Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

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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 Horizon Power (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.

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Executive Summary

Horizon Power commissioned SLR Consulting Australia to undertake a detailed flora and vegetation, targeted significant flora, basic terrestrial vertebrate fauna, and targeted significant fauna survey for shorebird species for the proposed Carnarvon Decarbonisation Project to inform clearing of native vegetation for the construction of a centralised renewable generation facility. The Survey Area covers approximately 256.9 hectares (ha) and is located approximately 3 kilometres (km) east of the Carnarvon townsite, in the Carnarvon bioregion of Western Australia.

The objective of the survey was to identify key flora, vegetation, and fauna values within the Survey Area as part of the environmental impact assessment process. This report presents the findings of the survey.

Flora and Vegetation

The detailed flora and vegetation survey recorded the floristic composition and vegetation types within the Survey Area from 29 survey sites (23 quadrats and 6 relevés). A total of 74 vascular flora taxa were recorded from 59 genera and 27 families. Six taxa collected during the field surveys could not be confirmed to species level. Twenty introduced flora taxa were recorded within the Survey Area, including two Weeds of National Significance (WoNs): **Neltuma pallida* (Mesquite) Declared Pest, Prohibited -s12 and **Cylindropuntia* aff. *fulgida* Declared Pest -s22(2). No Threatened or Priority flora taxa were recorded within the Survey Area.

Six vegetation types were delineated across three broad landforms present within the Survey Area. All vegetation types delineated across the Survey Area were significantly modified from pre-European values due to the presence of aggressive introduced flora taxa. None of the vegetation types delineated within the Survey Area were analogous to nearby Threatened or Priority Ecological Communities. Two vegetation types, EvEaCc and NpRlCc, may support terrestrial groundwater dependent ecosystems. Both vegetation types support *Eucalyptus victrix*, a facultative phreatophyte, which may rely on groundwater when surface water resources are scarce.

Vegetation condition ranged from Completely Degraded to Poor within the Survey Area. Evidence of disturbance was primarily related to the presence of a number of aggressive introduced flora taxa. Additional disturbance within the Survey Area included vehicle tracks, previously cleared areas, infrastructure, grazing and high levels of illegal dumping.

Vertebrate Fauna

The basic terrestrial vertebrate fauna and targeted significant fauna survey consisted of habitat assessments, opportunistic observations, and timed bird surveys. Fauna habitat mapping was based on a combination of field observations, vegetation mapping, fauna habitat assessment data, and aerial imagery. Five fauna habitats were mapped within the Survey Area. All habitats within the Survey Area were heavily degraded from anthropogenic impacts. However, of the habitats identified the *Eucalyptus victrix* Drainage and *Cenchrus* Dune Crest habitats may provide the greatest value to the broader faunal assemblage. Although the *Cenchrus* Clay Flats habitat is unlikely to support significant fauna use during dry periods, it is expected to retain water in wetter months, offering an important resource for a wide range of fauna, particularly wading birds.

A total of 31 fauna taxa from 27 families were recorded, comprising 19 birds, nine mammals, and three reptiles. The remains of a marine turtle were recorded within the Survey Area; however, the remains were likely to be associated with consumption and dumping.

The desktop assessment identified 67 significant fauna taxa as potentially occurring within the Survey Area. These taxa were assessed to determine the likelihood of their occurrence within the Survey Area; one significant fauna taxon was assessed as having a high likelihood, 17 significant fauna taxa were assessed as having a medium likelihood, and 50 significant fauna taxa were assessed as having have a low likelihood of occurrence.

Seven introduced taxa were recorded during the survey including the European Cattle (**Bos primigenius taurus*), Goat (**Capra aegagrus hircus*), Sheep (**Ovis aries*), Dingo/Dog (**Canis familiaris*), Horse (**Equus ferus caballus*), Cat (**Felis catus*) and Rabbit (**Oryctolagus cuniculus*).

The basic fauna survey was undertaken in April which falls within the preferred survey periods for mammals, reptiles, and birds.

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Acronyms and Abbreviations

°C	Degree Celsius
ALA	Atlas of Living Australia
BAM Act	*Biosecurity and Agriculture Management Act 2007*
BC Act	*Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
CISS	Centre for Invasive Species Solutions
CR	Critically Endangered
DAWE	Department of Agriculture Water and Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEE	Department of the Environment and Energy
DEWHA	Department of the Environment, Water, Heritage and the Arts
Desktop Study Area	The area that was studied during the desktop assessment encompassing the Survey Area and surrounds
DMIRS	Department of Mines, Industry Regulation and Safety
DoE	Department of the Environment
DP	Declared Pest
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EN	Endangered
EP Act	*Environmental Protection Act 1986*
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection Biodiversity and Conservation Act 1999*
ESA	Environmentally Sensitive Area
FCT	Floristic Community Type
GIS	Geographic Information System
GPS	Global Positioning System
GDE	Groundwater Dependent Ecosystem
ha	Hectare
IBRA	Interim Biogeographic Regionalisation for Australia
IBSA	Index of Biodiversity Surveys for Assessments
km	Kilometres
Lat	Latitude

Long	Longitude
m	Metres
MA	Marine
MI	Migratory
mm	Millimetres
mths	Months
MNES	Matters of National Environmental Significance
NVCP	Native Vegetation Clearing Permit
NVIS	National Vegetation Information System
OS	Other Specially Protected Fauna
P	Priority
PEC	Priority Ecological Community
PMST	Protected Matters Search Tool
Sp.	Species
Spp.	More than one species
SLR	SLR Consulting Australia
SRE	Short Range Endemic
Survey Area	The 254.9 hectares that were surveyed
T	Threatened
TEC	Threatened Ecological Community
TPFL	Threatened and Priority Flora Database
TPFRF	Threatened and Priority Flora Report Form
VU	Vulnerable
WA	Western Australia
WAH	Western Australian Herbarium
WAM	Western Australian Museum
WoNS	Weeds of National Significance

1.0 Introduction

1.1 The Project

Horizon Power commissioned SLR Consulting Australia (SLR) to undertake a detailed flora and vegetation, targeted significant flora, basic terrestrial vertebrate fauna and targeted significant fauna survey for shorebird species for the proposed Carnarvon Decarbonisation Project (the Project) to inform clearing of native vegetation for the construction of a centralised renewable generation facility. The survey was undertaken within a defined area (the Survey Area) that covers 256.9 hectares (ha) and is located 3 kilometres (km) east of the Carnarvon townsite, in the Carnarvon 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 flora, vegetation, and fauna values within the Survey Area as part of the environmental impact assessment process for the Project.

The following scope of work was completed:

- Desktop assessment including relevant database searches and a literature review to compile and summarise existing records of flora, vegetation, and fauna in the vicinity of the Survey Area.
- Detailed flora and vegetation survey using quadrats / relevés to identify and describe the vegetation and flora occurring within the Survey Area.
- Targeted search for significant flora within the Survey Area.
- Basic vertebrate fauna using a variety of detection methods including opportunistic observations and timed bird searches.
- Technical biological report.
- Geospatial data package prepared in accordance with IBSA.

2.0 Background

2.1 Statutory and Regulatory Framework

Western Australian flora, vegetation and fauna are governed by the following legislative measures:

- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) (Commonwealth of Australia, 1999).
- *Biodiversity Conservation Act 2016* (WA) (BC Act) (Government of Western Australia, 2016).
- *Environmental Protection Act 1986* (WA) (EP Act) (Government of Western Australia, 1986).
- *Biosecurity and Agriculture Management Act 2007* (WA) (BAM Act) (Government of Western Australia, 2007).

In addition to these legislative measures, the following non-legislative lists are considered on a case-by-case basis:

- WA Department of Biodiversity Conservation and Attractions (DBCA) Priority lists for fauna, flora, and ecological communities.
- Weeds of National Significance (WoNS).
- Recognition of locally significant populations by DBCA.

The EIA process is supported by guidance documents published by the Environmental Protection Authority (EPA), DBCA and the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Western Australia

- Environmental Factor Guideline - Flora and Vegetation (EPA, 2016a).
- Environmental Factor Guideline – Terrestrial Fauna (EPA, 2016b).
- Technical Guidance – Flora and vegetation surveys for environmental impact assessment (EPA, 2016c).
- Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020).

Commonwealth

- Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (DoE, 2013).
- Survey guidelines for Australia’s threatened birds (DEWHA, 2010).
- Survey guidelines for Australia’s threatened mammals (DSEWPaC, 2011a).
- Survey guidelines for Australia’s threatened reptiles (DSEWPaC, 2011b).

2.2 Existing Environment

2.2.1 Climate

The closest long-term Bureau of Meteorology (BoM) weather station with a complete dataset is the Carnarvon Airport Weather Station (Station 006011), located approximately two kilometres northeast of the Survey Area.

Climate statistics were calculated using data from the most current climate normal, which is defined as a 30-year interval where possible. A climate normal is a period long enough to include year-to-year variations while avoiding the influence of longer-term changes in climate (BoM, 2007).

The long-term (1991 to 2020) mean minimum temperature for Carnarvon Airport Weather Station (06011) ranges from 10.8˚C (July) to 23.6˚C (February) and the long-term mean maximum temperature ranges from 23.1˚C (July) to 32.5˚C (February) (**Figure 1**) (BoM, 2024).

The Carnarvon Airport Weather Station (006011) recorded 193.6 milometres (mm) of rainfall in the 12 months prior to the field survey. Rainfall in the 12 months prior to the field survey was 15.5 mm below the long-term average of 209.1 mm (BoM, 2024).

In the three months prior to the field survey, 3.8 mm of rainfall were recorded. Rainfall prior to the field survey was 40.4 mm below the long-term average of 44.4 mm (BoM, 2024).

Trends for rainfall and maximum temperatures for the Carnarvon Airport Weather Station (006011) are presented in **Table 1**.

Table 1: Trends for rainfall and maximum temperature for the Carnarvon Airport Weather Station (006011).

Total Rainfall (mm)				Mean Maximum Temperature (˚C)			
3 months prior	Difference to long-term mean	12 months prior	Difference to long-term mean	3 months prior	Difference to long-term mean	12 months prior	Difference to long-term mean
3.8	-40.4	193.6	-15.5	34.3	+2.3	29.5	+1.7

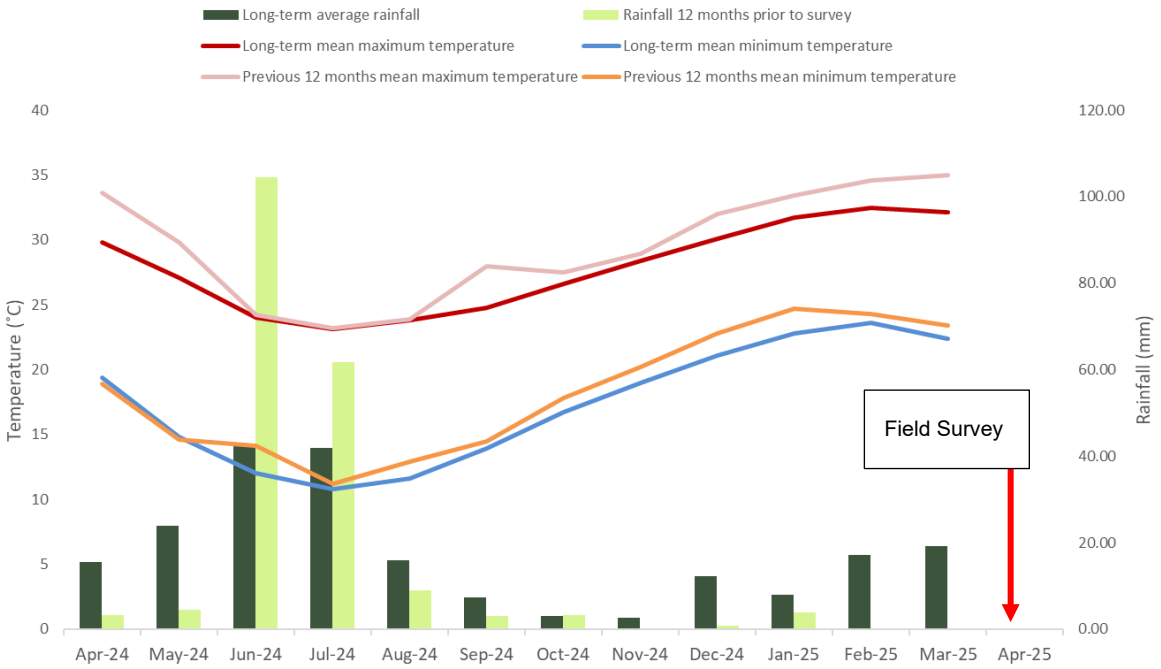


Figure 1: Climate summary of the Carnarvon Airport Weather Station (006011).

2.2.2 Interim Biogeographic Regionalisation of Australia

The Interim Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological, geographical, and geological attributes. These bioregions are subdivided into 419 subregions as part of a refinement of the IBRA framework (DEE, 2016). The Survey Area occurs within the Carnarvon bioregion and the Wooramel (CAR2) subregion.

> *"The Wooramel Subregion is the southern and central parts of the Carnarvon Basin. Alluvial plains associated with downstream sections and deltas of Gascoyne, Minilya and Wooramel Rivers. Includes Lake MacLeod and Kennedy Range. Tree to shrub steppe over hummock grasslands on and between aeolian red sand dunefields are extensive in the north and east as well as on top of Kennedy Range. Permian sediments are common in northern parts. Southern areas comprise limestone plateaux overlain by red sand plains. Acacia shrublands (Mulga, Bowgada and A. coriacea) over bunch grasses on red sandy ridges and plains. Mangroves confined to small areas around Lake MacLeod and near Carnarvon. Saline alluvial plains with samphire and saltbush low shrublands in near-coastal areas"* (Desmond and Chant, 2001).

2.2.3 Soil Landscape and Land Systems

Soil landscape mapping of Western Australia consists of a compilation of various surveys at different scales varying between 1:20,000 and 1:3,000,000 (DPIRD, 2022). The mapping comprises a nested hierarchy of levels, with each level a subdivision of the preceding level. Soil landscape mapping provides an indication of potential vegetation types and fauna habitats within the Survey Area and has been described below to the highest level of detail available for the Survey Area.

The Survey Area occurs across two soil landscape systems (**Table 2** ; **Map 2**).

Table 2: Soil Landscape Systems within the Survey Area

Soil Land System		Description	Area and percentage within Survey Area
Name	Code		
Brown System	235Br	Sandy plains with sparse longitudinal dunes, supporting tall *Acacia* spp. shrublands	13.1 ha (5.1%)
Delta System	235De	Flood plains and minor sand banks, supporting low shrublands of bluebush (*Maireana* spp.) and saltbush (*Atriplex* spp.)	243.8 ha (94.9%)

2.2.4 Hydrography

Hydrographic features that either intersect or occur in the vicinity of the Survey Area are presented in **Map 3** (DWER, 2018). No areas mapped as hydrographic features intersect the Survey Area. Aerial analysis of the Survey Area indicates that two non-perennial minor drainage channels intersect the Survey Area. Both minor drainage lines are disrupted by infrastructure within the surrounding area.

Two areas with the potential to support Groundwater Dependent Ecosystems (GDE) intersect the Survey Area (**Table 3**; **Map 3**) (BoM, 2025). The majority of the Survey Area (99.1%) intersects an area mapped as having a high potential to support terrestrial GDE.

Table 3: Areas with Potential to Support GDE within the Survey Area (BoM, 2025)

GDE Potential	Description	Area and percentage within Survey Area
High Potential	Floodplains of major rivers (such as the Gascoyne River), which support low shrublands of bluebush (*Maireana* spp.) and saltbush (*Atriplex* spp.)	254.7 ha (99.1%)
Moderate Potential	Alluvial plains of sandy plains with sparse longitudinal dunes, which support tall shrublands of *Acacia* spp.	2.2 ha (0.9%)

2.2.5 Pre-European Vegetation

The major source of data for pre-European vegetation mapping in Western Australia is the published and unpublished mapping of J. S. Beard at 1:250,000 scale. These vegetation types were later refined by Shepherd, Beeston, and Hopkins (2002), resulting in 819 Vegetation Association-level units, and a subsequent reclassification resulted in the creation of over 2,175 finer-scale System Associations (Beard *et al.*, 2013). Two system association intersect the Survey Area, a majority of which (99.7%) is the Gascoyne Marshes 308 system association (**Table 4**; **Map 4**).

Table 4: Pre-European Vegetation System Associations within the Survey Area

System Association	Description	Area and percentage within Survey Area
Gascoyne Marshes 205	Scrub, open scrub or sparse scrub of Wattle (*Acacia* spp.) teatree (*Melaleuca* spp.) and other species.	0.8 ha (0.3%)
Gascoyne Marshes 308	Mixed saltbush (*Atriplex* spp.) and bluebush (*Maireana* spp.) communities on alkaline soils	256.1 ha (99.7%)

Representation of this System Association at a state, regional, and local level is presented in **Table 5** (Government of Western Australia, 2019). Vegetation association mapped across the Survey Area are represented by over 99% of their pre-European value at the State, IBRA, IBRA subregion and local government area levels.

Table 5: Representation of System Associations within the Survey Area at a state, regional, and local level

System Association	Extent				
	Pre-European (ha)	Current (ha)	Remaining (%)	Managed in DBCA lands (%)*	Within the Survey Area (%)*
Representation across Western Australia					
Gascoyne Marshes 205	11,501.99	11,390.85	99.03	0.00	0.01
Gascoyne Marshes 308	445,285.16	441,720.61	99.20	0.88	0.06
Representation across the Carnarvon Bioregion					
Gascoyne Marshes 205	11,501.99	11,390.85	99.03	0.00	0.01
Gascoyne Marshes 308	445,197.57	441,704.55	99.22	0.88	0.06
Representation across the Wooramel Subregion					
Gascoyne Marshes 205	11,501.99	11,390.85	99.03	0.00	0.01
Gascoyne Marshes 308	445,197.57	441,704.55	99.22	0.88	0.06
Representation across the Shire of Carnarvon					
Gascoyne Marshes 205	11,501.99	11,390.85	99.03	0.00	0.01
Gascoyne Marshes 308	445,099.12	441,534.57	99.20	0.88	0.06

*as a portion of the current extent

2.2.6 Conservation Areas

Conservation areas consist of areas protected for the purpose of conservation, including but not limited to National Parks, Nature Reserves, Conservation Parks, and Regional Parks. The Survey Area does not intersect any conservation areas (DBCA, 2023a, 2023b). Nearby conservation areas are listed below and shown in **Map 5**:

- Chinamans Pool Nature Reserve (R 31444), vested under the Conservation and Parks Commission and Yinggarda Aboriginal Corporation for the conservation of flora and fauna, is located approximately 3 km to the northwest of the Survey Area.
- Shark Bay Marine Park (M 7), vested under the Marine Parks and Reserves Authority, is located approximately 4 km to the south of the Survey Area.
- One Tree Point Nature Reserve (R 28220), vested under the Conservation and Parks Commission and Yinggarda Aboriginal Corporation for the conservation of flora and fauna, is located approximately 4.5 km to the northwest of the Survey Area.

2.2.7 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Department of Water and Environmental Regulation (DWER) to prevent the degradation of important environmental values such as Threatened flora, Threatened Ecological Communities (TECs), or significant wetlands. The Survey Area does not intersect any mapped ESAs (Department of Water and Environmental Regulation, 2021). The nearest ESAs are listed below and presented in **Map 5**.

A Directory of Important Wetlands Site, associated with the McNeil Claypan System, is located approximately 1 km east of the Survey Area.

An area included on the Register of the National Estate Site, associated with Shark Bay East, is located approximately 1.5 km south of the Survey Area.

2.2.8 Land Use

Land use within the Survey Area is historically associated with pastoral use. Contemporary land use within the vicinity of the Survey Area includes infrastructure development for petrol stations and a road train assembly area to the north, and Mungullah Power Station to the east.

3.0 Methods

The surveys documented in this report were undertaken in accordance with relevant EPA and DAWE guidelines (see **Section 2.1**).

3.1 Desktop Assessment

3.1.1 Literature Review

Background information on the Survey Area and surrounds (the Desktop Study Area) was compiled prior to the field survey. 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 in order of distance from the current Survey Area and summarised in **Appendix B**:

- *Gascoyne Food Bowl Initiative: Flora and Vegetation Survey* (Strategen Environmental, 2019), approximately five kilometres north of the Survey Area
- *Reconnaissance Vegetation Survey: Beta Nutrition Pty. Ltd. Facility Lake MacLeod* (Environment Plus, 2021), approximately 40 km northwest of the Survey Area
- *Synergy Site (North), Denham: Flora and Fauna Report* (360 Environmental Pty Ltd, 2019b), approximately 100 km southwest of the Survey Area
- *Shire of Shark Bay Site, Denham: Flora and Fauna Report* (360 Environmental Pty Ltd, 2019a), approximately 100 km southwest of the Survey Area
- *Water Corporation Site, Denham: Flora and Fauna Report* (360 Environmental Pty Ltd, 2019c), approximately 100 km southwest of the Survey Area
- *Main Roads Western Australia: Minilya-Exmouth Road Biological Survey* (GHD, 2016), between 150 and 200 km northeast of the Survey Area

3.1.2 Database Searches

Database searches were undertaken to compile a list of flora and fauna known to occur in the Desktop Study Area and identify significant flora, fauna, and ecological communities with potential to occur within the Survey Area (**Table 6**).

Table 6: Database search details

Database name	Date received	Search target	Buffer around the Survey Area
Threatened and Priority Ecological Communities database search (DBCA, 2024a)	14 January 2025	TECs and PECs	100 km
Threatened and Priority Flora (TPFL) database search (DBCA, 2024b)	14 January 2025	Threatened and Priority flora	100 km
Western Australian Herbarium Flora database search (DBCA, 2024c)	14 January 2025	Threatened and Priority flora	100 km
Threatened and Priority Fauna database search (DBCA, 2025c)	14 January 2025	Threatened and Priority fauna	100 km

Database name	Date received	Search target	Buffer around the Survey Area
Protected Matters Search Tool (PMST) (DCCEEW, 2025b)	14 January 2025	Threatened flora, fauna, and ecological communities	50 km
NatureMap (DBCA, 2025b)	13 January 2025	Flora and fauna	50 km

3.1.3 Likelihood of Occurrence

Significant flora and fauna taxa identified during the desktop assessment were assessed to determine the likelihood of their occurrence within the Survey Area before and after the field survey. The assessment used the likelihood of occurrence criteria presented in **Table 7**.

Taxa listed as Marine (MA) 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 Survey Area or were assessed as having a high or medium likelihood of occurrence are discussed in detail.

Table 7: Likelihood of occurrence criteria

Rank	Criteria
Recorded	The taxon was recorded within the Survey Area during the current survey.
Previously Recorded	The taxon has been previously recorded within the Survey Area according to database search or literature review results.
High (Likely to occur)	Suitable habitat is present within the Survey Area, and, for flora, there are existing records of the taxon within 20 km of the Survey Area, or, for fauna, the taxon has been recorded within the Desktop Study Area in the last 15 years.
Medium (May occur)	Suitable habitat is marginal or limited in extent within the Survey Area, or suitable habitat is present within the Survey Area, and, for flora, there are existing records of the taxon between 20 and 50 km of the Survey Area or, for fauna, the taxon has not been recorded within the Desktop Study Area in the last 15 years.
Low (Unlikely to occur)	Suitable habitat is not present within the Survey Area, they taxon has been recorded over 50 km from the 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.

3.2 Field Survey

3.2.1 Survey Timing

The field survey was undertaken during a single field trip as shown in **Table 8**.

Table 8: Survey timing

Tasks completed	Dates	Person field days
Detailed Flora and Vegetation, Basic Fauna, and Targeted Fauna	7 - 9 April 2025	6 field days

3.2.2 Field Personnel and Licences

Details of field personnel, including their level of experience, role, and flora collection licence numbers are detailed in **Table 9**.

Table 9: Field personnel

Personnel	Experience	Licence	Role
Lukas Geidans – Associate Ecologist	7 years	FB62000691	Lead Zoologist
Carter Mooney – Senior Botanist	4 years	FB62000690-2; TFL-2425-0115	Lead Botanist

3.2.3 Weather Conditions

Weather conditions during the fauna survey are presented in **Table 10**. Daily temperature and rainfall data is from the Carnarvon Airport Weather Station (Station 006011) (BoM, 2024). Weather conditions can impact potential detection of fauna taxa during a survey.

Table 10: Field survey weather conditions

Date	Temperature (°C)		Rainfall (mm)
	Min	Max	
07/04/2025	19.9	29.7	0.0
08/04/2025	23.3	30.2	0.0
09/04/2025	21.9	30.7	0.0

3.3 Flora and Vegetation

3.3.1 Establishment of Flora Sites

Indicative site selection was undertaken prior to the survey based on aerial photography and available literature. The number and locations of flora sites were then adjusted on site to achieve sites most representative of the vegetation present. Where possible, at least three flora sites were established in each vegetation type within the Survey Area. In instances where vegetation types were not large enough to accommodate three flora sites, one or two sites were established.

Flora sites consisted of either quadrats or relevés. Quadrats were 30 x 30 m with corners aligned to northwest, northeast, southeast and southwest, and were measured out using measuring tapes. The northwest corner of each quadrat was demarcated with an aluminium fence dropper. Relevés comprised unbounded sites comprising an area of approximately 900 m^2 (as required in linear areas such as drainage lines, gullies, and narrow ridge lines). A comprehensive list of the flora present at the time of sampling was recorded for both quadrat and relevé sites.

Flora site locations were recorded using a GPS-enabled handheld device, with points recorded at each corner of a quadrat, the start and finish point of linear relevés, and the central point of circular relevés. The following information was recorded at each flora site:

- Site code.
- Date and personnel.
- Landform and soil description.

- Relevant site descriptors including, slope, aspect, litter cover, bare ground cover, and fire history.
- Inventory of vascular flora including the approximate average height and percentage foliar cover for each taxon.
- Vegetation description in accordance with the National Vegetation Information System (NVIS) Level 5 'association' whereby the dominant growth form, height, cover, and species (three species) for the three traditional strata (upper, mid, and ground) are described.
- Vegetation condition in accordance with the Eremaean and Northern Botanical Provinces vegetation condition scale (EPA, 2016c).
- Evidence of disturbance (for example clearing, rubbish, feral animals, weed incursion, and evidence of feral animals and dieback) if present.
- Photograph of the vegetation occurring within the site.

A total of 29 flora sites (comprising 23 quadrats and six relevés) were established within the Survey Area. An additional 13 mapping notes were completed to aid vegetation mapping. Flora site locations are shown on **Map 6**.

3.3.2 Opportunistic Flora

Flora taxa observed outside flora sites were recorded opportunistically. When significant flora, Declared Pests (DPs) or WoNS were encountered opportunistically, a GPS location and count of the individuals present was recorded.

3.3.3 Targeted Searching

Prior to the field survey a list of significant flora taxa with the potential to occur within the Survey Area was compiled (see **Section 3.1.3**). Field personnel familiarised themselves with photographs, reference samples, and descriptions of these taxa before conducting the field survey.

Where suspected Threatened or Priority Flora were encountered in the field a GPS location was taken and a count of individuals was recorded, followed by a search in the local vicinity to determine if any other individuals were present nearby and delineate population boundaries where relevant and possible. Specimens of suspected significant flora that could not be identified in the field were collected for identification and lodgement at the Western Australian Herbarium (WAH).

3.3.4 Vegetation Type and Condition Mapping

Vegetation type and condition mapping was initially conducted in the field with boundaries delineated over aerial photography at a scale of 1:5,000. Vegetation types were refined based on taxonomic identification of flora collections and mapping notes taken during the field survey. Further validation of vegetation types was undertaken using multivariate analysis of data collected from the quadrats and relevés. Vegetation condition mapping was refined based on site data and mapping notes. Polygons were digitised using GIS software.

3.3.5 Taxonomy and Nomenclature

Where field identification of plant taxa was not possible, specimens were collected for identification using WAH resources.

FloraBase (DBCA, 2025a) was used to determine the conservation status and known distribution of each taxon. The control status of introduced flora was sourced from the WoNS list and declared plants list (CISS, 2024; DPIRD, 2024).

Any significant flora taxa, including potential Threatened and Priority taxa, range extensions, and potential new taxa, were submitted to the WAH for verification and lodgement. Where relevant, Threatened and Priority Flora Report Forms (TPFRFs) were submitted to DBCA.

3.3.6 Statistical Analyses

3.3.6.1 Vegetation Type Validation

Multivariate analysis to validate vegetation types was undertaken using PRIMER version 7. A comparison of the similarity of floristic composition between flora sites based on species presence or absence was undertaken using the Bray-Curtis similarity index. Vegetation types were defined based on approximately 45-70% similarity and distinguished visually in a dendrogram cluster analysis. The analysis was undertaken on a data matrix comprising 41 vascular flora taxa and 29 flora sites. Quadrats and relevés were included in the analysis as comprehensive species presence or absence was recorded at both site types. Singletons (flora taxa recorded at only one site) were excluded from the analysis as they can result in bias due to the Bray-Curtis coefficient and grouping properties. In the instance of Singleton vegetation types, flora taxa that singularly occurred within that vegetation type were retained. Unidentified or partially identified flora taxa were removed based on their ambiguity; exceptions were made for taxa that could not be identified but were confirmed to be the same across multiple sites. Introduced taxa were retained for the analysis as they were characteristic of the vegetation within the Survey Area. Selected inputs for multivariate statistical analysis are presented in **Appendix E**.

3.3.6.2 Species Accumulation Curve

A species accumulation curve was plotted using Primer version 7 to determine the adequacy of the survey. The treatments comprised Sobs (Mao Tao), which effectively smooths the curve of observed species by simulating an infinite number of randomisations of the sample order, and richness estimators Chao 1, Chao 2, Jacknife 1, Bootstrap, and Michaelis-Menton to predict the theoretical maximum number of species that could potentially be recorded. The species accumulation curve was calculated using systematic sampling data from flora sites and does not include opportunistic flora records. All identified flora taxa, including annual and perennial, within each flora site was used to generate the species accumulation curve. Unknown flora taxa that could not be identified to a species level was excluded.

3.4 Fauna

3.4.1 Habitat Assessment and Mapping

Habitat assessments were undertaken in representative areas of fauna habitat within the Survey Area to record habitat values. Where possible, at least one habitat assessment was recorded within each habitat type. Habitat assessment locations are shown in **Map 8**.

The following information was collected at each habitat assessment locations using a GPS-enabled handheld device:

- Site photo.
- Landform.
- Soil type and colour.
- Rock types, surface stone cover, and size classes.
- Key habitat and microhabitat features including leaf litter, logs, burrows, rocky outcrops, rock crevices, hollows, and water sources.
- Habitat quality, fire history, and evidence of disturbance.

- General description of vegetation structure.

Fauna habitat mapping was based on a combination of field observations, habitat assessment data, aerial imagery, and, if available, vegetation type mapping. Polygons were digitised using GIS software.

3.4.2 Opportunistic Observations

Opportunistic observations of fauna were recorded throughout the Survey Area, including primary evidence (direct sightings, calls, remains) and secondary evidence (tracks, scats, diggings).

3.4.3 Identification and Taxonomy

Terrestrial vertebrate fauna taxa were identified in the field. Where there was doubt on a species name (through subsequent name changes or taxonomic reviews), an effort was made to determine the current scientific name for each taxon. Taxonomy and nomenclature in this report follows the Checklist of the Terrestrial Vertebrate Fauna of Western Australia (WAM, 2025) where relevant.

3.4.4 Targeted Fauna Surveys

Timed bird surveys were undertaken at each habitat assessment location to record significant shorebird species that may opportunistically use the Survey Area. Timed bird searches involved listening for bird calls and actively searching around the area for a duration of 20-minutes.

4.0 Results

4.1 Limitations

Limitations and constraints of the flora, vegetation, and fauna survey are detailed below in **Table 11**.

Table 11: Limitations and constraints associated with the survey

Variable	Degree of limitation	Potential constraints on survey outcomes
Availability of data and information	None	Sufficient data and information, including regional and local contextual information, was available to complete the scope of the survey.
Competency and experience of the survey team	None	The survey was undertaken by a team with extensive experience undertaking similar scopes within the bioregion. Associate Zoologist Lukas Geidans – 7 years' experience Senior Botanist Carter Mooney – 4 years' experience
The proportion of flora and fauna identified, recorded, or collected	None	Of the 74 flora taxa recorded, six specimens (8.1%), could not be identified to species level because they were sterile at the time of the survey. The unidentified flora specimens were not analogous to significant flora taxa. Of the 31 fauna taxa recorded, all were identified to species level in the field.
Scope of the survey	None	The scope of the survey was limited to vascular plants and terrestrial vertebrate fauna. No further exclusions were made within these groups.
Adequacy of the survey intensity and proportion of survey achieved	None	A minimum of three quadrats were installed within each of the vegetation types, where possible. One vegetation type delineated within the Survey Area, AsRICc, was recorded on a spatially restricted landform, and was described from a single survey site. Vegetation type AsRICc is not analogous to any significant ecological communities and did not contain populations of significant flora taxa. Additional survey effort may yield additional flora and fauna taxa, however, sufficient time and effort was allocated to the survey given the size and complexity of the Survey Area and the expected level of survey intensity.
Access problems	None	The Survey Area was sufficiently accessed by vehicle and on foot.
Timing, weather, and season	None	The recommended primary survey period for flora and vegetation within the Eremaean Botanical Province occurs 6-8 weeks post wet season (March to June). The flora and vegetation survey (07 – 09 April) was undertaken within the recommended primary survey period. The recommended primary survey periods for the Eremaean broad climatic regions are: • Amphibians – Immediately after significant rain events • Birds – Immediately after rain events • Mammals – No preferred time • Reptiles – September - April

Variable	Degree of limitation	Potential constraints on survey outcomes
		The fauna survey (07 – 09 April) was undertaken within the recommended primary survey period.
Disturbance that may have affected the results of survey	Partial	Within the Survey Area several non-vegetated areas were present. These areas are the result of land degradation from historical grazing across the site. Only very isolated clumps of **Cenchrus* spp. were recorded across these areas. The survey for flora taxa and vegetation was partially limited in these areas due to historical disturbance. Across the remainder of the Survey Area, disturbance did not represent a limitation to survey results.
Problems with data and analysis, including sampling biases	None	Species accumulation curves provide an indication of survey adequacy at each sampling location but do not necessarily reflect survey adequacy across the entire Survey Area, however, this is not considered a limitation on the survey outcomes. Survey effort for significant flora and fauna taxa was concentrated in preferred habitats. This may introduce a bias where the use of non-preferred habitat is underrepresented, however, this is not considered a limitation on the survey outcomes as the scope of works involved a basic fauna survey which primarily aims to map habitats suitable for significant species.

4.2 Flora and Vegetation

4.2.1 Desktop Assessment

The database searches and literature review identified 38 significant flora taxa occurring within the Desktop Study Area, comprising:

- No Threatened taxa
- Five Priority 1 taxa
- Ten Priority 2 taxa
- Twenty-one Priority 3 taxa
- Two Priority 4 taxa

Key findings of the literature review are summarised in **Appendix B,** and database search results are summarised in **Appendix C** and presented in **Map 7**.

Three State listed PECs were identified within the Desktop Study Area, one of which is also listed as Vulnerable by the Commonwealth. Significant ecological communities recorded within the Desktop Study Area are presented in **Table 12** and **Map 7.**

Table 12: Significant Ecological Communities identified within the Desktop Study Area

Significant Ecological Community	BC Act Status	EPBC Status	Distance from the Desktop Study Area	PMST Result (50 km buffer)
Lyell Land System	Priority 3	-	23.06 km	-
Lake Macleod invertebrate assemblages	Priority 4	-	90.8 km	-
Subtropical and Temperate Coastal Saltmarsh	Priority 3	Vulnerable	Unknown	Likely to Occur within the buffer area only

4.2.2 Likelihood of Occurrence

The pre-survey likelihood of occurrence identified that of the 38 significant flora taxa which occur within the vicinity of the Survey Area:

- One species, *Abutilon* sp. Quobba (H. Demarz 3858), had been previously recorded within the Survey Area.
- Eleven species were considered to have a high likelihood of occurrence within the Survey Area.
- Five species were considered to have a medium likelihood of occurrence within the Survey Area.
- Twenty-one species were considered to have a low likelihood of occurrence within the Survey Area.

Following the field survey, the post field survey likelihood of occurrence assessment identified that:

- No significant flora taxa were recorded within the Survey Area
- All significant flora taxa recorded within Desktop Assessment have a low likelihood of occurrence within the Survey Area.

The likelihood of occurrence assessment is provided in **Appendix C**.

4.2.3 Floristic Composition

The field survey recorded a total of 74 taxa from 59 genera across 27 families (**Appendix D**). The most abundant genus was *Acacia* (four flora taxa). The most diverse families were Poaceae (13 taxa), Chenopodiaceae (11 taxa), and Fabaceae (six taxa).

4.2.4 Significant Flora

4.2.4.1 Threatened and Priority Flora Recorded Within the Survey Area

No Threatened or Priority flora were recoded within the Survey Area pursuant to both the EPBC Act 1999 and BC Act 2016.

4.2.5 Introduced Flora

A total of 20 introduced taxa were recorded within the Survey Area, representing 27% of the total taxa recorded (**Table 13**; **Map 9**). Two are listed as both Declared Pests under the BAM Act and WoNS.

Table 13: Introduced flora taxa recorded within the Survey Area

Taxon	Common name	Status under BAM Act	WoNS
**Agave americana*	Century plant	Permitted - s11	No
**Avena barbata*	Slender oat	Permitted - s11	No
**Carpobrotus aequilaterus*	Sea fig	Permitted - s11	No
**Cenchrus ciliaris*	Buffel grass	Permitted - s11	No
**Cenchrus setiger*	Birdwood grass	Permitted - s11	No
**Chloris virgata*	Feather finger grass	Permitted - s11	No
**Citrullus amarus*	Jam melon	Permitted - s11	No
**Cylindropuntia* aff. *fulgida*	Coral cactus	Declared Pest - s22(2) (C3)	Yes
**Cynodon dactylon*	Couch grass	Permitted - s11	No
**Euphorbia tirucalli*	Spurge	Permitted - s11	No
**Flaveria trinervia*	Speedy weed	Permitted - s11	No
**Gomphrena celosioides*	-	Permitted - s11	No
**Malvastrum americanum*	Spiked malvastrum	Permitted - s11	No
**Mesembryanthemum crystallinum*	Common iceplant	Permitted - s11	No
**Neltuma pallida*	Mesquite	Declared Pest, Prohibited - s12 (C2)	Yes
**Rostraria pumila*	Roughtail	Permitted - s11	No
**Setaria verticillata*	Bristly foxtail	Permitted - s11	No
**Sisymbrium* sp.	-	Permitted - s11	No
**Sonchus oleraceus*	Common sowthistle	Permitted - s11	No
**Urospermum picroides*	Prickly goldenfleece	Permitted - s11	No

4.2.5.1 Declared Pests and Weeds of National Significance (WoNS)

4.2.5.1.1 **Neltuma pallida* (Mesquite), Declared Pest, Prohibited – s12*

Neltuma pallida* (Mesquite), is a multi-stemmed shrubby bush or single stemmed tree growing between 3 to 15 m in height (Plate 1**). 235 individuals of **Neltuma pallida* were recorded from 17 locations within the Survey Area. These individuals and locations do not represent the full extent of the population within the Survey Area. **Neltuma pallida* has aggressively invaded the Survey Area forming dense thickets. Specimens of **Neltuma pallida* were recorded in flower and with fruit at the time of survey.



Plate 1: *Neltuma pallida forming dense thickets within the Survey Area

4.2.5.1.2 **Cylindropuntia* aff. *fulgida* (Coral cactus), Declared Pest - s22(2)*

Specimens of **Cylindropuntia* (Coral cactus) recorded within the Survey Area were neither in flower nor fruiting, and difficult to taxonomically discern. All specimen recorded within the Survey Area have affinity to **Cylindropuntia fulgida* and have been tentatively identified as **Cylindropuntia* aff. *fulgida*. **Cylindropuntia* aff. *fulgida* is an erect shrub growing between 0.4 – 0.8 m in height (**Plate 2**). Thirty-eight individuals of **Cylindropuntia* aff. *fulgida* were recorded from three locations within the Survey Area.



Plate 2: *Cylindropuntia* aff. *fulgida* recorded within the Survey Area

4.2.6 Unconfirmed Flora

Six specimens (8.1% of the taxa recorded) could not be identified to species level because the taxa were sterile at the time of the survey (**Appendix D**). Of these specimens, four were identified to genus level, and two were tentatively identified to species level.

No unconfirmed flora taxa were analogous to significant flora taxa identified by the desktop assessment.

4.2.7 Multivariate Analysis

Selected inputs and outputs of the floristic analysis are presented in **Appendix E**. Floristic composition analysis was conducted using presence/absence to produce vegetation type groupings. CLUSTER outputs of the floristic analysis with vegetation types defined are presented in **Figure 2**. The following observations were made:

- Sites largely grouped cohesively within each of three landforms (drainage lines, floodplains, and dune crests).

- Vegetation types associated with drainage lines were NpRlCc, EvEaCc and AtRlCc. These vegetation type shared on average 52% of flora species. These vegetation types largely grouped together based on the presence or absence of *Eucalyptus victrix*. *Eucalyptus victrix* was recorded exclusively within vegetation types NpRlCc and EvEaCc. AtRlCc did not contain *Eucalyptus victrix*. Both NpRlCc and EvEaCc were largely differentiated based on the presence/absence of several introduced flora taxa. NpRlCc containing a greater number of introduced flora taxa. It is likely that NpRlCc is a degraded subunit of EvEaCc.
- Vegetation types associated with floodplains were RlAvCc and TdCsCc. These vegetation types shared on average 54% of flora species. Statistically these vegetation types were differentiated based on the presence/absence of *Tecticornia disarticulata*. *Tecticornia disarticulata* was exclusively recorded within vegetation type TsCsCc. Additionally, several other chenopod species, including *Sclerolaena recurvicuspis* and *Maireana appressa,* were more abundant in vegetation type TdCsCc.
- The vegetation type associated with dune crest was AsRlCc. Vegetation AsRlCc contained a unique mixture of singleton species. These species were recorded in no other vegetation types across the Survey Area and include: *Thryptomene dampieri* subsp. *dampieri, Corchorus carnarvonensis,* and *Sida rohlenae* subsp. *rohlenae*.
- Survey Sites CR8, CQ23 and CR15 occurred on lineages outside of the vegetation types to which they were assigned. Site CR8 occurred on a lineage associated with EvEaCc but was assigned to NpRlCc. Site CR8 was assigned to vegetation type NpRlCc due to the highly modified nature of vegetation within the site as a result of introduced flora taxa present. Site CQ23 occurred on the same lineage as AtRlCc but was assigned to RlAvCc. Site CQ23 was assigned to RlAvCc due to its occurrence on a floodplain and not a drainage line. The inverse was true for site CR15, which occurred in a drainage line and was assigned to AtRlCc, despite occurring on the same lineage as RlAvCc. Vegetation types AtRlCc and RlAvCc share many species, with landform being the distinguishing characteristic between both vegetation communities (floodplain versus drainage line).

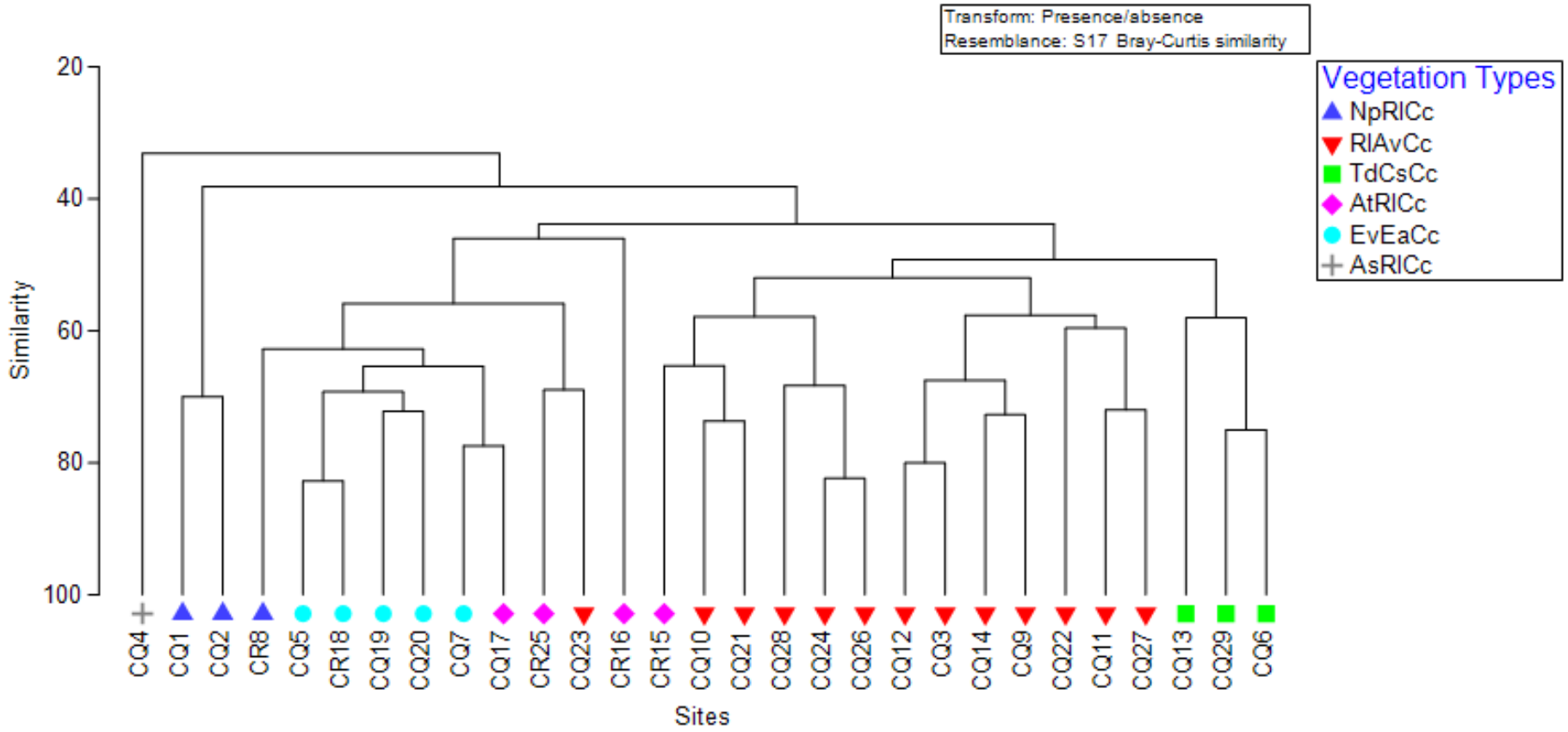


Figure 2: Floristic Community Type Dendrogram Outputs

4.2.8 Landforms and Soil Types

The Survey Area comprised of three broad landforms:

1. **Floodplains on sandy-clay soils:** This was the dominant landform across the Survey Area. A majority of flora sites sampled across this landform contained a variable shrubland middle stratum over **Cenchrus ciliaris* and other introduced grasses. Variability in species composition across the landform was associated with elevation of the floodplain from adjacent drainage areas. Lower elevation floodplains were associated with higher soil salinity (salt visible on soil surface). These lower elevation floodplains contained a higher diversity of mixed chenopod shrubs in the middle stratum when compared with higher elevation floodplains. Lower elevation floodplains were associated with vegetation type TdCsCc. Higher elevation floodplains contained a middle-shrub layer of mixed *Rhagodia* and *Acacia* species. The higher elevation floodplains were associated with vegetation type RlAvCc.
    - In addition to the above floodplains, large areas of the Survey Area were associated with non-vegetated clay flats. These flats were also located on floodplains. Historical grazing across the Survey Area has resulted in land degradation through the loss of soil structure. Within the non-vegetated clay flats, evidence of scalding-type erosion indicates that topsoil has been stripped from across these areas through wind and rain. Only very isolated clumps of **Cenchrus ciliaris* were recorded within these areas.
2. **Drainage lines on sandy-clay soils:** Several drainage lines were present across the Survey Area. Minor drainage lines were represented by vegetation type AtRlCc, which lacked an upper stratum and contained a mid-stratum of mixed shrubs over **Cenchrus ciliaris* and other introduced grasses. Major drainage lines were associated with vegetation types NpRlCc and EvEaCc. All major drainage lines contained an upper stratum of *Eucalyptus victrix* over a middle stratum of mixed shrubs over **Cenchrus ciliaris* and other introduced grasses. Disturbance in the form of introduced flora taxa was the key distinguishing factor between vegetation type NpRlCc and EvEaCc. NpRlCc was more heavily disturbed due to several aggressive introduced flora taxa dominating the mid and lower stratum (**Neltuma pallida, *Cenchrus ciliaris* and **Cynodon dactylon*).
3. **Dune crests on sandy-clay soils:** This landform was restricted to the far eastern portion of the Survey Area. This landform, however, is not restricted outside of the Survey Area based on analysis of nearby aerial imagery. Dune crests on sandy soils supported a mixed-shrubland middle stratum over **Cenchrus ciliaris.* Dune crests on sandy-clay soils support a variety of flora taxa not identified across the other landforms within the Survey Area, including *Thryptomene dampieri* subsp. *dampieri, Corchorus carnarvonensis,* and *Sida rohlenae* subsp. *rohlenae*.

4.2.9 Vegetation Types

Six vegetation types were described and mapped across the three broad landforms within the Survey Area. Additionally, a non-vegetated clay flat was present across the Survey Area (**Table 14**; **Map 8**). There are small discrepancies in vegetation type extents (i.e., not adding up to the exact area extent of the Survey Area), this is due to rounding.

Detailed site sheets for each quadrat are provided in **Appendix F**.

Table 14: Vegetation types recorded within the Survey Area

Vegetation type and description	Landform and Soil Type	Riparian vegetation	Total area, percentage of Survey Area	Sites	Vegetation condition	Representative photograph
AsRICc: *Acacia sclerosperma* and *Alectryon oleifolius* subsp. *oleifolius* mid-sparse shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* low-closed tussock grassland	Dune crests with orange sandy-clay soils	No	3.6 ha, 1.4%	CQ4	Poor	
NpRICc: *Eucalyptus victrix* low isolated trees over **Neltuma pallida*, *Rhagodia latifolia* subsp. *latifolia* and *Acacia sclerosperma* tall-to-mid shrubland over **Cenchrus ciliaris* low tussock grassland	Major drainage lines with brown-red clay soils	Yes	7.3 ha, 2.8%	CQ1, CQ2, CR8	Degraded	

Vegetation type and description	Landform and Soil Type	Riparian vegetation	Total area, percentage of Survey Area	Sites	Vegetation condition	Representative photograph
EvEaCc: *Eucalyptus victrix* low woodland over *Acacia tetragonophylla*, *Exocarpos aphyllus* and *Rhagodia latifolia* subsp. *latifolia* mid-open shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* low-tussock grassland	Major drainage lines with brown-red clay soils	Yes	7.9 ha, 3.1%	CR5, CQ7, CR18, CQ19, CQ20	Poor to Degraded	
AtRlCc: *Rhagodia latifolia* subsp. *latifolia*, *Acacia tetragonophylla* and *Atriplex vesicaria* mid-to-low open shrubland over **Cenchrus ciliaris* low tussock grassland	Minor drainage lines orange-red clay soils	Yes	15 ha, 5.8%	CR15, CR16, CQ17, CR25	Poor to Degraded	

Vegetation type and description	Landform and Soil Type	Riparian vegetation	Total area, percentage of Survey Area	Sites	Vegetation condition	Representative photograph
RlAvCc: *Rhagodia latifolia* subsp. *latifolia*, *Scaevola spinescens*, and *Acacia tetragonophylla* mid-sparse shrubland over *Atriplex vesicaria* and *Atriplex semilunaris* low-sparse shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* low-tussock grassland	Floodplains with orange sandy-clay soils	Yes	149.5 ha, 58.2%	CQ3, CQ9, CQ10, CQ11, CQ12, CQ14, CQ21, CQ22, CQ23, CQ24, CQ26, CQ27, CQ28	Poor to Degraded	
TdCsCc: *Tecticornia disarticulata*, *Cratystylis subspinescens* and *Atriplex semilunaris* mid-to-low open shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* low-sparse tussock grassland	Floodplains with orange sandy-clay soils	Yes	5.4 ha, 2.1%	CQ6, CQ13, CQ29	Poor	

Vegetation type and description	Landform and Soil Type	Riparian vegetation	Total area, percentage of Survey Area	Sites	Vegetation condition	Representative photograph
Non-vegetation clay flats: No native vegetation present, only very isolated patches of **Cenchrus ciliaris* present	Floodplains with orange sandy-clay soils. Non-vegetated clay flats within the Survey Area appear to be associated with scalding-type surface erosion as a result of wind and rain.	Yes (subject to flooding, no vegetation present)	58.0 ha, 22.6%	-	Completely Degraded	
Cleared Areas	-	-	10.2 ha, 4.0%	-	Completely Degraded (Cleared)	-
Total Area	-	-	256.9 ha	-		-

4.2.10 Vegetation Condition

Vegetation condition across the entire Survey Area ranged from Completely Degraded to Poor, with the majority (67%) being in Degraded condition (**Table 15**; **Map 9**).

Evidence of disturbance was primarily associated with mid-level grazing, aggressive introduced flora taxa, historical clearing, vehicle tracks and erosion. Large portions of the Survey Area have been historically used for illegal dumping of household and horticultural waste (**Plate 3**).



Plate 3: Illegal dumping of household waste recorded within the Survey Area

Table 15: Summary of vegetation condition within the Survey Area

Vegetation condition	Area	Percentage of Survey Area
Poor	17.0 ha	7%
Degraded	171.8 ha	67%
Completely Degraded	68.1 ha	26%

4.2.11 Significant Vegetation

No vegetation types recorded within the Survey Area are analogous to nearby TECs or PECs.

4.2.11.1 Other Significant Vegetation

Groundwater Dependent Ecosystems

Most vegetation within the Survey Area comprised xerophytic species that have no interaction with groundwater. Two vegetation types (EvEaCc and NpRlCc) recorded within the Survey Area contained *Eucalyptus victrix* as a constituent species in the upper stratum. Vegetation types EvEaCc and NpRlCc intersect an area assessed as having a high potential to support terrestrial GDE as assessed by the National GDE atlas. *Eucalyptus victrix* is considered a facultative phreatophyte. Meaning this species has a low-to-moderate reliance on groundwater. Reliance on groundwater resources is particularly important in times of prolonged lack of available surface water (Froend and Sommer, 2010).

4.2.12 Species Accumulation Curve

Analysis of systematic flora data for the Survey Area produced a Sobs curve that is beginning to approach an asymptotic plateau (**Figure 3**). All richness estimators were greater than the Sobs curve, indicating that the observed species richness was lower than predicted by the analysis. The observed species richness for the Survey Area was 66, whereas estimated species richness ranged from 71 (Michaelis Menton) to 98 (Chao 1 and 2), which suggests that approximately 67% to 92.9% of the theoretical maximum number of flora species was recorded during the field survey (**Table 16**).

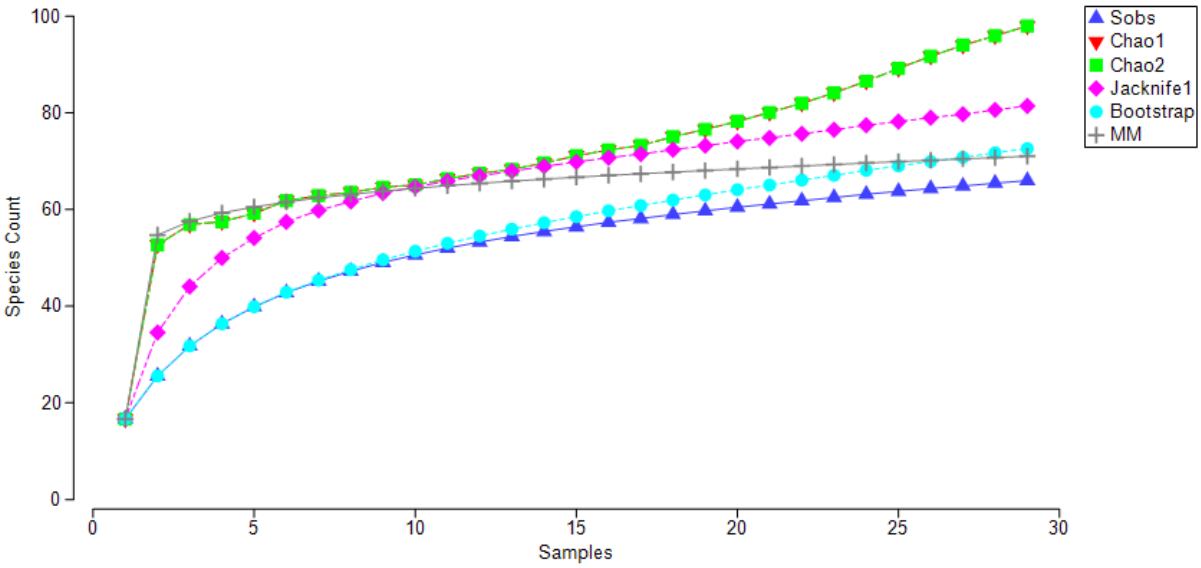


Figure 3: Flora species accumulation curve

Table 16: Flora species richness estimators

Treatment	Estimated species richness	Observed species richness as a proportion of estimated species richness
Chao 1	98	67%
Chao 2	98	67%
Jacknife 1	81.4	81%
Bootstrap	72.6	90.9%
Michaelis-Menton	71	92.9%

4.3 Fauna

4.3.1 Desktop Assessment

The database searches and literature review identified 380 terrestrial vertebrate fauna taxa occurring within the Desktop Study Area, comprising:

- Eight amphibians, of which none are significant.
- 269 birds, of which 74 are significant.
- 29 mammals, of which eight are significant.
- 74 reptiles, of which eight are significant.

Key findings of the literature review are summarised in **Appendix B**, a complete list of fauna taxa recorded within the Desktop Study Area is presented in **Appendix G**, and database search results are displayed in **Map 10.**

4.3.2 Fauna Habitats

Five fauna habitats (excluding cleared areas) were identified and mapped within the Survey Area. Fauna habitats are presented in **Map 11** and described below in **Table 17**. The site sheets for each habitat assessment are provided in **Appendix H**. There are small discrepancies in fauna habitat extents (i.e., not adding up to the exact area extent of the Survey Area), this is due to rounding.

Table 17: Fauna habitats recorded within the Survey Area

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
***Eucalyptus victrix* Drainage**	7.9 ha, 3.1%	**Drainage line with brown-red clay soils.** Vegetation consists of low *Eucalyptus victrix* woodland over mid-open *Acacia tetragonophylla*, *Exocarpos aphyllus* and *Rhagodia latifolia* subsp. *latifolia* shrubland over low **Cenchrus ciliaris* and **Cenchrus setiger* tussock grassland. Microhabitats include hummocks and wood debris This habitat contained disturbances caused by vehicle tracks, weeds and litter. The presence of *Eucalyptus victrix* through this habitat provides potential nesting habitat for the Peregrine Falcon and the Grey Falcon. Dead and decaying trees may also provide suitable habitat for the Western Spiny-tailed Skink. This habitat is likely to retain water following rainfall events and may provide habitat to a range of significant water bird species.	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Mesquite Drainage	7.3 ha, 2.8%	**Drainage line with brown-red clay soils.** Vegetation consists of low isolated *Eucalyptus victrix* over tall-to-mid **Neltuma pallida*, *Rhagodia latifolia* subsp. *latifolia* and *Acacia sclerosperma* shrubland over low **Cenchrus ciliaris* tussock grassland. Microhabitats include hummocks and wood debris This habitat contained disturbances caused by vehicle tracks, weeds and litter. Isolated *Eucalyptus victrix* throughout this habitat has the potential to be used as nesting or roosting habitat for both the Peregrine Falcon and the Grey Falcon. Woody debris and hummocks present may provide habitat to small ground dwelling reptiles and mammals. Following rainfall events this habitat will retain water providing supporting ephemeral wetlands to a wider range of Threatened and Priority bird wader species.	
Cenchrus Drainage	15.0 ha, 5.8%	**Drainage line brown-red orange clay soils.** Vegetation consists of mid-to-low *Rhagodia latifolia* subsp. *latifolia*, *Acacia tetragonophylla* and *Atriplex vesicaria* open shrubland over low **Cenchrus ciliaris* tussock grassland. Microhabitats include hummocks, and this habitat contained disturbances caused by weeds and litter. Following rainfall events this habitat will retain water providing supporting ephemeral wetlands to a wider range of Threatened and Priority bird wader species.	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Cenchrus Clay Flats	154.9 ha, 60.3%	**Claypan with orange sandy-clay soils.** Vegetation consists of mid-sparse *Rhagodia latifolia* subsp. *latifolia*, *Scaevola spinescens* and *Acacia tetragonophylla* shrubland over low-sparse *Atriplex vesicaria* and *Atriplex semilunaris* shrubland over low **Cenchrus ciliaris* and **Cenchrus setiger* tussock grassland. Microhabitats include wood debris, and this habitat contained disturbances caused by weeds. The airspace of this habitat may be used for hunting by the Peregrine Falcon and Grey Falcon while denser patches of **Cenchrus* may provide refuge for small mammals and reptiles. The clay substrate of this habitat is likely to retain water following rainfall events and may provide habitat to a wider range of Threatened and Priority bird wader species.	
Cenchrus Dune Crest	3.6 ha, 1.4%	**Dune crest with orange sandy-clay soils.** Vegetation consists of mid-sparse *Acacia sclerosperma* and *Alectryon oleifolius* subsp. *oleifolius* shrubland over low-closed **Cenchrus ciliaris* and **Cenchrus setiger* tussock grassland. Microhabitats include hummocks and wood debris, and this habitat contained disturbances caused by weeds. The airspace of this habitat may be used for hunting by the Peregrine Falcon and Grey Falcon. Scattered decaying timbers through this habitat may be utilised by the Western Spiny-tailed Skink. The presence of a soft sandy substrate may utilised by *Lerista* species.	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Cleared/Non-vegetated Clay Flats	68.1 ha, 26.5%	Cleared land for existing tracks/roads and non-vegetated clay flats. Low/negligible fauna habitat value.	
Total	256.9 ha, 100%		

4.3.3 Fauna Records

The fauna survey recorded a total of 31 fauna taxa from 27 families. The full inventory of fauna taxa recorded during the field survey is provided in **Table 18**.

Table 18: Fauna recorded during the field survey

Family	Scientific Name	Common Name	Conservation Status		Abundance
			State	Common wealth	
Birds					
Acanthizidae	*Pyrrholaemus brunneus*	Redthroat	-	-	2
Accipitridae	*Elanus axillaris*	Black-shouldered Kite	-	-	3
Accipitridae	*Haliastur sphenurus*	Whistling Kite	-	MA	1
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike	-	MA	1
Casuariidae	*Dromaius novaehollandiae*	Emu	-	-	1
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	-	-	13
Corvidae	*Corvus bennetti*	Little Crow	-	-	5
Cuculidae	*Chalcites basalis*	Horsfield's Bronze Cuckoo	-	MA	1
Estrildidae	*Taeniopygia castanotis*	Australian Zebra Finch	-	-	44
Falconidae	*Falco cenchroides*	Nankeen Kestrel	-	MA	2
Hirundinidae	*Cheramoeca leucosterna*	White-backed Swallow	-	-	1
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	-	MA	2
Maluridae	*Malurus leucopterus*	White-winged Fairywren	-	-	7
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater	-	-	12
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	-	MA	1
Motacillidae	*Anthus australis*	Australian Pipit	-	MA	2
Phasianidae	*Coturnix pectoralis*	Stubble Quail	-	MA	1
Psittaculidae	*Melopsittacus undulatus*	Budgerigar	-	-	1
Zosteropidae	*Zosterops lateralis*	Grey-breasted White-eye, Silvereye	-	MA	1
Mammals					
Bovidae	**Bos primigenius taurus*	European Cattle	-	-	3
Bovidae	**Capra aegagrus hircus*	Goat	-	-	2
Bovidae	**Ovis aries*	Sheep	-	-	3
Canidae	**Canis familiaris*	Dingo / Dog	-	-	6

Family	Scientific Name	Common Name	Conservation Status		Abundance
			State	Common wealth	
Dasyuridae	*Sminthopsis macroura*	Stripe-faced Dunnart	-	-	1
Equidae	**Equus ferus caballus*	Horse	-	-	1
Felidae	**Felis catus*	Cat	-	-	4
Leporidae	**Oryctolagus cuniculus*	Rabbit	-	-	22
Macropodidae	*Osphranter rufus*	Red Kangaroo, Marlu	-	-	6
Reptiles					
Cheloniidae	*Testudine* sp.	Marine turtle remains	Potential[1]	Potential	1
Gekkonidae	*Gehyra* sp.		-	-	1
Scincidae	*Tiliqua rugosa*	Bobtail	-	-	2

Amphibians

No amphibians were recorded within the Survey Area.

Birds

A total of 19 native bird taxa from 15 families were recorded within the Survey Area. The most abundant bird taxa were the Australian Zebra Finch (*Taeniopygia castanotis*), Crested Pigeon (*Ocyphaps lophotes*), and Singing Honeyeater (*Gavicalis virescens*). The most diverse bird families were Accipitridae (two taxa) and Hirundinidae (two taxa).

No significant or introduced birds were recorded.

Mammals

A total of two native mammal taxa from two families were recorded within the Survey Area including, the Stripe-faced Dunnart (*Sminthopsis macroura*) and the Red Kangaroo (*Osphranter rufus*).

No significant mammals were recorded, and seven introduced mammals were recorded.

Reptiles

A total of three native reptile taxa from three families were recorded within the Survey Area including, the Bobtail (*Tiliqua rugosa*), *Gehyra* sp, and the remains of a marine turtle. The marine turtle could not be identified to a species level; however, all species that occur within the region are listed as Vulnerable or Endangered under BC Act and the EPBC Act.

4.3.4 Significant Fauna

4.3.4.1 Recorded Within the Survey Area

One potentially significant species, the marine turtle, was recorded within the Survey Area. This species could not be identified to a species level and therefore its exact listing is unknown as a number of species occur within the region (**Table 19**). The remains were found during opportunistic observation and are believed to have been dumped or associated with consumption as part of traditional practices.

[1] Remains could not be identified to a particular species and therefore the Conservation Status of this individual could not be confirmed.

Table 19: Potential Marine Turtle Species

Scientific Name	Common Name	State	Commonwealth
Carreta carreta	Loggerhead Turtle	EN	EN, MI, MA
Chelonia mydas	Green Turtle	VU	VU, MI, MA
Natator depressus	Flatback Turtle	VU	VU, MI, MA
Eretmochelys imbricata	Hawksbill Turtle	VU	VU, MI, MA
Dermochelys coriacea	Leatherback Turtle	VU	EN, MI, MA
Lepidochelys olivacea	Olive Ridley Turtle	EN	EN, MI, MA

4.3.4.2 Potentially Occurring Within the Survey Area

One significant fauna taxon was assessed as having a high likelihood of occurring within the Survey Area, Peregrine Falcon (*Falco peregrinus*), listed as Other Specially protected by the DBCA.

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

- Curlew Sandpiper (*Calidris ferruginea*), listed as Critically Endangered under the BC Act and Critically Endangered, Migratory and Marine under the EPBC Act.
- Lesser Sand Plover (*Charadrius mongolus*), listed as Endangered, Migratory and Marine under the EPBC Act.
- Australian Painted Snipe (*Rostratula australis*), listed as Endangered under the BC Act and Migratory and Marine under the EPBC Act.
- Common Sandpiper (*Actitis hypoleucos*), listed as Endangered under the BC Act and Migratory and Marine under the EPBC Act.
- Common Greenshank (*Tringa nebularia*), listed as Migratory under the BC Act and Endangered, Migratory and Marine under the EPBC Act.
- Western Spiny-tailed Skink (*Egernia stokesii badia*), listed as Vulnerable under the BC Act and Endangered under the EPBC Act.
- Greater Sand Plover (*Charadrius leschenaultii*), listed as Vulnerable under the BC Act and Vulnerable, Migratory and Marine under the EPBC Act.
- Grey Falcon (*Falco hypoleucos*), listed as Vulnerable under the BC Act and EPBC Act.
- Sharp-tailed Sandpiper (*Calidris acuminata*), listed as Migratory under the BC Act and Vulnerable, Migratory and Marine under the EPBC Act.
- Pacific Swift (*Apus pacificus*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
- Pacific Golden Plover (*Pluvialis fulva*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
- Osprey (*Pandion haliaetus*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
- Red-necked Stint (*Calidris ruficollis*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.

- Long-toed Stint (*Calidris subminuta*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
- Wood Sandpiper (*Tringa glareola*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
- Marsh Sandpiper (*Tringa stagnatilis*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
- Glossy Ibis (*Plegadis falcinellus*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.

The remaining 50 significant fauna taxa were assessed as having a low likelihood of occurring within the Survey Area.

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

5.0 Discussion

5.1 Flora and Vegetation

5.1.1 Floristic Composition

A total of 74 vascular flora taxa were recorded during the field survey. Floristic composition within the Survey Area has been largely modified since European colonisation. Twenty introduced flora taxa were recorded within the Survey Area, representing approximately 27% of the total species recorded. Introduced flora taxa had largely invaded and outcompeted native flora within the Survey Area. Specifically, introduced grasses **Cenchrus ciliaris* and **Cenchrus setiger* had almost entirely colonised the lower stratum of all vegetation types recorded within the Survey Area to the detriment of native taxa. Native herbs, low shrubs and grasses were largely absent from the flora inventory of the Survey Area.

Both **Cenchrus ciliaris* and **Cenchrus setiger* have historically been spread as stock feed, and dispersed by cattle, leading to closed grasslands covering areas with extensive cattle presence. Native herbs and grasses struggle to compete with **C. ciliaris* and **C setiger*, and larger trees and shrubs can also struggle to recruit due to the allelopathic effects of the weed grasses (Hussain, Ahmad and Ilahi, 2010; Wright *et al.*, 2020).

While the floristic composition within the Survey Area has been modified through the introduction of exotic taxa, floristic diversity was consistent with pre-survey database searches and the review of nearby literature. Additionally, the floristic diversity is representative of the historical land usage of the area as pasture for sheep grazing.

5.1.2 Significant Flora

No Threatened flora taxa pursuant to the EPBC Act 1999 and/or gazetted as Threatened flora pursuant to the BC Act 2016 were recorded within the Survey Area.

No Priority flora pursuant to the BC Act 2016 were recorded within the Survey Area.

Prior to the survey, 38 significant flora taxa were recorded within 100 km of the Survey Area as part of the Desktop Assessment. Of these, none were classified as Threatened, five as Priority 1, ten as Priority 2, 21 as Priority 3, and two as Priority 4.

A pre-survey likelihood of occurrence assessment of significant flora taxa recorded within the vicinity of the Survey Area found that: one taxon, *Abutilon* sp. Quobba (H. Demarz 3858), had been historically recorded, 11 taxa had a high likelihood of occurrence, five had a medium likelihood, and 21 had a low likelihood. Searches were undertaken in areas surrounding the historical record of *Abutilon* sp. Quobba (H. Demarz 3858). No instances of *Abutilon* sp. Quobba (H. Demarz 3858) were recorded within the Survey Area.

Following the field survey, all significant flora taxa recorded within the Desktop Assessment (including *Abutilon* sp. Quobba (H. Demarz 3858)) were assessed as having a low likelihood of occurrence. Some landforms and soil types recorded within the Survey Area are known to be suitable habitat for nearby significant flora taxa. However, the highly modified vegetation types recorded within the Survey Area are not suitable for significant flora taxa. Numerous aggressive weed taxa (**Cenchrus ciliaris*, **Cenchrus setiger*, **Neltuma pallida*) have colonised the Survey Area, outcompeting native flora.

5.1.3 Introduced Flora

A total of 20 introduced flora taxa were recorded during the survey. Introduced flora taxa were widespread across all vegetation types recorded within the Survey Area. Two Weeds of National Significant (WoNS) and Declared Pests were recorded within the Survey Area: **Neltuma pallida* (Mesquite) and **Cylindropuntia* aff. *fulgida* (Coral cactus).

5.1.3.1 **Neltuma pallida* (Mesquite)

**Neltuma pallida* (Mesquite), is a multi-stemmed shrubby bush or single stemmed tree growing between 3 to 15 m in height. 235 individuals of **Neltuma pallida* were recorded from 17 locations within the Survey Area. These individuals and locations do not represent the full extent of the population within the Survey Area. **Neltuma pallida* has aggressively invaded the Survey Area forming dense thickets. Specimens of **Neltuma pallida* recorded during the field survey were in flower and with fruit.

**Neltuma pallida* is listed as a Declared Pest, Prohibited – s12 under the BAM act. **Neltuma pallida* is subject to C2 – Eradication/Prohibited control measures across all of Western Australia. It is considered an organism which should be eradicated from part or all of Western Australia (DPIRD, 2025c).

**Neltuma pallida* is a Weed of National Significance (WoNS). **Neltuma pallida* is considered a WoNS due to its invasiveness, potential to spread, and its economic and environmental impacts. Environmentally, **Neltuma pallida* can cause land degradation, loss of moisture, the loss of biodiversity by outcompeting native species, and offer a refuge for feral animals (CISS, 2025).

5.1.3.2 **Cylindropuntia* aff. *fulgida* (Coral cactus)

Specimens of **Cylindropuntia* (Coral cactus) recorded within the Survey Area were neither in flower nor fruiting, and difficult to taxonomically discern. All specimens recorded within the Survey Area have affinity to **Cylindropuntia fulgida* and have been tentatively identified as **Cylindropuntia* aff. *fulgida*. **Cylindropuntia* aff. *fulgida* is an erect shrub growing to between 0.4 – 0.8 m in height. Thirty-eight individuals of **Cylindropuntia* aff. *fulgida* were recorded from three locations within the Survey Area.

**Cylindropuntia* aff. *fulgida* is listed as a Declared Pest – s22(2) under the BAM act. **Cylindropuntia* aff. *fulgida* is subject C3 – Management/Restricted control measures across all of Western Australia. It is considered an organism which should have management strategies applied to alleviate the harmful impacts of the organism, reduce its numbers, or prevent/contain its spread (DPIRD, 2025b).

**Cylindropuntia* aff. *fulgida* is part of the larger Opuntioid cacti group, which are all considered to be WoNS. Opuntioid cacti are considered WoNS due to their invasiveness, potential to spread, and environmental impacts. Opuntioid cacti can reduce biodiversity by outcompeting native flora, especially along flood plains and drainage areas (DPIRD, 2025a).

5.1.4 Vegetation Types and Condition

Six vegetation types were recorded across the Survey Area. These vegetation types were broadly delineated across three major landforms present within the Survey Area. Landforms present included floodplains, drainage lines, and dune crests all on sandy-clay soils.

The dominant landform within the Survey Area was floodplains on sandy-clay soils. Two vegetation types were delineated across this landform: RlAvCc and TdCsCc. Vegetation type RlAvCc was the dominant form of vegetation across this landform. Vegetation type RlAvCc contained no upper stratum. Instead, it composed a mixed open shrub layer of *Rhagodia latifolia* subsp. *latifolia*, *Acacia tetragonophylla* and *Scaevola spinescens* in the middle stratum over a lower stratum of mixed **Cenchrus ciliaris* and **C. setiger* tussock grassland. Vegetation type RlAvCc was located at higher elevations on floodplains compared to vegetation type TdCsCc. Vegetation type TdCsCc was located on floodplains at lower elevations directly adjacent to drainage lines. Both vegetation types TdCsCc and RlAvCc contained lower stratum of mixed **Cenchrus* spp. However, vegetation type TdCsCc contained a middle stratum of *Tecticornia disarticulata* and *Cratystylis subspinescens* shrubs.

In addition to the vegetation types described above, large areas of the floodplain's landform were comprised of non-vegetated clay flats. These areas have been historically disturbed through heavy grazing. Heavy grazing has resulted in land degradation and a breakdown in soil structure. Within the non-vegetated clay flats, evidence of scalding-type erosion indicated that topsoil has historically been stripped from across these areas through wind and rain. Only very isolated clumps of **Cenchrus* spp. were recorded within the non-vegetated clay flats.

Drainage lines were present across the Survey Area. Minor drainage lines comprised exclusively of vegetation type AtRlCc. Vegetation type AtRlCc was similar to vegetation type RlAvCc, with both vegetation types sharing a majority of species and near identical flora composition within vegetation strata. Vegetation type AtRlCc is likely the drainage line subunit of RlAvCc.

Major drainage lines were located to the east of the Survey Area. Major drainage lines were comprised of vegetation type EvEaCc and NpRlCc. Vegetation type EvEaCc comprised an upper stratum of *Eucalyptus victrix* over a mixed shrub middle stratum of *Acacia tetragonophylla, Exocarpos aphyllus* and *Rhagodia latifolia* subsp. *latifolia* shrubs over a lower stratum of **Cenchrus ciliaris* tussock grassland. Vegetation type NpRlCc contained a similar floristic composition to vegetation type EvEaCc. However, vegetation type NpRlCc contained a greater coverage of aggressive introduced flora taxa, in particular a middle-stratum dominated by **Neltuma pallida*. Vegetation type NpRlCc is likely a degraded subunit of vegetation type EvEaCc.

All drainage lines recorded within the Survey Area were obstructed. Roads and infrastructure which bound the Survey Area prevent or restrict flows from these drainage lines. This was most evident in the south of the Survey Area where rather than following a linear path, the drainage lines were 'spread', forming wide and truncated intersections with infrastructure.

Vegetation type AsRlCc was recorded on dune crests on sandy-clay soils. This landform was restricted to the eastern portion of the Survey Area. While both this landform and vegetation type AsRlCc are restricted within the Survey Area, aerial imagery analysis indicates they are locally common in the surrounding landscape. Vegetation type AsRlCc comprises a middle stratum of *Acacia sclerosperma* and *Alectryon oleifolius* subsp. *oleifolius* over a lower stratum of mixed **Cenchrus* spp. grasses.

Vegetation condition within the Survey Area ranged from Completely Degraded to Poor, with the majority of the Survey Area being in Degraded condition. Disturbance within the Survey Area was largely associated with the presence of numerous aggressive introduced flora taxa. Species like **Cenchrus ciliaris, *Cenchrus setiger* and **Neltuma pallida* dominated many of the vegetation types delineated across the Survey Area. These introduced taxa have invaded and outcompeted native grasses and shrubs. In addition to introduced flora taxa, vehicle tracks, historical clearing, infrastructure, and high levels of illegal dumping were present across the Survey Area. Vegetation within the Survey Area has been significantly modified from its pre-European composition.

5.1.5 Significant Vegetation

5.1.5.1 Threatened and Priority Vegetation Communities

No vegetation types recorded within the Survey Area were considered to be analogous to nearby significant vegetation communities.

5.1.5.2 Groundwater Dependent Ecosystems

Most vegetation within the Survey Area comprised xerophytic species that are not dependent on groundwater. Two vegetation types (EvEaCc and NpRlCc) recorded within the Survey Area contained *Eucalyptus victrix* as a constituent species in the upper stratum.

Vegetation types EvEaCc and NpRlCc intersect an area assessed as having a high potential to support terrestrial GDE as assessed by the National GDE atlas (BoM, 2025). *Eucalyptus victrix* is considered a facultative phreatophyte. Meaning this species has a low-to-moderate reliance on groundwater. Reliance on groundwater resources is particularly important during periods of limited surface water availability (Froend and Sommer, 2010).

5.1.6 Survey Adequacy

Twenty-nine vegetation survey sites were established across the Survey Area. Where possible, three survey sites were established in each vegetation type encountered during the field surveys. One vegetation type, AsRlCc, was delineated based on a single survey site, contrary to EPA guidance (EPA, 2016c). This vegetation type was recorded on dune crests present within a single area along the eastern side of the Survey Area. As the vegetation type was recorded exclusively on a restricted landform within the Survey Area, additional survey sites could not be established. Additionally, vegetation composition within vegetation type AsRlCc was significantly different from other vegetation types recorded and was retained.

Species accumulation analysis indication that between 67% and 92.9% of flora taxa potentially present within the Survey Area were recorded. The lower range of this analysis is likely the result of both the poor seasonal conditions at the time of survey and the highly modified vegetation present within the Survey Area. Low rainfall prior to the field survey may have reduced the number of annual flora taxa present. Annual taxa require high levels of soil moisture to encourage germination and reproductive development (Aplin, 1979). Additionally, the highly modified vegetation of the Survey Area supports many aggressive introduced flora taxa, which outcompete native flora and suppress floristic diversity.

The flora and vegetation survey effort was in accordance with the scope of work, and appropriate for a detailed flora and vegetation survey in the Eremaean botanical provinc (EPA, 2016c).The data collected is considered adequate to provide a good representation of the flora and vegetation present within the Survey Area.

5.2 Fauna

5.2.1 Fauna Habitats

The five fauna habitats identified within the Survey Area are typical of the Carnarvon bioregion and consistent with habitats and assemblages identified by previous studies in the region (**Appendix B**). All habitats identified within the Survey Area extend beyond its boundaries to form larger ecosystems. The Survey Area is not considered essential for habitat connectivity or fauna dispersal. All habitats have been heavily disturbed by human activities, including fly tipped rubbish (asbestos, vehicle debris, rubble, etc.), vehicle tracks, and weeds.

The *Cenchrus* Dune Crest is limited in extent within the Survey Area; however, it appears to continue north and south beyond the site. This habitat contained a soft sandy substrate which may be suitable for ground dwelling mammals and reptiles which may use it for foraging and sheltering.

The *Eucalyptus victrix* Drainage, Mesquite Drainage and *Cenchrus* Drainage are widespread and abundant across the region and provide dispersal corridors and landscape connectivity. These habitats offer shelter, dispersal, foraging, and hunting opportunities for the broader faunal assemblage. The presence of tall trees within these habitats may support nesting and roosting opportunities for avian species such as the Grey Falcon and Peregrine Falcon, however, no nests or evidence of nesting was observed during the field survey.

All habitats contained within the Survey Area (excluding the *Cenchrus* Dune Crest) feature a clay substrate, which may retain water during the wetter months of the year (December to February). The presence of semi-permanent water may offer value to a range of significant coastal and migratory shorebirds and waders, along with a broader range of fauna. However, given the extent of anthropogenic disturbance and the availability of alternative nearby habitats, it is unlikely that these species are reliant on the Survey Area.

5.2.2 Significant Fauna

5.2.2.1 Recorded within the Survey Area

One marine turtle was recorded within the Survey Area but could not be identified to a species level. All potential species that occur in the region are listed under both DBCA and EPBC (Table 19). The remains were found during opportunistic observation and are believed to have been dumped or associated with consumption as part of traditional practices. It is noted that turtles may be legally hunted by Aboriginal and Torres Strait Islander people under Section 211 of the *Native Title Act 1993* for personal, domestic or non-commercial communal needs (DCCEEW, 2024a)

5.2.2.2 High Likelihood of Occurrence within the Survey Area

Peregrine Falcon (*Falco peregrinus*) – OS (BC Act)

The Peregrine Falcon is an uncommon but wide-ranging bird across Australia (Barrett *et al.*, 2003). It occurs mainly 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).

Although not recorded during the field survey, the Peregrine Falcon has been recorded recently within the Desktop Study Area and has a high liklihood of occuring within the Survey Area. Within the Survey Area, the *Eucalyptus victrix* Drainage constitutes potential nesting habitat, while all other fauna habitats may be used for hunting. The taxon may be transient within the Survey Area, with more suitable treelined watercourse habitat located 2.9 km north of the Survey Area.

5.2.2.3 Medium Likelihood of Occurrence within the Survey Area

Grey Falcon (*Falco hypoleucos*) – VU (BC Act; EPBC Act)

The Grey Falcon is Australia's rarest and most elusive raptor (Schoenjahn, Pavey and Walter, 2019). It is distributed sparsely over Australia's arid and semi-arid zones and is absent from Cape York Peninsula, south of the Great Dividing Range in Victoria, and south of 26°S in Western Australia (Johnstone and Storr, 1998; BirdLife International, 2016a). The Grey Falcon is restricted largely to areas of the highest annual average temperatures where there is average annual rainfall of less than 500 mm. It favours lightly timbered and untimbered lowland plains that are crossed by tree-lined watercourses, but frequents other habitats, including grassland and sand dune habitats (Johnstone and Storr, 1998; BirdLife International, 2016a).

Grey Falcon has been recorded within the Desktop Study Area and has a medium likelihood of occurring within the Survey Area. Within the Survey Area, the *Eucalyptus victrix* Drainage constitutes potential nesting habitat, while all other fauna habitats may be used for hunting. The taxon may be transient within the Survey Area, with more suitable treelined watercourse habitat located 2.9 km north of the Survey Area.

Pacific Swift (*Apus pacificus*) – MI (BC Act); MI, MA (EPBC Act)

The Pacific Swift breeds in northeast and mid-east Asia and begin to migrate to Australia in September, and leave by April (Johnstone and Storr, 1998). The taxon is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher. The Pacific Swift occupies a large airspace range (i.e. low to very high) over varied habitats, ranging from rainforests to semi-deserts (Morcombe, 2003).

The Pacific Swift has been recorded within the Desktop Study Area and has a medium likelihood of occurring within the Survey Area. The Pacific Swift may occupy the airspace over all habitats within the Survey Area for foraging and dispersal. The taxon is migratory and therefore will only be transient within the Survey Area, and if present, will occur within the Survey Area during the summer months.

Osprey (*Pandion haliaetus*) – MI (BC Act); MI, MA (EPBC Act)

The Osprey is considered to be moderately common in Australia (Olsen, 1998). The species is most abundant in northern Australia, where high population densities occur in remote areas (Johnstone and Storr, 1998). They require extensive areas of open fresh, brackish, or saline water for foraging (Marchant and Higgins, 1993). They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia (Olsen, 1995; Johnstone and Storr, 1998). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes (Olsen, 1995; Johnstone and Storr, 1998). The Osprey breeds from April to February in Australia and nests are constructed at a wide range of natural and artificial locations, including dead trees, cliffs, rocky headlands, beaches, and man-made structures like pylons, jetties, and towers. Nests are often reused for many years, sometimes by multiple pairs (DCCEEW, 2025a).

Osprey has been recorded frequently and recently within the Desktop Study Area and may occur within the Survey Area when moving between coastal, riparian and wetland habitats to the west, north and east of the Survey Area. This species may opportunistically forage on small mammals or reptiles utilising the Survey Area whilst dispersing, however, they are unlikely to be entirely dependent on these habitats. In addition, the *Eucalyptus victrix* Drainage habitat may provide suitable nesting habitat for the species.

Glossy Ibis (*Plegadis falcinellus*) – MI (BC Act); MI, MA (EPBC Act)

The preferred foraging and breeding habitat of the Glossy Ibis includes freshwater marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation (Marchant and Higgins, 1990; del Hoyo, Elliot and Sargatal, 1992). The Glossy Ibis builds a platform nest of sticks in trees or shrubs above water and typically nests in colonies (Pizzey and Knight, 2013). The distribution of the Glossy Ibis is generally east of the Kimberley in Western Australia and Eyre Peninsula in South Australia. The species is also known to be patchily distributed in the rest of Western Australia (Department of the Environment and Energy, 2020).

Glossy Ibis has been recorded within the Desktop Study Area and may occur within the Survey Area when moving between coastal, watercourses and wetland habitats to the west, north and east of the Survey Area. Following heavy rainfall events between December to February, the taxon may utilize flooded area within the Survey Area for foraging.

Western Spiny-tailed Skink (*Egernia stokesii badia*) – VU (BC Act); EN (EPBC Act)

The brown form of the Western Spiny-tailed Skink occurs in the Wheatbelt and Shark Bay area and inhabits tree hollows and fallen logs, capable of providing a combination of basking and shelter sites. This is distinct from the black form of the subspecies which occurs in the Murchison region and inhabits rocky outcrops with crevices and boulders (DAWE, 2020).

The species leaves distinctive clusters of faecal droppings outside refuges (How, Dell and Robinson, 2003).

Western Spiny-tailed Skink has been recorded within the Desktop Study Area and may occur within the Survey Area. Within the Survey Area, the *Eucalyptus victrix* Drainage and Mesquite Drainage constitute core habitat providing basking and suitable hollowing producing Eucalyptus sp.. With a synonymous habitat structure extending outside of the Survey Area and throughout the basin, the presence of this species around Carnarvon is deemed likely.

Waders and Wetland Birds

Twelve species from three families were identified as having a medium likelihood of occurrence within the Survey Area. These species are typically associated with habitats such as tidal mudflats, mangroves, estuaries, freshwater lakes, and swamps. The clay substrate present across the site suggests that the Survey Area is likely to retain water during the wetter months. For waders and wetland birds, the Survey Area is likely to provide temporary foraging and sheltering opportunities. However, due to the degraded condition of the habitat and the availability of more suitable environments less than 1.5 km to the east and less than 3 km to the west, these species are unlikely to be dependent on the Survey Area. These species are detailed below.

Curlew Sandpiper (*Calidris ferruginea*) – CR, MI (BC Act); CR, MI, MA (EPBC Act)

The Curlew Sandpiper is migratory and nests in Arctic Siberia, and in Western Australia are widespread around coastal and subcoastal plains from Cape Arid to south-west Kimberly Division (Pizzey and Knight, 2001). The taxon is a small, slim sandpiper that is most commonly found on large tidal flats, occasionally using brackish and freshwater wetland systems (Menkhorst *et al.*, 2017). They typically forage on invertebrates throughout mudflats and nearby shallow water. Roosting site is typically intertidal mudflats in sheltered coastal areas, or around the swamps, lakes and lagoons near the coast (DCCEEW, 2023).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Curlew Sandpiper suitable foraging and roosting habitat.

Lesser Sand Plover (*Charadrius mongolus*) – EN, MI (BC Act); EN, MI, MA (EPBC Act)

Four of the five Lesser Sand Plover subspecies occur in the East Asian-Australasian Flyway, however, only two of these subspecies, *C. m. mongolus* and *C. m. stegmanni*, occur in Australia during the non-breeding season (Bamford *et al.*, 2008). The Lesser Sand Plover breeds in the northern hemisphere and undertakes annual migrations to and from southern feeding grounds. They are present at non-breeding grounds in Australasia mostly between September and April/May, with greatest numbers occurring in northern Australia (Marchant and Higgins, 1993; Threatened Species Scientific Committee, 2016b).

In Australia, Lesser Sand Plovers are almost strictly coastal, preferring sandy beaches, mudflats of coastal bays and estuaries, sand-flats, mangrove mudflats and dunes near the coast (Menkhorst *et al.*, 2017; BirdLife International, 2022). The taxon has been recorded foraging in muddy areas around lakes, soaks and bores at inland sites (Marchant and Higgins, 1993). Roosting site is in close proximity to foraging site (Marchant and Higgins, 1993).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Lesser Sand Plovers suitable foraging and roosting habitat.

Australian Painted Snipe (*Rostratula benghalensis australis*) – EN (BC Act); EN, MA (EPBC Act)

The Australian Painted Snipe is a stocky wading bird that is endemic to Australia, though its distribution is patchy and its presence in any particular area is unpredictable (Pizzey and Knight, 2001). The Australian Painted Snipe generally inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and claypans (Pizzey and Knight, 2001). Typical nesting sites include those with tussocks of grass, sedges, rushes or reeds, often with scattered clumps of lignum *Muehlenbeckia* or canegrass or sometimes tea-tree (*Melaleuca)* (Marchant and Higgins, 1993). The taxon is mainly crepuscular, preferring to sit quietly under the cover of grass, reeds or other dense cover during the day, becoming more active at dawn, dusk and during night (Marchant and Higgins, 1993). They generally remain in dense cover when feeding, although may forage over nearby mudflats and other open areas such as ploughed land or grassland (Marchant and Higgins, 1993).

The *Eucalyptus victrix* Drainage and Mesquite Drainage habitats within the Survey Area may provide year-round sheltering and foraging habitat for the Australian Painted Snipe. When inundated, the Cenchrus Clay Flats habitat within the Survey Area might be used by the taxon for foraging.

Common Sandpiper (*Tringa hypoleucos*) – MI (BC Act); MI, MA (EPBC Act)

The Common Sandpiper is typically carnivorous, feeding on molluscs, crustaceans, and a variety of insects. It is a migratory species that uses varied coastal and interior wetlands including narrow muddy edges of billabongs, river pools, mangroves, among rocks and snags, reefs, or rocky beaches (Morcombe, 2003). It migrates from mid-northern latitudes of Asia (Menkhorst *et al.*, 2017) and has a broad breeding distribution from western Europe to eastern Russia (Pizzey and Knight, 2001; Bamford *et al.*, 2008). The species generally forages in shallow water and on bare soft mud at the edges of wetlands(DCCEEW, 2016) . Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves (DCCEEW, 2016).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Common Sandpiper suitable foraging habitat.

Common Greenshank (*Tringa nebularia*) – MI (BC Act); MI, MA (EPBC Act)

The Common Greenshank is a migratory species to Australia that typically breeds in the boreal forest zone from sea level to 1,200 m in Norway (BirdLife International, 2016b). After migrating to Australia, it is generally absent from the Western Deserts although there are a few records from the Great Sandy Desert and the Nullarbor Plain. It occurs around most of the coast from Cape Arid in the south to Carnarvon in the north-west. In the Kimberley it is recorded in the south-west and the north-east (Pizzey and Knight, 2001). The Common Greenshank forages at the edge of wetlands, in soft mud on mudflats, in channels, or within shallows around the edge of waterbodies, where it primarily feeds on invertebrates and occasionally on small vertebrates (DCCEEW, no date). The taxon roost both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms, and flooded crops (DCCEEW, no date).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Common Greenshank suitable foraging and roosting habitat.



Greater Sand Plover (*Charadrius leschenaultii*) – VU, MI (BC Act); VU, MI, MA (EPBC Act)

There are three sub-species of the Greater Sand Plover but only *Charadrius leschenaultii leschenaultii* occurs in Australia, which breeds in western China, Mongolia and southern Russia and spends the non-breeding season in Australasia, south-east Asia and the Indian subcontinent (Bamford *et al.*, 2008; Threatened Species Scientific Committee, 2016a). In Western Australia, Greater Sand Plovers are especially widespread between Northwest Cape and Roebuck Bay and also occasionally recorded along the coast of southern Western Australia (Threatened Species Scientific Committee, 2016a). Greater Sand Plovers are present in the North-west Marine Region in internationally significant numbers at Ashmore Reef between December and February (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012).

In the non-breeding grounds in Australasia, Greater Sand Plovers are almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches, large intertidal mudflats, sandbanks, salt-marshes, estuaries, coral reefs, rocky islands rock platforms, tidal lagoons, and dunes near the coast. Greater Sand Plovers usually feed on molluscs, worms, crustaceans, and insects from the surface of wet sand or mud on open intertidal flats of sheltered embayments, lagoons, or estuaries (Marchant and Higgins, 1993; Threatened Species Scientific Committee, 2016a; BirdLife International, 2019). The species may occasionally forage around coastal grasslands (Threatened Species Scientific Committee, 2016a). Roost sites are typically located on sand-spits and banks on beaches or in tidal lagoons. Rocky points, or adjacent areas of saltmarsh or claypans may occasionally be used by the species for roosting (Threatened Species Scientific Committee, 2016a).

The Cenchrus Dune Crest habitat within the Survey Area contains limited grassland and may be used by the Greater Sand Plover for foraging. When inundated, the Cenchrus Clay Flats habitat may provide the taxon suitable foraging and roosting habitat.

Sharp-tailed Sandpiper (*Calidris acuminata*) – MI (BC Act); MI, MA (EPBC Act)

The Sharp-tailed Sandpiper is a small-medium migratory wader, nesting in the northern Siberian Tundra and is one of the most common shorebirds to inhabit in fresh and saline wetlands occurring inland in Australia (Menkhorst *et al.*, 2017). In Western Australia, there are scattered records of the species occurring along the Nullarbor Plain and the southern areas of the Great Victoria Desert. They are widespread from Cape Arid to Carnarvon, around coastal and subcoastal plains of the Pilbara Region to south-west and east Kimberly Division (Pizzey and Knight, 2001). It also forages in grasslands and tidal areas. The species typically prefer muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation (Pizzey and Knight, 2001). Roosting occurs at the edges of wetlands, on wet open mud or sand, in shallow water, or in short sparse vegetation, such as grass or saltmarsh. Occasionally, they roost on sandy beaches, stony shores or on rocks in water (DCCEEW, 2023).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Sharp-tailed Sandpiper suitable foraging and roosting habitat.

Pacific Golden Plover (*Pluvialis fulva*) - MI (BC Act); MI, MA (EPBC Act)

The Pacific Golden Plover breeds in Siberia and Alaska and is present at non-breeding grounds in Australia mostly between September and May (DCCEEW, 2024b). The species primarily inhabit coastal environments, including beaches, mudflats, sandflats, sheltered estuaries, lagoons, and saltworks, with occasional use of inland wetlands like lakes, swamps, and claypans. They forage mainly on sandy or muddy shores and margins of sheltered waters, but also in rocky areas, saltmarshes, mangroves, and sometimes



grasslands or croplands. Roosting typically occurs near foraging sites on beaches, spits, rocky points, reefs, or islets, and occasionally among low vegetation, seaweed, or in artificial habitats like evaporation ponds (DCCEEW, 2024b).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Pacific Golden Plover suitable foraging and roosting habitat.

Red-necked Stint (*Calidris ruficollis*) – MI (BC Act); MI, MA (EPBC Act)

The global population of Red-necked Stints is confined to the East Asian - Australasian Flyway, with more than 80% of the global population present in Australia during the non-breeding period. The northwest of Australia is an important area for the species on their migration from the northwest to the southeast of Australia (Bamford *et al.*, 2008). Red-necked Stints are found in coastal and inland areas, including tidal flats, brackish and freshwater wetlands, and beaches (Menkhorst *et al.*, 2017). The species mostly forages on bare wet mud on intertidal mudflats or sandflats, or in very shallow water, mostly in areas with a film of surface water and mostly close to edge of water. During high tides they sometimes forage in non-tidal wetlands(DCCEEW, 2024b). Roost sites are located on sheltered beaches, spits, banks or islets, of sand, mud, coral or shingle, sometimes in saltmarsh or other vegetation. During very high tides they may use sand dunes or claypans as roosting site (DCCEEW, 2024b).

The Cenchrus Dune Crest and Cenchrus Clay Flats habitats within the Survey Area may provide the Red-necked Stint suitable roosting habitat. When the Cenchrus Clay Flats habitat may also become suitable foraging habitat for the species.

Long-toed Stint (*Calidris subminuta*) - MI (BC Act); MI, MA (EPBC Act)

The Long-toed Stint is a regular visitor in small numbers to northern and western Australia, where it inhabits a range of inland wetlands. It favours shallow freshwater and brackish environments, including lakes, swamps, floodplains, streams, lagoons, and even sewage ponds. This species is particularly drawn to muddy shorelines and areas with low vegetation, such as short grasses, weeds, sedges, floating or low aquatic plants, reeds, rushes, and occasionally stunted samphire. It is also seen along more open, sparsely vegetated shores of large lakes and ponds, and is frequently found on muddy edges of drying seasonal lakes and swamps. While less common, the Long-toed Stint can also be found around permanent water bodies like reservoirs and artificial lakes, and occasionally at tidal estuaries, saline lakes, salt ponds, and bore swamps (DCCEEW, 2023). The species mainly feed on fresh, shallow waters (DCCEEW, 2023). Little information is available on the rooting habitat of the species, but presumably similar to other species in the genus.

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Long-toed Stint suitable foraging habitat.

Wood Sandpiper (*Tringa glareola*) – MI (BC Act); MI, MA (EPBC Act)

The Wood Sandpiper is a small, thin wader that uses well-vegetated, shallow, freshwater wetlands such as swamps, billabongs, lakes, pools, and waterholes (Menkhorst *et al.*, 2017). The species is generally associated with emergent aquatic plants or grass, and they forage on moist or dry mud at the edges of wetlands. The Wood Sandpiper is a migratory species, breeding in the subarctic Siberia with some individuals migrating to Australia (Menkhorst *et al.*, 2017). In Western Australia, the species is widespread but scattered in most regions (Pizzey and Knight, 2001). The Wood Sandpiper forages on moist or dry mud at the edges of wetlands, either along shores, among open scattered aquatic vegetation, or in clear shallow water (DCCEEW, 2025c). The species has been recorded loafing on a low, grassy hillock in a flooded meadow. It has also been recorded perched low in trees and on fences (DCCEEW, 2025c).

The *Eucalyptus victrix* Drainage habitat within the Survey Area may provide limited roosting habitat for the Wood Sandpiper, and the Cenchrus Clay Flats habitat may provide suitable foraging habitat for the species.

Marsh Sandpiper (*Tringa stagnatilis*) – MI (BC Act); MI, MA (EPBC Act)

The Marsh Sandpiper is found on coastal and inland wetlands throughout Australia. There are scattered records in Western Australia and the Northern Territory. In Western Australia they are mainly found around the coast (Menkhorst *et al.*, 2017). The Marsh Sandpiper lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms (Menkhorst *et al.*, 2017). The species usually forages in shallow water at the edge of wetlands, and roosts on tidal mudflats, near low saltmarsh, and around inland swamps (DCCEEW, 2025d).

When inundated, the Cenchrus Clay Flats habitat within the Survey Area may provide the Marsh Sandpiper suitable foraging and roosting habitat.

6.0 Conclusion

6.1 Flora and Vegetation

- Six vegetation types were identified across three broad landforms within the Survey Area.
- No Threatened or Priority Ecological communities were recorded within the Survey Area.
- Vegetation condition within the Survey Area ranged from Completely Degraded to Poor. A majority of the Survey Area, 67%, are. Disturbance was primarily associated with a large number of aggressive introduced flora taxa recorded across the Survey Area.
- Two vegetation types, EvEaCc and NpRlCc intersect an area with a high potential to support Groundwater Dependent Ecosystems. Both vegetation types contained *Eucalyptus victrix* as a constituent member of their upper stratum. *Eucalyptus victrix* is a facultative phreatophyte and may be reliant on groundwater when surface water is unavailable. Both vegetation types EvEaCc and NpRlCc may support terrestrial Groundwater Dependent Ecosystems.
- A total of 74 vascular flora taxa were recorded within the Survey Area from 59 genera and 27 families.
- No Threatened or Priority flora taxa were recorded within the Survey Area.
- Twenty introduced flora taxa were recorded within the Survey Area, including WoNS **Neltuma pallida* (Mesquite), Declared Pest – Prohibited s12 and **Cylindropuntia* aff. *fulgida* (Coral cactus), Declared Pest – s22(2).

6.2 Fauna

- Five fauna habitats were mapped within the Survey Area. All habitats are widespread and abundant at a regional scale.
- A total of 31 fauna taxa from 27 families were recorded, comprising 19 birds, nine mammals, and three reptiles.
- The remains of one significant species, a marine turtle, which could not be identified to a species level was recorded within the Survey Area. This record is believed to be associated with dumping or consumption as part of traditional practices.
- One significant fauna taxon was assessed as having a high likelihood of occurring within the Survey Area, Peregrine Falcon (*Falco peregrinus*), listed as Other Specially by the DBCA.
- 17 significant fauna taxa were assessed as having a medium likelihood of occurring within the Survey Area:
    - Western Spiny-tailed Skink (*Egernia stokesii badia*), listed as Vulnerable under the BC Act and Endangered under the EPBC Act.
    - Grey Falcon (*Falco hypoleucos*), listed as Vulnerable under the BC Act and EPBC Act.
    - Pacific Swift (*Apus pacificus*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
    - Osprey (*Pandion haliaetus*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.

  - Glossy Ibis (*Plegadis falcinellus*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.
  - 12 Threatened and Priority coastal and migratory shorebirds and waders from three families — *Charadriidae* (plovers), *Scolopacidae* (sandpipers, stints, snipe, and greenshank), and *Rostratulidae* (Australian Painted Snipe).
- The remaining 50 significant fauna taxa were assessed as having a low likelihood of occurring within the Survey Area
- All habitats within the Survey Area are heavily degraded from weeds, illegal dumping, and vehicle impacts. *Eucalyptus victrix* Drainage, Mesquite Drainage and *Cenchrus* Drainage provide sheltering, dispersal, foraging and hunting opportunities to the broader fauna assemblage. Following rainfall events (December to February) *Cenchrus* Clay Flats, *Eucalyptus victrix* Drainage, Mesquite Drainage and *Cenchrus* Drainage will retain water providing supporting ephemeral wetlands to a wider range of Threatened and Priority waders.
- Seven introduced taxa were recorded during the survey including the European Cattle (**Bos primigenius taurus*), Goat (**Capra aegagrus hircus*), Sheep (**Ovis aries*), Dingo/Dog (**Canis familiaris*), Horse (**Equus ferus caballus*), Cat (**Felis catus*) and Rabbit (**Oryctolagus cuniculus*).

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8.0 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 Charity Partner - Lifeline, for every completed form.

Appendix A Maps

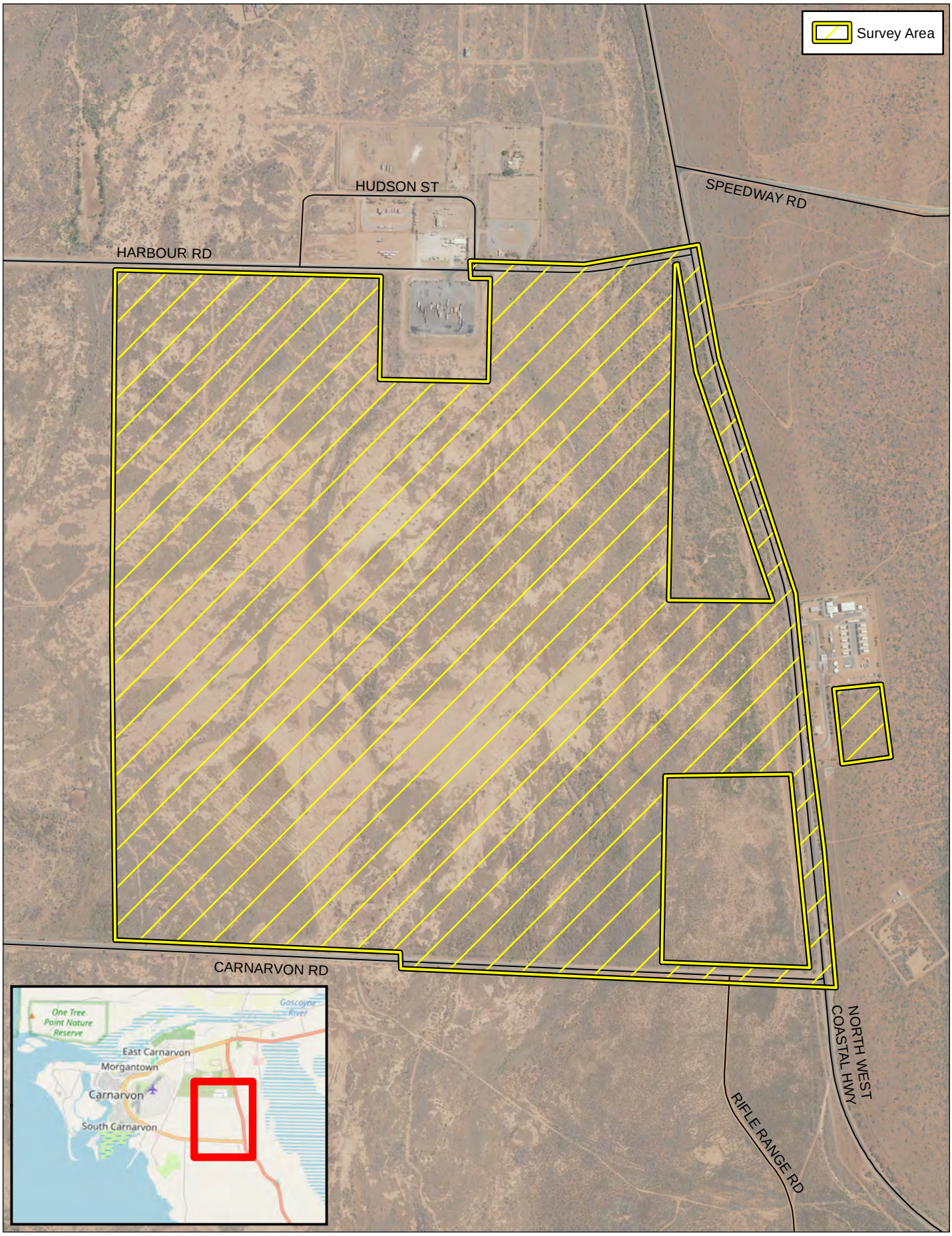
Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025



N 0 125 250 500 m

Service Layer Credits: Landgate / SLIP

Coordinate System: GDA2020 MGA Zone 49

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Project Number	: 675.073044.00001
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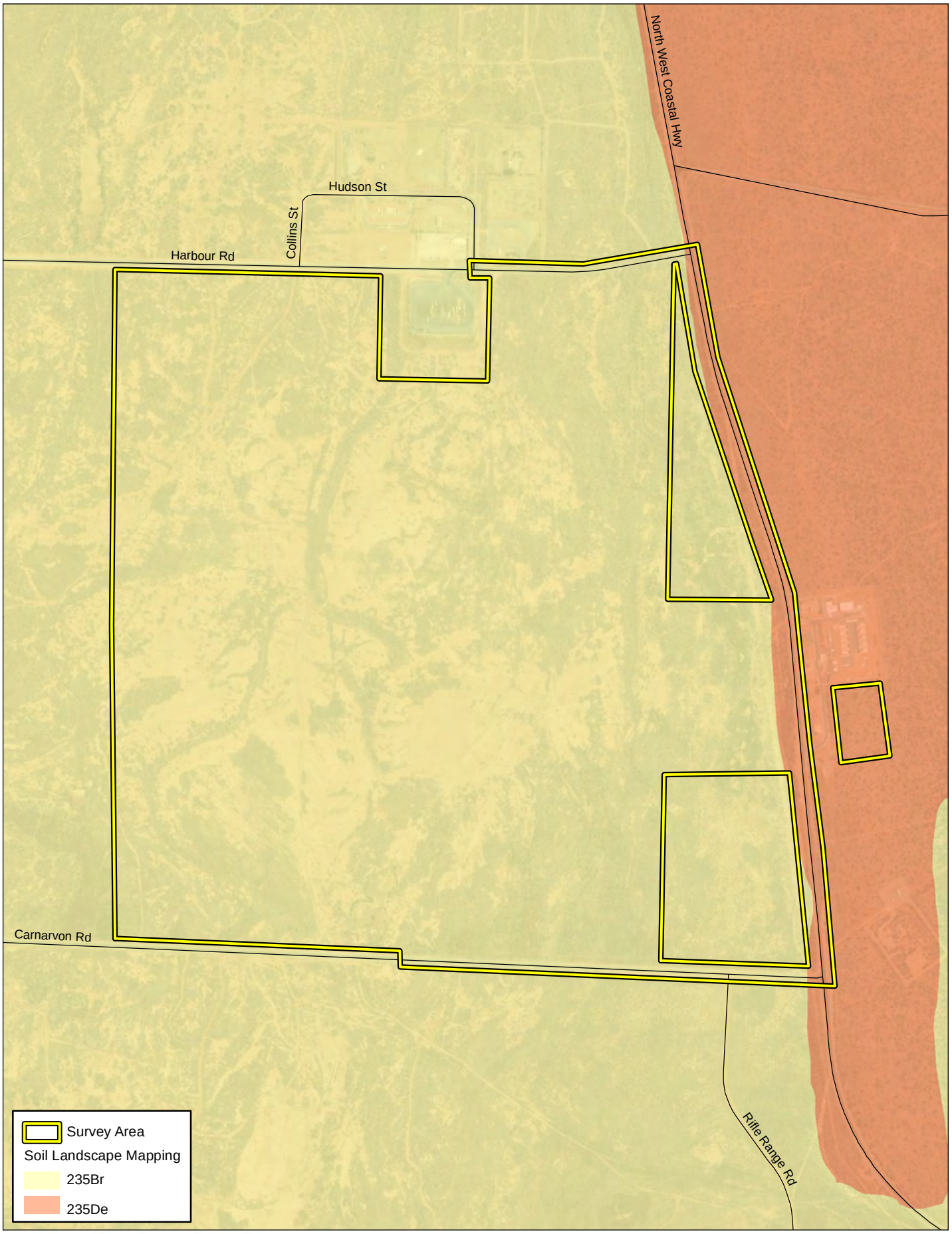
Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Survey Area
MAP 1

SLR

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Soil Landscape Mapping DPIRD_063

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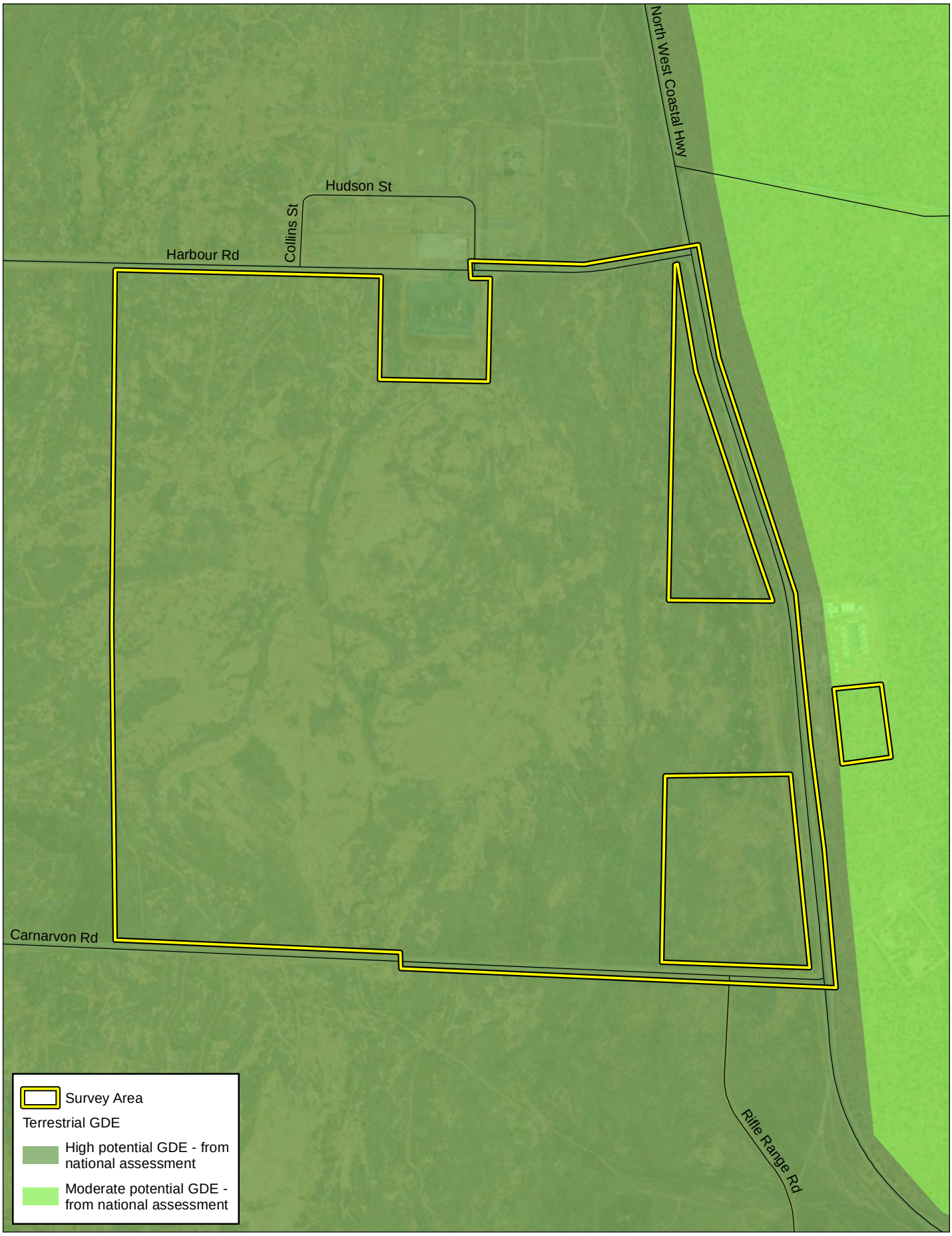
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Carnarvon Decarbonisation Project
Biological Surveys

Soil Landscape Systems
MAP 2

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GDE - BoM | Hydrography - DWER031

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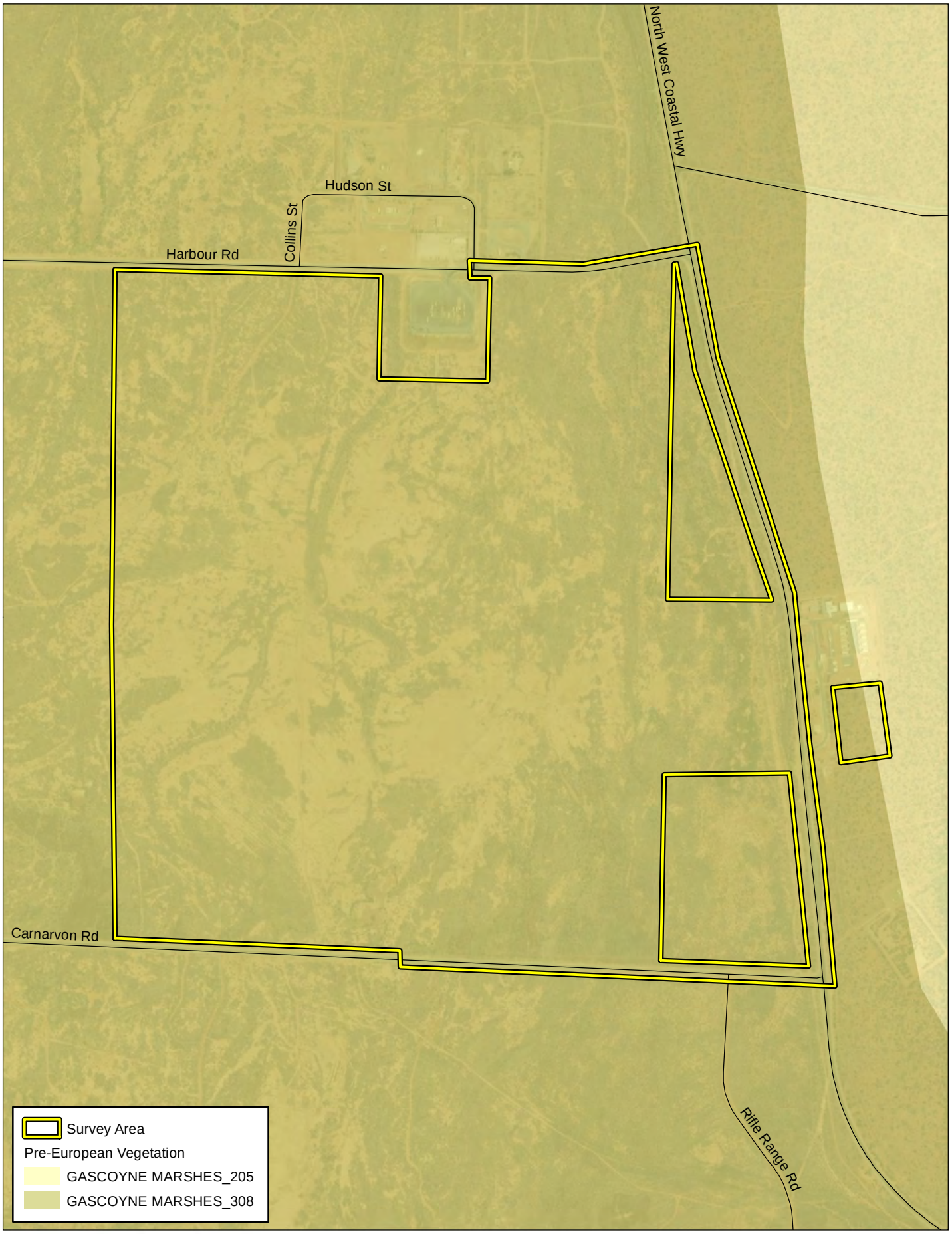
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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Hydrography
MAP 3

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Service Layer Credits: Landgate / SLIP
Pre-European Vegetation - DPIRD006

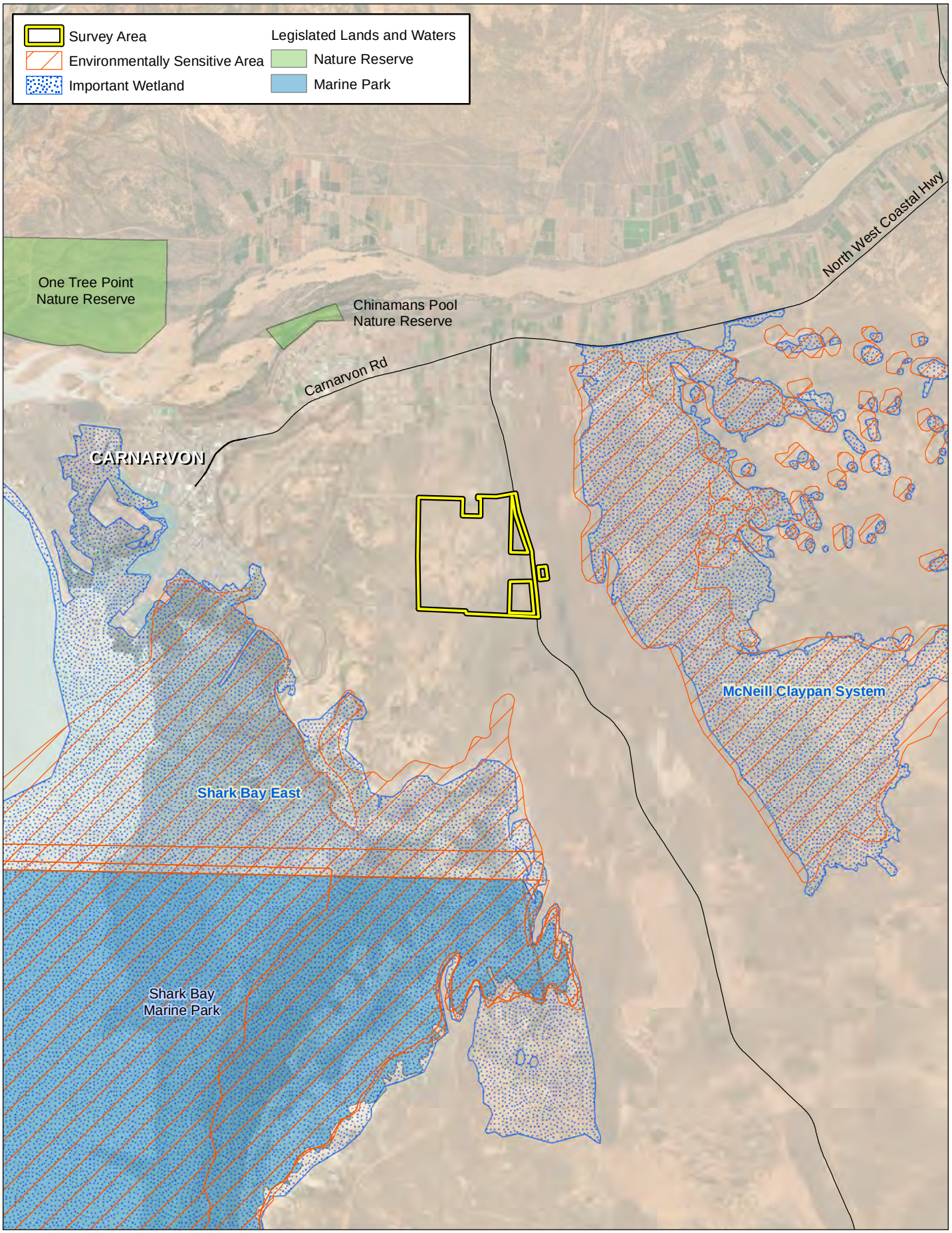
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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Pre-European Vegetation
MAP 4

C:\GIS\Jobs\360\675.073044.00001 - Carnarvon Decarbonisation Prj, Biological Surveys\Figures\675-073044-00001_M04 Pre-European Vegetation_250626.mxd



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Service Layer Credits: Landgate / SLIP
Wetlands Legis Lands - DBCA | ESA - DWER

Coordinate System: GDA2020 MGA Zone 49

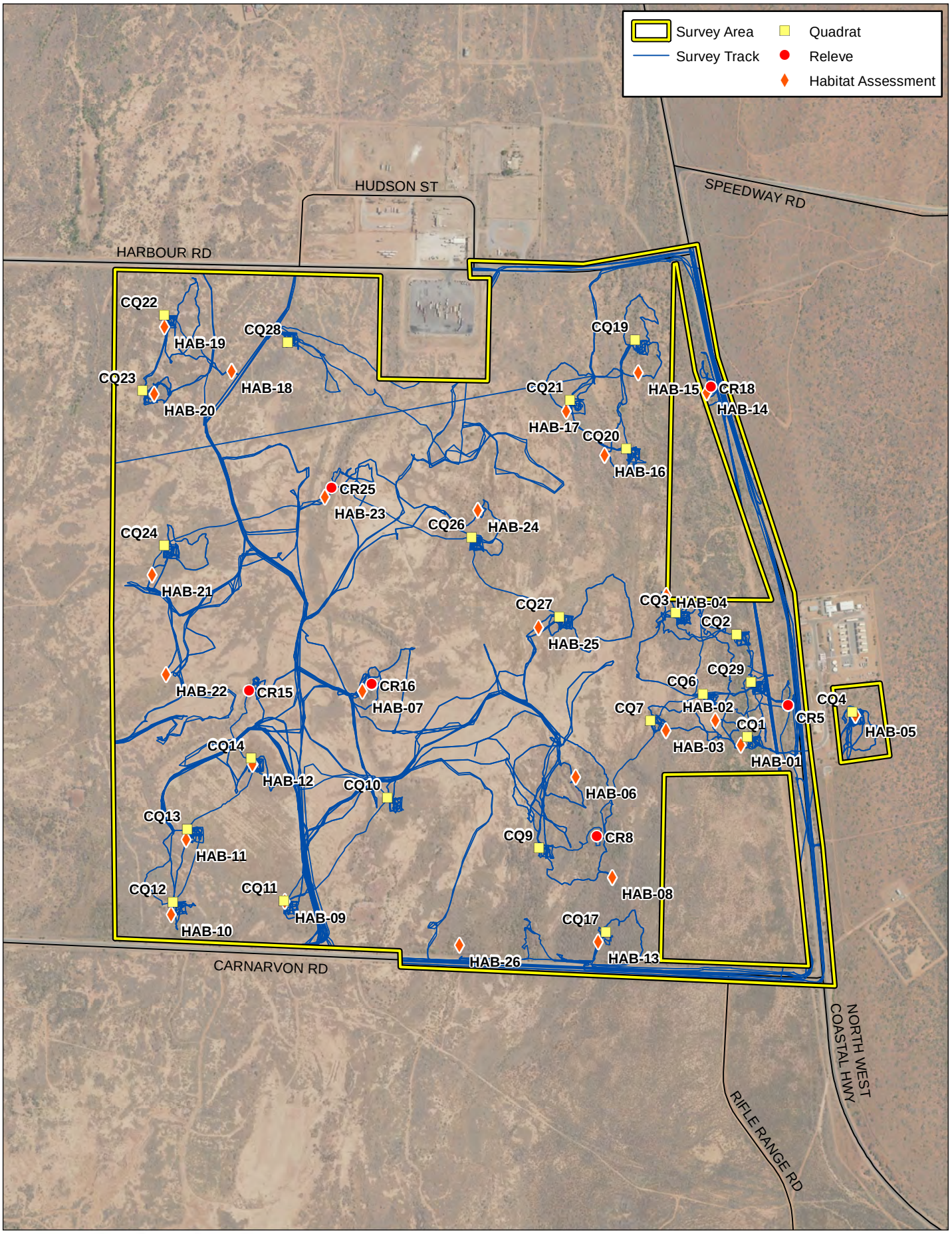
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Carnarvon Decarbonisation Project
Biological Surveys

Conservation Areas and Environmentally Sensitive Areas MAP 5

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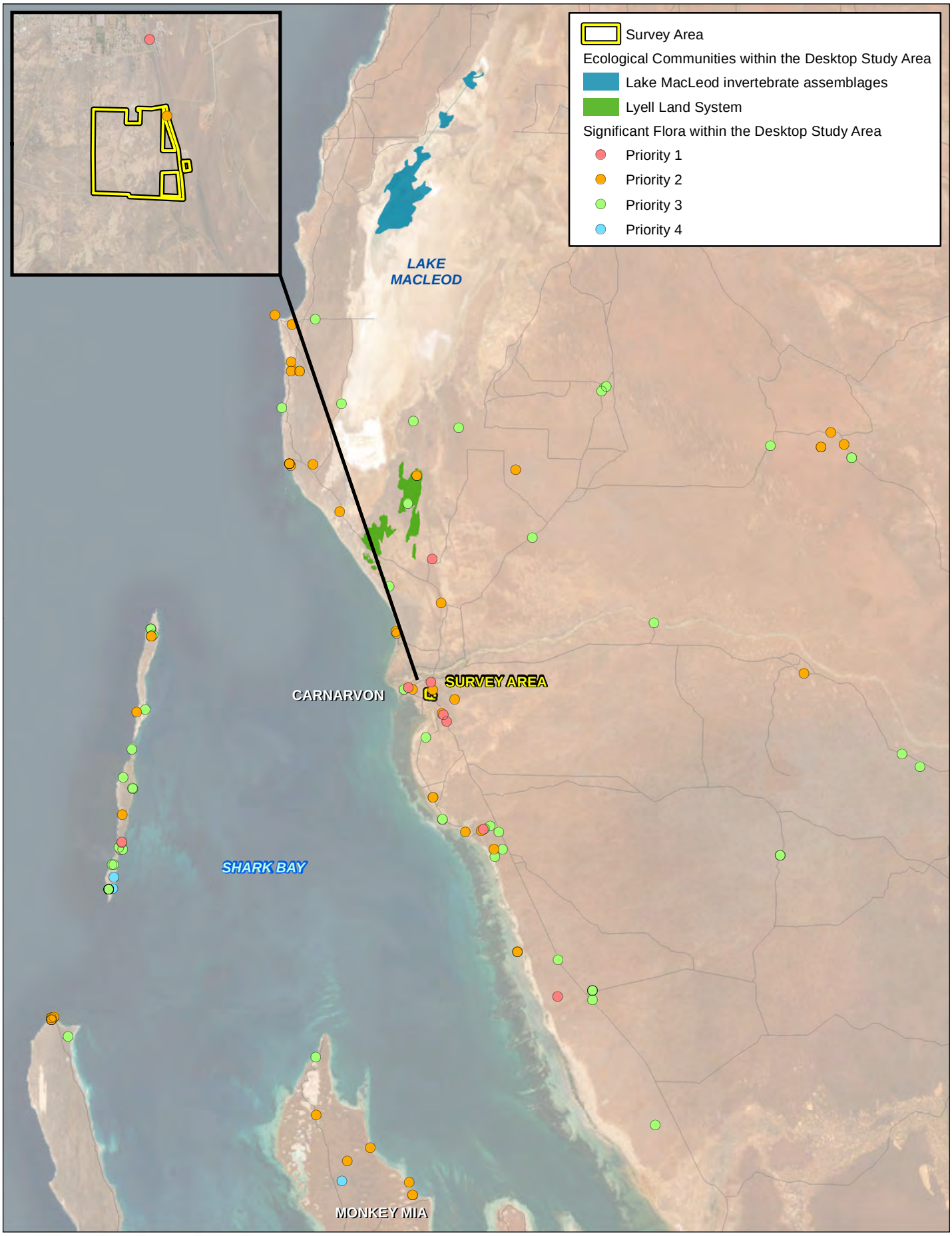
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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Survey Sites and Survey Effort
MAP 6

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Service Layer Credits: Landgate / SLIP
Wetlands Legis Lands - DBCA | ESA - DWER

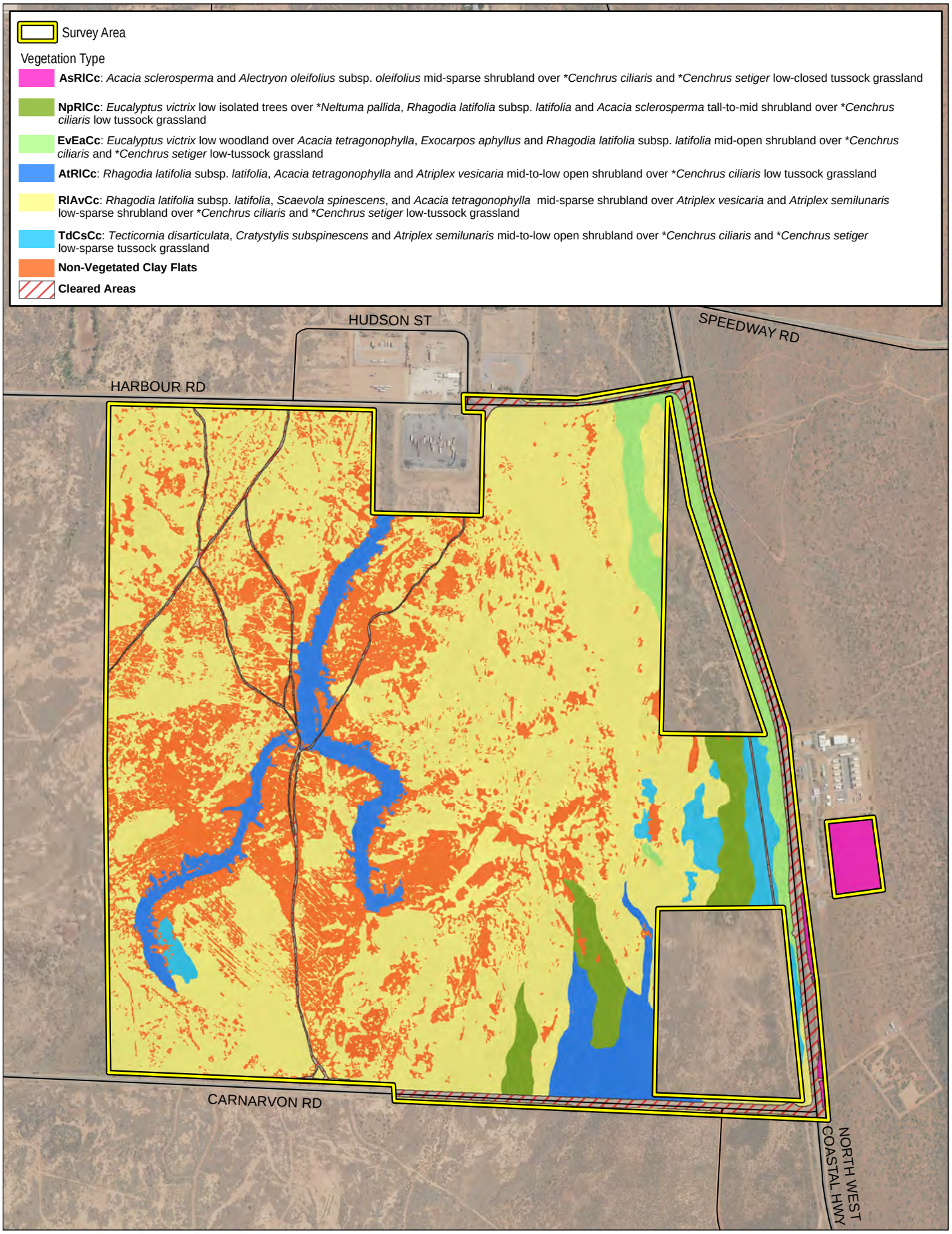
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Project Number	: 675.073044.00001
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Carnarvon Decarbonisation Project
Biological Surveys

Significant Flora and Vegetation and Ecological Communities Database Search Results MAP 7

C:\GIS\Jobs\360\675.073044.00001 - Carnarvon Decarbonisation Prj, Biological Surveys\Figures\675-073044-00001_M07 Significant Flora and Vegetation and Ecological Communities Database Search Results_250626.mxd



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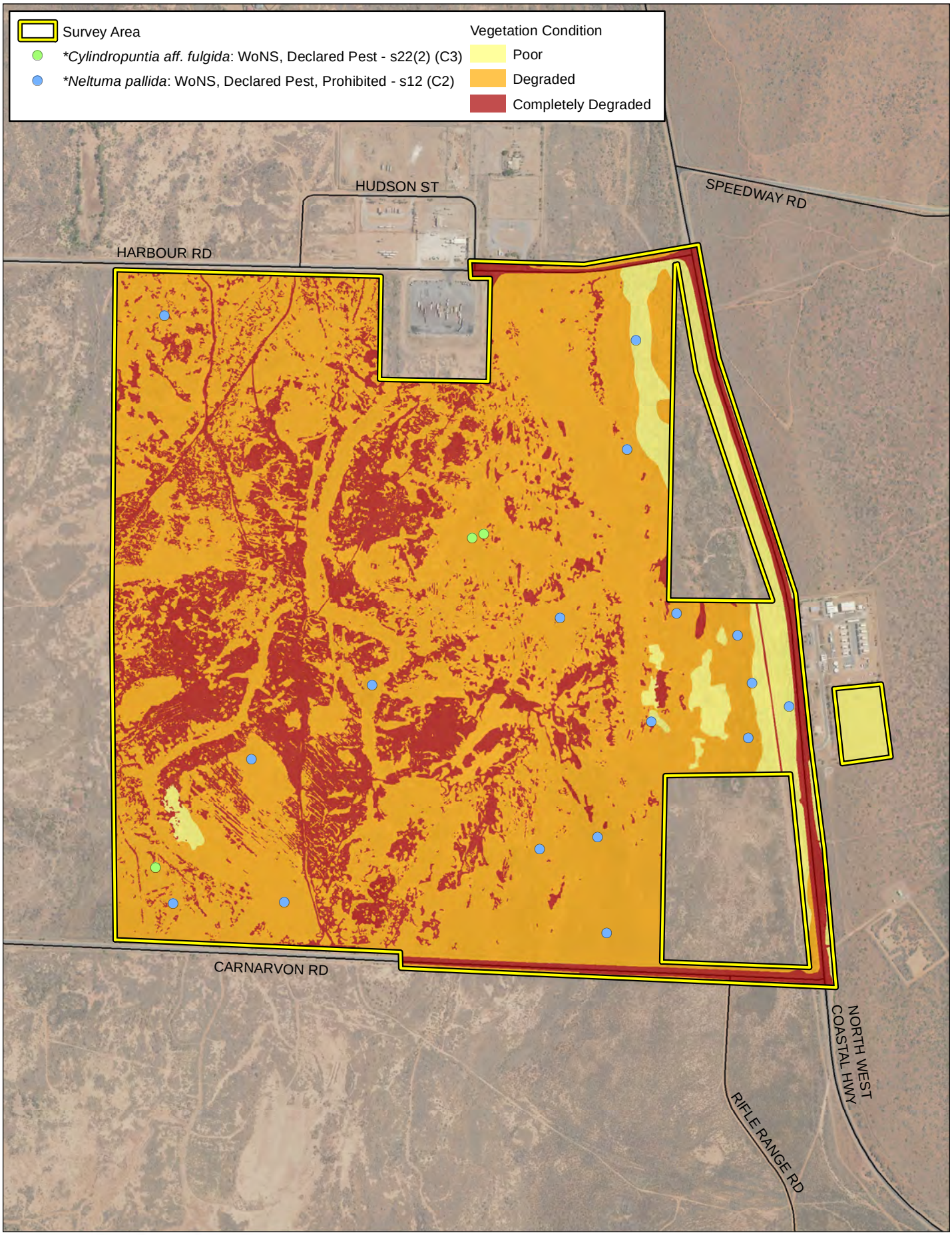
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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Vegetation Types
MAP 8

C:\GIS\Jobs\360\675.073044.00001 - Carnarvon Decarbonisation Prj, Biological Surveys\Figures\675-073044-00001_M08 Vegetation Types_250611.mxd



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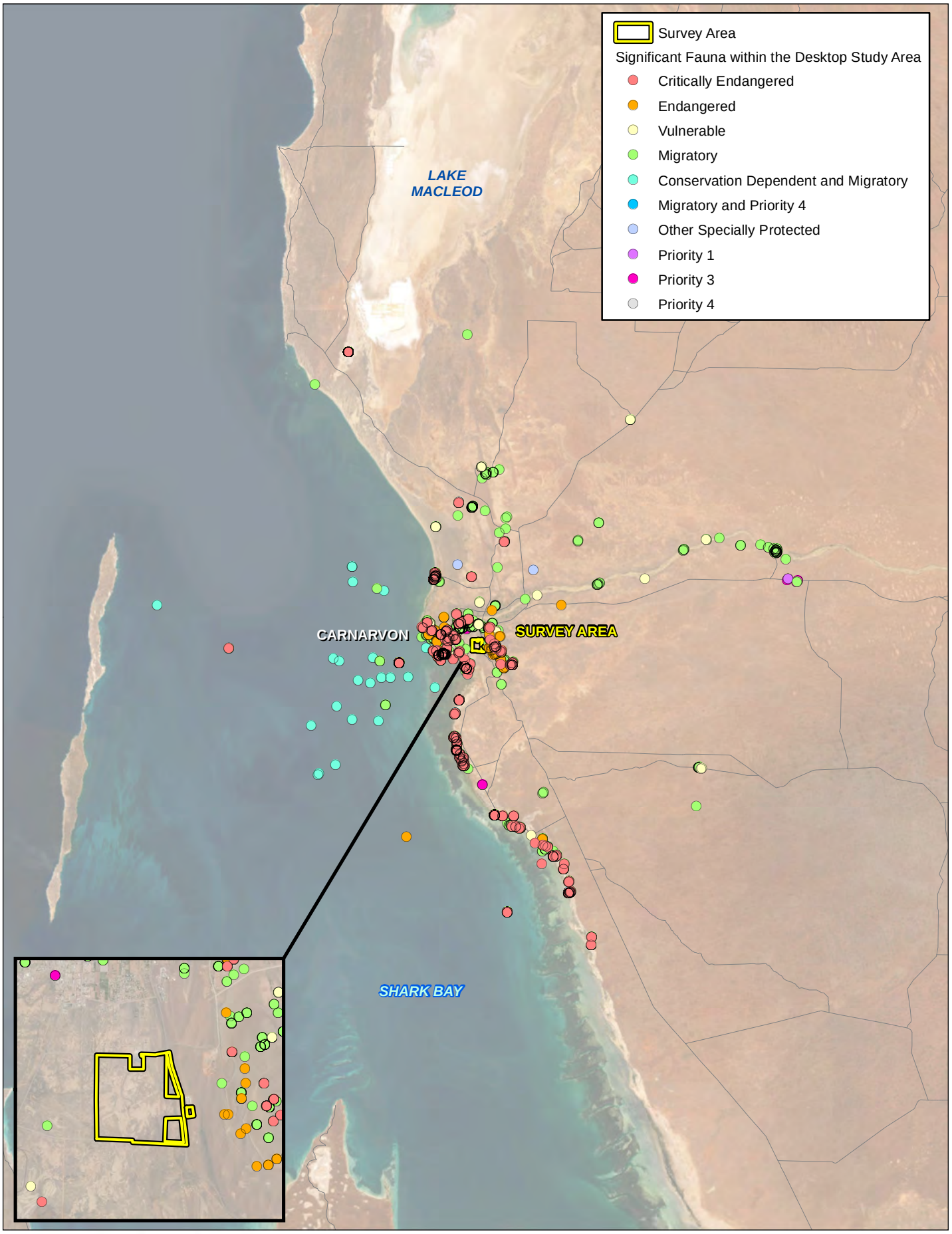
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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Vegetation Condition and WoNS/Declared Pests MAP 9

C:\GIS\Jobs\360\675.073044.00001 - Carnarvon Decarbonisation Prj, Biological Surveys\Figures\675-073044-00001_M09 Vegetation Condition and WoNS-Declared Pests_250626.mxd



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N 0 5 10 20 km

Service Layer Credits: Landgate / SLIP
Wetlands Legis Lands - DBCA | ESA - DWER

Coordinate System: GDA2020 MGA Zone 49

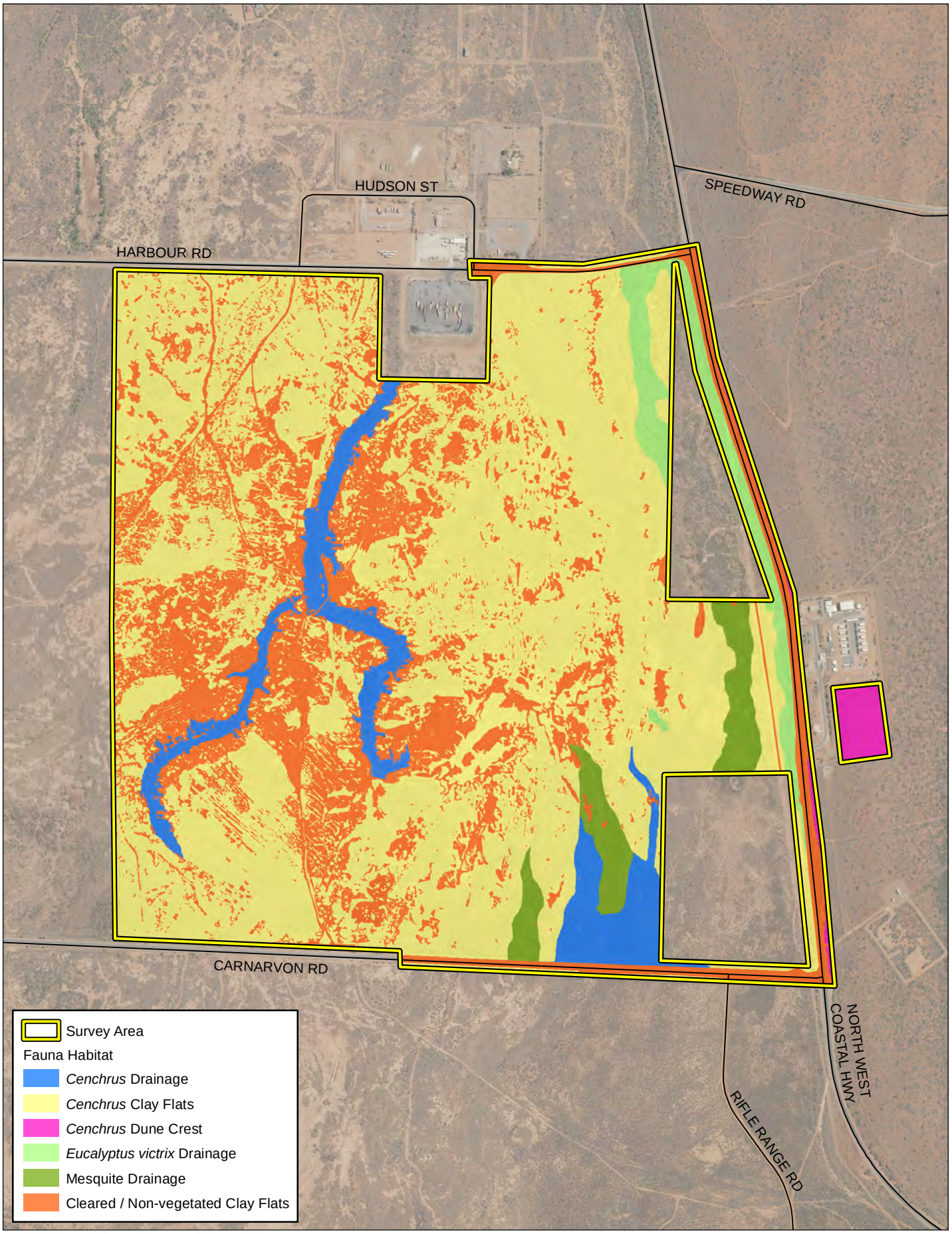
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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Significant Fauna Database Search Results MAP 10

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Horizon Power
Carnarvon Decarbonisation Project
Biological Surveys

Fauna Habitat Mapping
MAP 11

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Appendix B Literature Review Summary

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

ID	Report	Survey location	Survey timing	Survey type	Significant fauna recorded	Fauna habitats recorded
A	Synergy Site (North), Denham: Flora and Fauna Report (360 Environmental Pty Ltd, 2019)	113 km south of the Survey Area	July 2019	Basic fauna	None	• *Acacia* Shrubland over *Triodia* • *Acacia* Shrubland • Cleared/Completely Degraded
B	Shire of Shark Bay Site, Denham: Flora and Fauna Report (360 Environmental Pty Ltd, 2019)	113.1 km south of the Survey Area	July 2019	Basic fauna	None	• *Acacia* Shrubland • Cleared/Completely Degraded
C	Water Corporation Site, Denham: Flora and Fauna Report (360 Environmental Pty Ltd, 2019)	113.1 km south of the Survey Area	July 2019	Basic fauna	None	• *Acacia* Shrubland over *Triodia* • *Acacia* Shrubland • Cleared/Completely Degraded

Report	Survey location	Survey timing	Survey type	Significant ecological communities	Significant flora	Introduced flora
Gascoyne Food Bowl Initiative: Flora and Vegetation Survey (Strategen Environmental, 2019)	Approximately 5 km north of the Survey Area	Out-of-season. October and December 2016.	Detailed, out-of-season flora and vegetation survey	None recorded	• *Corchorus ?congener* (P3)	• Fourteen introduced flora taxa were recorded during the survey.
Reconnaissance Vegetation Survey: Beta Nutrition Pty. Ltd. Facility Lake MacLeod (Environment Plus, 2021)	Approximately 40 km northwest of the Survey Area	In-season. June 2021.	Reconnaissance flora and vegetation survey.	None recorded	None recorded	• **Cenchrus ciliaris*
Synergy site, Denham: Flora and Fauna Report (360 Environmental, 2019a)	Approximately 100 km southwest of the Survey Area	Out-of-season. July 2019.	Detailed, out-of-season flora and vegetation survey.	None recorded	• *Acanthocarpus ?rupestris* (P2) • *Olearia ?occidentissima* (P2) • *Triodia plurinervata* (P3)	• Five introduced flora taxa were recorded during the survey, including: • **Lycium ferocissimum* (WoNS)
Shire of Shark Bay Site, Denham: Flora and Fauna Report (360 Environmental, 2019b)	Approximately 100 km southwest of the Survey Area	Out-of-season. July 2019.	Detailed, out-of-season flora and vegetation survey.	None recorded	• *Acacnthocarpus* ?rupestris (P2) • *Olearia ?occidentissima* (P2)	• Six introduced flora taxa were recorded during the survey, including: • **Lycium ferocissimum* (WoNS)
Water Corporation Site, Denham: Flora and Fauna Report (360 Environmental, 2019c)	Approximately 100 km southwest of the Survey Area	Out-of-season. July 2019.	Detailed, out-of-season flora and vegetation survey.	None recorded	• *Acanthocarpus ?rupestris* (P2) • *Olearia ?occidentissima* (P2) • *Triodia plurinervata* (P3)	• Five introduced flora taxa were recorded during the survey, including: • **Lycium ferocissimum* (WoNS)
Main Roads Western Australia: Minilya-Exmouth Road Biological Survey (GHD, 2016)	Between 150 and 200 km northeast of the Survey Area	Out-of-season. October 2015.	Detailed, out-of-season flora and vegetation survey.	None recorded	• *Acacia alexandri* (P3) • *Corchorus congener* (P3) • *Owenia acidula* (P3)	• Twenty-two introduced flora taxa were recorded during the survey, including: • **Tamarix aphylla* (s-22, WoNS)

Appendix C Likelihood of Occurrence Assessments

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

Distance to Nearest Record from the Survey Area is based on a distance analysis undertaken against 2025 DBCA database. High = Suitable habitat present and records less than 20 km from the Survey Area, Medium = Suitable habitat present and records between 20 km and 50 km from the Survey Area, and Low = No suitable habitat present and/or records greater than 50 km from the Survey Area, Unknown = Insufficient information available to classify . P = Priority Listed, Ranked and Listed by the DBCA. Likelihoods are assessed both pre and post survey based on knowledge of the Survey Area, nearest known records, known flowering period of flora taxa and knowledge gained from the survey effort during ground truthing. 1: Department of Biodiversity, Conservation and Attractions (DBCA) (2025). FloraBase - TheWestern Australian Flora. https://florabase.dbca.wa.gov.au/

Species	Conservation Status		Source			Distance to Nearest Record (km)	Flowering Period	Prefered Habitat [1]	Pre-Survey Likelihood of Occurrence	Habitat occurs within the Survey Area	Post-Survey Likelihood of Occurrence
	DBCA	EPBC	NatureMap	PMST	DBCA						
Schoenia filifolia subsp. *arenicola*	P1		X		X	1.4	Aug - sep	Sand, red clay. Sub-coastal sand ridges.	High	Yes	Low
Swainsona ecallosa	P1		X		X	3.4	Aug - Oct	Stoney flats.	High	No	Low
Atriplex spinulosa	P1		X		X	5.2	Unknown	Simple slope. Grey, Brown silty clay loam.	High	No	Low
Ptilotus unguiculatus	P1				X	64.0	Jun - Sep	Open areas disturbed	Low	Yes	Low
Eremophila cuneata	P1				X	66.7	Nov - Dec	Below limestone outcrop.	Low	No	Low
Acacia ryaniana	P2		X		X	2.5	Jun - Nov	White or red sand, coastal sand dunes, flats.	High	Yes	Low
Chthonocephalus tomentellus	P2		X		X	3.3	Aug - Nov	Red sand. Undulating plains, sand dunes, near saline depressions.	High	Yes	Low
Rumex crystallinus	P2		X		X	4.1	Annual	Arid & semi-arid areas.	High	Yes	Low
Sondottia glabrata	P2		X		X	19.7	Sep - Oct	Saline flats.	High	Yes	Low
Scholtzia sp. Folly Hill (M.E. Trudgen 12097)	P2		X		X	32.2	Aug - Oct	Yellow or red sand. Sand dunes	Medium	Yes	Low
Calandrinia sphaerophylla	P2				X	55.4	Nov	Limestone	Low	No	Low
Ptilotus alexandri	P2				X	68.6	Aug - Oct	Red-white sand. Dunes.	Low	Yes	Low
Bergia auriculata	P2				X	73.5	Jul-Oct	Clay soils. Mud flats.	Low	No	Low
Olearia occidentissima	P2				X	85.5	Jul - Sep	Shallow soils. Coastal limestone cliffs.	Low	No	Low
Abutilon sp. Quobba (H. Demarz 3858)	P2		X		X	Within Survey Area	Jul - Sep	Sandplain, brown clayey sand or rock.	Previously Recorded	Yes	Low
Sporobolus blakei	P3		X		X	3.4	Jun - Jul	Red sandy clay, loam. Creeks.	High	Yes	Low
Indigofera rotula	P3		X		X	4.2	May - Sep	Watercourses and low, granite outcrops	High	Yes	Low

Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	P3		X		X	7.8	Jun, Aug - Sep	Sandy plains.	High	Yes	Low
Carpobrotus sp. Thevenard Island (M. White 050)	P3		X		X	19.7	Aug	Coarse white sand. Dune tops, disturbed areas.	High	No	Low
Lepidium scandens	P3		X		X	27.7	Aug - Sep	Red sand, clay	Medium	Yes	Low
Owenia acidula	P3		X		X	36.1	0	Clay.	Medium	No	Low
Lepidium biplicatum	P3		X		X	37.1	Sep	Coastal regions.	Medium	Yes	Low
Chthonocephalus spathulatus	P3		X		X	45.9	Aug	Red-brown loam or sandy clay. Undulating plains	Medium	Yes	Low
Lysiandra fuernrohrii	P3				X	53.4	Unknown	Limestone	Low	No	Low
Balladonia aervoides	P3				X	55.1	Unknown	Grey and yellow sand over limestone	Low	No	Low
Triodia plurinervata	P3				X	55.7	May - Jul or Sep - Oct	Red to orange-brown sand, limestone, sandy loam. Sand dunes and steppes, often coastal areas, drainage basins, salt lakes.	Low	Yes	Low
Physopsis chrysophylla	P3				X	57.4	Sep - Dec or Jan	Red or yellow sandy soils. Sandplains.	Low	Yes	Low
Stackhousia clementii	P3				X	59.2	Nov- Mar	Skeletal soils. Sandstone hills.	Low	No	Low
Stenanthemum divaricatum	P3				X	60.8	Aug - Sep	White or yellow sand over sandstone.	Low	No	Low
Acacia sclerosperma subsp. *glaucescens*	P3				X	66.0	Jul - Aug	Sand, sandy loam, stony soils.	Low	Yes	Low
Calandrinia rubrisabulosa	P3				X	75.3	Sep - Oct	Crests and upper slopes of red sand dunes	Low	Yes	Low
Acacia atopa	P3				X	93.5	Unknown	Red clay & red loam. Sometimes in rocky situations.	Low	No	Low
Tetragonia coronata	P3				X	95.4	Jul	Red clay loam. Calcrete outcrops.	Low	No	Low
Melaleuca huegelii subsp. *pristicensis*	P3				X	97.3	Sep - Oct	Sand.	Low	Yes	Low
Orobanche cernua var. *australiana*	P3				X	97.8	Jul - Nov	Coastal sand dunes	Low	No	Low
Acacia drepanophylla	P3				X	98.7	May - Jul	Red clay or loam over limestone. Flat to undulating plains, low rises.	Low	No	Low
Lepidium puberulum	P4				X	71.4	Jul - Aug or Oct - Nov	Sandy soils.	Low	Yes	Low

Eucalyptus zopherophloia	P4				X	97.4	Oct - Dec or Jan	Grey/white sand with limestone rubble. Coastal areas.	Low	No	Low

Flora Database Search Results

Conservation Status: State - Listed under Biodiversity Conservation Act 2016 or Department of Biodiversity, Conservation and Attractions Conservation (DBCA), P - Listed as Priority by DBCA.

Scientific Name	Conservation Status		Source			
	State	Federal	Nature Map	PMST	TPFL	WAHerb
Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	P3		X		X	X
Abutilon sp. Quobba (H. Demarz 3858)	P2		X		X	X
Acacia atopa	P3					X
Acacia drepanophylla	P3					X
Acacia ryaniana	P2		X		X	X
Acacia sclerosperma subsp. *glaucescens*	P3					X
Atriplex spinulosa	P1		X			X
Balladonia aervoides	P3					X
Bergia auriculata	P2				X	X
Calandrinia rubrisabulosa	P3					X
Calandrinia sphaerophylla	P2					X
Carpobrotus sp. Thevenard Island (M. White 050)	P3		X			X
Chthonocephalus spathulatus	P3		X		X	X
Chthonocephalus tomentellus	P2		X			X
Eremophila cuneata	P1				X	X
Eucalyptus zopherophloia	P4					X
Indigofera rotula	P3		X			X
Lepidium biplicatum	P3		X			X
Lepidium puberulum	P4					X
Lepidium scandens	P3		X			X
Lysiandra fuernrohrii	P3					X
Melaleuca huegelii subsp. *pristicensis*	P3					X
Olearia occidentissima	P2					X
Orobanche cernua var. *australiana*	P3					X
Owenia acidula	P3		X		X	
Physopsis chrysophylla	P3					X
Ptilotus alexandri	P2					X
Ptilotus unguiculatus	P1					X
Rumex crystallinus	P2		X			X
Schoenia filifolia subsp. *arenicola*	P1		X			X
Scholtzia sp. Folly Hill (M.E. Trudgen 12097)	P2		X			X
Sondottia glabrata	P2		X			X
Sporobolus blakei	P3		X			X
Stackhousia clementii	P3					X
Stenanthemum divaricatum	P3					X
Swainsona ecallosa	P1		X			X
Tetragonia coronata	P3					X
Triodia plurinervata	P3				X	X

Appendix D Flora Recorded During Survey

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

Family	Taxa	Status
Aizoaceae	**Carpobrotus aequilaterus*	s11
	**Mesembryanthemum crystallinum*	s11
Amaranthaceae	*Amaranthus undulatus*	
	**Gomphrena celosioides*	s11
	Ptilotus divaricatus	
	Ptilotus obovatus	
	Ptilotus polystachyus	
Asparagaceae	**Agave americana*	s11
Asteraceae	*Cratystylis subspinescens*	
	**Flaveria trinervia*	
	Pluchea dunlopii	
	**Sonchus oleraceus*	s11
	Streptoglossa liatroides	
	**Urospermum picroides*	s11
Boraginaceae	*Heliotropium curassavicum*	
	Trichodesma zeylanicum var. *zeylanicum*	
Brassicaceae	**Sisymbrium* sp.	s11
Cactaceae	**Cylindropuntia* aff. *fulgida*	WoNS, s22(2) (C3)
Caryophyllaceae	*Polycarpaea* sp.	
Chenopodiaceae	*Atriplex codonocarpa*	
	Atriplex semilunaris	
	Atriplex vesicaria	
	Maireana aphylla	
	Maireana appressa	
	Marieana ?trichoptera	
	Rhagodia latifolia subsp. *latifolia*	
	Salsola australis	
	Sclerolaena recurvicuspis	
	Tecticornia disarticulata	
	Threlkeldia diffusa	
Crassulaceae	*Crassula colorata* var. *colorata*	
Cucurbitaceae	**Citrullus amarus*	s11
	Cucumis variabilis	
Euphorbiaceae	**Euphorbia tirucalli*	s11
	Euphorbia boophthona	
	Euphorbia tannensis subsp. *eremophila*	
Fabaceae	*Acacia pyrifolia*	
	Acacia sclerosperma	
	Acacia synchronicia	
	Acacia tetragonophylla	
	Glycine canescens	
	**Neltuma pallida*	WoNS, s12 (C2)
Frankeniaceae	*Frankenia pauciflora*	
Goodeniaceae	*Scaevola spinescens*	
Malvaceae	*Abutilon geranioides*	
	Abutilon oxycarpum	
	Corchorus carnarvonensis	
	**Malvastrum americanum*	s11
	Sida kingii	

Family	Taxa	Status
	Sida rohlenae subsp. *rohlenae*	
Marsileaceae	*Marsilea hirsuta*	
Myrtaceae	*Eucalyptus victrix*	
	Thryptomene dampieri subsp. *dampieri*	
Orobanchaceae	*Striga* sp.	
Poaceae	*Aristida contorta*	
	**Avena barbata*	s11
	**Cenchrus ciliaris*	s11
	**Cenchrus setiger*	s11
	**Chloris virgata*	s11
	**Cynodon dactylon*	s11
	Enteropogon ramosus	
	Eragrostis setifolia	
	Eragrostis dielsii	
	Eragrostis leptocarpa	
	Eulalia aurea	
	**Rostraria pumila*	s11
	**Setaria verticillata*	s11
Proteaceae	*Hakea preissii*	
Santalaceae	*Exocarpos aphyllus*	
Sapindaceae	*Alectryon oleifolius* subsp. *oleifolius*	
Scrophulariaceae	*Eremophila maculata*	
Solanaceae	*Solanum orbiculatum* subsp. *orbiculatum*	
Surianaceae	*Stylobasium spathulatum*	
Zygophyllaceae	*Roepera* sp.	

Appendix E Selected Inputs for Multivariate Statistics

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

Species	Status for Multivariate Analysis	Reason for Removal from Multivariate Analysis	Removed from Species Accumulation Analysis
**Avena barbata*	Included	-	
**Carpobrotus aequilaterus*	Included	-	
**Cenchrus ciliaris*	Included	-	
**Cenchrus setiger*	Included	-	
**Citrullus amarus*	Removed	Singleton, Annual taxon	
**Cylindropuntia* aff. *fulgida*	Removed	Singleton	
**Cynodon dactylon*	Included	-	
**Euphorbia tirucalli*	Included	-	
**Flaveria trinervia*	Removed	Annual taxon	
**Gomphrena celosioides*	Removed	Annual taxon	
**Malvastrum americanum*	Removed	Singleton, Annual taxon	
**Mesembryanthemum crystallinum*	Removed	Annual taxon	
**Neltuma pallida*	Included	-	
**Rostraria pumila*	Removed	Annual taxon	
**Setaria verticillata*	Removed	Annual taxon	
**Sisymbrium sp.*	Removed	Singleton, Genus-level ID, Annual taxon	Y
**Sonchus oleraceus*	Removed	Annual taxon	
**Urospermum picroides*	Removed	Singleton, Annual taxon	
Abutilon geranioides	Included	-	
Abutilon oxycarpum	Removed	Singleton	

Species	Status for Multivariate Analysis	Reason for Removal from Multivariate Analysis	Removed from Species Accumulation Analysis
Acacia sclerosperma	Included	-	
Acacia synchronicia	Included	-	
Acacia tetragonophylla	Included	-	
Alectryon oleifolius subsp. *oleifolius*	Included	-	
Amaranthus undulatus	Removed	Annual taxon	
Aristida contorta	Removed	Singleton, Annual taxon	
Atriplex codonocarpa	Removed	Annual taxon	
Atriplex semilunaris	Included	-	
Atriplex vesicaria	Included	-	
Corchorus carnarvonensis	Included	Representative of singleton vegetation type	
Crassula colorata var. *colorata*	Removed	Annual taxon	
Cratystylis subspinescens	Included	-	
Cucumis variabilis	Removed	Annual taxon	
Enteropogon ramosus	Included	-	
Eragrostis setifolia	Included	-	
Eragrostis dielsii	Removed	Annual taxon	
Eragrostis leptocarpa	Removed	Annual taxon	
Eremophila maculata	Removed	Singleton	
Eucalyptus victrix	Included	-	
Eulalia aurea	Included	-	

Species	Status for Multivariate Analysis	Reason for Removal from Multivariate Analysis	Removed from Species Accumulation Analysis
Euphorbia boophthona	Removed	Singleton, Annual taxon	
Euphorbia tannensis subsp. *eremophila*	Removed	Singleton, Annual taxon	
Exocarpos aphyllus	Included	-	
Frankenia pauciflora	Included	-	
Glycine canescens	Removed	Singleton	
Hakea preissii	Included	-	
Heliotropium curassavicum	Removed	Annual taxon	
Maireana aphylla	Included	-	
Maireana appressa	Included	-	
Marieana ?trichoptera	Included	Included as Maireana trichoptera	Y
Marsilea hirsuta	Included	-	
Pluchea dunlopii	Included	-	
Polycarpaea sp.	Removed	Singleton, Genus-level ID	Y
Ptilotus divaricatus	Included	-	
Ptilotus obovatus	Included	-	
Ptilotus polystachyus	Removed	Annual taxon	
Rhagodia latifolia subsp. *latifolia*	Included	-	
Roepera sp.	Removed	Genus-level ID, Annual taxon	Y
Salsola australis	Included	-	
Scaevola spinescens	Included	-	

Species	Status for Multivariate Analysis	Reason for Removal from Multivariate Analysis	Removed from Species Accumulation Analysis
Sclerolaena recurvicuspis	Included	-	
Sida kingii	Removed	Singleton	
Sida rohlenae subsp. *rohlenae*	Included	Representative of singleton vegetation type	
Solanum orbiculatum subsp. *orbiculatum*	Included	Representative of singleton vegetation type	
Streptoglossa liatroides	Included	-	
Striga sp.	Removed	Genus-level ID	Y
Stylobasium spathulatum	Included	Representative of singleton vegetation type	
Tecticornia disarticulata	Included	-	
Threlkeldia diffusa	Included	-	
Thryptomene dampieri subsp. *dampieri*	Included	Representative of singleton vegetation type	
Trichodesma zeylanicum var. *zeylanicum*	Removed	Annual taxon	

Appendix F Flora Site Sheets

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ1
Location MGA 49 773480 **mE** 7244140 **mN**

Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Drainage line
Slope: Gentle
Rock Type: None
Soil Type: Clay
Soil Colour: Brown,Red



Vegetation: *Eucalyptus victrix low isolated trees over *Neltuma pallida, Cratystylis subspinescens, and Rhagodia latifolia subsp. latifolia tall-to-mid shrubland over *Cenchrus ciliaris low tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Litter,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	300	0.5	
**Neltuma pallida*	210	50	WoNS Prohibited - s12 (C2)
Cratystylis subspinescens	125	1	
Rhagodia latifolia subsp. latifolia	110	5	
Pluchea dunlopii	45	0.5	
**Cenchrus ciliaris*	35	35	Permitted - s11
Striga sp.	35	0.1	
Threlkeldia diffusa	35	0.1	
**Rostraria pumila*	25	2.5	Permitted - s11
**Urospermum picroides*	20	0.1	Permitted - s11
Heliotropium curassavicum	20	0.1	
Eragrostis setifolia	15	0.5	
Tecticornia disarticulata	15	0.1	
**Cynodon dactylon*	10	0.1	Permitted - s11

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ2
Location MGA 49 773454 **mE** 7244395 **mN**

Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Drainage line
Slope: Gentle
Rock Type: None
Soil Type: Clay
Soil Colour: Brown,Orange



Vegetation: **Neltuma pallida, Acacia sclerosperma, and Rhagodia latifolia subsp. latifolia mid-open shrubland over *Cenchrus ciliaris and *Rostraria pumila low-tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Litter,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	180	7.5	WoNS Prohibited - s12 (C2)
Acacia sclerosperma	125	1.5	
Rhagodia latifolia subsp. latifolia	110	15	
Exocarpos aphyllus	100	0.1	
Striga sp.	45	1.5	
**Cenchrus ciliaris*	35	25	Permitted - s11
Pluchea dunlopii	35	1	
**Citrullus amarus*	25	0.1	Permitted - s11
**Rostraria pumila*	25	20	Permitted - s11
**Sonchus oleraceus*	25	0.1	Permitted - s11
Amaranthus undulatus	25	0.1	
Threlkeldia diffusa	25	0.1	
**Cynodon dactylon*	20	5	Permitted - s11
Frankenia pauciflora	20	0.1	
Heliotropium curassavicum	20	0.5	
Cratystylis subspinescens	0.5	1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ3
Location MGA 49 773302 **mE** 7244449 **mN**

Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange



Vegetation: **Euphorbia tirucalli, Cratystylis subspinescens, and Atriplex vesicaria mid-to-low open shrubland over *Cenchrus ciliaris low tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Mid,Litter,Rabbit tracks/scats,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Euphorbia tirucalli*	110	5	Permitted - s11
Cratystylis subspinescens	100	7.5	
Rhagodia latifolia subsp. latifolia	70	0.25	
Acacia synchronicia	45	0.5	
Acacia tetragonophylla	45	0.5	
Atriplex vesicaria	42.5	5	
**Cenchrus ciliaris*	35	45	Permitted - s11
**Cenchrus setiger*	35	10	Permitted - s11
Hakea preissii	35	0.1	
Maireana appressa	35	0.1	
Scaevola spinescens	35	0.5	
**Neltuma pallida*	25	0.1	WoNS Prohibited - s12 (C2)
**Setaria verticillata*	25	0.1	Permitted - s11
**Sonchus oleraceus*	25	0.1	Permitted - s11
Frankenia pauciflora	25	0.1	
Threlkeldia diffusa	25	0.5	
**Carpobrotus aequilaterus*	15	2.5	Permitted - s11
Streptoglossa liatroides	15	0.1	
Crassula colorata var. colorata	5	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ4
Location MGA 49 773742 **mE** 7244203 **mN**



Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Dune Crest
Slope: Moderate
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange

Vegetation: *Acacia sclerosperma, Alectryon oleifolius subsp. oleifolius, and Stylobasium spathulatus mid-sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low-closed tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Mid,Litter,Rabbit tracks/scats,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Acacia sclerosperma	170	2.5	
Alectryon oleifolius subsp. oleifolius	150	5	
Solanum orbiculatum subsp. orbiculatum	110	0.1	
Stylobasium spathulatum	100	1.5	
Acacia tetragonophylla	60	0.5	
**Sisymbrium sp.*	45	0.1	Permitted - s11
Rhagodia latifolia subsp. latifolia	45	0.5	
Thryptomene dampieri subsp. dampieri	45	0.5	
Corchorus carnarvonensis	40	0.1	
**Cenchrus ciliaris*	35	60	Permitted - s11
**Cenchrus setiger*	35	15	Permitted - s11
**Sonchus oleraceus*	35	0.1	Permitted - s11
Sida rohlenae subsp. rohlenae	35	0.1	
Trichodesma zeylanicum var. zeylanicum	35	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CR5
Location MGA 49 773582 **mE** 7244219 **mN**

Described by: CM
Date: 7-04-2025
Type: Releve

Landform: Drainage line
Slope: Gentle
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange



Vegetation: *Eucalyptus victrix low woodland over Alectryon oleifolius subsp. oleifolius, Scaevola spinescens, and Rhagodia latifolia subsp. latifolia mid-open shrubland over *Cenchrus ciliaris, *Cenchrus setiger, and *Rostraria pumila low tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Mid,Historical Clearing,Infrastructure,Litter,Rabbit tracks/scat
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	400	25	
Alectryon oleifolius subsp. oleifolius	200	7.5	
**Neltuma pallida*	175	0.5	WoNS Prohibited - s12 (C2)
Exocarpos aphyllus	175	1.5	
Acacia tetragonophylla	150	0.5	
Eremophila maculata	150	0.5	
Ptilotus divaricatus	150	1	
Rhagodia latifolia subsp. latifolia	150	2.5	
Scaevola spinescens	150	7.5	
Abutilon geranioides	125	0.5	
Cratystylis subspinescens	125	0.5	
**Cenchrus ciliaris*	45	40	Permitted - s11
**Cenchrus setiger*	45	5	Permitted - s11
Acacia sclerosperma	45	0.5	
Threlkeldia diffusa	40	0.1	
**Rostraria pumila*	35	5	Permitted - s11
Cucumis variabilis	25	0.1	
Frankenia pauciflora	25	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ6
Location MGA 49 773370 **mE** 7244247 **mN**



Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange

Vegetation: *Exocarpos aphyllus, Tecticornia disarticulata and Cratystylis mid-to-low shrubland over *Cenchrus setiger and*Cenchrus ciliaris low sparse tussock grassland*

Condition: Good **Disturbance Type:** Grazing Light,Historical Clearing,Litter,Rabbit tracks/scats,Vehicle tra
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Exocarpos aphyllus	100	1.5	
Tecticornia disarticulata	70	25	
Rhagodia latifolia subsp. latifolia	65	1.5	
Cratystylis subspinescens	50	25	
**Cenchrus setiger*	45	5	Permitted - s11
**Cenchrus ciliaris*	35	1.5	Permitted - s11
Maireana appressa	30	0.1	
**Rostraria pumila*	25	0.5	Permitted - s11
**Sonchus oleraceus*	25	0.1	Permitted - s11
Atriplex codonocarpa	15	0.5	
Atriplex semilunaris	15	0.5	
Eragrostis setifolia	15	0.1	
Eragrostis dielsii	15	0.1	
Threlkeldia diffusa	15	0.1	
Crassula colorata var. colorata	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ7
Location MGA 49 773240 **mE** 7244180 **mN**



Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Dam/Drain runoff
Slope: Flat
Rock Type: Brown,Orange
Soil Type: Clay
Soil Colour: Brown,Orange

Vegetation: *Eucalyptus victrix low woodland over Acacia tetragonophylla, Scaevola spinescens and *Euphorbia tirucalli mid-to-low openshrubland over *Cenchrus ciliaris, Chenchrus setiger and Eulalia aurea low tussock grassland*

Condition: Poor **Disturbance Type:** Dog tracks/scats,Infrastructure,Litter,Rabbit tracks/scats,Vehicle track
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	450	25	
Acacia tetragonophylla	175	10	
**Cenchrus ciliaris*	150	15	Permitted - s11
**Neltuma pallida*	35	0.5	WoNS Prohibited - s12 (C2)
Exocarpos aphyllus	150	1.5	
Rhagodia latifolia subsp. latifolia	110	0.5	
Scaevola spinescens	110	5	
**Euphorbia tirucalli*	100	5	Permitted - s11
Cratystylis subspinescens	100	1.5	
Eulalia aurea	50	25	
Ptilotus divaricatus	50	0.1	
**Cenchrus setiger*	45	15	Permitted - s11
Atriplex vesicaria	45	0.1	
Cucumis variabilis	45	0.1	
Glycine canescens	45	0.1	
Hakea preissii	45	0.1	
Pluchea dunlopii	35	0.1	
**Setaria verticillata*	15	0.1	Permitted - s11
**Sonchus oleraceus*	15	0.1	Permitted - s11
Marsilea hirsuta	15	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CR8
Location MGA 49 773107 **mE** 7243894 **mN**

Described by: CM
Date: 7-04-2025
Type: Releve

Landform: Drainage line
Slope: Gentle
Rock Type: Red
Soil Type: Clay
Soil Colour: Red



Vegetation: *Eucalyptus victrix low openwoodland over *Neltuma pallida, Scaevola spinescens and Rhagodia latifolia subsp. latifolia low-to-mid shrubland over *Cenchrus ciliaris, Eulalia aurea and *Rostraria pumila low tussock grassland*

Condition: Degraded **Disturbance Type:** Cat tracks/scats,Dog tracks/scats,Grazing Mid,Litter,Rabbit tracks/sca
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	750	5	
**Neltuma pallida*	180	40	WoNS Prohibited - s12 (C2)
Acacia sclerosperma	180	0.5	
Scaevola spinescens	150	2.5	
Acacia tetragonophylla	110	0.5	
Eulalia aurea	100	10	
Rhagodia latifolia subsp. latifolia	75	1	
Striga sp.	70	0.5	
Cucumis variabilis	60	0.5	
**Cenchrus ciliaris*	45	30	Permitted - s11
**Rostraria pumila*	40	5	Permitted - s11
Marsilea hirsuta	15	0.5	
Amaranthus undulatus	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ9
Location MGA 49 772963 **mE** 7243864 **mN**



Described by: CM
Date: 7-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange

Vegetation: *Atriplex vesicaria, Cratystylis subspinescens and Rhagodia latifolia subsp. latifolia low-to-mid sparse shrubland over *Cenchrus ciliaris low-closed tussock grassland*

Condition: Degraded **Disturbance Type:** Dog tracks/scats,Grazing Mid,Litter,Rabbit tracks/scats,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Atriplex vesicaria	115	2	
**Euphorbia tirucalli*	110	0.5	Permitted - s11
Rhagodia latifolia subsp. latifolia	110	1	
Acacia tetragonophylla	100	0.5	
Cratystylis subspinescens	80	1.5	
Scaevola spinescens	80	0.5	
**Neltuma pallida*	75	0.5	WoNS Prohibited - s12 (C2)
**Cenchrus ciliaris*	45	80	Permitted - s11
**Sonchus oleraceus*	35	0.1	Permitted - s11
Salsola australis	35	0.1	
Crassula colorata var. colorata	10	0.1	
Threlkeldia diffusa	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ10
Location MGA 49 772586 **mE** 7243989 **mN**

Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Red
Soil Type: Clay
Soil Colour: Red



Vegetation: *Atriplex vesicaria, Scaevola spinescens and Acacia tetragonophylla low-to-mid sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low-closed tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Historical Clearing,Infrastructure,Litter,Rabbit tracks/sc
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Scaevola spinescens	120	0.5	
Acacia tetragonophylla	100	0.5	
Atriplex vesicaria	60	1	
Maireana appressa	40	0.1	
**Cenchrus ciliaris*	35	80	Permitted - s11
**Cenchrus setiger*	35	5	Permitted - s11
Salsola australis	35	0.1	
**Sonchus oleraceus*	25	0.1	Permitted - s11
Atriplex semilunaris	25	0.1	
**Gomphrena celosioides*	10	0.1	Permitted - s11
Crassula colorata var. colorata	5	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ11
Location MGA 49 772329 **mE** 7243733 **mN**



Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Red
Soil Type: Clay
Soil Colour: Red

Vegetation: *Acacia sclerosperma, Heliotropium curassavicum and Rhagodia latifolia subsp. latifolia low sparse shrubland over *Cenchrus ciliaris, *Rostraria pumila and *Cenchrus setiger low-closed tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Mid,Historical Clearing,Litter,Rabbit tracks/scats,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Acacia sclerosperma	110	2.5	
**Neltuma pallida*	100	0.5	WoNS Prohibited - s12 (C2)
Acacia synchronicia	100	0.5	
Heliotropium curassavicum	100	1	
Scaevola spinescens	90	0.5	
Rhagodia latifolia subsp. latifolia	75	1	
Atriplex vesicaria	60	0.5	
Maireana aphylla	60	0.5	
Enteropogon ramosus	45	1	
**Cenchrus setiger*	35	1.5	Permitted - s11
**Rostraria pumila*	35	45	Permitted - s11
**Sonchus oleraceus*	35	0.5	Permitted - s11
Maireana appressa	35	0.5	
Streptoglossa liatroides	35	1.5	
Threlkeldia diffusa	35	0.5	
**Cenchrus ciliaris*	25	60	Permitted - s11
Atriplex codonocarpa	15	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ12
Location MGA 49 772052 **mE** 7243730 **mN**



Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange

Vegetation: **Euphorbia tirucalli, Rhagodia latifolia subsp. latifolia and Acacia tetragonophylla low-to-mid soarse shrubland over *Cenchrus cillaris and *Cenchrus setiger low closed tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Litter,Rabbit tracks/scats,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Euphorbia tirucalli*	110	1	Permitted - s11
Rhagodia latifolia subsp. latifolia	110	1	
**Neltuma pallida*	90	0.5	WoNS Prohibited - s12 (C2)
Acacia tetragonophylla	80	0.5	
Scaevola spinescens	77.5	0.3	
Hakea preissii	60	1	
Atriplex vesicaria	45	0.1	
Striga sp.	45	0.1	
Maireana appressa	40	0.1	
**Cenchrus ciliaris*	35	75	Permitted - s11
**Cenchrus setiger*	35	5	Permitted - s11
Cratystylis subspinescens	35	0.1	
Enteropogon ramosus	35	0.5	
**Rostraria pumila*	25	0.5	Permitted - s11
**Sonchus oleraceus*	15	0.1	Permitted - s11
Atriplex codonocarpa	15	0.1	
Euphorbia boophthona	15	0.1	
Salsola australis	15	0.1	
**Carpobrotus aequilaterus*	10	0.1	Permitted - s11
Crassula colorata var. colorata	10	0.1	
Eragrostis dielsii	10	0.5	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ13
Location MGA 49 772088 **mE** 7243911 **mN**

Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Red,Brown
Soil Type: Clay
Soil Colour: Red,Brown



Vegetation: **Euphorbia tirucalli, Tecticornia disarticulata and Maireana aphylla low-open shrubland over *Cenchrus ciliaris, *Rostraria pumila, and *Setaria verticillata low-open tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Light,Historical Clearing,Infrastructure,Litter,Rabbit tracks/sc
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes	
**Euphorbia tirucalli*	80	5		Permitted - s11
Maireana aphylla	75	7.5		
Sclerolaena recurvicuspis	75	0.5		
Tecticornia disarticulata	75	10		
Cratystylis subspinescens	60	2.5		
Marieana ?trichoptera	50	0.5		
Enteropogon ramosus	45	5		
Rhagodia latifolia subsp. latifolia	45	1.5		
**Cenchrus ciliaris*	35	10		Permitted - s11
**Rostraria pumila*	35	7.5		Permitted - s11
Eragrostis leptocarpa	35	20		
Maireana appressa	35	0.5		
Atriplex codonocarpa	25	1		
Atriplex semilunaris	25	0.1		
Salsola australis	25	0.1		
**Setaria verticillata*	20	7.5		Permitted - s11
Polycarpaea sp.	15	0.1		

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ14
Location MGA 49 772247 **mE** 7244087 **mN**

Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Red
Soil Type: Clay
Soil Colour: Red



Vegetation: *Cratystylis subspinescens, Scaevola spinescens and Rhagodia latifolia subsp. latifolia mid-open shrubland over *Cenchrus ciliaris and *Rostraria pumila low tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Light,Historical Clearing,Litter,Rabbit tracks/scats,Vehicle tra
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	150	0.5	WoNS Prohibited - s12 (C2)
Cratystylis subspinescens	150	2.5	
Scaevola spinescens	110	5	
Rhagodia latifolia subsp. latifolia	90	10	
**Euphorbia tirucalli*	60	0.5	Permitted - s11
**Sonchus oleraceus*	45	1	Permitted - s11
Acacia tetragonophylla	45	0.5	
Threlkeldia diffusa	45	1.5	
**Cenchrus ciliaris*	35	10	Permitted - s11
**Flaveria trinervia*	35	0.5	Permitted - s11
Maireana appressa	35	0.1	
Marieana ?trichoptera	35	0.5	
**Rostraria pumila*	30	25	Permitted - s11
**Avena barbata*	25	1.5	Permitted - s11
Sclerolaena recurvicuspis	20	0.1	
**Setaria verticillata*	15	5	Permitted - s11
Atriplex codonocarpa	15	1.5	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CR15
Location MGA 49 772242 **mE** 7244256 **mN**

Described by: CM
Date: 8-04-2025
Type: Releve

Landform: Drainage line
Slope: Gentle
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange



Vegetation: *Rhagodia latifolia subsp. latifolia, Acacia tetragonophylla, and Cratystylis subspinescens mid-to-low sparse shrubland over *Cenchrus ciliaris low tussock grassland*

Condition: Degraded **Disturbance Type:** Animal (Other) tracks/scats,Grazing Mid,Historical Clearing,Litter,Rab
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Rhagodia latifolia subsp. latifolia	150	2.5	
Pluchea dunlopii	125	1	
Acacia tetragonophylla	110	5	
Cucumis variabilis	100	0.5	
Atriplex vesicaria	60	0.5	
Cratystylis subspinescens	60	2.5	
Trichodesma zeylanicum var. zeylanicum	60	0.1	
**Sonchus oleraceus*	45	0.5	Permitted - s11
**Cenchrus ciliaris*	35	60	Permitted - s11
Atriplex semilunaris	35	0.1	
Maireana appressa	35	0.1	
Ptilotus polystachyus	35	0.1	
Salsola australis	35	0.1	
**Rostraria pumila*	25	2.5	Permitted - s11
**Gomphrena celosioides*	15	0.1	Permitted - s11
Aristida contorta	15	0.5	
Atriplex codonocarpa	10	0.5	
Eragrostis dielsii	5	0.5	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CR16
Location MGA 49 772547 **mE** 7244272 **mN**

Described by: CM
Date: 8-04-2025
Type: Releve

Landform: Drainage line
Slope: Gentle
Rock Type: Brown,Red
Soil Type: Clay
Soil Colour: Brown,Red



Vegetation: **Neltuma pallida and Acacia tetragonophylla mid-open shrubland over *Cenchrus ciliaris and *Rostraria pumilla low tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Mid,Historical Clearing,Litter,Rabbit tracks/scats,Vehicle trac
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	180	2.5	WoNS Prohibited - s12 (C2)
Acacia tetragonophylla	180	25	
Abutilon geranioides	150	0.5	
Maireana aphylla	150	1.5	
Rhagodia latifolia subsp. latifolia	150	10	
Alectryon oleifolius subsp. oleifolius	125	0.5	
Cucumis variabilis	90	2.5	
Ptilotus obovatus	70	1	
**Sonchus oleraceus*	60	0.5	Permitted - s11
Ptilotus divaricatus	60	0.5	
**Rostraria pumila*	40	7.5	Permitted - s11
Enteropogon ramosus	40	0.5	
**Cenchrus ciliaris*	35	45	Permitted - s11
Sclerolaena recurvicuspis	25	0.5	
**Flaveria trinervia*	15	0.5	Permitted - s11
Atriplex semilunaris	15	0.1	
Heliotropium curassavicum	15	0.1	

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FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ17
Location MGA 49 773129 **mE** 7243655 **mN**



Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Drainage line
Slope: Gentle
Rock Type: Orange,Red
Soil Type: Clay
Soil Colour: Orange,Red

Vegetation: **Neltuma pallida , Rhagodia latifolia subsp. latifolia, and Exocarpos aphyllus mid shrubland over *Cenchrus ciliaris and *Rostraria pumila low tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Mid,Litter,Rabbit tracks/scats,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	180	5	WoNS Prohibited - s12 (C2)
Eucalyptus victrix	180	0.5	
Rhagodia latifolia subsp. latifolia	180	40	
Acacia tetragonophylla	150	1	
Exocarpos aphyllus	150	2.5	
Scaevola spinescens	150	15	
Eulalia aurea	110	5	
**Sonchus oleraceus*	100	1.5	Permitted - s11
Cratystylis subspinescens	100	1.5	
Cucumis variabilis	100	0.1	
Striga sp.	100	0.5	
Threlkeldia diffusa	90	1	
Ptilotus divaricatus	75	0.5	
**Cenchrus ciliaris*	35	25	Permitted - s11
**Rostraria pumila*	35	20	Permitted - s11
Pluchea dunlopii	35	0.5	
Ptilotus obovatus	35	0.5	
**Avena barbata*	15	0.1	Permitted - s11
**Gomphrena celosioides*	15	0.1	Permitted - s11
Amaranthus undulatus	15	0.1	
Heliotropium curassavicum	15	0.1	
Marsilea hirsuta	10	1.5	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CR18
Location MGA 49 773390 **mE** 7245011 **mN**

Described by: CM
Date: 8-04-2025
Type: Releve

Landform: Drainage line
Slope: Gentle
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange



Vegetation: *Eucalyptus victrix mid woodland over Abutilon geranioides, Rhagodia latifolia subsp. latifolia, and Scaevola spinescens mid-open shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Mid,Historical Clearing,Infrastructure,Litter,Rabbit tracks/scat
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	500	25	
Acacia sclerosperma	180	1.5	
Abutilon geranioides	150	2.5	
Exocarpos aphyllus	150	1	
Rhagodia latifolia subsp. latifolia	150	5	
Scaevola spinescens	150	2.5	
Acacia tetragonophylla	110	2.5	
Ptilotus divaricatus	80	0.5	
Alectryon oleifolius subsp. oleifolius	70	0.1	
**Sonchus oleraceus*	60	0.5	Permitted - s11
Eulalia aurea	60	0.5	
Threlkeldia diffusa	60	0.5	
**Cenchrus setiger*	40	5	Permitted - s11
**Cenchrus ciliaris*	35	60	Permitted - s11
**Rostraria pumila*	35	1	Permitted - s11
Marsilea hirsuta	15	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ19
Location MGA 49 773202 **mE** 7245128 **mN**



Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Drainage line
Slope: Gentle
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange

Vegetation: *Euclayptus victrix mid woodland over *Neltuma pallida, Acacia synchronicia, and Abutilon geranioides mid-open shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Mid,Historical Clearing,Litter,Rabbit tracks/scats,Stumps,Veh
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	500	15	
**Neltuma pallida*	180	10	WoNS Prohibited - s12 (C2)
Acacia synchronicia	175	5	
Abutilon geranioides	150	2.5	
Acacia tetragonophylla	150	1.5	
Rhagodia latifolia subsp. latifolia	125	2	
Eulalia aurea	60	0.5	
Pluchea dunlopii	60	2	
Striga sp.	60	0.5	
**Sonchus oleraceus*	45	0.25	Permitted - s11
Threlkeldia diffusa	45	0.25	
**Cenchrus ciliaris*	35	30	Permitted - s11
**Cenchrus setiger*	35	20	Permitted - s11
**Rostraria pumila*	35	1	Permitted - s11
Alectryon oleifolius subsp. oleifolius	35	0.1	
Exocarpos aphyllus	35	0.1	
Salsola australis	30	0.1	
Marieana ?trichoptera	25	0.5	
Roepera sp.	20	0.1	
Atriplex codonocarpa	15	0.1	
Marsilea hirsuta	15	0.1	
Trichodesma zeylanicum var. zeylanicum	15	0.1	
Heliotropium curassavicum	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ20
Location MGA 49 773180 **mE** 7244857 **mN**



Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Drainage line
Slope: Gentle
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange

Vegetation: *Eucalyptus victrix mid woodland over *Neltuma pallida, Abultilon geranioides, Exocarpos aphyllus mid-open shrubland over *Cenchrus setiger and *Rostraria pumila low open tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Light,Historical Clearing,Litter,Rabbit tracks/scats,Trunks,Vel
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Eucalyptus victrix	400	15	
**Neltuma pallida*	180	7.5	WoNS Prohibited - s12 (C2)
**Euphorbia tirucalli*	150	1	Permitted - s11
Abutilon geranioides	150	2.5	
Cratystylis subspinescens	150	1.5	
Exocarpos aphyllus	150	2.5	
Acacia sclerosperma	110	2.5	
Rhagodia latifolia subsp. latifolia	110	10	
Acacia tetragonophylla	75	0.5	
Eulalia aurea	75	0.1	
**Sonchus oleraceus*	50	0.5	Permitted - s11
Atriplex vesicaria	50	5	
Alectryon oleifolius subsp. oleifolius	45	0.1	
Maireana aphylla	45	0.1	
Scaevola spinescens	45	0.5	
**Cenchrus ciliaris*	30	0.1	Permitted - s11
**Cenchrus setiger*	35	20	Permitted - s11
**Rostraria pumila*	35	5	Permitted - s11
Eragrostis leptocarpa	35	1.5	
Marieana ?trichoptera	35	0.5	
Striga sp.	35	0.3	
Atriplex semilunaris	25	0.1	
Salsola australis	25	0.1	
Atriplex codonocarpa	15	0.1	
Heliotropium curassavicum	15	0.1	
Marsilea hirsuta	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ21
Location MGA 49 773040 **mE** 7244978 **mN**



Described by: CM
Date: 8-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: None
Soil Type: Clay
Soil Colour: Brown,Red

Vegetation: *Acacia sclerosperma, Rhagodia latifolia subsp. latifolia, and Acacia tetragonophylla mid-sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Litter,Rabbit tracks/scats,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Acacia sclerosperma	150	1.5	
Rhagodia latifolia subsp. latifolia	150	2.5	
Acacia tetragonophylla	110	1.5	
Scaevola spinescens	110	1.5	
**Sonchus oleraceus*	60	0.5	Permitted - s11
**Cenchrus ciliaris*	35	35	Permitted - s11
**Cenchrus setiger*	35	25	Permitted - s11
Atriplex vesicaria	35	0.1	
Ptilotus divaricatus	35	0.1	
Salsola australis	35	0.1	
Threlkeldia diffusa	30	0.1	
**Setaria verticillata*	25	5	Permitted - s11
Atriplex semilunaris	25	1	
Roepera sp.	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ22
Location MGA 49 772031 **mE** 7245189 **mN**

Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: None
Soil Type: Clay,Sand
Soil Colour: Red



Vegetation: **Neltuma palida, *Eucphorbia tirucalli, and Atriplex vesicaria mid-to-low open shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Litter,Rabbit tracks/scats,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	180	5	WoNS Prohibited - s12 (C2)
Alectryon oleifolius subsp. oleifolius	175	0.5	
Acacia synchronicia	150	1.5	
**Euphorbia tirucalli*	110	7.5	Permitted - s11
Hakea preissii	110	0.5	
Atriplex vesicaria	60	5	
Maireana appressa	50	1.5	
Rhagodia latifolia subsp. latifolia	50	0.5	
**Sonchus oleraceus*	45	0.1	Permitted - s11
**Cenchrus ciliaris*	35	60	Permitted - s11
**Cenchrus setiger*	35	5	Permitted - s11
Acacia sclerosperma	35	0.1	
**Carpobrotus aequilaterus*	25	0.1	Permitted - s11
**Setaria verticillata*	25	0.1	Permitted - s11
Atriplex semilunaris	600	0.5	
Sclerolaena recurvicuspis	25	0.1	
**Gomphrena celosioides*	15	0.1	Permitted - s11
Atriplex codonocarpa	15	0.1	
Frankenia pauciflora	15	0.1	
Threlkeldia diffusa	15	0.1	
**Mesembryanthemum crystallinum*	10	0.1	Permitted - s11
Crassula colorata var. colorata	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ23
Location MGA 49 771977 **mE** 7245002 **mN**

Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Red
Soil Type: Clay,Sand
Soil Colour: Red



Vegetation: *Rhagodia latifolia subsp. latifolia, Acacia tetragonophylla, and Cratystylis subspinescens mid sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Poor **Disturbance Type:** Grazing Light,Litter,Rabbit tracks/scats,Vehicle tracks,Weeds
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Rhagodia latifolia subsp. latifolia	180	10	
Acacia tetragonophylla	175	2.5	
Cratystylis subspinescens	125	1.5	
**Euphorbia tirucalli*	110	5	Permitted - s11
Abutilon geranioides	110	0.5	
Alectryon oleifolius subsp. oleifolius	110	0.5	
Exocarpos aphyllus	110	1	
Maireana aphylla	100	1	
Hakea preissii	70	0.5	
Ptilotus divaricatus	60	0.1	
Atriplex vesicaria	52.5	4.25	
**Sonchus oleraceus*	45	0.5	Permitted - s11
Marieana ?trichoptera	45	0.5	
**Cenchrus ciliaris*	35	60	Permitted - s11
**Cenchrus setiger*	35	5	Permitted - s11
**Rostraria pumila*	35	0.5	Permitted - s11
**Setaria verticillata*	25	0.5	Permitted - s11
Atriplex semilunaris	25	0.5	
Frankenia pauciflora	25	0.1	
**Gomphrena celosioides*	10	0.1	Permitted - s11
Atriplex codonocarpa	10	0.1	
**Mesembryanthemum crystallinum*	5	0.5	Permitted - s11

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ24
Location MGA 49 772031 **mE** 7244617 **mN**

Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange,Red
Soil Type: Clay,Sand
Soil Colour: Orange,Red



Vegetation: *Rhagodia latifolia subsp. latifolia and Scaevola spinescens mid sparse shrubland over *Cenchrus ciliaris, *Avena barbata and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Grazing Light,Historical Clearing,Litter,Rabbit tracks/scats,Vehicle tra
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Rhagodia latifolia subsp. latifolia	150	7.5	
Scaevola spinescens	110	2.5	
**Euphorbia tirucalli*	60	0.5	Permitted - s11
**Avena barbata*	45	15	Permitted - s11
**Sonchus oleraceus*	45	2.5	Permitted - s11
Ptilotus polystachyus	45	0.1	
Trichodesma zeylanicum var. zeylanicum	45	0.1	
**Cenchrus ciliaris*	35	35	Permitted - s11
**Cenchrus setiger*	35	5	Permitted - s11
**Rostraria pumila*	35	10	Permitted - s11
Atriplex codonocarpa	35	5	
Atriplex semilunaris	35	5	
Marieana ?trichoptera	35	0.5	
**Setaria verticillata*	25	1	Permitted - s11

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CR25
Location MGA 49 772447 **mE** 7244761 **mN**

Described by: CM
Date: 9-04-2025
Type: Releve

Landform: Drainage line
Slope: Gentle
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange



Vegetation: *Exocarpos aphyllus, Rhagodia latifolia subsp. latifolia, and Acacia tetragonophylla mid-sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Cat tracks/scats,Dog tracks/scats,Grazing Light,Litter,Rabbit tracks/s
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Euphorbia tirucalli*	150	0.5	Permitted - s11
Exocarpos aphyllus	150	2.5	
Rhagodia latifolia subsp. latifolia	150	5	
Acacia tetragonophylla	110	1.5	
Alectryon oleifolius subsp. oleifolius	110	0.5	
Atriplex vesicaria	60	1.25	
Marieana ?trichoptera	60	0.5	
Scaevola spinescens	60	1.5	
**Sonchus oleraceus*	45	0.5	Permitted - s11
Ptilotus divaricatus	45	0.1	
**Cenchrus ciliaris*	35	35	Permitted - s11
**Cenchrus setiger*	35	10	Permitted - s11
**Setaria verticillata*	35	2	Permitted - s11
Cucumis variabilis	35	0.1	
Ptilotus obovatus	35	0.5	
Eragrostis leptocarpa	30	0.1	
Atriplex codonocarpa	15	1	
Marsilea hirsuta	15	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ26
Location MGA 49 772795 **mE** 7244637 **mN**

Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Red
Soil Type: Clay
Soil Colour: Red



Vegetation: *Rhagodia latifolia subsp. latifolia, Scaevola spinescens, and Acacia tetragonophylla mid sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low tussock grassland*

Condition: Degraded **Disturbance Type:** Cat tracks/scats,Dog tracks/scats,Grazing Light,Historical Clearing,Ra
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Rhagodia latifolia subsp. latifolia	180	5	
Scaevola spinescens	110	2.5	
Acacia tetragonophylla	100	5	
**Cylindropuntia aff. fulgida*	60	0.1	WoNS Declared Pest - s22(2) (C3)
**Avena barbata*	45	10	Permitted - s11
**Sonchus oleraceus*	45	0.5	Permitted - s11
Salsola australis	45	0.5	
Trichodesma zeylanicum var. zeylanicum	45	0.1	
**Cenchrus ciliaris*	35	35	Permitted - s11
**Cenchrus setiger*	35	10	Permitted - s11
**Euphorbia tirucalli*	35	0.5	Permitted - s11
**Flaveria trinervia*	35	0.25	Permitted - s11
**Rostraria pumila*	35	1.5	Permitted - s11
Atriplex semilunaris	25	1.5	
Euphorbia tannensis subsp. eremophila	20	0.1	
**Gomphrena celosioides*	15	0.1	Permitted - s11
Atriplex codonocarpa	15	1.5	
Sida kingii	15	0.1	
Abutilon oxycarpum	10	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ27
Location MGA 49 773013 **mE** 7244439 **mN**



Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Brown,Red
Soil Type: Clay,Sand
Soil Colour: Brown,Red

Vegetation: **Neltuma pallida, Rhagodia latifolia subsp. latifolia, and Acacia sclerosperma mid-sparse shrubland over *Cenchrus ciliaris, *Cenchrus setiger, and *Rostraria pumila low tussock grassland*

Condition: Degraded **Disturbance Type:** Cat tracks/scats,Dog tracks/scats,Grazing Light,Historical Clearing,Li
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	180	1.5	WoNS Prohibited - s12 (C2)
Rhagodia latifolia subsp. latifolia	150	2.5	
Acacia sclerosperma	125	1.5	
Maireana aphylla	110	1.5	
**Sonchus oleraceus*	60	1.5	Permitted - s11
Scaevola spinescens	60	1.5	
Ptilotus polystachyus	50	0.1	
Acacia tetragonophylla	40	0.1	
**Cenchrus ciliaris*	35	35	Permitted - s11
**Cenchrus setiger*	35	10	Permitted - s11
**Malvastrum americanum*	35	0.1	Permitted - s11
**Rostraria pumila*	35	15	Permitted - s11
Maireana appressa	35	0.5	
Marieana ?trichoptera	35	0.5	
Threlkeldia diffusa	35	0.1	
**Setaria verticillata*	25	2.5	Permitted - s11
Atriplex semilunaris	25	0.5	
Atriplex codonocarpa	15	0.5	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ28
Location MGA 49 772338 **mE** 7245122 **mN**

Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange,Red
Soil Type: Clay,Sand
Soil Colour: Orange,Red



Vegetation: *Rhagodia latifolia subsp. latifolia low sparse shrubland over *Cenchrus ciliaris and *Cenchrus setiger low closed tussock grassland*

Condition: Degraded **Disturbance Type:** Cat tracks/scats,Dog tracks/scats,Grazing Light,Historical Clearing,Li
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
Rhagodia latifolia subsp. latifolia	150	5	
Marieana ?trichoptera	80	0.1	
Threlkeldia diffusa	50	0.1	
**Sonchus oleraceus*	45	0.5	Permitted - s11
**Avena barbata*	35	2	Permitted - s11
**Cenchrus ciliaris*	35	70	Permitted - s11
**Cenchrus setiger*	35	5	Permitted - s11
**Setaria verticillata*	35	1.5	Permitted - s11
Salsola australis	35	0.1	
Scaevola spinescens	25	0.1	
Atriplex semilunaris	20	0.1	
Atriplex vesicaria	20	0.1	
Sclerolaena recurvicuspis	20	0.1	
Atriplex codonocarpa	15	2	
Cratystylis subspinescens	15	0.1	

FLORA SITE SHEET

Project Name Carnarvon Decarbonisation Project
Site: CQ29
Location MGA 49 773490 **mE** 7244277 **mN**

Described by: CM
Date: 9-04-2025
Type: Quadrat

Landform: Floodplain
Slope: Flat
Rock Type: Orange
Soil Type: Clay,Sand
Soil Colour: Orange



Vegetation: **Neltuma pallida, Cratystylis subspinescens and Tecticornia disaticulata mid-to-low open shrubland over *Cenchrus ciliaris low sparse tussock grassland*

Condition: Poor **Disturbance Type:** Cat tracks/scats,Dog tracks/scats,Grazing Light,Historical Clearing,In
Fire Age: >10 years

SPECIES LIST

Taxon	Height (cm)	Cover (%)	Notes
**Neltuma pallida*	180	2.5	WoNS Prohibited - s12 (C2)
Cratystylis subspinescens	100	15	
Exocarpos aphyllus	75	2.5	
Rhagodia latifolia subsp. latifolia	60	7.5	
Tecticornia disarticulata	55	12.75	
**Cenchrus ciliaris*	35	10	Permitted - s11
**Cenchrus setiger*	35	1	Permitted - s11
Atriplex vesicaria	35	0.5	
Maireana appressa	35	0.1	
Atriplex codonocarpa	25	1	
Marieana ?trichoptera	25	1	
Sclerolaena recurvicuspis	20	0.5	
**Carpobrotus aequilaterus*	15	0.1	Permitted - s11
Atriplex semilunaris	15	0.5	
Threlkeldia diffusa	15	0.1	

Appendix G Fauna Taxa Recorded in Database Searches

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

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/CE - 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, Field - Recorded during the current field survey.

Literature: A - Synergy Site (North), Denham: Flora and Fauna Report (360 Environmental Pty Ltd, 2019)

Literature: B - Shire of Shark Bay Site, Denham: Flora and Fauna Report (360 Environmental Pty Ltd, 2019)

Literature: C - Water Corporation Site, Denham: Flora and Fauna Report (360 Environmental Pty Ltd, 2019)

Family	Scientific Name	Common Name	Conservation Status		Database			Field	Literature		
			State	Commonwealth	NM	PMST	DBCA		A	B	C
Amphibians											
Limnodynastidae	*Neobatrachus fulvus*	Tawny Trilling Frog	-	-	17						
Limnodynastidae	*Neobatrachus sutor*	Shoemaker Frog	-	-	61						
Limnodynastidae	*Neobatrachus wilsmorei*	Plonking Frogs	-	-	70						
Limnodynastidae	*Platyplectrum spenceri*	Centralian Burrowing Frog	-	-	5						
Myobatrachidae	*Uperoleia russelli*	Northwest Toadlet	-	-	27						
Pelodryadidae	*Cyclorana maini*	Sheep Frog	-	-	9						
Pelodryadidae	*Cyclorana occidentalis*	Western Water-holding Frog	-	-	2						
Pelodryadidae	*Litoria rubella*	Little Red Tree Frog	-	-	20						
Birds											
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill, Broad-tailed Thornbill	-	-	4						
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	-	-	3						
Acanthizidae	*Acanthiza iredalei*	Samphire Thornbill, Slender-billed Thornbill	-	-	37						
Acanthizidae	*Acanthiza uropygialis*	Chestnut-rumped Thornbill	-	-	38						
Acanthizidae	*Aphelocephala leucopsis*	Southern Whiteface	-	VU	28	1					
Acanthizidae	*Calamanthus campestris*	Rufous Fieldwren	-	-	110						
Acanthizidae	*Gerygone fusca*	Western Gerygone	-	-	10						
Acanthizidae	*Gerygone tenebrosa*	Dusky Gerygone	-	-	75						
Acanthizidae	*Pyrrholaemus brunneus*	Redthroat	-	-	72			2			
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren	-	-	16				x	x	x
Acanthizidae	*Smicrornis brevirostris*	Weebill	-	-	23						
Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk	-	-	74						
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	-	MA	62						

Accipitridae	*Aquila audax*	Wedge-tailed Eagle	-	-	198				x	x	x
Accipitridae	*Circus approximans*	Swamp Harrier	-	MA	90						
Accipitridae	*Circus assimilis*	Spotted Harrier	-	-	66						
Accipitridae	*Elanus axillaris*	Black-shouldered Kite	-	-	78			3			
Accipitridae	*Erythrotriorchis radiatus*	Red Goshawk	VU	EN		1					
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-eagle	-	MA	93				x	x	x
Accipitridae	*Haliastur indus*	Brahminy Kite	-	MA	117						
Accipitridae	*Haliastur sphenurus*	Whistling Kite	-	MA	694			1			
Accipitridae	*Hamirostra melanosternon*	Black-breasted Buzzard	-	-	31						
Accipitridae	*Hieraaetus morphnoides*	Little Eagle	-	-	55						
Accipitridae	*Lophoictinia isura*	Square-tailed Kite	-	-	2						
Accipitridae	*Milvus migrans*	Black Kite	-	-	75						
Acrocephalidae	*Acrocephalus australis*	Australian Reed Warbler	-	MA	107						
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	-	-	18						
Alaudidae	*Mirafra javanica*	Horsfield's Bush Lark	-	-	13						
Alcedinidae	*Dacelo leachii*	Blue-winged Kookaburra	-	-	134						
Alcedinidae	*Todiramphus chloris*	Collared Kingfisher	-	-	3						
Alcedinidae	*Todiramphus pyrrhopygius*	Red-backed Kingfisher	-	-	56						
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher	-	MA	216						
Anatidae	*Anas castanea*	Chestnut Teal	-	-	10						
Anatidae	*Anas gracilis*	Grey Teal	-	-	560				x	x	x
Anatidae	*Anas platyrhynchos*	Mallard	-	-	1						
Anatidae	*Anas superciliosa*	Pacific Black Duck	-	-	506						
Anatidae	*Aythya australis*	Hardhead	-	-	190						
Anatidae	*Biziura lobata*	Musk Duck	-	MA	39						
Anatidae	*Chenonetta jubata*	Australian Wood Duck, Wood Duck, Maned Duck	-	-	195						
Anatidae	*Cygnus atratus*	Black Swan	-	-	273						
Anatidae	*Dendrocygna arcuata*	Wandering Whistling Duck, Chestnut Whistling Duck	-	MA	20						
Anatidae	*Dendrocygna eytoni*	Plumed Whistling Duck	-	-	95						
Anatidae	*Malacorhynchus membranaceus*	Pink-eared Duck	-	-	184						
Anatidae	*Spatula rhynchotis*	Australasian Shoveler	-	-	36						
Anatidae	*Stictonetta naevosa*	Freckled Duck	-	-	6						
Anatidae	*Tadorna tadornoides*	Australian Shelduck, Mountain Duck	-	-	89				x	x	x
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter	-	-	155						
Apodidae	*Apus pacificus*	Pacific Swift, Fork-tailed Swift	MI	MI, MA	5	1	6				
Ardeidae	*Ardea alba modesta*	Eastern Grey Egret	-	MA	578						

Ardeidae	*Ardea intermedia*	Intermediate Egret	-	-	7						
Ardeidae	*Ardea pacifica*	White-necked Heron	-	-	138						
Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	EN	EN			1				
Ardeidae	*Bubulcus coromandus*	Eastern Cattle Egret	-	-	17						
Ardeidae	*Butorides striata*	Striated Heron Mangrove Heron	-	-	46						
Ardeidae	*Egretta garzetta*	Little Egret	-	MA	226						
Ardeidae	*Egretta novaehollandiae*	White-faced Heron	-	-	265						
Ardeidae	*Egretta sacra*	Eastern Reef Heron, Pacific Reef Heron	-	MA	26						
Ardeidae	*Ixobrychus flavicollis*	Black Bittern	-	-	1						
Ardeidae	*Nycticorax caledonicus*	Nankeen Night Heron, Rufous Night Heron	-	MA	26						
Artamidae	*Artamus cinereus*	Black-faced Woodswallow	-	-	84						
Artamidae	*Artamus leucorynchus*	White-breasted Woodswallow	-	-	92						
Artamidae	*Artamus personatus*	Masked Woodswallow	-	-	30						
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird	-	-	349						
Artamidae	*Cracticus torquatus*	Grey Butcherbird	-	-	8						
Artamidae	*Gymnorhina tibicen*	Australian Magpie	-	-	55						
Artamidae	*Melloria quoyi*	Black Butcherbird	-	-	1						
Burhinidae	*Esacus magnirostris*	Beach Stone-curlew, Beach Thick-knee	-	MA	1						
Cacatuidae	*Cacatua sanguinea*	Little Corella	-	-	290						
Cacatuidae	*Eolophus roseicapilla*	Galah	-	-	286				x	x	x
Cacatuidae	*Nymphicus hollandicus*	Cockatiel	-	-	110						
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike	-	MA	535			1	x	x	x
Campephagidae	*Lalage tricolor*	White-winged Triller	-	-	1						
Caprimulgidae	*Eurostopodus argus*	Spotted Nightjar	-	MA	2						
Casuariidae	*Dromaius novaehollandiae*	Emu	-	-	86			1	x	x	x
Charadriidae	*Anarhynchus leschenaultii*	Greater Sand Plover	VU	VU, MI, MA	365	2	270				
Charadriidae	*Anarhynchus mongolus*	Siberian Sand Plover	-	EN, MI, MA	72		69				
Charadriidae	*Anarhynchus ruficapillus*	Red-capped Plover	-	MA	439						
Charadriidae	*Anarhynchus veredus*	Oriental Plover	MI	MI, MA	13	1	8				
Charadriidae	*Charadrius dubius*	Little Ringed Plover	MI	MI, MA	6		7				
Charadriidae	*Charadrius melanops*	Black-fronted Dotterel	-	-	483						
Charadriidae	*Erythrogonys cinctus*	Red-kneed Dotterel	-	-	233						
Charadriidae	*Pluvialis fulva*	Pacific Golden Plover	MI	MI, MA	46		45				
Charadriidae	*Pluvialis squatarola*	Grey Plover	MI	VU, MI, MA	251	2	189				

Charadriidae	*Vanellus miles*	Masked Lapwing	-	-	1						
Charadriidae	*Vanellus tricolor*	Banded Lapwing	-	-	74						
Cinclosomatidae	*Cinclosoma marginatum*	Western Quail-thrush	-	-	1						
Climacteridae	*Climacteris melanurus*	Black-tailed Treecreeper	-	-	14						
Columbidae	*Columba livia*	Domestic Pigeon, Rock Dove	-	-	171						
Columbidae	*Geopelia cuneata*	Diamond Dove	-	-	294						
Columbidae	*Geopelia striata*	Zebra Dove	-	-	249						
Columbidae	*Geopelia striata placida*	Peaceful Dove	-	-	2						
Columbidae	*Geophaps plumifera*	Spinifex Pigeon	-	-	5						
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	-	-	408			13			
Columbidae	*Phaps chalcoptera*	Common Bronzewing	-	-	14						
Columbidae	*Spilopelia senegalensis*	Laughing Turtle Dove	-	-	334				x	x	x
Coraciidae	*Eurystomus orientalis*	Oriental Dollarbird	-	MA	2						
Corvidae	*Corvus bennetti*	Little Crow	-	-	783			5	x	x	x
Corvidae	*Corvus coronoides*	Australian Raven	-	-	4						
Corvidae	*Corvus orru*	Torresian Crow	-	-	130				x	x	x
Cuculidae	*Chalcites basalis*	Horsfield's Bronze Cuckoo	-	MA	2			1			
Cuculidae	*Chalcites osculans*	Black-eared Cuckoo	-	MA	1						
Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo	-	MA	37						
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird	-	-	54						
Diomedeidae	*Thalassarche carteri*	Indian Yellow-nosed Albatross	EN	VU, MI, MA		2					
Diomedeidae	*Thalassarche cauta*	Shy Albatross	VU	EN, MI, MA		2					
Diomedeidae	*Thalassarche cauta steadi*	White-capped Albatross	VU	VU, MI, MA		2					
Diomedeidae	*Thalassarche chlororhynchos*	Atlantic Yellow-nosed Albatross	VU	MI, MA			1				
Diomedeidae	*Thalassarche impavida*	Campbell Island Albatross	VU	VU, MI, MA		2					
Diomedeidae	*Thalassarche melanophris*	Black-browed Albatross	EN	VU, MI, MA		2					
Estrildidae	*Emblema pictum*	Painted Finch	-	-	1						
Estrildidae	*Neochmia ruficauda*	Star Finch	-	-	92						
Estrildidae	*Taeniopygia castanotis*	Australian Zebra Finch	-	-	688			44	x	x	x
Falconidae	*Falco berigora*	Brown Falcon	-	-	43				x	x	x
Falconidae	*Falco cenchroides*	Nankeen Kestral	-	MA	517			2	x	x	x
Falconidae	*Falco hypoleucos*	Grey Falcon	VU	VU	4	1	5				
Falconidae	*Falco longipennis*	Australian Hobby	-	-	73						
Falconidae	*Falco peregrinus*	Peregrine Falcon	OS	-	14		16				
Falconidae	*Falco subniger*	Black Falcon	-	-	1						
Fregatidae	*Fregata ariel*	Lesser Frigatebird	MI	MI, MA	1	1	1				
Glareolidae	*Glareola maldivarum*	Oriental Pratincole	MI	MI, MA	12		12				

Glareolidae	*Stiltia isabella*	Australian Pratincole	-	MA	4						
Gruidae	*Antigone rubicunda*	Brolga	-	-	1						
Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher	-	-	2						
Haematopodidae	*Haematopus longirostris*	Pied Oystercatcher	-	-	226						
Hirundinidae	*Cheramoeca leucosterna*	White-backed Swallow	-	-	92			1			
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	-	MA	298			2	x	x	x
Hirundinidae	*Hirundo rustica*	Barn Swallow	MI	MI, MA	1	1	1				
Hirundinidae	*Petrochelidon ariel*	Fairy Martin	-	-	90						
Hirundinidae	*Petrochelidon nigricans*	Tree Martin	-	MA	473				x	x	x
Laridae	*Anous stolidus*	Common Noddy, Brown Noddy	MI	MI, MA		1					
Laridae	*Anous tenuirostris melanops*	Australian Lesser Noddy	EN	VU, MA		1					
Laridae	*Chlidonias leucopterus*	White-winged Black Tern	MI	MI, MA	17		11				
Laridae	*Chroicocephalus novaehollandiae*	Silver Gull	-	-	348				x	x	x
Laridae	*Gelochelidon macrotarsa*	Australian Gull-billed Tern	-	-	2						
Laridae	*Gelochelidon nilotica*	Gull-billed Tern	MI	MI, MA	83		83				
Laridae	*Hydroprogne caspia*	Caspian Tern	MI	MI, MA	417	1	307				
Laridae	*Larus dominicanus*	Kelp Gull	-	MA	1						
Laridae	*Larus pacificus*	Pacific Gull	-	MA	186						
Laridae	*Onychoprion anaethetus*	Bridled Tern	MI	MI, MA	2		1				
Laridae	*Sterna dougallii*	Roseate Tern	MI	MI, MA	9	1	9				
Laridae	*Sterna hirundo*	Common Tern	MI	MI, MA	35		22				
Laridae	*Sternula albifrons*	Little Tern	MI	MI, MA	40	1	10				
Laridae	*Sternula nereis*	Fairy Tern	-	MA	52						
Laridae	*Sternula nereis nereis*	Australian Fairy Tern	VU	VU		1					
Laridae	*Thalasseus bengalensis*	Lesser Crested Tern	-	MA	43						
Laridae	*Thalasseus bergii*	Greater Crested Tern, Crested Tern	MI	MI, MA	360		287				
Locustellidae	*Cincloramphus cruralis*	Brown Songlark	-	-	169						
Locustellidae	*Cincloramphus mathewsi*	Rufous Songlark	-	-	254						
Locustellidae	*Poodytes gramineus*	Little Grassbird	-	-	54						
Maluridae	*Amytornis textilis*	Thick-billed Grasswren	-	-	1						
Maluridae	*Amytornis textilis textilis*	Western Grasswren	P4	-	2		1				
Maluridae	*Malurus assimilis*	Purple-backed Fairywren	-	-	349				x	x	x
Maluridae	*Malurus leucopterus*	White-winged Fairywren	-	-	415			7	x	x	x
Maluridae	*Malurus leucopterus leucopterus*	Dirk Hartog Island Black And White Fairywren	VU	VU	2						
Maluridae	*Malurus splendens*	Splendid Fairywren	-	-	61						

Megapodiidae	*Leipoa ocellata*	Malleefowl	VU	VU	3	1	3				
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	-	-	178						
Meliphagidae	*Certhionyx variegatus*	Pied Honeyeater	-	-	83						
Meliphagidae	*Epthianura albifrons*	White-fronted Chat	-	-	40						
Meliphagidae	*Epthianura aurifrons*	Orange Chat	-	-	38						
Meliphagidae	*Epthianura crocea*	Yellow Chat	-	-	1						
Meliphagidae	*Epthianura tricolor*	Crimson Chat	-	-	108						
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater	-	-	698			12	x	x	x
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater	-	-	26						
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner	-	-	85						
Meliphagidae	*Ptilotula keartlandi*	Grey-headed Honeyeater	-	-	1						
Meliphagidae	*Ptilotula penicillata*	White-plumed Honeyeater	-	-	1						
Meliphagidae	*Ptilotula penicillata*	White-plumed Honeyeater	-	-	1						
Meliphagidae	*Purnella albifrons*	White-fronted Honeyeater	-	-	18						
Meliphagidae	*Sugomel nigrum*	Black Honeyeater	-	-	11						
Meropidae	*Merops ornatus*	Rainbow Bee-eater	-	MA	286						
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	-	MA	665			1			
Motacillidae	*Anthus australis*	Australian Pipit	-	MA	3			2			
Motacillidae	*Motacilla cinerea*	Grey Wagtail	MI	MI, MA		1					
Motacillidae	*Motacilla tschutschensis*	Eastern Yellow Wagtail	MI	MI, MA		1					
Oceanitidae	*Oceanites oceanicus*	Wilson's Storm Petrel	MI	MI, MA	2		4				
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird	-	-	117						
Otididae	*Ardeotis australis*	Australian Bustard	-	-	14						
Pachycephalidae	*Colluricincla harmonica*	Grey Shrikethrush	-	-	280						
Pachycephalidae	*Pachycephala lanioides*	White-breasted Whistler	-	-	17						
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler	-	-	83						
Pandionidae	*Pandion haliaetus*	Osprey	MI	MI, MA		1	85				
Pandionidae	*Pandion haliaetus cristatus*	Eastern Osprey	-	-	92						
Pardalotidae	*Pardalotus rubricatus*	Red-browed Pardalote	-	-	14						
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	-	-	16						
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican	-	MA	378				x	x	x
Petroicidae	*Melanodryas cucullata*	Hooded Robin	-	-	4						
Petroicidae	*Petroica goodenovii*	Red-capped Robin	-	-	76						
Phaethontidae	*Phaethon lepturus*	White-tailed Tropicbird	MI	MI, MA		1					
Phaethontidae	*Phaethon rubricauda*	Red-tailed Tropicbird	MI, P4	MI, MA			1				
Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant	-	-	152						
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	-	-	29						
Phalacrocoracidae	*Phalacrocorax fuscescens*	Black-faced Cormorant	-	MA	1						
Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant	-	-	415						

Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant, Australian Pied Cormorant	-	-	217						
Phasianidae	*Coturnix pectoralis*	Stubble Quail	-	MA	63			1			
Phasianidae	*Synoicus ypsilophorus*	Brown Quail	-	-	22						
Podargidae	*Podargus strigoides*	Tawny Frogmouth	-	-	10						
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	-	-	16						
Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe	-	-	119						
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe, Black-throated Grebe	-	-	238						
Pomatostomidae	*Pomatostomus superciliosus*	White-browed Babbler	-	-	169				x	x	x
Pomatostomidae	*Pomatostomus temporalis*	Grey-crowned Babbler	-	-	37						
Procellariidae	*Ardenna carneipes*	Flesh-footed Shearwater	VU	MI, MA		1	1				
Procellariidae	*Ardenna pacifica*	Wedge-tailed Shearwater	MI	MI, MA			2				
Procellariidae	*Daption capense*	Cape Petrel	-	MA	1						
Procellariidae	*Macronectes giganteus*	Southern Giant Petrel	MI	EN, MI, MA	2	2	3				
Procellariidae	*Macronectes halli*	Northern Giant Petrel	MI	VU, MI, MA		2					
Procellariidae	*Pterodroma mollis*	Soft-plumaged Petrel	-	VU, MA		1					
Psittaculidae	*Aprosmictus erythropterus*	Red-winged Parrot	-	-	1						
Psittaculidae	*Barnardius zonarius*	Australian Ringneck	-	-	138						
Psittaculidae	*Barnardius zonarius zonarius*	Port Lincoln Parrot	-	-	1						
Psittaculidae	*Melopsittacus undulatus*	Budgerigar	-	-	213			1			
Psittaculidae	*Neophema elegans*	Elegant Parrot	-	-	2						
Psittaculidae	*Pezoporus occidentalis*	Night Parrot	CR	EN		1					
Psittaculidae	*Psephotellus varius*	Mulga Parrot	-	-	1						
Psophodidae	*Psophodes occidentalis*	Western Wedgebill, Chiming Wedgebill	-	-	361				x	x	x
Rallidae	*Fulica atra*	Eurasian Coot	-	-	282						
Rallidae	*Gallinula tenebrosa*	Dusky Moorhen	-	-	3						
Rallidae	*Hypotaenidia philippensis*	Buff-banded Rail	-	MA	18						
Rallidae	*Porphyrio melanotus*	Australasian Swamphen	-	MA	4						
Rallidae	*Porzana fluminea*	Australian Spotted Crake, Australian Crake	-	-	42						
Rallidae	*Tribonyx ventralis*	Black-tailed Native-hen	-	-	140						
Rallidae	*Zapornia pusilla*	Baillon's Crake	-	MA	11						
Rallidae	*Zapornia tabuensis*	Spotless Crake	-	MA	18						
Recurvirostridae	*Cladorhynchus leucocephalus*	Banded Stilt	-	-	56						
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	-	MA	449				x	x	x
Recurvirostridae	*Recurvirostra novaehollandiae*	Red-necked Avocet	-	MA	88						
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	-	-	59						

Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	-	-	306						
Rhipiduridae	*Rhipidura phasiana*	Mangrove Grey Fantail, Mangrove Fantail	-	-	112						
Rostratulidae	*Rostratula australis*	Australian Painted Snipe	EN	EN, MA	29	1	29				
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI	MI, MA	443	1	413				
Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	MI	VU, MI, MA	72	2	73				
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	MI	VU, MI, MA	155	2	145				
Scolopacidae	*Calidris alba*	Sanderling	MI	MI, MA	174	1	107				
Scolopacidae	*Calidris canutus*	Red Knot	EN	VU, MI, MA	181	2	128				
Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	MI	MI, MA	11		6				
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR	CE, MI, MA	254	2	206				
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI	MI, MA	5	1	5				
Scolopacidae	*Calidris minuta*	Little Stint	-	MA	1						
Scolopacidae	*Calidris pugnax*	Ruff	MI	MI, MA	8		9				
Scolopacidae	*Calidris ruficollis*	Red-necked Stint	MI	MI, MA	416	1	343				
Scolopacidae	*Calidris subminuta*	Long-toed Stint	MI	MI, MA	47		52				
Scolopacidae	*Calidris tenuirostris*	Great Knot	CR	VU, MI, MA	247	2	167				
Scolopacidae	*Limnodromus semipalmatus*	Asian Dowitcher	MI	VU, MI, MA	8	2	8				
Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	MI	MI, MA	423	1	344				
Scolopacidae	*Limosa lapponica menzbieri*	Bar-tailed Godwit	CR	EN	2	1	2				
Scolopacidae	*Limosa limosa*	Black-tailed Godwit	MI	EN, MI, MA	26	2	30				
Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew, Eastern Curlew	CR	CE, MI, MA	227	2	217				
Scolopacidae	*Numenius minutus*	Little Curlew	MI	MI, MA	17		19				
Scolopacidae	*Numenius phaeopus*	Whimbrel	MI	MI, MA	257	1	221				
Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	MI, P4	MI, MA	407	1	291				
Scolopacidae	*Tringa glareola*	Wood Sandpiper	MI	MI, MA	213	1	226				
Scolopacidae	*Tringa nebularia*	Common Greenshank	MI	EN, MI, MA	439	2	424				
Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	MI	MI, MA	33		34				
Scolopacidae	*Tringa totanus*	Common Redshank	MI	MI, MA	7		7				
Scolopacidae	*Xenus cinereus*	Terek Sandpiper	MI	VU, MI, MA	122	2	70				
Stercorariidae	*Stercorarius antarcticus*	Brown Skua	-	-	2						
Strigidae	*Ninox boobook boobook*	Southern Boobook	-	MA	16						
Sulidae	*Morus serrator*	Australasian Gannet	-	MA	5						
Threskiornithidae	*Platalea flavipes*	Yellow-billed Spoonbill	-	-	97						
Threskiornithidae	*Platalea regia*	Royal Spoonbill	-	-	45						
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	MI	MI, MA	77		90				
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis	-	MA	287						
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	-	MA	178						

Turnicidae	*Turnix velox*	Little Buttonquail	-	-	64						
Zosteropidae	*Zosterops lateralis*	Grey-breasted White-eye, Silvereye	-	MA	192			1			
Zosteropidae	*Zosterops luteus*	Yellow White-eye, Canary White-eye	-	-	142						
Mammals											
Balaenidae	*Eubalaena australis*	Southern Right Whale	VU	EN, MI, Cetacean		2					
Balaenopteridae	*Balaenoptera edeni*	Bryde's Whale	MI	MI, Cetacean	5	1	1				
Balaenopteridae	*Megaptera novaeangliae australis*	Humpback Whale	MI, CD	MI, Cetacean	22	1	23				
Bovidae	*Bos primigenius taurus*	European Cattle	-	-				3			
Bovidae	*Capra aegagrus hircus*	Goat	-	-	1			2	x	x	x
Bovidae	*Ovis aries*	Sheep	-	-	1			3			
Canidae	*Canis familiaris*	Dingo/Dog	-	-				6			
Canidae	*Vulpes vulpes*	Red Fox	-	-	2				x	x	x
Dasyuridae	*Sminthopsis crassicaudata*	Fat-tailed Dunnart	-	-	4						
Dasyuridae	*Sminthopsis macroura*	Stripe-faced Dunnart	-	-	4			1			
Deliphinidae	*Orcinus orca*	Killer Whale	MI	MI, Cetacean		1					
Deliphinidae	*Tursiops aduncus*	Indo-pacific Bottlenose Dolphin	MI	MI (Arafura/Timor Sea pops.), Cetacean	3						
Dugonidae	*Dugong dugon*	Dugong	MI	MI, MA	2	1	1				
Equidae	*Equus ferus caballus*	Horse	-	-				1			
Felidae	*Felis catus*	Cat	-	-	2			4	x	x	x
Kogiidae	*Kogia breviceps*	Pygmy Sperm Whale	-	Cetacean	1						
Leporidae	*Oryctolagus cuniculus*	Rabbit	-	-	2			22	x	x	x
Macropodidae	*Lagorchestes hirsutus bernieri*	Bay Is. Rufous Hare-wallaby	VU	VU	1						
Macropodidae	*Lagostrophus fasciatus fasciatus*	Banded Hare-wallaby	VU	VU	1		1				
Macropodidae	*Osphranter robustus*	Common Wallaroo	-	-	2						
Macropodidae	*Osphranter rufus*	Red Kangaroo, Marlu	-	-	6			6			
Molossidae	*Austronomus australis*	White-striped Free-tailed Bat	-	-	1						
Molossidae	*Chaerephon jobensis colonicus*	Greater Northern Free-tailed Bat	-	-	2						
Muridae	*Mus musculus*	House Mouse	-	-	5				x	x	x
Muridae	*Notomys alexis alexis*	Spinifex Hopping-mouse	-	-	8				x	x	x
Muridae	*Pseudomys albocinereus*	Ash-grey Mouse	-	(not WAM)	2						
Muridae	*Pseudomys hermannsburgensis*	Sandy Inland Mouse	-	-	15						
Pteropodidae	*Pteropus alecto gouldii*	Black Flying-fox	-	-	4						
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat	-	-	2						

Vespertilionidae	*Nyctophilus geoffroyi geoffroyi*	Lesser Long-eared Bat	-	-	4						
Vespertilionidae	*Scotorepens greyii*	Little Broad-nosed Bat	-	-	1						
Vespertilionidae	*Vespadelus finlaysoni*	Finlayson's Cave Bat	-	-	1						
Reptiles											
Agamidae	*Ctenophorus badius*	Variable Sand Dragon	-	-	44						
Agamidae	*Ctenophorus clayi*	Collared Dragon	-	-	1						
Agamidae	*Ctenophorus nuchalis*	Central Netted Dragon	-	-	8						
Agamidae	*Ctenophorus reticulatus*	Western Netted Dragon	-	-	31						
Agamidae	*Ctenophorus scutulatus*	Lozenge-Marked Dragon	-	-	13						
Agamidae	*Gowidon longirostris*	Long-nosed Dragon	-	-	5						
Agamidae	*Moloch horridus*	Thorny Devil	-	-	10						
Agamidae	*Pogona minor minor*	Western Bearded Dragon	-	-	21						
Carphodactylidae	*Nephrurus levis occidentalis*	Smooth knob-tailed gecko	-	-	51						
Chelidae	*Chelodina steindachneri*	Flat-shelled Turtle	-	-	1						
Cheloniidae	*Caretta caretta*	Loggerhead Turtle	EN	EN, MI, MA	3	2	2				
Cheloniidae	*Chelonia mydas*	Green Turtle	VU	VU, MI, MA	2	2	2				
Cheloniidae	*Natator depressus*	Flatback Turtle	VU	VU, MI, MA		2					
Cheloniidae	*Marine Testudine* sp.		VU, EN	EN, VU, MI, MA				1			
Crocodylidae	*Crocodylus porosus*	Saltwater Crocodile	MI	MI, MA		1					
Dermochelyidae	*Dermochelys coriacea*	Leatherback Turtle	VU	EN, MI, MA		2					
Diplodactylidae	*Diplodactylus conspicillatus*	Variable Fat-tailed Gecko	-	-	7						
Diplodactylidae	*Diplodactylus klugei*	Kluge's Gecko	-	-	3						
Diplodactylidae	*Diplodactylus ornatus*	Ornate Stone Gecko	-	-	5						
Diplodactylidae	*Lucasium squarrosum*	Mottled Ground Gecko	-	-	24						
Diplodactylidae	*Strophurus rankini*	Exmouth spiny-tailed gecko	-	-	10						
Diplodactylidae	*Strophurus strophurus*	Western Spiny-tailed Gecko	-	-	56						
Elapidae	*Aipysurus apraefrontalis*	Short-nosed Sea Snake	CR	CE, MA		1					
Elapidae	*Aipysurus foliosquama*	Leaf-scaled Sea Snake	CR	CE, MA		1					
Elapidae	*Aipysurus laevis*	Olive Sea Snake	-	MA	2						
Elapidae	*Aipysurus pooleorum*	Shark Bay Sea Snake	-	MA	2						
Elapidae	*Demansia calodera*	Black-necked Whipsnake	-	-	7						
Elapidae	*Demansia reticulata*	Reticulated Whipsnake	-	(not WAM)	10						
Elapidae	*Ephalophis greyae*	Northwestern Mangrove Sea Snake	-	MA	1						
Elapidae	*Furina ornata*	Moon Snake	-	-	1						
Elapidae	*Hydrophis elegans*	Elegant Seasnake	-	MA	74						
Elapidae	*Hydrophis major*	Olive-headed Sea Snake	-	MA	22						
Elapidae	*Pseudechis australis*	Mulga Snake	-	-	4						
Elapidae	*Pseudonaja mengdeni*	Western Brown Snake	-	-	20						

Elapidae	*Pseudonaja modesta*	Ringed Brown Snake	-	-	13						
Elapidae	*Pseudonaja nuchalis*	Gwardar; Northern Brown Snake	-	-	1						
Elapidae	*Simoselaps bertholdi*	Jan's Banded Snake	-	-	14						
Elapidae	*Simoselaps littoralis*	West Coast Banded Snake	-	-	3						
Elapidae	*Suta monachus*	Inland Hooded Snake	-	-	2						
Gekkonidae	*Gehyra variegata*	Variegated Gehyra	-	-	43						
Gekkonidae	*Hemidactylus frenatus*	Asian House Gecko	-	-	1						
Gekkonidae	*Heteronotia binoei*	Bynoe's Gecko	-	-	14						
Pygopodidae	*Delma butleri*	Spinifex Delma	-	-	4						
Pygopodidae	*Delma tincta*	Excitable Delma	-	-	14						
Pygopodidae	*Pygopus nigriceps*	Western Hooded Scaly-foot	-	-	3						
Pythonidae	*Antaresia childreni*	Children's Python	-	-	3						
Scincidae	*Carlia munda*	Shaded-litter Rainbow-skink	-	-	1						
Scincidae	*Cryptoblepharus plagiocephalus*	Péron's Snake-eyed Skink	-	-	1				x	x	x
Scincidae	*Ctenotus fallens*	West-coast Laterite Ctenotus	-	-	7						
Scincidae	*Ctenotus helenae*	Clay-soil Ctenotus	-	-	1						
Scincidae	*Ctenotus leonhardii*	Common Desert Ctenotus	-	-	2						
Scincidae	*Ctenotus mimetes*	Checker-sided Ctenotus	-	-	4						
Scincidae	*Ctenotus pantherinus*	Leopard Ctenotus	-	-	2						
Scincidae	*Ctenotus schomburgkii*	Barred Wedge-snouted Ctenotus	-	-	1						
Scincidae	*Cyclodomorphus celatus*	Western Slender Blue-tongue	-	-	2						
Scincidae	*Egernia depressa*	Southern Pygmy Spiny-tailed Skink	-	-	7						
Scincidae	*Egernia stokesii badia*	Western Spiny-tailed Skink	VU	EN	2	1	2				
Scincidae	*Lerista connivens*	Blinking Broad-Blazed Slider	-	-	12						
Scincidae	*Lerista elegans*	Elegant Slider	-	-	81						
Scincidae	*Lerista kendricki*	Dark Broad-Blazed Slider	-	-	5						
Scincidae	*Lerista lineopunctulata*	Dotted-line Robust Slider	-	-	47						
Scincidae	*Lerista macropisthopus fusciceps*	Unpatterned Robust Slider	-	-	40						
Scincidae	*Lerista micra*	Little Slider	-	-	25						
Scincidae	*Lerista planiventralis planiventralis*	Keeled Slider	-	-	9						
Scincidae	*Lerista praepedita*	Blunt-tailed West-coast Slider	-	-	7						
Scincidae	*Lerista uniduo*	Slender Broad-blazed Slider	-	-	165						
Scincidae	*Menetia greyii*	Common Dwarf Skink	-	-	23						
Scincidae	*Morethia lineoocellata*	West Coast Morethia Skink	-	-	16						

Scincidae	*Tiliqua occipitalis*	Western Bluetongue	-	-	5						
Scincidae	*Tiliqua rugosa*	Bobtail	-	-				2			
Scincidae	*Tiliqua rugosa palarra*	Shark Bay Bobtail	-	-	10				x	x	x
Typhlopidae	*Anilios grypus*	Long-beaked Blind Snake	-	-	3						
Typhlopidae	*Anilios hamatus*	Pale-headed blind snake	-	-	8						
Varanidae	*Varanus caudolineatus*	Stripe-tailed goanna	-	-	4						
Varanidae	*Varanus eremius*	Pygmy Desert Goanna	-	-	11						
Varanidae	*Varanus gouldii*	Bungarra Or Sand Goanna	-	-	3						

Appendix H Fauna Habitat Site Sheets

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

675.073044.00001-HAB-01

Project	675.073044.00001			**Latitude**	-24.89354	**Longitude**	113.7070094
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Woody debris
Disturbance	Litter,Vehicle tracks,Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)	**Neltuma pallida, Rhagodia latifolia subsp. latifolia and Acacia sclerosperma*
Ground stratum	Mid (0.5-1 m)	Hummock grassland (50-80%)	**Cenchrus ciliaris*



Fulcrum photo ID	20275017-fc70-4a1d-8914-ed4116647754,b86f2429-39e9-48d8-9e1c-

675.073044.00001-HAB-02

Project	675.073044.00001			**Latitude**	-24.8929963	**Longitude**	113.7063695
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Litter,Vehicle tracks,Weeds		
Introduced fauna	None observed	**Leaf litter cover**	Absent

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Absent	NA	*NA*
Ground stratum	Low (>0.5 m)	Sparse hummock grassland (0.25-20%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	7808c9a5-debf-45d1-a25f-3006a5605c98,5786f3e8-cddb-4b16-b00a-

675.073044.00001-HAB-03

Project	675.073044.00001			**Latitude**	-24.8932475	**Longitude**	113.7051589
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Brown,Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Woody debris
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus victrix*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia tetragonophylla, Exocarpus aphyllus and Rhagodia latifolia subsp. Latifolia*
Ground stratum	Low (>0.5 m)	Open hummock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	dc38fa25-b5ff-4c79-836d-b3c62f26c1b5,09a628d2-6ac4-4609-a16d-

675.073044.00001-HAB-04

Project	675.073044.00001			**Latitude**	-24.8902056	**Longitude**	113.7050978
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Infrastructure,Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Isolated shrubs and/or heath shrubs (<0.25%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Open hummock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	30f12aa7-e217-4f6f-8280-603f8ca861e4,b0c2aa58-d2fc-49c0-8722-

675.073044.00001-HAB-05

Project	675.073044.00001			**Latitude**	-24.8928139	**Longitude**	113.7098042
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Dune crest	**Rock type/s**	Unknown
Aspect	Negligible	**Pebble/stone cover**	75 - 100%
Soil type	Sand	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks,Woody debris
Disturbance	Weeds		
Introduced fauna		**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia sclerosperma and Alectryon oleifolius subsp. oleifolius*
Ground stratum	Low (>0.5 m)	Open hummock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	2107fc57-2b64-4fc5-a2de-dcdebdb14f78,9ca5ef70-ac34-4fc7-a6f4-

675.073044.00001-HAB-06

Project	675.073044.00001			**Latitude**	-24.8943258	**Longitude**	113.7029649
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks,Woody debris
Disturbance	Infrastructure,Litter,Vehicle tracks,Weeds		
Introduced fauna	Rabbit,None observed	**Leaf litter cover**	Absent

Vegetation			
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Eucalyptus victrix*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Hummock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	0726b200-deec-4902-b3dd-253067dc82f4,8ee420cd-39c9-45b1-ba35-

675.073044.00001-HAB-07

Project	675.073044.00001			**Latitude**	-24.8924942	**Longitude**	113.6976717
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks,Woody debris
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Tall (>2 m)	Shrubland and/or heathland (50-80%)	*Rhagodia latifolia subsp. latifolia, Acacia tetragonophylla and Atriplex vesicaria*
Ground stratum	Mid (0.5-1 m)	Closed hummock grassland (>80%)	**Cenchrus ciliaris*



Fulcrum photo ID	815cde3b-9761-4696-af5b-1c228612ec5d,5c85aadb-c0af-4319-abb7-

675.073044.00001-HAB-08

Project	675.073044.00001			**Latitude**	-24.896562	**Longitude**	113.7039075
Date	7-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks,Woody debris
Disturbance	Weeds		
Introduced fauna	None observed	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Shrubland and/or heathland (50-80%)	**Neltuma pallida, Rhagodia latifolia subsp. latifolia and Acacia sclerosperma*
Ground stratum	Tall (1-2 m)	Closed hummock grassland (>80%)	**Cenchrus ciliaris*



Fulcrum photo ID	f06e072b-8b70-422a-a3aa-c742875369c7,5cb962f1-3bfe-420f-a08f-

675.073044.00001-HAB-09

Project	675.073044.00001			**Latitude**	-24.897244	**Longitude**	113.6958716
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Cracking clay,Hummocks
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Low (0.5-1 m)	Isolated shrubs and/or heath shrubs (<0.25%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Closed hummock grassland (>80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	1af5b208-3820-46d4-ab5e-20e20022de23,6b5205c5-f151-4fa4-bee8-

675.073044.00001-HAB-10

Project	675.073044.00001			**Latitude**	-24.897586	**Longitude**	113.6930835
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	5b6914f9-8b78-4515-b627-8ff454b4f694,afbbff5f-c3fb-485c-8740-

675.073044.00001-HAB-11

Project	675.073044.00001			**Latitude**	-24.8959	**Longitude**	113.6934159
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hummocks
Disturbance	Litter,Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Low (0.5-1 m)	Sparse samphire and/or chenopod shrubland (0.25-20%	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Mid (0.5-1 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	72090ba7-e90e-482c-b576-595ee75589c0,fe9efb1a-a615-409f-8e10-

675.073044.00001-HAB-12

Project	675.073044.00001			**Latitude**	-24.89418	**Longitude**	113.695013
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Cracking clay,Hummocks,Woody debris
Disturbance	Litter,Vehicle tracks,Weeds		
Introduced fauna	None observed	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Low (0.5-1 m)	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	c5f67b9d-e636-41e7-97bf-981493d2438f,c0302533-ca62-495a-8ae1-

675.073044.00001-HAB-13

Project	675.073044.00001			**Latitude**	-24.898015	**Longitude**	113.703597
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hummocks
Disturbance	Weeds		
Introduced fauna	None observed	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Acacia tetragonophylla and Atriplex vesicaria*
Ground stratum	Mid (0.5-1 m)	Closed tussock grassland (>80%)	**Cenchrus ciliaris*



Fulcrum photo ID	1a5f8314-eda5-4887-82fd-00a947b02032,647458dc-d353-409b-9016-

675.073044.00001-HAB-14

Project	675.073044.00001			**Latitude**	-24.8856413	**Longitude**	113.7060024
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks,Woody debris
Disturbance	Litter,Vehicle tracks,Weeds		
Introduced fauna	None observed	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus victrix*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Acacia tetragonophylla, Exocarpus aphyllus and Rhagodia latifolia subsp. Latifolia*
Ground stratum	Low (>0.5 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	b78953c2-4216-4042-8a6f-f522f52de773,045af7d2-74f2-4958-ad08-

675.073044.00001-HAB-15

Project	675.073044.00001			**Latitude**	-24.8852302	**Longitude**	113.7043018
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Sandy clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Woody debris
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus victrix*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Acacia tetragonophylla, Exocarpus aphyllus and Rhagodia latifolia subsp. Latifolia*
Ground stratum	Low (>0.5 m)	Open tussock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	7bb7cf98-7704-46b6-8a82-0fbc6cd1fbf4,a3f2f5a1-63c6-4956-a2ce-

675.073044.00001-HAB-16

Project	675.073044.00001			**Latitude**	-24.8870944	**Longitude**	113.7035176
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hummocks,Woody debris
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Open tussock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	74dbfc11-1ac9-4901-932a-c6db4dfd950e,524bf8be-e326-478b-b072-

675.073044.00001-HAB-17

Project	675.073044.00001			**Latitude**	-24.8861204	**Longitude**	113.7025487
Date	8-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hummocks
Disturbance	Vehicle tracks,Weeds		
Introduced fauna	None observed	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Low (0.5-1 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	13ecdff3-06fb-4531-a5ff-70363005e522,c75b1c0a-7bb6-4d7d-aec3-

675.073044.00001-HAB-18

Project	675.073044.00001			**Latitude**	-24.8853734	**Longitude**	113.6943
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Clearing,Litter,Vehicle tracks,Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Absent	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)		**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	8d8585ee-52a2-4543-8ce9-40a7c8b1b9f3,3d1ea586-4c72-4051-8be8-

675.073044.00001-HAB-19

Project	675.073044.00001			**Latitude**	-24.8844024	**Longitude**	113.6926273
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Open tussock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	dcc86cd3-7353-497b-a4ee-2a29e8b8ed46,88159292-29f7-40ea-9d11-

675.073044.00001-HAB-20

Project	675.073044.00001			**Latitude**	-24.8859186	**Longitude**	113.692413
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks,Woody debris
Disturbance	Litter,Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Open tussock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	37273d73-241d-4bc6-a1ef-fd1add3a696e,8eac1e3e-dad4-4715-9a13-

675.073044.00001-HAB-21

Project	675.073044.00001			**Latitude**	-24.8899736	**Longitude**	113.6924406
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Sandy clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	50 - 75%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Low (0.5-1 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Closed tussock grassland (>80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	ef10c8c5-7ca4-4a02-ae9e-833f299f958c

675.073044.00001-HAB-22

Project	675.073044.00001			**Latitude**	-24.8922069	**Longitude**	113.692843
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hummocks
Disturbance	Weeds		
Introduced fauna	None observed	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Absent	NA	*NA*
Ground stratum	Low (>0.5 m)	Sparse hummock grassland (0.25-20%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	faca9f59-acf5-4332-a302-a0bef2c95808

675.073044.00001-HAB-23

Project	675.073044.00001			**Latitude**	-24.8881547	**Longitude**	113.6966549
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Unknown	**Microhabitats**	Hummocks
Disturbance	Litter,Weeds		
Introduced fauna	Rabbit	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Tall (>2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Acacia tetragonophylla and Atriplex vesicaria*
Ground stratum	Low (>0.5 m)	Open hummock grassland (20-50%)	**Cenchrus ciliaris*



Fulcrum photo ID	f95b281c-27d2-40b6-bd3d-2072bdb31060,fe2de71d-96c5-4487-a74a-

675.073044.00001-HAB-24

Project	675.073044.00001			**Latitude**	-24.8883839	**Longitude**	113.700426
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Woody debris
Disturbance	Weeds		
Introduced fauna	None observed	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	5718d92c-e619-42cb-af7a-44d4e829eed3

675.073044.00001-HAB-25

Project	675.073044.00001			**Latitude**	-24.8909889	**Longitude**	113.7019723
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hummocks,Woody debris
Disturbance	Litter,Vehicle tracks,Weeds		
Introduced fauna	None observed	**Leaf litter cover**	5 - 25%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Low (>0.5 m)	Open hummock grassland (20-50%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	47f46143-c22c-4706-9b57-81d13924e66a,c19d5cab-f6f7-4d5e-ac28-

675.073044.00001-HAB-26

Project	675.073044.00001			**Latitude**	-24.8981527	**Longitude**	113.7001845
Date	9-04-2025	**Sample Type**	Terrestrial vertebrate fauna - HAB			**Weather**	Warm, clear

Landform and Soil		**Rock**	
Landform	Claypan	**Rock type/s**	Absent
Aspect	Negligible	**Pebble/stone cover**	Absent
Soil type	Clay	**Rock/boulder cover**	Absent
Soil colour	Orange	**Outcropping cover**	Absent
Condition		**Habitat Features**	
Quality	Very low	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Cracking clay,Woody debris
Disturbance	Litter,Weeds		
Introduced fauna	None observed	**Leaf litter cover**	<5%

Vegetation			
Upper stratum	Absent	NA	*NA*
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)	*Rhagodia latifolia subsp. latifolia, Scaevola spinescens, Acacia tetragonophylla, Atriplex vesicaria and Atriplex semilunaris*
Ground stratum	Mid (0.5-1 m)	Tussock grassland (50-80%)	**Cenchrus ciliaris and *Cenchrus setiger*



Fulcrum photo ID	860c37c2-1ee5-4de1-a188-84ef9ab390ef,10669e93-46b4-456a-a992-

Appendix I Significant Fauna Likelihood of Occurrence

Carnarvon Decarbonisation Project

Flora, Fauna, and Vegetation Assessment

Horizon Power

SLR Project No.: 675.073044.00001

18 July 2025

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/CE - 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. **Source:** NM - NatureMap, PMST - EPBC Protected Matters Search Tool, DBCA - DBCA Threatened and Priority Fauna database search, Field - Recorded during the current field survey.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Birds						
Acanthizidae	*Aphelocephala leucopsis* Southern Whiteface	-	VU	Open forest and woodland, inland scrubs such as mallee, mulga, cypress pine; saltbush, dead trees, stumps (Pizzey and Knight, 2012).	The NatureMap search returned 28 records within 50 km of the Survey Area (NatureMap, 2025).	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Acanthizidae	*Calamanthus campestris* Rufous Fieldwren	(C. campestris hartogi, C. campestris dorrie VU)	-	Occurs in low, sparse to dense shrublands, from temperate to arid regions. Characteristic of chenopod shrublands and samphire, also in mallee heathlands and has been recorded in Triodia grasslands and dwarf mangroves (Pizzey and Knight, 2012).	The NatureMap search returned 110 records within 50 km of the Survey Area (NatureMap, 2025).	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Accipitridae	*Erythrotriorchis radiatus* Red Goshawk	VU	EN	Tropical and subtropical open-forests and woodlands dominated by eucalypts and paperbarks along streams and near wetlands (Menkhorst et al., 2017).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Apodidae	*Apus pacificus* Pacific Swift, Fork-tailed Swift	MI	MI, MA	Low to very high airspace over varied habitat (Pizzey and Knight, 2012).	The DBCA database identified six records within 50 km of the Survey Area, including 3.2 km West in 1948 and 21.3 km North East in 2017. (DBCA, 2025)	**Medium** Recent records are infrequent, however the species may occupy the airspace within the Survey Area.
Ardeidae	*Botaurus poiciloptilus* Australasian Bittern	EN	EN	Freshwater wetlands with heavy vegetation, shrubbery, reedbeds, sedges (Morcombe, 2003)	The DBCA database identified one historic record 47.4 km North West of the Survey Area in 1977. (DBCA, 2025)	**Low** Record is historical, no suitable habitat is present within the Survey Area.
Ardeidae	*Ixobrychus flavicollis* Black Bittern	-	-	Rivers, creeks, swamps with tall fringing vegetation such as rainforest, dense sclerophyll or Melaleuca woodland (Menkhorst et al., 2017)	The NatureMap search returned one record within 50 km of the Survey Area (NatureMap, 2025).	**Low** No recent or nearby records identified from the database searches. Outside of known distribution.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Charadriidae	*Charadrius leschenaultii* Greater Sand Plover	VU	VU, MI, MA	Wide, sandy or shelly beaches; sandspits, tidal mudflats, reefs, sand cays, mangroves, saltmarsh, dune wilderness, bare paddocks; seldom far inland (Pizzey and Knight, 2012).	The DBCA database identified 270 records within 50 km of the Survey Area, including 2.1 km East in 2005 and 15.3 km South in 2018. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Survey Area. Limited suitable habitat present within the Survey Area.
Charadriidae	*Charadrius mongolus* Lesser Sand Plover	-	EN, MI, MA	Tidal mudflats and sandflats; gently sloping sandy and shelly beaches; saltmarsh, estuaries, atolls, reefs, mangroves, airfield. Occasionally inland on freshwater lakes, swamps, bore drains (Pizzey and Knight, 2012).	The DBCA database identified 69 records within 50 km of the Survey Area, including 3.1 km West in 2000 and 8.1 km South in 2018. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Survey Area. Limited suitable habitat present is within the Survey Area.
Charadriidae	*Charadrius veredus* Oriental Plover	MI	MI, MA	Open plains; bare, rolling country, often far from water; ploughed land; muddy or sandy wastes near inland swamps or tidal flats; bare claypans; margins of coastal marshes; grassy airfields, sportsfields, lawns (Pizzey and Knight, 2012).	The DBCA database identified eight records within 50 km of the Survey Area, including 8.1 km South in 2017 and 13.6 km South in 2017. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Charadriidae	*Charadrius dubius* Little Ringed Plover	MI	MI, MA	tidal or freshwater wetlands, mudflats, estuaries, lakes, lagoons, dams, ponds (Morcombe, 2003).	The DBCA database identified seven records within 50 km of the Survey Area, including 2.1 km East in 2011 and 3.9 km North West in 2016. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Charadriidae	*Pluvialis fulva* Pacific Golden Plover	MI	MI, MA	Estuaries, mudflats, saltmarshes, mangroves; rocky reefs and stranded seaweed on ocean shores; margins of shallow open inland swamps; sewage ponds, short-grass paddocks, sportsground, airfield, ploughed land (Pizzey and Knight, 2012).	The DBCA database identified 45 records within 50 km of the Survey Area, including 3.1 km West in 1999 and 3.3 km North West in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Charadriidae	*Pluvialis squatarola* Grey Plover	MI	VU, MI, MA	Mudflats, saltmarsh; tidal reefs and estuaries, rarely inland (Pizzey and Knight, 2012).	The DBCA database identified 189 records within 50 km of the Survey Area, including 3.1 km West in 2000 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Falconidae	*Falco hypoleucos* Grey Falcon	VU	VU	Open plains with treed watercourses in arid inland (Menkhorst et al., 2017).	The DBCA database identified five records within 50 km of the Survey Area, all are 3.2 km North 2013. (DBCA, 2025)	**Medium** Limited recent and nearby records in the Desktop Survey Area. Limited suitable hunting habitat within the Survey Area.
Falconidae	*Falco peregrinus* 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).	The DBCA database identified 16 records within 50 km of the Survey Area, including 3.1 km North East in 2006 and 4 km North West in 2015. (DBCA, 2025)	**High** Multiple recent and nearby records in the Desktop Survey Area. Species may use habitats in the Survey Area for hunting.
Fregatidae	*Fregata ariel* Lesser Frigatebird	MI	MI, MA	Oceanic, breed on islands (Pizzey and Knight, 2012).	The DBCA database identified one historical record 19.1 km North of the Survey Area in 1898. (DBCA, 2025)	**Low** Record is historical, no suitable habitat is present within the Survey Area.
Glareolidae	*Glareola maldivarum* Oriental Pratincole	MI	MI, MA	Plains; shallow wet and dry edges of open bare wetlands; tidal mudflats, beaches (Pizzey and Knight, 2012).	The DBCA database identified 12 records within 50 km of the Survey Area, including 2 km East in 2005 and 37.2 km South East in 2016. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Hirundinidae	*Hirundo rustica* Barn Swallow	MI	MI, MA	Open country; agricultural land, especially near water; railyards, towns, overhead wires (Pizzey and Knight).	The DBCA database identified one record 2.3 km East of the Survey Area in 2008. (DBCA, 2025)	**Low** Record is not recent. Limited suitable habitat is present within the Survey Area.
Laridae	*Anous stolidus* Common Noddy, Brown Noddy	MI	MI, MA	Oceanic; cays, reefs, buoys and piles (Pizzey and Knight, 2012).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Laridae	*Anous tenuirostris melanops* Australian Lesser Noddy	EN	VU, MA	Breeds on Abrolhos Island and Black Noddy on Ashmore Reef, infrequently storm-blown to coast of mainland WA Menkhorst et al., 2017).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Laridae	*Chlidonias leucopterus* White-winged Black Tern	MI	MI, MA	Large coastal and inland wetland; saltfields, sewage ponds, estuaries, coastal waters (Pizzey and Knight, 2012).	The DBCA database identified 11 records within 50 km of the Survey Area, including 2 km East in 2005 and 11.5 km North West in 2016. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. No suitable habitat is present within the Survey Area.
Laridae	*Gelochelidon nilotica* Gull-billed Tern	MI	MI, MA	Coastal, offshore waters; beaches, mudflats, estuaries, larger rivers, reserviors, lakes (Pizzey and Knight, 2012).	The DBCA database identified 83 records within 50 km of the Survey Area, including 1.3 km East in 2000 and 4.9 km West in 2017. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. No suitable habitat is present within the Survey Area.
Laridae	*Hydroprogne caspia* Caspian Tern	MI	MI, MA	Coastal, offshore waters; beaches, mudflats, estuaries, larger rivers, reservoirs, lakes. Sometimes found inland (Pizzey and Knight, 2012).	The DBCA database identified 307 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Laridae	*Onychoprion anaethetus* Bridled Tern	MI	MI, MA	Oceanic, rarely coastal (Pizzey and Knight, 2012).	The DBCA database identified one historical record 36.9 km West of the Survey Area in 1916. (DBCA, 2025)	**Low** Record is historical and not nearby. No suitable habitat is present within the Survey Area.
Laridae	*Sterna dougallii* Roseate Tern	MI	MI, MA	Offshore waters, islands, coral reefs, sand cays, beaches, tidal inlets (Pizzey and Knight, 2012).	The DBCA database identified nine records within 50 km of the Survey Area, including 3.6 km West in 2002 and 5.7 km West in 2004. (DBCA, 2025)	**Low** No recent records, and nearby records are infrequent. No suitable habitat within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Laridae	*Sterna hirundo* Common Tern	MI	MI, MA	Offshore waters, beaches, reefs, bays, estuaries, sandflats, saltfields, sewage ponds, freshwater wetlands (Pizzey and Knight, 2012).	The DBCA database identified 22 records within 50 km of the Survey Area, including 4.1 km West in 2002 and 11.7 km North West in 2017. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. No suitable habitat is present within the Survey Area.
Laridae	*Sternula albifrons* Little Tern	MI	MI, MA	Coastal waters, bays, inlets, saline or brackish lakes, saltfields, sewage ponds near coast (Pizzey and Knight, 2012).	The DBCA database identified ten records within 50 km of the Survey Area, including 2.9 km North in 2007 and 11.4 km North West in 2017. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. No suitable habitat is present within the Survey Area.
Laridae	*Sternula nereis* Fairy Tern	(S. nereis nereis VU)	MA (S. nereis nereis VU)	Coastal waters, bays, inlets, saline or brackish lakes, saltfields, sewage ponds near coast. Same habitat to S. albifrons (Pizzey and Knight, 2012).	The NatureMap search returned 52 records within 50 km of the Survey Area (NatureMap, 2025).	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Laridae	*Thalasseus bergii* Greater Crested Tern, Crested Tern	MI	MI, MA	coastal, beaches, bays, lagoons, salt ponds and lakes, estuaries, tidal creeks.(Morcombe, 2003.(Johnstone and Storr, 1998)	The DBCA database identified 287 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Maluridae	*Amytornis textilis textilis* Shark Bay Western Grasswren	P4	(A. modestus VU)	In Shark Bay region prefers Acacia shrubland with dense shrub clumps and lower recumbent shrubs in which foliage extends to the ground (Menkhorst et al., 2017)	The DBCA database identified one record 27.1 km South of the Survey Area in 2007. (DBCA, 2025)	**Low** Record is not nearby or recent. Limited suitable habitat is present within the Survey Area.
Maluridae	*Malurus assimilis* Purple-backed Fairywren	(M. assimilis bernieri VU)	-	Dense shrubland vegetation including coastal scrub, thickets and along creeklines. M. assimills bernieri is confined to Bernier Island (BirdLife, 2019).	The NatureMap search returned 349 records within 50 km of the Survey Area (NatureMap, 2025).	**Low** No recent or nearby records identified from the database searches. Taxon is confined to Bernier Island.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Megapodiidae	*Leipoa ocellata* Malleefowl	VU	VU	Mallee, acacia, paperbark, she-oak and other scrubs; eucalypt woodland; coastal heath; mostly on sandy or gravel soils (Pizzey and Knight, 2012).	The DBCA database identified three records within 50 km of the Survey Area, including 26.7 km North in 2016. (DBCA, 2025)	**Low** Recent records are infrequent and not nearby. No suitable habitat is present within the Survey Area.
Motacillidae	*Motacilla cinerea* Grey Wagtail	MI	MI, MA	Running water near disused quarries; sandy, rocky streams in escarpments; sewage ponds, ploughed fields, airfields (Pizzey and Knight 2012).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches. Limited suitable habitat is present within the Survey Area.
Motacillidae	*Motacilla tschutschensis* Eastern Yellow Wagtail	MI	MI, MA	Short grass and bare ground; swamp margins, sewage ponds, saltmarshes, ploughed fields, airfields, lawns (Pizzey and Knight, 2012).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches.
Pandionidae	*Pandion haliaetus* Osprey	MI	MI, MA	Coasts, estuaries, bays, inlets; islands and surrounding waters; coral atolls, reefs, lagoons, rock cliffs, stacks; larger rivers (Pizzey and Knight, 2012).	The DBCA database identified 85 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 3.1 km South West in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Survey Area. No suitable habitat within the Survey Area.
Phaethontidae	*Phaethon lepturus* White-tailed Tropicbird	MI	MI, MA	Oceanic; Tropical pelagic waters and is solitary at sea, seeking fish and squid. Rarely near land except at breeding colonies. Breeds at Ashmore Reef and rarely Rowley Shoals in the northwaest. Also Cocos (Keeling) Island (Menkhorst et al., 2019).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Phaethontidae	*Phaethon lepturus fulvus* Christmas Island White-Tailed Tropicbird	-	EN, MA	Oceanic, tropical pelagic waters surrounding Christmas Island (DCCEEW, 2014)	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Phaethontidae	*Phaethon rubricauda* Red-tailed Tropicbird	MI, P4	MI, MA	Oceanic; tropical pelagic waters (Menkhorst et al., 2019)	The DBCA database identified one historical record 47.4 km North West of the Survey Area in 1980. (DBCA, 2025)	**Low** No recent or nearby records identified from the database searches.
Phaethontidae	*Phaethon rubricauda westralis* Indian Ocean Red-Tailed Tropicbird	-	EN	Oceanic; tropical pelagic waters (Menkhorst et al., 2019)	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches.
Psittaculidae	*Pezoporus occidentalis* Night Parrot	CR	EN	Seeding spinifex on stony rises, breakaway country, sandy lowlands; shrubby glasswort, chenopods; succulents on flats around salt lakes; flooded claypans, saltbush, bluebush, bassia associations (Pizzey and Knight, 2012).	No nearby records identified from the database searches or literature.	**Low** No recent or nearby records identified from the database searches. No suitable habitat is present within the Survey Area.
Rostratulidae	*Rostratula australis* Australian Painted Snipe	EN	MI, MA	Well-vegetated shallows and margins of wetlands, dams, sewage ponds; wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, open timber (Pizzey and Knight, 2012).	The DBCA database identified 29 records within 50 km of the Survey Area, including 1.3 km East in 2011 and 4 km North West in 2012. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Actitis hypoleucos* Common Sandpiper	MI	MI, MA	Shallow, pebbly, muddy or sandy sedges of rivers and streams, coastal to far inland; dams, lakes, sewage ponds; margins of tidal rivers; waterways in mangroves or saltmarsh; mudflats; rocky or sandy beaches; causeways, riverside lawns, drains, street gutters (Pizzey and Knight, 2012).	The DBCA database identified 413 records within 50 km of the Survey Area, including 1.6 km East in 2004 and 3.9 km North West in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Arenaria interpres* Ruddy Turnstone	MI	VU, MI, MA	Tidal reefs and pools; weed-covered rocks; pebbly, shelly and sandy shores with stranded seaweed; mudflats; occasionally inland on shallow waters; sewage ponds, commercial saltflats (Pizzey and Knight, 2012).	The DBCA database identified 73 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 39.1 km South East in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.

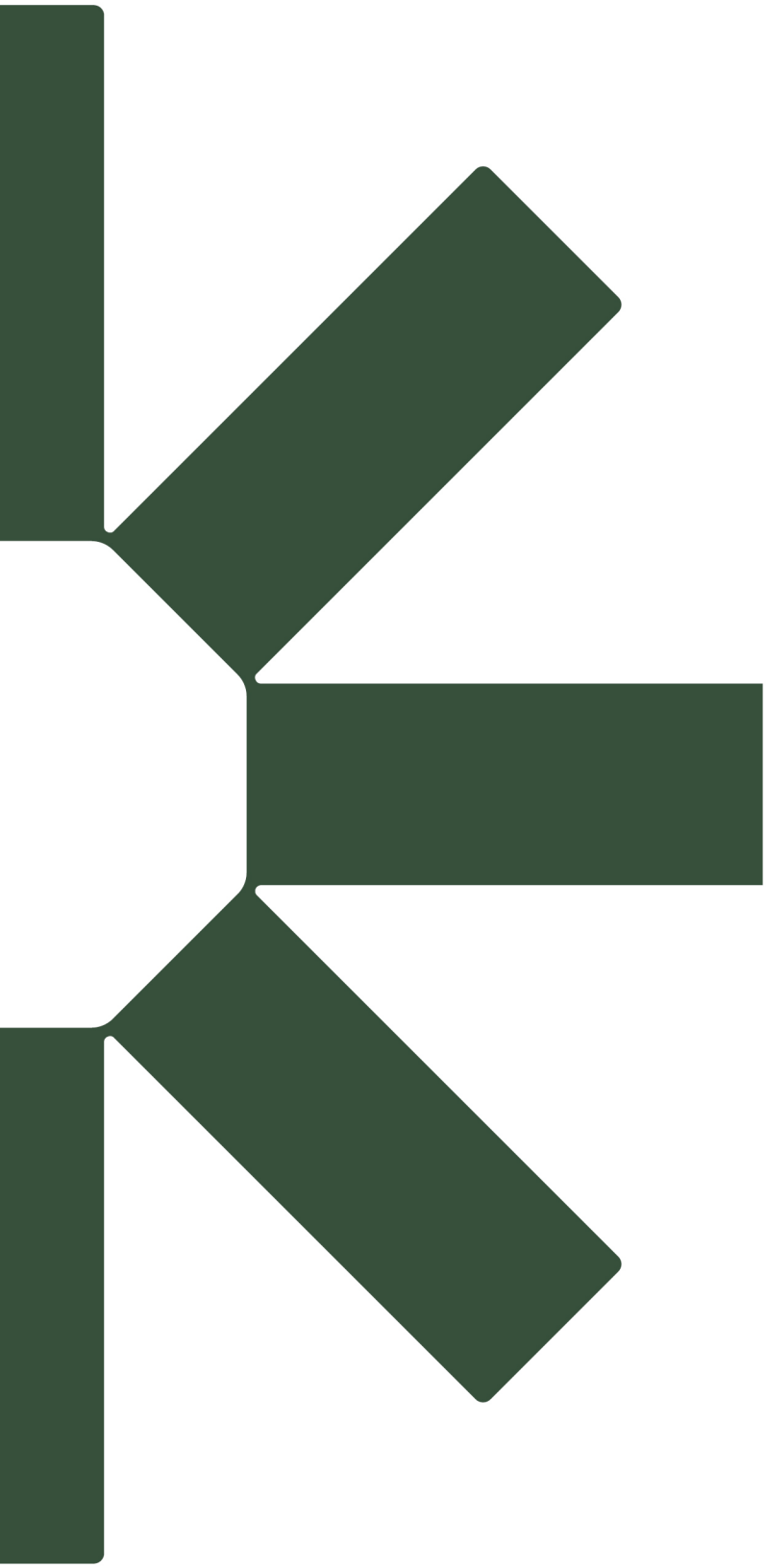
Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Calidris acuminata* Sharp-tailed Sandpiper	MI	VU, MI, MA	Tidal mudflats, saltmarshes, mangroves; shallow fresh, brackish or saline inland wetlands; muddy edges of lagoons, swamps, lakes, floodwaters, dams, irrigated patures and crops; sewage ponds, saltfields (Morcombe, 2003; Pizzey and Knight, 2012).	The DBCA database identified 145 records within 50 km of the Survey Area, including 2 km East in 2005 and 15.3 km South in 2018. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris alba* Sanderling	MI	MI, MA	Broad ocean beaches of firm sand with seaweed; often near river mouths; also inlets, tidal mudflats, coastal lagoons (Pizzey and Knight, 2012).	The DBCA database identified 107 records within 50 km of the Survey Area, including 3.3 km South West in 2011 and 11.4 km North West in 2017. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris canutus* Red Knot	EN	VU, MI, MA	Tidal mudflats, sandflats, beaches, saltmarshes, flooded pastures, ploughed lands (Pizzey and Knight, 2012).	The DBCA database identified 128 records within 50 km of the Survey Area, including 3.1 km West in 2000 and 39.1 km South East in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris falcinellus* Broad-billed Sandpiper	MI	MI, MA	Tidal mudflats,estuaries, reefs, saltmarsh, freshwater wetlands and lakes, near-coastal salt lakes; sewage ponds; favours muddy ooze (Morcombe, 2003; Pizzey and Knight, 2012).	The DBCA database identified six records within 50 km of the Survey Area, including 4.8 km West in 2013 and 13.6 km South in 2017. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris ferruginea* Curlew Sandpiper	CR	CE, MI, MA	Inter-tidal mudflats of estuaries, lagoons, mangrove channel; saltmarsh, saltfields; fresh, brachish or saline wetlands; flooded saltbush surrounds of inland lakes; dams, floodwaters, sewage ponds (Morcombe, 2003; Pizzey and Knight, 2012).	The DBCA database identified 206 records within 50 km of the Survey Area, including 2.1 km East in 2005 and 15.3 km South in 2018. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris melanotos* Pectoral Sandpiper	MI	MI, MA	Shallow fresh waters, often with low grass or other herbage; swamp margins, flooded pastures, sewage ponds; occasionally tidal areas, saltmarshes (Pizzey and Knight, 2012).	The DBCA database identified five records within 50 km of the Survey Area, including 3.8 km North West in 2013 and 4 km North West in 2014. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Calidris pugnax* Ruff	MI	MI, MA	Fresh, brackish and saline wetlands; tidal mudflats, saltfields, sewage farms (Pizzey and Knight, 2012).	The DBCA database identified nine records within 50 km of the Survey Area, including 2.1 km East in 2011 and 2.1 km East in 2011. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris ruficollis* Red-necked Stint	MI	MI, MA	Tidal mudflats, saltmarshes, sandy or shelly beaches; saline and freshwater wetlands, salt fields, sewage ponds (Pizzey and Knight, 2012).	The DBCA database identified 343 records within 50 km of the Survey Area, including 2 km East in 2005 and 15.3 km South in 2018. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris subminuta* Long-toed Stint	MI	MI, MA	Tussocky, weedy margins of shallow wetlands, coastal and inland; sewage ponds, weed on tideline, tidal mudflats (Pizzey and Knight, 2012).	The DBCA database identified 52 records within 50 km of the Survey Area, including 1.6 km East in 2004 and 39.1 km South East in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Calidris tenuirostris* Great Knot	CR	VU, MI, MA	Tidal mudflats; sandy ocean and bay shores; estuaries; shallow saline and freshwater wetlands (Pizzey and Knight, 2012).	The DBCA database identified 167 records within 50 km of the Survey Area, including 2.1 km East in 2011 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Scolopacidae	*Limnodromus semipalmatus* Asian Dowitcher	MI	VU, MI, MA	Beaches, mudflats, commerical saltfields, and sewage ponds (Pizzey and Knight, 2012).	The DBCA database identified eight records within 50 km of the Survey Area, including 3.5 km South West in 2004 and 15.4 km South in 2016. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Limosa lapponica* Bar-tailed Godwit	MI (L. l. bauerii VU; L. l. menzbieri CR)	MI, MA (L. lapponica bauerii Chris. Is. EN; L. lapponica menzbieri EN)	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures, airfields (Pizzey and Knight, 2012).	The DBCA database identified 344 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Limosa lapponica menzbieri* Bar-tailed Godwit	CR	EN	Tidal mudflats, estuaries, sewage ponds, shallow river margins, brackish or saline inland lakes, flooded pastures, airfields (Pizzey and Knight, 2012).	The DBCA database identified two historical records within 50 km of the Survey Area; 3.2 km West in 1948 and 36.9 km West in 1899. (DBCA, 2025)	**Low** Records are historical, no suitable habitat is present within the Survey Area.
Scolopacidae	*Limosa limosa* Black-tailed Godwit	MI	EN, MI, MA	Tidal mudflats, estuaries, sandspits, shallow river margins, sewage ponds; inland on large shallow fresh or brackish waters (Pizzey and Knight, 2012).	The DBCA database identified 30 records within 50 km of the Survey Area, including 3.5 km South West in 2004 and 11.5 km North West in 2016. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Numenius madagascariensis* Far Eastern Curlew, Eastern Curlew	CR	CE, MI, MA	Estuaries, tidal mudflats, sandspits, saltmarshes, mangroves; occasionally fresh or brackish lakes; bare grasslands near water (Pizzey and Knight, 2012).	The DBCA database identified 217 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Scolopacidae	*Numenius minutus* Little Curlew	MI	MI, MA	Dry grasslands, floodplains, margins of drying swamps; tidal mudflats, airfields, playing fields, crops, commercial saltfields, sewage ponds (Pizzey and Knight, 2012).	The DBCA database identified 19 records within 50 km of the Survey Area, including 2.1 km East in 2005 and 2.2 km East in 2015. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Numenius phaeopus* Whimbrel	MI	MI, MA	Estuaries, mangroves, tidal flats, coral cays, exposed reefs, flooded paddocks, sewage ponds, bare grasslands, sport grounds, lawns (Pizzey and Knight, 2012).	The DBCA database identified 221 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Tringa brevipes* Grey-tailed Tattler	MI, P4	MI, MA	Estuaries, tidal mudflats, mangroves; wave-washed rocks and reefs; shallow margins of coastal or inland rivers (Pizzey and Knight, 2012).	The DBCA database identified 291 records within 50 km of the Survey Area, including 2.1 km East in 2011 and 15.3 km South in 2018. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.
Scolopacidae	*Tringa glareola* Wood Sandpiper	MI	MI, MA	Muddy margins of wetlands with emergent sedges and taller fringing vegetation; tidal mangroves; margins of tidal mudflats; saltmarshes, sewage pond (Pizzey and Knight, 2012; Menkhorst et al., 2017).	The DBCA database identified 226 records within 50 km of the Survey Area, including 1.6 km East in 2008 and 3.9 km North West in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Tringa nebularia* Common Greenshank	MI	EN, MI, MA	Mudflats, estuaries, saltmarshes, swamps, margins of lakes, muddy shallows of lagoons; permanent and temporary wetlands, claypans; commercial saltfield, irrigated crops, sewage ponds (Morcombe, 2003; Pizzey and Knight, 2012).	The DBCA database identified 424 records within 50 km of the Survey Area, including 1.6 km East in 2008 and 15.3 km South in 2018. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Tringa stagnatilis* Marsh Sandpiper	MI	MI, MA	Fresh, brackish and saline wetlands; sewage ponds, commercial saltfields, bore drains, mangroves, tidal mudflats, estuaries (Pizzey and Knight, 2012).	The DBCA database identified 34 records within 50 km of the Survey Area, including 2 km East in 2005 and 11.4 km North West in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Scolopacidae	*Tringa totanus* Common Redshank	MI	MI, MA	Tidal sandbars and mudflats; mangroves; freshwater swamps and lagoons, saltfiled (Pizzey and Knight, 2012).	The DBCA database identified seven records within 50 km of the Survey Area, including 5 km West in 2005 and 5.7 km West in 2006. (DBCA, 2025)	**Low** Limited recent and nearby records in the Desktop Survey Area. No suitable habitat is present within the Survey Area.
Scolopacidae	*Xenus cinereus* Terek Sandpiper	MI	VU, MI, MA	Tidal mudflats, estuaries; shores and reefs of islands; coastal swamps, commercial saltfields (Pizzey and Knight, 2012).	The DBCA database identified 70 records within 50 km of the Survey Area, including 1.7 km North East in 1999 and 4.8 km West in 2016. (DBCA, 2025)	**Low** Multiple recent and nearby records in the Desktop Study Area. No suitable habitat is present within the Survey Area.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Threskiornithidae	*Plegadis falcinellus* Glossy Ibis	MI	MI, MA	Well-vegetated wetlands, wet pastures, ricefields, flooded waters, floodplains; brackish or occasionally saline wetlands, mangroves, mudflats, occasionally dry grasslands (Pizzey and Knight, 2012).	The DBCA database identified 90 records within 50 km of the Survey Area, including 1.6 km East in 2004 and 3.9 km North West in 2017. (DBCA, 2025)	**Medium** Multiple recent and nearby records in the Desktop Study Area. Limited suitable habitat is present within the Survey Area.
Mammals						
Macropodidae	*Lagorchestes hirsutus bernieri* Rufous Hare-Wallaby	VU	VU	Sandlplains with kwongan (heath) vegetation, also spinifex hummock grasslands (Van Dyck, Gynther and Baker, 2013).	The NatureMap search returned one record within 50 km of the Survey Area (NatureMap, 2025).	**Low** Taxon previously occurred within the region, however is now locally extinct and is restricted to Bernier and Dorre Islands.
Macropodidae	*Lagostrophus fasciatus fasciatus* Banded Hare-wallaby	VU	VU	Dense thickets of Acacia and Alectryon scrub on the sandplains, and Diplolaena and Acacia on the dunes (Van Dyck, Gynther and Baker, 2013).	The DBCA database identified one record within 50 km of the Survey Area, including 3.2 km West in 1910 and 3.2 km West in 1910. (DBCA, 2025)	**Low** Taxon previously occurred within the region, however is now locally extinct and restricted to nearby islands.
Reptiles						
Scincidae	*Egernia stokesii badia* Western Spiny-tailed Skink	VU	EN	Occupies rock crevices and hollow timber in southwest interior of WA and on Dirk Hartog Island, Shark Bay (Wilson and Swan, 2021).	The DBCA database identified two historical records within 50 km of the Survey Area, both 37.6 km South East in 1969. (DBCA, 2025)	**Medium** Both records are historical, however, SLR internal records indicate the taxa occurs 25 km South East of the Survey Area. Limited suitbable habitat within the Survey Area.



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