ADDENDUM TO:
Biological Survey: Werrilup Stage 3B

Report prepared for
Water Corporation
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REPORT CONTENTS

1 SUMMARY

The Water Corporation are proposing to undertake operations within the Werrilup Bore field area, approximately 7 kilometres (km) south west of Albany. An environmental assessment of a 29-hectare (ha) survey area was undertaken by Southern Ecology over eight days between 20th September to 5th December, 2022 (Southern Ecology 2023). Alterations in the project footprint project foot subsequently occurred, requiring an additional biological assessment to be undertaken in 2023. The outcomes of the additional survey undertaken by Southern Ecology are summarised in this addendum report.

Flora and Vegetation

- One Threatened and one Priority-listed flora were recorded –
  - *Calectasia cyanea* (T - CR)
  - *Adenanthos x cunninghamii* (P4)
- Three native vegetation types were described that are concordant with Albany Regional Vegetation Survey (ARVS) Mapping Units: -

  1. Coastal Yate Woodland (ARVS Unit 1)
  2. Peppermint Low Forest (ARVS Unit 2)
  3. Coastal Heath (ARVS Unit 3a)

- One Threatened and four Priority Ecological Communities occur in the vicinity; no vegetation in the survey area meets the requisite criteria for these communities.

Fauna

- Three fauna habitats occur in the survey area, in which seven conservation significant fauna are considered either to likely or possibly occur: Western Ringtail Possum (*Pseudocheirus occidentalis*) (T-CR), Baudin's Cockatoo (*Calyptorhynchus baudinii*) (T-EN), Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (T-EN), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (T-Vu), Main's Assassin Spider *(Zephyrarchaea mainae)* (T-Vu), Quenda (*Isoodon obesulus* subsp*. fusciventer*) (P4) and Western Brush Wallaby (*Notamacropus irma*) (P4).
- A targeted assessment determined Western Ringtail Possum (WRP) 'supporting' habitat occurred in Peppermint Woodland and Heath habitats (total of 4.6 ha).
- A targeted assessment for three Threatened Black Cockatoo species determined Eucalypt Forest habitats (total of 0.3 ha) in the survey area provided foraging habitat (medium quality) and roosting habitat.

2 INTRODUCTION

2.1 Project Background

The Water Corporation are proposing to undertake operations within the Werrilup Bore field area, approximately 7 km south west of Albany. In 2022, Southern Ecology was engaged to assess a project envelope for potential constraints related to vegetation, flora, fauna or other environmentally sensitive values. The total surveyed area was 29 ha within a corridor (20 to 50 metre (m) wide) along approximately 6 km of existing tracks and firebreaks (Figure 1). The area was surveyed over eight days between 20th September to 5th December, 2022 (Southern Ecology 2023).

Alterations in the project footprint project foot subsequently occurred, requiring an additional biological assessment to be undertaken in 2023. A 20 m expansion of the potential footprint corridor along 2.4 km of the western section was assessed, which comprised an additional 5 ha (herein called the 'survey area'). The outcomes of the additional survey are summarised in this addendum report.

2.2 Scope and Objectives

The objective of the biological survey was to delineate key flora, fauna, soil, groundwater and surface water (wetlands) values within the 'addendum 'survey area. The outcome of the survey and information supplied in the biological survey addendum report will be used to inform the environmental assessment and approvals process. The scope of works included the following:

- Conduct a detailed vegetation and flora survey to:
    - Verify and ground truth the desktop assessment findings.
    - Undertake vegetation type (in accordance with Sandiford and Barrett 2010) and condition mapping.
    - Identify and map the presence of any Threatened or Priority ecological communities (TECs or PECs).
    - Complete targeted searches to record the presence of any Threatened and Priority flora, Weeds of National Significance (WoNS) or Declared Pests, and map the extent of populations if encountered.
- Conduct a Basic (Level 1) fauna survey and targeted Black Cockatoo habitat and Western Ringtail Possum (WRP) assessments to:
    - Identify and map fauna habitat, including a summary of conservation significant fauna considered likely or possible to occur, or fauna recorded in each habitat type.
    - Record native and non-native fauna within the survey area.
    - Identify and map of Black Cockatoo foraging habitat, roosting, potential breeding and actual breeding trees (suitable DBH trees) in accordance with Commonwealth guidelines.
    - Identify and map WRP habitat in accordance with Commonwealth guidelines.

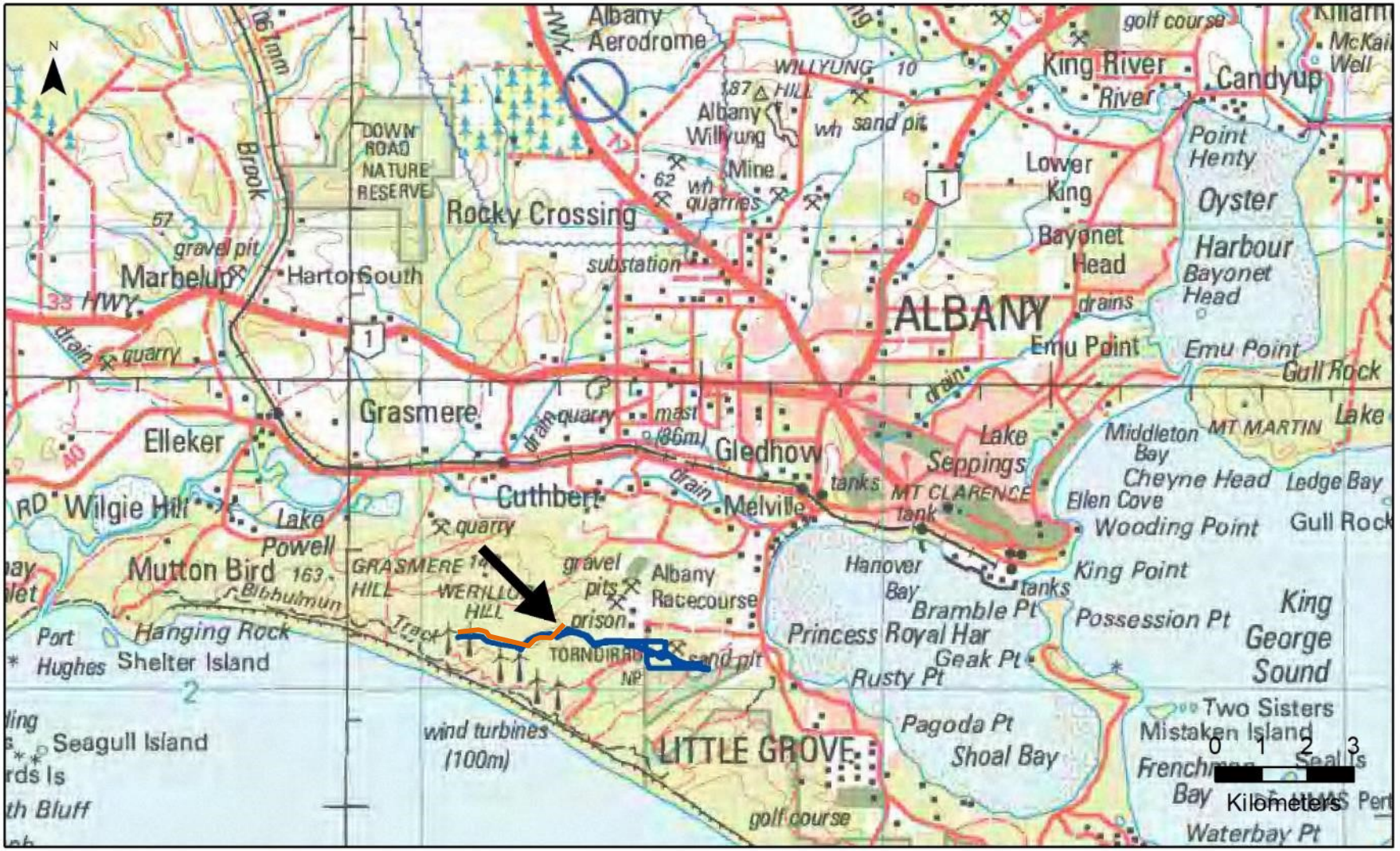

Figure 1. Project area location (blue polygon) with orange line indicating section requiring expansion of corridor (i.e., the survey area).

3 METHODS

3.1 Personnel

The assessment was conducted by Damien Rathbone (senior ecologist, BScHons Plant Science, Scientific License FB2000229). Damien has over 16 years of experience conducting biological surveys in southern Western Australia. Within the South Coast region, he has previously undertaken Department of Biodiversity, Conservation and Attractions (DBCA) regional surveys (Albany Regional Vegetation Survey, Fitzgerald River National Park Flora Survey, Ravensthorpe Range Flora Survey), threatened species survey and recovery implementation, and has 10 scientific publications. Damien is also an accredited interpreter for dieback assessments on DBCA estate (Accreditation PDI-032).

3.2 Desktop Assessment

A brief of desktop information of known or potential significant vegetation, flora and fauna within a 10 km radius (12 km for Black Cockatoo species) of the survey area (the study area) was undertaken using the following sources:

- Threatened and Priority flora and fauna records from DBCA and/or the Western Australian Herbarium (mapped in Appendix B).
- PEC and TEC mapping from the Species and Communities Branch, DBCA, (mapped in Appendix B).
- Protected Matters Search Tool (Department of Climate Change, Energy, Environment and Water [DCCEEW] (2023)
- Albany Regional Vegetation Survey (Sandiford and Barrett 2010).
- Existing biological survey reports for the Werrilup area: Southern Ecology (2023), GHD (2016); Rathbone (2019) and Invertebrate Solutions (2020).

3.3 Field Assessment

3.3.1 Field Survey Schedule and Type

Field surveys for vegetation, flora and fauna were undertaken over two days between the 30th of November and the 4th of December, 2023.

Surveys were conducted in accordance with the Environmental Protection Authority (EPA) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016), Technical Guidance - Sampling methods for Terrestrial Vertebrate Fauna Surveys (EPA 2020) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) guidance for significant species (e.g., Black Cockatoos). Overall, the survey effort comprised:

- Vegetation type and condition survey.
- Targeted flora survey.
- Basic (Level 1) fauna survey.
- Targeted fauna survey for Western Ringtail Possum.

- Targeted fauna survey for Black Cockatoos (Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Baudin's Cockatoo (*Calyptorhynchus baudinii*); and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*)).

Survey effort derived from GPS tracklogs is shown in Appendix B.

3.4 Targeted Flora Search

Targeted searches for potential Threatened and Priority flora identified from the desktop assessment were conducted in the appropriate season to detect most of the Threatened or Priority species considered possible to occur. The survey area was initially assessed to identify vegetation types and condition. Vegetation and habitat types that were identified as potentially suitable for Threatened or Priority flora were surveyed by an intensive pattern of meandering transects. Where encountered, population census and site information of Threatened or Priority flora was recorded using a handheld GPS (Garmin 64) and in accordance with the Threatened and Priority Flora Report Form Field Manual (Department of Environment and Conservation [DEC] 2010).

3.5 Fauna Assessment

A fauna habitat assessment was undertaken for conservation significant fauna that could potentially occur in the survey area. The fauna habitat assessment primarily focused on the identification of fauna habitat based on vegetation type. Opportunistic recording of evidence (sightings, bird calls, tracks, scats, bones and feeding signs) of conservation significant fauna was also undertaken.

Identification and quantification of habitat for Western Ringtail Possum and three species of Black Cockatoo (Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo) was specifically undertaken within the survey area, in accordance with EPBC Act guidelines (DEWHA 2009, Department of Sustainability, Environment, Water, Population and Communities [DSEWPaC 2012] Department of Energy and Environment [DoEE] 2017, Department of Agriculture, Water and Environment [DAWE] 2022). Habitat quality was categorised to identify important areas for each species.

3.6 Survey Limitations

In accordance with the EPA documents *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016) and Technical Guidance – *Terrestrial vertebrate fauna surveys for environmental impact assessment* EPA (2020) an assessment of potential survey limitations was undertaken (Table 1). No avoidable limitations were identified that can be expected to have affected the reliability of the results of the field survey.

The information provided within this report is accurate and correct to the best of the author's knowledge. However, no liability is accepted for loss, damage or injury arising from its use. Plant populations can fluctuate over time, particularly after disturbance events such as fire and drought. Consequently, all mapping, vegetation descriptions and population estimates within this report should not be considered accurate indefinitely.

Table 1. Assessment of potential survey limitations for flora and fauna.

Potential for limitation	Assessment
Availability of contextual information	Flora: Regional vegetation mapping (Sandiford and Barrett 2010) and flora records from the DBCA were available to allow for an appropriate level of contextual information prior to the field survey. Due to the proximity to Albany the environmental values within the survey area are considerably to be well documented. Fauna: There has been no comprehensive classification of fauna habitats across the region, so it was necessary to base fauna habitats on ARVS vegetation units. No regional biological (fauna) survey has been carried out for the region. Local assessments for Western Ringtail Possum were considered during the assessment (i.e., Oyster Harbour Catchment Group surveys (Mt Melville and Mt Adelaide/Clarence)).
Personnel experience	Flora and fauna: The senior ecologist conducting the assessments is competent with sufficient experience (>10 years) in surveying south coast biota.
Adequacy of survey scope	Flora and fauna: A flora survey, basic fauna survey and targeted assessments were sufficient to determine the biological limitations relating to vascular flora and basic fauna habitats within the survey area.
Proportion of flora and fauna recorded, identification issues or sampling biases	Flora: All specimens collected were identified to species level. The survey intensity is considered sufficient to have recorded all or most of the native species present in the survey area. Fauna: For non-targeted fauna species only opportunistic sampling was undertaken, thus this was biased toward species that can easily be detected by sightings or by prominent signs such as scats or diggings. Nocturnal, cryptic, less common species or seasonal visitors were not likely to have been identified during the survey. For example, the Main's Assassin Spider is a cryptic species and is unlikely to be detected though signs and requires sampling and trapping to determine its presence.
Extent of survey and site access	Flora and fauna: The areas of intact native vegetation were adequately surveyed and no major access restrictions were present.
Timing/weather/season/cycle	Flora: Sufficient rainfall occurred prior to the surveys, such that the seasonal conditions were considered appropriate for recording the flora values present. Fauna: Timing of surveys may not have been within the breeding season of the Forest Red-tailed Black Cockatoo (breeding can occur at any time of year depending on resource availability).
Disturbances (e.g. fire, flood, accidental human intervention etc.) which affected results of survey	Flora: Some long unburnt areas may have reduced to ability to detect some fire ephemeral species. Fauna: No disturbances were likely to have affected the fauna survey results.

4 RESULTS

4.1.1 Vegetation

Three native vegetation types were described from the survey area, all occurring in Excellent condition (Table 2). All of these vegetation types were previously recorded in the project area (Southern Ecology 2023). Remaining areas were mainly comprised of roads, tracks or residential areas.

Within the local region, there is approximately 35% total remnant vegetation, of which 19% and 39% occur in IUCN or Crown reserves, respectively (includes Albany Regional Vegetation survey area of 125,415 ha) (Sandiford and Barrett 2010). When aligned with mapping Units and conservation criteria in the Albany Regional Vegetation Survey, one type (Coastal Yate Woodland) from the survey area is relatively uncommon (i.e., <500 ha in total) (Table 3).

None of the vegetation types described from the survey area are considered wetland or riparian types, TEC's or PEC's.

Vegetation mapping is provided in Appendix B, Maps 1.

Table 2. Extent (ha) and condition of remnant and non-native vegetation in the survey area.

	Condition (EPA 2016)					
Vegetation Type (ARVS Unit)	**Completely Degraded**	**Degraded**	**Good**	**Very Good**	**Excellent**	**Total:**
1. Coastal Yate Woodland (ARVS Unit 1)	-	-	-	-	0.3	0.3
2. Peppermint Low Forest (ARVS Unit 2)	-	-	-	-	3.7	3.7
3. Coastal Heath (ARVS Unit 3a)	-	-	-	-	0.9	0.9
					Sub-total:	**4.9**
Cleared						0.1
					Total:	**5.0**

Table 3. Overall extent and reservation status of vegetation types from the survey area and local status derived from the Albany Regional Vegetation Survey (Sandiford and Barrett 2010). Includes IUCN I-IV reserves with Albany Region (<35 km radius).

Vegetation Type (ARVS Unit)	Current Extent		Reserve IUCN I-IV	
	ha	**%**	**ha**	**%**
Coastal Yate Woodland (1)	419	0.9	90	21.4
Peppermint Low Forest (2)	1,232	2.8	281	22.8
Coastal Heath (3) (*includes Coastal Heath 3a and Cyathochaeta equitans Sedgeland 3b*)	3,737	8.5	830	22.2

4.1.2 Conservation Significant Flora

One Threatened (T) and one Priority flora taxa were recorded during the survey (mapped in Appendix B):

***Calectasia cyanea* (T - CR)**

A member of the Dasypogonaceae family, *Calectasia cyanea* is a clump forming, woody perennial herb growing between 0.1 m and 0.6 m high to 0.3 m wide. The flowers are vivid blue/purple with anthers that are red and yellow. Flowering occurs from June to October (Western Australian Herbarium 1998–). It occurs in heathland on flat to gentle slopes growing in white sand or laterite gravel. The species is known from 15 records distributed across approximately 3 km on the Torndirrup Peninsula and Werrilup area (Plate 1).

Calectasia cyanea is EPBC listed as Critically Endangered due to its small area of occupancy, low number of plants and threats including fire and road works. Herbarium notes indicate plants are rare in frequency, often with only one or two plants being recorded.

One population of this taxon occurs within and closely adjacent to the survey area. Three individual plants occur within the survey area, and a further four plants occur in close vicinity (Appendix B). Under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, and the Environmental Protection (Environmentally Sensitive Areas) Notice 2005, the continuous vegetation within 50 m of Threatened flora is declared as an Environmentally Sensitive Area (ESA), therefore is relevant to these survey results.

Plate 1. *Calectasia cyanea* (T) and distribution (WAH 1998-).

***Adenanthos x cunninghamii* (P4)**

Adenanthos x cunninghamii is a 'Priority 4' flora from the Proteaceae family. It is a stable hybrid between two common species, *A. sericeus* and *A. cuneatus*. It is known from 62 records across a range of approximately 64 km between Waychinicup National Park and the Werrilup area. A single outlying record is located approximately 107 km to the north, near Tambellup. Six existing records of the taxon occur within 750 m of the survey area (WAH 1998-). During the survey area, three individual hybrids were recorded.

Plate 2. ***Adenanthos x cunninghamii*** **(P4) displaying intermediate characteristics of parent species and regional distribution (WAH 1998-).**

4.1.3 Conservation Significant Fauna

Black Cockatoo Species: Baudin's Cockatoo (*Calyptorhynchus baudinii*) (T-EN), Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (T-EN) and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*) (T-VN)

Desktop and Field Results

Sighting records of the three Black Cockatoo species are numerous throughout the study area (>500) (Threatened and Priority fauna records, DBCA). Whilst Baudin's and Carnaby's cockatoo have been repeatedly recorded in the coastal vegetation adjacent to and including the Torndirrup Peninsula, Forest Red-tailed Black Cockatoo records are absent from the coastal hills and are all located to the north around the Albany area.

Foraging Habitat

Approximately 0.3 ha of Eucalypt Forest (Coastal Yate Woodland) occurs with Yate (*Eucalyptus cornuta*) providing a potential food plant for Carnaby's and Baudin's Black Cockatoo. No foraging debris was observed during the survey. However, the numerous sighting records and nearby confirmed roosting locations (see below) in the study area increases the likelihood that Carnaby's and Baudin's Black Cockatoo species may forage within the available habitat. Records indicate that Forest Red-tailed Black Cockatoo is far less common in the vicinity of the survey area, and with *Eucalyptus cornuta* not specifically identified as a preferred food plant, it is considered unlikely to utilise this habitat for foraging.

The foraging habitat scoring tool (DoEE 2017) was used to undertake a quality assessment of the Coastal Yate Woodland for the Carnaby's and Baudin's Black Cockatoo species (Table 4). This area was initially scored as a 7 (High-Quality) with context adjustments first increasing the score to 9 (contains trees with potential to be used for breeding (DBH ≥ 500 mm) and then reducing the score to 6 (Medium-Quality) due to a lack of clear evidence of feeding debris (-2) and being greater than 12 km from a known breeding location (-1) (DoEE 2017). A total of 0.3 ha of Medium-Quality (6/10) foraging habitat was mapped within the survey area (Appendix B, Map 2).

Roosting Habitat

Fifteen unconfirmed roost sites for Black Cockatoo occur within 12 km of the survey area (DBCA 2019b). Two confirmed roosting sites for Carnaby's Cockatoo occur approximately 6 – 9 km to the northeast in Marri Jarrah Forest/Peppermint Woodland on Mt Melville and in tall *Taxandria juniperina* trees at Lake Seppings in Albany (DBCA 2018). There are no confirmed roosting sites within 12 km for Baudin's Cockatoos or Forest Red-tailed Black Cockatoo. However, some Black cockatoo flocks around Albany are mixed flocks comprising both Carnaby's and Baudin's Cockatoos and thus the confirmed roosting sites for Carnaby's Cockatoos may contain some Baudin's individuals (Sarah Comer, South Coast Regional Ecologist, DCBA, *pers.com.*)

Within the survey area there is a potential for Black Cockatoo species to roost in the trees within the Coastal Yate Woodland (0.3 ha). However, there is no specific evidence of utilisation.

Breeding Habitat

The survey area occurs within the known distribution and predicted breeding range of Baudin's Cockatoo and Carnaby's Cockatoo. Forest Red-tailed Black Cockatoo are known to occur and may breed in suitable trees anywhere within their range of occurrence (DSEWPaC 2012). There are no confirmed breeding sites for any of the three Black Cockatoo species within 12 km of the survey area.

No suitable DBH trees (all *Eucalyptus cornuta*) were recorded in the survey area (i.e., DBH ≥ 500 mm). No trees within the survey area contained hollows with an opening greater than 100 mm; no suitable hollows for Black Cockatoo breeding where recorded.

Table 4. Extent (ha) of Black Cockatoo habitat types within the survey area. FRTBC = Forest Red-Tailed Black Cockatoo.

Habitat Quality/Type	Fauna Habitat	Foraging Score Carnaby's	Foraging Score Baudin's	Foraging Score FRTBC	Area (ha)
Medium-Quality Foraging	Eucalypt Forest	6	6	N/A	0.30
Night Roosting	Eucalypt Forest	N/A	N/A	N/A	0.30

Western Ringtail Possum (*Pseudocheirus occidentalis*) (T-CR)

Preferred habitat for the Western Ringtail Possum on the south coast of Western Australia differs from the Swan Coastal Plain. In the Albany region the species has been recorded in coastal heath, Jarrah/Marri woodland and forest, Jarrah/Sheoak woodland, peppermint woodlands, myrtaceous heaths and shrublands, Bullich (*Eucalyptus megacarpa*) dominated riparian zones and Karri forest (*Eucalyptus diversifolia*) (DPAW 2014).

The survey area contains suitable 'supporting' habitat for Western Ringtail Possum (T - CR) within Peppermint Woodland and Peppermint Heath (total of 4.6 ha). Coastal vegetation and suburban areas contiguous with the survey area are known to be utilised by Western Ringtail Possum and records have been previously recorded nearby (~0.6 km) (Threatened and Priority fauna records, DBCA). The coastal reserve system is also recognised as an important 'Macro Corridor' utilised by Western Ringtail Possum (Wilkins *et al*. 2006).

No direct observations of individual, scats or dreys were observed during the field survey. The thick ground cover and absence of perches would have inhibited the detection of scats and the absence of dreys indicates the possums may alternatively be utilising the thick ground cover for refuge (Van Helden *et al.* 2018).

Main's Assassin Spider *(Zephyrarchaea mainae)* (T)

Little is known about the distribution, habitat and ecology of Main's Assassin Spider. The species is restricted to coastal forests where it is found occupying a complex understorey layer of 'elevated leaf-litter'. The majority of known records of Main's Assassin Spider are located south of the survey area within Reserves 13773 and 2903. Limited survey has determined the species linear range to be approximately 250 km between Walpole and Bremer Bay (Rix and Harvey 2009, Invertebrate Solutions 2020).

Rix and Harvey (2009) describe the habitat of Main's Assassin Spider as an elevated and interconnected 'matrix' of leaves and twigs that form on the crowns of grasses and graminoids over time, which occur in dark, thickly-vegetated gullies with *Agonis flexuosa*. Known records occur within Peppermint Woodland (Peppermint low forest) vegetation. The key components of the habitat are that they: (A) form protected, shaded habitats for the spiders in an otherwise exposed landscape; (B) drop copious numbers of leaves for the formation of an elevated leaflitter understorey; and (C) are conducive to the growth of understorey sedges and grasses.

In the Werrilup area, two previous targeted surveys for the species (Rathbone 2019; Invertebrate Solutions 2020) undertook sampling for individuals in potential habitat, but none were recorded.

Prior field assessment at three known localities (in Reserve 13773) of the Main's Assassin Spider determined the characteristics of the habitat in the local area. Within the survey area, no analogous habitat was recorded, however due to the species cryptic nature and the limited information on its habitat, it is possible that some areas may support the species. Approximately 3.7 ha (Peppermint Woodland) within the survey area were considered to possibly contain habitat for *Z. mainae*. Some differences between the known habitat and possible habitat in the survey area were noted including, a) generally less leaf litter deposition, b) a greater cover of *Hibbertia furfuracea* and c) many of the deepest swales were not suitable habitat as they had a sparse cover of *Agonis flexuosa* resulting from frost impacts (due to their location further inland).

Quenda (*Isoodon obesulus* subsp. *fusciventer*) (P4)

The Quenda occurs in wet or dry sclerophyll forest through to open woodland and scrubby, dense vegetation on sandy soils. The species often feeds in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover (Paull 2008). The species is considered likely to occur in Peppermint Heath and Woodland (4.6 ha) within the survey area.

Western Brush Wallaby *(Notamacropus irma)* (P4)

Western Brush Wallaby is a Priority 4 listed species recorded from within vegetation continuous with the Survey Area (<200 m). The species is considered likely to occur in Peppermint Heath and Woodland (4.6 ha) within the survey area, at least intermittently.

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6 APPENDIX A - Conservation Status Definitions

Table A1. Acts relevant to environmental impact assessment.

Environment Protection and Biodiversity Conservation [EPBC] *Act 1999*	https://www.legislation.gov.au/Details/C2016C00777
Environmental Protection [EP] *Act 1986*	https://www.slp.wa.gov.au/legislation/statutes.nsf/law_a252.html
Biodiversity Conservation [BC] *Act 2016*	https://www.slp.wa.gov.au/legislation/statutes.nsf/law_a147120.html

Table A2. The categories for flora and fauna listed as Threatened or specially protected. Taxa can be recognised as Threatened (T) or Conservation Dependent under Commonwealth (EPBC) and / or State (BC) Acts.

Threat category	Definition
Threatened - Critically Endangered (T-CR)	Considered to be facing an extremely high risk of extinction in the wild
Threatened – Endangered (T-EN)	Considered to be facing a very high risk of extinction in the wild
Threatened – Vulnerable (T-VN)	Considered to be facing a high risk of extinction in the wild
Threatened - Presumed extinct (T-EX)	Species which have been adequately searched for and there is no reasonable doubt that the last individual has died.
Conservation dependant (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened
Migratory birds protected under international agreement (IA)	Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds
Other specially protected fauna (OS)	Fauna otherwise in need of special protection to ensure their conservation

Table A3. Flora or fauna that are potentially threatened but do not meet the survey criteria or are otherwise data deficient are listed under Priority categories with the Department of Biodiversity, Conservation and Attractions.

Category	Description
Priority One (P1)	Known from few locations (generally <5), small populations and/or occurring on land with insecure tenure
Priority Two (P2)	Known from few locations (generally <5), small populations with some occurring on land with secure tenure
Priority Three (P3)	Known from several locations with habitat not under imminent threat
Priority Four (P4)	(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy

Table A4. Categories for ecological communities listed as Threatened (TEC). Communities can be recognised as Threatened under Commonwealth (EPBC) and / or State (BC) Acts.

Category	Description
Presumed totally destroyed (PU)	Adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.
Critically Endangered (CR)	Adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future.
Endangered (EN)	Adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future.
Vulnerable (VU)	Adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium (within approximately 50 years) to long-term future.

Table A5. The categories for ecological communities listed as Priority (PEC) with the Department of Biodiversity, Conservation and Attractions.

Category	Description
Priority One (P1)	Known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha) and are currently under threat
Priority Two (P2)	Known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years)
Priority Three (P3)	Known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or: (ii) known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or; (iii) made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc
Priority Four (P4)	Adequately known, rare but not threatened or meet criteria for Near Threatened or that have been recently removed from the threatened list. These communities require regular monitoring
Priority Five (P5)	Conservation dependant ecological communities. Not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years

Table A6. Species that are 'introduced' or 'weeds' can potentially be listed under the state Biosecurity Management Act (DPIRD 2019) or under the commonwealth Weeds of National Significance (WoNS) (DotEE 2019b).

Category	Description
Declared Pest, Prohibited - s12	Prohibited organism and may only be imported and kept subject to permits. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions
Permitted - s11	Permitted organisms must satisfy any applicable import requirements when imported. They may be subject to an import permit if they are potential carriers of high-risk organisms
Declared Pest - s22(2)	Declared pests must satisfy any applicable import requirements when imported, and may be subject to an import permit if they are potential carriers of high-risk organisms. They may also be subject to control and keeping requirements once within Western Australia
Permitted, Requires Permit - r73	Regulation 73 permitted organisms may only be imported subject to an import permit. These organisms may be subject to restriction under legislation other than the Biosecurity and Agriculture Management Act 2007. Permit conditions applicable to some species may only be appropriate or available to research organisations or similarly secure institutions
WoNS	Weeds of National Significance – this is nationally recognised list of weeds agreed by Australian governments based on an assessment process that prioritised weeds based on their invasiveness, potential for spread and environmental, social and economic impacts. Consideration was also given to their ability to be successfully managed.

7 APPENDIX B – Maps (See attachments)