



# Desktop Assessment Memo

## Huntly Mine – Myara Region

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## Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Alcoa of Australia Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



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## 1.0 Introduction

### 1.1 The Project

Alcoa of Australia Ltd (Alcoa) commissioned SLR Consulting Australia Pty Ltd (SLR) to undertake a desktop assessment for terrestrial vertebrate fauna within 73 individual polygons (the Desktop Survey Area) covering 37.7 ha within the Huntly Mine Myara region (the Project). This desktop assessment is an addendum to a 2023 targeted significant fauna survey undertaken by SLR, which was for Alcoa's Mining Management Plan (MMP) assessment by the Mining Management Planning Liaison Group (MMPLG). The Desktop Survey Area is located approximately 20 km northeast of the Pinjarra townsite, in the Jarrah Forest bioregion of Western Australia (**Map 1**). All maps are provided in **Appendix A**.

### 1.2 Objective and Scope

The objective of the survey was to identify key fauna values within the Desktop Survey Area as part of the MMP assessment process for the Project. The scope of work comprised a desktop assessment of the Huntly Mine Myara region including an overview of terrestrial vertebrate fauna habitat, terrestrial vertebrate fauna inventory, and likelihood of significant species present.

## 2.0 Methods

### 2.1 Literature Review

The literature review considered a selection of relevant reports detailing assessments undertaken in the region that were either publicly available from sources such as the Index of Biodiversity Surveys for Assessments (IBSA) website, the EPA Consultation Hub, or internet searches, or provided by the client. These reports are listed below, summarised in **Appendix B**, and their locations in relation to the current Desktop Survey Area, as represented by their nearest point, are shown in **Map 2**:

- *Chuditch Pre-mine Survey, Myara* (Way, 2013), intersects the Desktop Survey Area.
- *Vertebrate Fauna Survey of Planned Mining Areas at Alcoa's Willowdale Larego Mining Region* (Environmental Management and Research Consultants, 2006), intersects the Desktop Survey Area.
- *Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Myara North* (GHD, 2021b), 1 km north of the Desktop Survey Area.
- *Black Cockatoo Habitat Assessment - Pinjarra Racecourse* (Harewood, 2019), 6 km west of the Desktop Survey Area.
- *Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Holyoake* (GHD, 2021a), 8 km south of the Desktop Survey Area.
- *Report for Rail Reserves in the Shire of Serpentine Jarrahdale - Spring Flora and Vegetation Survey and Fauna and Habitat Assessment* (GHD, 2012), 10 km north of the Desktop Survey Area.
- *Fauna Assessment Pinjarra - Williams Road (SLK 14 – 67)* (Harewood, 2017), 17.5 km south of the Desktop Survey Area.



## 2.2 Database Searches

Database searches were undertaken to compile a list of flora and fauna known to occur in the vicinity (i.e. within a 20 km radius) of the Desktop Survey Area and identify significant flora, fauna, and ecological communities with potential to occur within the Desktop Survey Area (**Table 1**).

**Table 1: Database search details**

Database name	Date received	Search target	Buffer around the Desktop Survey Area
Threatened and Priority Fauna database search (DBCA, 2023a)	08 June 2023	Threatened and Priority fauna	20 km
Protected Matters Search Tool (PMST) (DAWE, 2023)	14 July 2023	Threatened flora, fauna, and ecological communities	20 km
NatureMap (DBCA, 2023b)	07 June 2023	Fauna	20 km

## 2.3 Likelihood of Occurrence

Significant fauna taxa identified during the desktop assessment were assessed to determine the likelihood of their occurrence within the Desktop Survey Area before and after the field survey. The assessment used the likelihood of occurrence criteria presented in **Table 2**.

Taxa listed as Marine only under the EPBC Act were not considered to be significant taxa because the Marine listing does not constitute MNES under the EPBC Act. Additionally, erroneous records (i.e. records that occur well outside a taxon's known distribution) were excluded from consideration. Only taxa that have been recorded within the Desktop Survey Area or were assessed as having a high or medium likelihood of occurrence are discussed in detail.

**Table 2: Likelihood of occurrence criteria**

Rank	Criteria
Recorded	The taxon was recorded within the Desktop Survey Area during the current survey.
Previously Recorded	The taxon has been previously recorded within the Desktop Survey Area according to database search or literature review results.
High (Likely to occur)	The taxon has been recorded within the vicinity of the Desktop Survey Area more than once in the last 15 years and suitable habitat is present within the Desktop Survey Area.
Medium (May occur)	There are existing records of the taxon within the Desktop Survey Area, however the taxon has not been recorded within the Desktop Survey Area in the last 15 years or suitable habitat within the Desktop Survey Area is marginal or limited in extent.
Low (Unlikely to occur)	Suitable habitat is not present within the Desktop Survey Area, or the taxon is very infrequently recorded in the locality despite reasonable previous search effort, or the taxon is believed to be extinct or locally extinct.



## 2.4 Extrapolated Fauna Habitat

Fauna habitat mapping was extrapolated based on a combination of existing literature, vegetation mapping, and aerial imagery. Polygons were digitised using GIS software.

## 3.0 Results

### 3.1 Potential Fauna Assemblage

The database searches and literature review identified 218 terrestrial vertebrate fauna taxa occurring within the vicinity of the Desktop Survey Area, of which 36 are significant (Threatened or Priority):

- 156 birds, of which 31 are significant.
- 30 mammals, of which 12 are significant.
- 22 reptiles, of which 2 are significant.
- 10 amphibians, of which none are significant.

Key findings of the literature review are summarised in **Appendix B**, a complete list of fauna taxa recorded within the vicinity of the Desktop Survey Area is presented in **Appendix C**, and DBCA database search results are displayed in **Map 3**.

### 3.2 Significant Fauna

Thirteen significant fauna taxa were assessed as having a high likelihood of occurrence within the Desktop Survey Area:

- Woylie (*Bettongia penicillata ogilbyi*) - CR, EN (BC Act; EPBC Act).
- Numbat (*Myrmecobius fasciatus*) – EN (BC Act; EPBC Act).
- Baudin's Cockatoo (*Zanda baudinii*) – EN (BC Act; EPBC Act), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Carnaby's Cockatoo (*Zanda latirostris*) – EN (BC Act; EPBC Act), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Forest Red-tailed Cockatoo (*Calyptorhynchus banksii naso*) – VU (BC Act; EPBC Act), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Chuditch (*Dasyurus geoffroyi*) – VU (BC Act; EPBC Act), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Quokka (*Setonix brachyurus*) – VU (BC Act; EPBC Act), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Wambenger Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*) – CD (BC Act), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Quenda (*Isoodon fusciventer*) – P4 (DBCA), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Western Brush Wallaby (*Notamacropus irma*) – P4 (DBCA), recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).
- Western False Pipistrelle (*Falsistrellus mackenziei*) – P4 (DBCA).
- Dell's Ctenotus (*Ctenotus delli*) – P4 (DBCA).



- Peregrine Falcon (*Falco peregrinus*) – OS (DBCAs).

Four significant fauna taxa were assessed as having a medium likelihood of occurring within the Desktop Survey Area:

- Noisy Scrubbird (*Atrichornis clamosus*) – EN (BC Act; EPBC Act).
- Malleefowl (*Leipoa ocellata*) – VU (BC Act; EPBC Act).
- Tammar Wallaby (*Notamacropus eugenii derbianus*) - P4 (DBCAs).
- Southern Death Adder (*Acanthopis antarcticus*) – P4 (DBCAs).

The complete results of the significant fauna likelihood of occurrence assessment including justification for the assessment outcome for each taxon is provided in **Table 4**.

### 3.3 Extrapolated Fauna Habitat

One fauna habitat, Jarrah-Marri Forest, is expected to occur within the Desktop Survey Area (**Map 4**). Jarrah-Marri Forest is described below in **Table 3**.

**Table 3: Extrapolated fauna habitat expected to occur within the Desktop Survey Area**

Fauna habitat	Total area, percentage of Desktop Survey Area	Habitat description
Jarrah-Marri Forest	37.7 ha, 100%	Undulating plains and hills over clay loam soils and laterite rock. Vegetation consists of Jarrah ( <i>Eucalyptus marginata</i> ) and Marri ( <i>Corymbia calophylla</i> ) open forest with patchy <i>Allocasuarina Fraseriana</i> over a mixed midstorey typically dominated by <i>Bossiaea aquifolium</i> , <i>Xanthorrhoea preissi</i> , and <i>Macrozamia fraseri</i> , over sedges and bracken.  Disturbances consisted primarily of historic logging and bushfire. Microhabitats present within this habitat include hollows in trees and logs, leaf litter and woody debris.  This habitat is core habitat Chuditch and supporting habitat for Woylie and Quokka. The canopy is core habitat for black cockatoos.



**Table 4: Significant fauna likelihood of occurrence within the Desktop Survey Area**

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
<b>BIRDS</b>						
Acanthizidae	<i>Aphelocephala leucopsis</i> Southern Whiteface	-	VU	Sparse open forest/woodland; inland scrubs e.g. mallee, mulga cypress pine; saltbush, dead trees, stumps, black box/lignum flats (Pizzey and Knight, 2001).	No nearby records identified.	Low No nearby records, and limited suitable habitat within the Desktop Survey Area.
Accipitridae	<i>Elanus scriptus</i> Letter-winged Kite	P4	-	Open country and grasslands of arid and semi-arid interior (Morcombe, 2003).	No DBCA records, one record from literature 10 km north of the Desktop Survey Area in 2011 (GHD, 2012).	Low No suitable habitat within the Desktop Survey Area.
Anatidae	<i>Oxyura australis</i> Blue-billed Duck	P4	-	Densely vegetated freshwater lakes, swamps, dams (Morcombe, 2003).	Eighteen DBCA records within 20 km of the Desktop Survey Area, including six records 13 km west of the Desktop Survey Area in 1991 (DBCA, 2023a).	Low No suitable habitat within the Desktop Survey Area.
Ardeidae	<i>Botaurus poiciloptilus</i> Australasian Bittern	EN	EN	Freshwater wetlands with heavy vegetation, shrubbery, reedbeds, sedges (Morcombe, 2003).	No nearby records identified.	Low No nearby records, limited suitable habitat within the Desktop Survey Area.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Atrichornithidae	<i>Atrichornis clamosus</i> Noisy Scrubbird	EN	EN	Dense heaths, rushes, tall sedges, under stunted trees in coastal hills, coastal swamps (Morcombe, 2003).	One DBCA record 19 km south of the Desktop Survey Area, of which is a translocated individual (DBCA, 2023a).	Medium The Desktop Survey Area is outside the typical distribution of the taxon; however, species may occur due to translocations to the south of the Desktop Survey Area.
Cacatuidae	<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black Cockatoo	VU	VU	Tall eucalypt forest, woodland, feeds on seeds of large-fruited eucalypts (Morcombe, 2003).	352 DBCA records within 20 km of the Desktop Survey Area, including one record within 600 m east of the Desktop Survey Area in 2005 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High Recent nearby records, suitable habitat present.
Cacatuidae	<i>Zanda baudinii</i> Baudin's Cockatoo	EN	EN	Forests, farm trees; feeds on Marri and wood-boring insects (Morcombe, 2003).	153 DBCA records within 20 km of the Desktop Survey Area, including 300 m west of the Desktop Survey Area in 2005 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High Recent nearby records, suitable habitat present.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Common wealth			
Cacatuidae	<i>Zanda latirostris</i> Carnaby's Cockatoo	EN	EN	Forests, woodlands, heathlands, farms; feeds on Banksias and Hakeas, pine plantations (Morcombe, 2003).	717 DBCA records within 20 km of the Desktop Survey Area, including three records within the Desktop Survey Area in 2007, 2008 and 2009 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High  Recent nearby records, suitable habitat present.
Cacatuidae	<i>Cacatua pastinator pastinator</i> Muir's Corella	CD	-	Wheat and sheep farming country, with remnant native forest, woodland, scrub, sandplain heath (Pizzey and Knight, 2001).	Two DBCA records 8 km north of the Desktop Survey Area (DBCA, 2023a).	Low  Restricted to the surrounding areas of Lake Muir.
Charadriidae	<i>Charadrius leschenaultii</i> Greater Sand Plover	VU	VU, MI, MA	Tidal flats, beaches (Menkhorst et al., 2017).	No nearby records identified.	Low  No nearby records, and no suitable habitat within the Desktop Survey Area.
Charadriidae	<i>Charadrius mongolus</i> Lesser Sand Plover	EN	EN, MI, MA	Tidal flats (Menkhorst et al., 2017).	No nearby records identified.	Low  No nearby records, and no suitable habitat within the Desktop Survey Area.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Diomedeidae	<i>Diomedea exulans</i> Wandering Albatross	VU	VU, MI, MA	Breeds on South Georgia and sub-Antarctic Island of Indian Ocean with circumpolar distribution in Southern Ocean (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Diomedeidae	<i>Diomedea epomophora</i> Southern Royal Albatross	VU	VU, MI, MA	Breeds on NZ sub-Antarctic islands with circumpolar distribution in Southern Ocean south, rare off Southwestern Australia (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Diomedeidae	<i>Thalassarche impavida</i> Campbell Island Albatross	VU	VU, MI, MA	Oceanic (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Diomedeidae	<i>Thalassarche cauta steadi</i> White-capped Albatross	VU	VU, MI, MA	Inshore and offshore waters (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Diomedeidae	<i>Thalassarche melanophris</i> Black-browed Albatross	EN	VU, MI, MA	Oceanic (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Diomedidae	<i>Diomedea sanfordi</i> Northern Royal Albatross	EN	EN, MI, MA	Breeds on Chatham Island, some NZ sub-Antarctic Islands and South Island, NZ with circumpolar distribution mostly in Pacific sector of Southern Ocean (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Diomedidae	<i>Diomedea dabbenena</i> Tristan Albatross	CR	EN, MI, MA	Oceanic (Pizzey and Knight, 2001).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Diomedidae	<i>Diomedea amsterdamensis</i> Amsterdam Albatross	CR	EN, MI, MA	Oceanic (Pizzey and Knight, 2001).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Falconidae	<i>Falco hypoleucos</i> Grey Falcon	VU	VU	Open plains with treed watercourses in arid inland (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Falconidae	<i>Falco peregrinus</i> Peregrine Falcon	OS	-	Most environments with suitable nest sites: cliff faces preferred, including man-made ones, commonly uses stick nests built by other species (Menkhorst et al., 2017).	Eleven DBCA records within 20 km of the Desktop Survey Area, including 7.2 km north of the Desktop Survey Area in 2010 (DBCA, 2023a).	High
						Records <10 km from the Desktop Survey Area and may use the Desktop Survey Area for hunting.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Laridae	<i>Sternula nereis</i> Fairy Tern	VU	VU	Coastal, bays, inlets, beaches, salt ponds and lakes (Morcombe, 2003).	Four DBCA records 17.6 km east of the Desktop Survey Area between 1990 to 1991 (DBCA, 2023a).	Low
						No suitable habitat within the Desktop Survey Area.
Megapodiidae	<i>Leipoa ocellata</i> Malleefowl	VU	VU	Unburned mallee and woodland with abundant litter and low scrub (Morcombe, 2003).	Eighteen DBCA records within 18 km of the Desktop Survey Area, including six records within the 500 m of the Desktop Survey Area as recently as 2004 (DBCA, 2023a).	Medium
						Species is typically considered locally extinct; however, records may be associated with translocations at the nearby Dryandra Woodland 67 km southeast of the Desktop Survey Area.
Procellariidae	<i>Macronectes halli</i> Northern Giant Petrel	MI	VU, MI, MA	Sheltered estuaries, salt marsh lagoons, salt lakes, salty edges of waterways, brackish pools, claypans (Morcombe, 2003).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Procellariidae	<i>Macronectes giganteus</i> Southern Giant Petrel	MI	EN, MI, MA	Southern oceans, bays, harbours (Menkhurst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Rostratulidae	<i>Rostratula australis</i> Australian Painted Snipe	EN	EN, MA (overfly marine area)	Well vegetated surrounds and shallows of wetlands (Morcombe, 2003).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	<i>Tringa brevipes</i> Grey-tailed Tattler	MI, P4	MI, MA	Coastal, tidal flats, rocky shorelines (Menkhorst et al., 2017).	No nearby records identified.	Low
						No nearby records, and no suitable habitat within the Desktop Survey Area.
Scolopacidae	<i>Calidris canutus</i> Red Knot	EN	EN, MI, MA (overfly marine area)	Coastal, extensive firm tidal flats (Menkhorst et al., 2017).	Two DBCA records 17.6 km west of the Desktop Survey Area in 1991 (DBCA, 2023a).	Low
						No suitable habitat within the Desktop Survey Area.
Scolopacidae	<i>Calidris ferruginea</i> Curlew Sandpiper	CR	CR, MI, MA (overfly marine area)	Inter-tidal mudflats of estuaries, lagoons, mangrove channels, dams, floodwaters, flooded saltbush surrounds of inland lakes (Morcombe, 2003).	Two DBCA records 17.6 km west of the Desktop Survey Area in 1991 (DBCA, 2023a).	Low
						No suitable habitat within the Desktop Survey Area.
Scolopacidae	<i>Calidris tenuirostris</i> Great Knot	CR	CR, MI, MA (overfly marine area)	Coastal, tidal flats, beaches (Menkhorst et al., 2017).	Four DBCA records 17.3 km west of the Desktop Survey Area between 1990 to 1991 (DBCA, 2023a).	Low
						No suitable habitat within the Desktop Survey Area.
Scolopacidae	<i>Limosa lapponica menzbieri</i> Bar-tailed Godwit	CR	CR	Coastal tidal flats (Menkhorst et al., 2017).	Two DBCA records 17.6 km west of the Desktop Survey Area in 1991 (DBCA, 2023a).	Low
						No suitable habitat within the Desktop Survey Area.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
<b>MAMMALS</b>						
Dasyuridae	<i>Dasyurus geoffroii</i> Chuditch	VU	VU	Sclerophyll forest or drier woodland, heath, and mallee shrubland (Van Dyck and Strahan, 2008).	190 DBCA records within 20 km of the Desktop Survey Area, of which 31 are within 500 m of the Desktop Survey Area (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High  Recent nearby records, suitable habitat present.
Dasyuridae	<i>Phascogale calura</i> Red-tailed Phascogale	CD	VU	Allocasuarina woodlands with hollow-containing eucalypts e.g. Eucalyptus wandoo and Gastrolobium spp.; prefers vegetation not burnt for at least 20 years (Van Dyck and Strahan, 2008).	No nearby records identified.	Low  No nearby records.
Dasyuridae	<i>Phascogale tapoatafa wambenger</i> Wambenger Brush-tailed Phascogale	CD	-	Mature rough-barked trees, large logs, dead standing trees (Van Dyck and Strahan, 2008).	Twenty DBCA records within 20 km of the Desktop Survey Area, including 650 m south of the Desktop Survey Area in 2018 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High  Recent nearby records, suitable habitat present.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Common wealth			
Macropodidae	<i>Setonix brachyurus</i> Quokka	VU	VU	Dense wet ground cover in forest or swampy flats (Van Dyck and Strahan, 2008).	Sixty-six DBCA records within 15 km of the Desktop Survey Area, including four records within the 500 m of the Desktop Survey Area in 2017 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High  Recent nearby records, suitable habitat present.
Macropodidae	<i>Notamacropus irma</i> Western Brush Wallaby	P4	-	Open forest and woodland, open seasonally wet flats (Van Dyck and Strahan, 2008).	Forty DBCA records within 20 km of the Desktop Survey Area, including one record 160 m from the Desktop Survey Area in 1999 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High  Recent nearby records, suitable habitat present.
Macropodidae	<i>Notamacropus eugenii derbianus</i> Tammar Wallaby	P4	-	Coastal scrub, heath, dry sclerophyll forest and thickets in mallee and woodland (Van Dyck and Strahan, 2008).	One DBCA record 16 km northwest of the Desktop Survey Area in 2015 (DBCA, 2023a).	Medium  Species is typically considered locally extinct; however, a known population occurs at the nearby Dryandra Woodland from which individuals may disperse.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Muridae	<i>Hydromys chrysogaster</i> Rakali	P4	-	Permanent fresh to brackish water bodies (Van Dyck and Strahan, 2008).	Seven DBCA records within 20 km of the Desktop Survey Area, including 12 km north of the Desktop Survey Area in 2014 (DBCA, 2023a).	Low
						Record <15 km from the Desktop Survey Area, No suitable habitat within the Desktop Survey Area.
Myrmecobiidae	<i>Myrmecobius fasciatus</i> Numbat, Walpurti	EN	EN	Jarrah forests, Wandoo woodlands; requires hollow logs and branches for shelter and termites for food (Van Dyck and Strahan, 2008).	Thirty-six records within 20 km of the Desktop Survey Area, including 5 km northwest of the Desktop Survey Area in 1997, and two records 12 km north in 2013 (DBCA, 2023a).	High
						Species is typically considered locally extinct; however, a known population occurs at the nearby Dryandra Woodland 67 km southeast of the Desktop Survey Area from which individuals may disperse.
Peramelidae	<i>Isodon fusciventer</i> Quenda	P4	-	Sandy soils with dense heathy vegetation (Van Dyck and Strahan, 2008).	134 DBCA records within 20 km of the Desktop Survey Area, including one record within 300 m south of the Desktop Survey Area in 2012 (DBCA, 2023a). Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).	High
						Recent nearby records, suitable habitat present.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Potoroidae	<i>Bettongia penicillata ogilbyi</i> Brush-tailed Bettong, Woylie	CR	EN	Areas dominated by <i>Gastrolobium</i> thickets (Van Dyck and Strahan, 2008).	Nine DBCA records within 11 km of the Desktop Survey Area, including one record within 80 m of the Desktop Survey Area in 2010 (DBCA, 2023a).	High Previously recorded within 80 m of the Desktop Survey Area, and suitable habitat within the Desktop Survey Area.
Pseudocheiridae	<i>Pseudocheirus occidentalis</i> Western Ringtail Possum	CR	CR	<i>Agonis</i> forest and woodland, Tuart Forest with <i>Agonis</i> mid storey (Van Dyck and Strahan, 2008).	Two DBCA records within 13 km of the Desktop Survey Area, including 11 km north in 1991 and 12.8 km south in 2020 (DBCA, 2023a).	Low Desktop Survey Area is outside of the taxon's distribution. Recent nearby records may be associated with nearby translocations at the Lane Poole Reserve and other sites.
Vespertilionidae	<i>Falsistrellus mackenziei</i> Western False Pipistrelle	P4	-	Mature Karri forests, wetter stands of Jarrah and Tuart, and woodlands on Swan Coastal Plain (Van Dyck and Strahan, 2008).	294 DBCA records within 20 km of the Desktop Survey Area, including within 500 m south in 2011 (DBCA, 2023a).	High Records within 500 m of the Desktop Survey Area, and suitable habitat within the Desktop Survey Area.
<b>REPTILES</b>						
Elapidae	<i>Acanthophis antarcticus</i> Southern Death Adder	P3	-	Habitats range from rainforest to shrublands and heath (Wilson and Swan, 2017).	Four DBCA records within 20 km of the Desktop Survey Area, including 8.2 km northeast in 1982 (DBCA, 2023a).	Medium Record <10 km from the Desktop Survey Area, and suitable habitat within the Desktop Survey Area.



Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Common wealth			
Scincidae	<i>Ctenotus delli</i> Dell's Ctenotus	P4	-	Restricted to the Darling range; Jarrah and Marri woodlands over shrubs on lateritic, sandy, and clay soils (Wilson and Swan, 2021).	Thirteen DBCA records within 20 km of the Desktop Survey Area, including 1.6 km south in 2009 and 2010 (DBCA, 2023a).	High One record 1.6 km from the Desktop Survey Area, and suitable habitat within the Desktop Survey Area.



## 4.0 Discussion

### 4.1 High likelihood of occurrence within the Desktop Survey Area

#### **Woylie (*Bettongia penicillata ogilbyi*) – CR (BC Act); EN (EPBC Act)**

The Woylie is restricted to three small wheatbelt reserves in Western Australia: Dryandra Woodland, Tutanning Nature Reserve, and the Kingston/Perup Forest, all characterised by the presence thickets of the plant genus *Gastrolobium* (Van Dyck and Strahan, 2008). Fox predation is considered the driving factor in the Woylie's distribution contraction, with habitat destruction and disease also impacting populations to be rare and scattered (Van Dyck and Strahan, 2008). The Woylie primarily eats fungus and supplements its diet with seed kernels of the Desert Quandong (*Santalum acuminatum*), various tubers, bulbs, and invertebrates (Van Dyck and Strahan, 2008).

The Jarrah-Marri Forest habitat within the Desktop Survey Area constitutes core habitat for the Woylie because of its value for shelter and foraging.

#### **Numbat (*Myrmecobius fasciatus*) – EN (BC Act); EPBC Act)**

The Numbat is a small marsupial with a distinctive striped appearance that formerly occupied a range of habitats across the southern half of Australia (DBCA, 2017b). The Numbat is now restricted to a few populations of Jarrah Forest and Wandoo woodland. Fox predation has caused a significant decline for the species, bringing their total numbers to as low as a few hundred in the 1980s (Van Dyck and Strahan, 2008). Numbat activity changes throughout the year, corresponding to termite activity in the upper layer of the soil. In winter, Numbat activity peaks during the middle of the day, while in summer activity peaks during the morning and afternoon (Van Dyck and Strahan, 2008; DBCA, 2017a). Numbats feed near the cover of shrubs, hollows, and burrows, which they use as refuge from predators and as resting places during the day (DBCA, 2017b).

This taxon is typically considered locally extinct; however, a known population occurs at the nearby Dryandra Woodland located 67 km southeast of the Desktop Survey Area from which individuals may disperse. Jarrah-Marri Forest habitat constitutes core habitat for the taxon due to the presence of hollow logs and termites.

#### **Baudin's Cockatoo (*Zanda baudinii*) – EN (BC Act); EPBC Act)**

The Baudin's Cockatoo is distributed through the south-west WA from the northern Darling Range and adjacent far east of the Swan Coastal Plain (south of the Swan River), south to Bunbury and across to Albany (Johnstone and Kirkby, 2011). The taxon rarely occurs near coastal communities north of Mandurah, and rarely occurs north of the Swan River (Johnstone and Storr, 1998; Johnstone and Kirkby, 2008). The species forages primarily in eucalypt forest, where it feeds on Marri seeds, flowers, nectar, and buds. They also feed on a wide range of seeds of *Eucalyptus* spp., *Banksia* spp., *Hakea* spp., and *Pinus* spp., as well as fruiting apples and pears and beetle larvae from under the bark of trees (Johnstone and Storr, 1998; Johnstone and Kirkby, 2008). Baudin's Cockatoo forages at all levels of the forest from the canopy to the ground, often feeding in the understorey on proteaceous trees and shrubs (especially *Banksia*) and in orchard trees within the canopy and on fallen fruit.

The species can be cryptic due to its similarity in appearance to Carnaby's Cockatoos, and it can often be misidentified as such (Birdlife Australia, 2016). The Jarrah-Marri Forest habitat within the Desktop Survey Area constitutes core habitat for the Baudin's Cockatoo because of its value for breeding, roosting, and foraging. The taxon is likely to use the Desktop Survey Area for nesting and raising chicks in the breeding season and may use the habitat during the wintering season as core roosting and foraging habitat.



### **Carnaby's Cockatoo (*Zanda latirostris*) – EN (BC Act; EPBC Act)**

Carnaby's Cockatoos nest in the hollows of a wide range of *Eucalyptus* trees, with a preference for smooth barked trees such as Salmon Gum (*E. salmonophloia*) and Wandoo (*E. wandoo*) but also rough barked *Eucalyptus* and *Corymbia* trees such as Red Morrell (*E. longicornis*), York Gum (*E. loxophleba*), Marri (*Corymbia calophylla*) and Tuart (*E. gomphocephala*) (Johnstone and Storr, 1998). Carnaby's Cockatoos feed on seeds, nuts, and flowers of a variety of native and exotic plants, including *Banksia* spp., Pine trees (*Pinus* sp.), Marri, Jarrah (*E. marginata*), *Grevillea* spp., *Allocasuarina* spp., and *Hakea* spp. (Shah, 2006).

The Jarrah-Marri Forest habitat within the Desktop Survey Area constitutes core habitat for the Carnaby's Cockatoo because of its value for breeding, roosting, and foraging. The taxon is likely to use the Desktop Survey Area for nesting and raising chicks in the breeding season and may occasion the habitat during the non-breeding season for roosting and foraging.

### **Forest Red-tailed Cockatoo (*Calyptorhynchus banksia naso*) – VU (BC Act; EPBC Act)**

The Forest Red-tailed Black Cockatoo is distributed through the southwest of WA from Gingin through the Darling Ranges to the south-west from Bunbury to Albany. The Forest Red-tailed Black Cockatoo inhabits dense Jarrah, Karri (*E. diversicolor*), and Marri forests and feeds primarily on the fruit of Marri and Jarrah trees (Johnstone and Kirkby, 1999).

The Jarrah-Marri Forest habitat constitutes core habitat for the Forest Red-tailed Black Cockatoo because of its value for breeding, roosting, and foraging. The taxon is likely to use the Desktop Survey Area for nesting and raising chicks during the breeding season and may use the habitats during the wintering season as core roosting and foraging habitat.

### **Chuditch (*Dasyurus geoffroi*) – VU (BC Act; EPBC Act)**

The Chuditch inhabits areas dominated by sclerophyll forest or drier woodland, heath, and mallee shrubland (Van Dyck and Strahan, 2008). The species is generally highly mobile and uses bush remnants as corridors (Woinarski, Burbidge and Harrison, 2014). The Chuditch is a largely nocturnal animal, feeding on a carnivorous diet of mammals, birds, lizards, and frogs. They have been recorded foraging during the day such as during the breeding season or when cold and wet weather restricts their nocturnal movements (Van Dyck and Strahan, 2008). Most diurnal denning sites in sclerophyll forest consist of hollow logs or earth burrows, although bandicoot nests and hollow tree bases may be used (Van Dyck and Strahan, 2008). The Chuditch was abundant prior to European settlement, and it is now largely restricted to the south-west of Western Australia, with small numbers in the Midwest, Wheatbelt and South Coast Regions (DBCA, 2017a).

The Jarrah-Marri Forest habitat constitutes core habitat for the Chuditch because of its value for denning and foraging. A breeding population of Chuditch was previously recorded in the northwest of the Desktop Survey Area (Way, 2013) and it is likely that this population continues to persist and use the Desktop Survey Area.

### **Quokka (*Setonix brachyurus*) – VU (BC Act; EPBC Act)**

The Quokka is a small macropod found on two offshore islands (Rottnest and Bald Island) and several mainland sites in south-west Western Australia (Van Dyck and Strahan, 2008; DBCA, 2017a). The distribution of the Quokka is severely fragmented and there is little to no migration between populations. Mainland populations of the Quokka favour dense riparian vegetation; however, they also make use of heath and shrubland, swamp Peppermint, and swampy shrublands as well as Karri Forest regrowth (Van Dyck and Strahan, 2008; DBCA, 2017a). The populations of Quokkas on the mainland are largely restricted to areas of high rainfall of 1,000 mm or more (Van Dyck and Strahan, 2008).



The Jarrah-Marri habitat constitutes supporting habitat for the taxon. A breeding population of Quokka has previously been recorded in the northeast of the Desktop Survey Area (GHD, 2021b).

#### **Wambenger Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*) – CD (BC Act)**

The Wambenger Brush-tailed Phascogale is a rat-sized, arboreal, carnivorous marsupial, characterised by a tuft of black hair on its tail (Van Dyck and Strahan, 2008). Typically, the species has been observed in dry sclerophyll forests and open woodlands containing hollow-bearing trees with a sparse ground cover. The distribution of the Wambenger Brush-tailed Phascogale is widespread but fragmented, stemming from habitat destruction and predation by cats and foxes (Van Dyck and Strahan, 2008). In the south-west of Australia, the species is thought to have declined within the last 10 years given the lower number of records despite an increase in survey effort (Van Dyck and Strahan, 2008).

The Jarrah-Marri Forest habitat constitutes core habitat for this species because of its value for shelter, foraging, and dispersal.

#### **Quenda (*Isoodon fusciventer*) – P4 (DBCA)**

Quenda are nocturnal and omnivorous, feeding on insects, spiders, worms, and plant roots and are typically found in dense vegetation, including wetland fringes, forest, woodland, shrub, and heath communities (Van Dyck and Strahan, 2008; DBCA, 2012). They are found only in the southwestern corner of Western Australia, where these regions generally display a combination of sandy soils with dense heathy vegetation in the lower stratum (Van Dyck and Strahan, 2008; DBCA, 2012).

The Jarrah-Marri Forest habitat constitutes core habitat for the taxon because of its value for shelter, foraging, and dispersal.

#### **Western Brush Wallaby (*Notamacropus irma*) – P4 (DBCA)**

The Western Brush Wallaby occurs in the south-west of Western Australia and closely resembles a larger kangaroo (Van Dyck and Strahan, 2008). Its preferred habitat consists of open forest or woodland, particularly favouring open and seasonally wet flats with low grasses and open scrubby thickets (Van Dyck and Strahan, 2008). The Western Brush Wallaby was a common species during the early days of settlement, however, ongoing clearing and fragmentation of bushland in the Wheatbelt as well as the dramatic increase in fox numbers within the south-west of Western Australia has led to this species' decline (Van Dyck and Strahan, 2008).

The Jarrah-Marri Forest habitat constitutes core habitat for the taxon because of its value for foraging and dispersal.

#### **Western False Pipistrelle (*Falsistrellus mackenziei*) – P4 (DBCA)**

The Western False Pipistrelle is endemic to the south-western region of Western Australia, making use of high rainfall forests dominated by Jarrah, Karri, Marri, and Tuart. The species is a specialist of tall mature forest, foraging within the canopy and roosting in tree hollows (Van Dyck and Strahan, 2008).

This taxon is widely documented within the area and the Desktop Survey Area contains core Jarrah-Marri Forest habitat which provides high value foraging habitat and roost sites which are associated with hollows in *Eucalyptus* (Baker and Gynther, 2023).

#### **Dell's Ctenotus (*Ctenotus dellii*) – P4 (DBCA)**

Dell's Ctenotus is endemic to the north Darling Range, south-western Australia, inhabiting dry sclerophyll forest on stony hills and ranges (Cogger, 2014).



This taxon may use the Jarrah-Marri Forest with lateritic clay substrate within the Desktop Survey Area which provides suitable foraging and breeding habitats.

#### **Peregrine Falcon (*Falco peregrinus*) – OS (DBCA)**

The Peregrine Falcon is an uncommon but wide-ranging bird across Australia (Barrett *et al.*, 2003). It occurs along rivers and ranges as well as wooded watercourses and lakes. It nests primarily on cliffs, granite outcrops and quarries, although is also known to occupy existing raptor and corvid stick nests (Menkhorst *et al.*, 2017). The diet of the Peregrine Falcon has been well studied and primarily includes flocking species such as parrots, pigeons and on the east coast, European Starlings (Olsen and Fuentes, 2008).

This taxon has been previously recorded within the region flying over similar Jarrah-Marri Forest (GHD, 2021a). In the absence of cliff ledges, Peregrine Falcons will use trees for nesting (Morcombe, 2003). The Jarrah-Marri Forest within the Desktop Survey Area and surrounds may provide suitable nesting and hunting habitat to support this species.

## **4.2 Medium likelihood of occurrence within the Desktop Survey Area**

#### **Noisy Scrubbird (*Atrichornis clamosus*) – EN (BC Act; EPBC Act)**

The Noisy Scrubbird is restricted to coastal areas from Two Peoples Bay Nature Reserve to Cheyne Beach, Bald Island where it inhabits dense thickets of stunted *Eucalyptus*, Tea-tree, *Banksia*, She-oak, rush, saw-sedge, and tall grasses (Pizzey and Knight, 2001). Previously thought to be extinct due to fire and clearing of habitat, management of the species has increased the population and allowed breeding populations to become established in areas of nearby suitable habitat.

The Desktop Survey Area is outside of the typical distribution of this species; however, translocation of this species occurred between 1998 and 2003 just over 20 km from the Desktop Survey Area (DBCA, 2023c). Males defend long term territories and females will return to nest sites each year, and dispersal is usually undertaken by sub-adults seeking unoccupied territories (Higgins, Peter and Steele, 2001). Translocated individuals are also likely to disperse to establish territories.

#### **Malleefowl (*Leipoa ocellata*) – VU (BC Act; EPBC Act)**

The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee or *Acacia*. A sandy substrate and abundance of leaf litter are required for breeding (Department of the Environment and Energy, 2018). 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. Much of the best habitat for Malleefowl has already been cleared or has been modified by grazing via Sheep, Cattle, Rabbits, and Goats (Benshemesh, 2007). The species nests in large mounds of dirt and leaf litter, up to five metres wide and one metre tall (Menkhorst *et al.*, 2017).

Malleefowl have been recorded within 500 m of the Desktop Survey Area (DBCA, 2023a). These records may be associated with translocations at the nearby Dryandra Woodland located 67 km southeast of the Desktop Survey Area. The Jarrah-Marri Forest habitat has the potential to support this species, though no evidence of foraging or nesting was recorded during the survey. Malleefowl are often cryptic and nest in areas of dense shrubland, making detection of the species difficult without LiDAR mapping of potential nesting mounds.

#### **Tammar Wallaby (*Notamacropus eugenii derbianus*) - P4 (DBCA)**

The Tammar Wallaby is a nocturnal and herbivorous species, once widespread from Kalbarri to Esperance. Tammar Wallaby numbers have been reduced by clearing for wheat farming, however, reintroductions accompanied by Fox control have allowed some mainland



populations to increase in size (Van Dyck and Strahan, 2008; DBCA, 2012b). Tammar Wallabies use dense vegetation for shelter and open grassy areas for feeding, and typically inhabit coastal scrub heath, dry sclerophyll forest, and thickets in mallee and woodland (Van Dyck and Strahan, 2008; DBCA, 2012b).

The Tammar Wallaby is typically considered locally extinct; however, a known population occurs at the nearby Dryandra Woodland located 67 km southeast of the Desktop Survey Area from which individuals may disperse. The Jarrah-Marri Forest within the Desktop Survey Area provides areas of open woodland for foraging.

#### **Southern Death Adder (*Acanthophis antarcticus*) – P4 (DBCA)**

The Southern Death Adder is found in Southwest and South Australia to Eastern and Central Queensland where, due to habitat destruction and altered fire regimes, populations are in decline (Cogger, 2014; Wilson and Swan, 2017). Habitats range from rainforest to shrublands and heath (Wilson and Swan, 2017).

The Desktop Survey Area falls within distribution of the Southern Death Adder and microhabitats within the Jarrah-Marri habitat has the potential to be used by the taxon for shelter and hunting.



## 5.0 Conclusion

One fauna habitat, the Jarrah-Marri Forest, is expected to occur within the Desktop Survey Area. The Jarrah-Marri Forest provides value for targeted taxa as core habitat for Chuditch and Woylie, and as supporting habitat for the Quokka. This habitat is typical of the Jarrah Forest region and are widespread outside of the Desktop Survey Area.

Thirteen significant fauna taxa were assessed as having a high likelihood of occurrence within the Survey Area:

- Woylie (*Bettongia penicillata ogilbyi*) - CR, EN (BC Act; EPBC Act).
- Numbat (*Myrmecobius fasciatus*) – EN (BC Act; EPBC Act).
- Baudin's Cockatoo (*Zanda baudinii*) – EN (BC Act; EPBC Act).
- Carnaby's Cockatoo (*Zanda latirostris*) – EN (BC Act; EPBC Act).
- Forest Red-tailed Cockatoo (*Calyptorhynchus banksii naso*) – VU (BC Act; EPBC Act).
- Chuditch (*Dasyurus geoffroyi*) – VU (BC Act; EPBC Act).
- Quokka (*Setonix brachyurus*) – VU (BC Act; EPBC Act).
- Wambenger Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*) – CD (BC Act).
- Quenda (*Isoodon fusciventer*) – P4 (DBCAs).
- Western Brush Wallaby (*Notamacropus irma*) – P4 (DBCAs).
- Western False Pipistrelle (*Falsistrellus mackenziei*) – P4 (DBCAs).
- Dell's Ctenotus (*Ctenotus delli*) – P4 (DBCAs).
- Peregrine Falcon (*Falco peregrinus*) – OS (DBCAs).

Four significant fauna taxa were assessed as having a medium likelihood of occurrence within the Survey Area:

- Noisy Scrubbird (*Atrichornis clamosus*) – EN (BC Act; EPBC Act).
- Malleefowl (*Leipoa ocellata*) – VU (BC Act; EPBC Act).
- Tammar Wallaby (*Notamacropus eugenii derbianus*) - P4 (DBCAs).
- Southern Death Adder (*Acanthophis antarcticus*) – P4 (DBCAs).

A further 28 significant fauna taxa were assessed as having have a low likelihood of occurring within the Desktop Survey Area.



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## 7.0 Feedback

At SLR, we are committed to delivering professional quality service to our clients. We are constantly looking for ways to improve the quality of our deliverables and our service to our clients. Client feedback is a valuable tool in helping us prioritise services and resources according to our client needs.

To achieve this, your feedback on the team's performance, deliverables and service are valuable and SLR welcome all feedback via <https://www.slrconsulting.com/en/feedback>. We recognise the value of your time and we will make a \$10 donation to our 2023 Charity Partner - Lifeline, for every completed form.



# Appendix A Maps

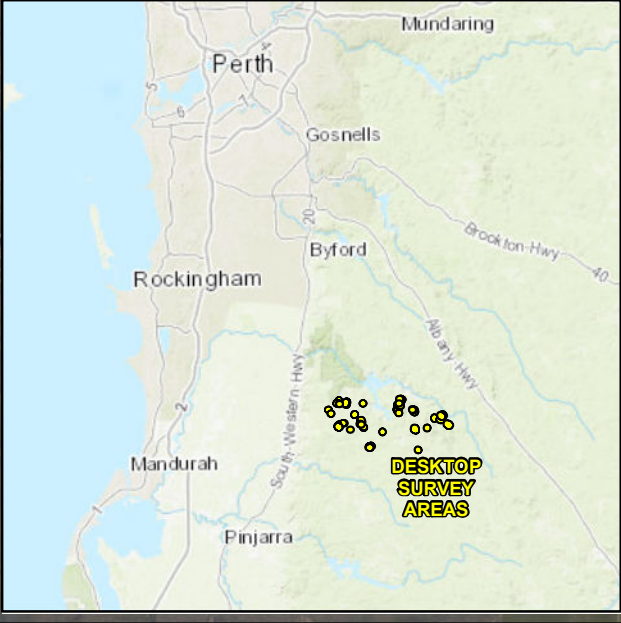
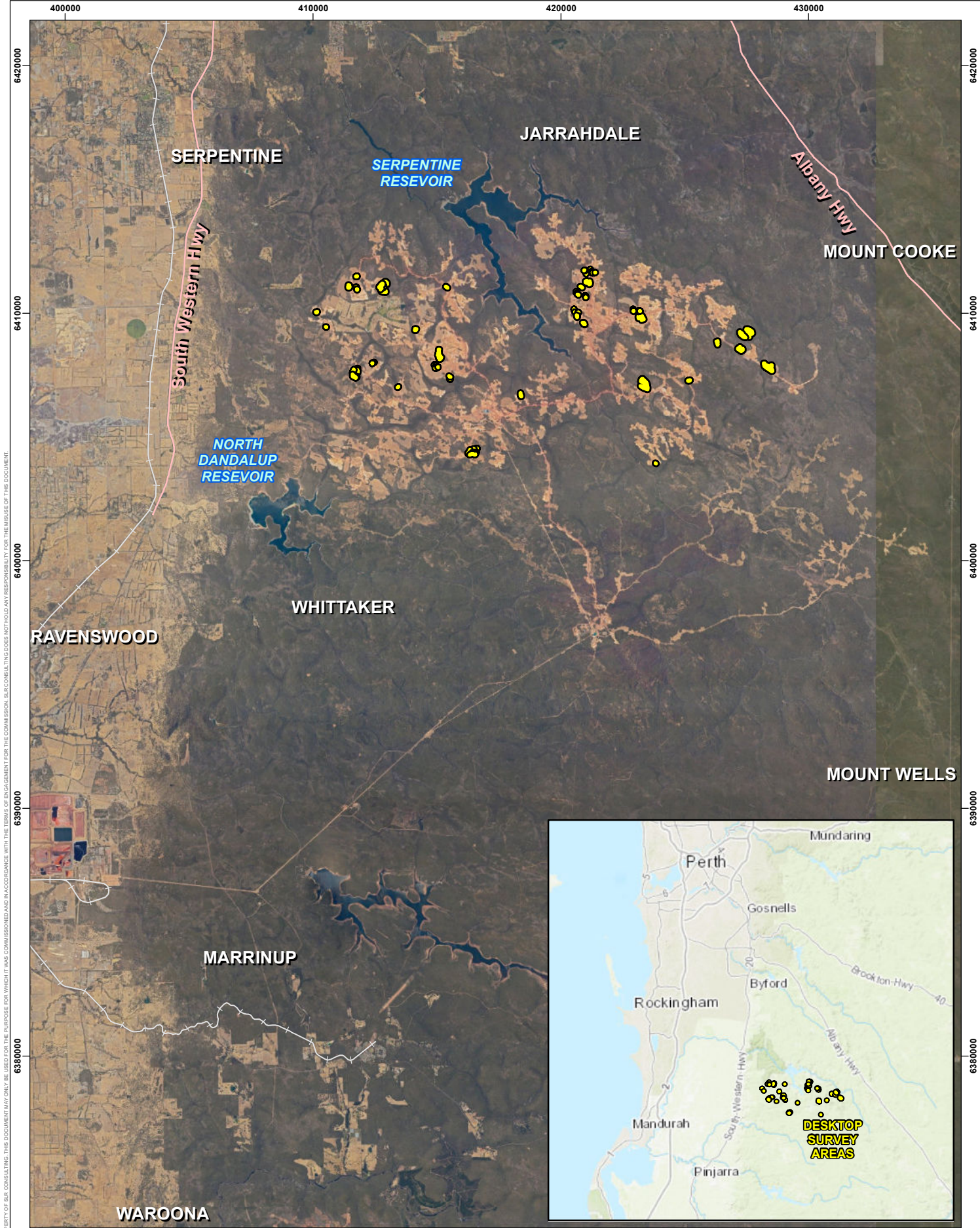
## Desktop Assessment Memo

Huntly Mine – Myara Region

Alcoa of Australia Ltd

SLR Project No.: 675.VX5890.00001

30 April 2024



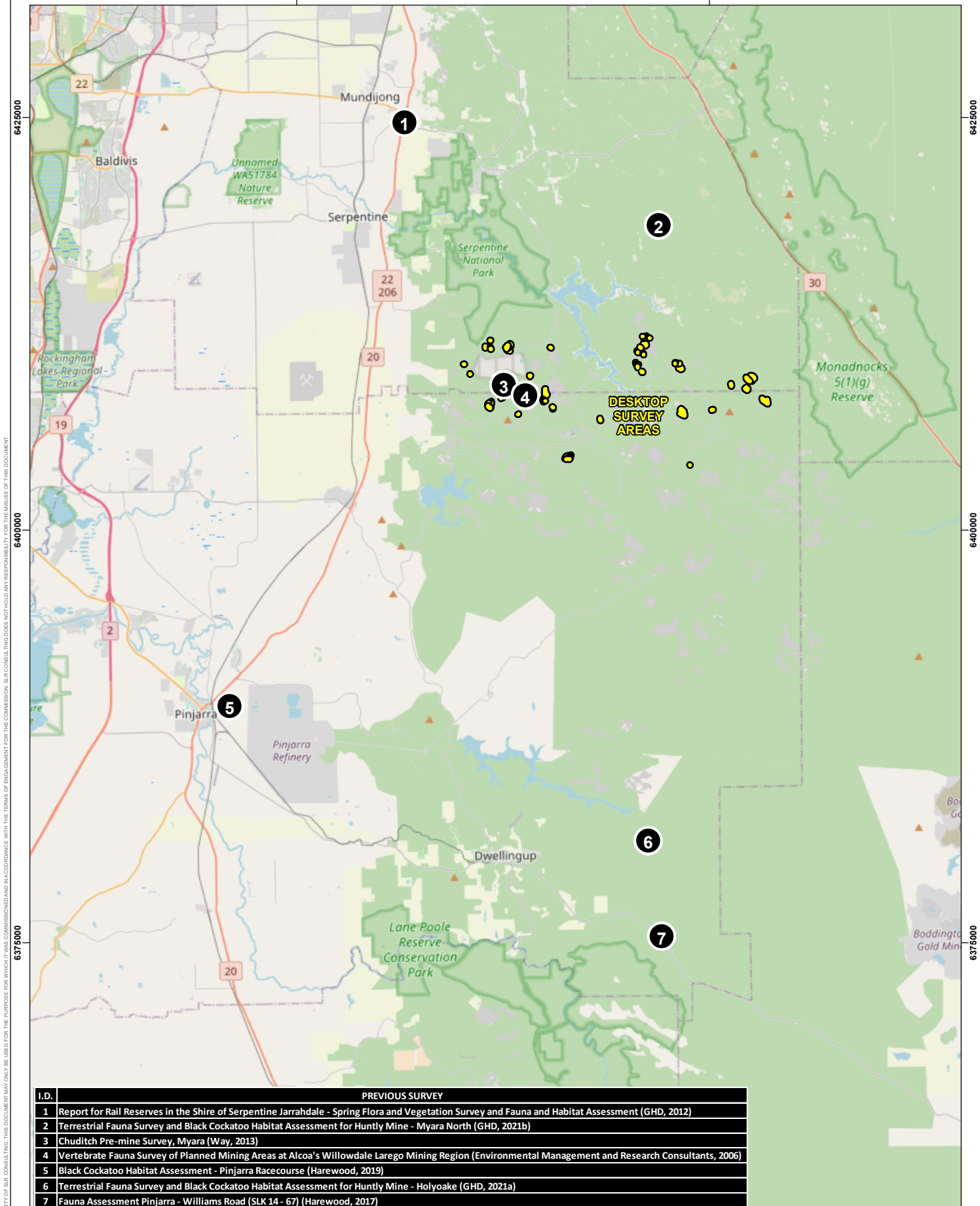
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 Scale : 1:200,000 @ A4  
 Project Number : 675.VX5890.00001  
 Date Drawn : 29/04/2024  
 Drawn By : Environmaps  
 Reviewed By : EW

Alcoa  
 Desktop Survey Memo Huntly Mine  
 Myara Region

Desktop Survey Area  
 MAP 1

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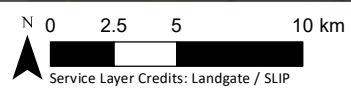


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I.D.	PREVIOUS SURVEY
1	Report for Rail Reserves in the Shire of Serpentine Jarrahdale - Spring Flora and Vegetation Survey and Fauna and Habitat Assessment (GHD, 2012)
2	Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Myara North (GHD, 2021b)
3	Chuditch Pre-mine Survey, Myara (Way, 2013)
4	Vertebrate Fauna Survey of Planned Mining Areas at Alcoa's Willowdale Larego Mining Region (Environmental Management and Research Consultants, 2006)
5	Black Cockatoo Habitat Assessment - Pinjarra Racecourse (Harewood, 2019)
6	Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Holyoake (GHD, 2021a)
7	Fauna Assessment Pinjarra - Williams Road (SLK 14 - 67) (Harewood, 2017)



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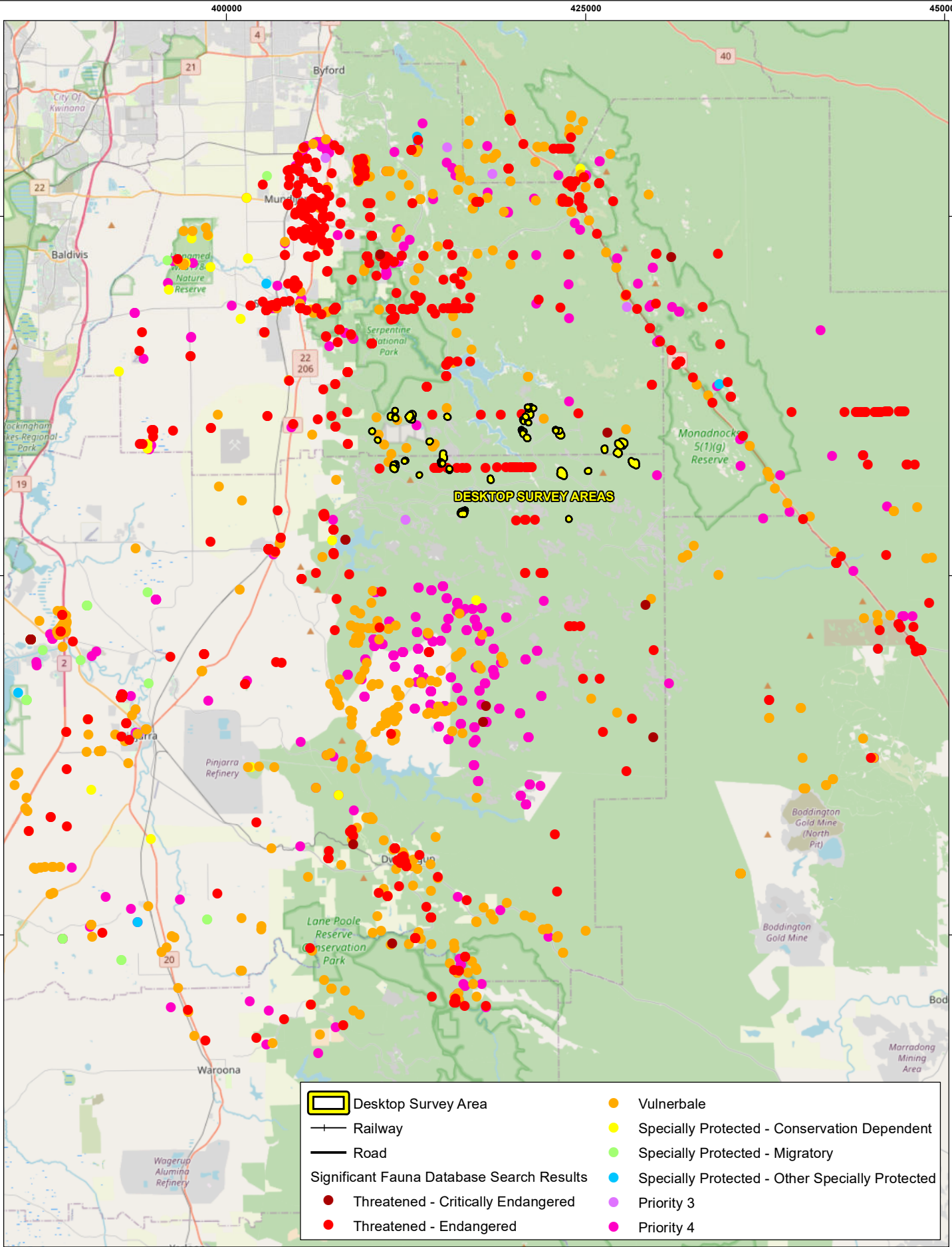


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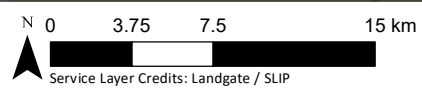
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 Desktop Survey Memo Huntly Mine  
 Myara Region

Previous Surveys in the Locality  
 MAP 2

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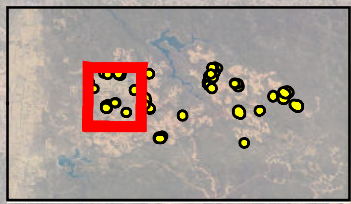
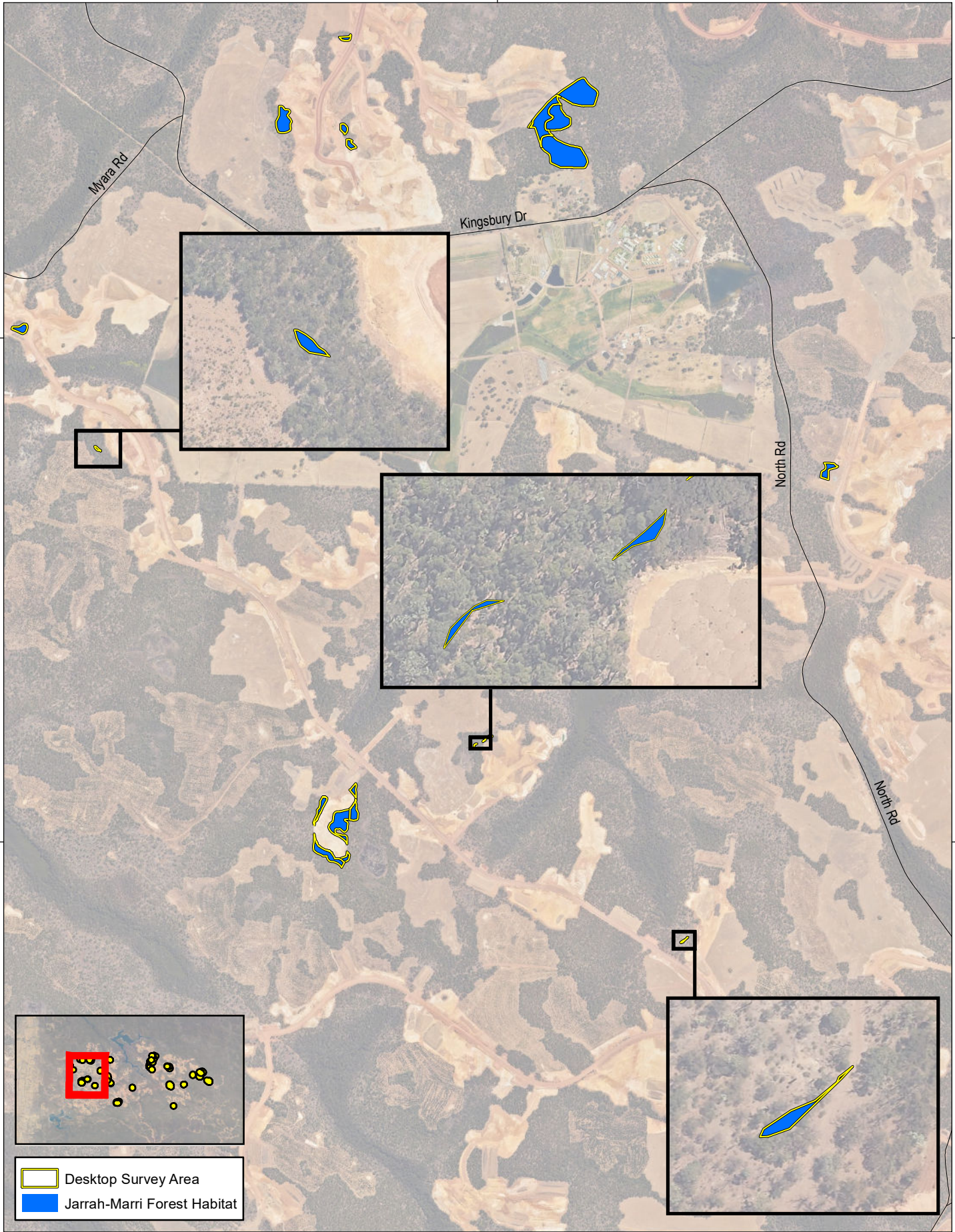


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 Project Number : 675.VX5890.00001  
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Alcoa  
 Desktop Survey Memo Huntly Mine  
 Myara Region

Significant Fauna Database Search Results  
 MAP 3

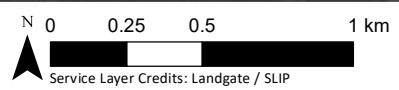
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Desktop Survey Area  
 Jarrah-Marri Forest Habitat



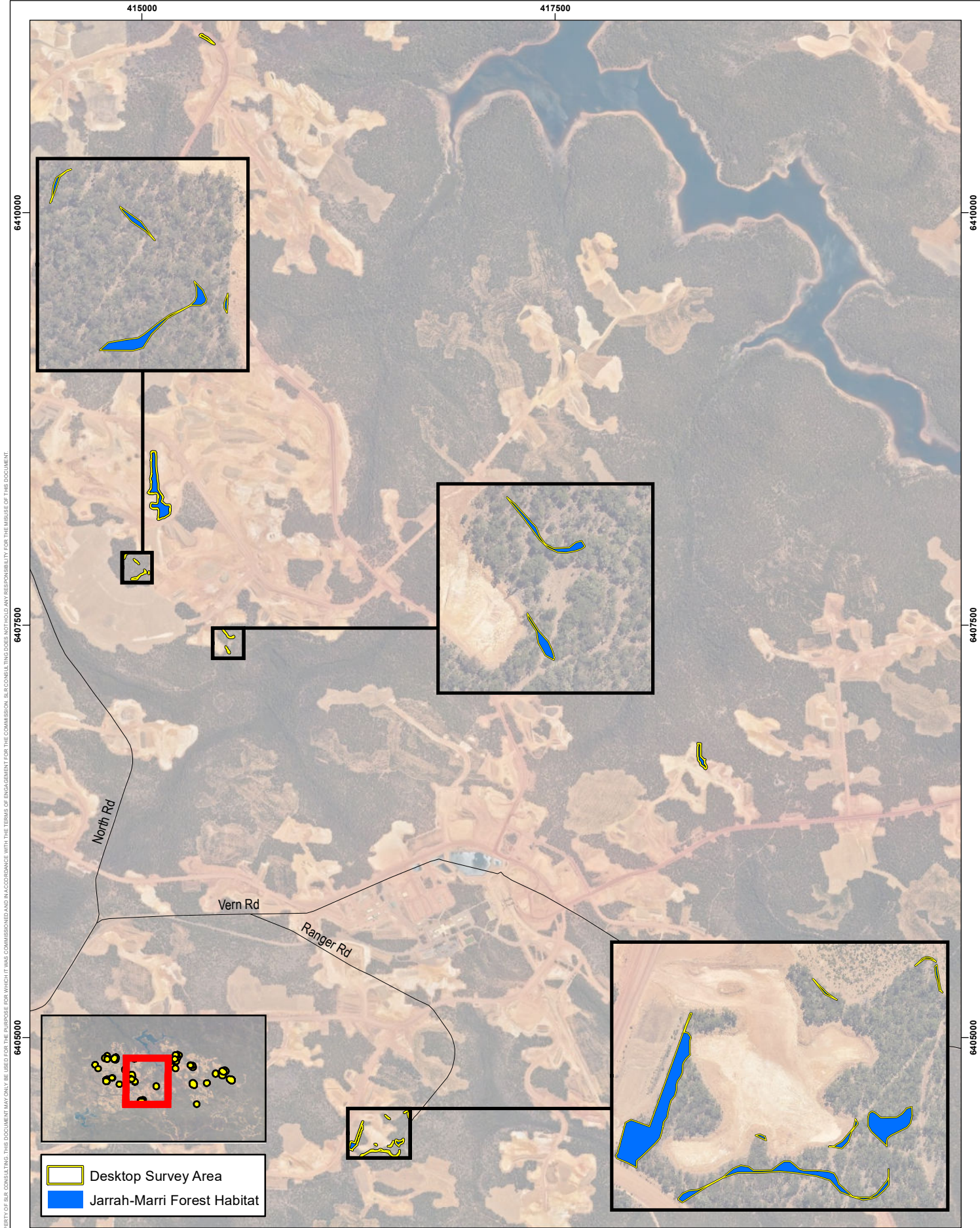
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Alcoa  
Desktop Survey Memo Huntly Mine  
Myara Region

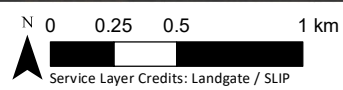
Extrapolated Fauna Habitat  
MAP 4A



Desktop Survey Area  
 Jarrah-Marri Forest Habitat



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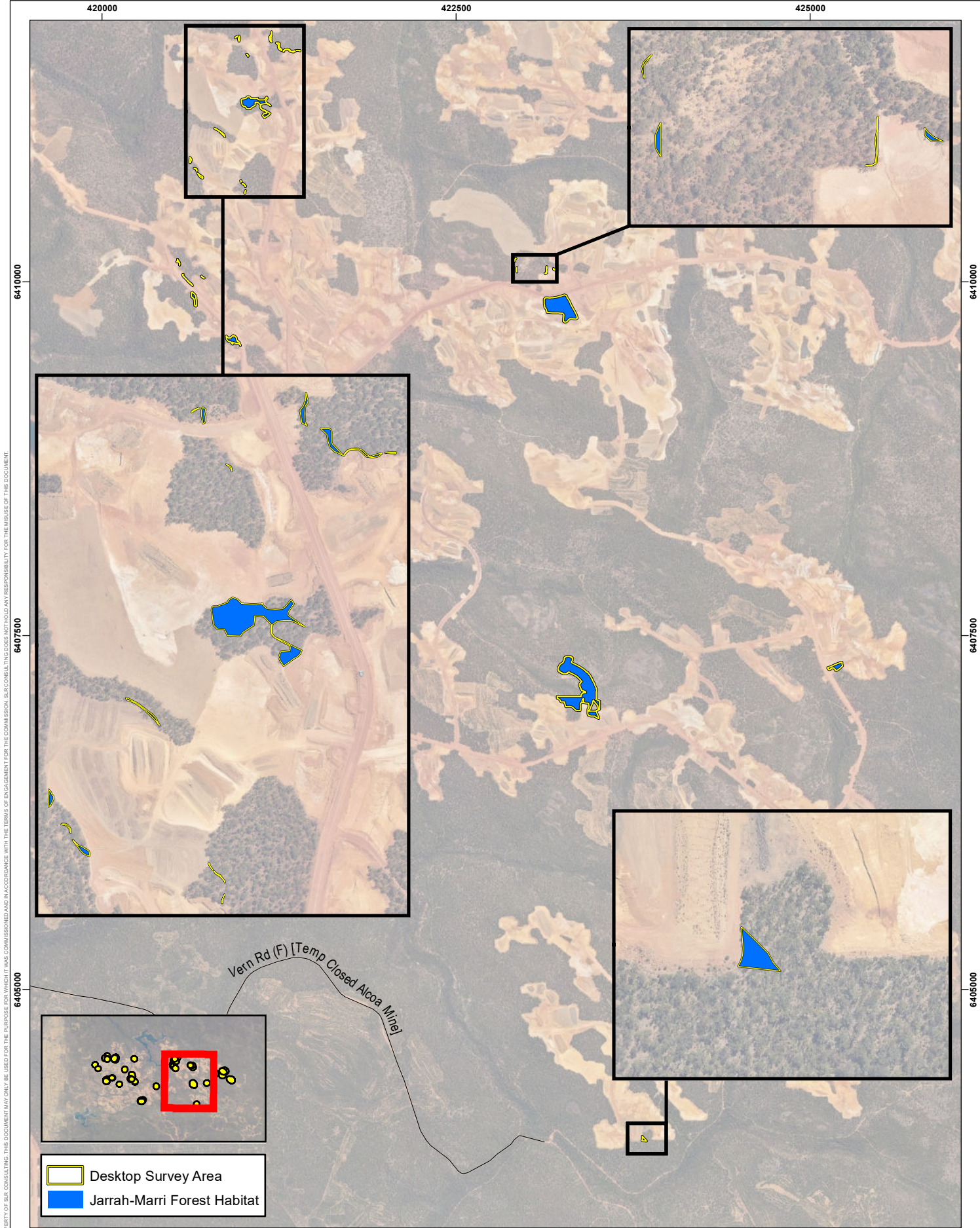


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Alcoa  
 Desktop Survey Memo Huntly Mine  
 Myara Region

Extrapolated Fauna Habitat  
 MAP 4B

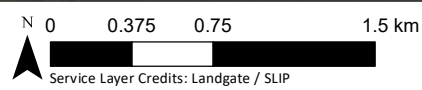
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Alcoa  
 Desktop Survey Memo Huntly Mine  
 Myara Region

Extrapolated Fauna Habitat  
 MAP 4C

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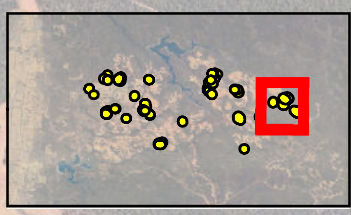
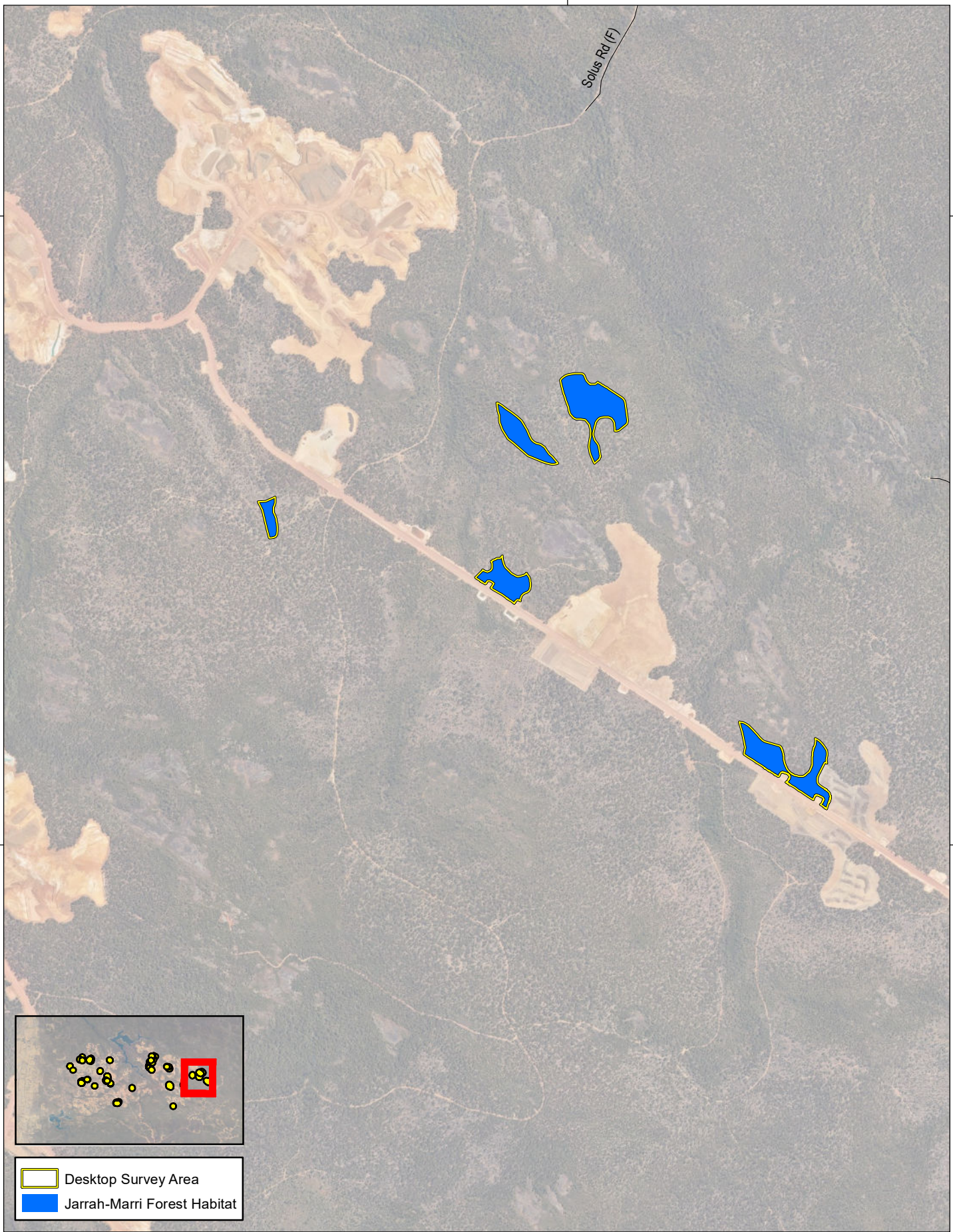
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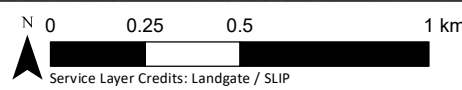
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- Desktop Survey Area
- Jarrah-Marri Forest Habitat



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Alcoa  
 Desktop Survey Memo Huntly Mine  
 Myara Region

Extrapolated Fauna Habitat  
 MAP 4D



# Appendix B Literature Review Summary

## Desktop Assessment Memo

Huntly Mine – Myara Region

Alcoa of Australia Ltd

SLR Project No.: 675.VX5890.00001

30 April 2024

ID	Report	Survey location	Survey timing	Survey type	Significant fauna recorded during the survey	Fauna habitats recorded during the survey
Lit A	<i>Chuditch Pre-mine Survey, Myara</i> (Way, 2013)	Overlaps Survey Area	March – April 2013	Targeted Chuditch Survey	<ul style="list-style-type: none"> <li>Chuditch (<i>Dasyurus geoffroii fortis</i>) - Listed at Vulnerable under the BC Act and EPBC Act</li> </ul>	<p>Two fauna habitats were identified:</p> <ul style="list-style-type: none"> <li>Jarrah forest</li> <li>Drainage line</li> </ul>
Lit B	<i>Vertebrate Fauna Survey of Planned Mining Areas at Alcoa's Willowdale Larego Mining Region</i> (Environmental Management and Research Consultants, 2006)	Overlaps Survey Area	1996-2006	Long Term Fauna Monitoring Program	<ul style="list-style-type: none"> <li>Quokka (<i>Setonix brachyurus</i>) – Listed as Vulnerable under the BC Act and EPBC Act</li> <li>Baudin's Cockatoo (<i>Zanda baudinii</i>) – Listed as Endangered under the BC Act and EPBC Act</li> <li>Noisy Scrubbird (<i>Atrichornis clamosus</i>) – Listed as Endangered under the BC Act and EPBC Act</li> </ul>	No fauna habitats were recorded.
Lit C	<i>Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Myara North</i> (GHD, 2021b)	1 km north of Survey Area	August 2021	Targeted Forest Red-tailed Black Cockatoo, Carnaby's Cockatoo, Baudin's Cockatoo, Chuditch, Quokka, and other Priority species	<ul style="list-style-type: none"> <li>Baudin's Cockatoo (<i>Zanda baudinii</i>) – Listed as Endangered under the BC Act and EPBC Act</li> <li>Carnaby's Cockatoo (<i>Zanda latirostris</i>) - Listed as Endangered under the BC Act and EPBC Act</li> <li>Forest Red-tailed Cockatoo (<i>Calyptorhynchus banksii naso</i>) – Listed at Vulnerable under the BC Act and EPBC Act</li> <li>Quokka (<i>Setonix brachyurus</i>) – Listed as Vulnerable under the BC Act and EPBC Act</li> </ul>	<p>Eight fauna habitats were identified:</p> <ul style="list-style-type: none"> <li>Jarrah-Marri forest</li> <li>Bullich forest</li> <li>Granite outcrop</li> <li>Blackbutt forest</li> <li>Flooded Gum woodland</li> <li>Melaleuca dampland</li> <li>Mine rehabilitation</li> <li>Pine plantation</li> </ul>

ID	Report	Survey location	Survey timing	Survey type	Significant fauna recorded during the survey	Fauna habitats recorded during the survey
					<ul style="list-style-type: none"> <li>• Chuditch (<i>Dasyurus geoffroii fortis</i>) - Listed at Vulnerable under the BC Act and EPBC Act</li> <li>• Peregrine Falcon (<i>Falco peregrinus</i>) – Listed as Special Protection under the BC Act</li> <li>• Brush-tailed Phascogale (<i>Phascogale tapoatafa wambenger</i>) – Listed as Conservation Dependent By DBCA</li> <li>• Masked Owl Southwest (<i>Tyto novaehollandiae</i>) – Listed as Priority 3 by the DBCA</li> <li>• Western False Pipistrelle (<i>Falsistrellus mackenziei</i>) - Listed as Priority 3 by the DBCA</li> <li>• Southern Death Adder (<i>Acanthophis antarcticus</i>) – Listed as Priority 3 by the DBCA</li> <li>• Rakali (<i>Hydromys chrysogaster</i>) – Listed as Priority 4 by the DBCA</li> <li>• Quenda (<i>Isodon fusciventer</i>) - Listed as Priority 4 by the DBCA</li> <li>• Western Brush Wallaby (<i>Notamacropus irma</i>) - Listed as Priority 4 by the DBCA</li> </ul>	

ID	Report	Survey location	Survey timing	Survey type	Significant fauna recorded during the survey	Fauna habitats recorded during the survey
Lit D	<i>Black Cockatoo Habitat Assessment - Pinjarra Racecourse</i> (Harewood, 2019)	6 km west of the Survey Area	2019	Targeted Black Cockatoo Habitat Assessment	<ul style="list-style-type: none"> <li>• Forest Red-tailed Cockatoo (<i>Calyptorhynchus banksii naso</i>) – Listed at Vulnerable under the BC Act and EPBC Act</li> </ul>	No fauna habitats were identified. However, 34 habitat trees consisting of Flooded Gum, Tuart, Marri and introduced eucalypts were identified.
Lit E	<i>Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Holyoake</i> (GHD, 2021a)	8 km south of the Survey Area	August 2021	Targeted Forest Red-tailed Black Cockatoo, Carnaby's Cockatoo, Baudin's Cockatoo, Chuditch, Quokka, Carters's Freshwater Mussel, and other Priority species	<ul style="list-style-type: none"> <li>• Baudin's Cockatoo (<i>Zanda baudinii</i>) – Listed as Endangered under the BC Act and EPBC Act</li> <li>• Carnaby's Cockatoo (<i>Zanda latirostris</i>) - Listed as Endangered under the BC Act and EPBC Act</li> <li>• Forest Red-tailed Cockatoo (<i>Calyptorhynchus banksii naso</i>) – Listed at Vulnerable under the BC Act and EPBC Act</li> <li>• Quokka (<i>Setonix brachyurus</i>) – Listed as Vulnerable under the BC Act and EPBC Act</li> <li>• Chuditch (<i>Dasyurus geoffroii fortis</i>) - Listed at Vulnerable under the BC Act and EPBC Act</li> <li>• Peregrine Falcon (<i>Falco peregrinus</i>) – Listed as Special Protection under the BC Act</li> <li>• Brush-tailed Phascogale (<i>Phascogale tapoatafa wambenger</i>) – Listed as</li> </ul>	<p>Seven fauna habitats were identified:</p> <ul style="list-style-type: none"> <li>• Bullich forest</li> <li>• Granite outcrop</li> <li>• Blackbutt forest</li> <li>• Flooded Gum woodland</li> <li>• Jarrah-Marri forest</li> <li>• Mine rehabilitation</li> <li>• Pine plantation</li> </ul>

ID	Report	Survey location	Survey timing	Survey type	Significant fauna recorded during the survey	Fauna habitats recorded during the survey
					Conservation Dependent By DBCA <ul style="list-style-type: none"> <li>• Western False Pipistrelle (<i>Falsistrellus mackenziei</i>) - Listed as Priority 3 by the DBCA</li> <li>• Quenda (<i>Isoodon fusciventer</i>) - Listed as Priority 4 by the DBCA</li> <li>• Western Brush Wallaby (<i>Notamacropus irma</i>) - Listed as Priority 4 by the DBCA</li> </ul>	
Lit F	<i>Report for Rail Reserves in the Shire of Serpentine Jarrahdale - Spring Flora and Vegetation Survey and Fauna and Habitat Assessment</i> (GHD, 2012)	10 km north of the Survey Area	November 2011	Level 1 Fauna and Habitat Assessment	<ul style="list-style-type: none"> <li>• Forest Red-tailed Cockatoo (<i>Calyptorhynchus banksii naso</i>) – Listed at Vulnerable under the BC Act and EPBC Act</li> <li>• Baudin’s Cockatoo (<i>Zanda baudinii</i>) – Listed as Endangered under the BC Act and EPBC Act</li> <li>• Western Brush Wallaby (<i>Notamacropus irma</i>) - Listed as Priority 4 by the DBCA</li> <li>• Quenda (<i>Isoodon fusciventer</i>) - Listed as Priority 4 by the DBCA</li> <li>• Letter-winged kite (<i>Elanus scriptus</i>) – Listed as Priority 4 the DBCA</li> </ul>	Five fauna habitats were identified: <ul style="list-style-type: none"> <li>• Melaleuca wetlands</li> <li>• Swampland</li> <li>• Jarrah/Marri forest</li> <li>• <i>Banksia/Allocasuarina</i> woodlands</li> <li>• Dense shrublands on clay flats</li> </ul>

ID	Report	Survey location	Survey timing	Survey type	Significant fauna recorded during the survey	Fauna habitats recorded during the survey
Lit G	<i>Fauna Assessment Pinjarra - Williams Road (SLK 14 – 67) (Harewood, 2017)</i>	17.5 km south of Survey Area	August 2011	Basic Fauna Assessment and Black Cockatoo Habitat Assessment	<ul style="list-style-type: none"> <li>• Baudin's Cockatoo (<i>Zanda baudinii</i>) – Listed as Endangered under the BC Act and EPBC Act</li> <li>• Forest Red-tailed Cockatoo (<i>Calyptorhynchus banksii naso</i>) – Listed at Vulnerable under the BC Act and EPBC Act</li> <li>• Carnaby's Cockatoo (<i>Zanda latiostris</i>) - Listed as Endangered under the BC Act and EPBC Act</li> <li>• Western Brush Wallaby (<i>Notamacropus irma</i>) - Listed as Priority 4 by the DBCA</li> </ul>	<p>Four fauna habitats were identified:</p> <ul style="list-style-type: none"> <li>• Remnant native vegetation</li> <li>• Plantations</li> <li>• Existing cleared areas</li> <li>• River and ephemeral streams</li> </ul>



# Appendix C Fauna Desktop Assessment Results

## Desktop Assessment Memo

Huntly Mine – Myara Region

Alcoa of Australia Ltd

SLR Project No.: 675.VX5890.00001

30 April 2024

**Conservation Status:**

State - Listed under Biodiversity Conservation Act 2016 or Department of Biodiversity, Conservation and Attractions Conservation, Commonwealth - Listed under Environmental Protection and Biodiversity Conservation Act 1999. CR - Critically Endangered, EN - Endangered, VU - Vulnerable, MI - Migratory, CD - Conservation Dependent fauna, OS - Other Specially Protected fauna, MA - Marine, P - Listed as Priority by DBCA.

**Database:**

NM - NatureMap, PMST - EPBC Protected Matters Search Tool, DBCA - DBCA Threatened and Priority Fauna database search, 2023 Survey – Recorded during the 2023 targeted significant fauna survey (SLR Consulting, 2024).

**Literature:**

A - *Chuditch Pre-mine Survey, Myara* (Way, 2013)

B - *Vertebrate Fauna Survey of Planned Mining Areas at Alcoa's Willowdale Larego Mining Region* (Environmental Management and Research Consultants, 2006)

C - *Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Myara North* (GHD, 2021b)

D - *Black Cockatoo Habitat Assessment - Pinjarra Racecourse* (Harewood, 2019)

E - *Terrestrial Fauna Survey and Black Cockatoo Habitat Assessment for Huntly Mine - Holyoake* (GHD, 2021a)

F - *Report for Rail Reserves in the Shire of Serpentine Jarrahdale - Spring Flora and Vegetation Survey and Fauna and Habitat Assessment* (GHD, 2012)

G - *Fauna Assessment Pinjarra - Williams Road (SLK 14 – 67)* (Harewood, 2017)

Family	Scientific name	Common name	Conservation status		Database			2023 Survey	Literature							
			State	Common wealth	NM	PMST	DBCA		A	B	C	D	E	F	G	
<b>Amphibians</b>																
Limnodynastidae	<i>Heleioporus albopunctatus</i>	Western Spotted Frog								x						
	<i>Heleioporus eyrei</i>	Moaning Frog								x	x			x		
	<i>Heleioporus inornatus</i>	Whooping Frog								x						
Myobatrachidae	<i>Crinia georgiana</i>	Quacking Frog						x		x	x			x	x	x
	<i>Crinia glauerti</i>	Clicking Frog						x		x				x	x	x
	<i>Crinia insignifera</i>	Squelching Froglet														x
	<i>Crinia pseudinsignifera</i>	Bleating Froglet								x	x			x		x
	<i>Geocrinia leai</i>	Ticking Frog								x	x			x		
Pelodryadidae	<i>Litoria adelaidensis</i>	Slender Tree Frog						x		x	x			x		x
	<i>Litoria moorei</i>	Motorbike Frog												x		
<b>Birds</b>																
Acanthizidae	<i>Acanthiza apicalis</i>	Inland Thornbill, Broad-tailed Thornbill						x		x	x			x		x







Family	Scientific name	Common name	Conservation status		Database			2023 Survey	Literature							
			State	Common wealth	NM	PMST	DBCA		A	B	C	D	E	F	G	
	<i>Thalasseus bergii</i>	Greater Crested Tern, Crested Tern	MI	MI, MA	x		x									
Locustellidae	<i>Cincloramphus cruralis</i>	Brown Songlark									x			x		
	<i>Cincloramphus mathewsi</i>	Rufous Songlark												x		
Maluridae	<i>Malurus elegans</i>	Red-winged Fairywren						x		x	x			x		
	<i>Malurus leucopterus</i>	White-winged Fairywren												x		
	<i>Malurus pulcherrimus</i>	Blue-breasted Fairywren												x		
	<i>Malurus splendens</i>	Splendid Fairywren								x	x			x	x	x
	<i>Stipiturus malachurus</i>	Southern Emu-wren									x					
Megapodiidae	<i>Leipoa ocellata</i>	Malleefowl	VU	VU	x	x	x									
Meliphagidae	<i>Acanthorhynchus superciliosus</i>	Western Spinebill						x		x	x			x		x
	<i>Anthochaera carunculata</i>	Red Wattlebird								x	x			x	x	x
	<i>Anthochaera lunulata</i>	Western Little Wattlebird, Western Wattlebird						x		x	x			x		x
	<i>Gavicalis virescens</i>	Singing Honeyeater								x	x				x	
	<i>Lichmera indistincta</i>	Brown Honeyeater								x	x			x	x	x
	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater									x	x		x		
	<i>Melithreptus chloropsis</i>	Western White-naped Honeyeater									x	x		x		x
	<i>Phylidonyris niger</i>	White-cheeked Honeyeater									x			x	x	
	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater						x		x	x			x	x	x
	<i>Ptilotula ornata</i>	Yellow-plumed Honeyeater												x		
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater		MA							x	x		x		
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark		MA								x		x	x	

Family	Scientific name	Common name	Conservation status		Database			2023 Survey	Literature						
			State	Common wealth	NM	PMST	DBCA		A	B	C	D	E	F	G
	<i>Myiagra inquieta</i>	Restless Flycatcher								x	x		x		
Motacillidae	<i>Anthus australis australis</i>	Australian Pipit		MA						x					
	<i>Motacilla cinerea</i>	Grey Wagtail	MI	MI, MA		x									
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella								x			x		
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey Shrikethrush								x			x		
	<i>Pachycephala fuliginosa</i>	Western Whistler						x		x	x		x		x
	<i>Pachycephala rufiventris</i>	Rufous Whistler						x		x					x
Pandionidae	<i>Pandion haliaetus</i>	Osprey	MI	MI, MA	x	x	x								
	<i>Pardalotus punctatus</i>	Spotted Pardalote						x		x	x				x
	<i>Pardalotus striatus</i>	Striated Pardalote						x		x	x				x
Petroicidae	<i>Eopsaltria griseogularis</i>	Western Yellow Robin						x		x	x		x		
	<i>Microeca fascinans</i>	Jacky Winter													x
	<i>Petroica boodang</i>	Scarlet Robin						x		x	x		x		
	<i>Quoyornis georgianus</i>	White-breasted Robin						x		x	x		x		
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth						x		x	x				x
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler											x		
Procellariidae	<i>Macronectes giganteus</i>	Southern Giant Petrel	MI	EN, MI, MA		x									
	<i>Macronectes halli</i>	Northern Giant Petrel	MI	VU, MI, MA		x									
	<i>Pachyptila turtur subantarctica</i>	Fairy Prion		VU		x									
Psittaculidae	<i>Barnardius zonarius</i>	Australian Ringneck						x		x	x		x	x	x
	<i>Neophema elegans</i>	Elegant Parrot									x		x		
	<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet								x	x		x		
	<i>Platycercus icterotis</i>	Western Rosella						x		x	x		x		
	<i>Polytelis anthoepus</i>	Regent Parrot											x		

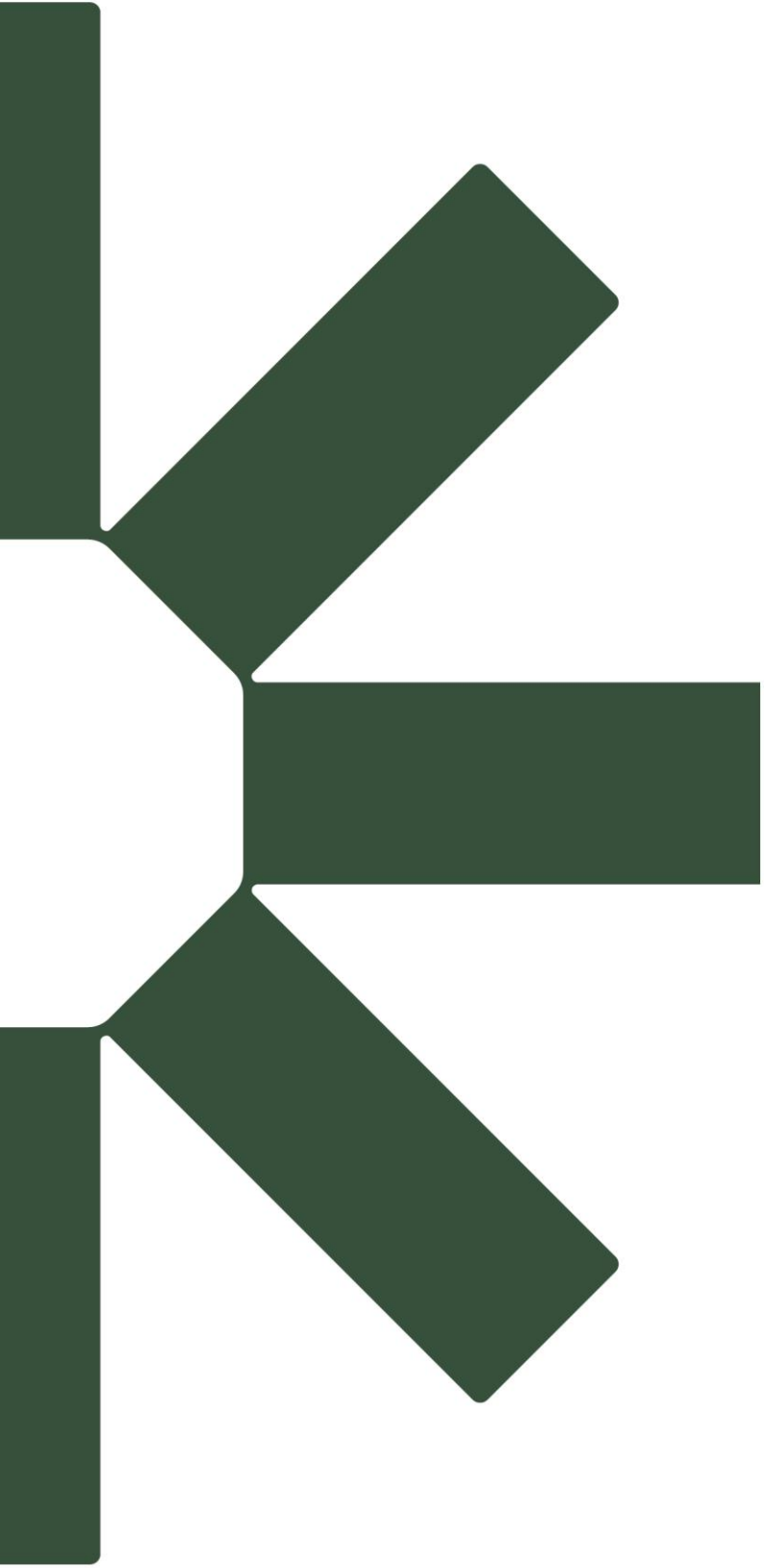


Family	Scientific name	Common name	Conservation status		Database			2023 Survey	Literature							
			State	Common wealth	NM	PMST	DBCA		A	B	C	D	E	F	G	
	<i>Limosa lapponica</i>	Bar-tailed Godwit	MI ( <i>L. l. bauerii</i> VU; <i>L. l. menzbieri</i> CR)	MI, MA ( <i>L. lapponica bauerii</i> Chris. Is. EN; <i>L. lapponica menzbieri</i> EN)	x	x	x									
	<i>Limosa limosa</i>	Black-tailed Godwit	MI	EN, MI, MA	x	x	x									
	<i>Numenius madagascariensis</i>	Far Eastern Curlew, Eastern Curlew	CR	CR, MI, MA	x	x										
	<i>Numenius minutus</i>	Little Curlew	MI	MI, MA		x										
	<i>Numenius phaeopus</i>	Whimbrel	MI	MI, MA		x										
	<i>Tringa brevipes</i>	Grey-tailed Tattler	MI, P4	MI, MA		x										
	<i>Tringa glareola</i>	Wood Sandpiper	MI	MI, MA	x	x	x									
	<i>Tringa nebularia</i>	Common Greenshank	MI	EN, MI, MA	x	x	x									
	<i>Tringa stagnatilis</i>	Marsh Sandpiper	MI	MI, MA	x	x										
	<i>Tringa totanus</i>	Common Redshank	MI	MI, MA		x										
Strigidae	<i>Ninox boobook</i>	Boobook Owl		MA						x	x		x		x	
Threskiornithidae	<i>Plegadis falcinellus</i>	Glossy Ibis	MI	MI, MA	x		x									
	<i>Threskiornis spinicollis</i>	Straw-necked Ibis		MA							x				x	
Turnicidae	<i>Turnix varius</i>	Painted Button-quail						x		x	x		x			
Tytonidae	<i>Tyto javanica</i>	Eastern Barn Owl											x			
Tytonidae	<i>Tyto novaehollandiae</i>	Australian Masked Owl, Masked Owl	P3								x					
Zosteropidae	<i>Zosterops lateralis</i>	Grey-breasted White-eye, Silvereye		MA						x	x		x		x	
<b>Mammals</b>																
Burramyidae	<i>Cercartetus concinnus</i>	Western Pygmy-possum, Mundarda												x		
Canidae	<i>Canis familiaris</i> *	Dingo / Dog													x	
	<i>Vulpes vulpes</i> *	Red Fox						x			x				x	



Family	Scientific name	Common name	Conservation status		Database			2023 Survey	Literature							
			State	Common wealth	NM	PMST	DBCA		A	B	C	D	E	F	G	
Suidae	<i>Sus scrofa</i> *	Pig						x			x		x		x	
Tachyglossidae	<i>Tachyglossus aculeatus acanthion</i>	Short-beaked Echidna						x			x		x		x	
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat									x		x			
	<i>Chalinolobus morio</i>	Chocolate Wattled Bat									x		x			
	<i>Falsistrellus mackenziei</i>	Western False Pippiistrelle	P4		x		x				x		x			
	<i>Vespadelus regulus</i>	Southern Forest Bat									x		x			
<b>Reptiles</b>																
Agamidae	<i>Ctenophorus ornatus</i>	Ornate Crevice Dragon									x	x				
	<i>Pogona minor</i>	Dwarf Bearded Dragon									x	x		x	x	
Carphodactylidae	<i>Underwoodisaurus milii</i>	Southern Barking Gecko						x			x			x		
Diplodactylidae	<i>Diplodactylus lateroides</i>	Speckled Stone Gecko									x					
	<i>Diplodactylus polyophthalmus</i>	Spotted Sandplain Gecko									x					
Elapidae	<i>Acanthophis antarcticus</i>	Southern Death Adder	P3		x		x				x					
	<i>Notechis scutatus</i>	Tiger Snake									x	x		x		
	<i>Pseudonaja affinis</i>	Dugite						x			x			x	x	
	<i>Suta nigriceps</i>	Mitchell's Short-tailed Snake									x			x		
Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko						x			x					
Pygopodidae	<i>Aprasia pulchella</i>	Pretty Worm-lizard						x			x	x				
	<i>Delma fraseri</i>	Fraser's Delma												x		
Pythonidae	<i>Morelia spilota</i>	Carpet Python									x	x		x		
Scincidae	<i>Acritoscincus trilineatus</i>	Western Three-lined Skink									x	x		x		
	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink						x			x				x	

Family	Scientific name	Common name	Conservation status		Database			2023 Survey	Literature							
			State	Common wealth	NM	PMST	DBCA		A	B	C	D	E	F	G	
	<i>Cryptoblepharus plagiocephalus</i>	Péron's Snake-eyed Skink								x						
	<i>Ctenotus delli</i>	Dell's Ctenotus	P4		x		x			x						
	<i>Ctenotus labillardieri</i>							x		x	x		x			
	<i>Egernia kingii</i>	King's Skink						x		x	x					
	<i>Egernia napoleonis</i>	South-western Crevice-skink						x		x	x		x			
	<i>Hemiergis initialis initialis</i>	Southwestern Earless Snake								x	x		x			
	<i>Lerista distinguenda</i>	Dwarf Four-toed Slider								x	x		x			
	<i>Lerista microtis microtis</i>	Southwestern Slider								x						
	<i>Menetia greyii</i>	Common Dwarf Skink								x	x		x			
	<i>Morethia obscura</i>	Shrubland Morethia Skink								x	x		x			
	<i>Tiliqua rugosa</i>	Bobtail						x		x	x		x	x		
Typhlopidae	<i>Anilius australis</i>	Southern Blind Snake								x	x		x			
Varanidae	<i>Varanus gouldii</i>	Bungarra Or Sand Goanna						x		x	x		x			
	<i>Varanus rosenbergi</i>	Heath Goanna								x	x		x	x	x	
	<i>Varanus tristis</i>	Racehorse Goanna									x					



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