (those with a minimum diameter at breast height [DBH] of 300–500 mm that may develop hollows in the future). However, when assessing the significance of potential Black-Cockatoo trees, the practical application of these guidelines can be challenging.

The Department of Biodiversity, Conservation and Attractions (DBCA) has advised that the methodology developed and applied by Bamford (e.g. Bamford, 2020) is an acceptable approach for assessing breeding value and foraging habitat. This method provides a structured approach to classifying trees based on their potential to support breeding. The current assessment has chosen to employ the Bamford ranking system (Bamford, 2020) to assess Black-Cockatoo nest-trees, incorporating published data on Black-Cockatoo nesting preferences (further explained below).

3.2.9.2 Breeding

Carnaby's Black-Cockatoo breed primarily in eucalypt woodlands, largely in the Wheatbelt but with a westward expansion into jarrah-marri forests and tuart woodlands of the Swan Coastal Plain (DCCEEW, 2025). The *Referral Guideline for 3 WA Threatened Black-Cockatoo Species* (DAWE, 2022) note that while typical breeding habitat comprises woodland and forests, it can also include partially cleared areas, including isolated trees. Carnaby's Black-Cockatoo are known to nest in both live and dead trees, with many eucalypt species providing suitable sites. Nesting occurs in large hollows of mature eucalypts, with preferred species including Salmon Gum (*Eucalyptus salmonophloia*), Wandoo (*E. wandoo),* Tuart (*E. gomphocephala*), Jarrah (*E. marginata*), Flooded Gum (*Eucalyptus rudis*), York Gum (*E. loxophleba*), Powderbark (*E. accedens*), Karri (*E. diversicolor*), and Marri (*Corymbia calophylla*) (DAWE, 2022).

The methodology used in the current study takes into consideration the following:

Tree species. The primary species of tree used for Carnaby's Black-Cockatoo breeding include Salmon Gum, Wandoo, Tuart, Jarrah, Flooded Gum, York Gum, Powderbark, Karri and Marri. However, it is generally considered that a tree of any species may be a breeding site if hollow height, dimensions, and orientation are adequate. For the targeted assessment, all rough barked trees with a DBH ≥500 mm and any smooth barked tree within a DHB of ≥300 mm was assessed.

Height of nest entrance. A study by Saunders (1979) found that the average height of a Carnaby's nest hollow varied depending on the dominant tree species. In Wandoo dominated sites, nesting hollows were often recorded between 2 m and 10 m. However, in Salmon Gum dominated sites, nesting hollows ranged from 3–10 m high. There was no evidence to suggest that higher hollows were preferred. A breeding pair of Carnaby's Black-Cockatoo with a chick was recorded nesting in a Powderbark Wandoo within the Basic FSA on one of the properties. The height of the hollow entrance was 1.5 m above ground level (AGL), therefore this was the minimum height used during hollow assessments within the Targeted FSA.

Hollow entrance dimensions. The unpublished (Denis Saunders) dimensions of natural hollows in Wandoo and Salmon Gum used by Carnaby's Black-Cockatoo for nesting have been presented by Groom (Christine Groom, 2010). This information shows that the width of hollow entrances range from 14–68 cm (average 29.6 cm) for Wandoo, and 13–32 cm (average 21.9 cm) in Salmon Gum. Depth of hollows ranged from 60–410 cm (185 cm) and 50–254 cm (122 cm) for Wandoo and Salmon Gum respectively.

Hollow entrance orientation. While specific studies on shape and orientation are less abundant than those on size, research suggests that Carnaby's Black-Cockatoo do not have a preferred orientation for breeding hollows (Christine Groom, 2010; Saunders, 1979). Johnstone et al. (Johnstone et al., 2013) defined a number of hollow entrance types for Forest Red-tailed Black-Cockatoo (based on their orientation and location within the tree's structure). These can be condensed to the following categories chimney, elbow, spout, and side entrance (to main trunk). Black-Cockatoos mainly nested in chimneys, elbows and side entrances and, in virtually every case, the hollow entrance needed to be oriented vertically (chimneys, elbows), near-vertically (some spouts) or outwards (side entrances). Horizontal or downward-facing hollow entrances (even of suitable height and diameter) are undesirable to Black-Cockatoos.

Assessment of Potential Nest-Trees

Potential nest trees were assessed within the Targeted FSA through ground-based observations, using binoculars where necessary. Trees considered potentially suitable for Black-Cockatoo nesting were systematically evaluated. For each suitable tree, the following attributes were recorded:

- Tree location
- Tree species
- Life status (alive or dead)
- Diameter at breast height (DBH)
- Number of visible hollows
- Aspect and estimated height of the most suitable hollow
- Evidence of use, including chew marks or other signs of breeding activity.

Trees were then given a nest-tree ranking in accordance with the Bamford ranking system described in **Table 3.8**.

Table 3.8 Bamford et al. (Bamford et al., 2020) Black-Cockatoo Nest-tree Ranks

Rank	Description of Tree and Hollows/Activity
1	Activity at hollow observed; adult (or immature) bird seen entering or emerging from hollow.
2	Hollow of suitable size visible with chew marks around entrance. Record if chew-marks are recent or old.
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10 m).
4	Tree with large hollows or broken branches that might contain large hollows but hollows or potential hollows are not vertical or near-vertical; thus a tree with or likely to have hollows of sufficient size but not to have hollows of the angle preferred by Black-Cockatoos.
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.

3.2.9.3 Foraging

Bamford Habitat Quality Score

The assessment of Black-Cockatoo foraging habitat was based on the framework developed by Bamford Consulting Ecologists (BCE) in collaboration with Quessentia Consulting (Bamford, 2020). This methodology aligns with the Offset Assessment Guide by the Federal Department of Agriculture, Water and the Environment (DAWE) and is generally considered a best practice approach to evaluate the foraging value of vegetation for Black-Cockatoos.

Black-Cockatoo foraging assessments were conducted at 109 locations within the Targeted FSA to evaluate habitat quality. To extend this assessment across the broader Basic FSA, foraging quality scores were extrapolated from the field-mapped data within the Targeted FSA. A conservative approach was applied, whereby the highest intersecting foraging score was assigned to each corresponding fauna habitat type across the Basic FSA. Foraging habitat was scored from 0-6 based on the BCE Site Condition component as presented in **Table 3.9**.

Table 3.9 Carnaby's Black-Cockatoo Foraging Habitat Scoring System Adapted from Bamford (2020)

Site Score	Carnaby's Black-Cockatoo
0	No foraging value. No Proteaceae, eucalypts or other potential sources of food. Examples: • Water bodies (e.g. salt lakes, dams, rivers) • Bare ground • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits) or with vegetation of no food value, such as some suburban landscapes • Mown grass
1	Negligible to low foraging values. Examples: • Scattered specimens of known food plants but projected foliage cover of these is <2%. This could include urban areas with scattered foraging trees • Paddocks that are lightly vegetated with melons or other known food-source weeds (e.g. Erodium spp.) that represent short-term and/or seasonal food source • Blue gum plantations (foraging has been reported but appears to be unusual)
2	Low forage value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have <10% projected foliage cover • Woodland with tree banksias 2-4% projected foliage cover • Open eucalypt woodland/mallee of small-fruited species • Paddocks that are densely vegetated with melons or other known food-source weeds (e.g. Erodium spp.) that represent a short-term and/or seasonal food source
3	Low to Moderate foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksia, have 10-20% projected foliage cover • Woodland with tree banksias 5-20% projected foliage cover • Eucalypt Woodland/Mallee of small-fruited species • Eucalypt Woodland with Marri <10% projected foliage cover

Site Score	Carnaby's Black-Cockatoo
4	Moderate foraging value. Examples: • Woodland/low forest with tree banksias (of key species *B. attenuata* and *B. menziesii*) 20-40% projected foliage cover • Kwongan/Shrubland in which species of foraging value, such as shrubby banksias, have 20-40% projected foliage cover • Eucalypt Woodland/Forest with Marri 20-40% projected foliage cover
5	Moderate to High foraging value. Examples: • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with >60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths • Pine Plantations with trees more than 10 years old
6	High foraging value. Example: • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with >60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it's robust and unlikely to decline in the medium term)

Foraging Evidence

Black-Cockatoo foraging signs were also recorded as part of the field survey. When observed, the following was recorded:

- Location
- Black-Cockatoo species, based on nut chew assessments, or known preferred forage species (Proteaceous species)
- Forage plant species
- Approximate age of the foraging evidence.

Foraging evidence categories are outlined in **Table 3.10**.

Table 3.10 Foraging Evidence Categories

Category	Description
Active	Where birds were observed in the act of foraging.
Recent	Foraging signs (e.g. chewed nuts or vegetation) were 'fresh' (i.e. foraging was likely to have occurred within days to weeks). Recent foraging signs were typically green and/or with very little sign of weathering. Approximately less than four weeks old.
Intermediate	Foraging was likely to have occurred within weeks to months previously. Approximately one to six months old.
Old	Foraging was likely to have occurred months to years previously. Approximately more than six months old.

3.2.9.4 Night Roosting

As per the guidance of DAWE (2022), areas likely to be used as night roosting sites were noted based on the topographical, physical and vegetation characteristics present (such as sites adjacent to watercourses with large trees) and/or indirect evidence of roosting (e.g. guano deposits, discarded feathers). Areas that had cockatoo activity in the late-afternoon were also recorded.

3.2.9.5 Watering Points

Black-Cockatoos generally choose roost locations within approximately 2 km of a watering point (DAWE, 2022) therefore the presence (or absence) of water sources can influence the suitability of a site for use by Black-Cockatoos or the manner in which they may use that site. The Basic FSA was assessed (directly during the field investigations and through the inspection of satellite imagery) for the presence of water sources that may provide potential watering points for Black-Cockatoos.

3.2.10 Targeted Sampling – Western Spiny-tailed Skink

Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*) (brown form) are known to inhabit eucalypt woodlands within the greater wheatbelt region of Western Australia. Most records of the brown form are located within York Gum (*Eucalyptus loxophleba*) woodland, with some records in Gimlet (*E. salubris*) and Salmon Gum (*E. salmonophloia*) woodland (DotEE 2025). Populations are known to persist in woodland patches as small as one hectare and completely surrounded by wheatfields, however greatest numbers of individuals occur at sites with numerous fallen logs and subjected to low-intensity grazing by domestic livestock (DotEE 2025).

Hollow logs serve as important refuge sites for this species in woodland habitats (Smith, pers. comm., cited in Cogger 1993). The most suitable refuges are typically composed of multiple overlapping hollow logs, which offer both shelter and basking opportunities. Observations also indicate that skinks are increasingly occupying modified environments, including wood piles, scrap metal, and spaces beneath buildings on private properties (DotEE 2025).

Habitat assessments were performed within vegetation intersecting the Targeted FSA. When habitat was considered to be potentially suitable for Western Spiny-tailed Skink, the area was traversed on foot in search of log piles or potential denning sites and latrines. Any potential denning sites were marked using a handheld GPS, and a representative photo taken. Unbaited remote cameras were deployed near potential denning sites. Targeted Western Spiny-tailed Skink surveys were performed in a non-invasive manner and did not include disturbance of potential dens.

3.3 Taxonomy and Nomenclature

Species nomenclature and organisation follow recognised taxonomic checklists. Bird names have been based on *The Working List of Australian Birds (Version 4.3)* (BirdLife, 2023), while all other vertebrate species have been named according to the *Checklist of the Terrestrial Vertebrate Fauna of WA* (WAM, 2024e). However, where recently published scientific literature has introduced updated taxa names not yet adopted by these sources, the published nomenclature is followed.

3.4 Limitations

Following the completion of the desktop assessment and field survey, a review was undertaken to identify any limitations that may have affected the comprehensiveness of the data assessment. The limitations outlined in **Table 3.11** are based on those recommended for consideration in the Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020).

Table 3.11 Limitations of the Basic and Targeted Vertebrate Fauna Assessment

Limitation	Outcome	Comment
Availability of data and information	Not a limitation	Good contextual information for the Survey Area was available prior to the survey. Sources of information used included government databases (DBCA, DCCEEW), as well as numerous general sources pertaining to the climate, geomorphology, vegetation and fauna of the region, and fauna surveys previously conducted in the Desktop FSA.
Competency/experience of team carrying out the survey	Not a limitation	The fauna field team leader for the field survey has >7 years' experience in conducting fauna surveys, with >4 years' experience surveying for Black-Cockatoo. The survey team were supported by Principal Zoologist Wesley Bancroft who has >20 years fauna survey experience and provided additional support where required. Technical personnel with relevant expertise assisted with analysis of ultrasonic recordings (Robert Bullen), and analysis of acoustic recordings (Wesley Bancroft).
Scope of the survey, e.g. where fauna groups were excluded from the survey	Not a limitation	The scope was a basic level vertebrate fauna survey with targeted sampling components. This was conducted within the EPA (2020) framework and relevant species-specific survey guidelines (**Section 1.4**).
Timing/weather/season cycle	Minor limitation	The field survey was conducted in October/November 2024, and February 2025. This is considered optimal timing to survey reptiles, amphibians, birds and mammals in the Southern Climatic Region (EPA, 2020). The October/November survey is within recommended survey timing for Carnaby's Black-Cockatoo breeding habitat (DAWE, 2022). While the February survey is outside of this timing, the timing of the survey is not considered a limitation as nest-tree suitability can still be assessed at any time of year. Rainfall within the year proceeding survey was 52 mm lower than the long-term average which resulted in dryer than usual conditions. However, this is only considered a minor limitation.
Disturbances (e.g. fire, flood etc.), which may have affected results	Not a limitation	There was evidence of significant impact to vegetation composition and structure throughout the Survey Area as a result of human activities, including clearing and very high levels of introduced (weed) taxa. However, the fauna investigations were unimpacted by disturbance.

Limitation	Outcome	Comment
Proportion of fauna identified, recorded and/or collected	Not a limitation	The basic fauna survey was undertaken to identify broad fauna and fauna habitat information. As such, the Basic FSA was sampled opportunistically and via low-intensity sampling using cameras and remote recording devices. The survey likely detected a representative proportion of the vertebrate fauna assemblage, particularly birds, mammals, and reptiles based on habitat suitability and survey techniques. Targeted species were actively searched for using species-specific methods as part of the Targeted FSA, increasing detection probability for those of conservation interest. All fauna were identified in the field at the time of the survey.
Adequacy of survey intensity and proportion of survey achieved	Not a limitation	A basic and targeted survey was undertaken across the Basic and Targeted FSAs to assist with decisions on future environmental approvals. The sampling methods and survey intensity was considered adequate for the level of survey and focussed on the significant species.
Access problems	Not a limitation	The Basic FSA was accessed either via roads or on foot. Most areas of the Targeted FSA were able to be accessed, however due to cropping, some habitat assessments were completed using binoculars from the closest access point. If any of these areas were suspected to contain cockatoo nest-trees, they were later accessed during the February survey after crops had been harvested. Therefore, this is not considered to be a limitation of this assessment.
Problems with data and analysis, including sampling bias	Not a limitation	Two of the Ranger ultrasonic and acoustic devices did not record for their entire deployment periods due to faulty batteries. Remote recording was a supplementary method for the basic fauna survey and the reduced deployment time of these units is not considered a limitation to the survey. No other constraints were encountered during data collection in the field or during subsequent analysis.

4.0 Desktop Results

4.1 Vertebrate Fauna

4.1.1 Literature Review

No publicly available vertebrate fauna surveys within the Desktop Study Area were identified through interrogation of the IBSA database (DWER, 2024b), however two vertebrate fauna survey reports were supplied by SynergyRED and landowners. The only conservation significant fauna recorded during the relevant surveys was three Carnaby's Black-Cockatoos (EN) (pair of adults with a juvenile) recorded as an overfly approximately 3 km south of the Basic FSA (Focused Vision, 2018). A summary of relevant fauna literature reviewed as part of this assessment is provided in **Table 4.1**.

Table 4.1 Vertebrate Fauna Assessments Within the Desktop Study Area

Project, Author	Approximate Distance to Study Area	Survey Timing	Level of Assessment	Methods	Fauna Habitat Recorded	Conservation Significant Fauna Recorded
Warradage Wind Farm (Biota, 2012)	3 km south of Basic FSA	Six days in Oct 2012 Three Days in Nov 2012	Flora & Vegetation Survey Desktop Fauna Assessment	Desktop assessment, flora and vegetation survey. Habitat mapping, and opportunistic recording of fauna.	Modified vegetation Drainage areas Loam/clay plains Stony hills and slopes Sandy plains and low hills	None.
Flora, Vegetation and Fauna Assessment – Warradarge Wind Farm (Focused Vision, 2018)	3 km south of Basic FSA	Two days in Oct 2018	Basic and Targeted	Desktop assessment, vegetation mapping, broad fauna habitat mapping, Black-Cockatoo habitat mapping and threatened and priority flora targeted searches.	Heaths with or without Eucalyptus Partly Cleared Areas Cleared Areas	Carnaby's Black-Cockatoo – overfly of adult pair with juvenile.

4.1.2 Fauna Diversity

The NatureMap database interrogation (DBCA, 2007-) identified 217 vertebrate fauna species previously recorded within 20 km of the Basic FSA, comprising 133 birds, 56 reptiles, 21 mammals and seven amphibians. The Protected Matters Search Tool (PMST) database interrogation (DCCEEW, 2024) recorded an additional nine birds and two mammals, the DBCA search output (DBCA, 2024c) detected an additional three birds and one mammal species, and BatMap (Australasian Bat Society, 2024) identified two additional mammals within the Desktop Study Area. Species diversity is further discussed below, with the raw database results provided in **Appendix B**.

4.1.2.1 Amphibians

Seven species of amphibians from three families were detected from the Desktop Study Area. The most species family recorded were *Myobatrachidae* (three species) and *Limnodynastidae* (three species).

4.1.2.2 Birds

The desktop assessment detected 145 species of birds from 43 families from the Desktop Study Area. The most specious families are *Meliphagidae* (17 species), *Acanthizidae* (10 species) and *Cacatuidae* (nine species).

4.1.2.3 Mammals

The desktop assessment detected 26 species of mammals from 10 families from the Desktop Assessment Area. The most specious families are *Vespertilionidae* (five species), *Dasyuridae* (four species), *Macropodidae* (three species) and *Muridae* (three species).

4.1.2.4 Reptiles

The desktop assessment detected 56 reptile species from six families from the Desktop Assessment Area. The most specious families are *Scincidae* (23 species), *Agamidae* (10 species) and *Elapidae* (nine species).

4.1.3 Introduced Fauna

The desktop assessment identified six introduced vertebrate fauna within the Desktop Study Area. This comprises four mammals and two birds listed below:

- Red Fox (*Vulpes vulpes*)
- House Mouse (*Mus musculus*)
- Rabbit (*Oryctolagus cuniculus*)
- Dog/Dingo (*Canis familiaris*)
- Domestic Pigeon (*Columba livia*)
- Laughing Kookaburra (*Dacelo novaeguineae*).

It is likely that other introduced fauna such as cat (*Felis catus*) also occur within the Desktop Study Area based on their habitat preferences and wide-scale distribution.

4.1.4 Conservation Significant Fauna – Likelihood of Occurrence

The desktop assessment identified 24 conservation significant vertebrate fauna species as potentially occurring within the Desktop Study Area. These comprise 17 birds, four mammals and three reptiles. Twenty-two of these species are listed either under the EPBC or BC Acts, while two species are listed as DBCA Priority fauna (**Table 4.2**).

One conservation significant species identified during the desktop assessment, Carnaby's Black-Cockatoo (EN), is considered 'Known' to occur within the Basic FSA, as detailed in **Section 4.1.4.1**. Of the remaining species assessed, three are considered to have a 'High' likelihood of occurrence within the Basic FSA, eight have a 'Moderate' likelihood, three have a 'Low' likelihood, and five are considered to have a 'Very Low' likelihood of occurrence.

Five species have been excluded from further desktop assessment as the Basic FSA falls outside their contemporary known range; these are the Sanderling (*Calidris* alba), Grey Wagtail (*Motacilla cinerea*), Western Ground Parrot (*Pezoporus flaviventris*), Ghost Bat (*Macroderma gigas*) and Dwarf Bearded Dragon (*Pagona minor* subsp. *minima*). **Figure 4.1** presents the locations of significant fauna returned from the desktop assessment.

The desktop likelihood of occurrence assessment for these species is summarised in **Table 4.2** and described in more detail in **Appendix C**.

Table 4.2 Conservation Significant Fauna Desktop Likelihood of Occurrence within the Basic FSA

TAXON	Common Name	EPBC listing	WA listing	Source			Likelihood of Occurrence within Basic FSA
				PMST	NatureMap	DBCA	
Birds							
Actitis hypoleucos	Common Sandpiper	MI	MI	X	X		Moderate
Aphelocephala leucopsis	Southern Whiteface	VU		X			Moderate
Apus pacificus	Fork-tailed Swift	MI	MI	X			High
Calidris acuminata	Sharp-tailed Sandpiper	VU, MI	MI	X			Moderate
Calidris alba	Sanderling	MI	MI			X	Excluded
Calidris ferruginea	Curlew Sandpiper	CR, MI	CR	X			Moderate
Calidris melanotos	Pectoral Sandpiper	MI	MI	X			Moderate
Calidris ruficollis	Red-necked Stint	MI	MI			X	Moderate
Falco hypoleucos	Grey Falcon	VU	VU	X			Very Low
Falco peregrinus	Peregrine Falcon		OS		X	X	High
Leipoa ocellata	Malleefowl	VU	VU	X		X	Very Low
Motacilla cinerea	Grey Wagtail	MI	MI	X			Excluded
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	CR, MI	CR	X			Low
Pezoporus flaviventris	Western Ground Parrot	CR	CR		X	X	Excluded

TAXON	Common Name	EPBC listing	WA listing	Source			Likelihood of Occurrence within Basic FSA
				PMST	NatureMap	DBCA	
Rostratula australis	Australian Painted Snipe	EN	EN	X			Moderate
Zanda latirostris	Carnaby's Black-Cockatoo	EN	EN	X	X	X	Known
Pluvialis squatarola	Grey Plover	VU, MI	MI			X	Low
Mammals							
Dasyurus geoffroii	Chuditch, Western Quoll	VU	VU	X			Low
Macroderma gigas	Ghost Bat	VU		X	X	X	Excluded
Parantechinus apicalis	Dibbler	EN	EN	X			Very Low
Notamacropus irma	Western Brush Wallaby	P4				X	Very Low
Reptiles							
Neelaps calonotos	Black-striped Burrowing Snake	P3			X	X	High
Egernia stokesii badia	Western Spiny-tailed Skink	EN	VU	X	X	X	Moderate
Pogona minor subsp. *minima*	Dwarf Bearded Dragon	VU			X		Excluded

4.1.4.1 Black-Cockatoo Locations

The Basic FSA falls within the modelled distribution of Carnaby's Black-Cockatoo, as presented in DAWE (2022) and provided by DCCEEW (2025). Records of Carnaby's Black-Cockatoo are known from the region and those located within the Desktop Study Area are presented in **Figure 4.2**. In total, the DBCA database returned 526 records of Carnaby's Black-Cockatoo within the Desktop Study Area (DBCA, 2024c). Of these, eight lie within the Basic FSA while one lies within the Targeted FSA.

Black-Cockatoo roost sites from the Great Cocky Count and additional validations have been provided by DBCA within the Desktop Study Area (DBCA, 2024a). No known roosting sites have been recorded within the Basic or Targeted FSAs. The closest known roosting record lies within 11 km of the Basic FSA boundary; however, Great Cocky Count survey effort is relatively low in and around the FSA and roost locations should not be interpreted as exhaustive. A total of 68 confirmed and 36 potential Black-Cockatoo roosts lie within the Desktop Study Area (**Figure 4.2**).

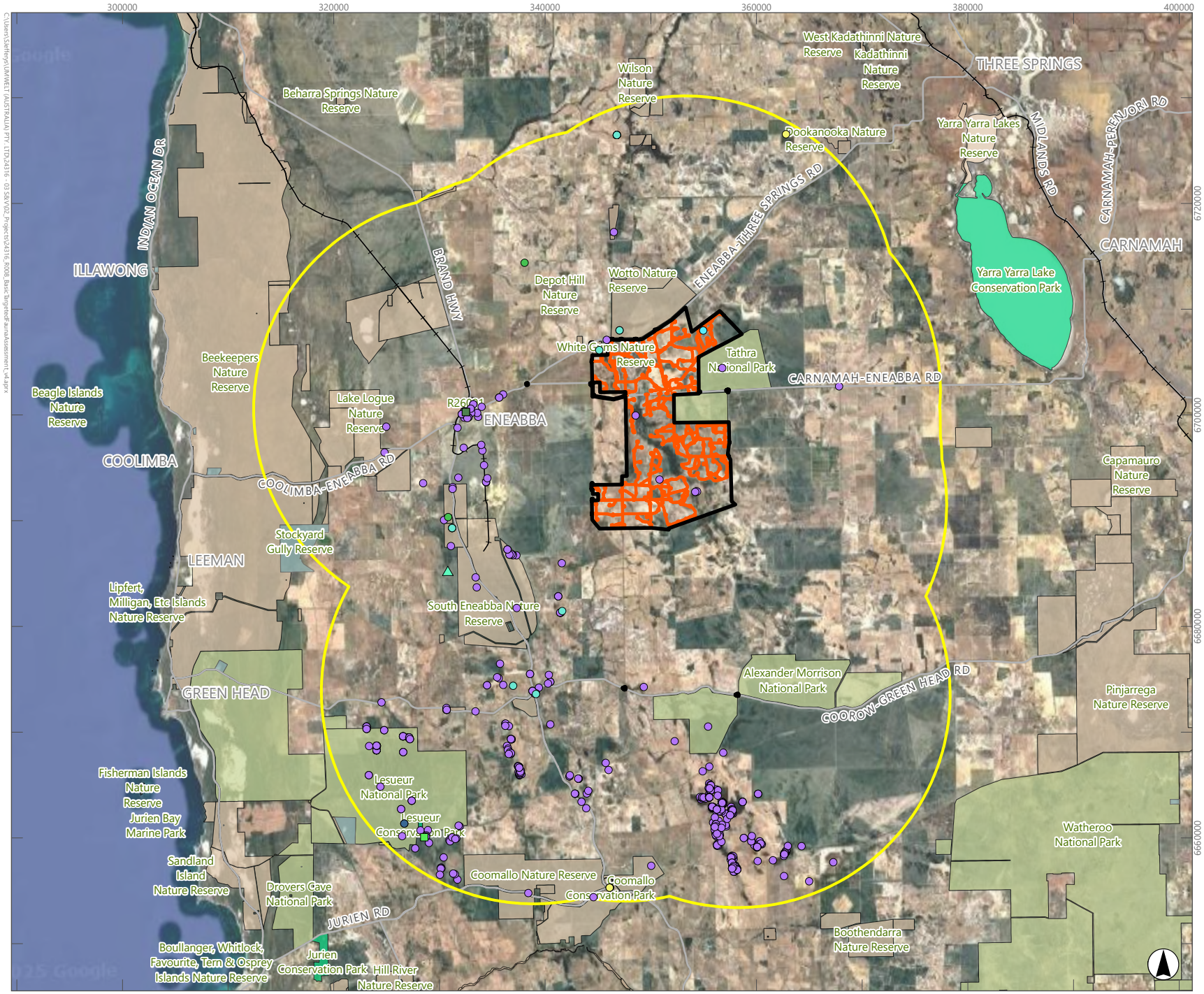


FIGURE 4.1

Locations of Conservation Significant Fauna Returned from DBCA Database

Legend

- Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

0 10 20

Kilometres

Scale 1:500,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024)

FIGURE 4.1

LEGEND: Locations of Conservation Significant Fauna Returned from DBCA Database

Significant Fauna

Reptiles

Neelaps calonotos	Black-striped Burrowing Snake (P3)

Birds

Leipoa ocellata	Malleefowl (EPBC – VU, WA – VU)
Pluvialis squatarola	Grey Plover (EPBC – MI, WA – MI)
Calidris ruficollis	Red-necked Stint (EPBC – MI, WA – MI)
Calidris alba	Sanderling (EPBC – MI, WA – MI)
Falco peregrinus	Peregrine Falcon (OS)
Zanda latirostris	Carnaby's Black-Cockatoo (EPBC – EN, WA – EN)
Zanda sp. 'White-tailed Black-Cockatoo'	White-tailed Black-Cockatoo (EPBC – EN, WA – EN)
Pezoporus wallicus flaviventris	Western Ground Parrot (EPBC – CR, WA – CR)

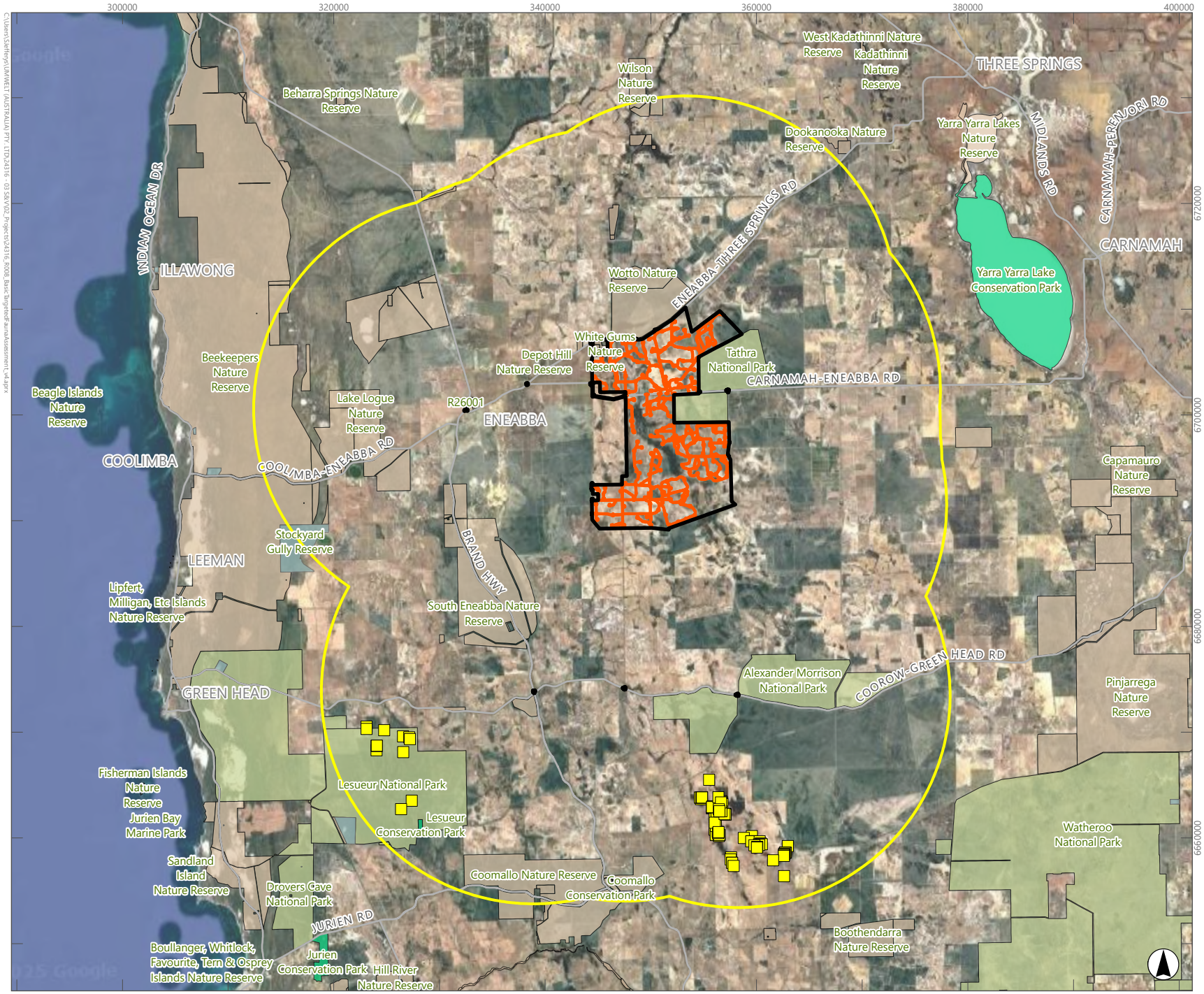
Mammals

Notamacropus irma	Western Brush Wallaby (P4)
Macroderma gigas	Ghost Bat (EPBC – VU, WA – VU)

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024)

FIGURE 4.2

DBCA Records of Known and Potential Black-Cockatoo Roost Sites



Legend

- Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve
- Carnaby's Black-Cockatoo

0 10 20

Kilometres

Scale 1:500,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), Birdlife (2024)

4.2 Invertebrate Fauna

The purpose of this desktop assessment is to determine the likelihood of conservation significant and SRE invertebrate fauna occurring in the Basic FSA according to EPA guidelines (EPA, 2016b). Invertebrate fauna species are listed as threatened at the federal level under the EPBC Act and the State level under the BC Act. The state-level listing of Threatened species (Critically Endangered, Endangered and Vulnerable species) is maintained by the Department of Biodiversity, Conservation and Attractions (DBCA); additionally, the DBCA maintains a list of Priority species that potentially require protection but do not currently meet survey or data requirements for formal Threatened status.

In addition to assessing the potential impacts of developments to Threatened and Priority fauna, the assessment of impacts in Western Australia must also be carried out for short-range endemic (SRE) fauna species and is prescribed by the Environmental Protection Authority (EPA 2016). The assessment of SRE fauna for the purposes of environmental impact assessment must be undertaken in accordance with the Technical Guidance –Sampling of short-range endemic invertebrate fauna (EPA, 2016). This is further detailed in **Section 4.2.3** to **Section 4.2.5**.

4.2.1 Invertebrate Fauna Diversity

The desktop assessment identified up to 1,691 invertebrate fauna species (SRE and Non-SRE) previously recorded or with potential to occur within the wider SRE Desktop Study Area (see **Figure 1.2**). This total comprises one Annelids, 1,648 Arthropods, 36 Molluscs, five Nematodes, and one Platyhelminthes with species diversity summarised in **Table 4.3**.

In comparison, only four species of invertebrate fauna had been recorded within the Basic FSA based on previous records, none of which are considered SREs or conservation significant invertebrate species. These include three species of ants (*Colobostruma ellioti*, *Colobostruma froggatti* and *Mesostruma eccentrica*) and one arachnid (*Artoriopsis expolita*) (**Table 4.4**).

Table 4.3 Summary of Invertebrate Fauna Records in the SRE Desktop Study Area

Phylum	Classes	Orders	Families	Total Species	% of Total Species
Annelida	Oligochaeta	1	1	1	0.1
Arthropoda	Arachnida	10	82	617	36.4
	Chilopoda	4	7	31	1.8
	Crustacea	14	68	177	10.4
	Diplopoda	4	5	44	2.6
	Insecta	13	121	779	46.1
Mollusca	Gastropoda	2	14	36	2.1
Nematoda	Chromadorea	1	4	5	0.3
Platyhelminthes	Cestoda	1	1	1	0.1
Total	**9**	**50**	**302**	**1,691**	**100**

Table 4.4 Invertebrate Fauna recorded within the Basic FSA

Phylum	Class	Order	Taxon	DBCA Status	EPBC status
Arthropoda	Insecta	Hymenoptera	*Colobostruma ellioti*	-	-
			Colobostruma froggatti	-	-
			Mesostruma eccentrica	-	-
	Arachnida	Araneae	*Artoriopsis expolita*	-	-
Totals	**2**	**2**	**4**	**None**	**None**

4.2.2 Conservation Significant Invertebrate Fauna

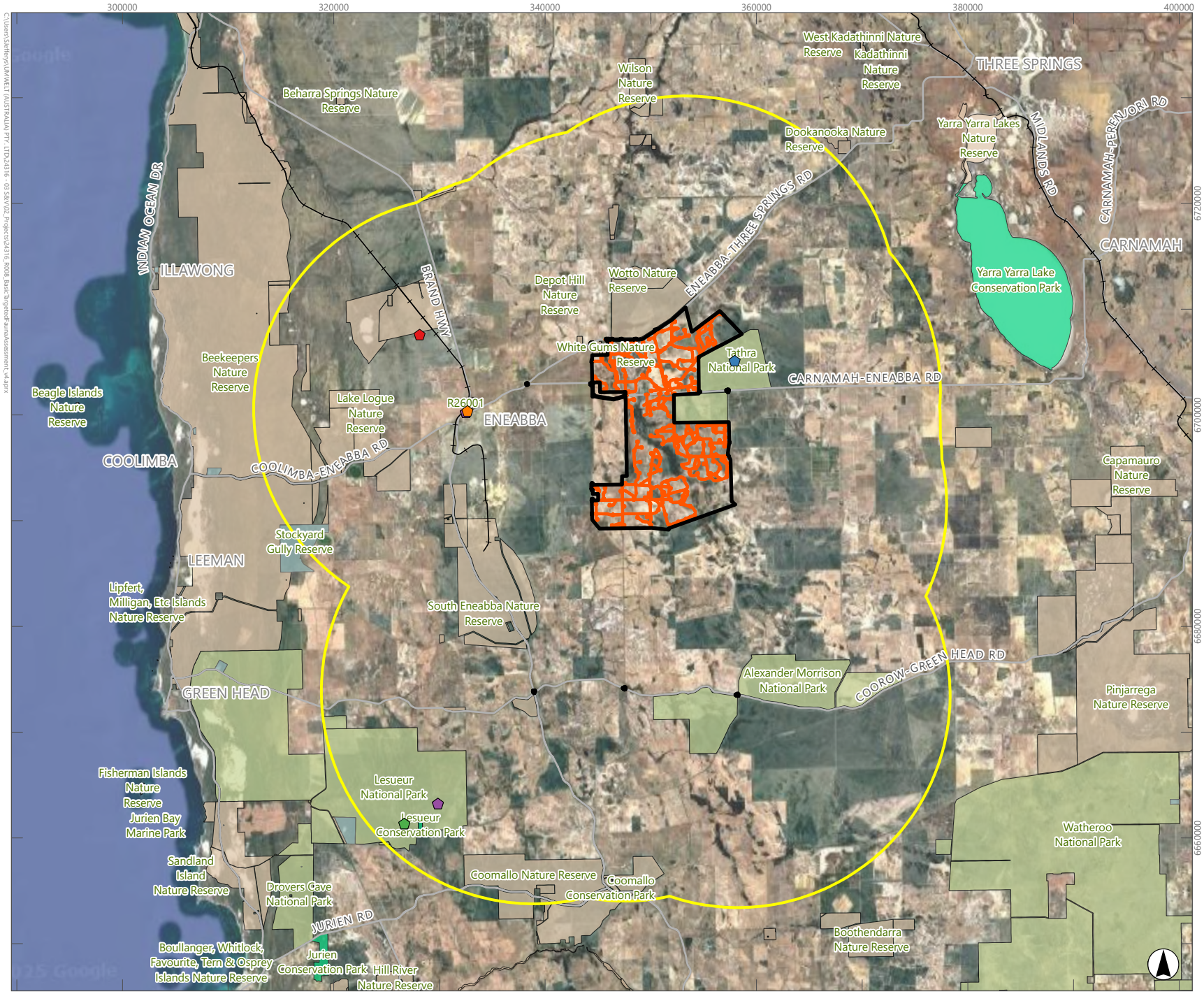
A list of conservation significant fauna for the SRE Desktop Study Area was compiled from the Wildlife Conservation (Specially Protected Fauna) Notice 2018 (DWER 2018) and the DCCEEW's PMST. The desktop assessment identified nine conservation significant invertebrate fauna species as potentially occurring within the SRE Desktop Study Area. These comprise six arachnids, one gastropod, one orthopteran insect and one hymenopteran insect. All nine of these species are listed under the BC Act, while one species of arachnid is also listed under the EPBC Act (**Table 4.5**).

The PMST database interrogation contained one SRE species within the SRE Desktop Study Area – *Idiosoma nigrum* (the Shield-backed Trapdoor Spider or Black Rugose Trapdoor Spider) which is listed as Vulnerable (DCCEEW, 2024). One record of this species has previously been recorded within the Targeted FSA which was a trapped individual from 1987 (DBCA, 2024c). **Figure 4.3** presents the locations of significant invertebrate fauna returned from the desktop search outputs. All species considered in the likelihood of occurrence assessment are presented in **Figure 4.3**.

Table 4.5 Conservation Significant SRE Invertebrates Potentially Within the SRE Desktop Study Area

Higher Classification	Taxon	Common Name	DBCA/ WC Status	EPBC Status	Likelihood of Occurrence
Arachnida: Araneae	*Idiosoma arenaceum*	Geraldton Sandplain shield-backed trapdoor spider	P3	-	Very Low
	Idiosoma dandaragan	Dandaragan Plateau shield-backed trapdoor spider	P2	-	Very Low
	Idiosoma gardneri	Mt Lesueur shield-backed trapdoor spider	P2	-	High
	Idiosoma kwongan	Kwongan heath shield-backed trapdoor spider	P1	-	High
	Idiosoma nigrum	shield-backed trapdoor spider	EN	VU	High (Known historically)
	Teyl 'MYG693'	Minnivale trapdoor spider	CR		Very Low
Gastropoda: Stylommatophora	*Bothriembryon perobesus*	a bothriembryontid land snail (Moore River)	P1		High
Insecta: orthoptera	*Hemisaga vepreculae*	thorny bush katydid (Moora)	P2	-	Moderate
Insecta: Hymenoptera	*Hylaeus globuliferus*	woolybush bee	P3	-	High

FIGURE 4.3
Conservation Significant Invertebrate Fauna



Legend

- Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

Invertebrate Fauna

Hemisaga vepreculae	Thorny Bush Katydid (Moora) (P2)
Hylaeus globuliferus	Woolybush Bee (P3)
Idiosoma gardneri	Mt Lesueur Shield-backed Trapdoor Spider (P2)
Idiosoma kwongan	Kwongan Heath Shield-backed Trapdoor Spider (P1)
Idiosoma nigrum	Shield-backed Trapdoor Spider (EPBC – VU, WA – EN)

0 10 20
Kilometres

Scale 1:500,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024)

4.2.3 Invertebrate Fauna Habitats

4.2.3.1 SRE Habitat in the Basic FSA

The Basic FSA intersects 24 soil landscape systems, as outlined in **Section 2.4** and illustrated in **Figure 2.3**. It also encompasses four vegetation system associations, described in **Section 2.6**. These habitat types support a diverse range of invertebrate species, detailed in **Section 4.2.1**. The availability of habitat for terrestrial invertebrates is summarised in **Table 4.6** (Land Systems) and **Table 4.7** (Vegetation System Associations). Overall, the Basic FSA represents 5.83% of the land system habitat and 4.87% of the vegetation system associations found within the broader SRE Desktop Study Area (100 km x 100 km), indicating it comprises a relatively small but ecologically relevant portion of the regional landscape.

Table 4.6 Land Systems in the Basic FSA Vs the SRE Desktop Area

Soil Landscape Unit	Name	Extent in Basic FSA (ha)	Extent in SRE Desktop Study Area (ha)	% of Basic FSA Habitat within SRE Desktop Study Area Habitat
221En_2	Eneabba 2 subsystem	5.45	12,692.55	0.04
222Co_1	Coalara 1 subsystem	893.35	17,961.11	4.97
222Co_2	Coalara 2 subsystem	178.44	17,405.22	1.03
222Co_3	Coalara 3 subsystem	10,289.43	50,236.39	20.48
222Co_3b	Coalara 3 powder-bark phase	1,056.77	8,351.31	12.65
222Co_3c	Coalara 3 breakaway phase	240.56	1,858.85	12.94
222Co_4a	Coalara 4 playa phase	235.75	650.18	36.26
222Co_4b	Coalara 4 bog iron phase	719.67	1,066.97	67.45
222Co_5a	Coalara 5 plain phase	1.28	25,600.62	0.00
222Co_6	Coalara 6 subsystem	1,089.70	5,239.08	20.80
222Co_6c	Coalara 6 minor valley phase	3.69	4,332.93	0.09
222Co_7	Coalara 7 subsystem	312.98	25,864.51	1.21
224Bh_1	Boothendarra 1 subsystem	446.18	4,689.34	9.51
224Bh_2	Boothendarra 2 subsystem	601.53	1,373.82	43.78
224Bh_3	Boothendarra 3 subsystem	0.43	7,104.95	0.01
224Bh_4	Boothendarra 4 subsystem	4.28	15,089.94	0.03
224Bh10	Boothendarra 10 subsystem	153.49	1,029.19	14.91
224Bh11	Boothendarra 11 subsystem	2,176.03	6,075.67	35.82
224Ma_7	Mount Adams	2.52	4,066.48	0.06
224MaX_MINE	Mount Adams	0.62	374.99	0.16
224Ot_2	Otorowiri 2 subsystem	11.25	8,998.16	0.13

Soil Landscape Unit	Name	Extent in Basic FSA (ha)	Extent in SRE Desktop Study Area (ha)	% of Basic FSA Habitat within SRE Desktop Study Area Habitat
224Ye_2	Yerramullah 2 subsystem	3.64	49,084.02	0.01
224Ye_3	Yerramullah 3 subsystem	13.72	51,253.18	0.03
224Ye_6	Yerramullah 6 subsystem	0.59	516.71	0.11
Total	**24 soil landscape units**	**18,441.35**	**320,916.18**	**5.75**

Table 4.7 Vegetation Systems in the Basic FSA Vs the SRE Desktop Area

Vegetation System Association	Description	Area (ha) and Extent Basic FSA (ha)	Area (ha) and Extent in SRE Desktop Area	% of Basic FSA habitat within SRE Desktop habitat
Eridoon_378	Mixed heath with scattered tall shrubs Acacia spp., Proteaceae and Myrtaceae.	8.59	70,328.69	0.01
Tathra_379	Mixed heath with scattered tall shrubs Acacia spp., Proteaceae and Myrtaceae.	13,067.57	274,454.55	4.76
Tathra_391	Wattle, casuarina and teatree Acacia-Allocasuarina-Melaleuca alliance.	610.183	3,062.42	19.94
Tathra_49	Low shrubs of mixed composition.	4,754.34	30,578.07	15.55
Total	**4 vegetation systems.**	**18,441.35**	**378,423.73**	**4.87**

4.2.4 Short-range Endemic Invertebrates

SRE invertebrates are species with restricted distributions, typically defined in Western Australia as less than 10,000 km² (100 km x 100 km) (Harvey, 2002). Their limited dispersal ability, life history traits, and reliance on isolated habitats—such as hills, boulder piles, gullies, and microhabitats like deep leaf litter and springs—contribute to their endemism. Some taxa that are known to contain higher numbers of SRE invertebrates include:

- Arachnids (mygalomorph spiders, pseudoscorpions, opiliones, scorpions, schizomids)
- Crustaceans (Isopoda)
- Insects (hemipterans, grasshoppers, butterflies)
- Myriapods (millipedes and centipedes)
- Molluscs (land snails)
- Onychophorans (velvet worms).

These species are highly vulnerable to habitat disturbance, making them a priority for conservation (Framenau et al., 2008).

Identifying SREs is challenging due to limited taxonomic data, unidentified juveniles, and inadequate reference frameworks. Their status is determined using categories outlined in **Table 4.8**, based on data from the WAM and relevant taxonomic authorities.

Table 4.8 Short Range Endemic Status of Species

SRE Status	Definition
Confirmed	A confirmed SRE species. A known distribution of < 10,000 km^2 (after Harvey (2002)). Taxonomy of the group is well known. The group is well represented in collections, or via comprehensive sampling.
Likely	Likely to be a SRE species based upon knowledge of the family/genus, where other closely related species show evidence of short-range endemism. Where habitats containing the specimens show discontinuity within the landscape.
Possible	Based upon existing knowledge of the genus / family there is a possibility that the species may have a restricted range. Where habitats containing the specimens may show discontinuity within the landscape. Possible SRE species may be assigned one of the subcategories below: **A.** Data deficient i.e. new species, lack of distribution, taxonomic or collecting knowledge, juvenile specimens, wrong sex for identification **B.** Habitat indicators **C**. Morphology indicators **D.** Molecular evidence **E.** Research and expertise of WAM staff/taxonomic specialists.
Widespread	Not an SRE, a wide-ranging distribution of > 10,000 km^2.

4.2.4.1 SRE Invertebrate Fauna Groups

Each invertebrate group was determined by the WAM database return classifications resulting in six overarching groups for invertebrate fauna species. These are Arachnida (Araneae, Scorpiones, Pseudoscorpiones, etc.), Crustacea (Cladocera, Isopoda, Amphipoda, Decapoda, etc.), Insecta (Thysanura, Ephemeroptera, Coleoptera, etc.), Mollusca (Bivalvia and Gastropoda), Myriapoda (Chilopoda and Diplopoda) and Worms (Annelida, Nematoda, Platyhelminthes, etc.). The Basic FSA is compared to the wider SRE Desktop Study Area for each group with all species being described for the Basic FSA and only those SRE species (of Likely and Confirmed status) being detailed in the wider SRE Desktop Study Area and each group is further explained below. There were no SRE species recorded within the Basic FSA. Those Likely and Confirmed SRE species found in the wider SRE Desktop Search Area have had a likelihood of occurrence for presence in the Basic FSA and is detailed in **Section 4.2.5** and **Appendix C**.

Arachnida

Within the Basic FSA, only one arachnid species, *Artoriopsis expolita*, has been previously recorded. This species is considered widespread and is not listed under the BC Act or the EPBC Act. Across the broader SRE Desktop Study Area, a total of 617 arachnid species have been recorded, including 155 widespread species, 354 potential SREs, 103 likely SREs, and 5 confirmed SRE species. All records are illustrated in **Figure 4.4**, with likely and confirmed SRE species summarised in **Table 4.9**. The assessment of likelihood of occurrence is further detailed in **Section 4.2.5**.

Table 4.9 Summary of Confirmed and Likely SRE Arachnida Records within SRE Search Area

Order	Family	Species	SRE Status for Species in this Family
Araneae	Actinopodidae	15	Likely
	Anamidae	32	Confirmed (1 species)
	Barychelidae	10	Likely
	Euagridae	3	Likely
	Halonoproctidae	2	Likely
	Idiopidae	41	Confirmed (4 species)
	Theraphosidae	4	Likely
	Mygalomophae	1	Likely
Total	**8**	**108**	

Crustacea

A total of 177 crustacean species have been recorded within the Desktop Study Area, including 73 widespread species, 102 potential SRE species, and 2 likely SRE species. None of these records fall within the Basic FSA. All records are illustrated in **Figure 4.5**. The likely SRE species, all belonging to the class Diplopoda, are summarised in **Table 4.10**. Further detail on the likelihood of occurrence is provided in **Section 4.2.5**.

Table 4.10 Summary of Confirmed and Likely SRE Crustacea Records within the SRE Search Area

Order	Family	Species	SRE Status for species in this family
Decapoda	Parastacidae	2	Likely
Total	**1**	**2**	

Insecta

Within the Basic FSA, three species from the class Insecta were recorded, all belonging to the family Formicidae: *Colobostruma ellioti, Colobostruma froggatti*, and *Mesostruma eccentrica*. These species are considered widespread and are not listed under the BC Act or EPBC Act. Across the broader SRE Desktop Study Area, a total of 779 Insecta species were recorded, comprising 682 widespread species, 96 potential SREs, and one confirmed SRE species (*Hylaeus globuliferus*). All records are shown in **Figure 4.6**. The likely and confirmed SRE Insecta species are summarised in **Table 4.11**, with likelihood of occurrence discussed further in **Section 4.2.5**.

Table 4.11 Summary of Confirmed and Likely SRE Insecta Records within the SRE Search Area

Order	Family	Species	SRE Status for species in this family
Hymenoptera	Colletidae	1	Confirmed
Total	**1**	**1**	

Mollusca

No species from the class Mollusca were recorded within the Basic FSA. However, a total of 36 Mollusca species were recorded across the broader SRE Desktop Study Area, including 15 widespread species, three potential SREs, one likely SRE, and 17 confirmed SRE species. All records are presented in **Figure 4.7**. The likely and confirmed SRE Mollusca species are summarised in **Table 4.12**, with likelihood of occurrence discussed further in **Section 4.2.5**.

Table 4.12 Summary of Confirmed and Likely SRE Mollusca Records within the SRE Search Area

Order	Family	Species	SRE Status for species in this family
Stylommatophora	Bothriembryontidae	8	Confirmed
	Succineidae	1	Likely
Hypsogastropoda	Tomichiidae	9	Confirmed
Total	**3**	**18**	

Myriapoda (Diplopoda and Chilopoda)

No species from the class Myriapoda were recorded within the Basic FSA. However, within the broader SRE Desktop Study Area, a total of 75 Myriapoda species were recorded, including 12 widespread species, 28 potential SREs, 34 likely SRE species, and 1 confirmed SRE species. All records are presented in **Figure 4.8**. The likely and confirmed SRE Myriapoda species are summarised in **Table 4.13**, with further discussion on likelihood of occurrence provided in **Section 4.2.5**.

Table 4.13 Summary of Confirmed and Likely SRE Myriapoda Records within the SRE Search Area

Order	Family	Species	SRE Status for species in this family
Polydesmida	Paradoxosomatidae	35	Likely (1 confirmed)
Total	**1**	**35**	

Worms (Annelida, Nematoda and Platyhelminthes)

No species from the phyla Annelida, Nematoda, or Platyhelminthes were recorded within the Basic FSA. Across the broader SRE Desktop Study Area, a total of five species were recorded, comprising four widespread species and one likely SRE species. These records are presented in **Figure 4.9**, with likely SRE species summarised in **Table 4.14**. Further detail on likelihood of occurrence is provided in **Section 4.2.5**.

Table 4.14 Summary of Confirmed and Likely SRE Worm Records within the SRE Search Area

Order	Family	Species	SRE Status for species in this family
Haplotaxida	Tubificidae	1	Likely
Total	**1**	**1**	

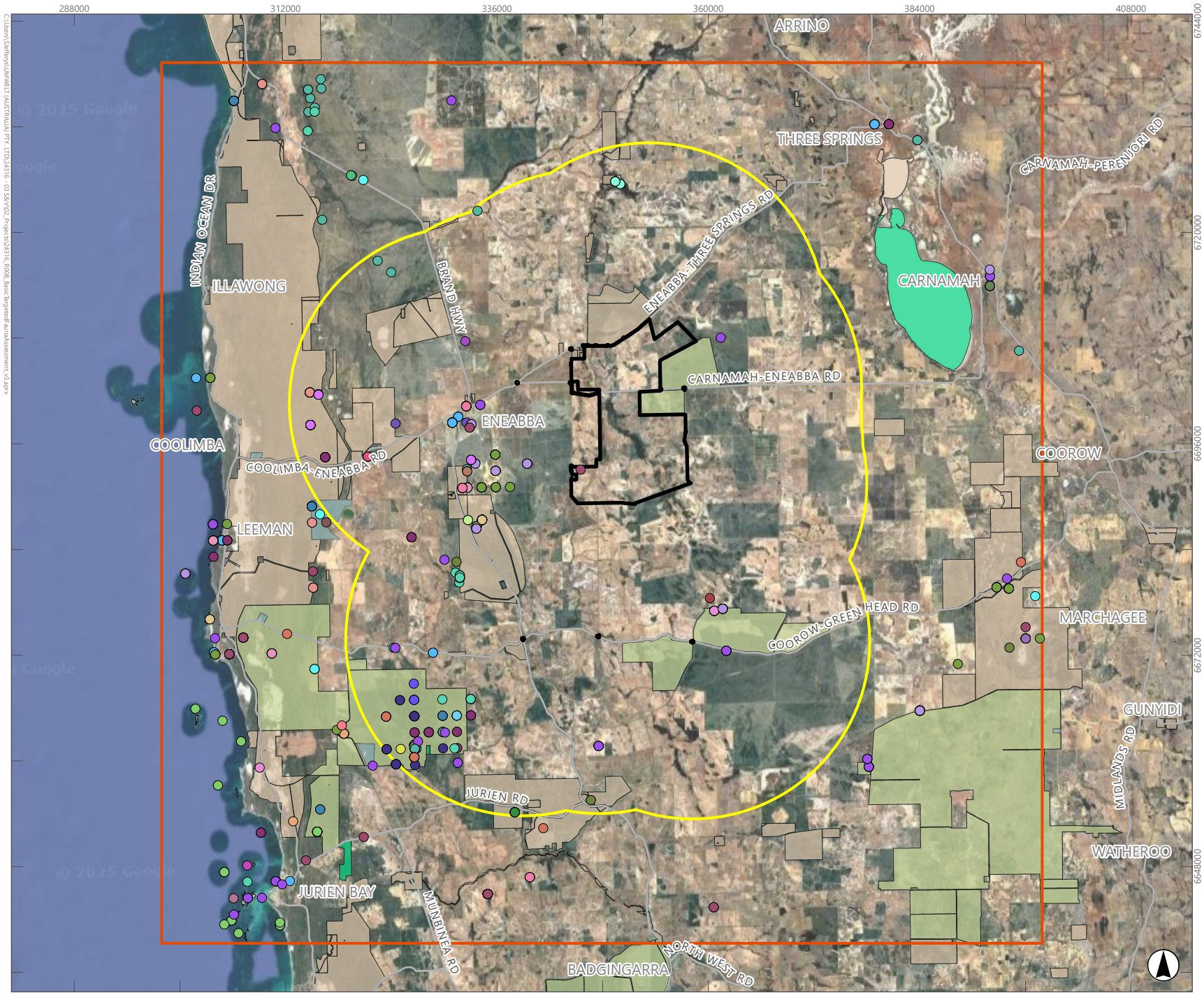


FIGURE 4.4

Arachnida Records within the SRE Desktop Study Area

Legend

- Desktop Study Area
- SRE Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Road
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

0 12 24

Kilometres

Scale 1:600,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

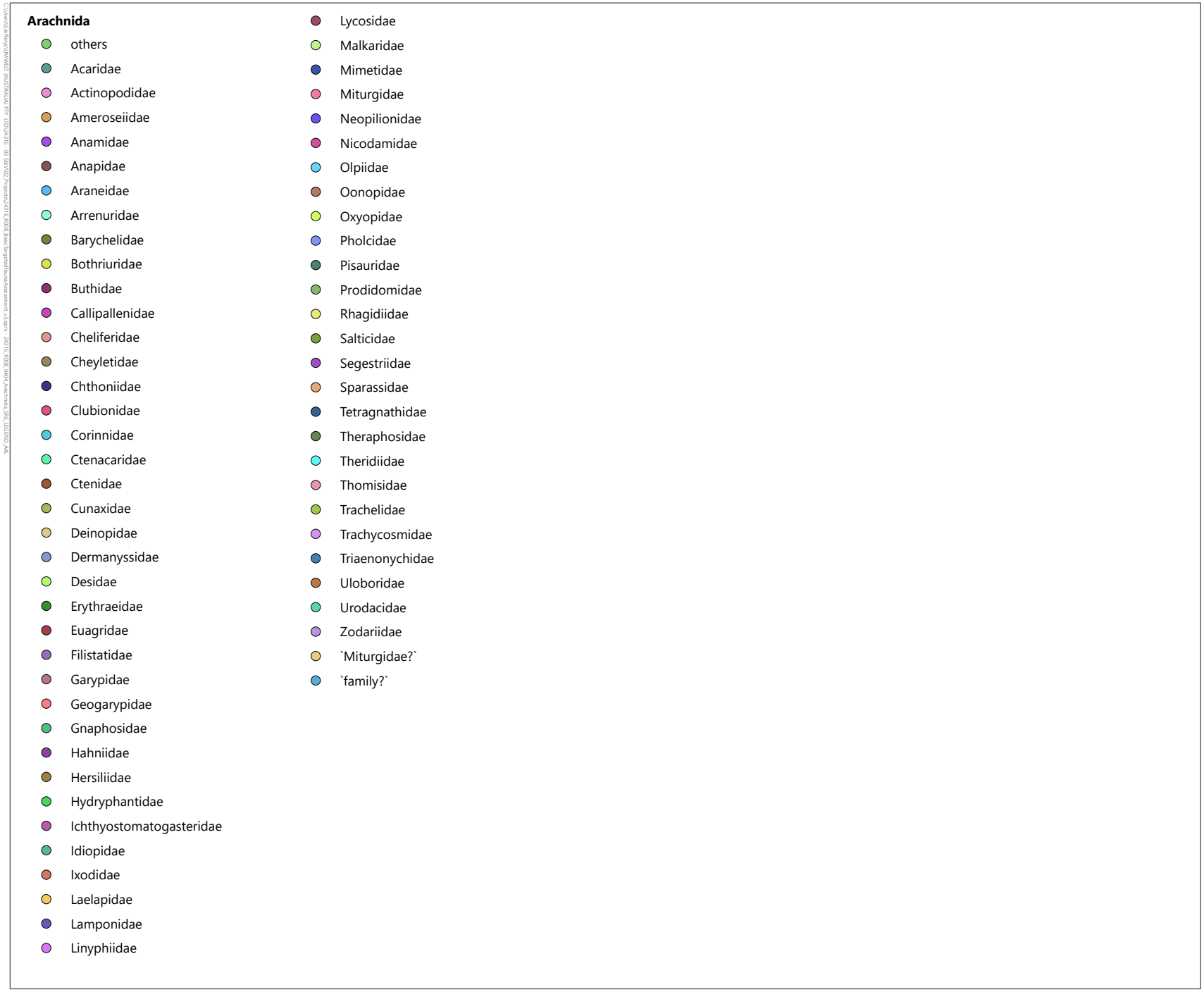


FIGURE 4.4

LEGEND: Arachnida Records within the SRE Desktop Study Area

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

FIGURE 4.5

Crustaceae Records within the SRE Desktop Study Area

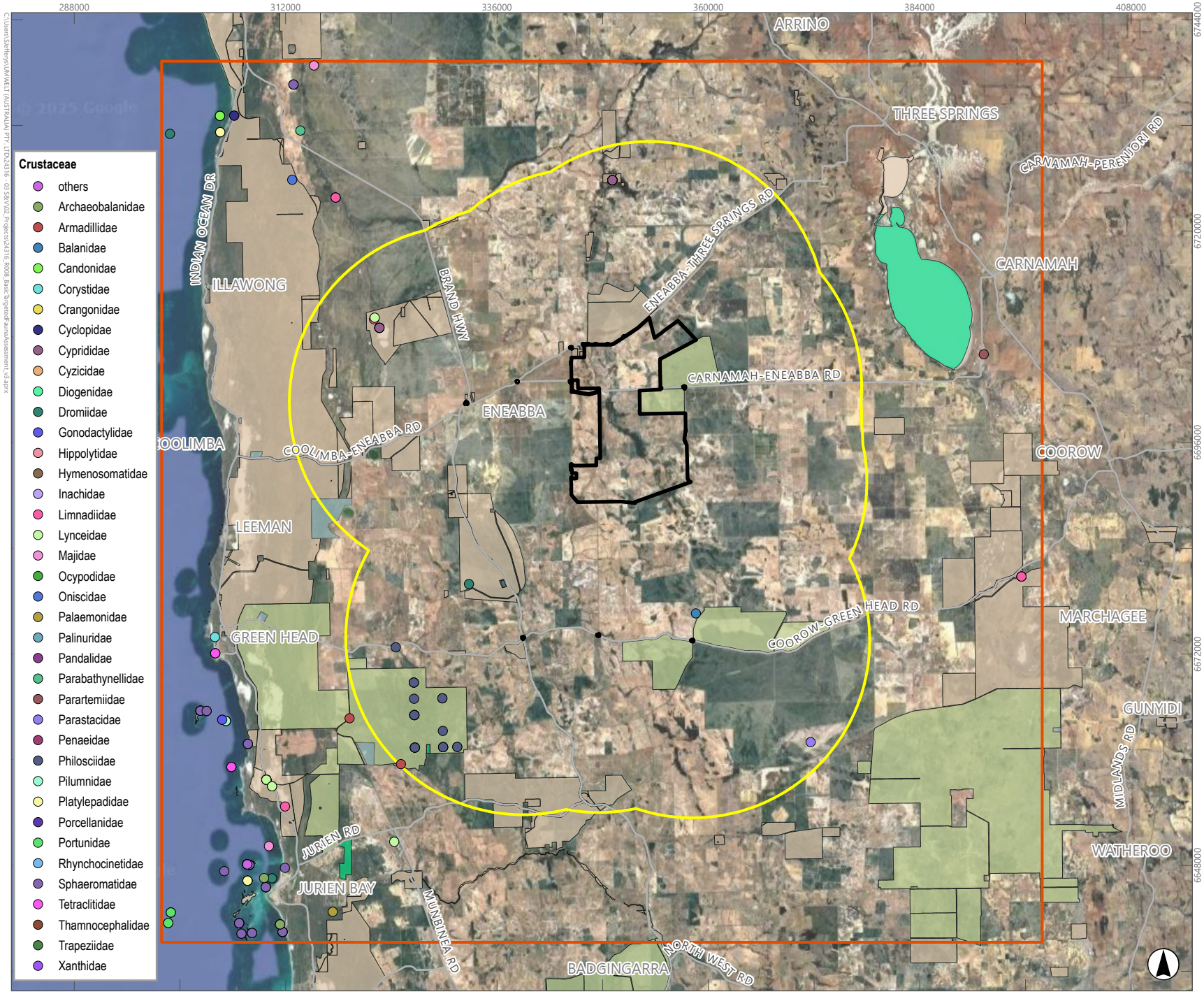


Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

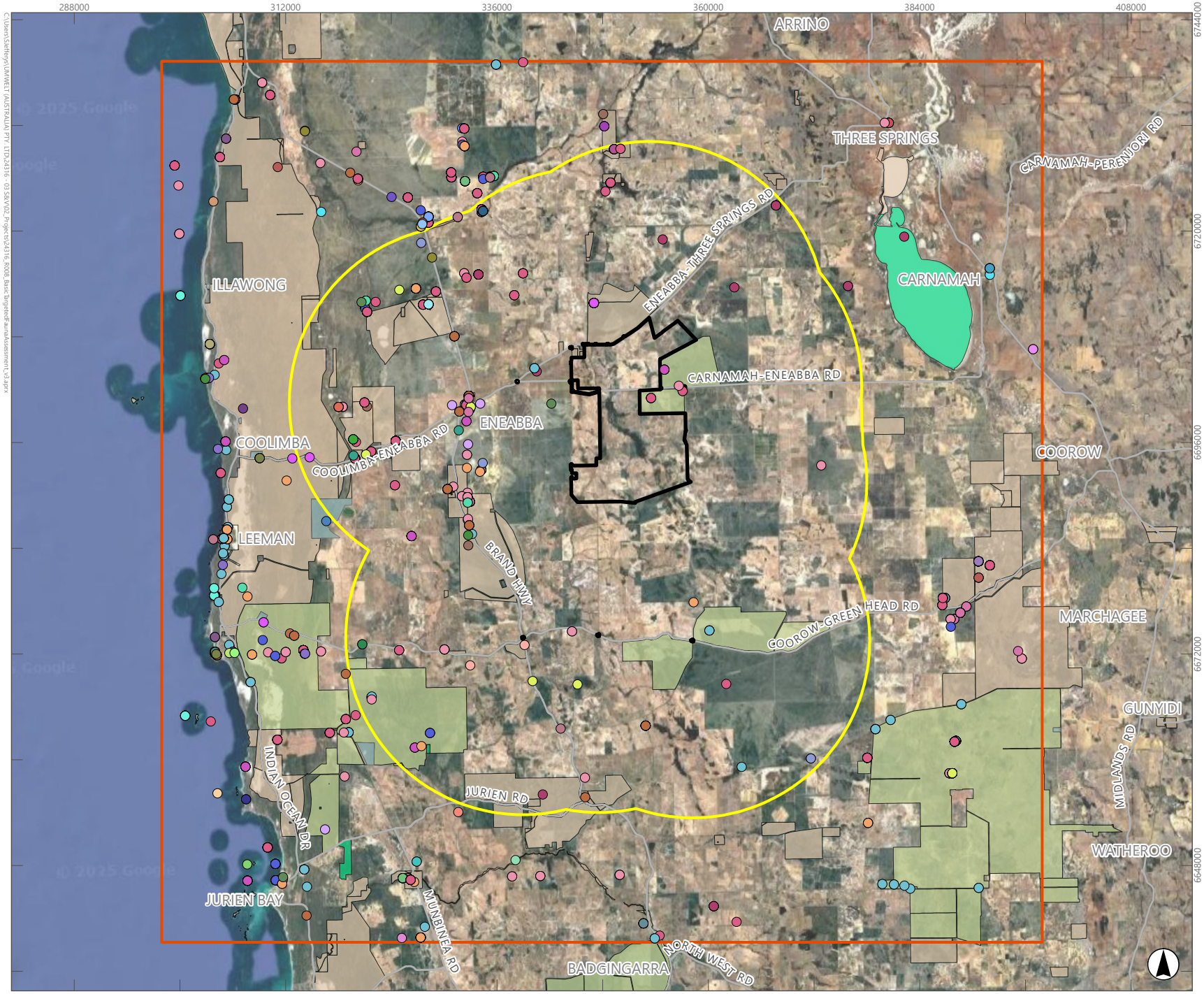


FIGURE 4.6

Insecta Records within the SRE Desktop Study Area

Legend

- Desktop Study Area
- SRE Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Road
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

0 12 24

Kilometres

Scale 1:600,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

FIGURE 4.6

LEGEND: Insecta Records within the SRE Desktop Study Area

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

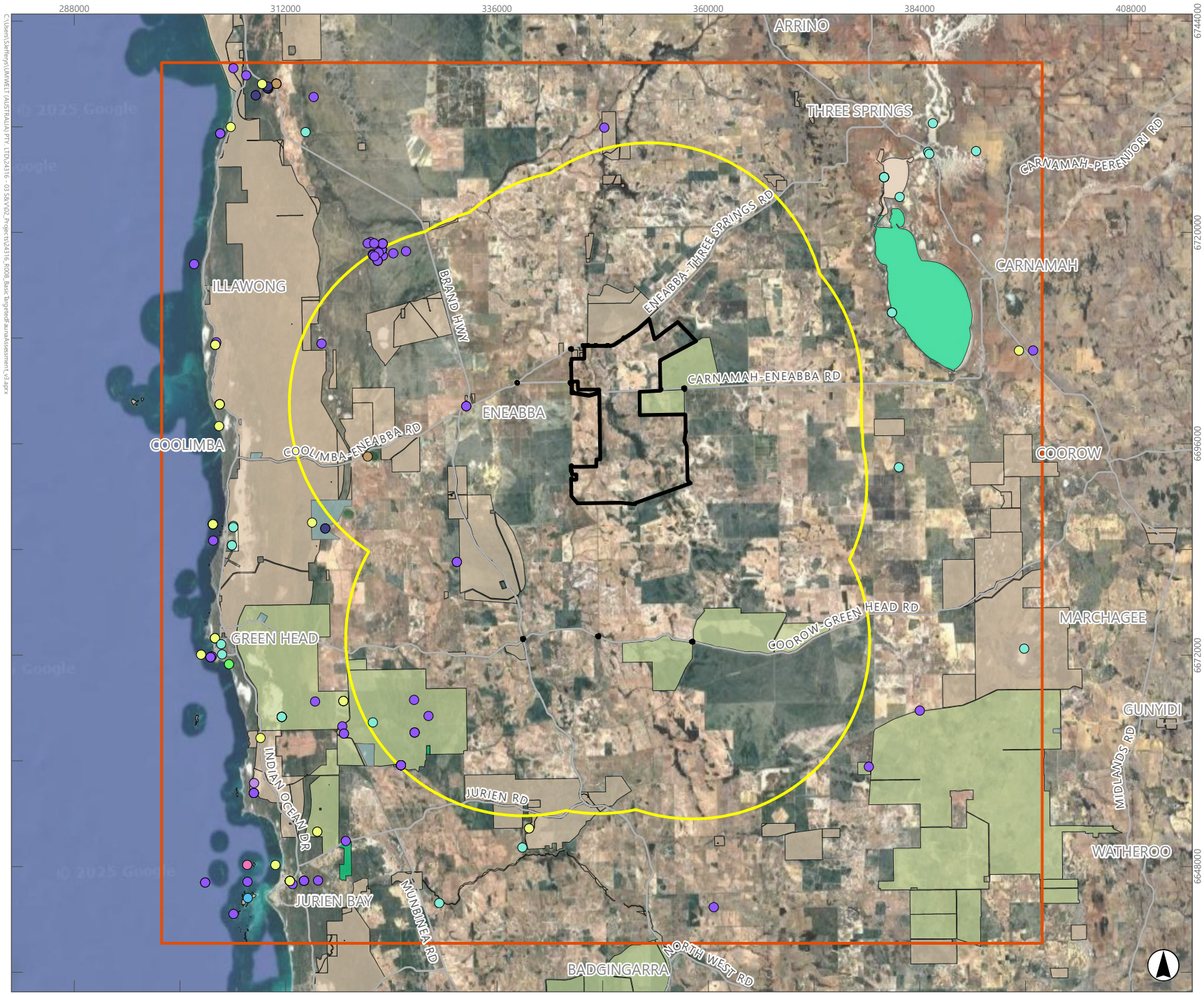


FIGURE 4.7

Mollusca Records within the SRE Desktop Study Area

Legend

- Desktop Study Area
- SRE Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Road
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

Mollusca

- Bithyniidae
- Bothriembryontidae
- Gastrocoptidae
- Geomitridae
- Helicidae
- Hydrobiidae
- Planorbidae
- Pupillidae
- Succineidae
- Tomichiidae

0 12 24

Kilometres

Scale 1:600,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

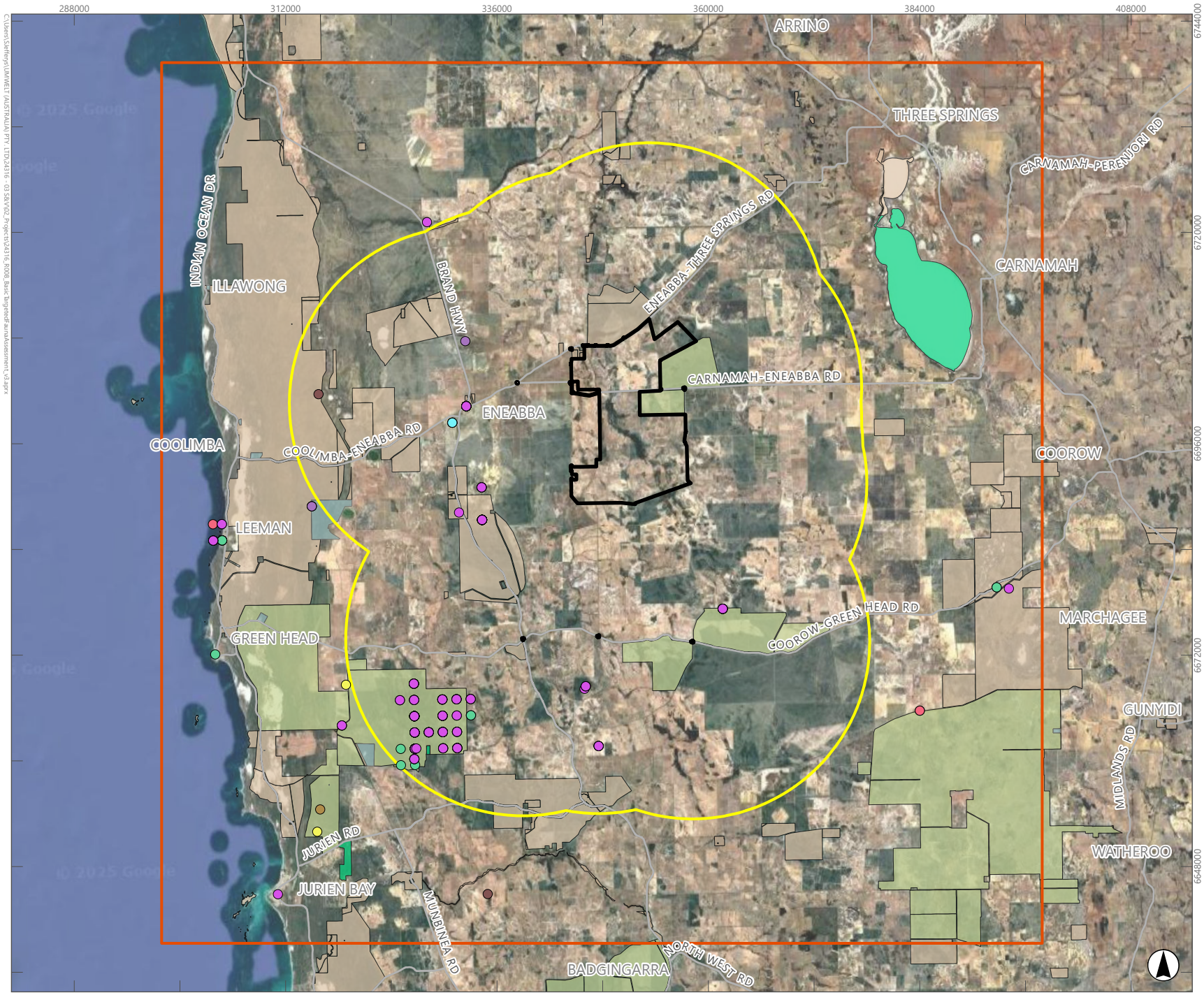


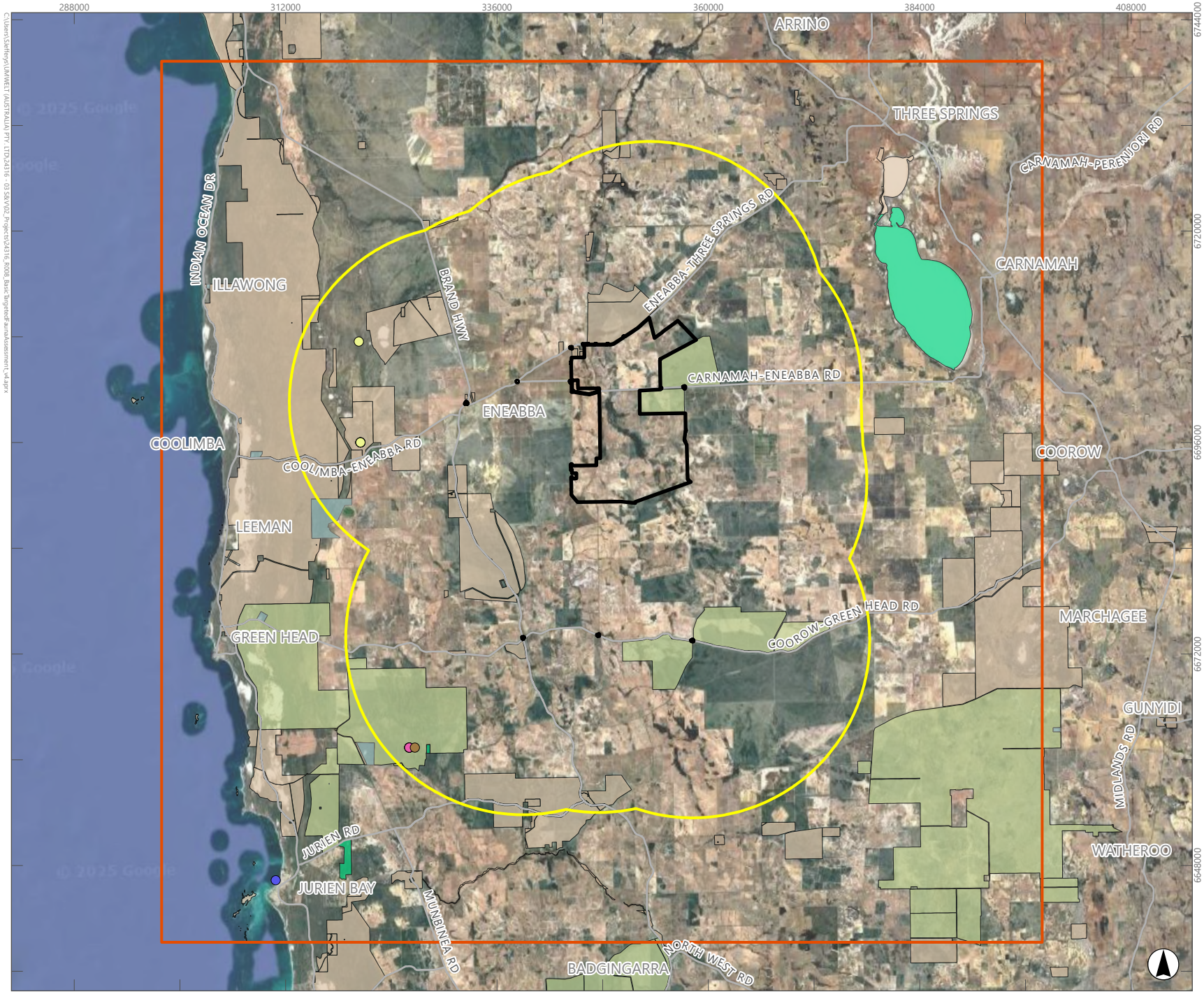
FIGURE 4.8

Myriapoda Records within the SRE Desktop Study Area

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

FIGURE 4.9

Worm Records within the SRE Desktop Study Area



Legend

- Desktop Study Area
- SRE Desktop Study Area
- Basic Fauna Survey Area (Basic FSA)
- Road
- Conservation Park
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve
- Section 5(1)(h) Reserve

Worms

- Cosmocercidae
- Hymenolepididae
- Physalopteridae
- Tubificidae

0 12 24

Kilometres

Scale 1:600,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), DBCA (2024), Umwelt (2024), SynergyRED (2024), WAM (2024)

4.2.5 SRE Likelihood of Occurrence

Only species classified as Likely or Confirmed SREs were included in the Likelihood of Occurrence assessment; Possible and Widespread species were excluded from the desktop analysis. A total of 158 Likely and Confirmed SRE species were recorded within the SRE Desktop Study Area, comprising 135 Likely and 23 Confirmed SREs. Likelihood of Occurrence categories (as defined in **Table 3.4**) were applied to each species and are summarised in **Table C.3** (**Appendix C**). Of the assessed species, 48 were assigned a 'High' likelihood of occurrence, 29 'Moderate', one 'Low', and 80 'Very Low'.

5.0 Survey Results

5.1 Fauna Habitats

A total of ten broad fauna habitat types (including cleared areas) were identified within the Basic FSA (**Figure 5.1**). These comprise:

- Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes (2,433.56 ha)
- Low Shrubland on Gentle Slope (938.02 ha)
- Eucalyptus Woodland on Stoney Substrate (754.63 ha)
- Tall Shrubland Associated with Dampland (665.70 ha)
- Wandoo Woodland on Sandy Soil (457.18 ha)
- Planted (368.89 ha)
- Eucalypt Woodland on Rocky Hills (91.92 ha)
- Eucalyptus Woodland along Drainage Line (0.81 ha)
- Cleared Agricultural Land (12,532.49 ha)
- Cleared (Other) (104.99 ha).

Mapping of the fauna habitats closely aligns with the fauna habitat assessment sampling points and the vegetation mapping completed by Umwelt (Umwelt, 2025).

The most dominant habitat type was Cleared Agricultural Land (12,532 ha) which provides generally low fauna habitat value for most species, but which does still provide some foraging, roosting and potential breeding opportunities for Carnaby's Black-Cockatoo. The next most dominant habitat type comprised Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes (2,433.56 ha). This habitat type may provide moderate to high level foraging habitat for Carnaby's Black-Cockatoo. An overview of fauna habitat types mapped as part of the survey are presented below in **Table 5.1** and **Figure 5.1,** with more detailed mapping provided in **Appendix E**.

Table 5.1 Broad Fauna Habitat Types within the Basic FSA

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes Area: 2,433.56 ha	Low, sparse to open woodland of *Eucalyptus todtiana* and Banksia sp. and/or *Xylomelum angustifolium* over mid sparse shrubland of proteaceous and myrtaceous species, over low sparse shrubs and sedges. Associated with grey or yellow sands on plains and slopes. • Small tree hollows provide habitat for small hollow nesting birds, roosting bats and some arboreal mammals and reptiles • Fallen timber, logs, woody debris and leaf litter provide shelter for reptiles and small mammals • Shrubland provided nesting habitat for birds • Sandy substrate provides habitat for fossorial and semi-fossorial mammals, reptiles and amphibians Disturbances include weeds, rubbish and tracks.	SEB, SBP	Carnaby's Black-Cockatoo foraging Peregrine Falcon foraging Black-striped Burrowing Snake potential habitat	 

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Wandoo Woodland on Sandy Soil Area: 457.18 ha	Low, open *Eucalyptus accedens* (occasionally with *E. loxophleba* subsp. *loxophleba*) woodland over sparse low to mid shrubland of proteaceous species. Associated with mid to lower slopes and flats on grey sand. • Small to large tree hollows provide habitat for hollow nesting birds (including Carnaby's Black-Cockatoo), roosting bats and some arboreal mammals and reptiles • Fallen timber, logs, woody debris and leaf litter provide shelter for reptiles and small mammals. Hollow logs and log piles may provide habitat for Western Spiny-tailed Skink colonies • Areas of dense vegetation provide nesting habitat for birds • Sandy substrate provides habitat for fossorial and semi-fossorial mammals, reptiles and amphibians Disturbances include weeds, rubbish, tracks and grazing.	SAC	Carnaby's Black-Cockatoo breeding, roosting and foraging Western Spiny-tailed Skink potential habitat Peregrine Falcon foraging and nesting Black-striped Burrowing Snake potential habitat	 

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Eucalyptus Woodland on Stoney Substrate Area: 754.63 ha	Low open woodland of *Eucalyptus accedens* and/or *E. drumundii*, over tall open *Proteaceae* (*Banksia*/*Isopogon*) or *Myrtaceae* shrubland, over mixed low sparse understorey species. Associated with exposed ironstone bedrock and course fragments. May also contain grey sand or clay loam with gravelly laterite. • Small to large tree hollows provide habitat for hollow nesting birds (including Carnaby's Black-Cockatoo), roosting bats and some arboreal mammals and reptiles • Fallen timber, logs, woody debris and leaf litter provide shelter for reptiles and small mammals. Hollow logs and log piles may provide habitat for Western Spiny-tailed Skink colonies • Rocky outcrops provide thermal refuge and shelter for small reptiles and mammals • Areas of dense vegetation provided nesting habitat for birds Disturbances include weeds, tracks and grazing.	PFE, HM	Carnaby's Black-Cockatoo breeding, roosting and foraging Western Spiny-tailed Skink potential habitat Peregrine Falcon foraging and nesting	

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Low Shrubland on Gentle Slope Area: 938.02 ha	Sparse mid heathland of mixed *Allocasuarina* species over sparse low heath of low proteaceous species over low isolated sedges. Generally associated with slopes on white or grey sand, or orange to brown clay loam. May contain isolated Eucalypts. • Vegetation, particularly proteaceous plants, may provide foraging habitat for Carnaby's Black-Cockatoo • Shrubs may provide nesting habitat for small birds, and shelter for reptiles and small mammals • Sandy substrate provides habitat for fossorial and semi-fossorial mammals, reptiles and amphibians Disturbances include weeds, grazing, rubbish, tracks, fire and drought.	AS, HH	Carnaby's Black-Cockatoo foraging Peregrine Falcon foraging Black-striped Burrowing Snake potential habitat	

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Tall Shrubland Associated with Dampland Area: 665.70	Tall to closed Melaleuca shrubland over mixed shrubland of *Myrtaceae* and some *Proteaceae* species over sparse sedgeland. May contain isolated *Eucalyptus diminuta* or *Callitris pyramidalis*. Associated with wetlands and drainage areas on white to brown sandy loam. Contains some areas with exposed ironstone bedrock and course fragments. • Dense shrubland provides shelter and foraging opportunities for birds, frogs and invertebrates • Damp soil and seasonal surface water supports the survival of some amphibian species • Sandy substrate provides habitat for fossorial and semi-fossorial mammals, reptiles and amphibians • Leaf litter may provide habitat for small reptiles and amphibians Disturbances include grazing and weeds.	WM, PM, CS	Peregrine Falcon foraging Black-striped Burrowing Snake potential habitat	 

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Eucalyptus Woodland along Drainage Line Area: 0.81 ha	Low woodland of *Eucalyptus camaldulensis* subsp. *arida* over *Melaleuca rhaphiophylla, M. concreta* and/or *Banksia menziesii* tall open shrubland over sparse sedgeland. Associated with ephemeral drainage lines with some persistent pools. • Surface water provides drinking water source for birds, mammals and reptiles, as well as breeding habitat for amphibians • Tree hollows provide habitat for hollow nesting birds (including Carnaby's Black-Cockatoo), roosting bats and some arboreal mammals and reptiles • Fallen timber, logs, woody debris and leaf litter provide shelter for reptiles and small mammals • Areas of dense vegetation provided nesting habitat for birds • Sandy substrate provides habitat for fossorial and semi-fossorial mammals, reptiles and amphibians Disturbances include grazing, rubbish, weeds and tracks.	CAM	Carnaby's Black-Cockatoo foraging, roosting, and potential breeding Peregrine Falcon foraging and nesting Black-striped Burrowing Snake potential habitat	

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Eucalypt Woodland on Rocky Hills Area: 91.92 ha	Sparse to open low *Eucalyptus* woodland of mixed mallee species (including *E. accedens*), over tall open *Melaleuca* shrubland, over sparse sedgeland. Associated with rocky slopes and breakaways on clay. • Laterite outcropping, small overhangs and surface rocks provide shelter habitat for reptiles and small mammals • Fallen timber, logs, woody debris, and leaf litter provides shelter for reptiles and small mammals • Small to large tree hollows provide habitat for hollow nesting birds, roosting bats, and some arboreal reptiles and mammals Disturbances include weeds, grazing and rubbish.	RC	Carnaby's Black-Cockatoo foraging habitat, potential breeding habitat Potential Western Spiny-tailed Skink habitat Peregrine Falcon foraging and nesting	
Planted Area: 368.89	Planted areas including plantations, gardens, laneways and revegetated shelter beds. These areas often contained little or no mid storey and weedy understories. • Linear corridors of vegetation may provide 'wildlife corridors' promoting the movement of fauna through the landscape • Planted trees may provide foraging, roosting and breeding habitat for birds, as well as roosting habitats for bats and shelter for reptiles and other arboreal mammals • One pine plantation located in the southeast portion of the Study Area may provide foraging habitat for Carnaby's Black-Cockatoo	M2	Carnaby's Black-Cockatoo foraging, potential roosting and breeding Peregrine Falcon foraging and nesting	

Habitat Type	Habitat Description	Corresponding Vegetation Type^	Conservation Significant Species	Representative Photograph
Cleared Agricultural Land Area: 12,532.49 ha	Paddocks used for grazing or growing crops with isolated paddock trees. • Pasture may provide foraging habitat for macropods and birds that forage in open habitat • Crops such as Canola may provide foraging habitat for birds, including Carnaby's Black-Cockatoo • Farm dams may provide a drinking water source for birds, bats, mammals and reptiles, as well as breeding habitat for amphibians and foraging habitat for some water birds • Isolated paddock trees may provide foraging and/or breeding habitat for birds and roosting habitat for bats Disturbances include high levels of clearing, grazing, cropping, weeds, tracks, transmission lines etc.	M1, M3	Carnaby Black-Cockatoo opportunistic foraging on crop and scattered paddock trees (i.e. Canola). Individual paddock trees may support breeding. Peregrine Falcon foraging and potential nesting in paddock trees and tall anthropogenic structures (transmission towers, windmills etc)	
Cleared (Other) Area: 104.99 ha	Cleared land including bitumen road and infrastructure.	CL	Peregrine Falcon foraging and potential nesting in paddock trees and tall anthropogenic structures (transmission towers etc)	

^Source: Umwelt (2025).

FIGURE 5.1

Fauna Habitats of the Basic FSA – Overview

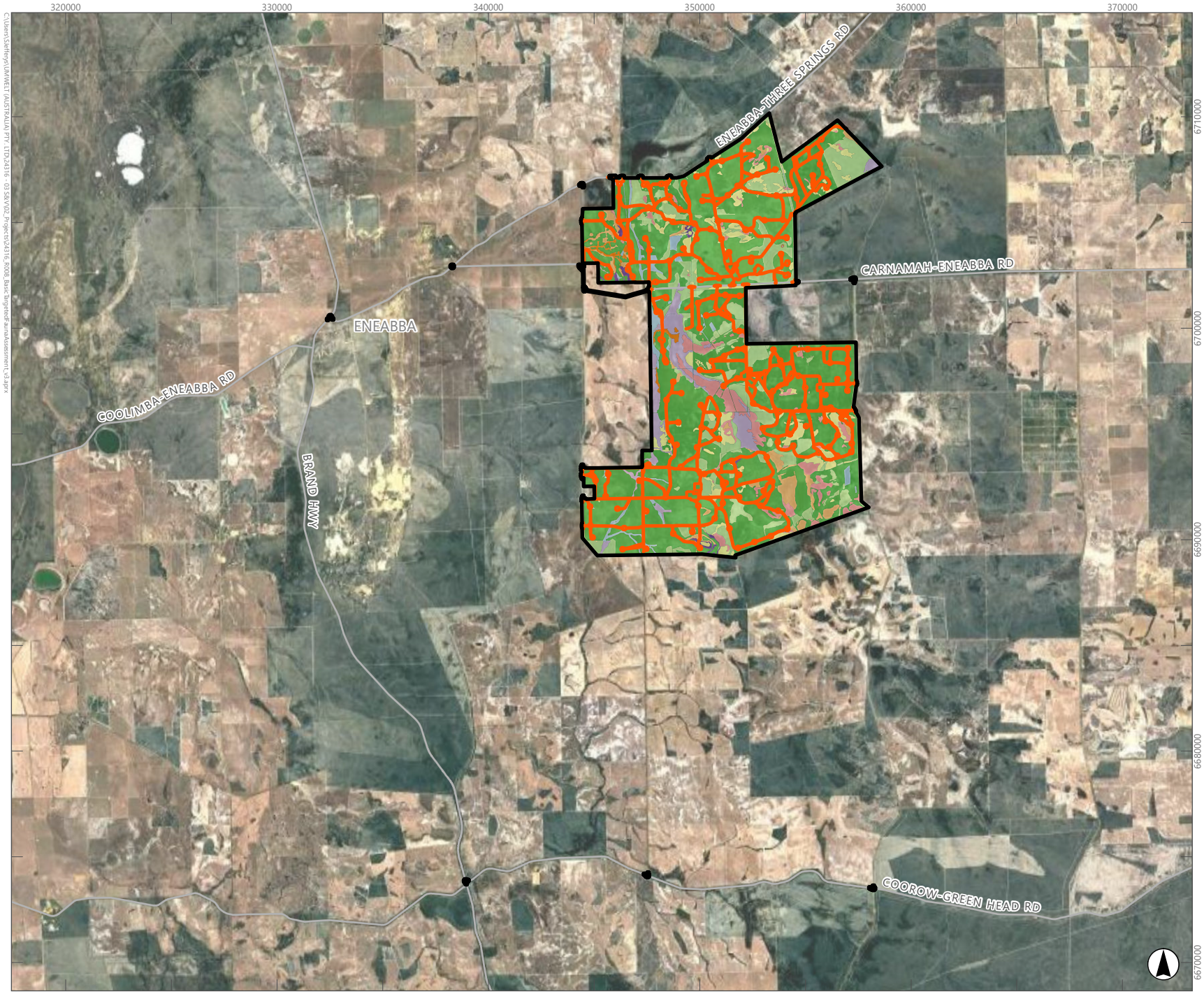


Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

5.2 Fauna Recorded

A total of 56 vertebrate fauna species were recorded during the survey, comprising 38 birds, 13 mammals and five reptiles. Of these, one species is listed as conservation significant (Carnaby's Black-Cockatoo (EN)), and four are considered naturalised exotic (Cat, Rabbit, Red Fox and Laughing Kookaburra). The complete species list for vertebrate fauna recorded during this Basic and Targeted fauna assessment is presented in **Table 5.2.**

Table 5.2 Vertebrate Fauna Recorded During Basic and Targeted Survey

Family	Taxon	Common Name	BC Status	EPBC Status	Obs. type
Birds					
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill			O
Accipitridae	*Aquila audax*	Wedge-tailed Eagle			O
Accipitridae	*Hieraaetus morphnoides*	Little Eagle			O
Alcedinidae	**Dacelo novaeguineae*	Laughing Kookaburra			H
Anatidae	*Chenonetta jubata*	Australian Wood Duck			O
Ardeidae	*Egretta novaehollandiae*	White-faced Heron			O
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird			O
Artamidae	*Gymnorhina tibicen*	Australian Magpie			O
Artamidae	*Artamus cinereus*	Black-faced Woodswallow			O
Cacatuidae	*Zanda latirostris*	Carnaby's Black-Cockatoo	EN	EN	O
Cacatuidae	*Calyptorhynchus banksii samueli*	Inland Red-tailed Black-Cockatoo			O
Cacatuidae	*Eolophus roseicapilla*	Galah			O
Cacatuidae	*Cacatua pastinator*	Western Long-billed Corella			O
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike			O
Casuariidae	*Dromaius novaehollandiae*	Emu			O
Columbidae	*Phaps chalcoptera*	Common Bronzewing			O
Columbidae	*Ocyphaps lophotes*	Crested Pigeon			O
Corvidae	*Corvus coronoides*	Australian Raven			O, C
Corvidae	*Corvus bennetti*	Little Crow			O
Falconidae	*Falco cenchroides*	Nankeen Kestrel			O
Hirundinidae	*Petrochelidon nigricans*	Tree Martin			O
Locustellidae	*Cincloramphus cruralis*	Brown Songlark			O
Maluridae	*Malurus leucopterus*	White-winged Fairywren			O
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater			O
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater			O
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater			O
Meliphagidae	*Epthianura tricolor*	Crimson Chat			O
Meliphagidae	*Epthianura albifrons*	White-fronted Chat			O
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner			O

Family	Taxon	Common Name	BC Status	EPBC Status	Obs. type
Meropidae	*Merops ornatus*	Rainbow Bee-eater			O
Monarchidae	*Grallina cyanoleuca*	Magpie-lark			O
Motacillidae	*Anthus australis*	Australian Pipit			O
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler			H
Psittaculidae	*Barnardius zonarius*	Australian Ringneck			O
Psittaculidae	*Polytelis anthopeplus*	Regent Parrot			O
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail			O
Strigidae	*Ninox boobook*	Southern Boobook			A
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis			O
Mammals					
Bovidae	*Ovis aries*	Sheep			O
Canidae	**Vulpes vulpes*	Red Fox			O, C
Felinae	**Felis catus*	Cat			O, C
Leporidae	**Oryctolagus cuniculus*	Rabbit			S
Macropodidae	*Osphranter rufus*	Red Kangaroo			O, C
Molossidae	*Austronomus australis*	White-striped Free-tailed Bat			U
Molossidae	*Ozimops kitcheneri*	South-western Free-tailed Bat			U
Tachyglossidae	*Tachyglossus aculeatus acanthion*	Short-beaked Echidna			S
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattle Bat			U
Vespertilionidae	*Chalinolobus morio*	Chocolate wattled bat			U
Vespertilionidae	*Nyctophilus geoffroyi*	Lesser Long-eared Bat			U
Vespertilionidae	*Scotorepens balstoni*	Inland Broad-nosed Bat			U
Vespertilionidae	*Vespadelus regulus*	Southern Forest Bat			U
Reptiles					
Agamidae	*Pogona minor minor*	Western Bearded Dragon			O
Agamidae	*Moloch horridus*	Thorny Devil			O, C
Elapidae	*Pseudonaja mengdeni*	Western Brown Snake			O
Scincidae	*Tiliqua occipitalis*	Western Bluetongue			C
Varanidae	*Varanus gouldii*	Bungarra or Sand Goanna			O, C

** - Naturalised exotic, O = Observed, H = Heard, S = Secondary evidence, C = Camera, A = Acoustic, U = Ultrasonic*

5.3 Significant Fauna Taxa

One conservation significant fauna species was recorded during the survey – Carnaby's Black-Cockatoo (*Zanda latirostris*). This species is listed as Endangered under both the BC Act and EPBC Act and is further discussed below.

5.3.1 Carnaby's Black-Cockatoo

5.3.1.1 Evidence

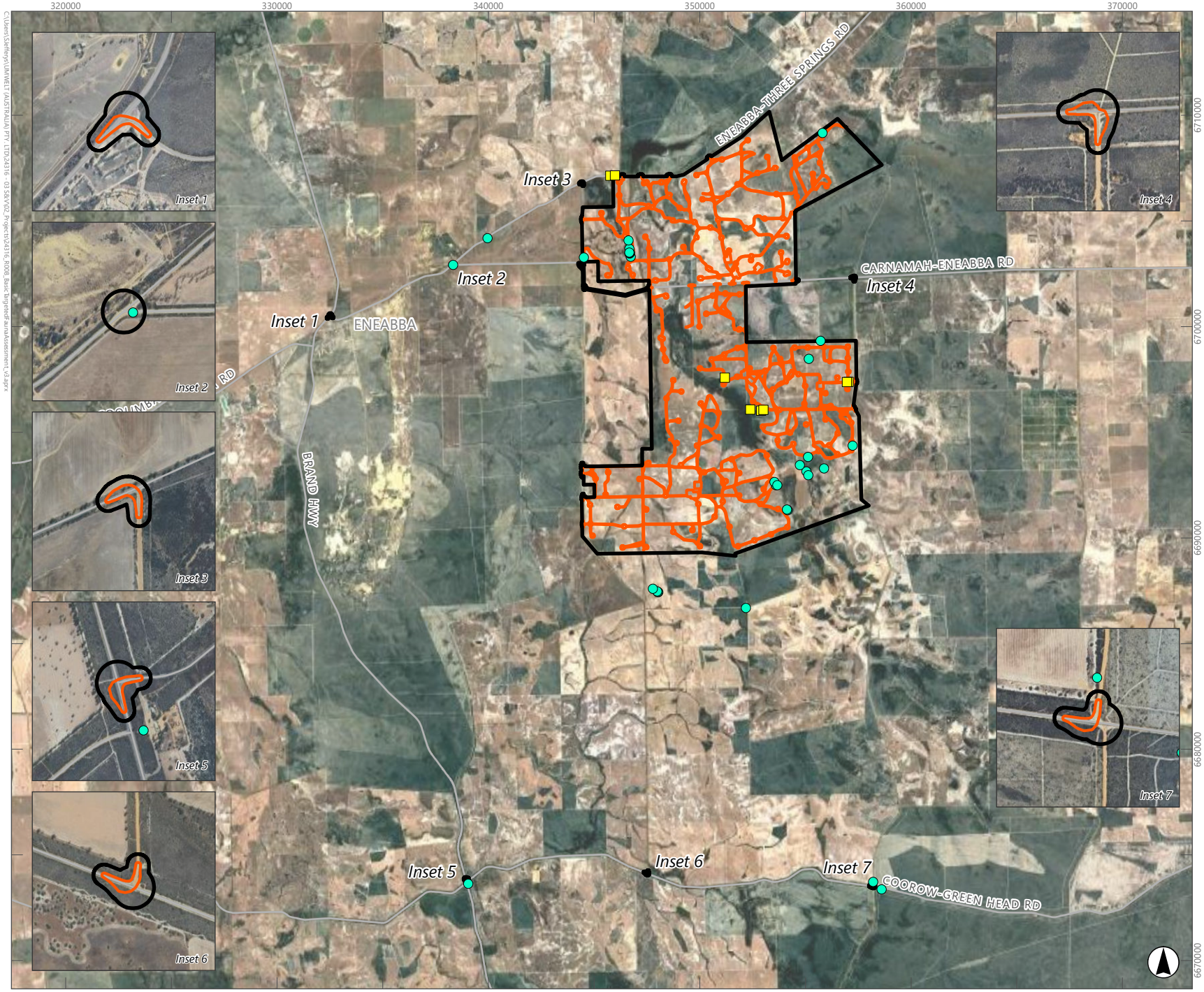
Carnaby's Black-Cockatoo were recorded on 21 occasions throughout the Basic and Targeted FSAs. Twelve of these records were primary observations (visual sightings), and nine were secondary observations (foraging evidence and calls). Of the 12 primary observations, birds were seen flying alone or in flocks of up to 20 individuals. The mean flock size recorded during the survey was six individuals. Of particular importance, a juvenile was sighted within a hollow adjacent to a residence in Wandoo Woodland habitat. This record is further discussed in **Section 5.3.1.2.**

Seven records of foliage clippings were recorded on *Eucalyptus wandoo* and *Eucalyptus accedens*. It was not possible to determine which species of Black-Cockatoo were responsible for the clippings as Inland Red-tailed Black-Cockatoo (*Calyptorhynchus banksii samueli* – not conservation listed) are also present in the area.

Primary and secondary evidence of Black-Cockatoos recorded during the survey are presented in **Figure 5.2**.

FIGURE 5.2

Conservation Significant Fauna Recorded During the Survey – Overview



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Carnaby's Black-Cockatoo Sighting
- Black-Cockatoo Foraging Evidence

0 5 10

Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

5.3.1.2 Black-Cockatoo Nest-tree Assessment

A total of 353 trees that meet the potential Black-Cockatoo nest-tree criteria were recorded within the Targeted FSA. Two of these trees were recorded as Category 2, while 25 trees were recorded as Category 3, 14 as Category 4 and the remaining 312 as Category 5 (rankings presented in **Section 3.2.9.2**). Carnaby's Black-Cockatoo was not observed nesting in any trees within the Targeted FSA; however, a juvenile was sighted within a hollow adjacent to a residence in Wandoo Woodland habitat. Personal communication with local landholders (W. & D. Mills) indicated that a breeding pair regularly uses this hollow in most years (**Figure 5.3**).

The most significant trees recorded during the survey were the Category 2 trees; Tree T02 (Powderbark Wandoo – *Eucalyptus accedens*) and T303 (Wandoo – *Eucalyptus wandoo* subsp. *pulverea*) (**Table D.2, Appendix D**). Both trees are preferred species for Carnaby's Black-Cockatoo nesting (see **Section 3.2.9.2**), contained hollows with suitable entrance diameters and showed evidence of old chew marks. One of these trees was recorded within Wandoo Woodland on Sandy Soil habitat (T303) and the other within Eucalyptus Woodland on Stoney Substrate (T02).

A pair of Inland Red-tailed Black-Cockatoo (*Calyptorhynchus banksii samueli*) were also observed scoping out a hollow in a dead tree within Wandoo Woodland habitat. This species has different habitat and nest-hollow preferences to Carnaby's Black-Cockatoo although they do have some overlapping preferences. The Inland Red-tailed Black-Cockatoo is not conservation listed.

The assessment data (species, life status, DBH and nest-tree rank) for all potential nest-trees are presented in **Table D.2, Appendix D.** Locations of potential nest-trees recorded within the Targeted FSA during the survey are presented in **Figure 5.3**.

5.3.1.3 Black-Cockatoo Foraging Habitat

Targeted FSA

Black-Cockatoo foraging habitat was assessed within the Targeted FSA. Overall, a majority of the site is considered to be of Negligible to Low foraging value (Site Score 0-2) (97.60%), with some smaller areas of Moderate to High value habitat present (Site Score 5).

A large majority of the Targeted FSA is considered to have a Site Score of 1; Negligible to low foraging values (1187.84 ha - 93.98%). The next largest area has a Site Score of 2; Low forage value (24.98 ha – 1.98%). The highest Site Score given to any area within the Targeted FSA had a score of 5; Moderate to High foraging value (6.89 ha – 0.54%). None of the habitat within the Targeted FSA were given the highest Site Score ranking of 6.

A summary of Carnaby's Black-Cockatoo foraging habitat is presented in **Table 5.3**, with all foraging assessment points presented in **Table D.5, Appendix D**. An overview of Black-Cockatoo foraging habitat mapping is displayed on **Figure 5.3**, with more detailed mapping provided in **Appendix E**.

Table 5.3 Summary of Carnaby's Black-Cockatoo Foraging Habitat within the Targeted FSA Based on Bamford (2020) Site Score Rankings

Site Score	Description of Vegetation Value	Area within Targeted FSA	Percentage of Targeted FSA
0	No foraging value	20.78 ha	1.64
1	Negligible to low foraging values	1,187.84 ha	93.98
2	Low forage value	24.98 ha	1.98
3	Low to Moderate foraging value	14.44 ha	1.14
4	Moderate foraging value	8.96 ha	0.71
5	Moderate to High foraging value	6.89 ha	0.54
6	High foraging value	0.00 ha	0
Total		**1,263.89 ha**	**100%**

Basic FSA

Black-Cockatoo foraging habitat was assessed within the Basic FSA. Overall, the majority of the area is considered to be of Negligible to Low foraging value (Site Scores 0-2), comprising approximately 70.5% of the total area. Some areas of Moderate to High value foraging habitat are also present (Site Scores 4–5), accounting for a combined 27.0% of the Basic FSA.

The largest portion of the Basic FSA was assigned a Site Score of 1; Negligible to Low foraging values (12,532.5 ha – 67.9%). The next largest category was Site Score 5; Moderate to High foraging value (3,280.2 ha – 17.8%), followed by Site Score 4; Moderate foraging value (1,697.6 ha – 9.2%). Smaller areas received Site Scores of 2 (Low forage value – 368.9 ha or 2.0%) and 3 (Low to Moderate forage value – 457.2 ha or 2.5%). A small area (105.0 ha – 0.6%) was considered to have no foraging value (Site Score 0). None of the habitat within the Basic FSA were given the highest Site Score ranking of 6.

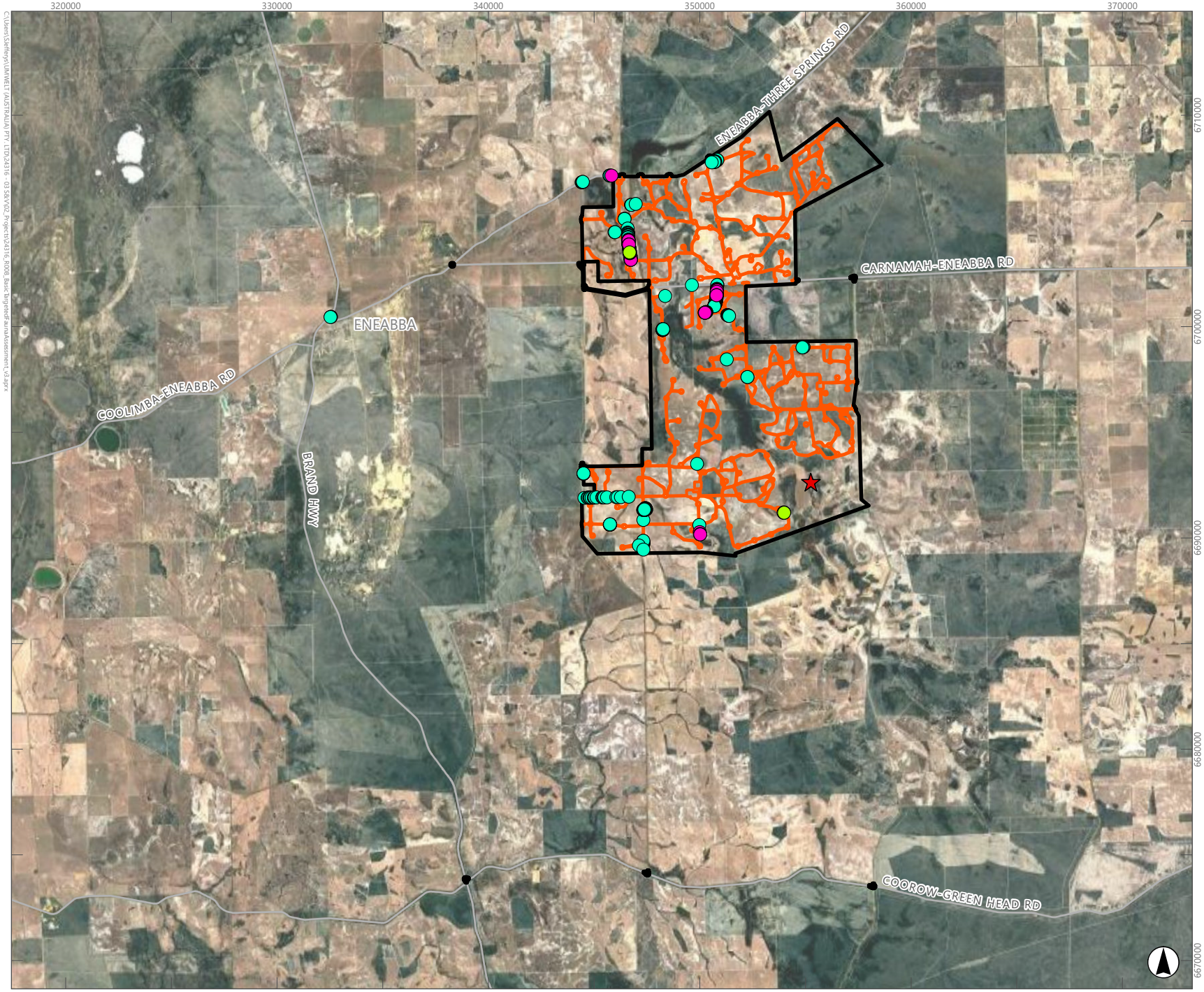
A summary of Carnaby's Black-Cockatoo foraging habitat within the Basic FSA is presented in **Table 5.4**, with foraging scores derived from the extrapolation of mapping results from the Targeted FSA. An overview of Basic FSA foraging habitat mapping is shown on **Figure 5.4**, with detailed mapping provided in **Appendix E.**

Table 5.4 Summary of Carnaby's Black-Cockatoo Foraging Habitat within the Basic FSA Based on Bamford (2020) Site Score Rankings

Site Score	Description of Vegetation Value	Area within Basic FSA	Percentage of Basic FSA
0	No foraging value	105.0	0.6%
1	Negligible to low foraging values	12,532.5	67.9%
2	Low forage value	368.9	2.0%
3	Low to Moderate foraging value	457.2	2.5%
4	Moderate foraging value	1,697.6	9.2%
5	Moderate to High foraging value	3,280.2	17.8%
6	High foraging value	0	0%
Total		**18,441.4**	**100%**

FIGURE 5.3

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA – Overview



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

0 5 10

Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

FIGURE 5.4

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA – Overview

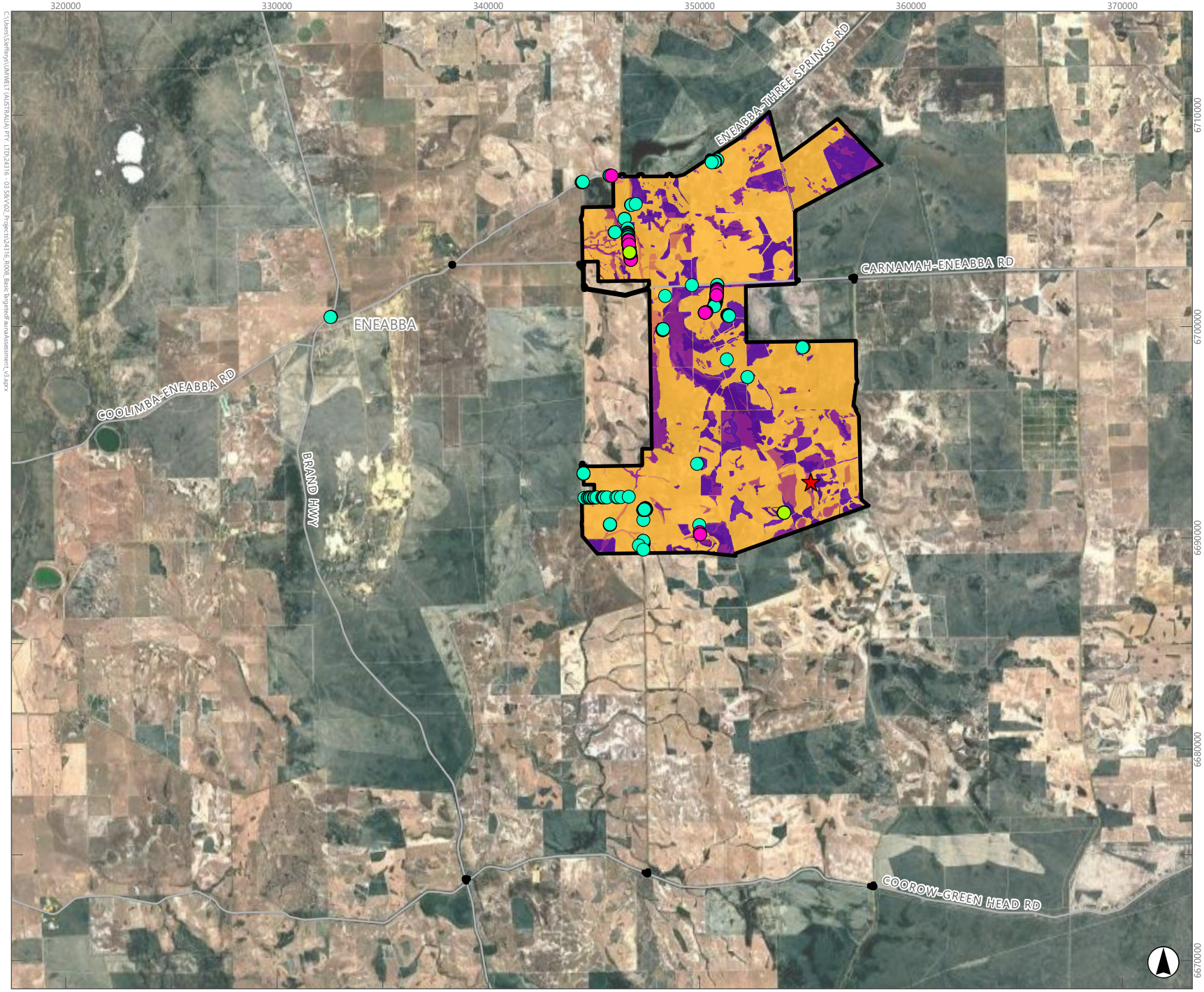


Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

5.3.2 Western Spiny-tailed Skink

Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*) was not detected within the Targeted FSA during the survey and no potential refuge sites or latrines were recorded. This species is known to inhabit eucalypt woodlands, with populations persisting in patches as small as one hectare and completely surrounded by wheatfields (DotEE 2025). While habitat fragmentation was noted over the Basic FSA, it was not considered extensive enough to preclude the presence of the species. However, given the availability of suitable habitat and cryptic nature of the species, it's presence cannot be completely ruled out. Potential habitats which may support this species include:

- Wandoo Woodland on Sandy Substrates
- Eucalyptus Woodland on Stoney Substrate
- Eucalyptus Woodland on Rocky Hill.

While these habitats may support the species within the Basic FSA, the marginal habitats within the Targeted FSA did not appear to contain suitable denning material and the species is considered to have a low likelihood of occurring within the Targeted FSA.

5.4 Likelihood of Occurrence of Conservation Significant Vertebrate Fauna

The Likelihood of Occurrence assessment was revised following completion of the field survey. The updated assessment determined that one conservation significant species is Known to occur within the Basic FSA (Carnaby's Black-Cockatoo). An additional three species are considered to have a High likelihood of occurrence, one a Moderate likelihood, seven a Low likelihood, and seven a Very Low likelihood of occurrence. The updated Likelihood of Occurrence assessment is presented on **Table C.1, Appendix C.**

The three species considered to have a High likelihood of occurring within the Basic FSA include; Fork-tailed Swift (MI), Peregrine Falcon (OS), and Black-striped Burrowing Snake (P3).

Fork-tailed Swift (*Apus pacificus*)

The Fork-tailed Swift (Migratory) (BC Act & EPBC Act) is an exclusively aerial species with a wide distribution, depending largely in weather events. This species is considered to have High likelihood of occurring in the air space over the Basic FSA, but is not considered to rely on the habitat within for its survival. It's occurrence within the airspace over the Basic FSA is considered to be opportunistic, infrequent and dependent on local weather conditions.

Peregrine Falcon (*Falco peregrinus)*

The Peregrine Falcon is listed as Other Specially Protected Fauna (BC Act). It occurs over a wide range of habitat types in generally low numbers. This species is considered to have High likelihood of occurrence within the Basic FSA. It is considered highly likely to utilise all habitat types for foraging, and may utilise trees within the following habitat types for nesting:

- Wandoo Woodland on Sandy Soil
- Eucalyptus Woodland on Stoney Substrate

- Eucalypt Woodland Along Drainage Lines
- Eucalypt Woodland on Rocky Hills
- Planted.

It may also utilise tall anthropogenic structures such as transmission towers or windmills within the Cleared Agricultural Land, and Cleared (Other) habitat types.

Black-striped Burrowing Snake (*Neelaps calonotos*)

Neelaps calonotos is listed as Priority 3 by DBCA. This species is fossorial and inhabits sand dunes and sand plains vegetated with heaths, Eucalyptus and Banksia woodlands (How & Shine 1999, Wilson and Swan 2013). It has been assessed as having a high likelihood of occurring within the Basic FSA, particularly within vegetated habitats with sandy substrates including;

- Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes
- Wandoo Woodland on Sandy Soil
- Low Shrubland on Gentle Slope
- Tall Shrubland Associated with Dampland
- Eucalyptus Woodland along Drainage Line.

6.0 Conclusions

A Basic and Targeted vertebrate fauna survey was undertaken within the Basic and Targeted FSAs between 28 October – 6 November 2024, and 19–21 February 2025. Annual rainfall prior to surveys was below average however was not considered a limitation to the scope of this current survey.

Ten broad fauna habitats were mapped over the Basic FSA which are of varying significance to conservation significant fauna. Of particular significance is the Wandoo Woodland on Sandy Soils, Eucalyptus Woodland on Stoney Substrate, Eucalyptus Woodland along Drainage Lines, Eucalyptus Woodland on Rocky Hills, and Planted habitat types as these habitats contain tree species which may produce suitable nest-hollows for Black-Cockatoo.

The only conservation significant species confirmed during the survey was Carnaby's Black-Cockatoo (EN). This species was recorded on 21 occasions with flock sizes up to 20 individuals. The species is known to have been breeding at the time of the first field survey (October-November 2024) within the Wandoo Woodland on Sandy Soil habitat within the Basic FSA, however no confirmed breeding trees were identified within the Targeted FSA.

Black-Cockatoo nest-tree surveys identified 353 significant trees within the Targeted FSA. Two of these trees were recorded as Category 2 (past evidence of use), and 25 were recorded as Category 3 (potentially suitable hollows with no evidence of use). It should be noted that all cockatoo nest-trees were assessed from the ground and it is recommended that the Category 2 and Category 3 trees be further investigated with use of a drone or pole camera if they are to be affected by clearing works.

Foraging habitat was also assessed for Carnaby's Black-Cockatoo. Overall, a majority of the Targeted FSA is considered to be of Negligible to Low foraging value (Site Score 0-2) (97.60%), with an additional 0.85% being ranked as Low to Moderate foraging quality (Site Score 3-4). The best quality foraging habitat (Site Score 5) takes up a relatively small proportion of the Targeted FSA (0.54%).

Foraging habitat scores within the Basic FSA were derived through extrapolation from Targeted FSA mapping results. These indicate that the majority of the Basic FSA (70.5%) supports habitat of Negligible to Low value (Site Scores 0–2), while Moderate to High quality habitat (Site Scores 4–5) comprises 27.0% of the area. Notably, no habitat within either the Basic or Targeted FSAs achieved the highest foraging score of 6.Habitats deemed potentially suitable to support Western Spiny-tailed Skink within the Targeted FSA were traversed in search of refuge or latrine evidence. None were identified during the survey as only marginal vegetated habitats occur within the Targeted FSA, most of which were void of suitable refuge material. Following the completion of the survey, the Western Spiny-tailed Skink is considered to have a Low likelihood of occurring within he Targeted FSA, but may have a Moderate likelihood of occurring within the Basic FSA.

The revised Likelihood of Occurrence assessment completed post field survey identified an additional three vertebrate fauna species as having a High likelihood of occurring within the Basic FSA; Fork-tailed Swift (MI), Peregrine Falcon (PS) and Black-Striped Burrowing Snake (P3). Fork-tailed Swift may opportunistically and infrequently utilise the air space over the Basic FSA but is not expected to utilise the habitats within.

The Peregrine Falcon may use any habitat type with tall trees and tall anthropogenic structures for nesting, and may hunt over all habitat types (hunting mainly performed aerially but may occasionally require birds to come to the ground). The Black-Striped Burrowing Snake (P3) is fossorial and cryptic in nature but may occur within sandy habitat types including Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes, Wandoo Woodland on Sandy Soil, Low Shrubland on Gentle Slope, Tall Shrubland Associated with Dampland, and Eucalyptus Woodland along Drainage Line.

The SRE desktop assessment concluded that 48 species were considered to have a 'High' likelihood of occurrence, 29 'Moderate', one 'Low', and 80 'Very Low' within the Basic FSA. No previous invertebrate or SRE surveys have been performed within the Basic FSA. One historic record of *Idiosoma nigrum* (the Shield-backed Trapdoor Spider or Black Rugose Trapdoor Spider) (VU/EN) was detected within the Targeted FSA. This was a trapped individual from 1987 (DBCA, 2024c), although literature on this individual could not be found.

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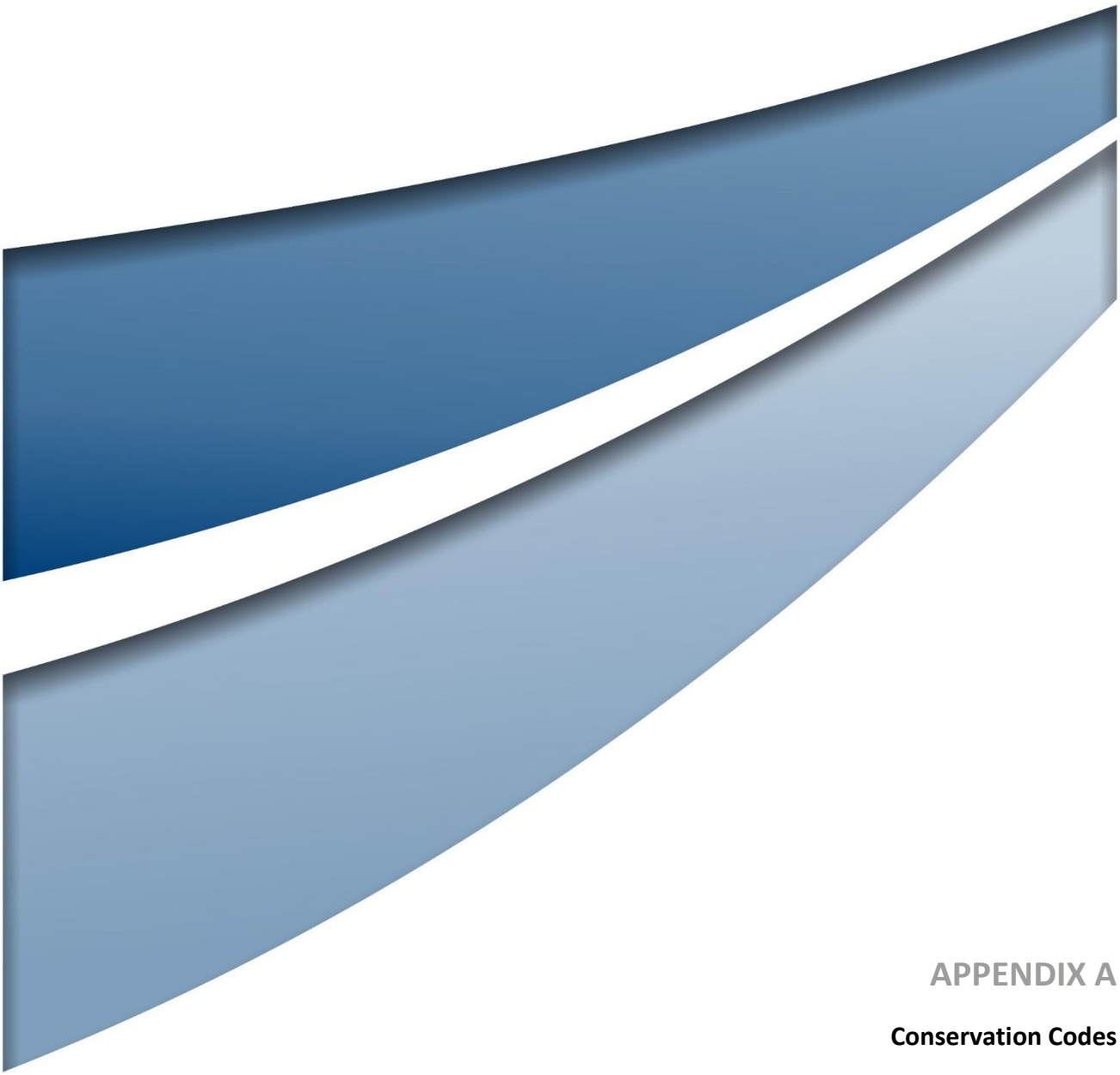


APPENDIX A

Conservation Codes

Table A 1 Biodiversity Conservation Act 2016

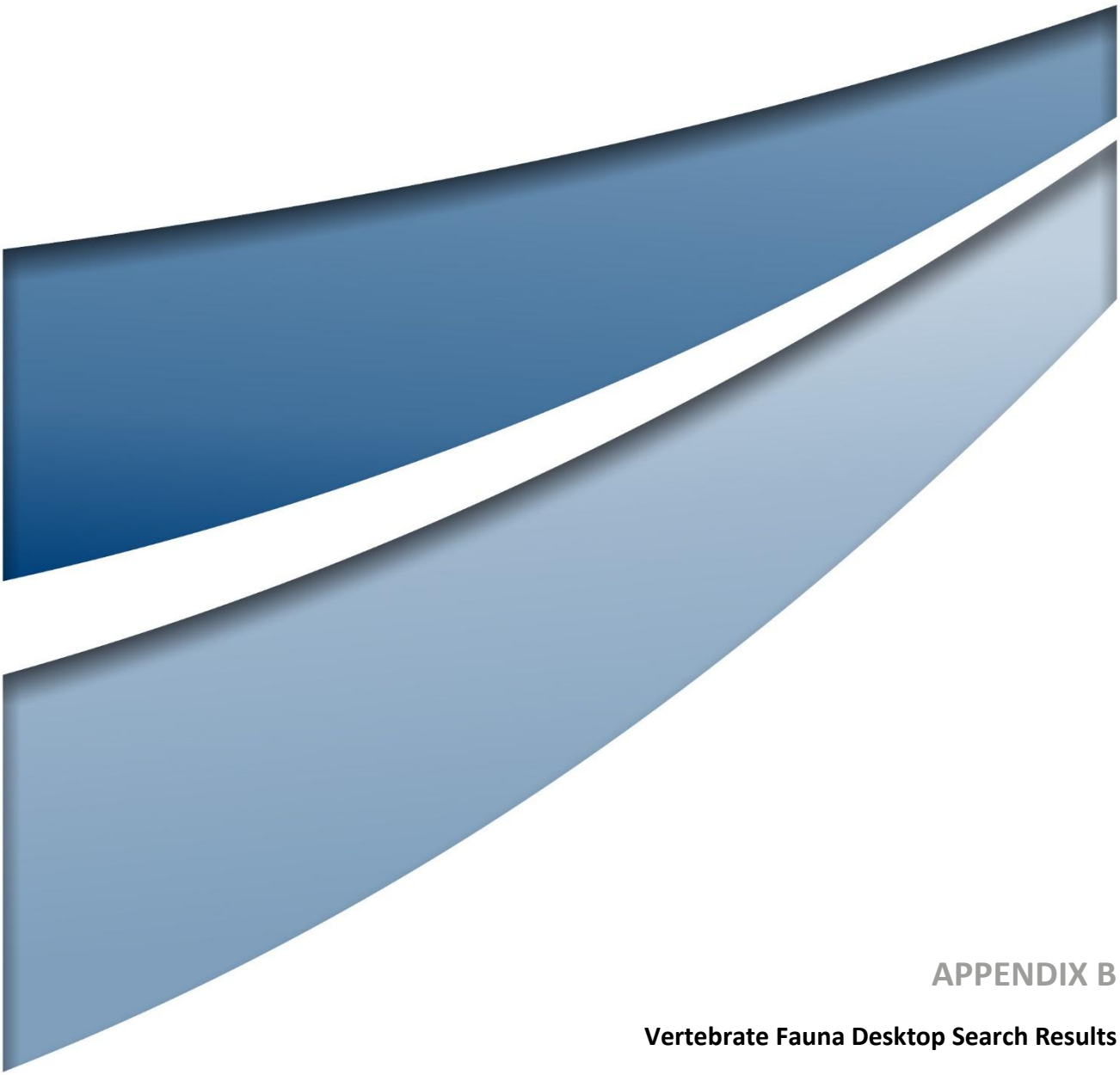
Category	Definition
Threatened Species	
Critically Endangered (CR)	Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.
Endangered (EN)	Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.
Vulnerable (VU)	Threatened species considered to be "facing a high risk of extinction in the wild in the medium term future, as determined in accordance with criteria set out in the ministerial guidelines". Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.
Extinct Species	
Extinct species (EX)	Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).
Extinct on the Wild (EW)	Species that "is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).
Specially Protected Species	
Migratory (MI)	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) or The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.
Conservation Dependent (CD)	Species of special conservation need that are dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).
Other Specially Protected (OS)	Species otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Table A 2 Department of Biodiversity, Conservation and Attractions Priority Codes

Category	Definition
Poorly-known Species	
Priority 1 (P1)	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.
Priority 2 (P2)	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.
Priority 3 (P3)	Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.
Rare, Near Threatened and Other Species in Need of Monitoring	
Priority 4 (P4)	(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Table A 3 Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Category	Definition
Extinct	A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
Extinct in the Wild	A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time: (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically Endangered (CR)	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing an extremely high risk of extinction in the wild.
Endangered (EN)	A taxon is Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a very high risk of extinction in the wild.
Vulnerable (VU)	A taxon is Vulnerable when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a high risk of extinction in the wild.
Conservation Dependent (CD)	A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or (b) the following subparagraphs are satisfied: i. the species is a species of fish; ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised; iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory; iv. cessation of the plan of management would adversely affect the conservation status of the species.



APPENDIX B

Vertebrate Fauna Desktop Search Results

B.1 NatureMap Search Results

Table B 1 Fauna NatureMap Search Results for the Desktop Study Area

Class	Taxon	Common Name	Count of TAXON
Amphibian	*Crinia pseudinsignifera*	Bleating Froglet	2
Amphibian	*Heleioporus albopunctatus*	Western Spotted Frog	3
Amphibian	*Heleioporus eyrei*	Moaning Frog	3
Amphibian	*Heleioporus psammophilus*	Sand Frog	1
Amphibian	*Litoria moorei*	Motorbike Frog	1
Amphibian	*Myobatrachus gouldii*	Turtle Frog	7
Amphibian	*Pseudophryne guentheri*	Crawling Toadlet	3
Amphibian	*Pseudophryne guentheri* Boulenger, 1882	Gunther's Toadlet	1
Bird	*Acanthiza apicalis*	Inland Thornbill (Broad-tailed Thornbill)	5
Bird	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	42
Bird	*Acanthiza uropygialis*	Chestnut-rumped Thornbill	2
Bird	*Accipiter cirrocephalus*	Collared Sparrowhawk	1
Bird	*Acrocephalus australis*	Australian Reed Warbler	2
Bird	*Anas gracilis*	Grey Teal	1
Bird	*Anas superciliosa*	Pacific Black Duck	1
Bird	*Anthochaera carunculata*	Red Wattlebird	27
Bird	*Anthochaera lunulata*	Western Little Wattlebird (Western Wattlebird)	2
Bird	*Aquila audax*	Wedge-tailed Eagle	9
Bird	*Ardea pacifica*	White-necked Heron	3
Bird	*Ardeotis australis*	Australian Bustard	1
Bird	*Artamus cinereus*	Black-faced Woodswallow	14
Bird	*Artamus cyanopterus*	Dusky Woodswallow	4
Bird	*Barnardius zonarius*	Australian Ringneck	22
Bird	*Cacatua pastinator*	Western Long-billed Corella	5
Bird	*Cacatua sanguinea*	Little Corella	3
Bird	*Cacomantis flabelliformis*	Fan-tailed Cuckoo	2
Bird	*Cacomantis pallidus*	Pallid Cuckoo	2
Bird	*Calamanthus cautus*	Shy Groundwren (Shy Heathwren)	1
Bird	*Calyptorhynchus sp.*		1
Bird	*Chenonetta jubata*	Australian Wood Duck (Wood Duck, Maned Duck)	1
Bird	*Cheramoeca leucosterna*	White-backed Swallow	2
Bird	*Cincloramphus cruralis*	Brown Songlark	4
Bird	*Cincloramphus mathewsi*	Rufous Songlark	11
Bird	*Circus assimilis*	Spotted Harrier	1
Bird	*Colluricincla harmonica*	Grey Shrikethrush	4

Class	Taxon	Common Name	Count of TAXON
Bird	*Columba livia*	Domestic Pigeon (Rock Dove)	1
Bird	*Coracina novaehollandiae*	Black-faced Cuckooshrike	20
Bird	*Corvus coronoides*	Australian Raven	21
Bird	*Cracticus nigrogularis*	Pied Butcherbird	18
Bird	*Cracticus tibicen*	Australian Magpie	25
Bird	*Cracticus torquatus*	Grey Butcherbird	3
Bird	*Cygnus atratus*	Black Swan	1
Bird	*Dacelo novaeguineae*	Laughing Kookaburra	1
Bird	*Dicaeum hirundinaceum*	Mistletoebird	2
Bird	*Dromaius novaehollandiae*	Emu	3
Bird	*Egretta novaehollandiae*	White-faced Heron	1
Bird	*Elanus axillaris*	Black-shouldered Kite	3
Bird	*Eolophus roseicapilla*	Galah	17
Bird	*Epthianura albifrons*	White-fronted Chat	11
Bird	*Falco berigora*	Brown Falcon	2
Bird	*Falco cenchroides*	Australian Kestrel (Nankeen Kestrel)	16
Bird	*Falco longipennis*	Australian Hobby	2
Bird	*Falco peregrinus*	Peregrine Falcon	1
Bird	*Gavicalis virescens*	Singing Honeyeater	28
Bird	*Gerygone fusca*	Western Gerygone	17
Bird	*Gliciphila melanops*	Tawny-crowned Honeyeater	1059
Bird	*Grallina cyanoleuca*	Magpie-lark	20
Bird	*Hieraaetus morphnoides*	Little Eagle	2
Bird	*Himantopus himantopus*	Black-winged Stilt	1
Bird	*Hirundo neoxena*	Welcome Swallow	22
Bird	*Lichmera indistincta*	Brown Honeyeater	35
Bird	*Malurus lamberti*	Variagated Fairywren	7
Bird	*Malurus leucopterus*	White-winged Fairywren	10
Bird	*Malurus splendens*	Splendid Fairywren	7
Bird	*Manorina flavigula*	Yellow-throated Miner	2
Bird	*Melopsittacus undulatus*	Budgerigar	1
Bird	*Merops ornatus*	Rainbow Bee-eater	2
Bird	*Ninox novaeseelandiae*	Boobook	1
Bird	*Ocyphaps lophotes*	Crested Pigeon	33
Bird	*Pachycephala rufiventris*	Rufous Whistler	19
Bird	*Pardalotus striatus*	Striated Pardalote	12
Bird	*Petrochelidon nigricans*	Tree Martin	9
Bird	*Petroica goodenovii*	Red-capped Robin	5
Bird	*Phaps chalcoptera*	Common Bronzewing	7
Bird	*Phylidonyris niger*	White-cheeked Honeyeater	34

Class	Taxon	Common Name	Count of TAXON
Bird	*Phylidonyris novaehollandiae*	New Holland Honeyeater	1
Bird	*Poliocephalus poliocephalus*	Hoary-headed Grebe	1
Bird	*Pomatostomus superciliosus*	White-browed Babbler	1
Bird	*Purnella albifrons*	White-fronted Honeyeater	1
Bird	*Recurvirostra novaehollandiae*	Red-necked Avocet	2
Bird	*Rhipidura albiscapa*	Grey Fantail	13
Bird	*Rhipidura leucophrys*	Willie Wagtail	30
Bird	*Sericornis frontalis*	White-browed Scrubwren	4
Bird	*Smicrornis brevirostris*	Weebill	19
Bird	*Sugomel nigrum*	Black Honeyeater	3
Bird	*Tachybaptus novaehollandiae*	Australasian Grebe (Black-throated Grebe)	2
Bird	*Taeniopygia castanotis*	Australian Zebra Finch	1
Bird	*Todiramphus sanctus*	Sacred Kingfisher	1
Bird	*Vanellus tricolor*	Banded Lapwing	7
Bird	*Zanda latirostris*	Carnaby's Cockatoo	5
Bird	*Zosterops lateralis*	Grey-breasted White-eye (Silvereye)	12
Mammal	*Austronomus australis*	White-striped Free-tailed Bat	1
Mammal	*Canis lupus subsp. dingo*	Dog/Dingo	1
Mammal	*Chalinolobus gouldii*	Gould's Wattled Bat	1
Mammal	*Eubalaena australis*	Southern Right Whale	1
Mammal	*Macroderma gigas*	Ghost Bat	2
Mammal	*Macropus fuliginosus*	Western Grey Kangaroo	1
Mammal	*Macropus robustus subsp. erubescens*		1
Mammal	*Macropus sp.*		1
Mammal	*Mormopterus sp.*		1
Mammal	*Mus musculus*	House Mouse	9
Mammal	*Nyctophilus geoffroyi*	Lesser Long-eared Bat	3
Mammal	*Oryctolagus cuniculus*	Rabbit	1
Mammal	*Pseudomys albocinereus*	Ash-grey Mouse	15
Mammal	*Rattus fuscipes*	Western Bush Rat	2
Mammal	*Sminthopsis crassicaudata*	Fat-tailed Dunnart	2
Mammal	*Sminthopsis dolichura*	Little long-tailed Dunnart	2
Mammal	*Sminthopsis granulipes*	White-tailed Dunnart	21
Mammal	*Sminthopsis griseoventer subsp. griseoventer*	Grey-bellied Dunnart	1
Mammal	*Tachyglossus aculeatus*	Short-beaked Echidna	1
Mammal	*Tarsipes rostratus*	Honey Possum, Noolbenger	47
Mammal	*Tarsipes rostratus* Gervais and Verraux, 1842	Honey Possum	3
Mammal	*Vespadelus regulus*	Southern Forest Bat	1

Class	Taxon	Common Name	Count of TAXON
Mammal	*Vulpes vulpes*	Red Fox	1
Reptile	*Anilios australis*		1
Reptile	*Aprasia repens*	Sedgelands worm-lizard	1
Reptile	*Cryptoblepharus plagiocephalus*		1
Reptile	*Ctenoph* sp B SAP		1
Reptile	*Ctenophorus adelaidensis*	Western Heath Dragon	19
Reptile	*Ctenophorus maculatus*	Spotted Sand Dragon	11
Reptile	*Ctenophorus maculatus* subsp. *maculatus*	Spotted Sand Dragon	19
Reptile	*Ctenotus fallens*		18
Reptile	*Ctenotus fallens* Storr, 1974		3
Reptile	*Ctenotus impar*		2
Reptile	*Ctenotus pantherinus*	Leopard Skink	3
Reptile	*Ctenotus pantherinus* subsp. *calx*		1
Reptile	*Ctenotus pantherinus* subsp. *pantherinus*		7
Reptile	*Ctenotus schomburgkii*		2
Reptile	*Delma grayii*		2
Reptile	*Diplodactylus alboguttatus*		1
Reptile	*Diplodactylus ornatus*		1
Reptile	*Diplodactylus polyophthalmus*	Spotted Sandplain Gecko	1
Reptile	*Echiopsis curta*	Bardick	2
Reptile	Egernia *multiscutata* Mitchell and *Behrndt*, 1949		1
Reptile	*Egernia stokesii badia*	Western Spiny-tailed Skink	1
Reptile	*Hydrophis elegans*		1
Reptile	*Lerista christinae*		2
Reptile	*Lerista christinae* Storr, 1979		1
Reptile	*Lerista distinguenda*		10
Reptile	*Lerista elegans*		1
Reptile	*Lerista planiventralis*		1
Reptile	*Lerista planiventralis* subsp. *decora*		2
Reptile	*Lerista praepedita*		8
Reptile	*Lialis burtonis*		6
Reptile	*Liopholis multiscutata*		1
Reptile	*Lucasium alboguttatum*		1
Reptile	*Menetia greyii*		11
Reptile	*Menetia greyii* Gray, 1845		1
Reptile	*Moloch horridus*	Thorny Devil	3
Reptile	*Morethia obscura*		3

Class	Taxon	Common Name	Count of TAXON
Reptile	*Morethia obscura* Storr, 1973		2
Reptile	*Neelaps calonotos*	Black-striped Burrowing Snake	2
Reptile	*Pletholax gracilis*	West Coast Keeled Legless Gecko	1
Reptile	*Pletholax gracilis* subsp. *gracilis*	#N/A	2
Reptile	*Pogona minor*	Dwarf Bearded Dragon	4
Reptile	*Pogona minor* subsp. *minima*	Dwarf Bearded Dragon	1
Reptile	*Pogona minor* subsp. *minor*	Western Bearded Dragon	8
Reptile	*Pseudechis australis*	Mulga Snake	5
Reptile	*Pseudonaja affinis*		1
Reptile	*Pseudonaja mengdeni*	Western Brown Snake	3
Reptile	*Pseudonaja nuchalis*	Gwardar; Northern Brown Snake	1
Reptile	*Pygopus lepidopodus*	Common Scaly Foot	3
Reptile	*Ramphotyphlops waitii*		1
Reptile	*Rankinia adelaidensis* subsp. *adelaidensis*		1
Reptile	*Simoselaps anomalus*	Desert Banded Snake	1
Reptile	*Simoselaps littoralis*	West Coast Banded Snake	2
Reptile	*Strophurus spinigerus*		5
Reptile	*Strophurus spinigerus* subsp. *spinigerus*		10
Reptile	*Tiliqua rugosa*	Rottnest Island Bobtail	1
Reptile	*Tiliqua rugosa* subsp. *rugosa*	Bobtail	1
Grand Total			**2102**

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: 07-Jan-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:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	39
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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
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:	6
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	6
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.		
Scientific Name	Threatened Category	Presence Text
BIRD		
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
MAMMAL		

Scientific Name	Threatened Category	Presence Text
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat may occur within area
PLANT		
Acacia wilsonii Wilson's Wattle [65228]	Endangered	Species or species habitat known to occur within area
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Banksia catoglypta [85021]	Vulnerable	Species or species habitat likely to occur within area
Banksia serratuloides subsp. perissa Northern Serrate Dryandra [82767]	Critically Endangered	Species or species habitat likely to occur within area
Caleana dixonii listed as Paracaleana dixonii Sandplain Duck Orchid [87944]	Endangered	Species or species habitat known to occur within area
Daviesia speciosa Beautiful Daviesia [56698]	Endangered	Species or species habitat known to occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat likely to occur within area
Eremophila subangustifolia listed as Eremophila sp. Narrow leaves (J.D.Start D12-150) [89829]	Critically Endangered (listed as Eremophila sp. Narrow leaves	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Eucalyptus absita Badgingarra Box [24260]	Endangered	Species or species habitat may occur within area
Eucalyptus crispata Yandanooka Mallee [24268]	Vulnerable	Species or species habitat may occur within area
Eucalyptus impensa Eneabba Mallee [56711]	Endangered	Species or species habitat may occur within area
Eucalyptus johnsoniana Johnson's Mallee [14516]	Vulnerable	Species or species habitat known to occur within area
Eucalyptus leprophloia Scaly Butt Mallee, Scaly-butt Mallee [56712]	Endangered	Species or species habitat likely to occur within area
Eucalyptus rhodantha Rose Mallee [9362]	Vulnerable	Species or species habitat may occur within area
Eucalyptus suberea Cork Mallee, Mount Lesueur Mallee [5529]	Vulnerable	Species or species habitat known to occur within area
Grevillea althoferorum [64906]	Endangered	Species or species habitat likely to occur within area
Grevillea christineae Christine's Grevillea [64520]	Endangered	Species or species habitat may occur within area
Grevillea curviloba subsp. incurva Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
Hakea megalosperma Lesueur Hakea [10505]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Hemiandra gardneri		
Red Snakebush [7945]	Endangered	Species or species habitat likely to occur within area
Hemiandra rutilans		
Sargents Snakebush, Colourful Snakebush [17932]	Endangered	Species or species habitat may occur within area
Leucopogon obtectus		
Hidden Beard-heath [19614]	Endangered	Species or species habitat likely to occur within area
Spirogardnera rubescens		
Spiral Bush [15667]	Endangered	Species or species habitat may occur within area
Styphelia longissima		
[89333]	Critically Endangered	Species or species habitat may occur within area
Thelymitra stellata		
Star Sun-orchid [7060]	Endangered	Species or species habitat known to occur within area
Verticordia albida		
White Featherflower [55635]	Endangered	Species or species habitat likely to occur within area
REPTILE		
Egernia stokesii badia		
Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat known to occur within area
SPIDER		
Idiosoma nigrum		
Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		

Scientific Name	Threatened Category	Presence Text
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis		
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Alexander Morrison	National Park	WA
Tathra	National Park	WA
Unnamed WA26001	Nature Reserve	WA
Unnamed WA46713	Nature Reserve	WA
White Gums	Nature Reserve	WA
Wotto	Nature Reserve	WA

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Ocean Hill 3D seismic survey, Eneabba, WA	2017/7970		Completed
Zemira 3D Seismic Survey	2020/8658		Completed
Controlled action			
Expansion of mineral sand mine	2008/4192	Controlled Action	Completed
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Not controlled action (particular manner)			
Transmission Line Rebuild and Extension	2009/5105	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
Transmission Line Rebuild and Extension	2009/4972	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			

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

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

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

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

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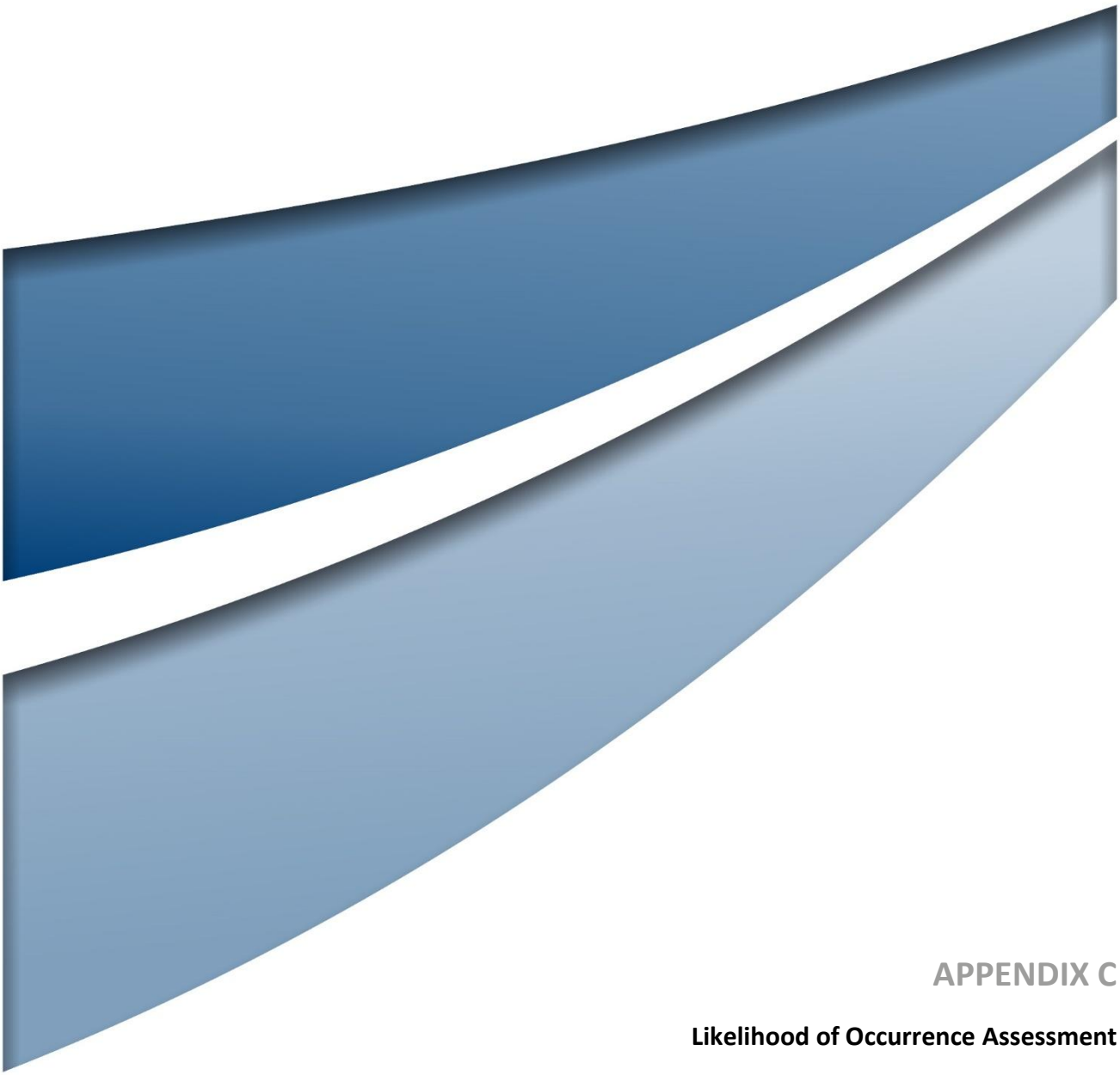


APPENDIX C

Likelihood of Occurrence Assessment

Table C.1 Likelihood of Occurrence Assessment of Conservation Significant Vertebrate Fauna within the Basic FSA

TAXON	Common Name	EPBC listing	WA listing	Source			Habitat Description	Number of records within Desktop Study Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
				PMST	NatureMa	DBCA				
BIRDS										
Actitis hypoleucos	Common Sandpiper	MI	MI	X	X		The Common Sandpiper is a non-breeding visitor to Australia and can be found along all Australian coastlines and many inland areas. Habitats frequented by the Common Sandpiper include coastal and inland wetlands, estuaries and deltas of streams, mangroves, around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties (Geering et al, 2007; Higgins & Davies 1996). Foraging habitat includes shallow water and on bare soft mud at the edges of wetlands, but sometimes into grassy areas adjoining wetlands (Higgins & Davies 1996).	There is one record of this species within the Desktop Study Area. The location of this record is unknown (NatureMap).	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Low** When surface water is present, this species may opportunistically utilise the following habitat types during the non-breeding season; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
Aphelocephala leucopsis	Southern Whiteface	VU	P4	X			The Southern Whiteface occurs over most of mainland Australia south of the tropics. Habitat critical to the survival of this species includes areas of 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; and living and dead trees with hollows and crevices which are essential roosting habitat (DCCEEW, 2023).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Low** The habitat within the Basic and Targeted FSA is considered marginal. This species is unlikely to depend on habitat within the Survey Area for survival.
Apus pacificus	Fork-tailed Swift	MI	MI	X			The Fork-tailed Swift is a non-breeding visitor to all states and territories of Australia, with scattered records along the coast of the Pilbara. This species is almost exclusively aerial and has been observed over inland plains, above foothills and in coastal areas in Australia. They have seldom been observed roosting on trees or the ground, and are thought to roost aerially. They often occur in areas of updraughts, such as along cliffs and have been overserved from less than 1 m to at least 300 m above the ground (Higgins 1999).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**High** This species may occasionally occupy the airspace above the Basic FSA but is otherwise considered unlikely to depend on the habitat for survival.	**High** This species may occasionally occupy the airspace above the Basic FSA but is otherwise considered unlikely to depend on the habitat for survival.
Calidris acuminata	Sharp-tailed Sandpiper	VU, MI	MI	X			The Sharp-tailed Sandpiper is a non-breeding migrant to Australia. In Australia, they prefer muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland and have been recorded on saltworks and sewage farms. They have been recorded on flooded paddocks, sedgelands and other ephemeral wetlands, leaving when they dry. Other habitats include intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. Sometimes they occur on rocky shores and rarely on exposed reefs (Higgins & Davies 1996).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Low** When surface water is present, this species may opportunistically utilise the following habitat types during the non-breeding season; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
Calidris alba	Sanderling	MI	MI			X	The Sanderling is a non-breeding migrant to Australia where it is almost always found on the coast. Habitats include open sandy beaches exposed to open sea-swell, exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed. Sanderlings also occur on beaches that may contain wave-washed rocky outcrops. Less often the species occurs on more sheltered sandy shorelines of estuaries, inlets and harbours. They are rarely recorded in near-coastal wetlands, such as lagoons, hypersaline lakes, saltponds and samphire flats. Rare inland records have been documented from sandy shores of ephemeral brackish lakes and brackish river-pools. They roost on/behind bare sand high on the beach, clumps of washed-up kelp, coastal dunes, rocky reefs and ledges (Higgins & Davies 1996).	This species has been recorded from one location approx. 17 km southwest of the FSA.	**Very Low** The Basic FSA is unlikely to contain suitable habitat to support this species.	**Very Low** Species is a saltwater and coastal habitat specialist. The Basic FSA does not contain habitat suitable to support this species.

TAXON	Common Name	EPBC listing	WA listing	Source			Habitat Description	Number of records within Desktop Study Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
				PMST	NatureMa	DBCA				
Calidris ferruginea	Curlew Sandpiper	CR, MI	CR	X			The Curlew Sandpiper is a non-breeding migrant to Australia. In Australia, they mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They have also been recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters and forage at the edges of shallow pools and drains of intertidal mudflats and sandy shores. Curlew Sandpipers generally roost on bare dry shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh (Higgins & Davies 1996).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Low** When surface water is present, this species may opportunistically utilise the following habitat types during the non-breeding season; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
Calidris melanotos	Pectoral Sandpiper	MI	MI	X			The Pectoral Sandpiper is a non-breeding visitor to Australia. In Australasia, it prefers shallow fresh to saline wetlands and has been recorded at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. They forage in shallow water or soft mud at the edge of wetlands (Higgins & Davies 1996).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Low** When surface water is present, this species may opportunistically utilise the following habitat types during the non-breeding season; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
Calidris ruficollis	Red-necked Stint	MI	MI			X	The Red-necked Stint is a non-breeding migrant to Australia. Here, it is mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally they have been recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs or shoals. They have also been recorded on saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in saltflats. They sometimes use flooded paddocks or damp grasslands and have occasionally been recorded on dry gibber plains, with little or no perennial vegetation (Higgins & Davies 1996).	This species has been recorded from one location approx. 13 km west of the FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Low** When surface water is present, this species may opportunistically utilise the following habitat types during the non-breeding season; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
Falco hypoleucos	Grey Falcon	VU	VU	X			The Grey Falcon inhabits lightly timbered inland plains, especially stony plains and lightly timbered acacia scrubland, and along inland drainage systems (Morcomb 2004; Pizzey & Knight 2012). They also occur in gibber deserts, sandridges, pastoral lands, timbered watercourses and seldom in the driest deserts (Pizzey & Knight 2012). This species is considered scarce to rare and is usually found singularly or sometimes in pairs (Morcombe 2004).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Very Low** The species is not known from the area and the Basic FSA is unlikely to provide habitat to support this species.	**Very Low** The Basic FSA does not contain primary habitat to support this species, and the species has not been recorded within 20 km of the Basic FSA.
Falco peregrinus	Peregrine Falcon		OS		X	X	The Peregrine Falcon is uncommon but wide-ranging across Australia. Habitat is extremely diverse, from rainforest to arid scrub, from coastal heath to alpine. Habitat consists of cliffs, gorges, timbered watercourses, riverine, wetland plains, open woodlands, pylons, spires and buildings (Pizzey & Knight 2021; Morcombe 2004).	Three records of this species occur within the Desktop Study Area. The closest record is located 18 km south and north of the FSA.	**High** This species is wide ranging. The Basic FSA may provide suitable habitat to support this species.	**High** The Basic FSA may contain breeding habitat to support this species including: • Eucalypt Woodland on Rocky Hill • Cleared Agricultural Land (sheds, houses, structures etc).

TAXON	Common Name	EPBC listing	WA listing	Source			Habitat Description	Number of records within Desktop Study Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
				PMST	NatureMa	DBCA				
Leipoa ocellata	Malleefowl	VU	VU	X		X	The Malleefowl occurs in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias. They require a sandy substrate and abundance of leaf litter for breeding. Densities of the birds are generally greatest in areas of higher rainfall and on more fertile soils where habitats tend to be thicker and there is an abundance of food plants (Benshemesh 2007).	Two records of this species occur within the Desktop Study Area. The closest record lies approx. 13 km west of the FSA boundary.	**Very Low** The Basic FSA is unlikely to contain suitable habitat to support this species.	**Very Low** Limited habitat is available within the Basic FSA to support this species.
Motacilla cinerea	Grey Wagtail	MI	MI	X			The Grey Wagtail is a non-breeding summer visitor to Australia, mostly in the north (Pizzey & Knight 2012). It is associated with running water, sandy, rocky streams in escarpments and rainforests, sewerage ponds, ploughfields and airfields (Pizzey & Knight 2012).	This species was only detected from the PMST search. There are no records of this species within 20 km of the Study Area.	**Excluded** Likely a historic recorded misidentified Eastern Yellow Wagtail (*Motacilla tschutschensis*) which would have a very low probability of occurring in the Basic FSA.	
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	CR, MI	CR	X			The Eastern Curlew is a large non-breeding migrant to Australia, found commonly along the north coast of Western Australia, but rarely south of Shark Bay. It is found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons (BirdLife Australia 2024).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Low** The Basic FSA is unlikely to provide suitable habitat to support this species.	**Very Low** The Basic FSA does not contain suitable habitat to support this species.
Pezoporus flaviventris	Western Ground Parrot	CR	CR		X	X	The Western Ground Parrot is only known from two locations in far south-west Western Australia; Fitzgerald River National Park and Cape Arid National Park / Nuytsland Nature Reserve. It inhabits low, dry or swampy near-coastal heathland. It usually inhabits vegetation that has remained unburnt for long periods of time (DotE, 2024).	One record of this species has been recorded within the Desktop Study Area. This record lies one kilometre east of the FSA.	**Excluded** Study area falls outside the species contemporary distribution.	
Rostratula australis	Australian Painted Snipe	EN	EN	X			The Australian Painted Snipe has been recorded at wetlands in all states of Australia. It generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. It also uses inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum Muehlenbeckia or canegrass or sometimes tea-tree (Melaleuca). The Australian Painted Snipe sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber (Marchant & Higgins 1993).	This species was only detected from the PMST search. There are no records of this species within 20 km of the FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Very Low** When surface water is present, this species may opportunistically utilise the following habitat; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
Zanda latirostris	Carnaby's Black-Cockatoo	EN	EN	X	X	X	Carnaby's Black-Cockatoo is endemic to, and widespread in, the south-west of Western Australia. Breeding mainly occurs in the wheatbelt, from the Stirling Ranges north-west to near Three Springs, but has also been recorded on the coastal plain to the south-west, around Bunbury (Higgins 1999; Saunders 1974). Carnaby's Black-Cockatoo occurs in uncleared or remnant native eucalypt woodlands, especially those that contain salmon gum and wandoo, and in shrubland or kwongan heathland dominated by hakea, dryandra, banksia and grevillea species. It also occurs in remnant patches of native vegetation on land otherwise cleared for agriculture (Saunders 1974, 1986). The species forages seasonally in pine plantations in areas that receive high rainfall, e.g. the Swan Coastal Plain (Saunders 1974; Sedgwick 1968, 1973) and around the Perth metropolitan area on both native and non-native plants, such as liquid amber. It also forages in forests containing marri, jarrah or karri (Nichols & Nichols 1984; Saunders 1980).	Over 544 records of this species have been recorded within the Desktop Study Area. At least seven of these have been recorded from within the Combined FSA boundary.	**Known** Previous DBCA records of this species occur within the Basic FSA.	**Known** This species was recorded during the current survey. Breeding and foraging habitat exists within the Basic FSA (see **Section 5.1 and 5.3.1**).

TAXON	Common Name	EPBC listing	WA listing	Source			Habitat Description	Number of records within Desktop Study Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
				PMST	NatureMa	DBCA				
Pluvialis squatarola	Grey Plover	VU, MI	MI			X	The Grey Plover is a non-breeding migrant to Australia where it has been recorded in all states along the coasts and is especially abundant on the western and southern coastlines. In non-breeding grounds in Australia, Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayment's, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. The species is also very occasionally recorded further inland, where they occur around wetlands or salt-lakes (Marchant & Higgins 1993).	One record of this species has been recorded within the Desktop Study Area. This record lies 17 southwest of the Combined FSA boundary.	**Low** The Basic FSA is unlikely to provide suitable habitat to support this species.	**Very Low** When surface water is present, this species may opportunistically utilise the following habitat; Tall Shrubland Associated with Dampland, Eucalyptus along Drainage Line, and Cleared Agricultural Land.
MAMMALS										
Dasyurus geoffroii	Chuditch, Western Quoll	VU	VU	X			The Chuditch inhabits varying densities of jarrah (*Eucalyptus marginata*) forests and woodlands in the south-west corner of WA, and in woodlands, mallee shrublands and heaths along the south coast, east to the Ravensthorpe area (DEC, 2012). In Jarrah forest, Chuditch populations occur in both moist, densely vegetated, steeply sloping forest and drier, open, gently sloping forest (Van Dyck and Strahan 2008).	This species was only detected from the PMST search. There are no records of this species within 20 km of the Combined FSA boundary.	**Low** The species has not been recorded from within the Desktop Study Area. The Basic FSA may contain suitable habitat for this species, however due to fragmentation is not considered likely to support a population.	**Low** The habitat within the Basic and Targeted FSA is considered marginal and the species is unlikely to depend on it for survival.
Macroderma gigas	Ghost Bat	VU	VU	X	X	X	The Ghost Bat is patchily distributed across the northern portion of Australia. They roost in deep, complex caves beneath bluffs of low, rounded hills, granite rock piles and abandoned Mines (Armstrong & Anstee, 2000; Menkhorst & Knight, 2021). These roosting sites often occur in habitats such as gorge/gully, hill crest/hill slope and low hills (Armstrong & Anstee, 2000). Foraging habitat is diverse including woodland and open woodland, spinifex plains and drainage lines.	There are two records of this species from within the Desktop Study Area. These records lie approx. 12 km west of the Combined FSA boundary.	**Excluded** These records are voucher specimens recorded in 2007 by the WAM. The Basic FSA is outside of the Ghost Bat known range.	
Parantechinus apicalis	Dibbler	EN	EN	X			The Dibbler is currently restricted to the Western Australian coastline near Jurien on three small offshore islands (Boullanger, Whitlock and Escape Islands), and a small number of widely scattered mainland sites (Fuller & Burbidge 1987; Maxwell et al. 1996; Moro 2003). The mainland population trends have included disappearances and rediscoveries. Dibblers occupy a diverse range of habitats but seem to prefer vegetation with a dense canopy greater than 1 m high which has been unburnt for at least 10 years or more (Baczocha & Start 1996). In some locations, the presence of Proteaceous and Myrtaceous flowering shrubs may also be important (Maxwell et al. 1996).	This species was only detected from the PMST search. There are no records of this species within 20 km of the Combined FSA boundary.	**Very Low** The species has not been recorded from within the Desktop Study Area and is not known to occur on the mainland near the Basic FSA.	**Very Low** The species has not been recorded from within the Desktop Study Area and is not known to occur on the mainland near the Basic FSA.
Notamacropus irma	Western Brush Wallaby		P4			X	The Western Brush Wallaby is found primarily in open forest or woodland, particularly favouring open, seasonally-wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland, and is uncommon in karri forest (DEC 2012; Van Dyck and Strahan 2008).	One record of this species has been recorded within the Desktop Study Area. This record lies 17 southwest of the Combined FSA boundary.	**Very Low** The Basic FSA is unlikely to provide suitable habitat to support this species.	**Very Low** The Basic FSA does not provide suitable habitat to support this species.

TAXON	Common Name	EPBC listing	WA listing	Source			Habitat Description	Number of records within Desktop Study Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
				PMST	NatureMa	DBCA				
REPTILES										
Neelaps calonotos	Black-striped Burrowing Snake		P3		X	X	*Neelaps calonotos* is endemic to Australia, where it is restricted to coastal areas in the south west of Western Australia around Perth between Port Kennedy and the Dongarah region (the latter a range extension to the north of Lancelin confirmed by a WAM record). It has been reported as far south as Mandurah (Wilson and Swan 2013), but habitat in this area is marginal (G. Gaikhorst pers. comm. 2017 via IUCN Redlist, 2017). This species inhabits sand dunes and sand plains vegetated with heaths, Eucalyptus and Banksia woodlands (How & Shine 1999, Wilson and Swan 2013).	Three records of this species have been recorded within the Desktop Study Area. The closest record lies approx. 3.3 km south-east of the Basic FSA boundary.	**High** The Basic FSA may contain habitat suitable to support this species.	**High** The Basic FSA may contain habitat suitable to support this species. Particularly, Low Shrubland on Gentle Slope.
Egernia stokesii badia	Western Spiny-tailed Skink	EN	VU	X	X	X	The Western Spiny-tailed Skink is known to occur in a broad semi-arid area in south-west WA, between Shark Bay and Minnivale and east to Cue. Most records of the brown form are located in York Gum (*Eucalyptus loxophleba*) woodland with some records in Gimlet (*E. salubris*) and Salmon Gum (*E. salmonophloia*) woodland. Populations persist in woodland patches as small as one hectare and completely surrounded by wheatfields. Sites with the greatest number of individuals contain numerous fallen logs and were subjected to low-intensity grazing by domestic stock. Hollow logs are used as refuge sites in woodland habitat. Preferred refuges consist of piles of several, overlapping, hollow logs providing a combination of basking and shelter sites. An increasing number of skinks are being located in altered habitat under piles of wood, scrap metal or under buildings on private property (DotE 2024).	Three records of this species have been recorded within the Desktop Study Area. The closest known record lies approx. 12 km west of the Basic FSA.	**Moderate** The Basic FSA may provide suitable habitat to support this species.	**Moderate** The Basic FSA may contain suitable habitat to support this species, particularly Wandoo Woodland on Sandy Soil, Eucalyptus Woodland on Stoney Substrate, and Eucalyptus Woodland on Rocky Hills (see **Section 5.1 and 5.3.2**).
Pogona minor subsp. *minima*	Dwarf Bearded Dragon		VU		X		The Dwarf Bearded Dragon is restricted to the Houtman Abrolhos Islands. It is a semi-arboreal species found in a wide range of habitats, from coastal dunes, heathlands, eucalypt forest, open woodlands and arid scrubs with spinifex (Storr, 1982; Cogger 2014).	There is one record of this species within the Desktop Study Area. The location of this record is unknown.	**Excluded** This species is not known from mainland Australia. The NatureMap record was likely made in error.	

Table C.2 Likelihood of Occurrence Assessment of Conservation Significant Invertebrate Fauna within the Basic FSA

TAXON	Common Name	EPBC listing	DBCA/WC listing	Source			Habitat description	Number of records within SRE Desktop Study Area	Likelihood of Occurrence in the Basic FSA
				PMST	WAM	DBCA			
Arachnida – Araneae									
Idiosoma arenaceum	Geraldton Sandplain shield-backed trapdoor spider	-	P3	-	X	-	This species is found in the Geraldton sandplains of Western Australia near-coastal sandy habitats with limited understanding on specific habitat preference available.	There are three records of this species within the SRE Desktop Study Area ranging from 60km to 99km from the Basic FSA boundary.	**Very Low** Records of this species are greater than 60 km from the Basic FSA.
Idiosoma dandaragan	Dandaragan Plateau shield-backed trapdoor spider	-	P2	-	X	-	This species occurs in south-west Western Australia, in the Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain bioregions. The type locality is 19.5 km south of Moora, on the Dandaragan Plateau north of Perth.	There are 10 records of this species within the SRE Desktop Study Area ranging from 50km to 96km from the Basic FSA boundary.	**Very Low** Records of this species are greater than 50 km from the Basic FSA.
Idiosoma gardneri	Mt Lesueur shield-backed trapdoor spider		P2	-	X	X	This species occurs in the southern Geraldton Sandplains bioregion. The type locality is heathland habitat on Mount Lesueur.	There is one record of this species within the SRE Desktop Study Area 17km from the Basic FSA boundary.	**High** Records of this species lie within 20 km of the Basic FSA which may provide suitable habitat to support his species.
Idiosoma kwongan	Kwongan heath shield-backed trapdoor spider		P1	-	X	X	The species occurs in the southern Geraldton Sandplains bioregion in kwongan Banksia heathlands. The type locality is laterite heath.	There are 8 records of this species within the SRE Desktop Study Area ranging from 160m to 37km from the Basic FSA boundary.	**High** Records of this species lie within 20 km of the Basic FSA which may provide suitable habitat to support his species.
Idiosoma nigrum	Shield-backed trapdoor spider	VU	EN	X	X	X	The species occurs only in dry woodlands east of the Darling Scarp and north to Moore River.	There were 8 records of this species within the SRE Desktop Study Area. One of these records lies within the Targeted FSA.	**High (Historically Known)** One record of this species lies within the Targeted FSA. This is a historic record from 1987. The Basic FSA may provide suitable habitat to support this species.
Teyl 'MYG693'	Minnivale trapdoor spider		CR	-		-	The species preferred habitat is swamp areas on high terrain, from it was originally described near Minnivale.	There is one record of this species within the SRE Desktop Study Area 85km from the Basic FSA boundary.	**Very Low** Records of this species are greater than 80 km from the Basic FSA.
Gastropoda – Stylommatophora									
Bothriembryon perobesus (and *Bothriembryon cf perobesus*)	a bothriembryontid land snail (Moore River)		P1	-	X	-	The species can be found in various habitats, including woodlands, gorges, gullies, and coastal scrub/heath.	There are 144 records of this species within the SRE Desktop Study Area ranging from 160m to 95km from the Basic FSA boundary.	**High** Records of this species lie within 20 km of the Basic FSA which may provide suitable habitat to support his species.
Insecta – Orthoptera									
Hemisaga vepreculae	thorny bush katydid (Moora)		P2	-	-	X	The habitat preferences of this species may include forests and woodlands, as well as more open environments like plains and hillsides.	There is one record of this species within the SRE Desktop Study Area 20km from the Basic FSA boundary.	**Moderate** One record of this species lies 20 km from the Basic FSA which may provide suitable habitat.

TAXON	Common Name	EPBC listing	DBCA/WC listing	Source			Habitat description	Number of records within SRE Desktop Study Area	Likelihood of Occurrence in the Basic FSA
				PMST	WAM	DBCA			
Insecta – Hymenoptera									
Hylaeus globuliferus	Woolybush bee		P3	-	X	X	The species has been found on *Adenanthos cygnorum* flowers, *Banksia attenuata* and *Banksia grossa*.	There are 23 records of this species within the SRE Desktop Study Area ranging from 910m to 35 km from the Basic FSA boundary.	**High** Records of this species lie within 20 km of the Basic FSA which may provide suitable habitat to support his species.

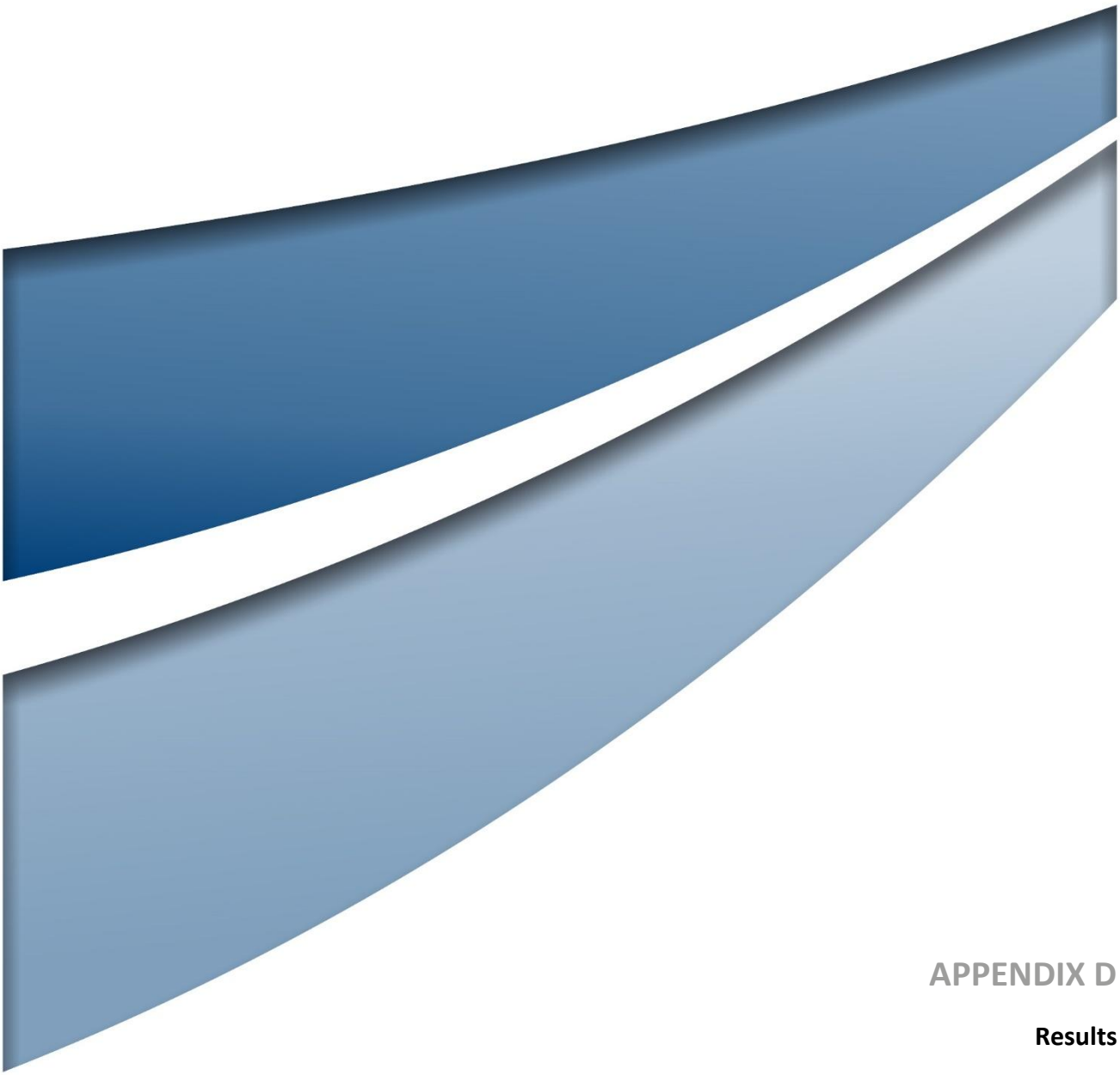
Table C.3 Likely and Confirmed SRE Species Likelihood of Occurrence Within the SRE Desktop Study Area

Phylum	Class	Taxon	SRE Status	Likelihood of Occurrence within Basic FSA
Annelida	Clitellata	*Ainudrilus angustivasa*	Likely	Moderate
Arthropoda	Arachnida	*Kwonkan* Main, 1983	Likely	High
		Aname `indet. (female)`	Likely	Very Low
		Aname `*mainae*?`	Likely	High
		Aname `*mainae*`	Likely	Very Low
		Aname `MYG633`	Likely	High
		Aname `salt lake survey sp. 1?`	Likely	Very Low
		Aname `salt lake survey sp. 2`	Likely	Very Low
		Aname `salt lake survey sp. 3`	Likely	Very Low
		Aname mccleeryorum	Likely	High
		Aname sp.	Likely	High
		Anamidae sp.	Likely	Very Low
		Barychelinae sp.	Likely	Very Low
		Bungulla banksia	Likely	High
		Bungulla bertmaini	Likely	Very Low
		Bungulla bringo	Likely	Very Low
		Bungulla riparia	Likely	High
		Cethegus `sp. indet. (juvenile)`	Likely	High
		Cethegus `sp.`	Likely	High
		Cethegus sp.	Likely	High
		Conothele `MYG530`	Likely	Very Low
		Conothele sp.	Likely	Very Low
		Euoplos `*lochada*`	Likely	Very Low
		Euoplos `MYG792`	Likely	Moderate
		Euoplos `*pintharuka*`	Likely	Very Low
		Euoplos `sp.`	Likely	Very Low
		Euoplos ballidu	Likely	Very Low
		Euoplos mcmillani	Likely	High
		Euoplos saplan	Likely	Very Low
		Euoplos sp.	Likely	High
		Gaius villosus	Likely	Moderate
		Idiommata `flare tip`	Likely	Moderate
		Idiommata `sp. indet. (juvenile)`	Likely	High
		Idiommata blackwalli	Likely	High
		Idiommata sp.	Likely	High
		Idiopidae sp.	Likely	High
		Idiosoma `BMYG188`	Likely	Moderate
		Idiosoma `BMYG189`	Likely	Moderate

Phylum	Class	Taxon	SRE Status	Likelihood of Occurrence within Basic FSA
		Idiosoma `MYG074 (formerly MYG222)`	Likely	Very Low
		Idiosoma `MYG074`	Likely	High
		Idiosoma `MYG221`	Likely	Very Low
		Idiosoma `MYG757`	Likely	Very Low
		Idiosoma `MYG758`	Likely	High
		Idiosoma `MYG759`	Likely	Very Low
		Idiosoma `MYG761`	Likely	Very Low
		Idiosoma `*rhaphiduca* sp. group`	Likely	Very Low
		Idiosoma `simplex`	Likely	High
		Idiosoma `sp. 1`	Likely	High
		Idiosoma `sp. indet. (Anidiops)`	Likely	Very Low
		Idiosoma `sp. indet. (juvenile)`	Likely	Very Low
		Idiosoma `sp. indet. (specimen not found)`	Likely	Very Low
		Idiosoma `sp. indet.`	Likely	Very Low
		Idiosoma `sp.`	Likely	High
		Idiosoma `*walebingensis*`	Likely	Very Low
		Idiosoma arenaceum (P3)	Confirmed	Very Low
		Idiosoma clypeatum	Likely	Very Low
		Idiosoma Dandaragan (P2)	Confirmed	Very Low
		Idiosoma gardneri (P2)	Likely	High
		Idiosoma gutharuka	Likely	Very Low
		Idiosoma kopejtkaorum	Likely	Very Low
		Idiosoma kwongan (P1)	Confirmed	High
		Idiosoma nigrum (EN/VU)	Confirmed	Very Low
		Idiosoma sp.	Likely	Very Low
		Kwonkan `MYG060`	Likely	High
		Kwonkan `MYG439`	Likely	Very Low
		Kwonkan `salt lake survey sp. 1`	Likely	Very Low
		Kwonkan `sp. indet. (juvenile)`	Likely	Very Low
		Kwonkan `sp.`	Likely	High
		Kwonkan sp.	Likely	Moderate
		Mandjelia humphreysi	Likely	Very Low
		Missulena `*Bisevac* sp. 1`	Likely	High
		Missulena `*Bisevac* sp. 2`	Likely	High
		Missulena `MYG047`	Likely	Very Low
		Missulena `MYG048`	Likely	Very Low
		Missulena `MYG265`	Likely	Very Low
		Missulena `sp 1`	Likely	High
		Mygalomorphae sp.	Likely	Very Low
		Proshermacha sp.	Likely	Low

Phylum	Class	Taxon	SRE Status	Likelihood of Occurrence within Basic FSA
		Proshermacha telaporta	Likely	High
		Proshermacha tepperi	Likely	Very Low
		Selenocosmia `sp.`	Likely	Very Low
		Selenocosmia stirlingi	Likely	Very Low
		Selenotholus foelschei	Likely	Moderate
		Synothele `*howi*?`	Likely	Moderate
		Synothele `sp. nov.`	Likely	Very Low
		Synothele howi	Likely	Moderate
		Synothele sp.	Likely	Moderate
		Teyl `MYG345`	Likely	Very Low
		Teyl `MYG693` (CR)	Likely	Very Low
		Teyl `sp. 1`	Likely	Very Low
		Teyl `sp. 2`	Likely	Very Low
		Teyl `sp. 6`	Likely	Very Low
		Teyl `sp. indet. (juvenile)`	Likely	Very Low
		Teyl `sp. indet. (juvenile)`	Likely	Very Low
		Teyl `sp.`	Likely	Moderate
		Teyl `*walebingensis*`	Likely	Very Low
		Teyl kwonganensis	Likely	High
		Teyl luculentus	Confirmed	Very Low
		Teyl sp.	Likely	High
		Theraphosidae sp.	Likely	Very Low
	Crustacea	*Cherax preissii*	Likely	Moderate
		Cherax quinquecarinatus	Likely	Moderate
	Diplopoda	*Akamptogonus novarae*	Likely	High
		Antichiropus `DIP016, *watheroo*`	Likely	Very Low
		Antichiropus `DIP057, *cooljarloo*`	Likely	Very Low
		Antichiropus `DIP072, *casuarinae*`	Likely	Very Low
		Antichiropus `DIP078, Eneabba 1`	Likely	High
		Antichiropus `DIP078`	Likely	High
		Antichiropus `DIP081`	Likely	Very Low
		Antichiropus `DIP093, *hamatus*`	Likely	Very Low
		Antichiropus `DIP099, *mcmillani*`	Likely	Very Low
		Antichiropus `DIP102, *minnivale* 1`	Likely	High
		Antichiropus `DIP106, mt lesueur1`	Likely	High
		Antichiropus `DIP107, Mt Lesueur2, ML2`	Likely	High
		Antichiropus `DIP115, PM1`	Likely	Very Low
		Antichiropus `DIP115/DIP199 *pintharuka*`	Likely	Very Low
		Antichiropus `DIP131, charles darwin`	Likely	Very Low
		Antichiropus `DIP136, *mobilis*`	Likely	Very Low

Phylum	Class	Taxon	SRE Status	Likelihood of Occurrence within Basic FSA
		Antichiropus `DIP144`	Likely	Very Low
		Antichiropus `DIP147, *koolanooka*/PKI/ bulbulus`	Likely	Very Low
		Antichiropus `DIP169`	Likely	High
		Antichiropus `DIP187, bowgada`	Likely	Very Low
		Antichiropus `DIP225`	Likely	Very Low
		Antichiropus `DIP232`	Likely	Very Low
		Antichiropus `sp. indet. (female)`	Likely	High
		Antichiropus `sp. indet. (juvenile)`	Likely	High
		Antichiropus `sp. indet. (male)`	Likely	Very Low
		Antichiropus `sp. indet. (no gonopods)`	Likely	High
		Antichiropus `sp. *Indet*.?`	Likely	Moderate
		Antichiropus `sp. *indet*.`	Likely	High
		Antichiropus `sp.`	Likely	Very Low
		Antichiropus `*whistleri*? (females)`	Likely	Very Low
		Antichiropus sp.	Likely	High
		Antichiropus sulcatus	Likely	High
		Antichiropus variabilis	Likely	Very Low
		Antichiropus whistleri	Confirmed	High
		Paradoxosomatidae sp.	Likely	Moderate
Mollusca	Gastropoda	*Bothriembryon bulla*	Confirmed	Moderate
		Bothriembryon cf. *kendricki*	Confirmed	Moderate
		Bothriembryon cf. *perobesus* (P1)	Confirmed	Moderate
		Bothriembryon kendricki	Confirmed	Moderate
		Bothriembryon n.sp.	Confirmed	Moderate
		Bothriembryon perobesus (P1)	Confirmed	High
		Bothriembryon sp.1	Confirmed	Moderate
		Bothriembryon whitleyi	Confirmed	Very Low
		Coxiella cf. glabra	Confirmed	Moderate
		Coxiella exposita	Confirmed	Moderate
		Coxiella gilesi	Confirmed	Very Low
		Coxiella glabra	Confirmed	Moderate
		Coxiella mammillata	Confirmed	Moderate
		Coxiella pyrrhostoma	Confirmed	Moderate
		Coxiella sp.	Confirmed	Moderate
		Coxiella striatula	Confirmed	High
		Succinea sp.	Likely	Moderate
	Insecta	*Hylaeus globuliferus* (P3)	Confirmed	High



APPENDIX D

Results

Table D.1 Black-Cockatoo Observations Recorded During the Survey

Species	Date	Type	Habitat Description	Count	Notes	Easting	Northing
Carnaby's Black-Cockatoo	30/10/24	Primary	Cleared Agricultural Land	10	Flock of 10 flying over farmland.	357233.85	6694364.91
Carnaby's Black-Cockatoo	30/10/24	Secondary	Eucalyptus Woodland on Stoney Substrate	1	One individual calling.	354158.49	6691313.19
Carnaby's Black-Cockatoo	30/10/24	Primary	Eucalyptus Woodland on Stoney Substrate	1	One individual flying just above canopy height.	354125.45	6691344.01
Carnaby's Black-Cockatoo	30/10/24	Primary	Cleared Agricultural Land and Wandoo Woodland on Sandy Soil	3	Flying 50 m high over paddocks towards vegetation.	353603.23	6692494.69
Carnaby's Black-Cockatoo	30/10/24	Primary	Cleared agricultural Land	3	Flying 5 m high over paddock.	353534.78	6692646.20
Carnaby's Black-Cockatoo	30/10/24	Primary	Cleared agricultural Land and Wandoo Woodland on Sandy Soil	2	Flying 2 m high above paddock towards vegetation.	353669.09	6692496.11
Carnaby's Black-Cockatoo	3/11/24	Primary	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	6	Flying at 4 m heigh over vegetation and landing in dead tree.	358604.36	6673368.87
Carnaby's Black-Cockatoo	3/11/24	Primary	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	12	Flying over vegetation and landing in planted paddock tree.	358204.29	6673723.75
Carnaby's Black-Cockatoo	4/11/24	Primary	Low Shrubland on Gentle Slope	3	Eating canola - one male, one female, one juvenile.	355124.13	6693832.14
Carnaby's Black-Cockatoo	4/11/24	Primary	Eucalyptus Woodland on Stoney Substrate	1	Flying at 18 m heigh across paddock towards vegetation.	354735.94	6693445.43
Carnaby's Black-Cockatoo	5/11/24	Primary	Not in Study Area. On Judeen at water trough.	6	At drinking trough in paddock.	348037.66	6687431.92
Carnaby's Black-Cockatoo	5/11/24	Primary	Not in Study Area. On Judeen at water trough.	12	At drinking trough and perched along farm fence.	348018.53	6687440.20

Species	Date	Type	Habitat Description	Count	Notes	Easting	Northing
Carnaby's Black-Cockatoo	6/11/24	Primary	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	20	Large flock heading south before splitting into two smaller flocks.	339046.07	6673634.72
black-cockatoo sp.	20/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Recent clippings on Wandoo.	346734.36	6703303.88
black-cockatoo sp.	20/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Intermediate clippings on Wandoo.	346679.96	6703456.10
black-cockatoo sp.	20/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Recent clippings and juvenile feathers.	346697.89	6703481.06
black-cockatoo sp.	20/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Recent and intermediate clippings.	346671.52	6703682.77
black-cockatoo sp.	20/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Recent and intermediate clippings.	346629.64	6704077.92
black-cockatoo sp.	21/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Recent clippings and juvenile feathers.	346680.53	6703492.35
black-cockatoo sp.	21/02/25	Secondary	Wandoo Woodland on Sandy Soil	NA	Recent and intermediate clippings.	346681.93	6703516.98
Inland Red-tailed Black-Cockatoo	21/02/25	Observed	Wandoo Woodland on Sandy Soil	2	Adult male perched on high branch while adult female enters tree hollow (tree ID: T231). Juvenile feathers at base of tree. Surrounding habitat comprises many Wandoo clippings.	346668.57	6703503.94
Carnaby's Black-Cockatoo	30/10/24	Secondary	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	NA	Chewed *Banksia attenuata* cone (intermediate)	352902.89	6696023.39
Carnaby's Black-Cockatoo	30/10/24	Secondary	Eucalyptus Woodland on Stoney Substrate	NA	Chewed *Banksia attenuata* cone (intermediate)	352389.38	6696072.45
Carnaby's Black-Cockatoo	31/10/24	Secondary	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	NA	Chewed *Banksia attenuata* cone (old)	351185.94	6697583.74
Carnaby's Black-Cockatoo	1/11/24	Secondary	Planted	NA	Chewed *Pinus radiata* cone (intermediate)	345766.78	6707138.26
Carnaby's Black-Cockatoo	1/11/24	Secondary	Planted	NA	Chewed *Pinus radiata* cone (old)	345986.32	6707153.71

Species	Date	Type	Habitat Description	Count	Notes	Easting	Northing
Carnaby's Black-Cockatoo	4/11/24	Secondary	Planted	NA	Chewed Pinus radiata cone (recent)	357040.38	6697382.45
Carnaby's Black-Cockatoo	4/11/24	Secondary	Planted	NA	Chewed banksia cone in pine stand (old)	356962.10	6697375.68
Carnaby's Black-Cockatoo	4/11/24	Secondary	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	NA	Chewed *Banksia attenuata* cone (recent)	353013.03	6696060.65

Datum: GDA2020, Zone 50.

Table D.2 Black-Cockatoo Potential Nest-Trees

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T01	Yes	10	415	Yes	*Eucalyptus accedens*	3	353978.90	6691211.97
T02	Yes	9	500	Yes	*Eucalyptus accedens*	2	353991.91	6691192.18
T03	Yes	8	500	Yes	*Eucalyptus accedens*	3	353979.88	6691184.38
T04	Yes	10	520	Yes	*Eucalyptus accedens*	3	353966.50	6691194.83
T05	Yes	8	341	No	*Eucalyptus* sp.	5	354913.51	6699033.12
T06	Yes	8	340	No	*Eucalyptus* sp.	5	354868.17	6699023.32
T07	Yes	10	560	No	*Eucalyptus* sp.	5	354857.90	6699016.81
T08	Yes	8	330	No	*Eucalyptus* sp.	5	350835.62	6701976.31
T09	Yes	8	390	No	*Eucalyptus camaldulensis*	5	350824.83	6701968.73
T10	Yes	9	405	No	*Eucalyptus accedens*	5	350817.62	6701777.70
T11	Yes	9	383	No	*Eucalyptus accedens*	5	350807.86	6701782.37
T12	Yes	9	410	Yes	*Eucalyptus accedens*	3	350806.62	6701777.43
T13	Yes	10	413	No	*Eucalyptus accedens*	5	350816.96	6701768.07
T14	Yes	10	425	Yes	*Eucalyptus accedens*	3	350807.10	6701764.38
T15	Yes	11	700	Yes	*Eucalyptus* sp.	3	350805.85	6701746.91
T16	Yes	9	373	Yes	*Eucalyptus* sp.	3	350817.87	6701745.83
T17	Yes	9	543	No	*Eucalyptus* sp.	5	350817.70	6701730.55
T18	Yes	9	340	Yes	*Eucalyptus* sp.	3	350819.84	6701712.50
T19	Yes	9	468	No	*Eucalyptus* sp.	5	350817.62	6701703.73
T20	Yes	10	580	No	*Eucalyptus camaldulensis*	5	350818.49	6701694.04
T21	Yes	10	333	No	*Eucalyptus accedens*	5	350806.85	6701694.86
T22	Yes	10	360	No	*Eucalyptus accedens*	5	350805.86	6701683.90
T23	Yes	10	460	No	*Eucalyptus accedens*	5	350805.48	6701675.19
T24	Yes	11	552	No	*Eucalyptus camaldulensis*	5	350804.63	6701658.39

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T25	Yes	11	343	No	*Eucalyptus* sp.	5	350817.84	6701650.71
T26	Yes	11	530	Yes	*Eucalyptus accedens*	3	350805.34	6701646.20
T27	Yes	10	409	No	*Eucalyptus* sp.	5	350806.58	6701627.30
T28	Yes	9	311	No	*Eucalyptus* sp.	5	350806.20	6701608.71
T29	Yes	10	423	No	*Eucalyptus camaldulensis*	5	350801.11	6701576.06
T30	Yes	10	420	No	*Eucalyptus camaldulensis*	5	350800.57	6701552.97
T31	Yes	10	560	No	*Eucalyptus camaldulensis*	5	350798.84	6701544.35
T32	Yes	10	466	No	*Eucalyptus camaldulensis*	5	350797.16	6701521.56
T33	Yes	10	398	No	*Eucalyptus camaldulensis*	5	350796.81	6701518.53
T34	Yes	10	459	No	*Eucalyptus camaldulensis*	5	350800.12	6701513.68
T35	Yes	10	450	No	*Eucalyptus accedens*	5	350805.35	6701499.48
T36	Yes	10	520	No	*Eucalyptus camaldulensis*	5	350797.12	6701496.06
T37	Yes	10	556	Yes	*Eucalyptus camaldulensis*	3	350797.81	6701487.76
T38	Yes	10	543	Yes	*Eucalyptus camaldulensis*	3	350794.41	6701483.52
T39	Yes	10	521	No	*Eucalyptus camaldulensis*	5	350793.91	6701479.84
T40	Yes	10	507	No	*Eucalyptus camaldulensis*	5	350792.20	6701474.84
T41	Yes	10	470	No	*Eucalyptus camaldulensis*	5	350791.14	6701469.90
T42	Yes	10	451	No	*Eucalyptus camaldulensis*	5	350791.82	6701465.78
T43	Yes	10	459	No	*Eucalyptus* sp.	5	350800.97	6701461.25
T44	Yes	10	559	No	*Eucalyptus camaldulensis*	5	350789.98	6701457.25
T45	Yes	10	350	No	*Eucalyptus accedens*	5	350800.00	6701446.73
T46	Yes	10	394	No	*Eucalyptus camaldulensis*	5	350792.26	6701443.54
T47	Yes	10	367	No	*Eucalyptus camaldulensis*	5	350787.99	6701437.65
T48	Yes	10	448	No	*Eucalyptus camaldulensis*	5	350788.23	6701432.77
T49	Yes	10	383	No	*Eucalyptus camaldulensis*	5	350786.14	6701429.02

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T50	Yes	10	433	No	*Eucalyptus camaldulensis*	5	350787.36	6701423.70
T51	Yes	10	325	No	*Eucalyptus camaldulensis*	5	350785.94	6701418.82
T52	Yes	10	509	No	*Eucalyptus camaldulensis*	5	350785.74	6701414.25
T53	Yes	10	435	No	*Eucalyptus camaldulensis*	5	350785.22	6701404.27
T54	Yes	10	397	No	*Eucalyptus camaldulensis*	5	350784.91	6701400.46
T55	Yes	10	435	No	*Eucalyptus camaldulensis*	5	350783.19	6701394.26
T56	Yes	10	630	No	*Eucalyptus camaldulensis*	5	350782.99	6701383.70
T57	Yes	10	462	No	*Eucalyptus* sp.	5	350792.60	6701380.85
T58	Yes	10	394	No	*Eucalyptus camaldulensis*	5	350782.82	6701373.25
T59	Yes	10	473	No	*Eucalyptus camaldulensis*	5	350782.24	6701369.12
T60	Yes	10	408	No	*Eucalyptus camaldulensis*	5	350782.30	6701364.41
T61	Yes	10	374	No	*Eucalyptus camaldulensis*	5	350781.35	6701354.72
T62	Yes	10	373	No	*Eucalyptus accedens*	5	350792.22	6701356.81
T63	Yes	10	512	No	*Eucalyptus camaldulensis*	5	350780.72	6701351.30
T64	Yes	10	330	No	*Eucalyptus camaldulensis*	5	350780.26	6701348.00
T65	Yes	10	338	No	*Eucalyptus camaldulensis*	5	350779.96	6701342.48
T66	Yes	10	341	No	*Eucalyptus camaldulensis*	5	350779.78	6701337.29
T67	Yes	10	542	No	*Eucalyptus camaldulensis*	5	350778.97	6701334.00
T68	Yes	10	384	No	*Eucalyptus* sp.	5	350788.41	6701317.73
T69	Yes	10	498	No	*Eucalyptus camaldulensis*	5	350779.96	6701305.92
T70	Yes	10	384	No	*Eucalyptus accedens*	5	350776.22	6701298.41
T71	Yes	10	411	No	*Eucalyptus camaldulensis*	5	350775.16	6701293.42
T72	Yes	10	387	No	*Eucalyptus camaldulensis*	5	350774.45	6701288.95
T73	Yes	10	489	No	*Eucalyptus* sp.	5	350786.01	6701288.88
T74	Yes	10	343	No	*Eucalyptus camaldulensis*	5	350774.12	6701286.52

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T75	Yes	10	489	No	*Eucalyptus camaldulensis*	5	350768.88	6701252.87
T76	Yes	10	301	No	*Eucalyptus wandoo* subsp. *pulverea*	5	350768.67	6701247.97
T77	Yes	10	410	No	*Eucalyptus camaldulensis*	5	350768.09	6701243.05
T78	Yes	10	455	No	*Eucalyptus camaldulensis*	5	350767.17	6701238.45
T79	Yes	10	395	No	*Eucalyptus camaldulensis*	5	350766.19	6701232.14
T80	Yes	10	580	No	*Eucalyptus camaldulensis*	5	350764.69	6701225.51
T81	Yes	10	419	No	*Eucalyptus camaldulensis*	5	350764.59	6701220.49
T82	Yes	10	430	No	*Eucalyptus camaldulensis*	5	350763.95	6701213.61
T83	Yes	10	512	No	*Eucalyptus camaldulensis*	5	350762.78	6701204.21
T84	Yes	10	430	No	*Eucalyptus camaldulensis*	5	350761.30	6701193.28
T85	Yes	10	343	No	*Eucalyptus camaldulensis*	5	350760.29	6701185.34
T86	Yes	10	480	No	*Eucalyptus camaldulensis*	5	350759.47	6701181.83
T87	Yes	10	405	No	*Eucalyptus camaldulensis*	5	350758.06	6701176.41
T88	Yes	10	393	No	*Eucalyptus camaldulensis*	5	350755.01	6701172.44
T89	Yes	10	493	No	*Eucalyptus camaldulensis*	5	350753.29	6701163.11
T90	Yes	10	405	No	*Eucalyptus camaldulensis*	5	350752.27	6701158.34
T91	Yes	10	342	No	*Eucalyptus camaldulensis*	5	350749.43	6701150.52
T92	Yes	10	507	No	*Eucalyptus camaldulensis*	5	350748.43	6701146.39
T93	Yes	10	319	No	*Eucalyptus camaldulensis*	5	350746.76	6701139.46
T94	Yes	10	395	No	*Eucalyptus accedens*	5	350753.87	6701120.93
T95	Yes	10	398	No	*Eucalyptus* sp.	5	350746.45	6701124.48
T95	Yes	10	406	No	*Eucalyptus* sp.	5	350754.63	6701114.48
T97	Yes	10	410	No	*Eucalyptus accedens*	5	350747.53	6701119.28
T98	Yes	10	309	No	*Eucalyptus camaldulensis*	5	350748.24	6701113.33
T99	Yes	10	308	No	*Eucalyptus camaldulensis*	5	350744.08	6701111.87

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T100	Yes	10	493	No	*Eucalyptus accedens*	5	350736.12	6701101.92
T101	Yes	10	353	No	*Eucalyptus camaldulensis*	5	350732.64	6701091.22
T102	Yes	10	356	No	*Eucalyptus camaldulensis*	5	350731.08	6701085.96
T103	Yes	10	342	No	*Eucalyptus camaldulensis*	5	350729.05	6701082.46
T104	Yes	10	418	No	*Eucalyptus camaldulensis*	5	350726.64	6701077.99
T105	Yes	10	367	No	*Eucalyptus camaldulensis*	5	350723.75	6701074.52
T106	Yes	10	409	No	*Eucalyptus camaldulensis*	5	350721.94	6701069.37
T107	Yes	10	648	No	*Eucalyptus camaldulensis*	5	350728.73	6701065.72
T109	Yes	10	398	No	*Eucalyptus camaldulensis*	5	350720.83	6701066.25
T110	Yes	10	380	No	*Eucalyptus camaldulensis*	5	350716.24	6701064.33
T111	Yes	10	422	No	*Eucalyptus camaldulensis*	5	350717.74	6701060.60
T112	Yes	10	321	No	*Eucalyptus camaldulensis*	5	350717.49	6701058.47
T112	Yes	10	343	No	*Eucalyptus camaldulensis*	5	350716.25	6701054.82
T114	Yes	10	418	No	*Eucalyptus camaldulensis*	5	350713.92	6701051.42
T115	Yes	10	453	No	*Eucalyptus camaldulensis*	5	350709.84	6701042.64
T116	Yes	10	409	No	*Eucalyptus accedens*	5	350718.13	6701037.41
T117	Yes	10	393	No	*Eucalyptus camaldulensis*	5	350708.77	6701038.97
T118	Yes	10	407	No	*Eucalyptus camaldulensis*	5	350707.47	6701033.97
T119	Yes	10	504	No	*Eucalyptus camaldulensis*	5	350704.38	6701025.11
T121	Yes	10	354	No	*Eucalyptus camaldulensis*	5	350700.32	6701016.20
T122	Yes	10	537	No	*Eucalyptus camaldulensis*	5	350698.79	6701012.82
T123	Yes	10	301	No	*Eucalyptus accedens*	5	350702.24	6700992.97
T124	Yes	10	507	No	*Eucalyptus accedens*	5	350700.67	6700990.80
T125	Yes	10	383	No	*Eucalyptus camaldulensis*	5	350695.60	6700986.62
T126	Yes	10	561	No	*Eucalyptus camaldulensis*	5	350687.59	6700979.88

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T127	Yes	10	322	No	*Eucalyptus accedens*	5	350694.13	6700974.37
T128	Yes	10	395	No	*Eucalyptus* sp.	5	350692.66	6700965.15
T349	Yes	10	451	No	*Eucalyptus* sp.	5	351303.80	6700548.58
T350	Yes	10	343	No	*Eucalyptus* sp.	5	351311.20	6700545.14
T129	Yes	10	355	No	*Eucalyptus* sp.	5	351320.93	6700539.79
T130	Yes	10	406	No	*Eucalyptus* sp.	5	351344.01	6700527.49
T131	Yes	10	423	No	*Eucalyptus* sp.	5	351352.35	6700519.57
T132	Yes	10	393	No	*Eucalyptus* sp.	5	351363.56	6700513.48
T133	Yes	10	462	No	*Eucalyptus* sp.	5	351373.61	6700508.96
T134	Yes	10	320	No	*Eucalyptus* sp.	5	351385.77	6700503.82
T135	Yes	9	343	No	*Eucalyptus drummondii*	5	349627.23	6701963.12
T136	Yes	11	721	No	*Eucalyptus camaldulensis*	5	350825.99	6707879.36
T137	Yes	11	694	No	*Eucalyptus camaldulensis*	5	350827.53	6707884.93
T138	Yes	9	450	No	*Eucalyptus camaldulensis*	5	350728.38	6707814.90
T139	Yes	9	385	No	*Eucalyptus camaldulensis*	5	350729.24	6707810.19
T140	Yes	9	321	No	*Eucalyptus camaldulensis*	5	350717.10	6707801.25
T141	Yes	9	391	No	*Eucalyptus camaldulensis*	5	350710.99	6707796.79
T142	Yes	9	329	No	*Eucalyptus camaldulensis*	5	350708.78	6707797.45
T143	Yes	9	343	No	*Eucalyptus camaldulensis*	5	350697.81	6707793.13
T144	Yes	9	384	No	*Eucalyptus camaldulensis*	5	350693.27	6707791.57
T351	Yes	16	648	No	*Eucalyptus camaldulensis*	5	345725.18	6707145.75
T146	Yes	17	834	No	*Eucalyptus camaldulensis*	5	345762.27	6707149.09
T147	Yes	16	829	Yes	*Eucalyptus camaldulensis*	3	345825.13	6707146.14
T148	Yes	16	1110	No	*Eucalyptus camaldulensis*	5	344407.87	6706825.77
T149	Yes	16	1130	No	*Eucalyptus camaldulensis*	5	344433.49	6706836.00

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T352	Yes	10	525	No	*Eucalyptus camaldulensis*	5	344452.83	6706838.46
T353	Yes	16	830	No	*Eucalyptus camaldulensis*	5	344467.26	6706848.94
T150	Yes	16	474	No	*Eucalyptus camaldulensis*	5	348251.59	6699843.32
T151	Yes	16	551	No	*Eucalyptus camaldulensis*	5	348251.88	6699837.08
T152	Yes	16	364	No	*Eucalyptus camaldulensis*	5	348245.87	6699838.41
T153	Yes	16	344	No	*Eucalyptus camaldulensis*	5	348236.54	6699838.74
T154	Yes	16	328	No	*Eucalyptus camaldulensis*	5	348237.46	6699845.92
T155	Yes	16	469	No	*Eucalyptus camaldulensis*	5	348243.57	6699841.87
T156	Yes	16	320	No	*Eucalyptus camaldulensis*	5	348245.87	6699844.84
T157	Yes	16	415	No	*Eucalyptus camaldulensis*	5	348254.58	6699845.77
T158	Yes	16	400	No	*Eucalyptus camaldulensis*	5	348255.39	6699850.84
T159	Yes	16	390	No	*Eucalyptus camaldulensis*	5	348258.89	6699862.96
T160	Yes	16	425	No	*Eucalyptus camaldulensis*	5	348246.77	6699872.23
T161	Yes	16	863	No	*Eucalyptus camaldulensis*	5	348255.01	6699883.12
T162	Yes	16	680	No	*Eucalyptus camaldulensis*	5	348245.98	6699879.09
T163	Yes	16	554	No	*Eucalyptus camaldulensis*	5	348265.67	6699876.51
T164	Yes	10	418	No	*Eucalyptus camaldulensis*	5	344498.99	6693029.50
T165	Yes	15	538	No	*Eucalyptus camaldulensis*	5	344499.24	6693042.77
T166	Yes	10	357	No	*Eucalyptus camaldulensis*	5	344500.69	6693045.70
T167	Yes	10	311	No	*Eucalyptus camaldulensis*	5	344500.55	6693051.97
T168	Yes	10	505	No	*Eucalyptus camaldulensis*	5	344540.85	6691895.25
T169	Yes	10	580	No	*Eucalyptus camaldulensis*	5	344695.87	6691906.16
T170	Yes	10	601	No	*Eucalyptus camaldulensis*	5	344711.46	6691906.64
T171	Yes	10	580	No	*Eucalyptus camaldulensis*	5	344780.31	6691904.62
T172	Yes	10	550	No	*Eucalyptus camaldulensis*	5	344779.20	6691909.60

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T173	Yes	10	608	No	*Eucalyptus camaldulensis*	5	344817.84	6691905.49
T174	Yes	10	756	No	*Eucalyptus camaldulensis*	5	344884.53	6691902.36
T175	Yes	10	590	No	*Eucalyptus camaldulensis*	5	344985.68	6691902.05
T176	Yes	10	572	No	*Eucalyptus camaldulensis*	5	344997.45	6691911.53
T177	Yes	10	525	No	*Eucalyptus camaldulensis*	5	345029.18	6691913.65
T178	Yes	10	598	No	*Eucalyptus camaldulensis*	5	345117.03	6691919.46
T179	Yes	10	580	No	*Eucalyptus camaldulensis*	5	345388.15	6691920.86
T180	Yes	10	522	No	*Eucalyptus camaldulensis*	5	345399.35	6691917.93
T181	Yes	10	623	No	*Eucalyptus camaldulensis*	5	345441.52	6691919.56
T182	Yes	10	586	No	*Eucalyptus camaldulensis*	5	345483.80	6691916.81
T183	Yes	10	539	No	*Eucalyptus camaldulensis*	5	345608.72	6691918.99
T184	Yes	10	610	No	*Eucalyptus* sp.	5	346049.28	6691928.71
T185	Yes	10	521	No	*Eucalyptus* sp.	5	346114.93	6691929.44
T186	Yes	10	565	No	*Eucalyptus* sp.	5	346269.93	6691931.62
T187	Yes	20	1338	No	*Eucalyptus camaldulensis*	5	346638.74	6691949.99
T188	Yes	10	486	No	*Eucalyptus accedens*	5	349977.97	6690609.78
T189	Yes	10	440	Yes	*Eucalyptus accedens*	3	349997.50	6690275.39
T190	Yes	14	860	Yes	*Eucalyptus accedens*	3	350019.28	6690190.22
T191	Yes	10	389	No	*Eucalyptus accedens*	5	350017.60	6690174.30
T192	Yes	5	461	Yes	*Eucalyptus accedens*	3	350017.99	6690171.15
T193	Yes	10	338	Yes	*Eucalyptus accedens*	3	350022.00	6690167.11
T194	Yes	18	804	No	*Eucalyptus camaldulensis*	5	347331.33	6690850.27
T354	Yes	16	627	No	*Eucalyptus* sp.	5	332549.00	6700461.00
T355	Yes	16	645	No	*Eucalyptus* sp.	5	332545.08	6700463.28
T356	Yes	16	742	No	*Eucalyptus* sp.	5	332528.36	6700450.72

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T195	Yes	8	556	No	*Eucalyptus todtiana*	5	346744.54	6705762.38
T196	Yes	8	619	No	*Eucalyptus todtiana*	5	346768.51	6705757.79
T197	Yes	8	542	No	*Eucalyptus todtiana*	5	346969.33	6705804.22
T198	Yes	6	727	No	*Eucalyptus todtiana*	5	346440.89	6705108.64
T199	Yes	5	701	No	*Eucalyptus todtiana*	5	346441.94	6705090.91
T200	Yes	16	647	No	*Eucalyptus* sp.	5	346589.34	6704640.90
T201	Yes	16	571	No	*Eucalyptus* sp.	5	346586.20	6704451.44
T202	Yes	16	1300	No	*Eucalyptus camaldulensis*	5	346609.55	6704429.30
T203	Yes	16	809	No	*Eucalyptus camaldulensis*	5	346615.88	6704409.53
T204	Yes	16	941	No	*Eucalyptus gomphocephala*	5	346620.10	6704358.60
T205	Yes	18	957	No	*Eucalyptus camaldulensis*	5	346615.26	6704353.38
T206	Yes	16	623	No	*Eucalyptus gomphocephala*	5	346618.41	6704328.63
T207	Yes	16	634	No	*Eucalyptus camaldulensis*	5	346617.76	6704321.03
T208	Yes	16	840	No	*Eucalyptus gomphocephala*	5	346620.08	6704315.71
T209	Yes	16	1123	No	*Eucalyptus camaldulensis*	5	346619.09	6704308.78
T210	Yes	6	519	No	*Eucalyptus todtiana*	5	346626.05	6704250.18
T211	Yes	4	500	No	*Eucalyptus todtiana*	5	346604.44	6704214.18
T212	Yes	10	426	No	*Eucalyptus accedens*	5	345965.68	6704465.29
T213	Yes	8	409	No	*Eucalyptus accedens*	5	345988.18	6704467.43
T357	Yes	9	838	No	*Eucalyptus camaldulensis*	5	350564.76	6707771.21
T215	Yes	10	407	No	*Eucalyptus* sp.	5	350312.02	6700690.55
T216	Yes	10	460	No	*Eucalyptus accedens*	5	350308.33	6700683.65
T217	Yes	10	519	No	*Eucalyptus* sp.	5	350303.99	6700686.67
T218	Yes	10	469	No	*Eucalyptus* sp.	5	345764.19	6690641.35
T219	Yes	10	361	No	*Eucalyptus* sp.	5	345758.28	6690626.24

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T220	Yes	10	444	No	*Eucalyptus* sp.	5	345749.88	6690627.77
T221	Yes	10	435	No	*Eucalyptus* sp.	5	345747.14	6690627.44
T222	Yes	10	548	No	*Eucalyptus* sp.	5	345742.21	6690624.52
T223	Yes	10	429	No	*Eucalyptus* sp.	5	345748.53	6690631.91
T223	Yes	10	410	No	*Eucalyptus* sp.	5	345752.82	6690641.45
T225	Yes	10	526	No	*Eucalyptus* sp.	5	345751.96	6690642.80
T226	Yes	8	574	No	*Eucalyptus todtiana*	5	348361.20	6701448.41
T227	Yes	9	303	No	*Eucalyptus* sp.	5	350290.56	6700682.63
T228	Yes	12	342	No	*Eucalyptus accedens*	5	350277.46	6700666.31
T229	Yes	12	394	No	*Eucalyptus accedens*	5	350266.36	6700662.26
T230	Yes	12	430	No	*Eucalyptus accedens*	5	350256.94	6700659.74
T231	Yes	12	452	Yes	*Eucalyptus accedens*	3	350248.60	6700655.95
T232	Yes	12	336	No	*Eucalyptus accedens*	5	350239.99	6700660.13
T233	Yes	12	421	No	*Eucalyptus camaldulensis*	5	350236.37	6700658.77
T234	Yes	12	520	No	*Eucalyptus camaldulensis*	5	350233.12	6700655.82
T235	Yes	5	608	No	*Eucalyptus todtiana*	5	351277.69	6698448.02
T236	Yes	7	620	No	*Eucalyptus todtiana*	5	352255.45	6697607.13
T237	Yes	7	640	No	*Eucalyptus todtiana*	5	352257.83	6697612.46
T238	Yes	11	509	No	*Eucalyptus camaldulensis*	5	350805.75	6701708.21
T239	Yes	10	604	No	*Eucalyptus camaldulensis*	5	347325.85	6691320.73
T240	Yes	10	314	No	*Eucalyptus camaldulensis*	5	347326.08	6691325.57
T241	Yes	10	342	No	*Eucalyptus camaldulensis*	5	347332.95	6691325.52
T242	Yes	10	335	No	*Eucalyptus camaldulensis*	5	347383.06	6691358.86
T243	Yes	10	399	No	*Eucalyptus camaldulensis*	5	347388.98	6691360.97
T244	Yes	10	529	No	*Eucalyptus camaldulensis*	5	347398.77	6691391.97

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T245	Yes	12	447	No	*Eucalyptus camaldulensis*	5	347402.50	6691393.08
T246	Yes	10	347	No	*Eucalyptus camaldulensis*	5	347408.02	6691406.47
T247	Yes	10	382	No	*Eucalyptus camaldulensis*	5	347418.46	6691408.46
T248	Yes	10	351	No	*Eucalyptus camaldulensis*	5	347437.60	6691407.13
T249	Yes	10	408	No	*Eucalyptus camaldulensis*	5	347440.22	6691394.57
T250	Yes	10	554	No	*Eucalyptus camaldulensis*	5	347442.85	6691382.12
T251	Yes	10	374	No	*Eucalyptus camaldulensis*	5	347442.13	6691375.52
T252	Yes	10	414	No	*Eucalyptus camaldulensis*	5	347425.14	6691381.34
T253	Yes	10	315	No	*Eucalyptus camaldulensis*	5	347447.78	6691364.34
T254	Yes	10	384	No	*Eucalyptus camaldulensis*	5	347449.99	6691362.76
T255	Yes	10	645	No	*Eucalyptus gomphocephala*	5	347445.39	6691358.31
T256	Yes	10	616	No	*Eucalyptus camaldulensis*	5	347459.34	6691347.55
T257	Yes	12	762	No	*Eucalyptus camaldulensis*	5	347466.37	6691350.80
T258	Yes	9	358	No	*Eucalyptus camaldulensis*	5	347436.84	6691340.68
T259	Yes	9	312	No	*Eucalyptus camaldulensis*	5	347433.80	6691334.68
T260	Yes	9	351	No	*Eucalyptus camaldulensis*	5	347423.17	6691327.28
T261	Yes	9	399	No	*Eucalyptus camaldulensis*	5	347419.43	6691324.53
T261	Yes	9	399	No	*Eucalyptus camaldulensis*	5	347387.44	6691321.11
T263	Yes	9	342	No	*Eucalyptus camaldulensis*	5	347386.06	6691317.85
T264	Yes	9	521	No	*Eucalyptus camaldulensis*	5	347384.15	6691320.24
T265	Yes	9	590	No	*Eucalyptus gomphocephala*	5	347419.65	6691356.76
T266	Yes	9	300	No	*Eucalyptus camaldulensis*	5	347390.30	6691350.30
T267	Yes	9	350	No	*Eucalyptus camaldulensis*	5	347379.71	6691343.63
T268	Yes	9	369	No	*Eucalyptus* sp.	5	347327.71	6689727.43
T269	Yes	11	503	No	*Eucalyptus gomphocephala*	5	347332.14	6689708.62

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T270	Yes	11	401	No	*Eucalyptus* sp.	5	347325.45	6689744.88
T271	Yes	8	320	No	*Eucalyptus* sp.	5	347330.84	6689773.75
T272	Yes	9	348	No	*Eucalyptus camaldulensis*	5	347332.04	6689793.28
T273	Yes	9	467	No	*Eucalyptus camaldulensis*	5	347325.76	6689802.82
T274	Yes	11	478	No	*Eucalyptus gomphocephala*	5	347322.62	6689857.52
T275	Yes	8	421	No	*Eucalyptus camaldulensis*	5	347329.44	6689864.78
T276	Yes	8	460	No	*Eucalyptus camaldulensis*	5	347119.50	6689643.11
T277	Yes	5	610	No	*Eucalyptus todtiana*	5	349871.73	6693504.10
T278	Yes	8	413	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346739.98	6703155.91
T279	Yes	8	375	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346732.29	6703165.22
T280	Yes	8	347	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346725.29	6703196.68
T281	Yes	8	321	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346714.97	6703237.63
T282	Yes	9	394	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346713.36	6703246.15
T283	Yes	9	301	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346712.63	6703270.28
T284	Yes	9	322	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346710.64	6703289.50
T285	Yes	10	449	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346708.56	6703326.68
T286	Yes	9	381	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346722.72	6703348.84
T287	Yes	9	385	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346727.82	6703339.27
T288	Yes	9	318	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346725.86	6703335.02
T289	Yes	9	466	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346732.02	6703302.93
T290	Yes	9	397	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346749.26	6703181.90
T291	Yes	9	456	No	*Eucalyptus sp.*	5	347333.41	6689447.31
T292	Yes	9	440	Yes	*Eucalyptus accedens*	3	346738.80	6703160.76
T293	Yes	9	326	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346689.91	6703455.34
T294	Yes	9	528	Yes	*Eucalyptus accedens*	3	346678.82	6703471.45

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T295	Yes	9	355	No	*Eucalyptus accedens*	5	346687.59	6703465.85
T296	Yes	9	372	Yes	*Eucalyptus accedens*	5	346684.29	6703473.98
T297	Yes	9	359	No	*Eucalyptus wandoo subsp. pulverea*	5	346687.52	6703481.21
T298	Yes	9	377	Yes	*Eucalyptus accedens*	3	346698.84	6703479.56
T299	Yes	9	482	Yes	*Eucalyptus accedens*	3	346699.76	6703483.90
T300	Yes	10	333	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346683.79	6703495.16
T301	Yes	8	493	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346681.83	6703499.49
T302	Yes	9	392	Yes	*Eucalyptus accedens*	5	346683.85	6703506.50
T303	Yes	9	382	Yes	*Eucalyptus wandoo* subsp. *pulverea*	2	346678.47	6703512.61
T304	Yes	9	560	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346675.00	6703526.41
T305	No	3	507	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346678.50	6703534.85
T306	Yes	10	381	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346679.53	6703540.18
T307	Yes	10	382	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346682.21	6703569.60
T308	Yes	7	403	Yes	*Eucalyptus accedens*	3	346685.56	6703583.33
T309	Yes	8	328	Yes	*Eucalyptus accedens*	3	346687.17	6703591.45
T310	Yes	9	528	Yes	*Eucalyptus accedens*	3	346688.01	6703600.33
T311	Yes	7	336	Yes	*Eucalyptus accedens*	5	346674.29	6703606.69
T312	Yes	8	307	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346691.02	6703563.28
T313	Yes	8	482	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346696.02	6703548.91
T314	Yes	8	415	Yes	*Eucalyptus accedens*	5	346696.51	6703538.75
T315	Yes	8	376	No	*Eucalyptus accedens*	5	346674.92	6703621.74
T316	Yes	8	314	Yes	*Eucalyptus accedens*	5	346667.15	6703624.28
T317	Yes	8	487	No	*Eucalyptus accedens*	5	346670.15	6703647.63
T318	Yes	8	382	Yes	*Eucalyptus accedens*	5	346668.77	6703654.21
T319	Yes	8	322	No	*Eucalyptus accedens*	5	346669.06	6703659.76

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T320	Yes	8	326	No	*Eucalyptus accedens*	5	346666.36	6703666.63
T321	Yes	8	337	No	*Eucalyptus accedens*	5	346663.40	6703677.59
T322	Yes	8	392	No	*Eucalyptus accedens*	5	346662.01	6703687.10
T323	Yes	8	401	No	*Eucalyptus accedens*	5	346665.86	6703699.97
T324	Yes	8	345	No	*Eucalyptus accedens*	5	346667.36	6703715.29
T325	Yes	8	456	No	*Eucalyptus accedens*	5	346666.43	6703726.28
T326	Yes	9	983	No	*Eucalyptus accedens*	5	346663.70	6703739.09
T327	Yes	9	548	Yes	*Eucalyptus accedens*	3	346656.46	6703781.29
T328	Yes	8	301	Yes	*Eucalyptus accedens*	3	346654.82	6703788.04
T329	Yes	8	440	Yes	*Eucalyptus accedens*	3	346632.68	6703859.83
T330	Yes	10	655	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346629.96	6703875.71
T331	Yes	9	484	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346628.07	6703879.97
T332	Yes	9	304	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346629.07	6703888.36
T333	Yes	9	412	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346624.36	6703920.66
T334	Yes	9	330	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346629.53	6703930.22
T335	Yes	9	490	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346624.39	6703934.57
T336	Yes	8	308	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346622.92	6703964.84
T337	Yes	8	424	Yes	*Eucalyptus wandoo* subsp. *pulverea*	5	346621.22	6703998.28
T338	Yes	8	348	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346608.71	6704086.07
T339	Yes	7	344	No	*Eucalyptus accedens*	5	346631.98	6704128.17
T340	Yes	7	323	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346628.59	6704088.79
T341	Yes	7	317	No	*Eucalyptus accedens*	5	346632.79	6704083.84
T342	Yes	7	402	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346629.78	6704074.59
T343	Yes	7	469	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346631.54	6704072.96
T344	Yes	7	319	No	*Eucalyptus accedens*	5	346637.26	6703996.19

Tree ID	Tree Alive	Tree Height (m)	Tree DBH (mm)	Hollow Present	Tree Species	Bamford Rank	Easting	Northing
T345	Yes	8	412	No	*Eucalyptus accedens*	5	346639.53	6703954.62
T346	Yes	8	408	No	*Eucalyptus wandoo* subsp. *pulverea*	5	346647.82	6703928.08
T347	No	5	311	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346650.43	6703887.79
T348	No	5	347	Yes	*Eucalyptus wandoo* subsp. *pulverea*	3	346649.29	6703882.87

Table D.3 Black-Cockatoo Breeding Trees with Hollows

Tree ID	Tree Species	No Suitable Hollows	Hollow Height	Hollow Orientation	Chew Marks	Hollow Type	Hollow Diameter (mm)	Activity Observed	Juvenile Observed	Comments	Easting	Northing
T01	*Eucalyptus accedens*	3	3	W, SE, N	Old	Side Entrance (to main trunk)	120	No	No		353978.90	6691211.97
T02	*Eucalyptus accedens*	2	4	S, E	Old	Side Entrance (to main trunk)	250	No	No		353991.91	6691192.18
T03	*Eucalyptus accedens*	1	4	N	No	Spout	180	No	No		353979.88	6691184.38
T04	*Eucalyptus accedens*	2	4	W, NE	Recent	Side Entrance (to main trunk)	150	No	No		353966.50	6691194.83
T12	*Eucalyptus accedens*	1	4	S	Recent	Side Entrance (to main trunk)	Unknown	No	No		350806.62	6701777.43
T14	*Eucalyptus accedens*	1	5	S	Recent	Side Entrance (to main trunk)	Unknown	No	No		350807.10	6701764.38
T15	*Eucalyptus* sp.	1	6	S, S	Recent	Side Entrance (to main trunk)	Unknown	No	No		350805.85	6701746.91
T16	*Eucalyptus* sp.	1	4	SW	Recent	Side Entrance (to main trunk)	Unknown	No	No		350817.87	6701745.83
T18	*Eucalyptus* sp.	1	5	S	Recent	Side Entrance (to main trunk)	Unknown	No	No		350819.84	6701712.50
T26	*Eucalyptus accedens*	1	5	S	Recent	Side Entrance (to main trunk)	Unknown	No	No		350805.34	6701646.20
T37	*Eucalyptus camaldulensis*	1	6	S	Recent	Fork Hollow	Unknown	No	No		350797.81	6701487.76
T38	*Eucalyptus camaldulensis*	1	6	N	Recent	Fork Hollow	Unknown	No	No		350794.41	6701483.52
T147	*Eucalyptus camaldulensis*	1	6	S	Recent	Side Entrance (to main trunk)	100	No	No		345825.13	6707146.14
T189	*Eucalyptus accedens*	1	2	N	No	Side Entrance (to main trunk)	200	No	No		349997.50	6690275.39
T190	*Eucalyptus accedens*	2	2	N	No	Chimney	450	No	No	Old clippings	350019.28	6690190.22
T192	*Eucalyptus accedens*	1	-	-	No	Spout	250	No	No	Fresh clippings	350017.99	6690171.15
T193	*Eucalyptus accedens*	1	-	-	No	-	100	No	No	Fresh clippings	350022.00	6690167.11
T231	*Eucalyptus accedens*	1	4	SW	Recent	Fork Hollow	150	No	No	Suspect galahs, some fresh chews. No clippings.	350248.60	6700655.95
T278	*Eucalyptus wandoo* subsp. *pulverea*	2	3	NW	No	Spout	100	No	No	-	346739.98	6703155.91
T285	*Eucalyptus wandoo* subsp. *pulverea*	-	-	-	No	-	-	No	No	-	346708.56	6703326.68
T289	*Eucalyptus wandoo* subsp. *pulverea*	1	3.5	W	No	Other (side entrance to limb)	80	No	No	Clippings	346732.02	6703302.93
T292	*Eucalyptus accedens*	2	5	SW	No	Spout	150	No	No	-	346738.80	6703160.76
T294	*Eucalyptus accedens*	4	4	N	Old	Chimney	150	No	No	-	346678.82	6703471.45
T298	*Eucalyptus accedens*	1	3.5	S	Old	Spout	120	No	No	-	346698.84	6703479.56
T299	*Eucalyptus accedens*	1	7	NW	No	Spout	100	No	No	-	346699.76	6703483.90
T301	*Eucalyptus wandoo* subsp. *pulverea*	3	6	NW	No	Spout	150	No	-	-	346681.83	6703499.49
T303	*Eucalyptus wandoo* subsp. *pulverea*	2	7	S	Old	Side Entrance (to main trunk)	150	No	No	Clippings	346678.47	6703512.61
T305	*Eucalyptus wandoo* subsp. *pulverea*	1	3	N/a	No	Chimney	400	No	No	-	346678.50	6703534.85
T307	*Eucalyptus wandoo* subsp. *pulverea*	1	5	NE	No	Spout	120	No	No	-	346682.21	6703569.60
T308	*Eucalyptus accedens*	1	1.2	E	No	Side Entrance (to main trunk)	200	No	No	-	346685.56	6703583.33
T309	*Eucalyptus accedens*	1	3	E	No	Spout	160	No	No	Old clippings	346687.17	6703591.45

Tree ID	Tree Species	No Suitable Hollows	Hollow Height	Hollow Orientation	Chew Marks	Hollow Type	Hollow Diameter (mm)	Activity Observed	Juvenile Observed	Comments	Easting	Northing
T310	*Eucalyptus accedens*	2	7	N	No	Side Entrance (to main trunk)	120	No	No	-	346688.01	6703600.33
T313	*Eucalyptus wandoo* subsp. *pulverea*	1	4	NNE	No	Spout	100	No	No	-	346696.02	6703548.91
T327	*Eucalyptus accedens*	1	2	NW	No	Spout	100	No	No	-	346656.46	6703781.29
T328	*Eucalyptus accedens*	2	3	W	No	Spout	100	No	No	-	346654.82	6703788.04
T329	*Eucalyptus accedens*	-	-	-	No	-	-	No	No	-	346632.68	6703859.83
T330	*Eucalyptus wandoo* subsp. *pulverea*	2	4	NW	Old	Spout	100	No	No	-	346629.96	6703875.71
T342	*Eucalyptus wandoo* subsp. *pulverea*	1	-	NW	No	Spout	100	No	No	-	346629.78	6704074.59
T343	*Eucalyptus wandoo* subsp. *pulverea*	1	-	NW	No	Spout	100	No	No	-	346631.54	6704072.96
T347	*Eucalyptus wandoo* subsp. *pulverea*	2	4	N	No	Chimney	120	No	No	-	346650.43	6703887.79
T348	*Eucalyptus wandoo* subsp. pulverea	1	2	N	No	Side Entrance (to main trunk)	250	No	No	-	346649.29	6703882.87

Table D.4 Vertebrate Fauna Habitat Assessment

Point ID	Easting	Northing	Habitat Type	Dom Canopy Species	DCS % Cover	Dom Mid Strata Species	DMS % Cover	Dom Ground Strata	DGS % Cover	Substrate	Habitat Components	Surface Water	Disturbance Signs
HAB01	356910.67	6709273.76	Wandoo Woodland on Sandy Soil	*E. accedans*	30	*E. accedans*	10	Grasses, weeds	25	Laterite and grey sand	Rocky outcrops, small to large tree hollows, logs, leaf litter 20%	NA	Grazing
HAB02	356585.47	6707879.87	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	20	*Hakea, B. sessilis, Melaleuca Banksia platycarpa, B. sphaerocarpa*	60	Grasses	5	Grey sand	Dense shrubland, small hollows, sandy substrate	NA	Grazing, tracks, power line
HAB03	356130.33	6706917.56	Cleared agricultural land	*E. drummondii*	30	*E. todtiana* and mixed shrub	20	Grasses, weeds	70	Grey sand	Small hollow, small logs, leaf litter under trees	NA	Grazing, clearing
HAB04	355900.53	6706499.27	Low Shrubland on Gentle Slope	*E. todtiana*	10	Petrophile, Hakea, Allocasuarina	40	Grass, weeds, *Mesomelena*	40	Grey sand with laterite gravel	Lateritic rock piles, small hollows	NA	Heavy grazing, land clearing
HAB05	355474.22	6706545.52	Cleared agricultural land	*E. todtiana,* Nuytsia	15	NA	NA	Grasses, weeds	70	Grey sand	Small hollows	NA	NA
HAB06	355669.68	6707740.93	Cleared agricultural land	*E. todtiana*	20	NA	NA	Grasses, weeds	70	Grey sand	Small hollows	NA	NA
HAB07	355721.10	6708177.75	Cleared agricultural land	*E. todtiana*	20	NA	NA	Grasses, weeds	70	Grey sand	Small hollows	NA	NA
HAB08	357169.64	6694160.24	Cleared agricultural land	Nuytsia and *E. todtiana*	5	NA	NA	Grasses, weeds	50	Grey sand	Small hollows	NA	NA
HAB09	353900.45	6696033.22	Low Shrubland on Gentle Slope	*E. drummondii*	5	*Allocasuarina, Petrophile, B. sessilis, B. sphaerocarpa, Banksia sp., B. kippistiana*	40	Grass, weeds, *Mesomelena*	15	Grey sand and sparse laterite outcropping	Small rock piles, woody debris, leaf litter <5%	NA	Heavy grazing, weeds
HAB10	352878.88	6695939.61	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Banksia attenuata*	25	B. *prionotes, Leptospermopsis, B. menziesii, Banksia sp.*	50	Grasses, weeds	5	Grey sand	Leaf litter, small hollows, woody debris, sandy substrate	NA	Scattered weeds, rubbish
HAB11	352429.66	6696095.15	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*Banksia* sp. and *E. todtiana*	25	*Melaleuca, Banksia*	30	Grass, herbs, Juncus	10	Grey-brown sand	Small to medium hollows, sandy damp soil, leaf litter 15%	None	Weeds
HAB12	356228.94	6693488.81	Low Shrubland on Gentle Slope	NA	NA	*Hakea, Grevillia, Banksia, Xanthorrhoea*	60	Grasses, weeds	20	Grey sand with laterite	Rock piles, sandy substrate	NA	Grazing, weeds, tracks
HAB13	354862.54	6693359.52	Eucalyptus Woodland on Stoney Substrate	*E. accedens*	50	NA	NA	Grasses, weeds	30	Laterite, grey sand	Large log piles, large hollows	NA	Grazing, clearing, weeds
HAB14	352835.85	6692828.61	Wandoo Woodland on Sandy Soil	*E. drummondii, Eucalyptus* sp.	20	NA	NA	Grasses, weeds	NA	Laterite outcropping, grey sand	Large rock piles, woody debris	NA	Weeds, grazing, tracks
HAB15	351488.36	6693141.21	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Banksia*	30	Grasses, weeds	10	Grey sand	Small hollow, leaf litter<10%, sandy substrate	NA	Weeds, grazing, tracks

Point ID	Easting	Northing	Habitat Type	Dom Canopy Species	DCS % Cover	Dom Mid Strata Species	DMS % Cover	Dom Ground Strata	DGS % Cover	Substrate	Habitat Components	Surface Water	Disturbance Signs
HAB16	352838.67	6694131.86	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	5	*Hakea, Grevillia, Calistemon, Melaleuca, Allocasuarina*	60	Grasses, weeds	1	Grey sand	Small hollows, woody debris, sandy substrate	NA	Tracks, weeds, grazing
HAB17	353418.52	6691414.73	Eucalyptus Woodland on Stoney Substrate	*E. drummondii, E. accedans*	40	*Hakea, E.drummondii*	20	Grasses, weeds	30	Grey sand with laterite gravel	Log piles, hollows	NA	Grazing, weeds, tracks, earthworks
HAB18	353338.66	6691457.79	Eucalyptus Woodland on Stoney Substrate	*E. drummondii*	40	*Hakea, E.drummondii*	20	Grasses, weeds	40	Grey sand with laterite gravel	Log piles, hollows	NA	Grazing, weeds, tracks
HAB19	354127.53	6691317.55	Eucalyptus Woodland on Stoney Substrate	*E. accedans*	39	*E. accedans, Melaleuca, Hakea, Banksia*	30	Herbs, grasses, weeds	10	Grey sand and laterite	Log piles, leaf litter >30%, small-large hollows	NA	Weeds
HAB20	354828.87	6699007.80	Eucalyptus Woodland on Stoney Substrate	*E. accedans, E. drummondii*	20	*E. gittinsii, B.sessilis, H. auricifolia*	20	Sparse grasses, weeds	15	Grey sand and laterite	Woody debris, leaf litter 10%, sandy soil, laterite outcropping, small hollow	NA	Weeds, grazing
HAB21	354715.37	6698988.70	Wandoo Woodland on Sandy Soil	*E. accedans, Eucalyptus* sp.	40	*E. gittinsii, B.sessilis, H. auricifolia*	10	Sparse grasses, weeds	15	Grey sand and laterite	Woody debris, leaf litter 30%, sandy soil, laterite outcropping, small hollow	NA	Weeds, grazing
HAB22	350818.26	6701966.64	Low Shrubland on Gentle Slope	Planted eucalypts	1	*Jacksonia, Calistemon, Acacia, Allocasuarina*	40	Weeds, grasses, herbs, sedges	20	Laterite, grey sand	Small hollows, sandy substrate	NA	Tracks, weeds
HAB23	351328.07	6700550.43	Planted	Planted eucalypts	1	NA	NA	Pasture, crops	90	Grey sand with gravel	Sandy soil	NA	Weeds, crops, tracks
HAB24	351612.09	6700142.09	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*Banksia, E. todtiana*	10	*Banksia, Eremaea beaufortioides, Acacia*	70	Herbs, sparse weeds	2	Grey sand	Woody debris, sandy substrate, small hollows	NA	Tracks
HAB25	352177.76	6699447.42	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. attenuata, E. todtiana*	25	*Banksia, Eremaea*	20	Herbs, sparse weeds	5	Grey sand	Woody debris, leaf litter 10%, scattered logs	NA	Tracks, weeds, fire 10+yrs
HAB26	352146.34	6700277.12	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. attenuata, E. todtiana*	25	*Banksia, Eremaea*	20	Herbs, sparse weeds	5	Grey sand	Woody debris, leaf litter 10%, scattered logs	NA	Tracks, weeds, fire 10+yrs
HAB27	352194.21	6697394.79	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. attenuata, E. todtiana*	25	*Banksia, Eremaea*	20	Herbs, sparse weeds	5	Grey sand	Woody debris, leaf litter 10%, scattered logs	NA	Tracks, weeds, fire 10+yrs
HAB28	351173.92	6697636.79	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. attenuata, E. todtiana*	30	*Banksia, Eremaea*	20	Herbs, sparse weeds	5	Grey sand	Woody debris, leaf litter 10%, scattered logs	NA	Tracks, weeds

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HAB29	352328.42	6696850.44	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. attenuata, E. todtiana*	30	*Banksia, Eremaea*	20	Herbs, sparse weeds	5	Grey sand	Woody debris, leaf litter 10%, scattered logs	NA	Weeds
HAB30	349673.18	6701908.57	Eucalyptus Woodland on Stoney Substrate	*E. todtiana*	10	*Banksia, Leptospermopsis, Adenanthos*	60	Herbs, grasses, weeds	5	Grey sand	Woody debris, small hollow, sandy substrate	NA	Tracks, weeds
HAB31	348936.74	6701038.88	Tall Shrubland Associated with Dampland	*E. todtiana*	2	*Melaleuca, Calothamnus*	30	Herbs, weeds,	10	Sandy clay	Woody debris, seasonal waterlogging	NA	NA
HAB32	349626.19	6701952.71	Eucalyptus Woodland on Stoney Substrate	*E. drummondii*	10	*Allocasuarina, Hakea, Xanthorrhoea*	20	Herbs, grasses, rushes	10	Laterite, grey sand	Small hollows, leaf litter 20%	NA	Tracks, weeds
HAB33	349614.43	6702071.27	Low Shrubland on Gentle Slope	*E. drummondii, E. todtiana*	2	*Melaleuca, Xanthorrhoea, Hakea*	60	Grasses, weeds	15	Grey sand	Sandy substrate, small hollows	NA	Weeds, tracks
HAB34	351577.32	6702061.35	Low Shrubland on Gentle Slope	*E. drummondii*	1	*Allocasuarina, Melaleuca, Xanthorrhoea, Banksia*	30	Grasses, weeds	5	Laterite, grey sand	Small hollows	NA	Driveway, weeds
HAB35	351525.28	6702005.90	Eucalyptus Woodland on Stoney Substrate	*E. drummondii*	1	*Allocasuarina, Melaleuca, Xanthorrhoea, Banksia*	30	Grasses, weeds	5	Laterite, grey sand	Small hollows	NA	Driveway, weeds
HAB36	353603.72	6702159.89	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*Hakea, Allocasuarina, Banksia*	30	Grasses, weeds, *Ecdeiocolea*	15	Grey sand	Small hollows, woody debris, sandy substrate	NA	Rabbit grazing, weeds, track, earthworks, rubbish
HAB37	353491.83	6702464.35	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Melaleuca*	15	Herbs, grasses, weeds	10	Grey sand	Woody debris, small hollows, sandy substrate	NA	Weeds
HAB38	353324.67	6702656.23	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. attenuata, E. todtiana*	20	*B. attenuata*	20	Herbs, grasses, weeds	10	Grey sand	Woody debris, small hollows, sandy substrate	NA	Weeds
HAB39	354535.64	6702255.67	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	5	*Melaleuca, Adenanthos*	10	*Mesomelena*, grasses, weeds	15	Grey sand	Small hollows, woody debris, sandy substrate	NA	Weeds
HAB40	354530.53	6702136.34	Low Shrubland on Gentle Slope	*E. todtiana*	1	*Hakea, Melaleuca*	40	*Mesomelena*, Banksia	NA	Grey sand	Sandy substrate, small hollows	NA	Weeds
HAB41	354490.70	6705335.52	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*Banksia, Adenanthos, Acacia, Hakea*	20	Herbs, grasses	10	Grey sand	Sandy substrate, small hollows, leaf litter 5%	NA	Weeds
HAB42	354456.95	6705506.00	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Banksia, Adenanthos, Acacia, Hakea*	40	*Mesomelena*, grasses, herbs	10	Grey sand	Sandy substrate, small hollows, leaf litter 5%	NA	Weeds
HAB43	355303.44	6706544.41	Low Shrubland on Gentle Slope	*E. drummondii*	5	*B. sessilis, Xanthorrhoea, Hakea*	30	*Mesomelena*, grasses, weeds	5	Grey sand, laterite	Small hollows, sandy substrate	NA	Weeds, grazing

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HAB44	352285.11	6709147.25	Low Shrubland on Gentle Slope	*E. todtiana*	5	*Leptospermopsis, Hakea, Banksia,*	20	*Mesomelena*, grasses, weeds, sedges	15	Grey sand, laterite	Small hollows, sandy substrate	NA	Weeds, grazing
HAB45	352149.27	6708878.32	Eucalyptus Woodland on Stoney Substrate	*E. todtiana*	10	*B. kippistiana*	25	*Mesomelena*, grasses, weeds	30	Grey sand, laterite	Small hollows	NA	Grazing, weeds, banksia die off (drought?)
HAB46	352102.62	6708953.41	Eucalyptus Woodland on Stoney Substrate	*E. todtiana, E. drummondii*	10	*B. kippistiana, B. sessilis*	25	Mesomelena, grasses, weeds	30	Grey sand, laterite	Small hollows	NA	Grazing, weeds, banksia die off
HAB47	352037.43	6708391.13	Wandoo Woodland on Sandy Soil	*Wandoo* sp.	45	NA	NA	Grasses/weeds/pasture	60	Grey sand, laterite	Small hollows	No	Heavy grazing
HAB48	351060.99	6707896.08	Cleared agricultural land	*E. todtiana*	1	NA	NA	Grasses/weeds/pasture	70	Grey sand	Small hollows	NA	Heavy grazing, land clearing
HAB49	350918.88	6707905.60	Low Shrubland on Gentle Slope	*Allocasuarina* sp., *E. todtiana*	1	*B. kippistiana, Hakea*	15	Pasture, weeds	50	Grey sand, laterite	Sandy substrate	NA	Grazing, weeds
HAB50	350469.76	6708080.71	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	NA	NA	*Hakea, Banksia, Petrophile, Melaleuca*	25	*Mesomalaena*, herbs	15	Grey sand	Sandy substrate	NA	Erosion near road
HAB51	348656.27	6707130.94	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	5	*B. sessilis, Andenanthos, Melaleuca, B. candolleana*	40	Grasses, weeds	10	Grey sand	Small hollows, sandy substrate, woody debris	NA	Weeds, clearing/lanewa y
HAB52	348494.95	6707201.68	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	1	*B. sphaerocarpa, Conospermum stochadis, Melaleuca*	20	*Mesomelena*, grasses, herbs	5	Grey sand	Sandy substrate	NA	Weeds
HAB53	348552.94	6707182.85	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*B. sphaerocarpa, Andenanthos, Xanthorrhoea, Conospermum, B. sessilis, Banksia candolleana, Melaleuca, Xanthorrhoea*	30	*Mesomelena*, grasses, herbs	5	Grey sand	Sandy substrate, small hollows, leaf litter 5%	NA	Weeds
HAB54	347283.73	6707117.00	Low Shrubland on Gentle Slope	NA	NA	*Gastrolobium, Acacia, Melaleuca, Xanthorrhoea*	15	Grasses, weeds	20	Grey sand with laterite stones	Sandy substrate, laterite rock piles	NA	Weeds, plant death (drought?)
HAB55	347176.35	6707189.36	Low Shrubland on Gentle Slope	*E. todtiana*	NA	*Petrophile, Melaleuca, Acacia, Xanthorrhoea*	15	Grasses, weeds	10	Grey sand with laterite stones	Sandy substrate, laterite rock piles in road verge, small hollows	NA	Weeds, fire (old)
HAB56	347307.84	6707157.24	Low Shrubland on Gentle Slope	NA	NA	*Petrophile, Melaleuca, Acacia, Xanthorrhoea, Allocasuarina*	25	Grasses, weeds	10	Grey sand with laterite stones	Sandy substrate, laterite rock piles in road verge, small hollows	NA	Weeds, fire (old)
HAB57	346355.94	6707058.04	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia, B. attenuata*	15	*Banksia attenuata, Andenanthos, Xanthorrhoea, Allocasuarina*	10	Grasses, weeds, Banksia, *Mesomelaena*, herbs	10	Grey sand	Sandy substrate, woody debris small hollows	NA	Grazing, weeds, banksia die off (drought?)

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HAB58	346394.60	6707165.88	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*Banksia attenuata, Andenanthos, Xanthorrhoea, Allocasuarina, B. sphaerocephala, B. sessilis*	20	Grasses, weeds, Banksia, *Mesomelaena*, herbs	10	Grey sand	Sandy substrate, woody debris, small hollows	NA	Grazing, weeds, banksia die off (drought?)
HAB59	345777.02	6707097.50	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia*	5	*Andenanthos, Xanthorrhoea, Allocasuarina, Melaleuca*	15	Weeds, grasses, herbs	10	Grey sand	Sandy substrate, woody debris, small hollows	NA	Grazing, weeds, banksia die off (drought?)
HAB60	345925.55	6707148.44	Planted	*E. camaldulensis, Pinus* sp.	40	Mixed shrubs	10	Grasses, weeds	65	Grey sand	Small hollows, sandy substrate	No	Weeds, erosion, rubbish
HAB61	346184.18	6706854.05	Planted	*E. todtiana*	10	*Eremophila*	15	Grasses, weeds	40	Grey sand	Small hollows	190 m East dam	Weeds, heavily grazed, partly cleared
HAB62	346800.51	6705773.01	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, E. drumundii*	5	NA	NA	Grass, weeds	70	Grey sand	Small hollows	NA	Grazing, tracks
HAB63	347361.99	6706769.68	Low Shrubland on Gentle Slope	*Xanthorrhoea*	2	NA	NA	NA	NA	NA	NA	NA	(assessed with binoculars due to access)
HAB64	348351.29	6706890.81	Cleared agricultural land	*E. todtiana*	5	NA	NA	Grass, weeds	70	Grey sand	Small hollows, sandy substrate	NA	Grazing, land clearing
HAB65	348356.01	6706806.74	Low Shrubland on Gentle Slope	*E. todtiana, Nuytsia*	2	*Allocasuarina, Petrophile, B. sessilis, B. kippistiana, Xanthorrhoea*	30	Weeds, grasses, *Mesomelaena*	10	Grey sand, laterite	Small hollows, sandy substrate	NA	Weeds
HAB66	348370.24	6706705.84	Low Shrubland on Gentle Slope	*E. todtiana, Nuytsia*	2	*Allocasuarina, Petrophile, B. sessilis, B. kippistiana, Xanthorrhoea*	30	Weeds, grasses, *Mesomelaena*	10	Grey sand, laterite	Small hollows, sandy substrate	NA	Weeds
HAB67	348266.35	6706117.50	Low Shrubland on Gentle Slope	*E. todtiana*	1	*Banksia, Petrophile, Melaleuca, Xanthorrhoea, Hakea*	25	*Mesomalaena*, herbs	10	Grey sand	Sandy substrate	NA	Weeds
HAB68	348499.91	6705127.16	Low Shrubland on Gentle Slope	NA	NA	*Gastrolobium, Hakea, Petrophile, Allocasuarina, Xanthorrhoea*	25	*Mesomalaena*, herbs, weeds	10	Grey sand, laterite outcropping	Sparse laterite outcropping	NA	Weeds, dumped fencing
HAB69	349090.51	6705717.22	Eucalyptus Woodland on Stoney Substrate	*E. todtiana*	2	*B. kippistiana, B. armada, Petrophile, Xanthorrhoea*	25	Weeds, herbs	10	Grey sand, laterite	Sandy substrate but with rocks, small hollows	NA	Weeds, grazing
HAB70	344503.99	6706785.09	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*Nuytsia*	10	*Melaleuca, Hakea, Xanthorrhoea*	20	Weeds, herbs	20	Grey sand	Sandy substrate	NA	Weeds
HAB71	344552.37	6706769.36	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*Santalum acuminatum, E. loxophleba*	10	*Allocasuarina, Melaleuca*	60	*Mesomalaena*, herbs, weeds	20	Grey sand	Sandy substrate	NA	Weeds, plant deaths of hakea

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HAB72	344458.84	6706845.98	Planted	*E. camaldulensis, Pinus* sp.	40	NA	NA	Weeds and grasses	NA	Grey sand with laterite gravel	Pinus foraging species	NA	Rubbish, erosion
HAB73	344430.05	6705103.27	Low Shrubland on Gentle Slope	*E. todtiana, Pinus* sp.	5	*Allocasuarina, Gastrolobium, Xanthorrhoea*	10	Weeds	20	Grey sand	Limited	NA	Weeds, tracks
HAB74	344461.07	6702922.32	Low Shrubland on Gentle Slope	*E. todtiana*	2	*B. attenuata, Melaleuca, Allocasuarina, Leptospermopsis, Gastrolobium, Conospermum, Xanthorrhoea*	15	Weeds, grasses, *Mesomelaena*	20	Grey sand with laterite gravel	Sandy substrate, small hollows	NA	Clearing, tracks, erosion, weeds
HAB75	344514.62	6701801.06	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. drummondii, E. todtiana*	1	*Allocasuarina, Melaleuca, Acacia*	20	Grasses, weeds	10	Grey sand with laterite gravel	Limited	NA	Erosion, weeds, rubbish
HAB76	347561.51	6701777.78	Tall Shrubland Associated with Dampland	NA	NA	*Hakea, Acacia, Xanthorrhoea*	20	Grasses, weeds	25	Grey sand, laterite	Sandy substrate	NA	Erosion, weeds, rubbish
HAB77	347750.78	6701863.72	Low Shrubland on Gentle Slope	*E. todtiana*	1	*Hakea, Acacia, Xanthorrhoea*	15	Grasses, weeds	25	Grey sand	Sandy substrate, small hollows	NA	Erosion, weeds, rubbish
HAB78	347630.01	6701950.53	Planted	Planted euc sp.	50	NA	NA	Grasses, weeds	50	Grey sand with laterite gravel	Sandy substrate	NA	Planted, clearing, grazing, weeds, tracks
HAB79	346828.38	6703181.80	Eucalyptus Woodland on Rocky Hills	*Xanthorrhoea*	15	*Hakea* sp.	5	Grasses, weeds	30	Yellow sand, laterite	Limited	NA	Grazing
HAB80	346649.19	6703788.21	Wandoo Woodland on Sandy Soil	*E. accedens, E.gittinsii*	50	*Hakea, Xanthorrhoea*	2	*Mesomelaena*, sedges, grasses, weeds	20	Grey sand	Hollows, woody debris, scattered logs, leaf litter 50%	NA	Weeds, tracks
HAB81	346726.98	6703271.52	Wandoo Woodland on Sandy Soil	*E. accedans*	30	NA	NA	Grasses, weeds	20	Brown sand, laterite gravel	Hollows, logs	NA	Rubbish, tracks
HAB82	347982.05	6700714.63	Planted	Planted eucs, *Melaleuca*	20	NA	NA	Grasses, weeds	70	Grey sand	Limited	NA	Weeds, tracks
HAB83	348261.27	6700086.39	Tall Shrubland Associated with Dampland	NA	NA	*Acacia, Melaleuca*	30	Weeds, grasses, herbs	40	Yellow brown sand	Woody debris, sandy substrate	NA	Weeds
HAB84	348272.31	6699956.85	Eucalyptus Woodland along Drainage Line	NA	NA	*Melaleuca*	50	Weeds, grasses, herbs	40	Yellow brown sand	Sandy substrate	NA	Weeds
HAB85	348263.30	6699895.20	Eucalyptus Woodland along Drainage Line	*E. camaldulensis*	70	*Melaleuca*	20	Weeds, grasses, herbs	40	Yellow brown sand	Sandy substrate, small hollows	Yes	Weeds tracks, planted
HAB86	350160.67	6693440.72	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia*	1	*B. candelina, B. cappistiana, Melaleuca, Xanthorrhoea, Leptospermopsis, Adenanthos*	40	Grasses, sedges	5	Grey sand	Small amount small hollows	NA	Weeds
HAB87	350692.18	6693173.31	Sparse to Open Eucalypt and Banksia	*E. todtiana*	15	*Banksia, Adenanthos, Allocasuarina, Melaleuca*	20	Herbs, weeds, *Mesomelaena*	5	Grey sand	Woody debris, leaf litter 10%,	NA	Weeds

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			Woodland on Plains and Slopes										
HAB88	350736.01	6693304.15	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. gittinsii, E. todtiana*	10	*Melaleuca, Petrophile, Banksia*	25	Herbs, weeds, *Mesomelaena*	5	Grey sand	Small hollows, sandy substrate, leaf litter <5%	NA	Weeds
HAB89	350599.59	6694670.94	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Melaleuca, Banksia, Allocasuarina*	20	Grasses, sedges, weeds	5	Grey sand	Small hollows	NA	Weeds, some dead banksia
HAB90	350064.53	6694823.46	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Melaleuca, Banksia, Allocasuarina*	20	Grasses, sedges, weeds	5	Grey sand	Small hollows	NA	Weeds, some dead banksia
HAB91	350363.85	6695224.21	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Melaleuca, Banksia, Allocasuarina*	20	Grasses, sedges, weeds	5	Grey sand	Small hollows	NA	Weeds, some dead Banksia
HAB92	350594.92	6695980.85	Low Shrubland on Gentle Slope	NA	NA	*Hakea, Melaleuca, Adenanthos*	20	*Mesomelena*, grasses, weeds	10	Grey sand	Sandy substrate	NA	Weeds, tracks
HAB93	350302.39	6695949.10	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*Melaleuca, B. menzesii., Allocasuarina*	20	Grasses, sedges, weeds	5	Grey sand	Small hollows	NA	Weeds, some dead banksia
HAB94	347322.03	6692939.92	Planted	Young planted *Eucalyptus* (smooth bark)	15	*Callistemon, Melaleuca*	15	Grasses, weeds	50	Grey sand	Seasonal inundation	Yes spring fed, small	Planted, weeds
HAB95	344428.33	6693026.34	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*B. candolleana, Adenanthos, Melaleuca*	25	Grasses, weeds, *Mesomalaena*	5	Grey sand	Sandy substrate, small hollows	NA	weeds, tracks
HAB96	344473.67	6693375.60	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia*	10	*B. candolleana, Adenanthos, Melaleuca*	25	Grasses, weeds, *Mesomalaena*	5	Grey sand	Sandy substrate, small hollows	NA	Weeds, tracks
HAB97	344497.97	6691826.70	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia*	15	*Adenanthos, Allocasuarina, Leptospermopsis, Xanthorrhoea, Hakea, Banksia*	15	Grasses, weeds, *Mesomalaena*, *Anigozanthos*	5	Grey sand	Sandy substrate, small hollows, leaf litter <10%	NA	Weeds
HAB98	344498.66	6691943.21	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia*	15	*Adenanthos, Callitris, Allocasuarina, Leptospermopsis, Xanthorrhoea, Hakea, Banksia*	15	Grasses, weeds, *Mesomalaena*, *Anigozanthos*	5	Grey sand	Sandy substrate, small hollows, leaf litter <10%	NA	Weeds
HAB99	346020.42	6691921.42	Planted	Planted Eucalyptus	40	Planted Eucalyptus and shrubs	10	Grass, weeds	40	Grey sand	Small hollows	NA	Planted trees, clearing, grazing, tracks

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HAB100	344517.53	6690575.91	Low Shrubland on Gentle Slope	NA	NA	*Melaleuca, Hakea, Gastrolobium*	25	Grasses, weeds, *Mesomalaena*	10	Yellow-grey silty sand	Nil	NA	Erosion, weeds
HAB101	344451.74	6690598.49	Low Shrubland on Gentle Slope	NA	NA	*Melaleuca, Hakea, Gastrolobium*	25	Grasses, weeds, *Mesomalaena*	10	Yellow-grey silty sand	Nil	NA	Erosion, weeds
HAB102	344531.49	6690696.49	Planted	Planted Eucalyptus, planted pines	40	Mixed shrubs	15	Grasses, weeds, *Mesomalaena*	5	Yellow-grey silty sand	Nil	NA	Planted, weeds
HAB103	350641.58	6691995.00	Low Shrubland on Gentle Slope	NA	NA	*Banksia, Hakea, Petrophile, Conospermum, Adenanthos, Melaleuca*	30	Grasses, weeds, *Anigozanthos*	5	Grey sand, laterite outcrops	Sandy substrate, laterite outcrops	NA	Weeds
HAB104	349935.96	6692413.68	Cleared agricultural land	*E. todtiana, Nuytsia*	1	NA	NA	Pasture/weeds	NA	Grey sand	Small hollows, sandy substrate	Dam	Clearing, grazing
HAB105	347430.98	6691359.61	Planted	*E. camaldulensis*	15	NA	NA	Grasses, weeds	70	Grey sand	Small hollows, sandy substrate	NA	Cleared, weeds, rubbish, fences
HAB106	350025.60	6690555.54	Eucalyptus Woodland on Stoney Substrate	*E. accedens*	40	*Melaleuca, Acacia*	30	Grasses, Melaleuca, weeds	10	Grey sand	Hollows, woody debris, scattered logs, leaf litter 50%	NA	Weeds, tracks
HAB107	349914.25	6689920.32	Eucalypt Woodland on Rocky Hills	*E. accedens, E. gittinsii*	30	*Melaleuca*	50	Grasses, weeds, Leptospermum	2	Grey sand, sandy clay	Leaf litter 20%, sandy substrate	NA	Weeds
HAB108	347305.93	6690810.52	Planted	*E. camaldulensis, E. cladocalyx*	50	*Melaleuca and young Eucalyptus*	20	Grass, weeds	40	Grey sand	Tree hollows possible, no large ones observed	NA	Weeds, planted
HAB109	358145.55	6673544.76	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*Banksia, Allocasuarina, Adenanthos, Melaleuca*	20	Grasses, sedges, weeds	5	Grey sand	Small hollows, leaf litter <5%	NA	Small amount weeds
HAB110	357290.66	6702393.95	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, E. drummondii, Xylomelum pyriforme*	5	*Melaleuca, Adenanthos , B. candelina, B. kippistiana*	15	*Mesomelaena*, grasses, weeds	15	Grey sand	Small hollows, woody debris, sandy substrate	NA	Weeds, tracks
HAB111	357273.57	6702263.94	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, E. drummondii, Xylomelum pyriforme*	5	*Melaleuca, Adenanthos , B. candelina, B. kippistiana*	15	*Mesomelaena*, grasses, weeds	15	Grey sand	Small hollows, woody debris, sandy substrate	NA	Weeds, tracks
HAB112	352142.07	6701989.06	Low Shrubland on Gentle Slope	*E. todtiana*	1	*Allocasuarina, Melaleuca*	5	*Mesomelaena*, grass	35	Grey sand	Limited	NA	Weeds
HAB113	353218.80	6704308.40	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	15	*B. menziesii, B. kippistiana, Allocasuarina, Leptospermopsis, Melaleuca*	35	*Mesomelaena*, grass	15	Grey sand	Woody debris, small hollows, sandy substrate, scattered logs but mostly around road edge from clearing	NA	Weeds
HAB114	350948.43	6704738.51	Low Shrubland on Gentle Slope	*E. drummondii*	NA	*Hakea, Banksia, Petrophile Allocasuarina*	20	*Mesomelaena*, grass	20	Sandy clay, laterite	Sandy substrate, small hollows	NA	Few
HAB115	350929.05	6704618.87	Low Shrubland on Gentle Slope	*E. drummondii*	NA	*Hakea, Banksia, Petrophile Allocasuarina*	20	*Mesomelaena*, grass	20	Sandy clay, laterite	Sandy substrate, small hollows	NA	Few
HAB116	357395.90	6697410.51	Sparse to Open Eucalypt and Banksia	*E. todtiana, Nuytsia*	10	*B. menziesii, B. candolleana, B.*	25	*Mesomelaena*, herbs, grasses	3	Grey sand	Woody debris, leaf litter <5%,	NA	Some banksia die off (drought?)

Point ID	Easting	Northing	Habitat Type	Dom Canopy Species	DCS % Cover	Dom Mid Strata Species	DMS % Cover	Dom Ground Strata	DGS % Cover	Substrate	Habitat Components	Surface Water	Disturbance Signs
			Woodland on Plains and Slopes			*sphaerocarpa, Adenanthos, Allocasuarinae, B. sessilis*							
HAB117	357333.62	6697422.46	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	10	*B. menziesii, B. candolleana, B. sphaerocarpa, Adenanthos, Allocasuarina, B. sessilis*	25	*Mesomelaena*, herbs, grasses	3	Grey sand	Woody debris, leaf litter <5%,	NA	Some banksia die off (drought?)
HAB118	356977.12	6697379.75	Planted	*Pinus* sp.	40	NA	NA	Grass, weeds	75	Grey sand	Sandy substrate	NA	Clearing, grazing, drought?
HAB119	355687.30	6697194.71	Cleared agricultural land	*E. todtiana*	2	NA	NA	Pasture	75	Grey sand	Sandy substrate, small hollows	NA	Grazing, heavy clearing
HAB120	355028.19	6696091.67	Cleared agricultural land	*E. todtiana*	2	NA	NA	Pasture	75	Grey sand	Sandy substrate, small hollows	NA	Grazing, heavy clearing
HAB121	354567.05	6696104.59	Eucalyptus Woodland on Stoney Substrate	*E. drummondii*	20	*E. gittinsii, B.sessilis, Hakea auricifolia, Bankia* sp.	15	Grasses, weeds	15	Grey sand, laterite outcropping	Woody debris, leaf litter <10%, sandy soil, laterite outcropping, small hollow	NA	Weeds, grazing
HAB122	354526.05	6696055.84	Planted	NA	NA	*Acacia* sp. planted	25	Pasture, weeds, grass	60	Grey sand	Limited	NA	Grazing, planted
HAB123	352972.90	6696128.29	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Banksia* sp.	10	*Banksia, Jacksonia*	15	Grasses, weeds	40	Grey sand	Leaf litter 20%, small hollows, woody debris, sandy substrate	NA	Scattered weeds, rubbish, clearing
HAB124	356326.28	6696052.55	Low Shrubland on Gentle Slope	NA	NA	*B. sessilis, Petrophile, B. sphaerocarpa, Banksia* sp., *Hakea auricifolia*	20	Grasses, weeds	5	Grey sand, laterite	Leaf litter <2%, sandy substrate, laterite outcropping	NA	Weeds, grazing
HAB125	356069.14	6696026.05	Low Shrubland on Gentle Slope	*E. drummondii*	2	*B. sessilis, Petrophile, B. sphaerocarpa, Banksia* sp., *Hakea auricifolia*	20	Grasses, weeds	5	Grey sand, laterite	Leaf litter <2%, sandy substrate, laterite outcropping, small hollows	NA	Weeds, grazing
HAB126	355413.70	6696061.55	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	2	*B. sessilis, Petrophile, B. sphaerocarpa, Banksia* sp., *Hakea auricifolia*	15	Grasses, weeds	10	Grey sand, laterite	Leaf litter <2%, sandy substrate, laterite outcropping, small hollows	NA	Weeds, grazing
HAB127	354932.85	6696060.38	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. drummondii, E. gittinsii*	25	*Hakea auricifolia, B. candolleana,* multiple low to mid *Banksia sp.*	10	*Mesomelaena*, grasses, weeds	50	Grey sand	Sandy substrate, woody debris, small hollows	NA	Weeds, grazing
HAB128	353376.46	6696005.71	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	12	*Banksia, Allocasuarina*	17	Grasses, weeds	5	Grey sand	Leaf litter <5%, small hollows, woody debris, sandy substrate	NA	Scattered weeds
HAB129	353069.04	6696018.94	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	12	*B. sphaerocarpa, B. menziesii*, other *Banksia* sp. *Allocasuarina*	25	Grasses, weeds	5	Grey sand	Leaf litter <5%, small hollows, woody debris, sandy substrate	NA	Scattered weeds
HAB130	352927.47	6696086.01	Sparse to Open Eucalypt and Banksia	*E. todtiana, Banksia* sp., *Nuytsia*	10	Multiple *Banksia* sp. shrubs, *Andenanthos*, *Conostephium magnum*	20	Grasses, weeds, *Banksia blechnia*	5	Grey sand	Leaf litter <5%, small hollows, woody	NA	Scattered weeds, rubbish, clearing

Point ID	Easting	Northing	Habitat Type	Dom Canopy Species	DCS % Cover	Dom Mid Strata Species	DMS % Cover	Dom Ground Strata	DGS % Cover	Substrate	Habitat Components	Surface Water	Disturbance Signs
			Woodland on Plains and Slopes								debris, sandy substrate		
HAB131	332418.74	6700476.26	Planted	Planted Eucalypts	25	Planted tall shrubs / planted juvenile trees	15	Weeds	50	Grey sand	Some small hollows	NA	Rubbish, major road, railway tracks
HAB132	332628.30	6700483.74	Low Shrubland on Gentle Slope	NA	NA	*Conospermum, Scholtzia, Xanthorrhoea*, low shrub *Banksia*, *Melaleuca*	30	*Mesomelaena*, grasses, weeds	30	Grey sand	Sandy substrate	NA	Rubbish, weeds, powerlines
HAB133	357253.48	6696085.78	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*B. menziesii, E. todtiana, Nuytsia*	15	*B. attenuata, B. sphaerocarpa, B. platycarpa*, other mid shrub *Banksia* sp, *Alloscasuarina*	25	*Mesomelaena*, grasses, weeds, sedges	5	Grey sand	Sandy substrate, woody debris, small hollows	NA	Weeds, grazing, some banksia die off (drought?)
HAB134	346498.08	6704264.55	Cleared agricultural land	*E. todtiana*	1	NA	NA	Pasture, grass, weeds	75	Grey sand	Sandy substrate	NA	Grazing, clearing
HAB135	347569.87	6674153.94	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	6	*Allocasuarina, Banksia* several types low to hip height, *Petrophile, Melaleuca, Leptospermopsis*	20	*Mesomelaena*, grasses, herbs, weeds	8	White-grey clay loam	Small hollows, sandy substrate	NA	Weeds, rubbish
HAB136	338971.90	6673846.48	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana, Nuytsia*	4	*B. sphaerocarpa*, several species low to mid *Banksia, Xanthorrhoea, Melaleuca*	18	*Conostylis*, grasses, weeds	15	Grey sand	Sandy substrate	NA	Weeds, major roads, rubbish
HAB137	349028.64	6705557.98	Cleared agricultural land	*E. todtiana*	1	NA	NA	*Poaceae* sp.	80	Grey sand, laterite gravel	Limited	None	Extensive clearing, weeds
HAB138	344854.30	6691604.77	Planted	Planted Eucalypts	20	*Acacia, Melaleuca*	10	Weeds	80	Grey sandy loam with gravel	Patches of sandy substrate, small hollows, leaf littler	No	Planted, weeds, fence
HAB139	352605.79	6689868.19	Cleared agricultural land	*E. todtiana*	2	NA	NA	Pasture/weeds	75	Grey sand	Small hollows, sandy substrate	No	Cleared, live stock tracks, grazing, fences
HAB140	351663.75	6692001.61	Sparse to Open Eucalypt and Banksia Woodland on Plains and Slopes	*E. todtiana*	2	NA	NA	Pasture/weeds	75	Grey sand, laterite outcrops	Sandy substrate, small hollows	No	Clearing, grazing
HAB141	348868.23	6694473.37	Cleared agricultural land	*E. todtiana*	1	NA	NA	Pasture/weeds	75	Grey sand with laterite gravel	Sandy substrate, small hollows	No	Cleared
HAB142	345119.82	6692774.07	Cleared agricultural land	*E. todtiana*	1	NA	NA	Pasture/weeds	75	Grey sand with laterite gravel	Sandy substrate, small hollows	No	Cleared

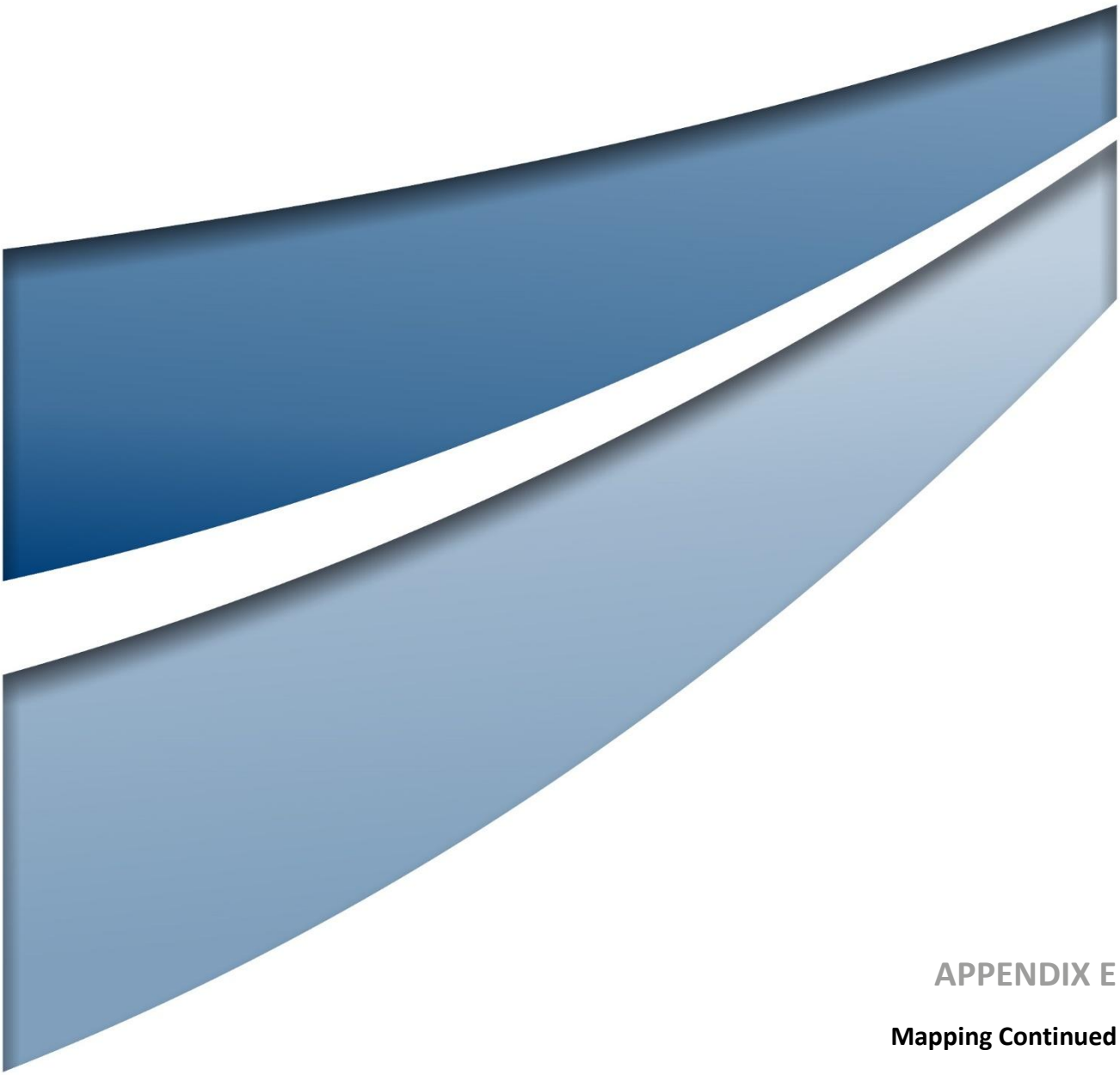
Table D.5 Black-Cockatoo Foraging Assessment

Point ID	Fauna Habitat Type	Foraging Score	Easting	Northing
FOR001	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	356658.91	6708123.94
FOR002	Low shrubland on gentle slope	3	354387.50	6706342.40
FOR003	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	354247.35	6706317.52
FOR004	Cleared agricultural land	1	353677.15	6695769.73
FOR005	Cleared agricultural land	1	354134.94	6695130.38
FOR006	Cleared agricultural land	1	355625.66	6694097.91
FOR007	Cleared agricultural land	1	357147.54	6694590.57
FOR008	Wandoo Woodland on sandy soil	3	352794.60	6692792.78
FOR009	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	351104.45	6692383.33
FOR010	Cleared agricultural land	1	351240.09	6693178.34
FOR011	Cleared agricultural land	1	351697.64	6693321.50
FOR012	Cleared agricultural land	1	351846.42	6693039.16
FOR013	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	352830.66	6694121.78
FOR014	Eucalyptus woodland on stoney substrate	4	353330.90	6691457.03
FOR015	Eucalyptus woodland on stoney substrate	4	353959.01	6691195.03
FOR016	Eucalyptus woodland on stoney substrate	3	354827.21	6699004.09
FOR017	Low shrubland on gentle slope	3	350818.88	6701969.44
FOR018	Planted	2	351328.21	6700550.59
FOR019	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	351632.24	6700094.67
FOR020	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	352173.50	6699368.63
FOR021	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	352173.44	6697358.29
FOR022	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	352198.10	6697161.24
FOR023	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	351139.92	6697669.30
FOR024	Eucalyptus woodland on stoney substrate	5	349672.58	6701902.73
FOR025	Eucalyptus woodland on stoney substrate	3	349622.51	6701977.05
FOR026	Low shrubland on gentle slope	4	349660.29	6702038.30
FOR027	Low shrubland on gentle slope	3	351571.88	6702066.11
FOR028	Eucalyptus woodland on stoney substrate	3	351430.07	6701965.80
FOR029	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	353610.12	6702165.78

Point ID	Fauna Habitat Type	Foraging Score	Easting	Northing
FOR030	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	353495.30	6702505.11
FOR031	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	353275.29	6702647.41
FOR032	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	354471.78	6702250.46
FOR033	Low shrubland on gentle slope	4	354531.96	6702144.44
FOR034	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	354487.47	6705401.61
FOR035	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	354406.58	6705492.51
FOR036	Low shrubland on gentle slope	3	355297.96	6706541.05
FOR037	Low shrubland on gentle slope	3	355860.83	6706581.22
FOR038	Eucalyptus woodland on stoney substrate	3	352166.29	6708884.67
FOR039	Eucalyptus woodland on stoney substrate	4	352106.25	6708948.46
FOR040	Cleared agricultural land	3	350954.75	6707914.00
FOR041	Low shrubland on gentle slope	3	348352.21	6706071.61
FOR042	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	348653.12	6707120.60
FOR043	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	348495.74	6707203.23
FOR044	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	348569.20	6707182.08
FOR045	Cleared (other)	2	347266.16	6707114.66
FOR046	Low shrubland on gentle slope	3	347166.43	6707205.43
FOR047	Low shrubland on gentle slope	3	347313.99	6707162.76
FOR048	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	346414.97	6707066.73
FOR049	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	346371.89	6707177.13
FOR050	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	345774.99	6707101.27
FOR051	Planted	2	346236.91	6706832.75
FOR052	Low shrubland on gentle slope	3	347366.41	6706787.01
FOR053	Low shrubland on gentle slope	3	348339.84	6706856.03
FOR054	Low shrubland on gentle slope	4	350512.24	6708105.69
FOR055	Low shrubland on gentle slope	3	348514.08	6705129.78
FOR056	Eucalyptus woodland on stoney substrate	3	349077.26	6705788.03
FOR057	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	344511.98	6706816.81
FOR058	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	344546.86	6706751.91

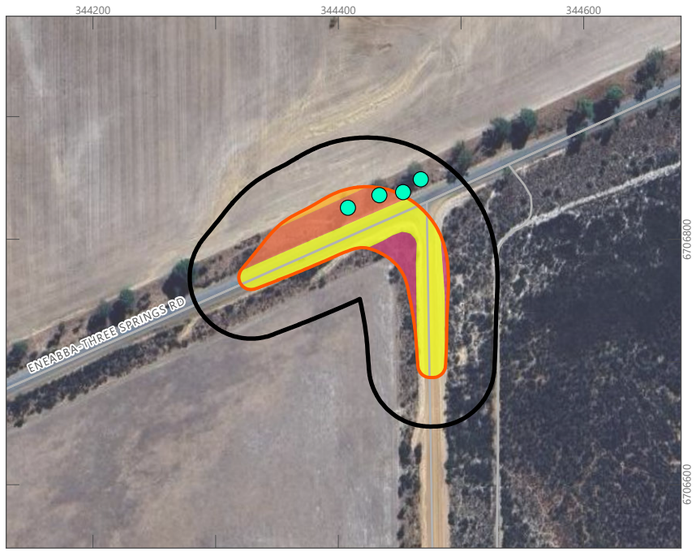
Point ID	Fauna Habitat Type	Foraging Score	Easting	Northing
FOR059	Low shrubland on gentle slope	3	344469.81	6705004.40
FOR060	Low shrubland on gentle slope	2	344433.17	6703032.60
FOR061	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	344525.39	6701822.50
FOR062	Tall shrubland associated with dampland	3	347595.87	6701783.17
FOR063	Wandoo Woodland on sandy soil	3	346630.54	6703980.50
FOR064	Eucalyptus Woodland along drainage line	4	348246.50	6699860.47
FOR065	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	350049.91	6693383.47
FOR066	Eucalyptus woodland on stoney substrate	4	350750.79	6693286.01
FOR067	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	350708.74	6693200.29
FOR068	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	350573.97	6694654.51
FOR069	Low shrubland on gentle slope	3	350533.74	6695975.56
FOR070	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	350303.66	6695979.14
FOR071	Planted	2	347324.85	6692953.80
FOR072	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	344411.33	6693038.59
FOR073	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	344498.16	6691799.44
FOR074	Low shrubland on gentle slope	2	344518.51	6690671.55
FOR075	Low shrubland on gentle slope	2	344459.28	6690639.60
FOR076	Cleared agricultural land	3	350641.14	6691994.27
FOR077	Eucalyptus woodland on stoney substrate	4	350044.79	6690517.94
FOR078	Eucalypt woodland on rocky hills	4	349921.57	6689943.30
FOR079	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	358194.45	6673465.33
FOR080	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	357282.78	6702355.66
FOR081	Low shrubland on gentle slope	2	352129.88	6702028.88
FOR082	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	353121.31	6704315.85
FOR083	Low shrubland on gentle slope	3	350935.31	6704792.58
FOR084	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	357391.69	6697431.55
FOR085	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	357338.58	6697439.48
FOR086	Planted	3	357054.47	6697383.15
FOR087	Planted	3	356967.97	6697376.58
FOR088	Eucalyptus woodland on stoney substrate	3	354549.62	6696108.71

Point ID	Fauna Habitat Type	Foraging Score	Easting	Northing
FOR089	Low shrubland on gentle slope	4	356372.10	6695981.89
FOR090	Low shrubland on gentle slope	4	356044.15	6696049.15
FOR091	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	355389.36	6696059.67
FOR092	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	354915.09	6696059.87
FOR093	Low shrubland on gentle slope	4	353936.97	6696037.80
FOR094	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	353390.68	6696015.49
FOR095	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	353106.56	6696020.03
FOR096	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	352999.66	6696112.81
FOR097	Sparse to open Eucalypt and Banksia woodland on plains and slopes	5	352933.98	6696072.06
FOR098	Planted	2	332409.96	6700459.08
FOR099	Low shrubland on gentle slope	3	332620.48	6700491.78
FOR100	Wandoo Woodland on sandy soil	3	356914.28	6709222.40
FOR101	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	357250.25	6696090.61
FOR102	Sparse to open Eucalypt and Banksia woodland on plains and slopes	4	347566.68	6674147.75
FOR103	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	338982.94	6673848.36
FOR104	Cleared agricultural land	1	352583.12	6689862.19
FOR105	Sparse to open Eucalypt and Banksia woodland on plains and slopes	3	351685.59	6692003.15
FOR106	Cleared agricultural land	1	348919.15	6694477.69
FOR107	Cleared agricultural land	1	349970.88	6692529.10
FOR108	Cleared agricultural land	1	345107.17	6692807.11
FOR109	Eucalyptus woodland on stoney substrate	1	349134.81	6705718.99



APPENDIX E

Mapping Continued



APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheets 31 to 37

Legend

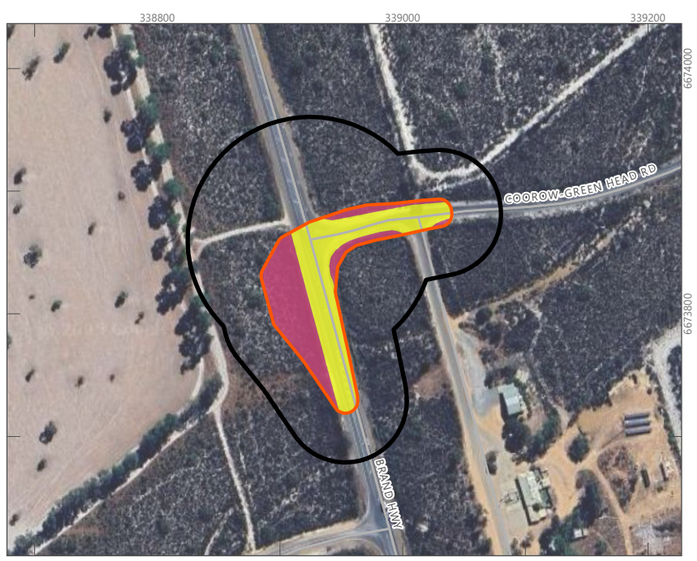
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

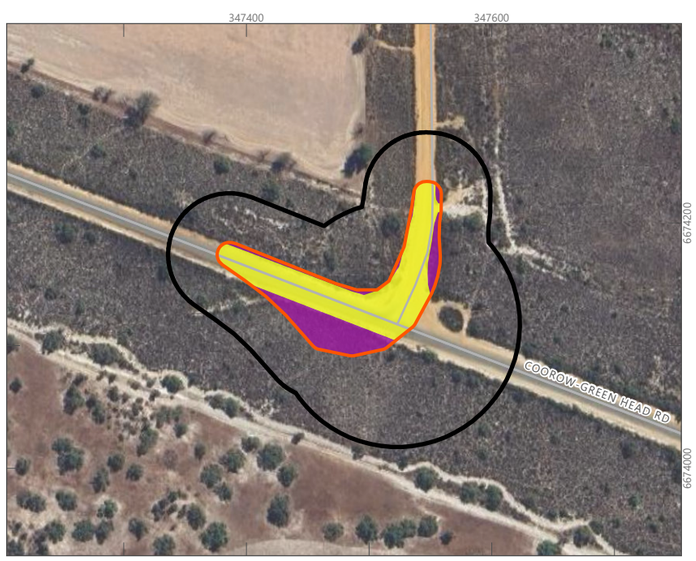
Black-Cockatoo Nest-trees (Bamford Ranking)

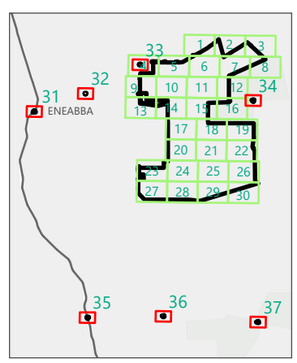
- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value







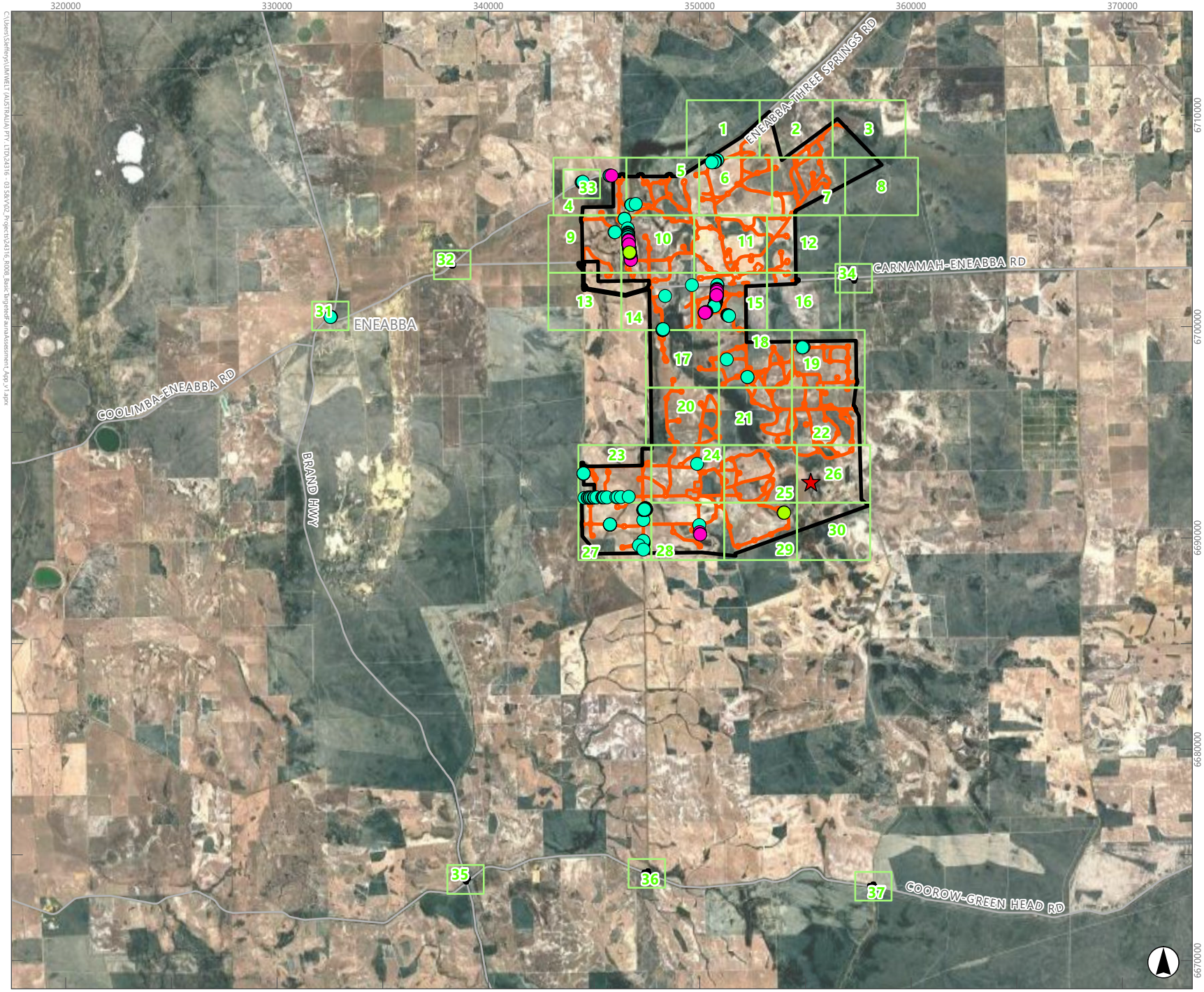
0 100 200 m

Scale: 1:5,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA – Overview



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

0 5 10

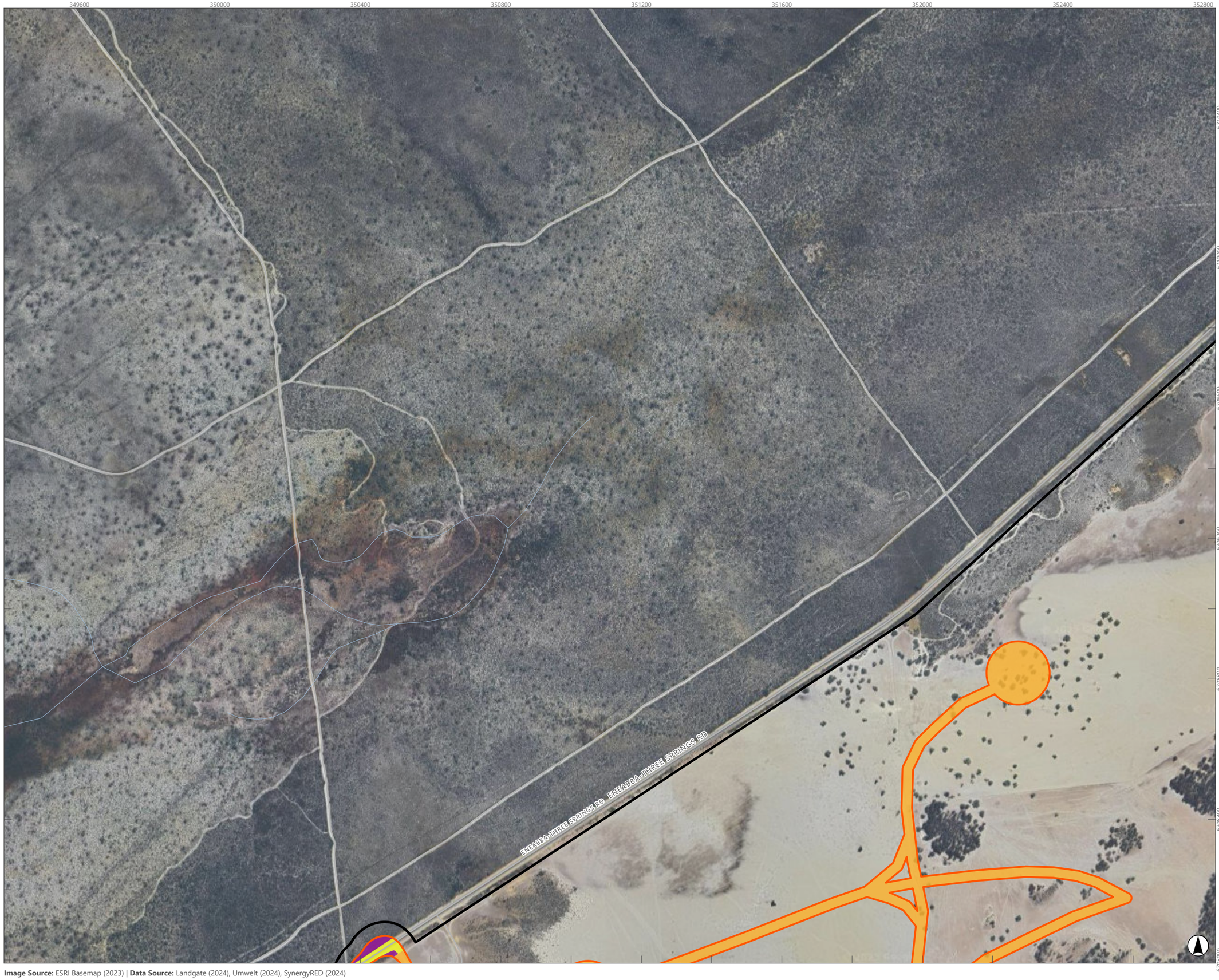
Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 1



Legend

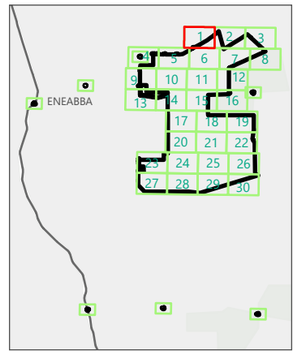
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

353200 353600 354000 354400 354800 355200 355600 356000

6710400 6710000 6709600 6709200 6708800 6708400 6708000

ENEABBA-THREE SPRINGS RD

ENEABBA-THREE SPRINGS RD

RESERVE RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 2

Legend

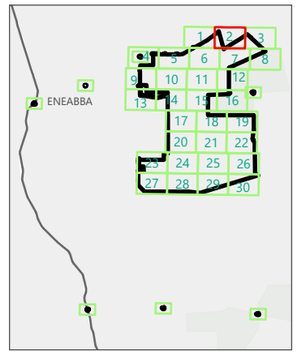
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 3

Legend

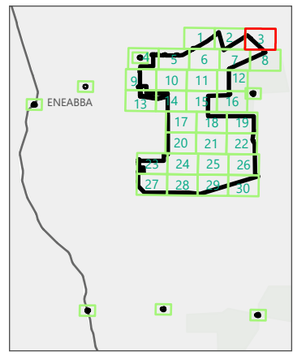
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 4

343200 343600 344000 344400 344800 345200 345600 346000 346400

6707600 6707200 6706800 6706400 6706000 6705600

ENEABBA-THREE SPRINGS RD

BRIMSON RD

Legend

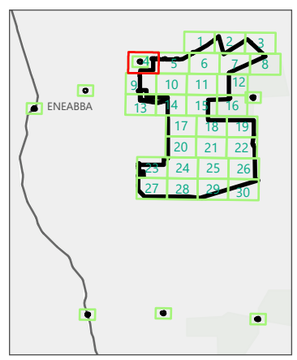
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 5

346800 347200 347600 348000 348400 348800 349200 349600

6707600 6707200 6706800 6706400 6706000 6705600

ENEABBA-THREE SPRINGS RD ENEABBA-THREE SPRINGS RD

WARRADARGE CREEK

Legend

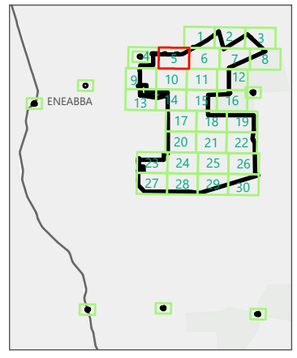
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

350000 350400 350800 351200 351600 352000 352400 352800 353200

6707600 6707200 6706800 6706400 6706000 6705600

ENEABBA-THREE SPRINGS RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 6

Legend

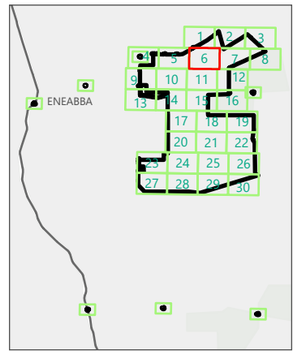
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

353600 354000 354400 354800 355200 355600 356000 356400 356800

6707600 6707200 6706800 6706400 6706000 6705600

RESERVE RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 7

Legend

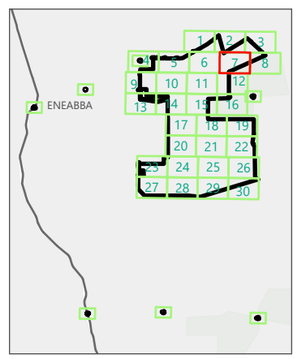
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 8

Legend

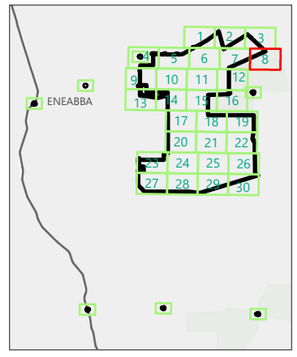
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 9

Legend

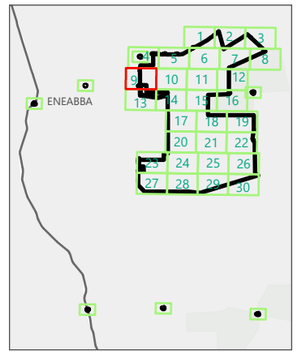
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 10

346400 346800 347200 347600 348000 348400 348800 349200 349600

6705200 6704800 6704400 6704000 6703600 6703200 6702800

WARRADARGE CREEK

Legend

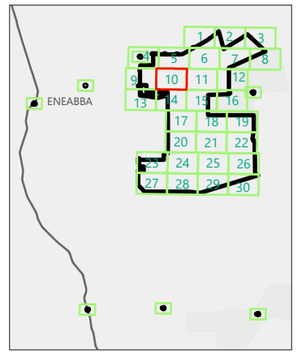
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 11

Legend

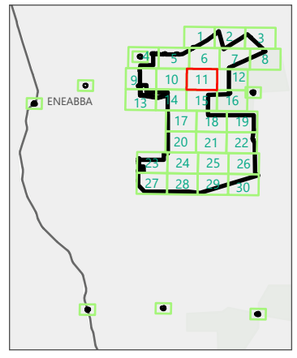
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



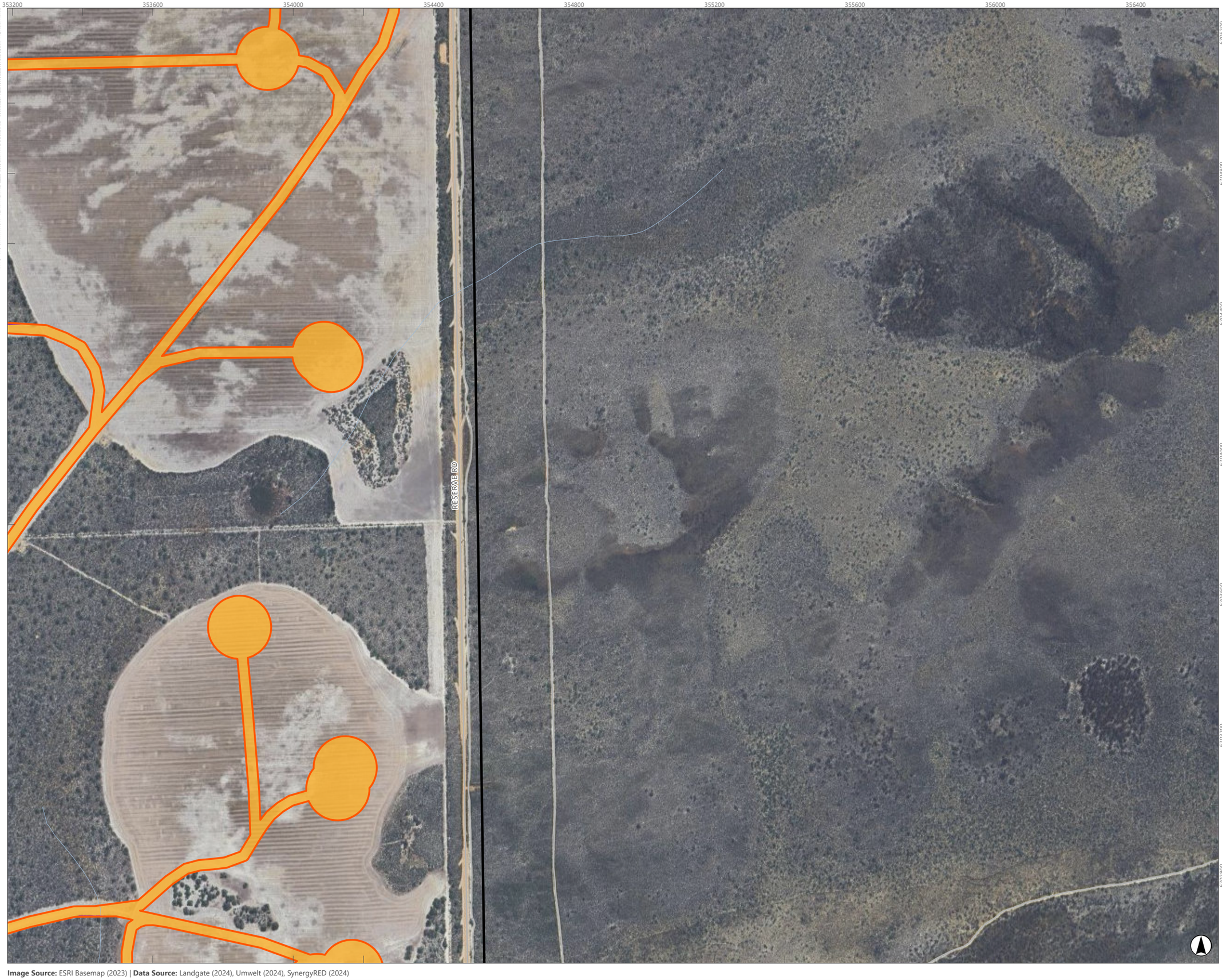
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 12



Legend

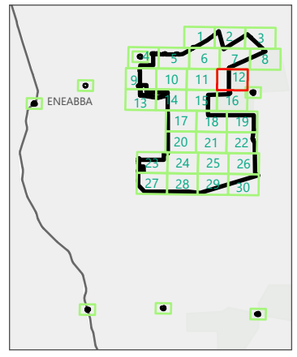
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



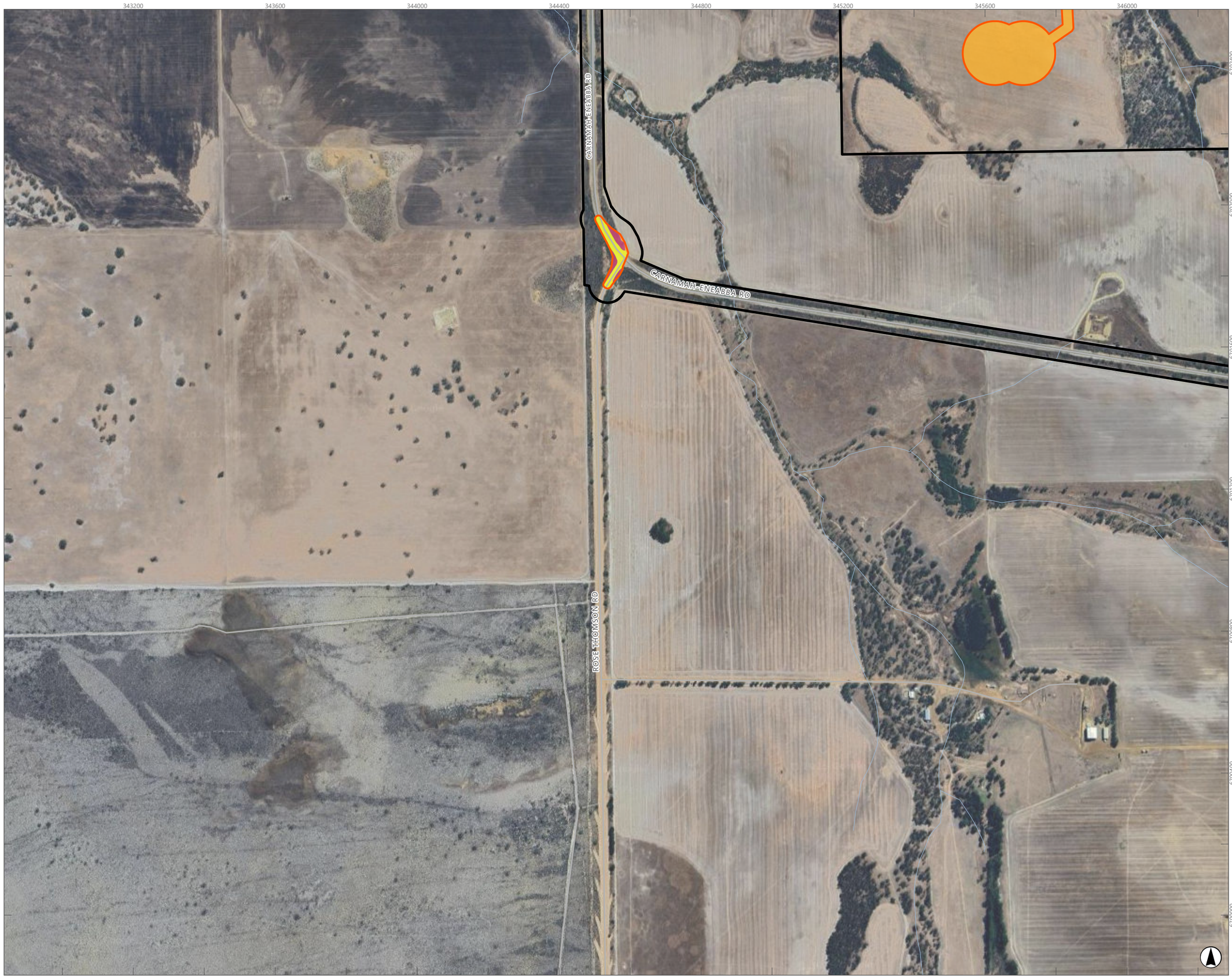
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 13



Legend

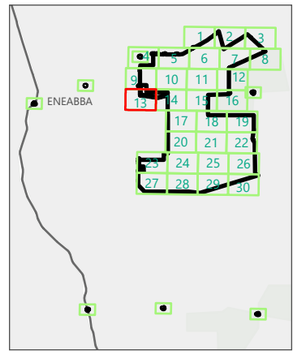
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

346400 346800 347200 347600 348000 348400 348800 349200 349600

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD

CARNAMAH-ENEABBA RD

WARRADARGE CREEK

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 14

Legend

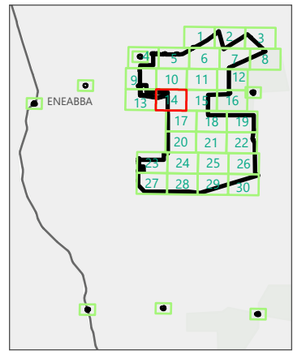
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

350000 350400 350800 351200 351600 352000 352400 352800

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD

CARNAMAH-ENEABBA RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 15

Legend

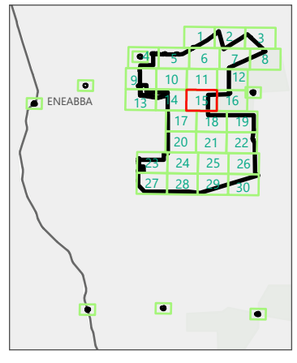
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 16

353200 353600 354000 354400 354800 355200 355600 356000 356400

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD CARNAMAH-ENEABBA RD

Legend

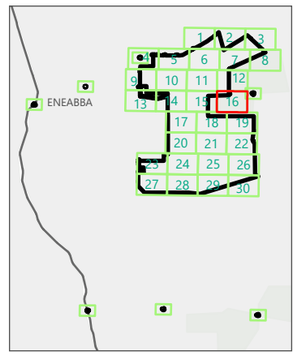
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 17

347600 348000 348400 348800 349200 349600 350000 350400 350800

6699600 6699200 6698800 6698400 6698000 6697600 6697200

IWARRADARGE CREEK

Legend

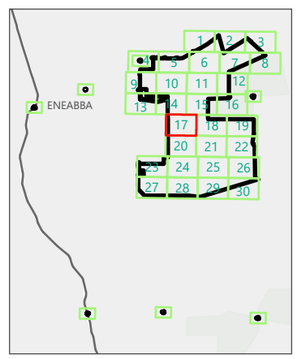
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

351200 351600 352000 352400 352800 353200 353600 354000

6699600
6699200
6698800
6698400
6698000
6697600
6697200

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 18

Legend

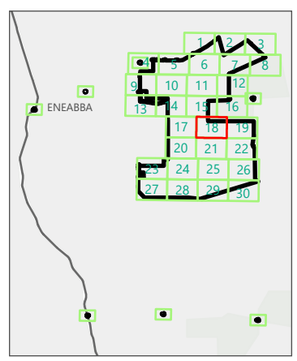
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

354400 354800 355200 355600 356000 356400 356800 357200 357600

6699600
6699200
6698800
6698400
6698000
6697600
6697200

GARIBALDI WILLIS RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 19

Legend

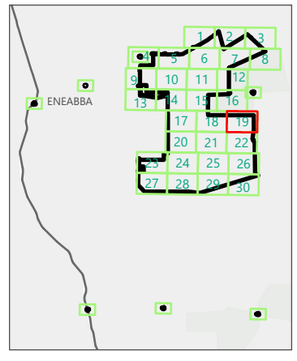
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 20

Legend

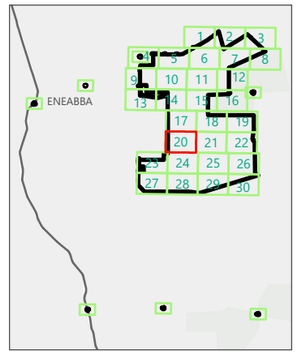
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 21

351200 351600 352000 352400 352800 353200 353600 354000

6696800 6696400 6696000 6695600 6695200 6694800 6694400

Legend

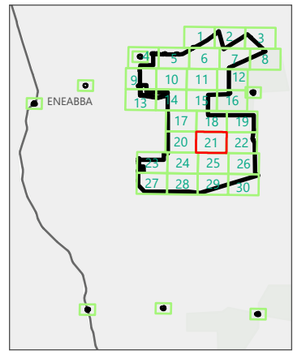
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 22

354400 354800 355200 355600 356000 356400 356800 357200 357600

6696800 6696400 6696000 6695600 6695200 6694800 6694400

CARIBALDI WILLIS RD

Legend

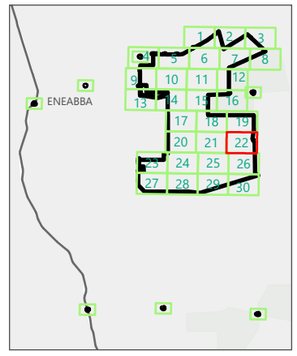
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 23

344400 344800 345200 345600 346000 346400 346800 347200 347600

6694000 6693600 6693200 6692800 6692400 6692000

WARRADARGE CREEK

ROSE THOMSON RD

Legend

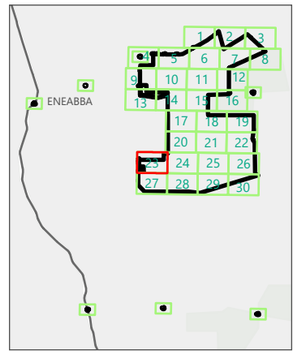
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 24

348000 348400 348800 349200 349600 350000 350400 350800

6694000 6693600 6693200 6692800 6692400 6692000

Legend

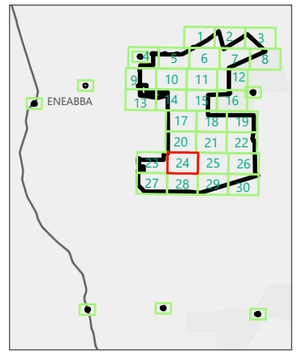
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

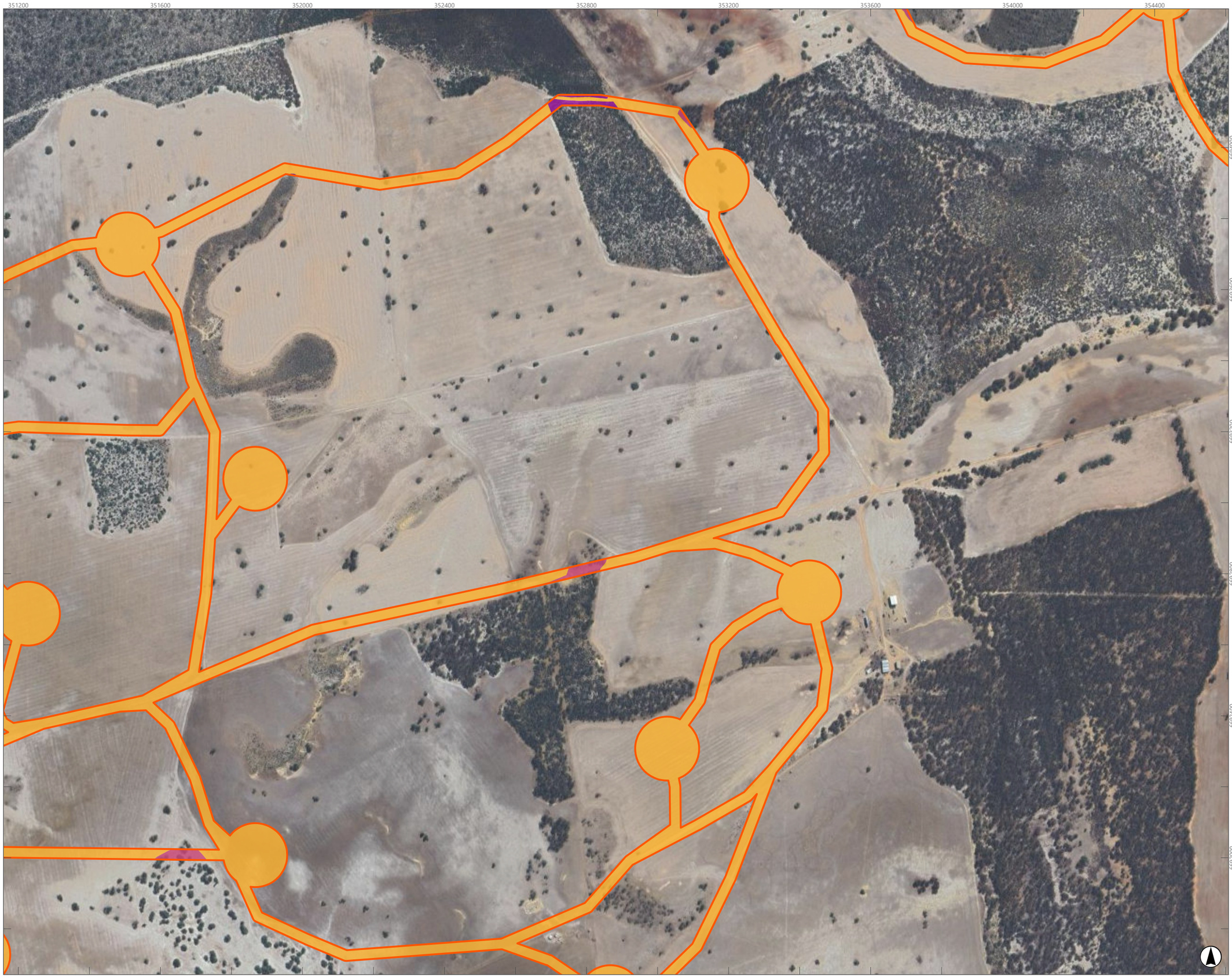
- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)



APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 25

Legend

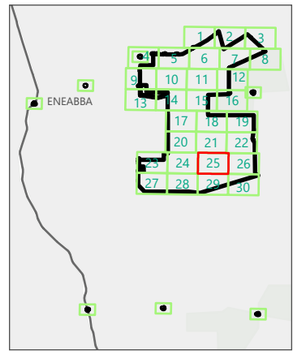
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 26

Legend

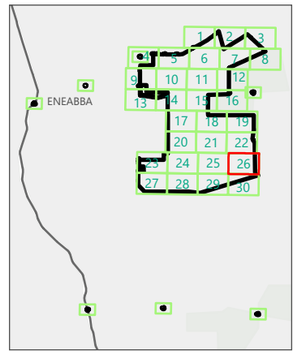
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 27

344400 344800 345200 345600 346000 346400 346800 347200 347600

6691600 6691200 6690800 6690400 6690000 6689600 6689200

WARRADARGE CREEK

ROSE THOMSON RD

Legend

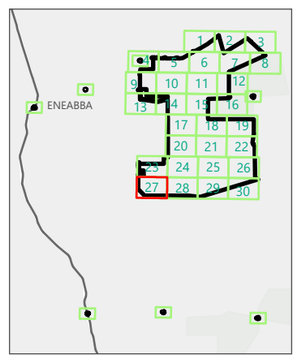
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 28

348000 348400 348800 349200 349600 350000 350400 350800

6691600 6691200 6690800 6690400 6690000 6689600 6689200

Legend

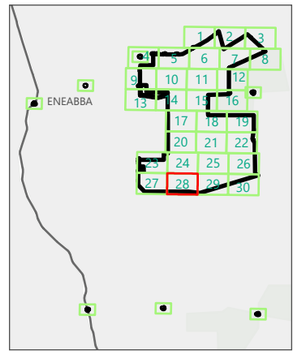
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 29

Legend

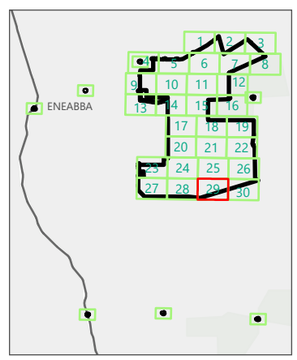
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Targeted FSA Sheet 30

Legend

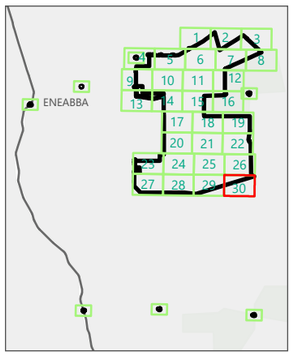
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



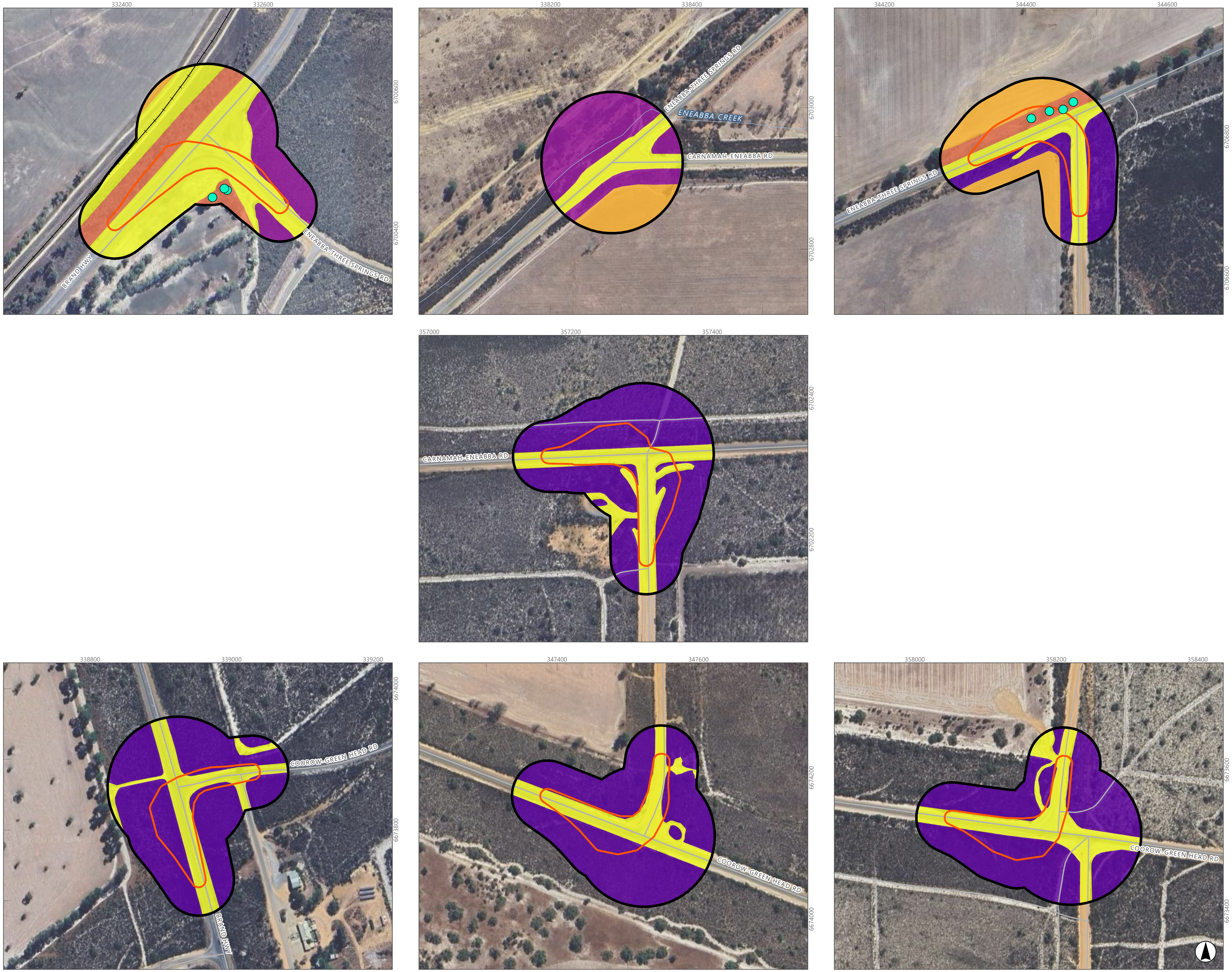
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheets 31 to 37



Legend

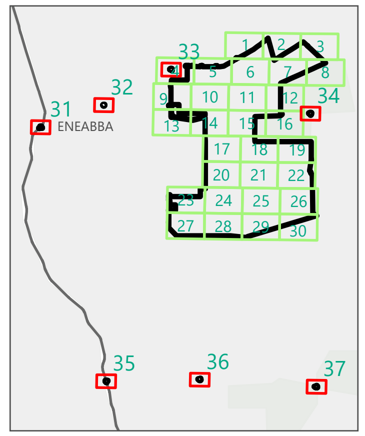
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



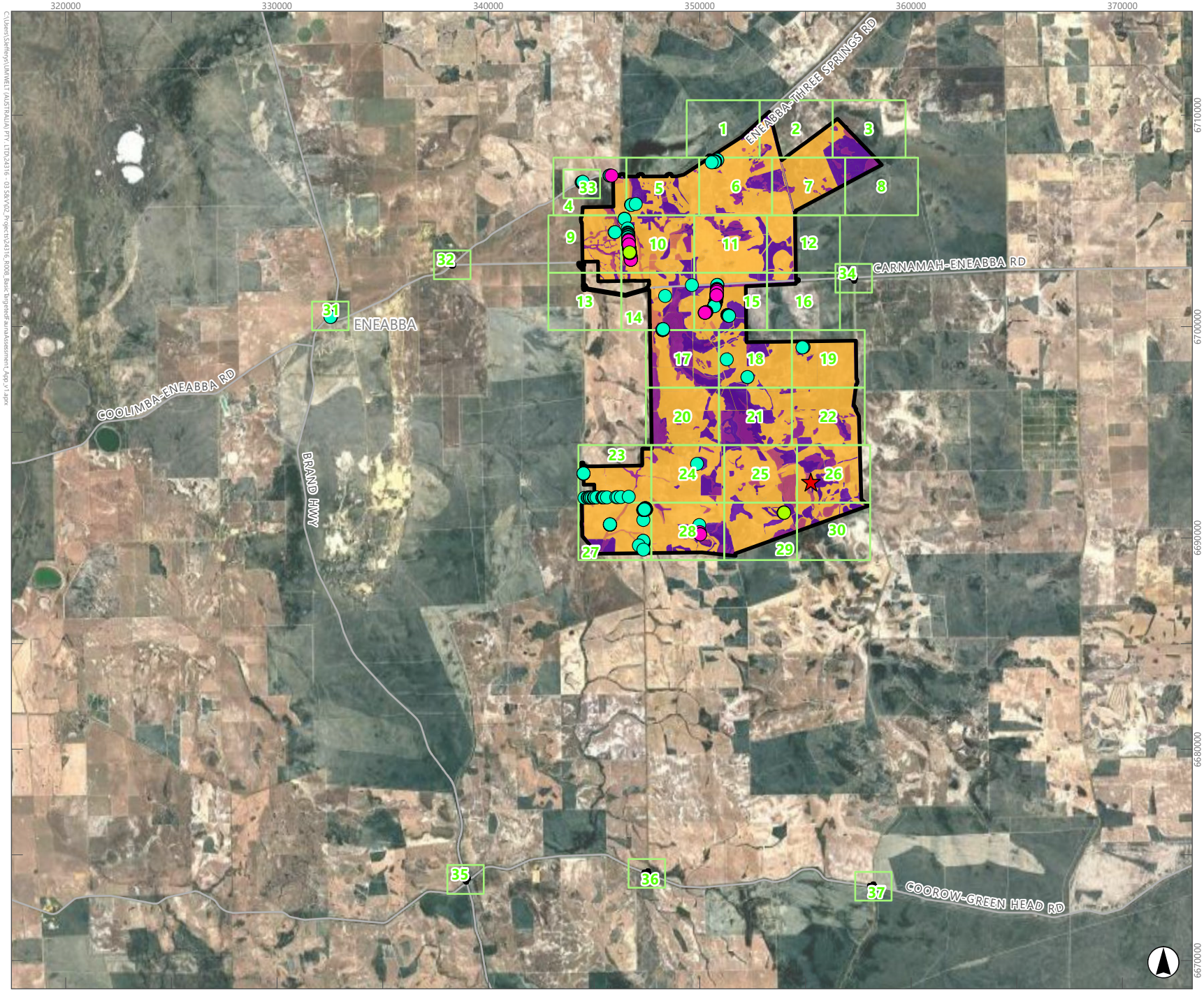
0 100 200 m

Scale: 1:5,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA – Overview



Legend

- Basic Fauna Survey Area (Basic FSA)
- Road
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees

(Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value

0 5 10

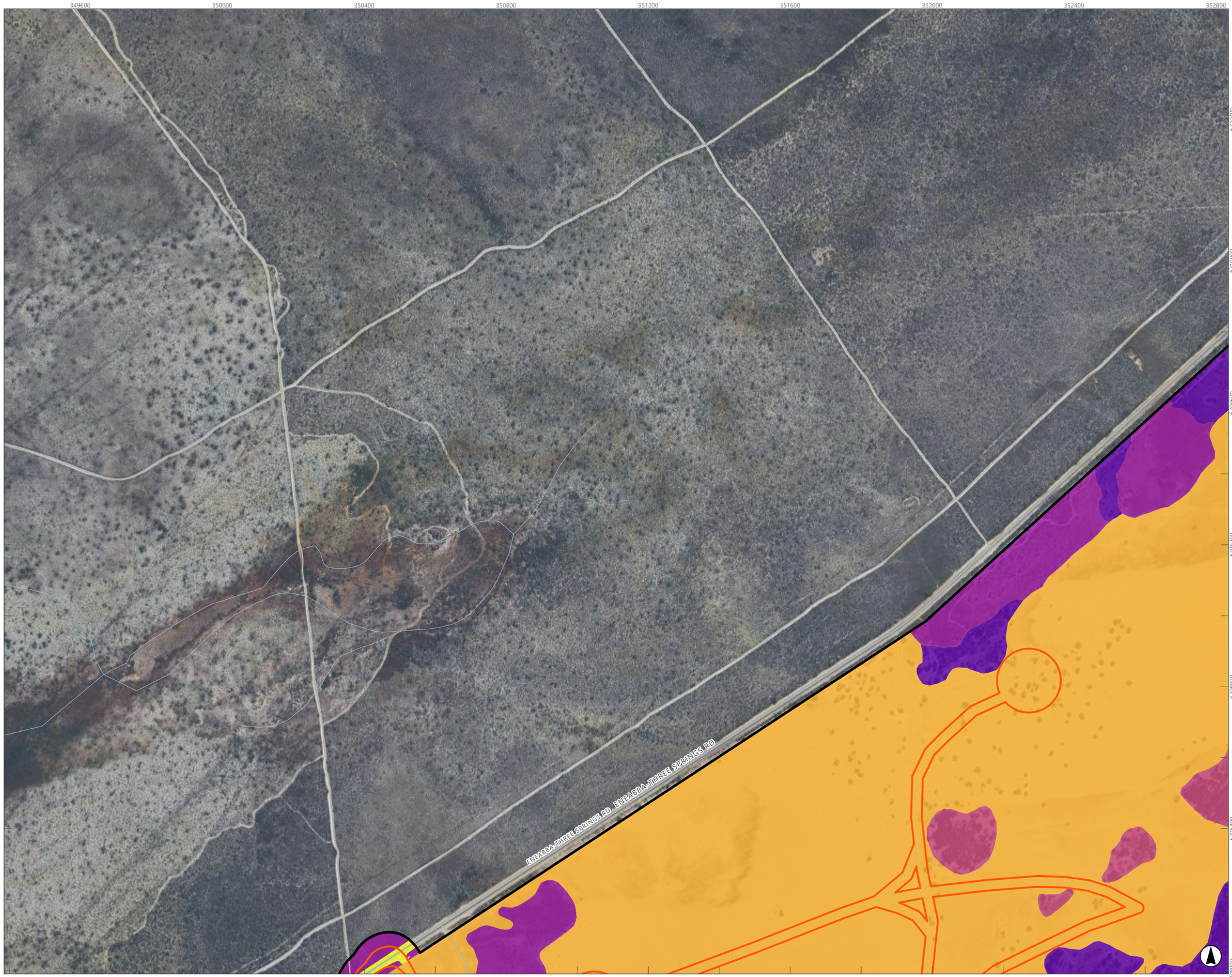
Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 1



Legend

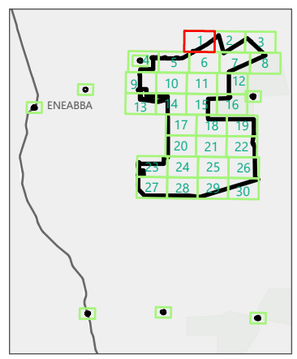
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

353200 353600 354000 354400 354800 355200 355600 356000

6710400 6710000 6709600 6709200 6708800 6708400 6708000

ENEABBA-THREE SPRINGS RD

ENEABBA-THREE SPRINGS RD

RESERVE RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 2

Legend

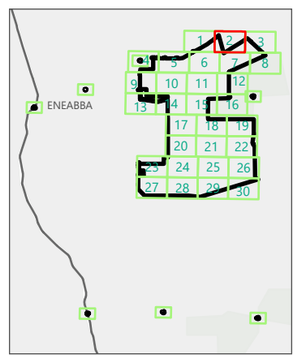
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



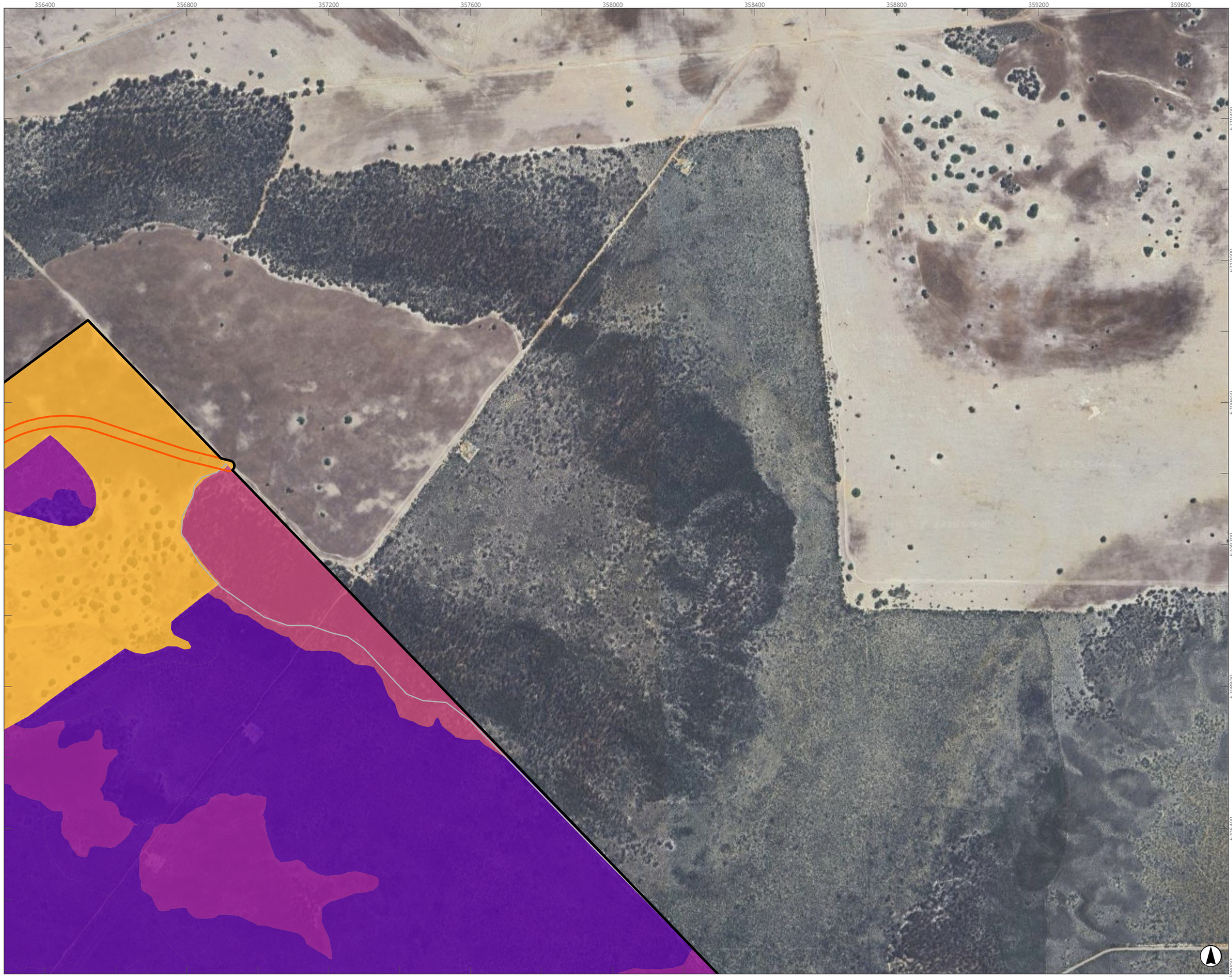
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 3



Legend

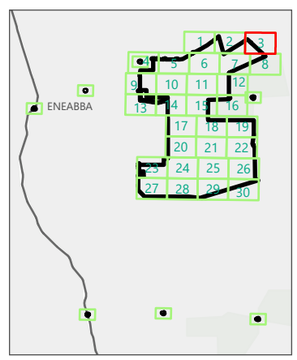
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 4

343200 343600 344000 344400 344800 345200 345600 346000 346400

6707600 6707200 6706800 6706400 6706000 6705600

ENEABBA-THREE SPRINGS RD

BRIMSON RD

Legend

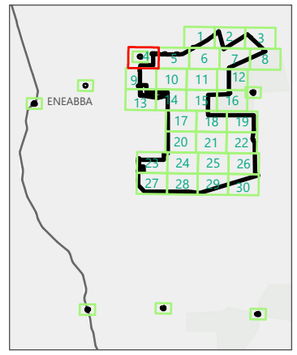
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

346800 347200 347600 348000 348400 348800 349200 349600

6707600
6707200
6706800
6706400
6706000
6705600

WARRADARGE CREEK

ENEABBA-THREE SPRINGS RD ENEABBA-THREE SPRINGS RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 5

Legend

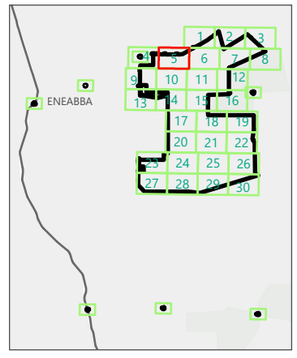
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



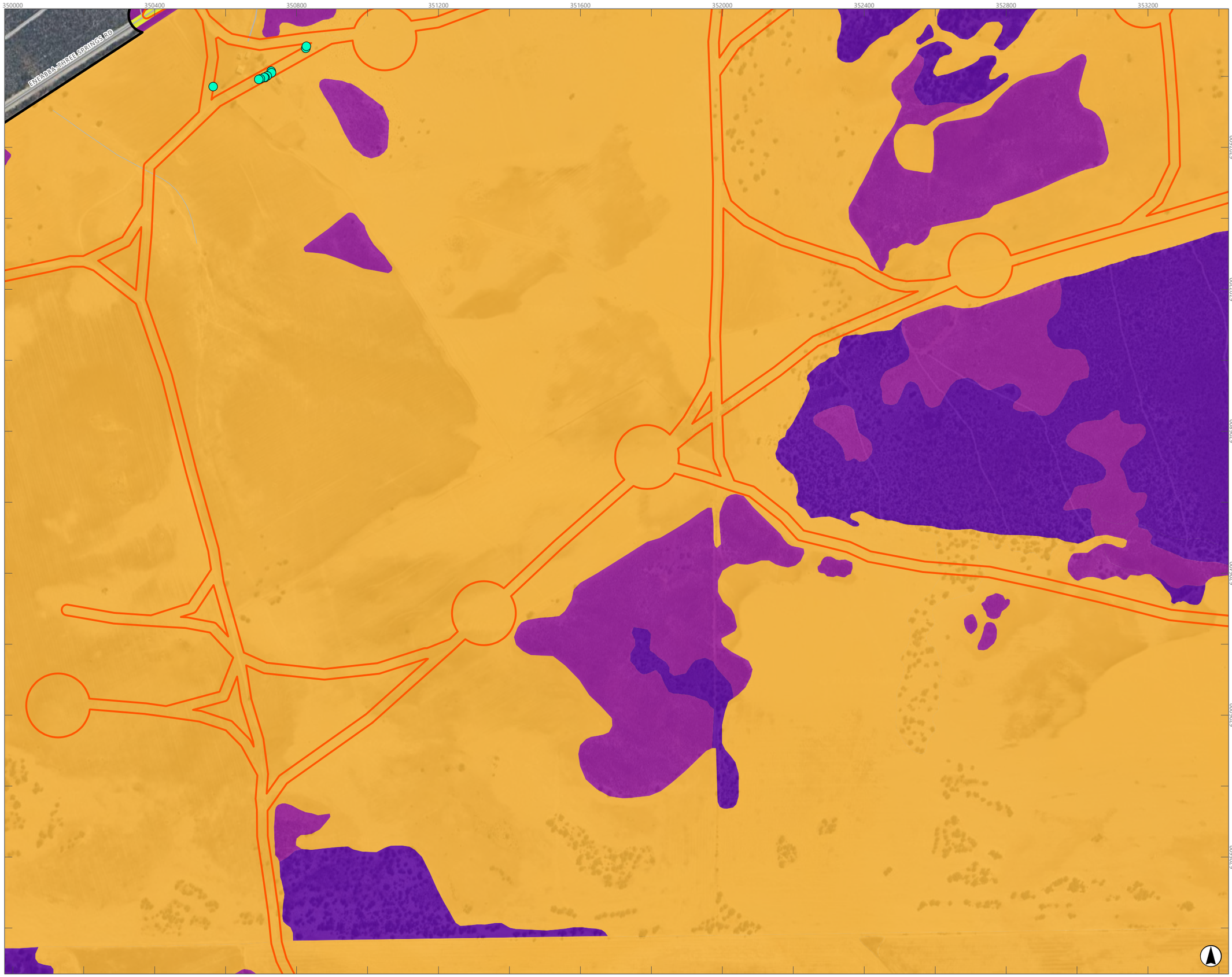
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 6



Legend

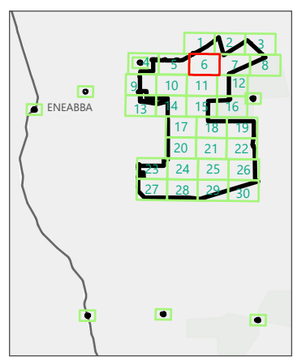
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 7

353600 354000 354400 354800 355200 355600 356000 356400 356800

6707600 6707200 6706800 6706400 6706000 6705600

RESERVE RD

Legend

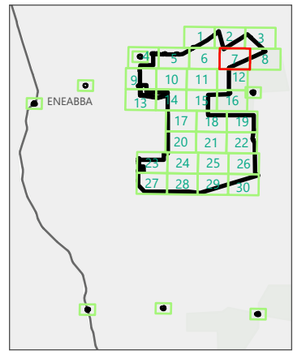
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



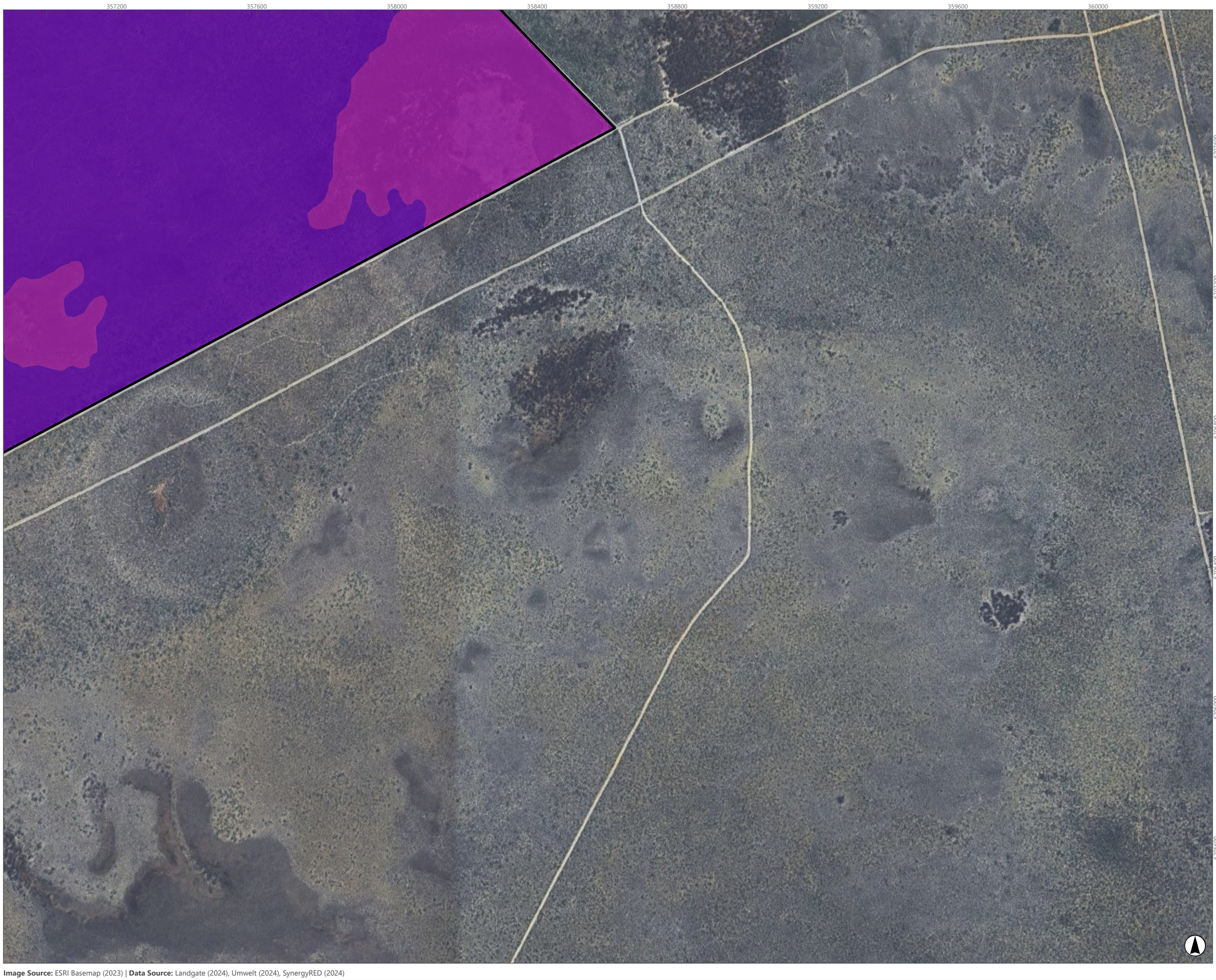
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 8



Legend

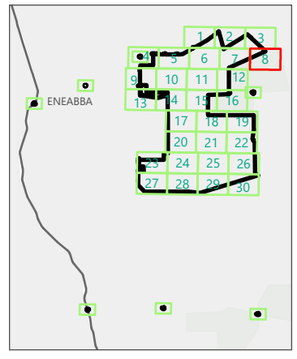
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



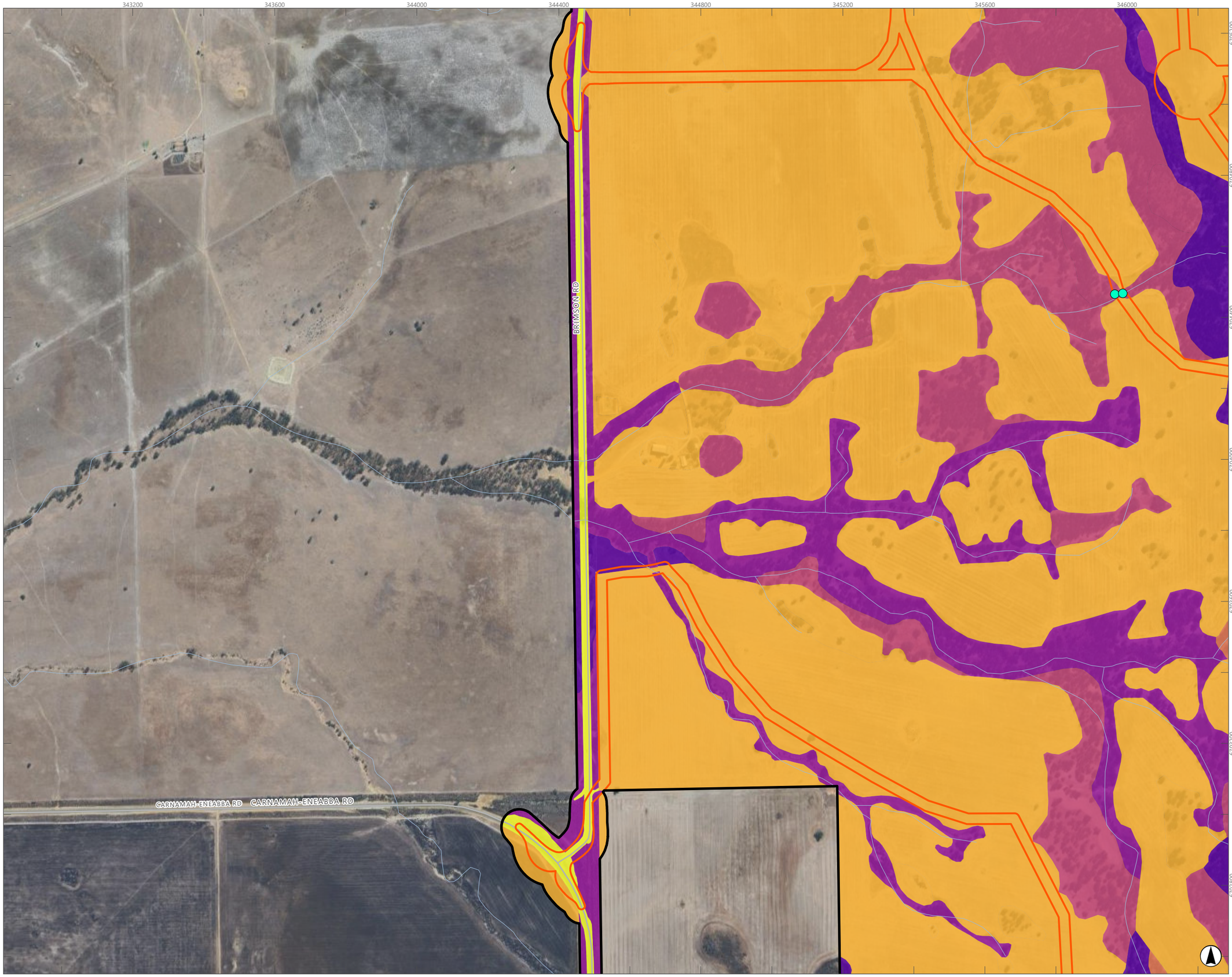
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 9



Legend

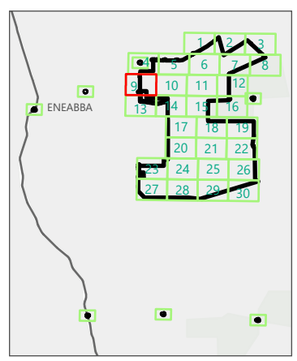
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

346400 346800 347200 347600 348000 348400 348800 349200 349600

6705200 6704800 6704400 6704000 6703600 6703200 6702800

WARRADARGE CREEK

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 10

Legend

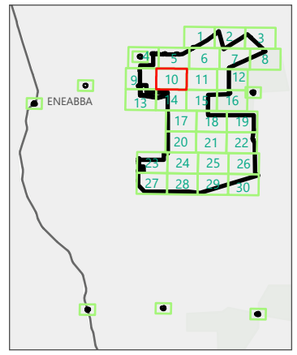
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



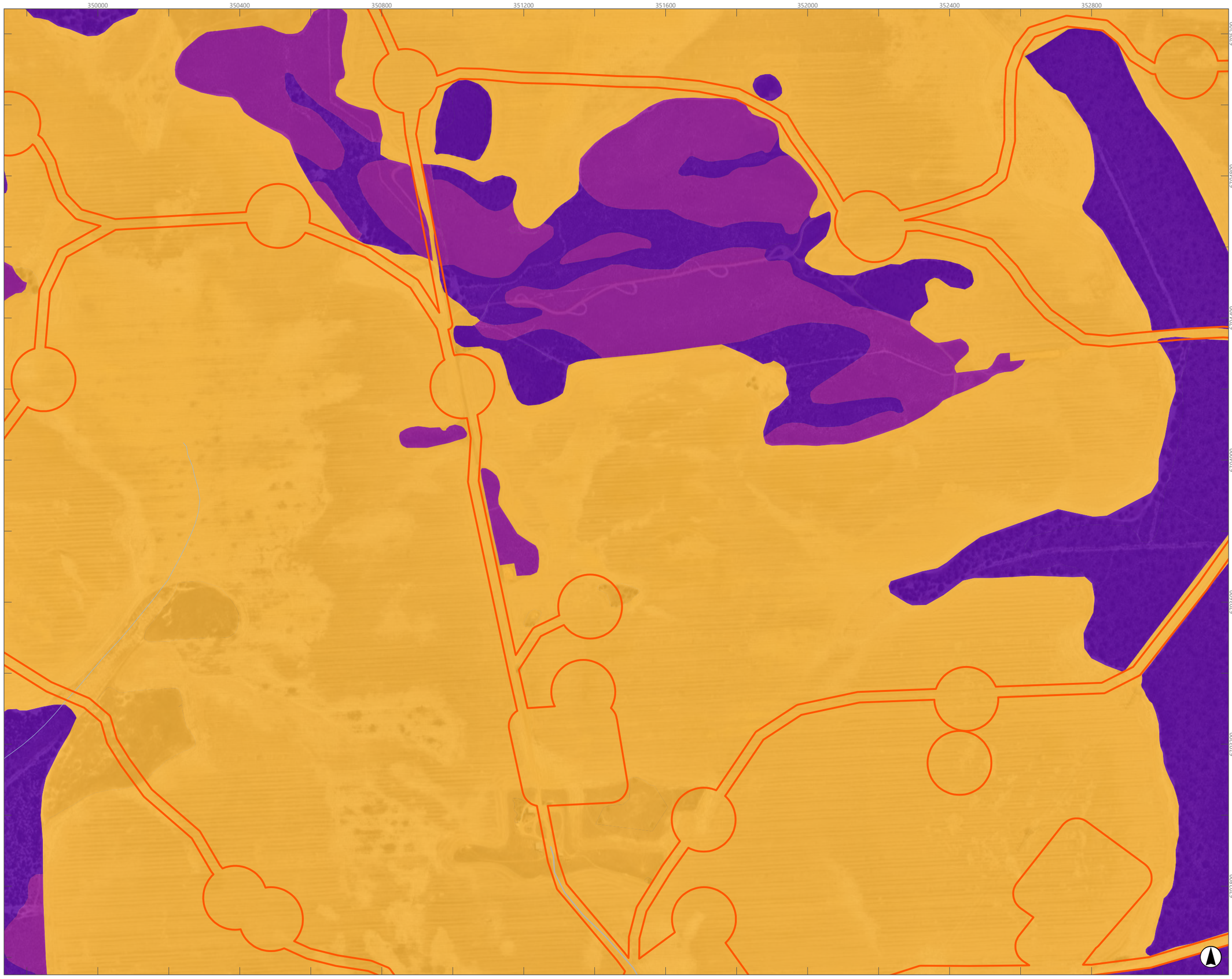
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 11



Legend

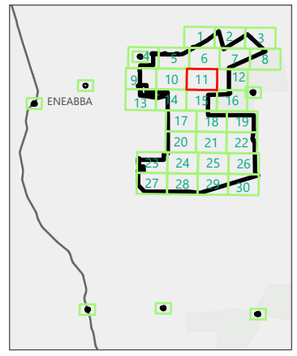
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

353200 353600 354000 354400 354800 355200 355600 356000 356400

6705200 6704800 6704400 6704000 6703600 6703200 6702800

RESERVE RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 12

Legend

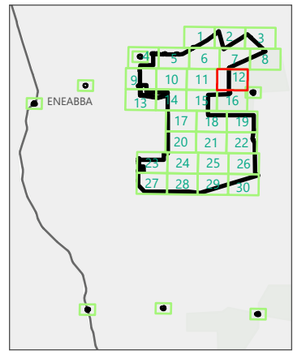
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



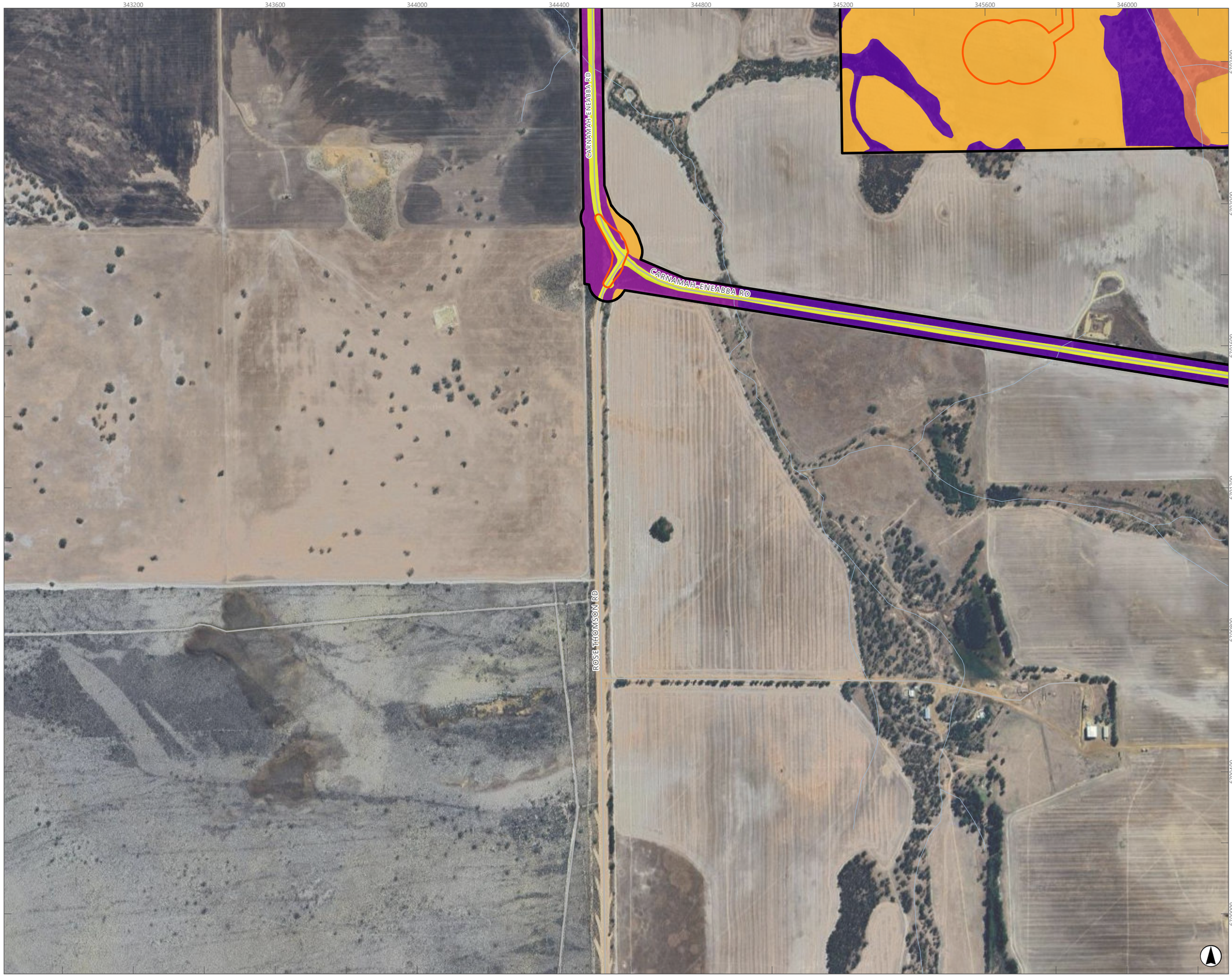
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 13



Legend

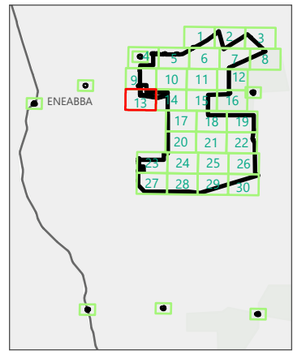
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 14

346400 346800 347200 347600 348000 348400 348800 349200 349600

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD

WARRADARGE CREEK

Legend

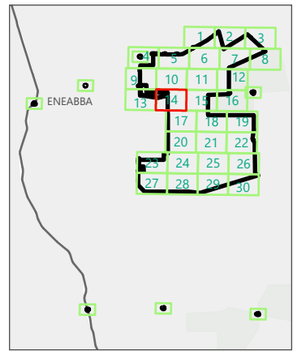
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



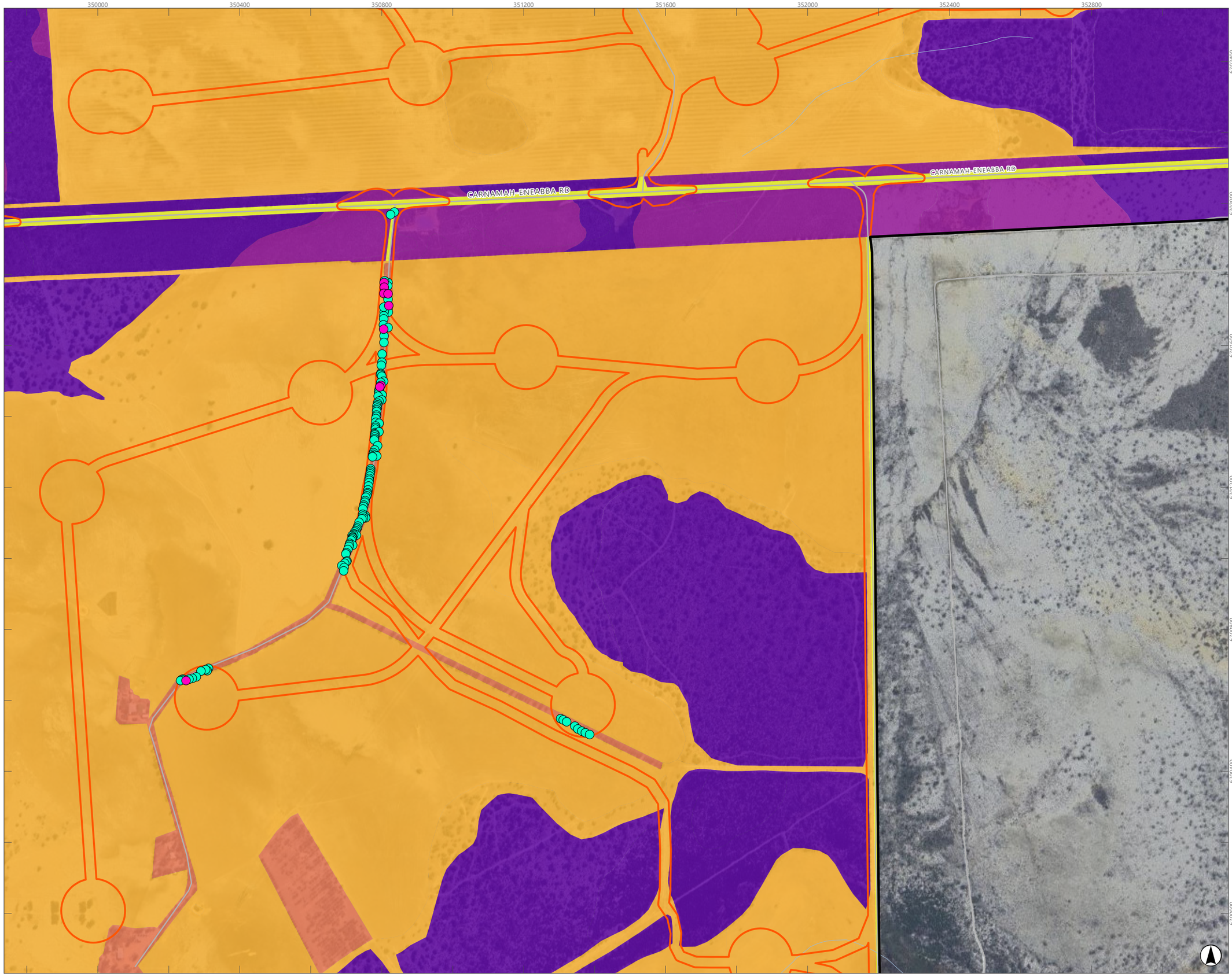
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 15



Legend

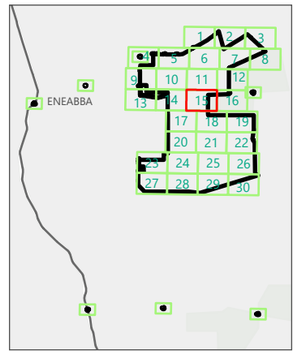
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 16

353200 353600 354000 354400 354800 355200 355600 356000 356400

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD CARNAMAH-ENEABBA RD

Legend

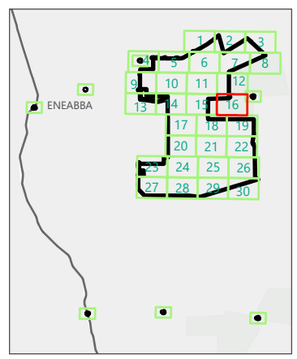
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



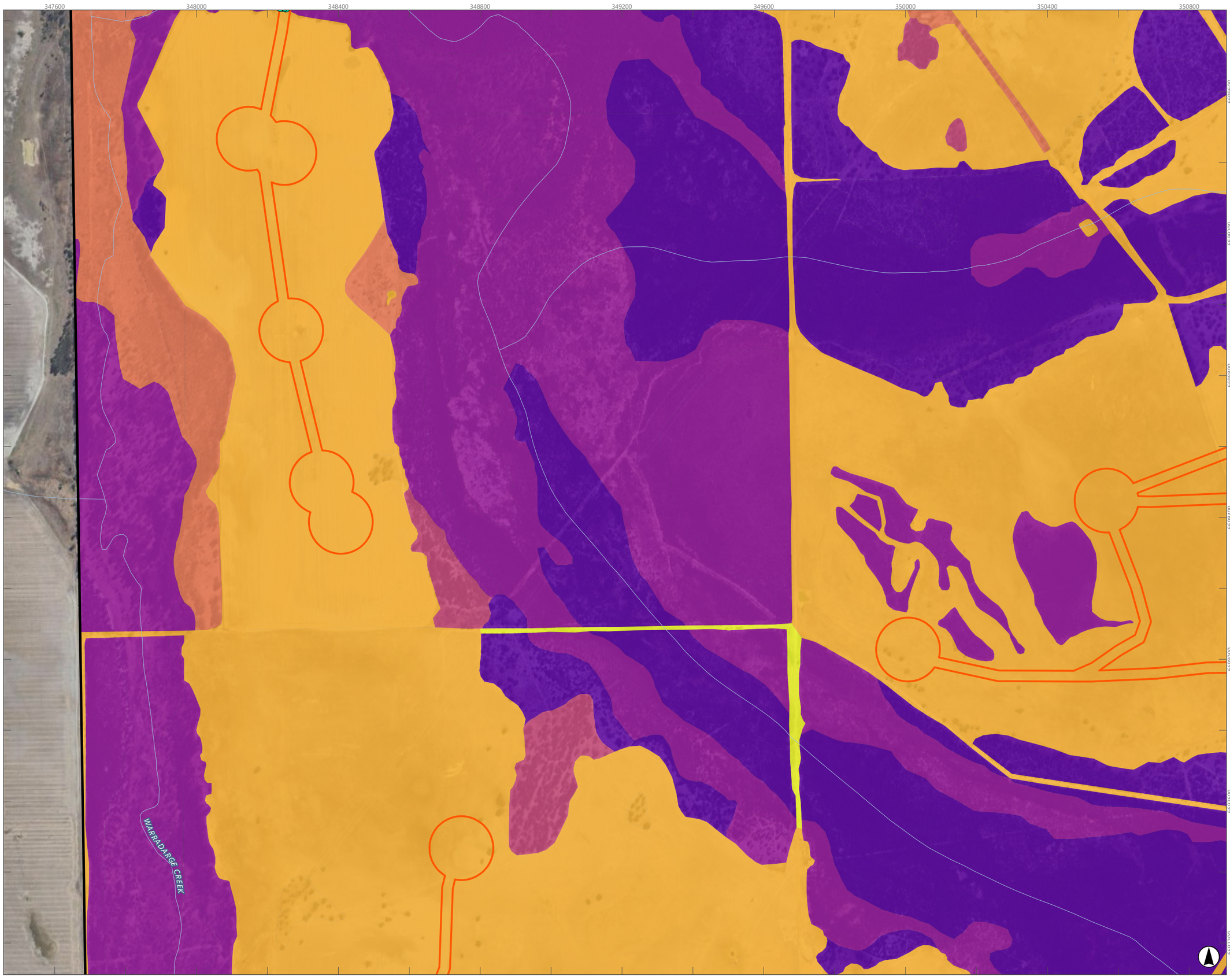
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 17



Legend

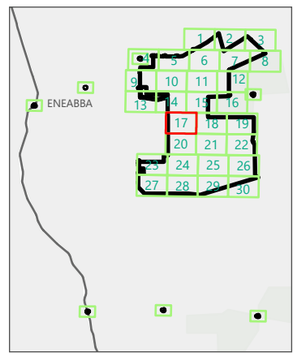
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

351200 351600 352000 352400 352800 353200 353600 354000

6699600 6699200 6698800 6698400 6698000 6697600 6697200

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 18

Legend

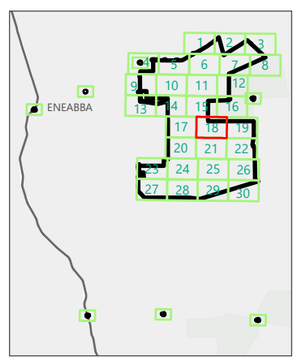
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 19

Legend

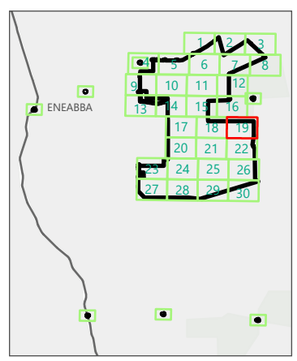
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

347600 348000 348400 348800 349200 349600 350000 350400 350800

6696800 6696400 6696000 6695600 6695200 6694800 6694400

WARRADARGE CREEK

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 20

Legend

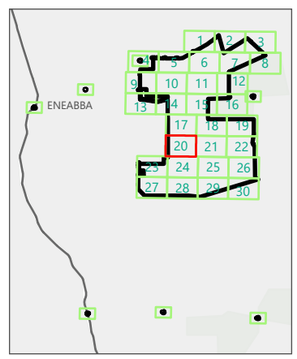
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



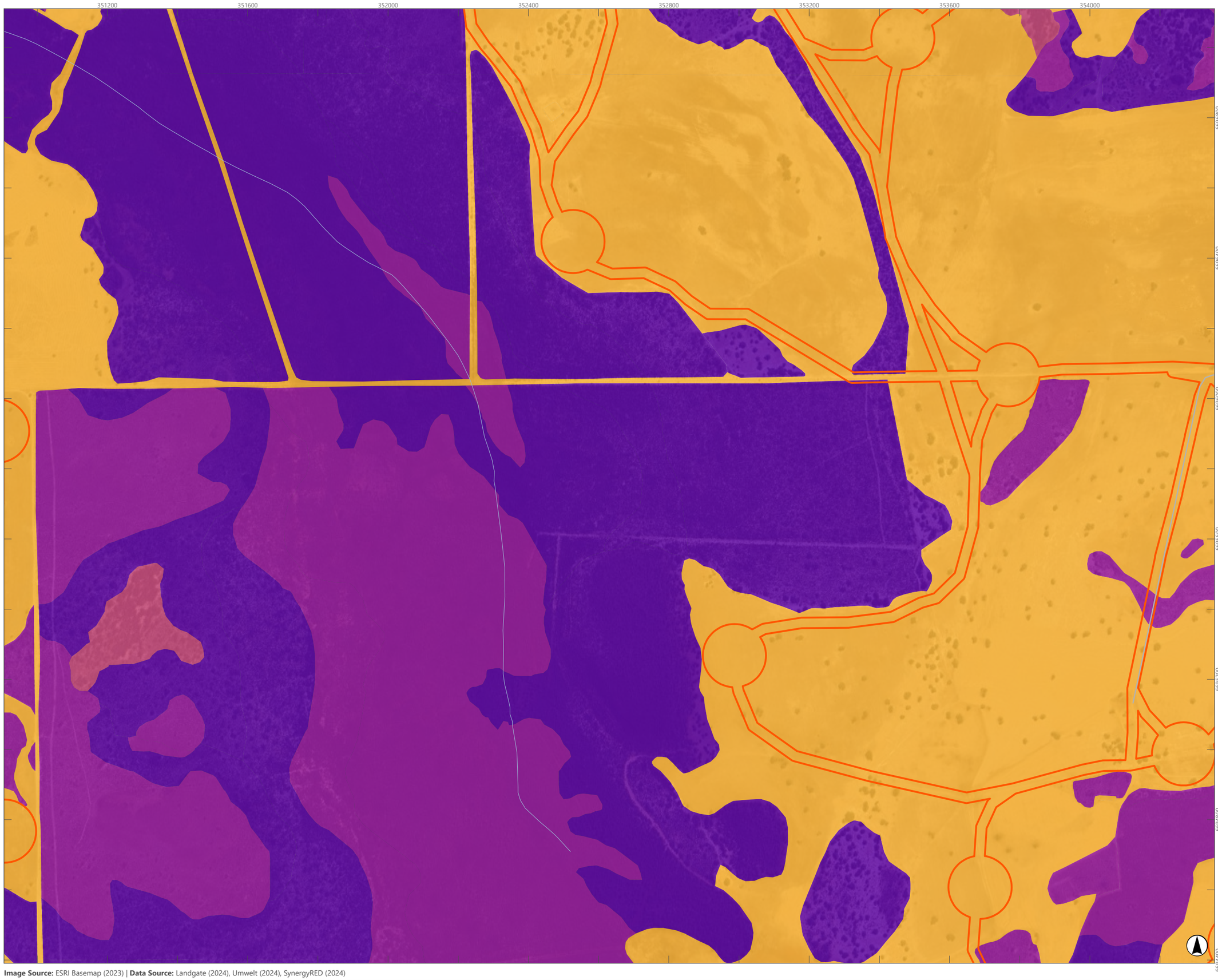
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 21



Legend

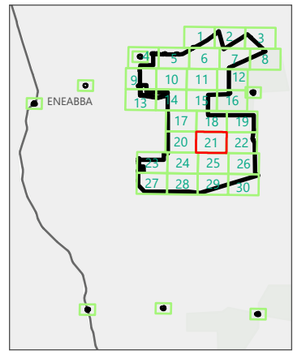
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 22

354400 354800 355200 355600 356000 356400 356800 357200 357600

6696800 6696400 6696000 6695600 6695200 6694800 6694400

GARIBALDI WILLIS RD

Legend

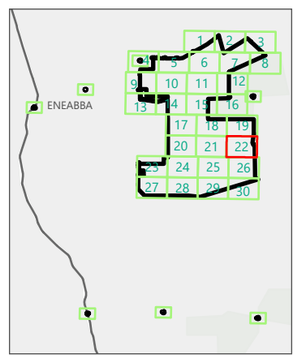
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 23

344400 344800 345200 345600 346000 346400 346800 347200 347600

6694000 6693600 6693200 6692800 6692400 6692000

WARRADARGE CREEK

ROSE THOMSON RD

Legend

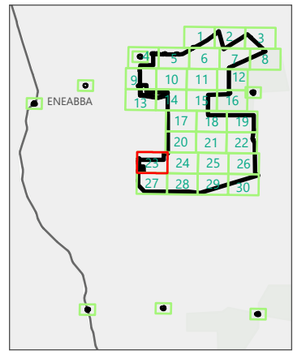
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



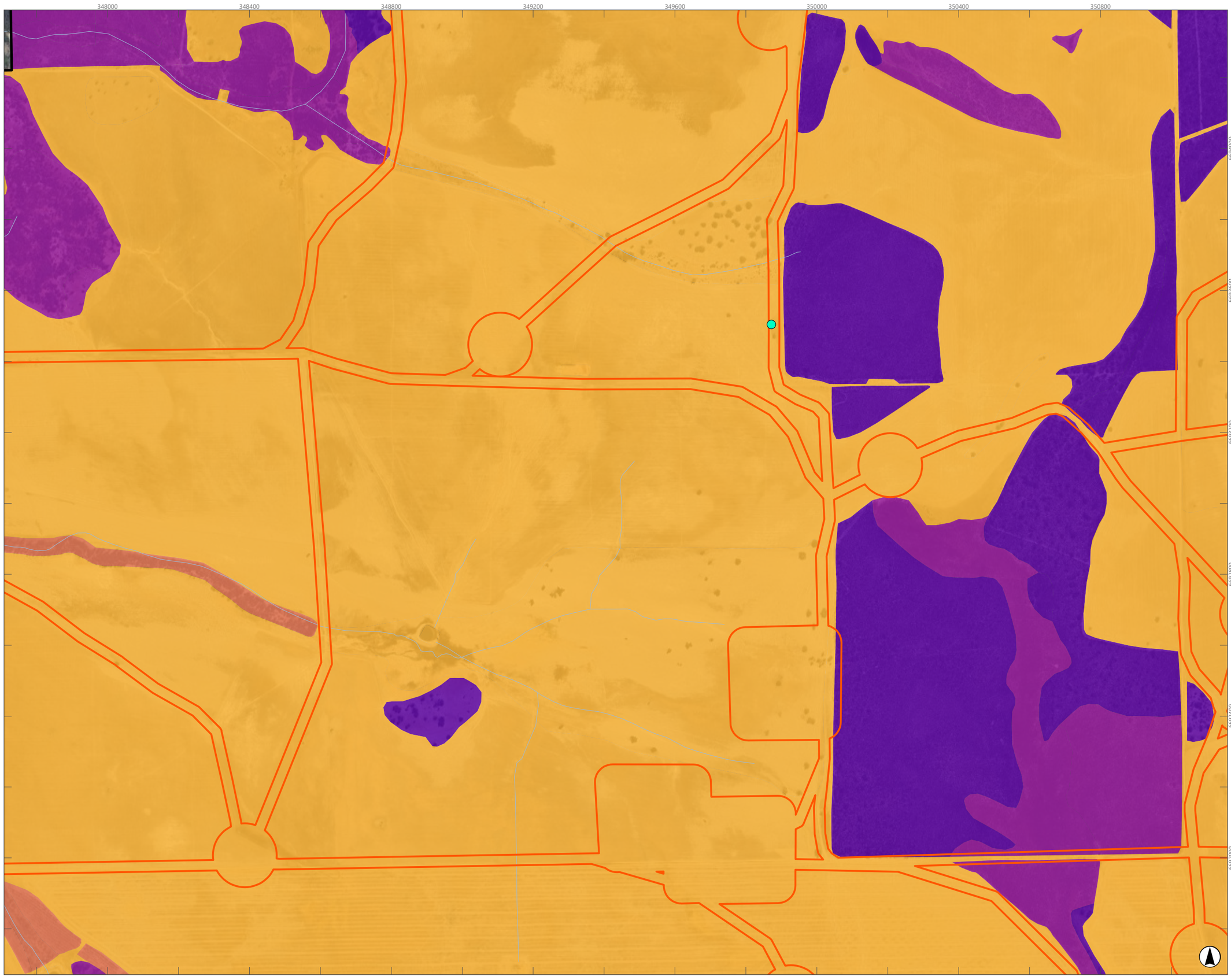
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 24



Legend

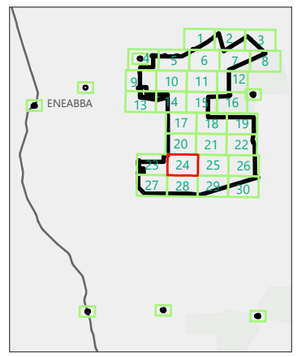
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

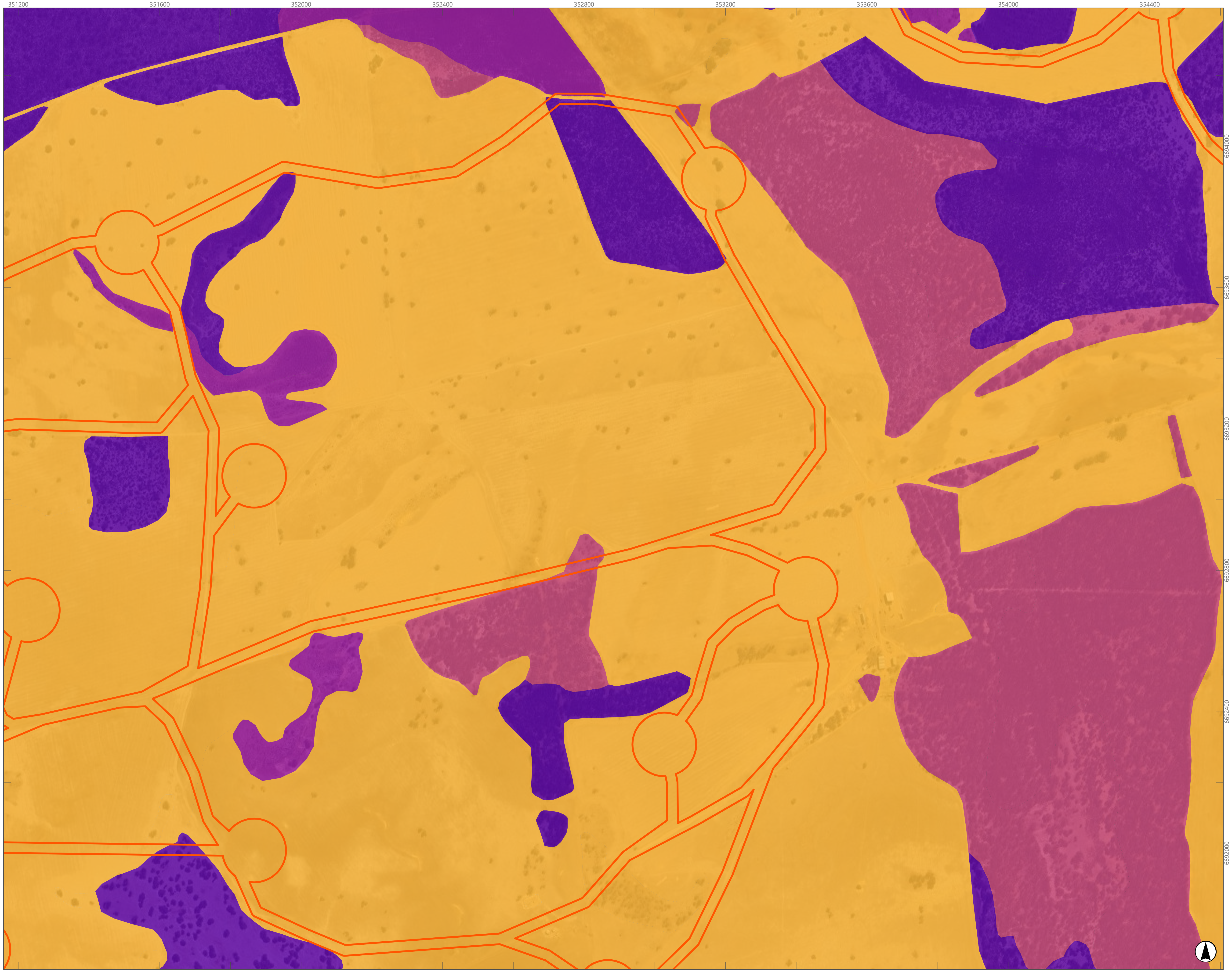
Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

umwelt

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 25



Legend

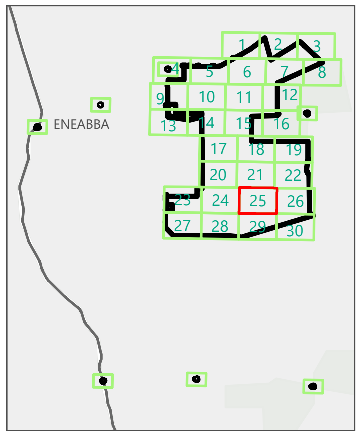
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

354800 355200 355600 356000 356400 356800 357200 357600 358000

6694000 6693600 6693200 6692800 6692400 6692000

CARIBAN DI WILLIS RD

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 26

Legend

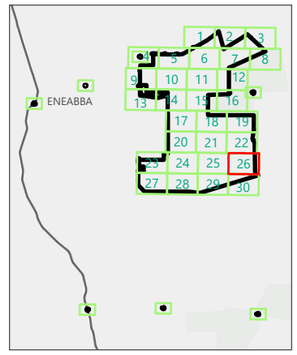
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 27

344400 344800 345200 345600 346000 346400 346800 347200 347600

6691600 6691200 6690800 6690400 6690000 6689600 6689200

WARRADARGE CREEK

ROSE THOMSON RD

Legend

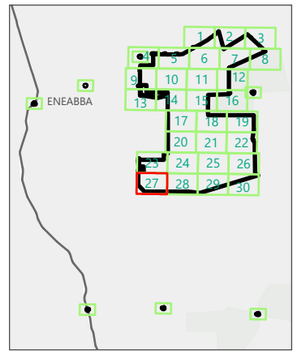
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

348000 348400 348800 349200 349600 350000 350400 350800

6691600 6691200 6690800 6690400 6690000 6689600 6689200

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 28

Legend

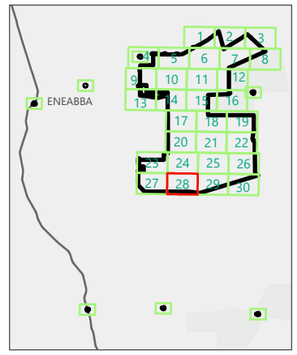
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



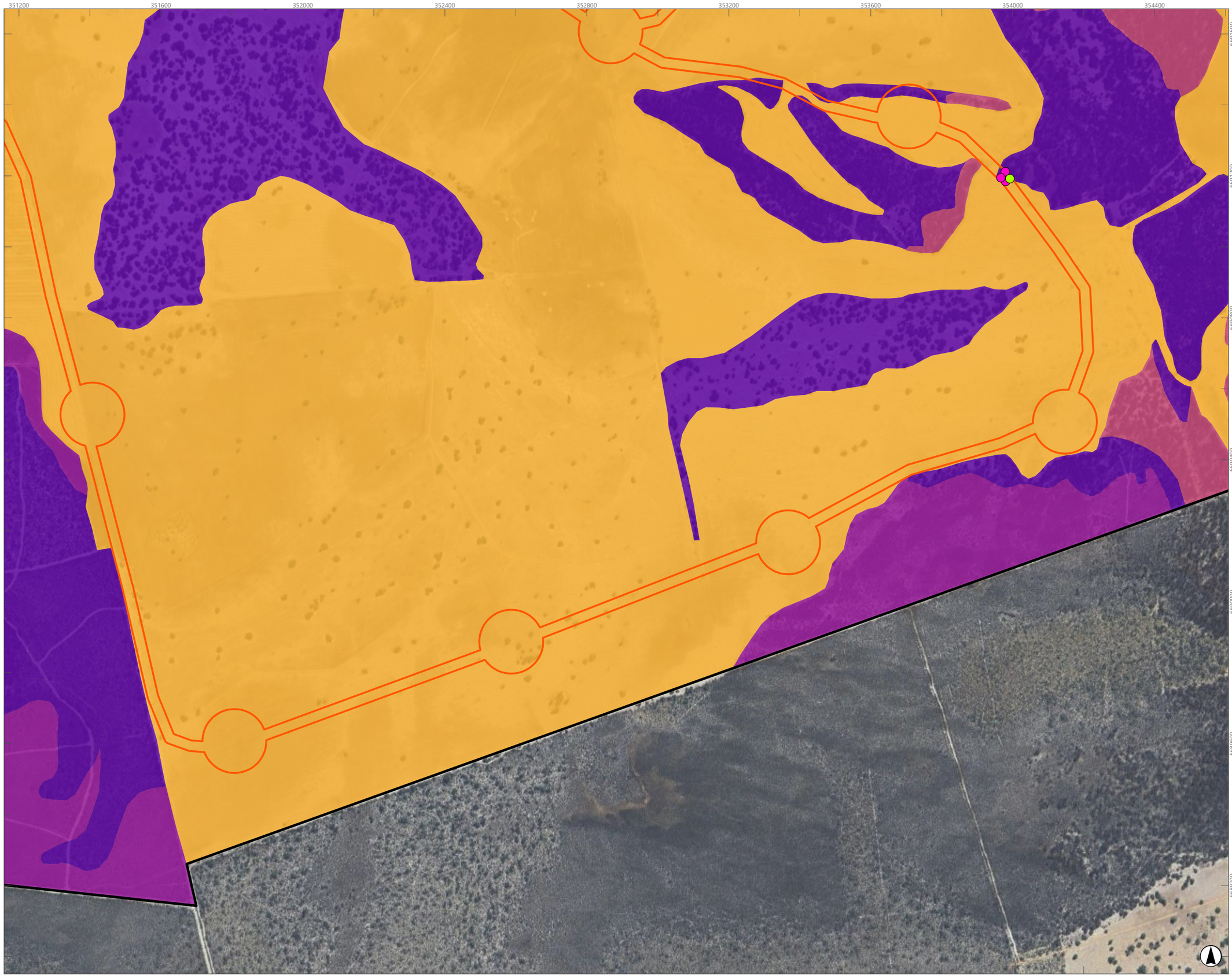
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 29



Legend

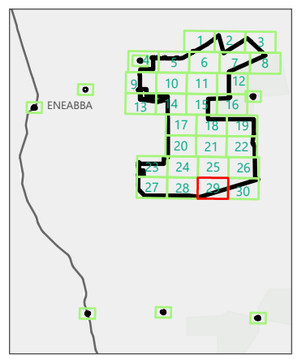
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Black-Cockatoo Foraging Habitat and Nest-trees Recorded within the Basic FSA Sheet 30

354800 355200 355600 356000 356400 356800 357200 357600 358000

6691600 6691200 6690800 6690400 6690000 6689600 6689200

Legend

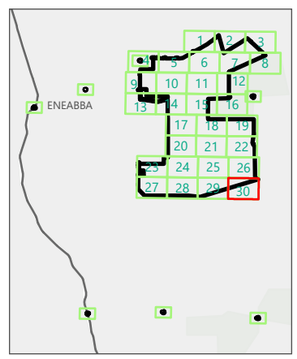
- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse
- Confirmed Breeding Tree

Black-Cockatoo Nest-trees (Bamford Ranking)

- 5
- 4
- 3
- 2
- 1

BCE Foraging Habitat Quality Score

- 6 High Foraging Value
- 5 Moderate to High Foraging Value
- 4 Moderate Foraging Value
- 3 Low to Moderate Foraging Value
- 2 Low Foraging Value
- 1 Negligible to Low Foraging Value
- 0 No Foraging Value



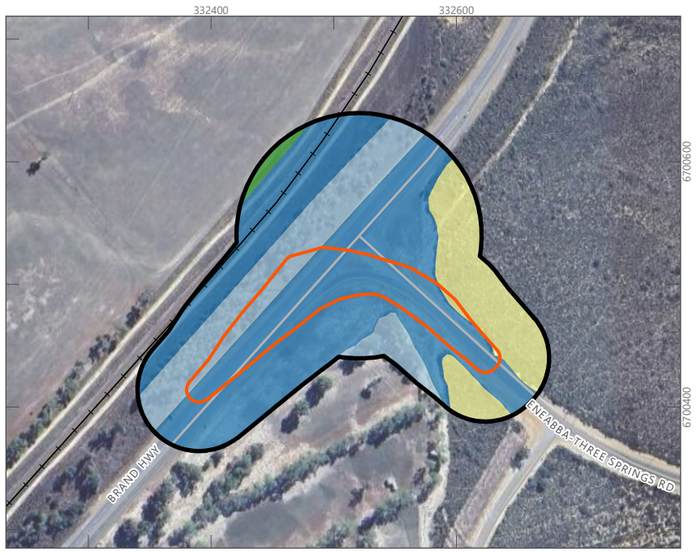
0 200 400 m

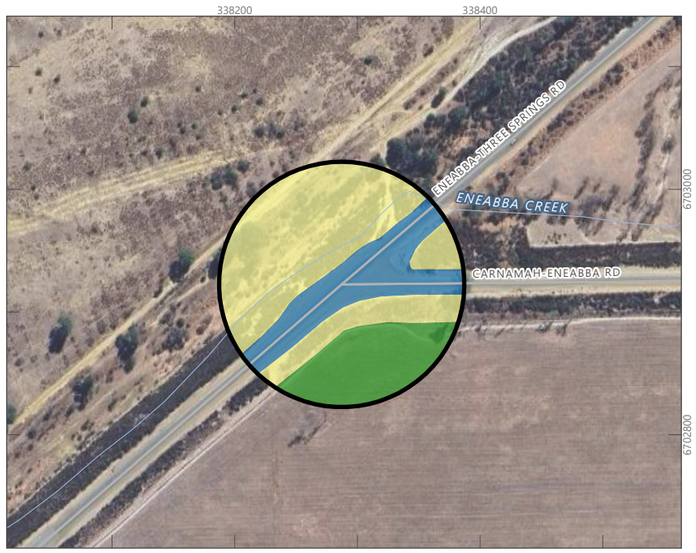
Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

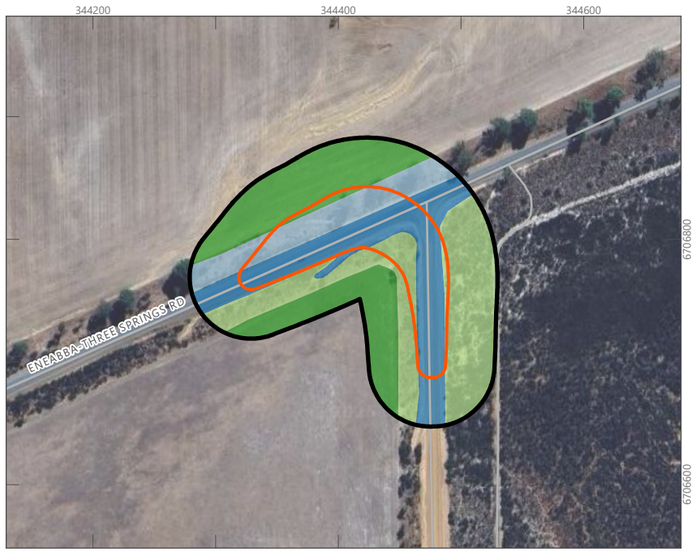
Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

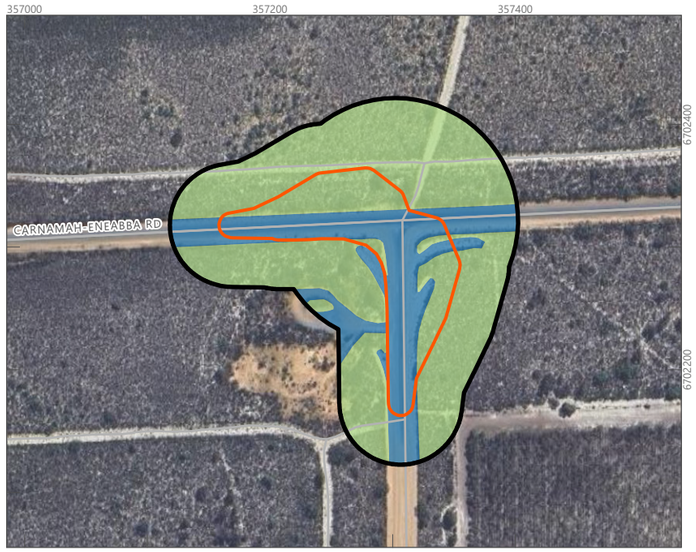
APPENDIX E

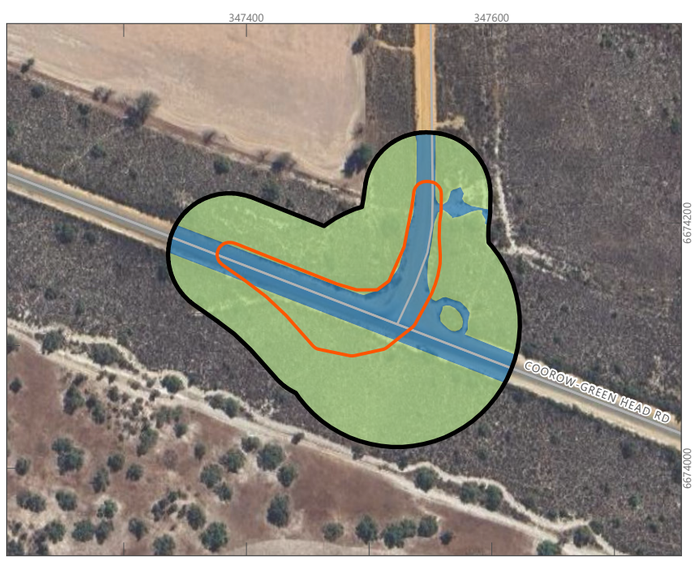
Fauna Habitats of the Basic FSA
Sheets 31 to 37

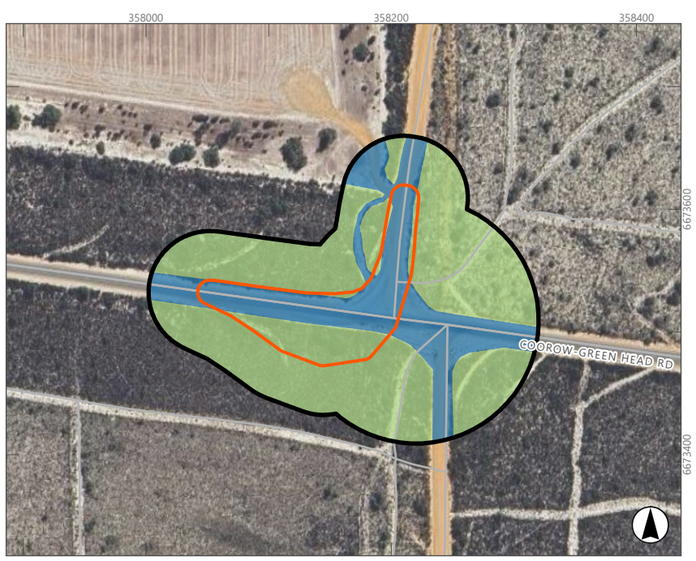










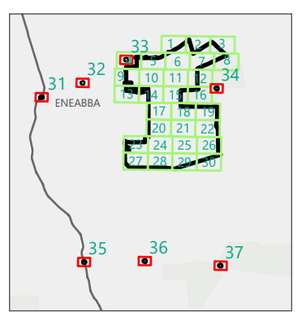


Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



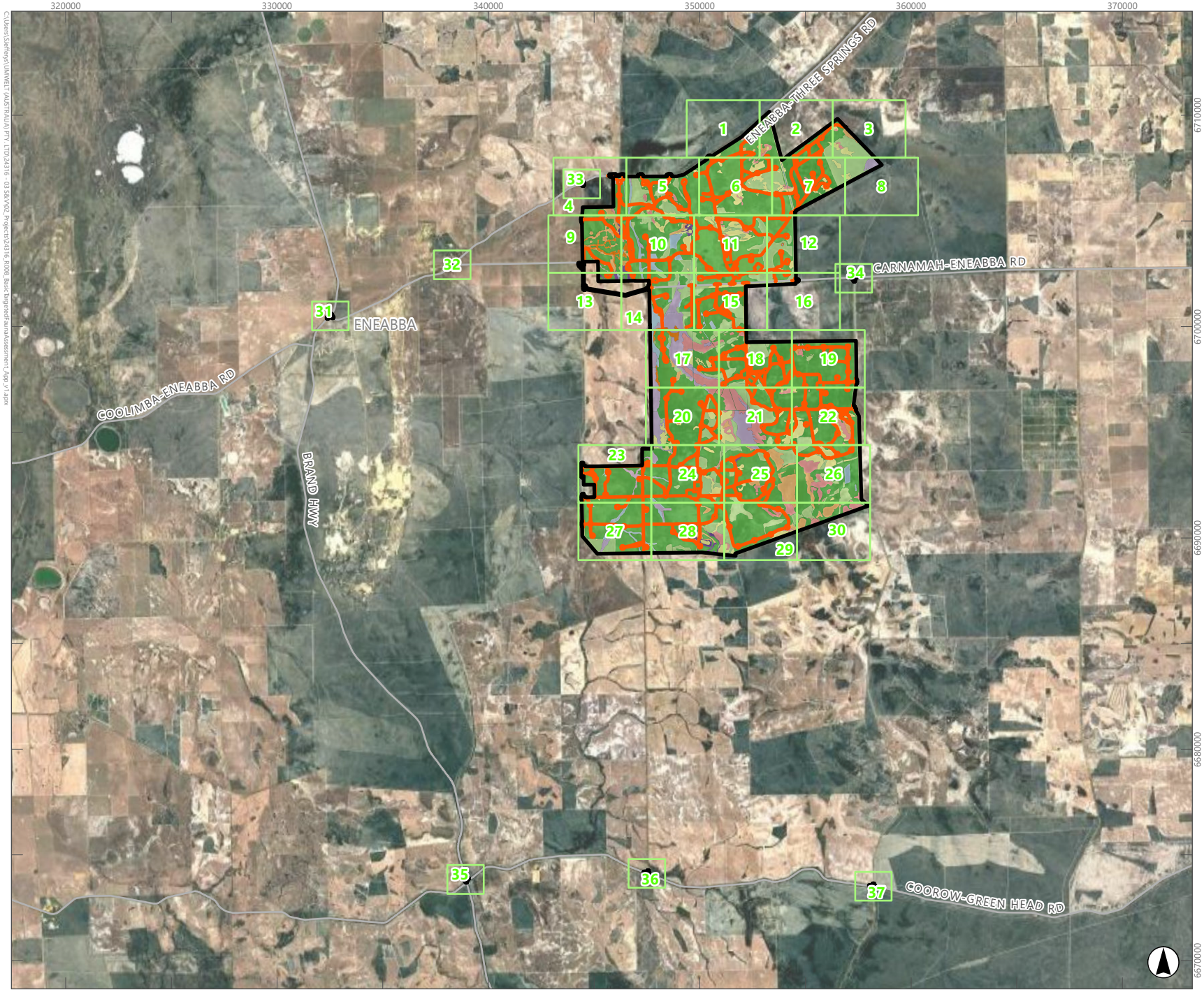
0 100 200 m

Scale: 1:5,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA – Overview



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil

0 5 10

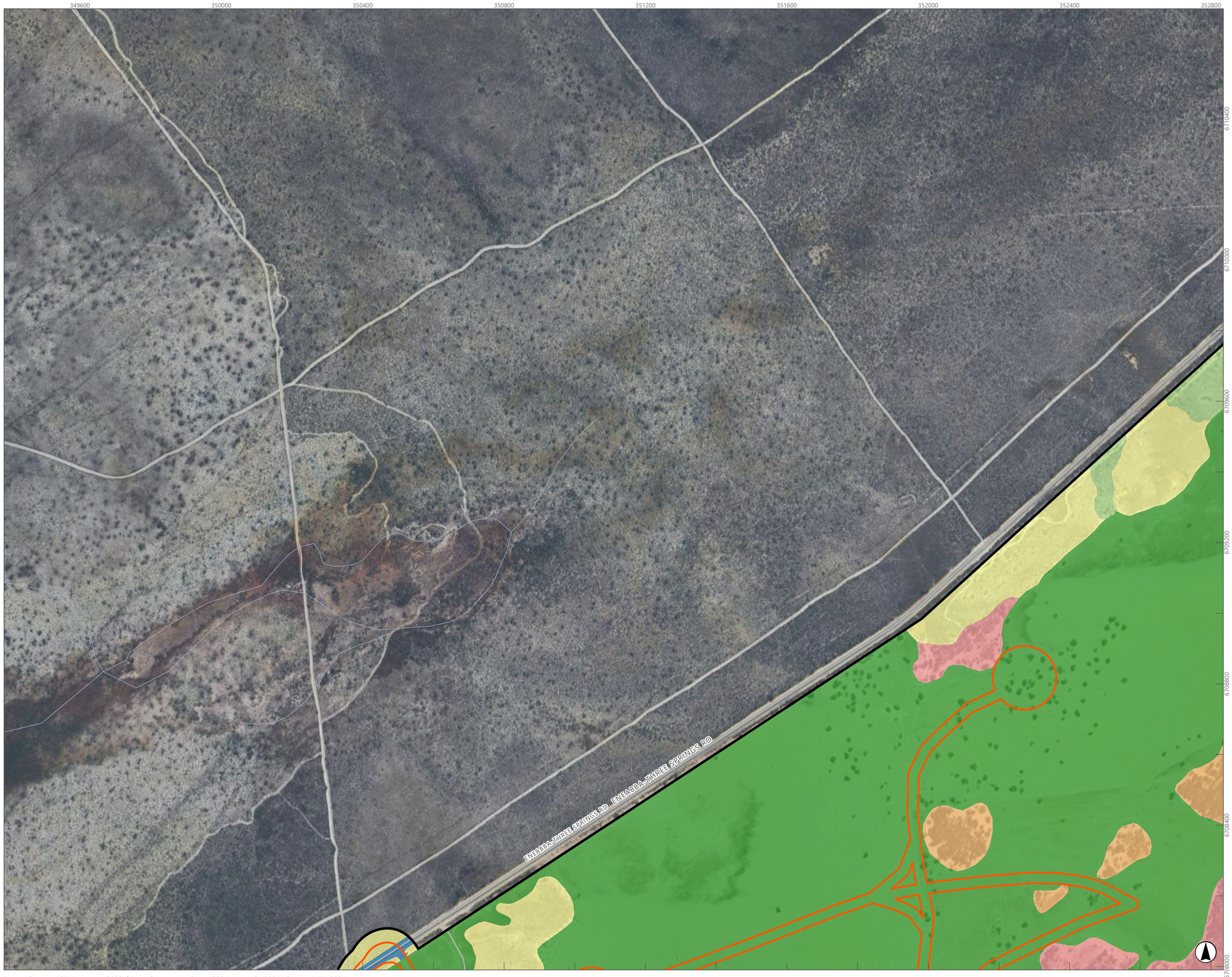
Kilometres

Scale 1:250,000 at A4
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 1

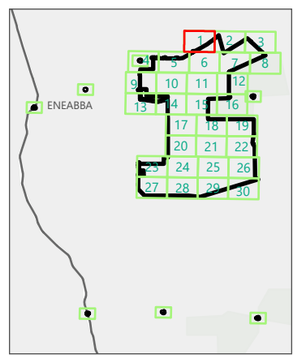


Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 2

353200 353600 354000 354400 354800 355200 355600 356000

6710400 6710000 6709600 6709200 6708800 6708400 6708000

ENEABBA-THREE SPRINGS RD

RESERVE RD

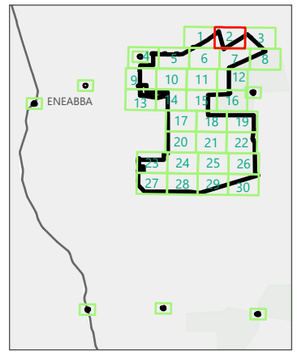
ENEABBA-THREE SPRINGS RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

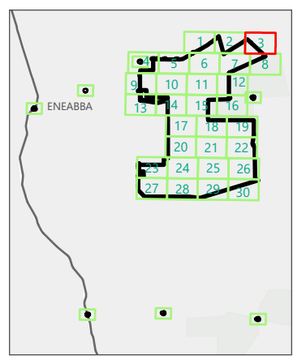
Fauna Habitats of the Basic FSA Sheet 3

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 4

343200 343600 344000 344400 344800 345200 345600 346000 346400

6707600 6707200 6706800 6706400 6706000 6705600

ENEABBA-THREE SPRINGS RD

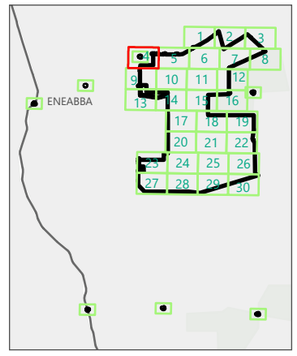
BRIMSON RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 5

346800 347200 347600 348000 348400 348800 349200 349600

6707600 6707200 6706800 6706400 6706000 6705600

ENEABBA-THREE SPRINGS RD ENEABBA-THREE SPRINGS RD

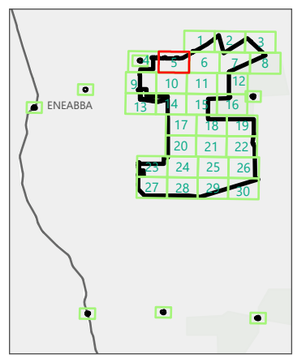
WARRADARGE CREEK

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



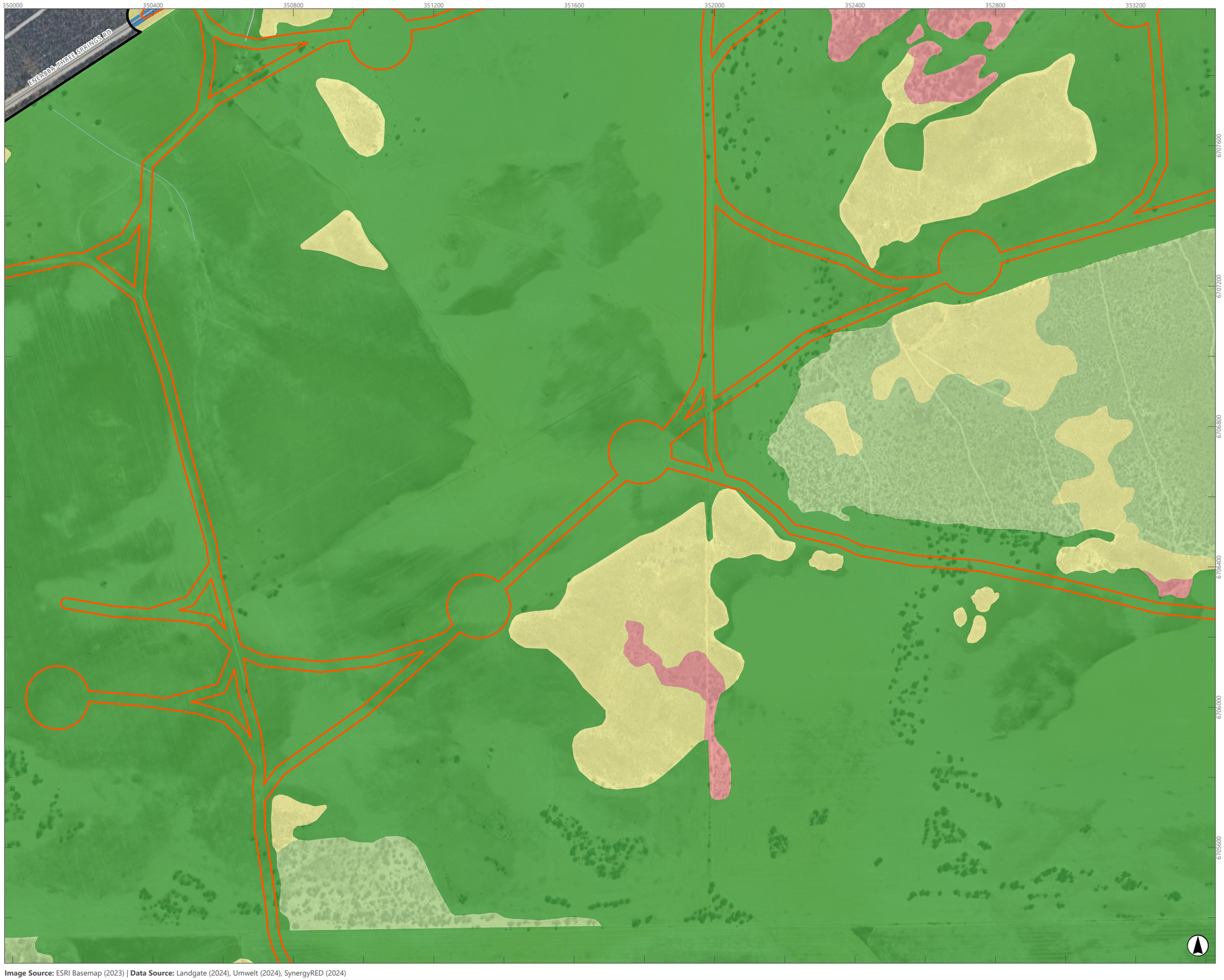
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 6

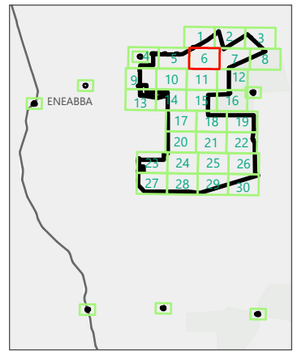


Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 7

353600 354000 354400 354800 355200 355600 356000 356400 356800

6707600 6707200 6706800 6706400 6706000 6705600

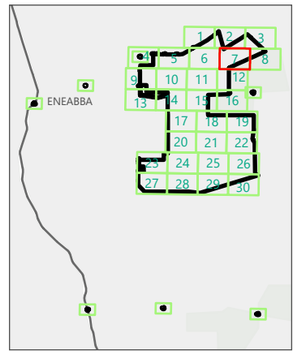
RESERVE RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



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Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

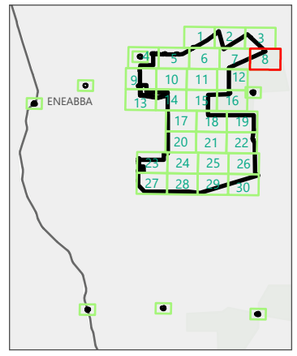
Fauna Habitats of the Basic FSA Sheet 8

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



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Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

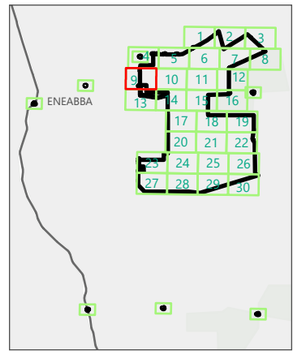
Fauna Habitats of the Basic FSA Sheet 9

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



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Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 10

346400 346800 347200 347600 348000 348400 348800 349200 349600

6705200 6704800 6704400 6704000 6703600 6703200 6702800

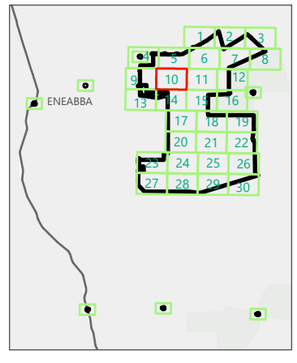
WARRADARGE CREEK

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



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Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 11

350000 350400 350800 351200 351600 352000 352400 352800

6705200 6704800 6704400 6704000 6703600 6703200 6702800

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
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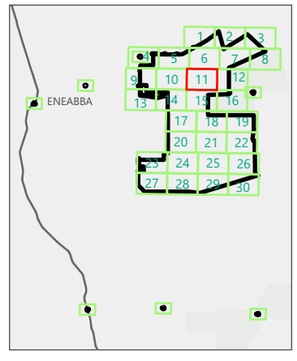
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



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Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 12

353200 353600 354000 354400 354800 355200 355600 356000 356400

6705200 6704800 6704400 6704000 6703600 6703200 6702800

RESERVE RD

ENEABBA

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil

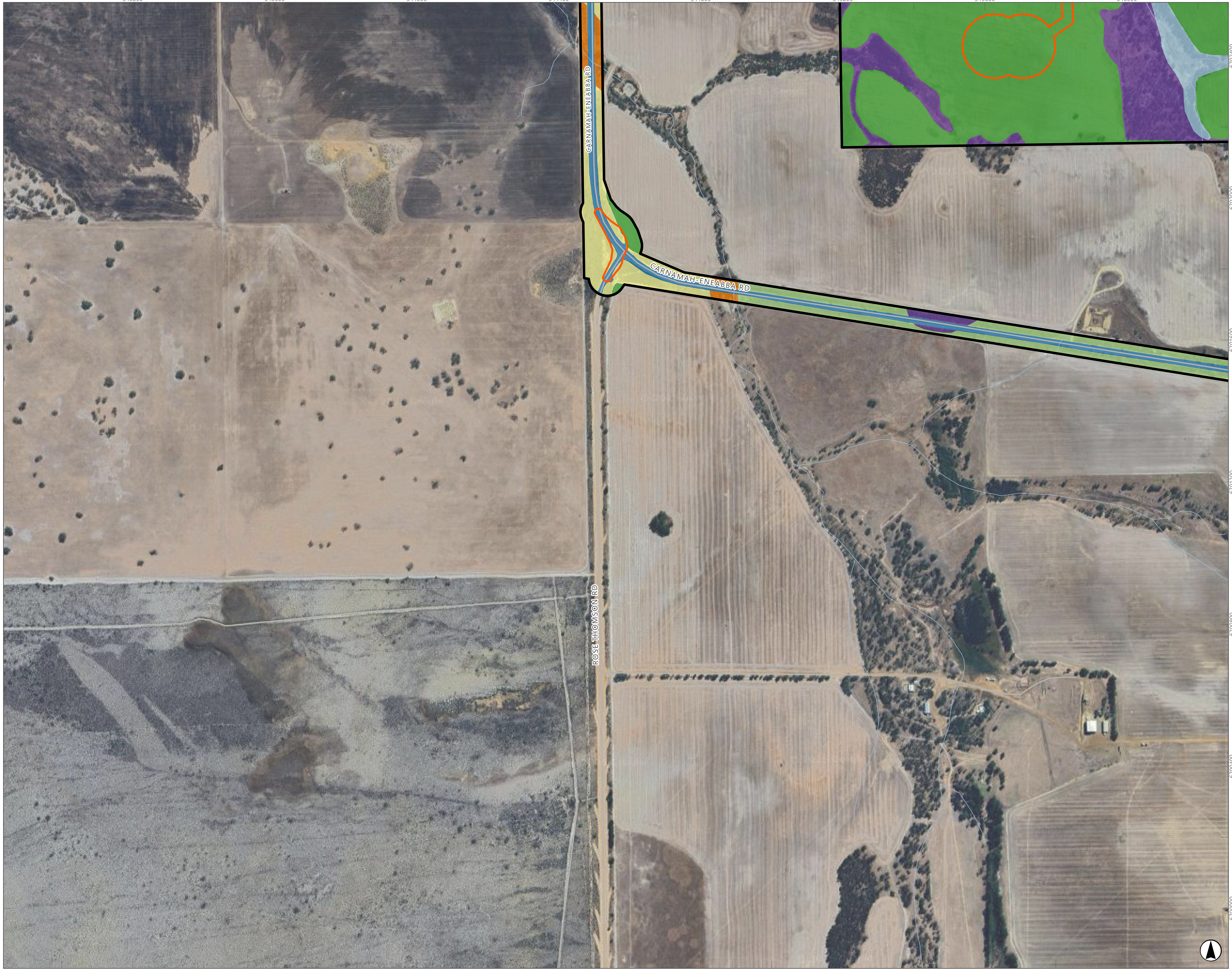
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 13



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
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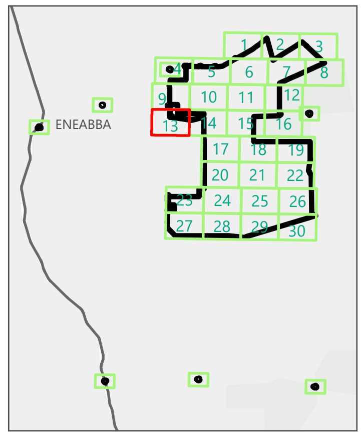

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Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 14

346400 346800 347200 347600 348000 348400 348800 349200 349600

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD

WARRADARGE CREEK

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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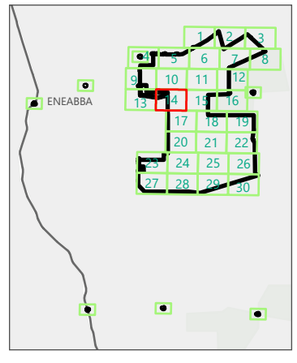
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



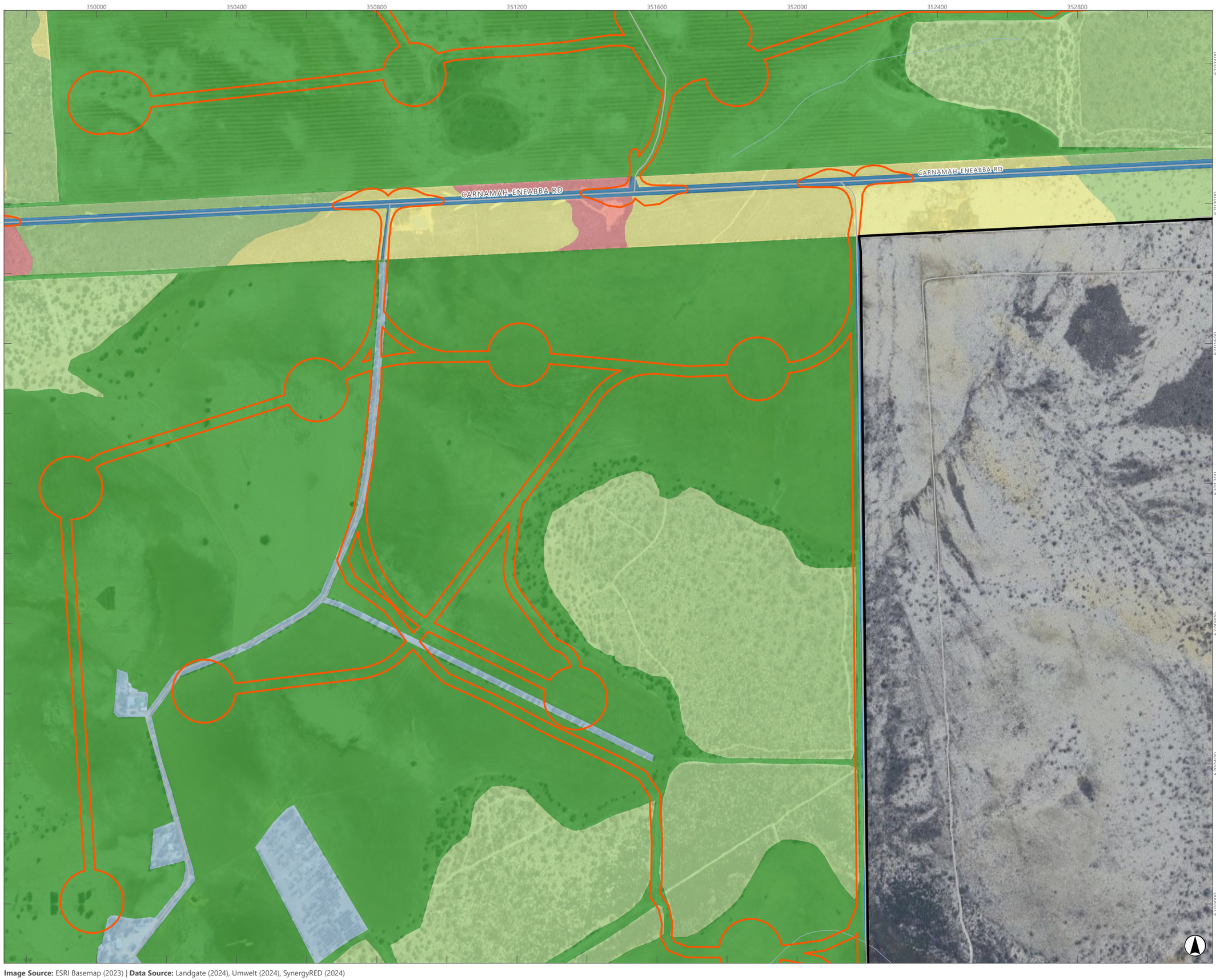
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 15



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
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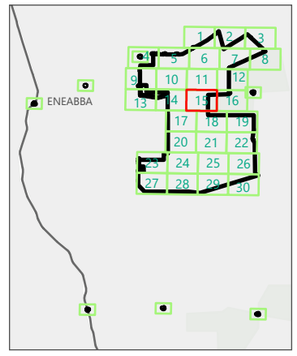

0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 16

353200 353600 354000 354400 354800 355200 355600 356000 356400

6702400 6702000 6701600 6701200 6700800 6700400 6700000

CARNAMAH-ENEABBA RD CARNAMAH-ENEABBA RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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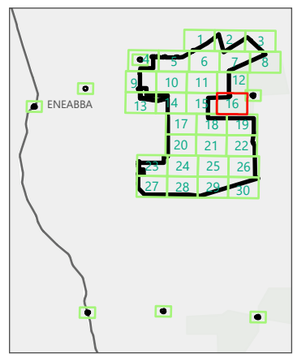
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 17

347600 348000 348400 348800 349200 349600 350000 350400 350800

6699600 6699200 6698800 6698400 6698000 6697600 6697200

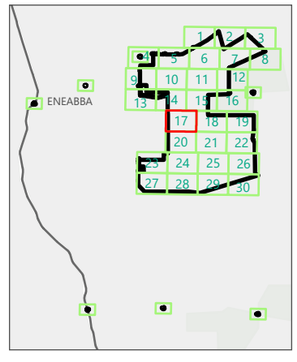
WARRADARGE CREEK

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 18

351200 351600 352000 352400 352800 353200 353600 354000

6699600 6699200 6698800 6698400 6698000 6697600 6697200

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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- Tall shrubland associated with dampland
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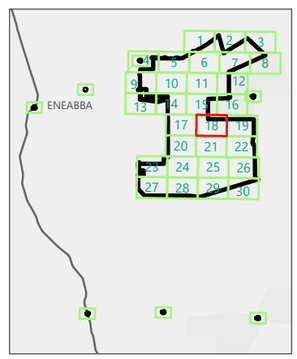

0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 19

354400 354800 355200 355600 356000 356400 356800 357200 357600

6699600 6699200 6698800 6698400 6698000 6697600 6697200

GARIBALDI WILLIS RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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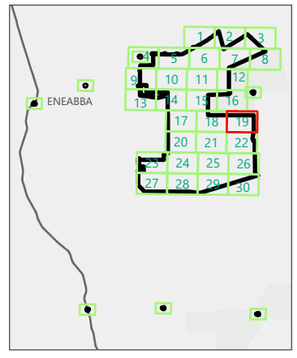
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 20

347600 348000 348400 348800 349200 349600 350000 350400 350800

6696800 6696400 6696000 6695600 6695200 6694800 6694400

WARRADARGE CREEK

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
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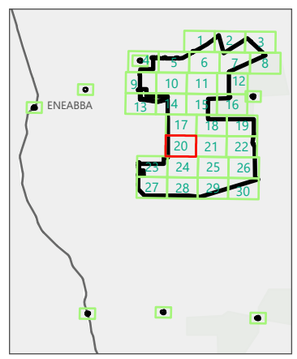
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 21

351200 351600 352000 352400 352800 353200 353600 354000

6696800 6696400 6696000 6695600 6695200 6694800 6694400

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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- Low shrubland on gentle slope
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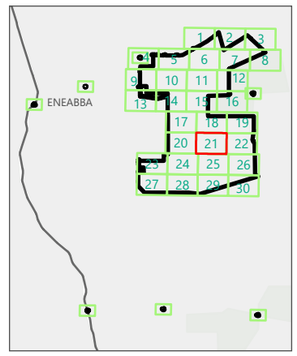
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 22

354400 354800 355200 355600 356000 356400 356800 357200 357600

6696800 6696400 6696000 6695600 6695200 6694800 6694400

GARIBALDI WILLIS RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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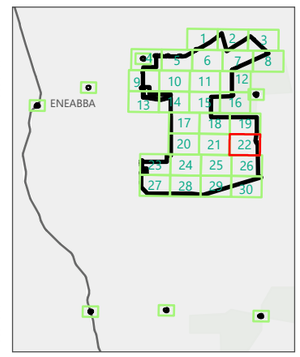
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



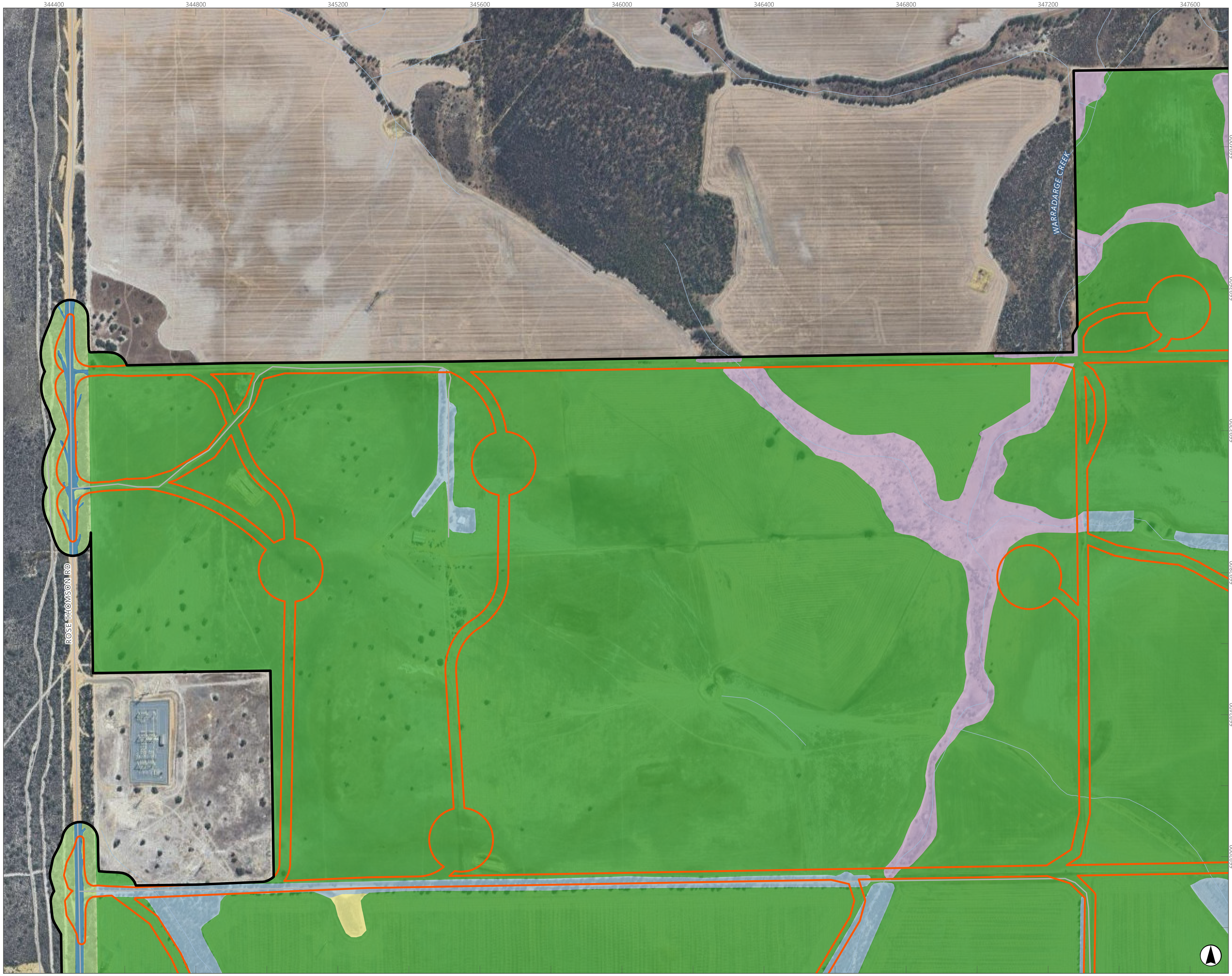
0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 23



Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
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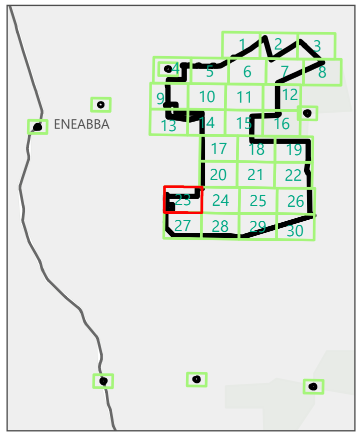

0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 24

348000 348400 348800 349200 349600 350000 350400 350800

6694000 6693600 6693200 6692800 6692400 6692000

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
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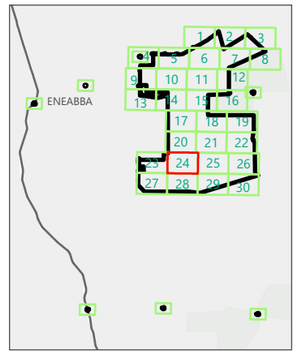
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 25

351200 351600 352000 352400 352800 353200 353600 354000 354400

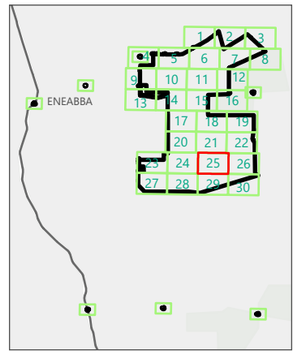
6694000 6693600 6693200 6692800 6692400 6692000

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 26

354800 355200 355600 356000 356400 356800 357200 357600 358000

6694000 6693600 6693200 6692800 6692400 6692000

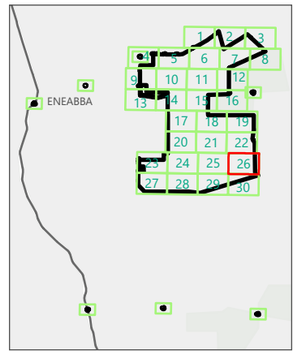
GARIBALDI WILLIS RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
- Eucalyptus Woodland along drainage line
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 27

344400 344800 345200 345600 346000 346400 346800 347200 347600

6691600 6691200 6690800 6690400 6690000 6689600 6689200

WARRADARGE CREEK

ROSE THOMSON RD

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
- Eucalypt woodland on rocky hills
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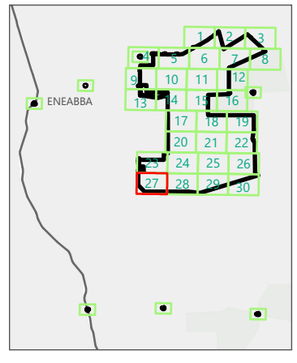
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 28

348000 348400 348800 349200 349600 350000 350400 350800

6691600 6691200 6690800 6690400 6690000 6689600 6689200

Legend

- Basic Fauna Survey Area (Basic FSA)
- Targeted Fauna Survey Area (Targeted FSA)
- Road
- Railway
- Watercourse

Fauna Habitat Mapping

- Cleared (other)
- Cleared agricultural land
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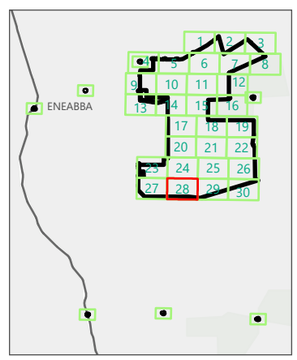
- Eucalyptus woodland on stoney substrate
- Low shrubland on gentle slope
- Planted
- Sparse to open Eucalypt and Banksia woodland on plains and slopes
- Tall shrubland associated with dampland
- Wandoo Woodland on sandy soil



0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 29

351200 351600 352000 352400 352800 353200 353600 354000 354400

6691600 6691200 6690800 6690400 6690000 6689600 6689200

Legend

- Basic Fauna Survey Area (Basic FSA)
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- Railway
- Watercourse

Fauna Habitat Mapping

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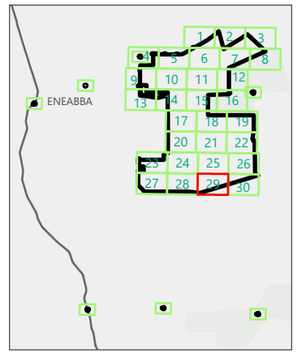

0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

APPENDIX E

Fauna Habitats of the Basic FSA Sheet 30

354800 355200 355600 356000 356400 356800 357200 357600 358000

6691600 6691200 6690800 6690400 6690000 6689600 6689200

Legend

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Fauna Habitat Mapping

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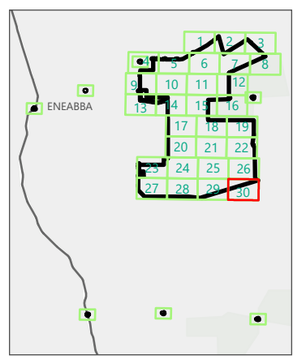

0 200 400 m

Scale: 1:10,000 at A3
GDA2020 MGA Zone 50

Image Source: ESRI Basemap (2023) | **Data Source:** Landgate (2024), Umwelt (2024), SynergyRED (2024)

umwelt
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