

# **Fauna and Habitat Assessment**

Cape Leeuwin Trail, Dead Finish to Cape  
Leeuwin



**Litoria Ecoservices**  
Environmental Assessment, Planning & Management

Prepared December 2019  
by Litoria Ecoservices  
for the Shire of Augusta Margaret  
River

This document has been prepared by Litoria Ecoservices for the express use of the client. Litoria Ecoservices accepts no responsibility to any third party who may rely upon this document.

All rights reserved. No section or element of this document may be removed from this document, reproduced, electronically stored or transmitted in any form without the written permission of Litoria Ecoservices.

DRAFT

Version	Date	Version Purpose	Author	Distributed to:	Date
V 1	19/12/ 2019	Draft for client review	████████	████████████████	19/12/19

TABLE OF CONTENTS	PAGE
1.0 INTRODUCTION .....	2
1.1 Background .....	2
1.2 Description of the proposal .....	2
1.3 Assessment Objectives and Scope .....	2
1.4 Site Description.....	2
1.5 Vegetation .....	2
2. METHODOLOGY .....	4
2.1 Scope of Work .....	4
2.2 Desktop Review .....	4
2.3 Reconnaissance Survey.....	4
2.4 Targeted Spotlighting.....	4
2.5 Targeted Search for Leeuwin Freshwater Snail.....	5
3. FAUNA AND HABITAT ASSESSMENT .....	6
3.1 Variables influencing the assessment .....	6
3.2 Desktop Review .....	6
3.2.1 Database Searches.....	7
3.2.2 Connectivity .....	8
3.3 Results of the Reconnaissance Survey.....	8
4. DISCUSSION .....	10
4.1 Significant Species .....	10
4.2 Significant Habitat Features .....	12
5. CONCLUSIONS AND RECOMMENDATIONS .....	13
5.1 Findings.....	13
5.2 Recommendations.....	13
6. REFERENCES .....	15
FIGURE 1 – SITE LOCATION .....	16
FIGURE 2 : SIGNIFICANT FAUNA OBSERVATIONS.....	17
FIGURE 3 : VEGETATION MAPPING UNITS.....	19
APPENDIX 1: SPOTLIGHTING OBSERVATION RECORDS .....	21
APPENDIX 2: PHOTOS .....	23
APPENDIX 3: NATUREMAP SEARCH RESULTS (10KM BUFFER) .....	24

## 1.0 INTRODUCTION

### 1.1 Background

Litoria Ecoservices (LE) was commissioned by the Shire of Augusta Margaret River to undertake a flora and vegetation assessment to guide the development of the Cape Leeuwin dual use trail between Dead Finish and Cape Leeuwin. The preliminary assessment was undertaken in conjunction with a Flora Survey and Vegetation Assessment undertaken for the same reserve/ target corridor.

### 1.2 Description of the proposal

The Augusta Margaret River Shire proposes to construct a walk and cycle path up to 2.5m wide from Dead Finish to the Cape Leeuwin Lighthouse, a distance of approximately 2,500m. This path would link with existing trails, as well as other trails currently under construction between the Augusta Boat Harbour and Dead Finish, to provide a trail linking Cape Leeuwin to Augusta.

The Shire has worked with Common Ground Trails to develop a proposed alignment between Leeuwin Road and the coast. Alternative alignments have also been identified in some areas.

### 1.3 Assessment Objectives and Scope

This preliminary assessment was undertaken in September, October and November 2019, with the following objectives:

1. To document the general habitat types present across the site;
2. To compile a list of terrestrial vertebrate species previously recorded in the local area;
3. Identify terrestrial vertebrate fauna of conservation significance that potentially occur within the site; and
4. Develop technical advice and recommendations to help guide the development to protect and where possible restore fauna and habitat values across the site with particular respect to the critically endangered Western Ringtail Possum

This assessment essentially represents a desktop assessment coupled with a reconnaissance survey with a focus on the critically endangered Western Ringtail Possum.

### 1.4 Site Description

The site ranges between 40m and 300m in width, bounded by Leeuwin Road and the coast. It consists of coastal vegetation communities intermixed with exposed granite. Vegetation within the site ranges from primary sand dune communities through to dense heathland, open granite areas and low, closed peppermint forest. It is undulating, with predominantly south facing slope, as well as some steeper hillsides and vertical rockfaces through the eastern portion of the site. The site includes a number of lookouts, carparking and formal and informal coastal carparks and pedestrian and vehicle beach tracks.

### 1.5 Vegetation

The site vegetation is dominated by coastal native vegetation with the majority of the site forming closed heath, closed scrub and low closed Peppermint forest.

Augusta Margaret River Shire is situated within the South West Botanical Province of WA which is internationally recognised as a biodiversity hotspot. Within this, the site lies in the Boranup System of the Western Botanical subdistrict within the Darling Botanical District. The Western Botanical subdistrict spans from Cape Naturalist to Albany with Augusta/ Cape Leeuwin falling within the Boranup System. This broader system is described as Tall Forest of Karri (*Eucalyptus diversicolor*) on red earths and Forest of Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) on the red and yellow podzolic soils. Extensive paperbark (*Melaleuca* spp.) and sedge swamps occur in the valleys and flood plains. (Beard 1990)

The Flora and Vegetation Assessment highlighted a range of six Vegetation units across the site and vegetation condition ranging from excellent through to degraded.

One Priority Ecological Community (PEC) and one Threatened Ecological Community (TEC) were identified on the site as part of the Flora and Vegetation Assessment.

The Endangered (at both State and Commonwealth level) Threatened Ecological Community (TEC): ‘Rimstone Pools and Cave structures formed by microbial activity on the marine shoreline: Augusta Microbial – (Aquatic rootmat community Number 1 in caves of the Leeuwin – Naturalist Ridge.)’ was identified on site and confirmed during a site visit with Clare Forward and Natasha Moore both from DBCA. These occurrences represent previously unmapped communities not currently on the database of existing known populations.

In addition to the above mentioned endangered TEC, the Priority 2 listed ecological community (PEC) : ‘*Melaleuca lanceolata* forests (*Melaleuca lanceolata* forests, Leeuwin Naturaliste Ridge)’ was recorded from the western most portion of the site. This community was not identified within the database searches covering a 10km radius around the site although it is noted that the community extends across Leeuwin Road and through to the carpark near the waterwheel..

## 2. METHODOLOGY

### 2.1 Scope of Work

This preliminary assessment has included the following elements:

- Desktop study to collate historical knowledge;
- a reconnaissance survey involving opportunistic observations made during five visits to the site;
- targeted search for Cape Leeuwin Snail undertaken during a site walk with Clare Forward (DBCA); and
- targeted spotlighting for WRP

Limitations in the survey are acknowledged in that it is limited in scope, duration, detail and seasonality. If a detailed survey was undertaken or the site assessed at different seasons throughout the year, utilised invasive trapping methodologies, the fauna recorded for the property could be significantly expanded.

### 2.2 Desktop Review

The purpose of the desktop review was to gather existing information for the site and information on fauna records in the locality. In this instance this involved a review of the following the following:

- Preliminary Western Ringtail Possum Habitat Assessment and Survey conducted in November 2017 for the adjoining section of the Cape Leeuwin Trail;
- DBCA Threatened and Priority Fauna Database (this utilised an approximate 10km buffer surrounding the survey area);
- SEWPAC Protected Matters Search Tool (this utilised an approximate 10km buffer surrounding the survey area)
- A review of the site vegetation as classified under the South West Regional Ecological Linkages (SWREL)
- A review of the NatureMap online database

These sources were used to compile a list of significant species previously recorded in the area surrounding the site.

### 2.3 Reconnaissance Survey

The reconnaissance survey was conducted over four days including over four days including 27<sup>th</sup> September, 6<sup>th</sup> October, 8<sup>th</sup> November and 25<sup>th</sup> November 2019. The reconnaissance survey involved opportunistic recordings of fauna observations including both sightings and other indications including calls, scat searches, diggings and nests/dreys. Following the observation of *Pseudocheirus occidentalis* (Western Ringtail Possum or WRP) scat and dreys during the daytime observations, Litoria Ecoservices undertook three nights of spotlighting targeting potential WRP habitat within the reserve. This component of the survey was specifically focused on four transects along and adjacent to the proposed path alignment covering a 20m wide corridor. A more general assessment was made of the broader reserve adjoining the corridor.

### 2.4 Targeted Spotlighting

Three nights and a total of 8.5 hours of spotlighting was undertaken using a LED Lenser H14.2 headtorch on the nights of the 23<sup>rd</sup> of October and 7<sup>th</sup> and 19<sup>th</sup> November 2019.

These evenings commenced a minimum of 45 minutes after sunset and focused on the habitats considered most likely to support Western Ringtail Possums.

## **2.5 Targeted Search for Leeuwin Freshwater Snail**

Following the recording of two new TEC Tufa microbial communities within the site, Clare Forward from DBCA was contacted and a site visit was arranged on 12<sup>th</sup> November 2019 to investigate the likelihood of Cape Leeuwin Snail populations being found in association with the Tufa communities. A small area (less than 100m<sup>2</sup>) of suitable dampland vegetation was identified adjacent to the Tufa community and a brief search was conducted.

DRAFT

### 3. FAUNA AND HABITAT ASSESSMENT

#### 3.1 Variables influencing the assessment

The following variables which may influence the assessment are documented in table 1.

**Table 1. Variables Associated with the Assessment**

Variable	Details
Experience levels and resources	The scientist that undertook the assessment was regarded as suitably qualified for the nature of assessment undertaken: Drew McKenzie – Ecologist Has over 15 years experience undertaking ecological assessments in both South East Queensland and South West WA including Level 1 assessment. Over 12 years of experience has focused on ecological assessment and management within the Capes region.
Scope: sampling methods/ intensity	The site reconnaissance was predominantly focused upon the 20m wide corridor within the broader site. It also was specifically focused on Western Ringtail Possum and Quenda habitat and indications and spotlighting for Western Ringtail Possums.
Sources of Information	The Capes region has been the focus of a number of targeted biological surveys. Documented information regarding the site and nearby surrounds was limited, however, the assessment was able to utilise a number of relevant databases and local records.
Timing, weather, season	The survey was undertaken during Spring 2019. Spring 2019 was considered dry for the region (and much of the South West) although this was not considered to significantly influence the results of the survey.
Disturbances	No disturbances such as fire or clearing had recently occurred on or adjacent to the site.
Access	The extreme density of vegetation within 2m of ground height through parts of the survey area provided challenges with regard to access with some small areas considered impenetrable and requiring diversion around and observation from the edge. Additionally the density of vegetation made spotlighting difficult in terms of movement through the vegetation and the noise generated by this movement may have reduced the likelihood of observing some individuals. This was particularly so within the Tall Closed Scrub vegetation unit.

#### 3.2 Desktop Review

The following provides results of the desktop review.



### 3.2.1 Database Searches

A search of the DBCA and SEWPAC databases provided a list of 20 species of conservation significance previously recorded from surrounding areas (excluding marine and wader species) including 12 threatened species, 5 priority listed species, 1 (non Marine) species under International Agreements and 2 specially protected fauna species. Table 2 below identifies the significant fauna species identified from DBCA and SEWPAC database searches as being recorded in the nearby locality (marine and wader bird species excluded).

**Table 2. Threatened species highlighted through database searches as recorded from within 10km of the survey site. ( Note: Marine species have been excluded from this list.)**

NAME	COMMON NAME	WA CONSERVATION CODE	COMMONWEALTH LISTING
<b>Threatened Species</b>			
<i>Austroassiminea lethia</i>	Cape Leeuwin Snail	VU	
<i>Botaurus poiciloptilus</i>	Australasian Bittern	T	Endangered
<i>Calyptorhynchus latirostris</i>	Carnaby's Cockatoo	EN	Endangered
<i>Calyptorhynchus banksii</i> subsp. <i>Naso</i>	Forest Red-tailed Black-Cockatoo	T	Vulnerable
<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	EN	Endangered
<i>Dasyurus geoffroii</i>	Chuditch	VU	Vulnerable
<i>Leipoa ocellata</i>	Malleefowl	VU	Vulnerable
<i>Nannatherina balstoni</i>	Balston's Pygmy Perch	T	Vulnerable
<i>Pezoporus flaviventris</i>	Western Ground Parrot	CR	Vulnerable
<i>Phascogale tapoatafa</i> ssp. (WAM M434)	Brush-tailed Phascogale, Wambenger	CD	
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	CR	Vulnerable
<i>Setonix brachyurus</i>	Quokka	VU	Vulnerable
<b>Priority Species</b>			
<i>Tyto novaehollandiae novaehollandiae</i>	Masked owl (southwest)	P3	
<i>Isoodon obesulus</i> subsp. <i>Fusciventer</i>	Quenda, Southern Brown Bandicoot	P4	
<i>Notamacropus eugenii derbianus</i>	Tammar Wallaby	P4	
<i>Macropus irma</i>	Western Brush Wallaby	P4	
<i>Thinornis rubricollis</i>	Hooded plover, hooded dotterel	P4	
<b>Migratory Species</b>			
<i>Pandion haliaetus</i>	Osprey	IA	IA
<b>Specially Protected Fauna</b>			
<i>Falco peregrines</i> subsp. <i>Macropus</i>	Australian Peregrine Falcon	S	
<i>Morelia spilota imbricata</i>	Carpet Python	S	

\*It should be noted that some of these records are historical in nature.

The results of the search of the NatureMap online database is provided as Appendix 3.

### 3.2.2 Connectivity

It is noted that the site is directly connected to a very large extensive patch of very good to excellent condition remnant vegetation to the west. The South West Regional Ecological Linkages project classified the connectivity value of vegetation throughout the south west. Under the mapping produced through this project, the remnant vegetation through the site has also been identified as 1a – with an edge touching or <100m from a linkage (the highest level of proximity to an axis line).

### 3.3 Results of the Reconnaissance Survey

Table 3 below summarises the fauna observations made during the course of the reconnaissance survey.

**Table 3: Opportunistic vertebrate fauna records.**

Common Name	Scientific Name	Status	Nature of the record
<b>Reptiles</b>			
Bobtail	<i>Tiliqua rugosa</i>		O
Dugite	<i>Pseudonaja affinis</i>		O
<b>Birds</b>			
Nankeen Kestrel	<i>Falco cenchroides</i>		O
Australian Raven	<i>Corvus coronoides</i>		O
Baudins Black Cockatoo	<i>Calyptorhynchus baudinii</i>	End.	O, C
Rock Parrot	<i>Neophema petrophila</i>		O
Silvereye	<i>Zosterops lateralis</i>		O, C
Southern Emu Wren	<i>Stipiturus malachurus</i>		C
White-browed Scrubwren	<i>Sericornis frontalis</i>		O
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>		O
White-breasted Robin	<i>Eopsaltria georgiana</i>		O
Grey Fantail	<i>Rhipidura fuliginosa</i>		O, C
Silver Gull	<i>Larus novaehollandiae</i>		O, C
Pacific Gull	<i>Larus pacificus</i>		O
Ruddy Turnstone	<i>Arenaria interpres</i>		O
Sooty Oyster Catcher	<i>Haematopus fuliginosus</i>		O
Australian Pied Oystercatcher	<i>Haematopus longirostris</i>		O
Sanderling	<i>Calidris alba</i>		O
Hooded Plover	<i>Thiornus rubricollis</i>	P4	O
<b>Mammals</b>			
Western Grey Kangaroo	<i>Macropus fuliginosus</i>		S
Western Ringtail Possum	<i>Pseudocheirus occidentalis</i>	T, V	O, S, D
Quenda/ Southern Brown Bandicoot	<i>Isodon obesulus fusciventer</i>	P5	T
Chuditch	<i>Dasyurus geoffroii</i>		O
Red Fox	<i>Vulpes vulpes</i>	Int.	O

**Key to Record:** O: Observed S:Scat T: Tracks/scratching/diggings C:Call D:Drey  
**Status key:** Int: Introduced, P5: Priority 5 WA WC Act, T: Threatened WA WC Act, V: Vulnerable EPBC Act

The reconnaissance survey conducted over four days including 27th September, 6<sup>th</sup> October, 8<sup>th</sup> November and 25<sup>th</sup> November 2019 identified the following significant features of the site:

- *Isoodon obesulus fusciventer* (Southern Brown Bandicoot, Quenda) diggings were observed through all vegetation units on the site;
- *Pseudocheirus occidentalis* (Western Ringtail Possum) observations of scat, dreys were made within the portions of the site mapped as Low Closed Forest and Tall Closed Scrub;
- The Low Closed Forest of *Agonis flexuosa* throughout the site was considered as having significant potential as WRP habitat;
- Although no specific indications were observed during the reconnaissance survey, the Dense Heath of *Spyridium globulosum*, *Olearia axillaris* and *Leucopogon parviflorus* may also be utilised by WRP;
- Although identified as having good potential for WRP, it is noted that the small pocket of Low Closed Forest of *Melaleuca lanceolata* within the western portion did not record any signs of WRP;
- Nesting of the P4 species *Thinornis rubricollis* (Hooded Plover) was observed on the beach Dead Finish within 200m of the site; and
- *Calyptorhynchus baudinii* (Baudin's Black Cockatoo) was observed flying through the site.

The spotlighting undertaken on the nights of 23<sup>rd</sup> October and the 7<sup>th</sup> and 19<sup>th</sup> of November 2019 provided the following observations or confirmations of value:

- A total of 13 WRP records were made across the three nights within Low Closed Forest of *Agonis flexuosa*;
- A single WRP was observed within the Tall Closed Scrub within 50m of the Flinders Lookout;
- A single Chuditch was observed on the night of the 19<sup>th</sup> November at the western end of the site on the bare granite between the ocean and the *Melaleuca lanceolata* PEC vegetation community; and
- A single Red Fox was observed near the coast of ringbolt bay on the night of the 23<sup>rd</sup> October.

The targeted search for the *Austroassiminea lethia* Leeuwin Freshwater Snail led by Clare Forward of DBCA yielded a number of individuals and dead but in-tact shells. These shells were collected by Clare Forward and provided to the WA museum for formal identification. On 17th of December we received confirmation that the shells collected were *Austroassiminea lethia*. The survey was purely aimed at confirming or otherwise their presence on site – it did not attempt to quantify or map the extent of the population.

The locations of significant sightings and observations are detailed in Figure 2.

## 4. DISCUSSION

### 4.1 Significant Species

Of the threatened or priority species identified through the database search, the following were either directly observed on site, evidence of the species were observed on site or are predicted as having potential to utilise the site:

- *Austroassiminea lethae* (Leeuwin Freshwater Snail);
- *Pseudocheirus occidentalis* (Western Ringtail Possum);
- *Isoodon obesulus subsp. Fusciventer* (Quenda);
- *Calyptorhynchus baudinii* (Baudin's Cockatoo);
- *Calyptorhynchus banksii subsp. Naso* (Forest Red-tailed Black-Cockatoo);
- *Calyptorhynchus latirostris* (Carnaby's Cockatoo);
- *Phascogale tapoatafa ssp. (WAM M434)* (Brush-tailed Phascogale);
- *Dasyurus geoffroii* (Chuditch);
- *Macropus irma* (Western brush wallaby);
- *Tyto novaehollandiae subsp. Novaehollandiae* (Masked Owl);
- *Thinornis rubricollis* (Hooded Plover); and
- *Morelia spilota imbricata* (South-west Carpet Python).

Whilst the preliminary assessment was largely focused on WRP, some preliminary observations are provided below in relation to these species based on the survey and habitat assessment of the site.

#### Leeuwin Freshwater Snail

Although previously recorded from nearby locations to the northwest of the site, no previous records of the Leeuwin Freshwater Snail (LFS) had been made within the site. The assessment confirmed a new population of LFS just east of Ringbolt Bay within a small area of dampland coastal vegetation adjacent a new Tufa record. This population has been confirmed by a museum identification. Other suitable dampland vegetation on the edge of the coastal granite should be searched and surveyed by an appropriately qualified and experienced ecologist to confirm to ensure that any other populations within the site are identified and captured..

#### Western Ringtail Possum

The assessment highlighted the presence of Western Ringtail Possums (WRP) throughout large portions of the Low Closed Forest of *Agonis flexuosa*. This was evidenced by the presence of dreys, scat and numerous spotlighting observations. The observation of several juveniles within that area and the other indications of useage suggests that this area likely represents breeding habitat. Although the Tall Closed Scrub vegetation unit is very difficult to effectively spotlight for WRP this unit was confirmed to be utilised by WRP (one spotlight sighting coupled with scat observation). Although no WRP were observed within the Dense Heath vegetation unit it is possible that this too is utilised by WRP.

### Quenda

Evidence (diggings) of this species were observed in all vegetation units of the site except the granite communities of Veg Unit 4 and 5 confirming their utilisation of large parts of the site. The dense understorey of most vegetation units especially the areas of dense *Lepidosperma gladiatam* is considered very good habitat for this species.

### Brushtailed Phascogale

No sightings or evidence of Brushtailed Phascogale were recorded during the site work. It is considered likely that they utilise the site.

### Black Cockatoos

The only black cockatoo species observed on site during the survey was Baudin's Black Cockatoo. Whilst the site is likely to be utilised seasonally for feeding by all three Black Cockatoo species it is not likely to represent a significant food resource for these species. The site does not contain habitat suitable for roosting or nesting.

### Chuditch

The most recent official record of Chuditch within 10km of the site prior to the assessment was nearly 30 years ago. Despite this, a Chuditch was observed during spotlighting survey at the Western end of the site. Whilst the individual was observed within the coastal granite it is considered possible that Chuditch utilise the full range of vegetation units within the site.

### Western Brush Wallaby

Western Brush Wallaby are frequently sighted in or around large unfragmented blocks of remnant vegetation in the Capes region. Given the connectivity of the site to large areas of unfragmented remnant vegetation it is possible that this species very occasionally utilises the site but it is considered very unlikely that the site is significant for this species.

### Masked Owl

Whilst not recorded during the site work, this species has the potential to occasionally utilise parts of the site from time. It is noted that Masked Owl's have been recorded within the Cape's region roosting in Low Closed Forest of *Agonis flexuosa*. The site does not contain hollows suitable for nesting.

### Hooded Plover

Hooded Plovers are regularly sighted on the beaches immediately adjoining the site and during the assessment Hooded Plovers were observed nesting on the beach just east of the site. It is uncertain as to whether this will prove to be a successful breeding but it confirms the site as significant to this priority listed species.

## Southwest Carpet Python

Whilst not observed during the reconnaissance survey it is considered highly likely that this species utilised the site.

### 4.2 Significant Habitat Features

A number of significant habitat features occur within the site. These include the Low Closed Forest of *Agonis flexuosa* and the Tall Closed Scrub as confirmed WRP habitat. These vegetation units are considered to represent good habitat for the critically endangered WRP which has been confirmed to utilise and occupy these vegetation units. A number of dreys were found within the Low Closed Forest of *Agonis flexuosa* vegetation unit and WRP scat was widespread within the unit. The other significant habitat feature of the site represents the dampland vegetation adjacent to Tufa community east of Ringbolt Bay. This habitat has been confirmed to support the Leeuwin Freshwater Snail.

DRAFT



## 5. CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Findings

Key findings of the assessment and spotlighting effort are as follows:

1. Multiple declared or priority fauna species were recorded on site during the survey including:
  - the critically endangered Western Ringtail Possum;
  - the Endangered Baudin's Black Cockatoo;
  - the Vulnerable Leeuwin Freshwater Snail;
  - the Vulnerable Chuditch;
  - the P4 species Quenda; and
  - the P4 hooded plover.
2. Western Ringtail Possum utilisation of the Low Closed Forest of *Agonis flexuosa* across the site was confirmed by observation of dreys, scat and spotlighting records;
3. Western Ringtail Possum utilisation of the Tall Closed Scrub was confirmed by a single spotlighting observation coupled with scat observation. It is noted however, that the nature of this vegetation community makes spotlighting difficult and likely to underestimate the population of WRP within this system;
4. Western Ringtail Possum utilisation of the closed Heath vegetation unit was not confirmed during the survey but is likely given the habitat preferences of this species;
5. The Leeuwin Freshwater Snail was confirmed within a small patch of dampland vegetation adjoining the Tufa community east of Ringbolt Bay this represents a population not previously recorded and an important asset to be managed within the reserve
6. Chuditch utilisation of at least the western portion of the site was confirmed through a spotlighting observation from less than 10m. Only one other observation has been formally registered within a 10km radius and that record is from nearly three decades ago.
7. Quenda utilisation of the site was confirmed with diggings frequently observed within all vegetation units except the granite communities of Veg Unit 4 and 5
8. The shoreline portion of the site supports a range of important migratory and priority listed birds including the P4 listed Hooded Plover.
9. A single European Red Fox was observed during the spotlighting survey.

### 5.2 Recommendations

Management recommendations to protect and enhance the identified fauna and habitat values of the site include:

1. Minimise clearing through the good, very good and excellent condition parts of the site;
2. Ensure that the dampland vegetation within which the Leeuwin Freshwater snail was recorded is protected and remains undisturbed;
3. Consult DBCA with regard to the management of the Cape Leeuwin Snail population and ensure that any trail construction upstream of the Leeuwin Freshwater snail habitat does not result in erosion or disturbance to the hydrology of the dampland vegetation – boardwalks should be considered through this portion of the trail. The possibility of

additional populations within the site should be explored with DBCA and appropriately skilled officers.

4. In order to minimise the potential impacts on WRP it would be preferable to realign the proposed trail in a way that minimises clearing and disturbance of the Low Closed forest of *A. flexuosa* and the Tall Closed Scrub;
5. Schedule any clearing activities outside of breeding periods for conservation significant fauna in order to reduce potential disturbance or stress to breeding animals;
6. Develop and implement a Management Plan for the Shire Reserves which form the site in order to ensure that the exceptional biodiversity, recreational and amenity values of the site are managed appropriately including addressing factors such as environmental weed management, feral animal control and pedestrian and vehicle access management;
7. Ensure that the trail construction and use does not result in erosion and the exposure of bare soil and the establishment of environmental weeds – ongoing maintenance will be required to ensure that the inevitable introduction of weeds and weed seeds do not establish and degraded what is currently overall very good condition bushland with significant habitat values;
8. If clearing is to occur within the Low Closed Forest of *Agonis flexuosa* and the tall *Closed Scrub*, wherever possible maintain branch and canopy connectivity alongside and over the pathway to minimise impacts on Western Ringtail Possum habitat;
9. Undertake strategic, effective bush regeneration and revegetation within the reserve to protect and enhance habitat;
8. Monitor and where necessary control the other environmental weeds recorded onsite. This will be especially necessary following fire and once construction begins and new soil and plant matter is introduced to the site;
9. Ensure hygiene management protocols are followed to address the potential spread and introduction of diseases such dieback and environmental weeds into the site; and
10. Ensure that any clearing within the Low Closed forest of *A. flexuosa* and the Tall Closed Scrub is undertaken in strict accordance to the DBCA clearing protocols including the presence of a fauna spotter and handler on site to manage any disturbed animals.



## 6. REFERENCES

- Beard, JS (1981) Vegetation Survey of Western Australia Vegetation series explanatory notes. UWA Press, Perth.
- Department of Parks and Wildlife (2014) Conservation Codes for Western Australian Flora and Fauna, Department of Parks and Wildlife, Western Australia.
- Department of Environment and Conservation (DEC) (2007) Definitions, categories and criteria for threatened and priority ecological communities.
- Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) (2019) Protected Matters Search Tool: Accessed November 2019.
- Environmental Protection Agency (2015) *Technical Guidance - Terrestrial Fauna Surveys* Environmental Protection Authority, Perth, Western Australia.
- Hoskin, C, Grigg, G, Stewart, D and MacDonald, S (2015) Frogs of Australia: An electronic field guide to the frogs of Australia.
- Mattiske, EM and Havel JJ (1998) Vegetation mapping in the South West of Western Australia and Regional Forest Agreement vegetation complexes. Department of Conservation and Land Management, Perth.
- Molloy, S., O'Connor, T., Wood, J. and Wallrodt, S. (2007), *Local Government Biodiversity Planning Guidelines: Addendum to the South West Biodiversity Project Area*, Western Australian Local Government Association, West Perth.
- Molloy, S., Wood, J., Hall, S., Wallrodt, S and Whisson, G. (2009). *South West Regional Ecological Linkages Technical Report*. Western Australian Local Government Association (WALGA) and the Department of Environment and Conservation (DEC), West Perth.
- Morcombe, M and Stewart, D (2015) eGuide to Australian Birds
- Strahan, R (1995) The Mammals of Australia, Strahan ed, Australian Museum/ Reed Books
- Simpson, K and Day, N (2010) Field Guide to the Birds of Australia (8<sup>th</sup> Edition) Viking Press.
- Tille, P J, and Lantzke, N C. (1990), Busselton, Margaret River, Augusta: land capability study. Department of Agriculture and Food, Western Australia. Report 5.

**FIGURE 1 – SITE LOCATION**

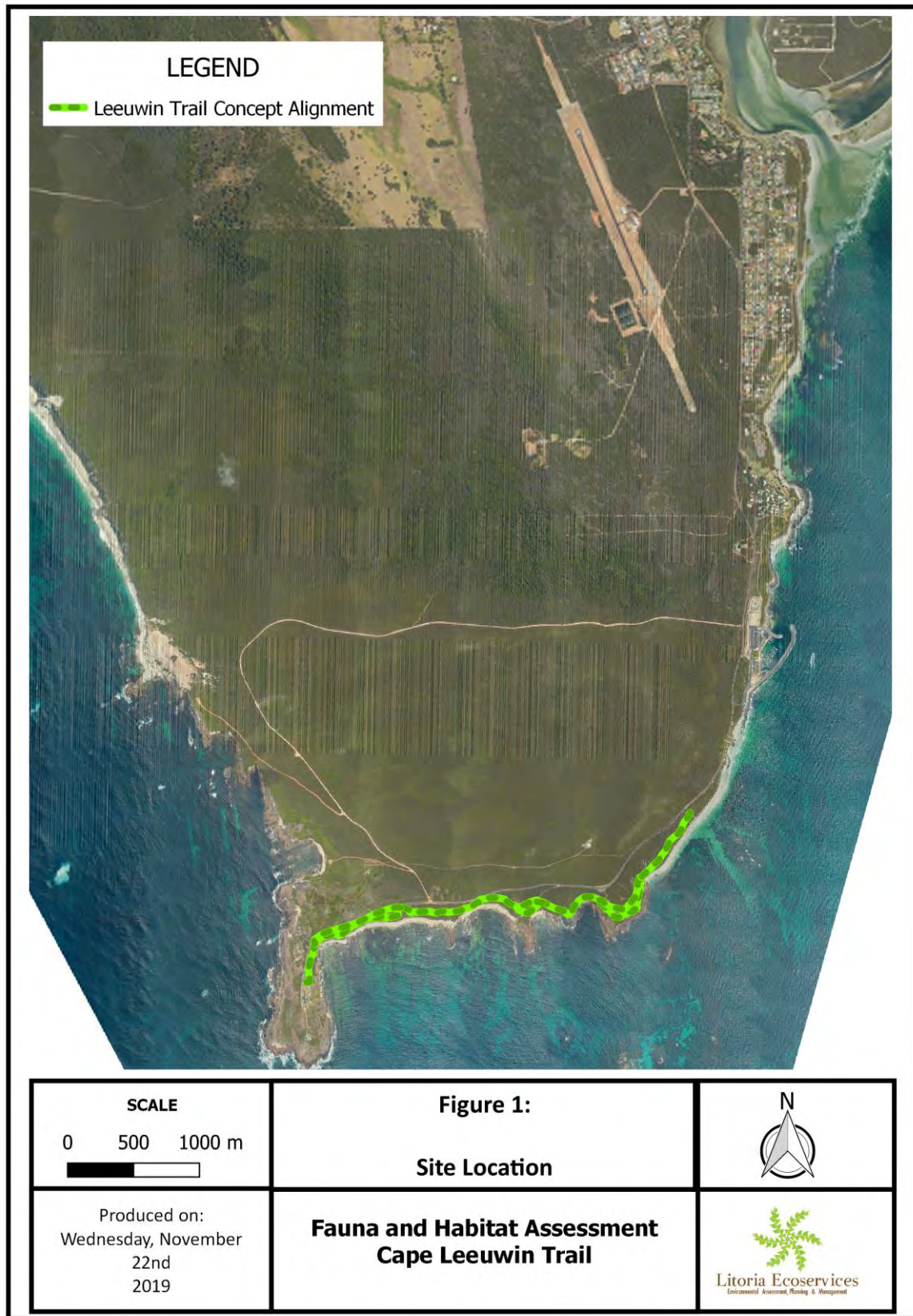
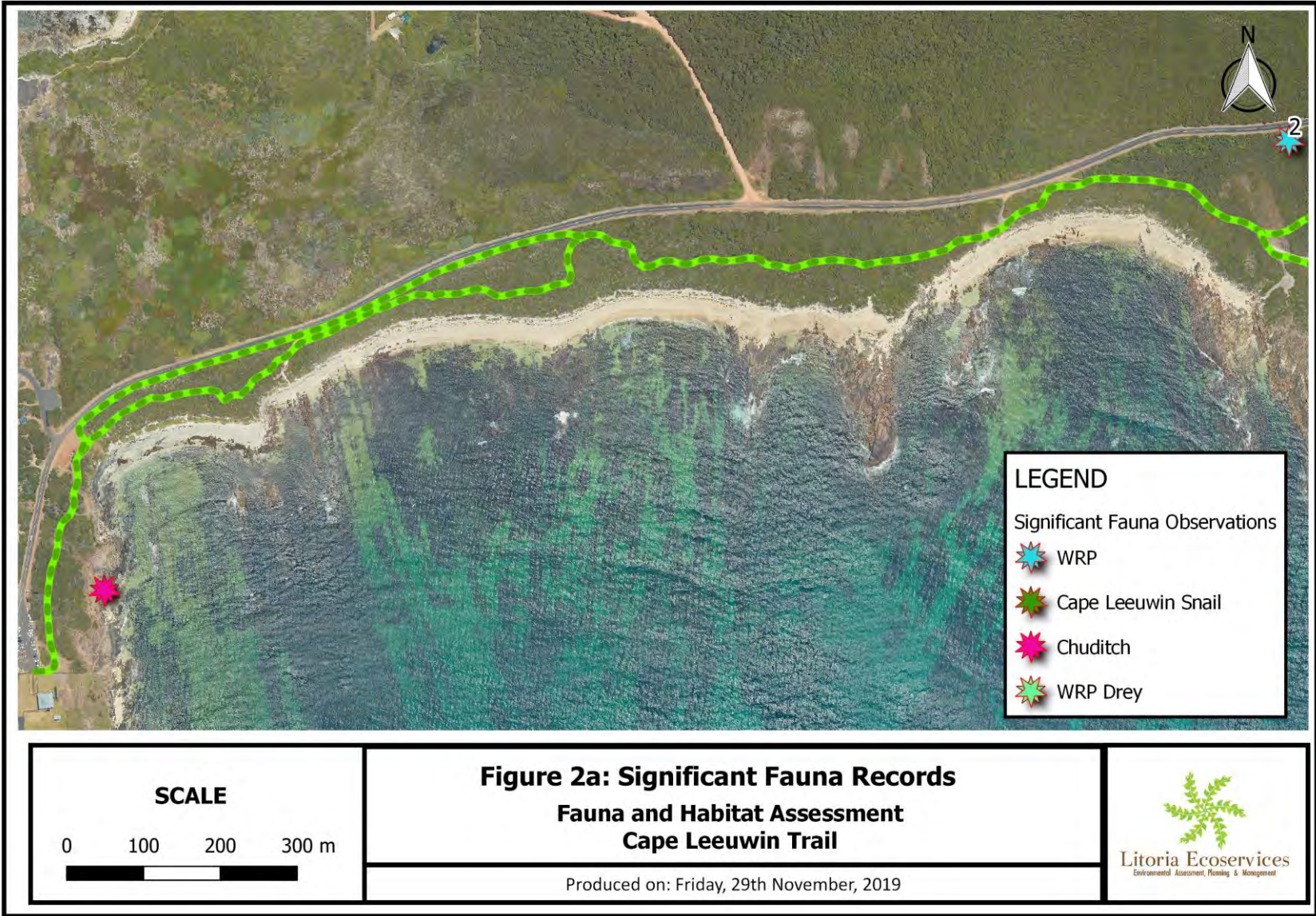




FIGURE 2 : SIGNIFICANT FAUNA OBSERVATIONS





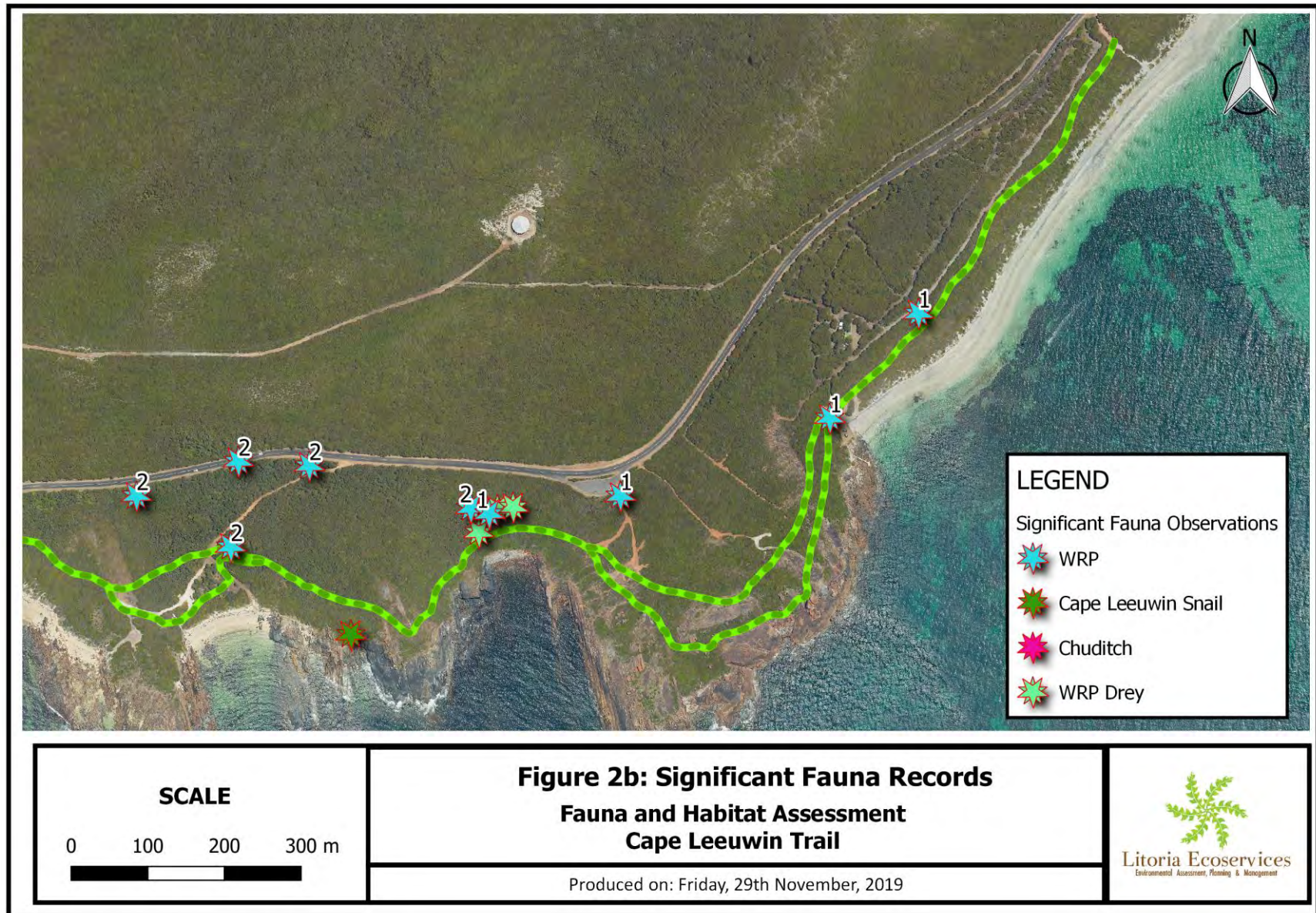
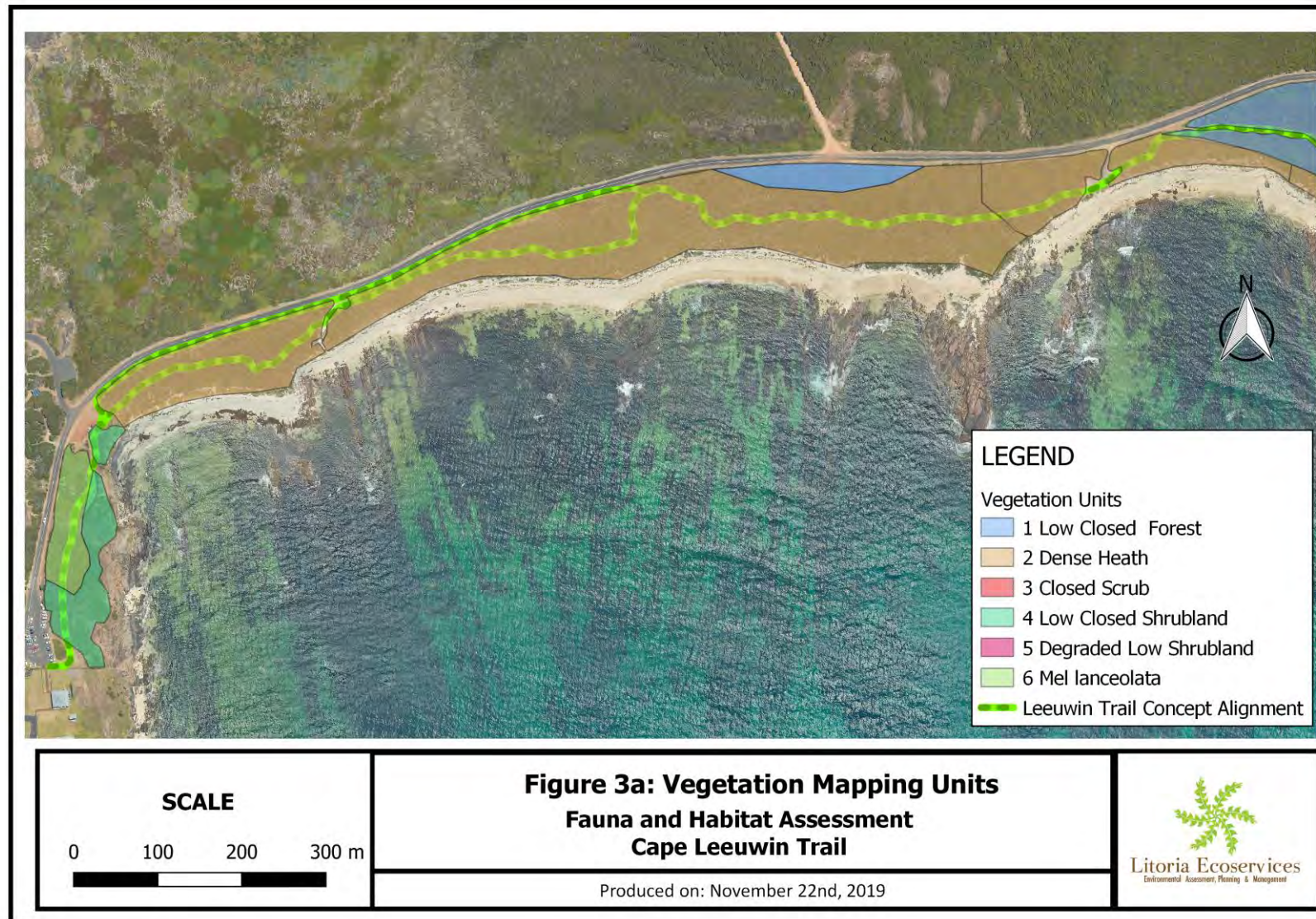
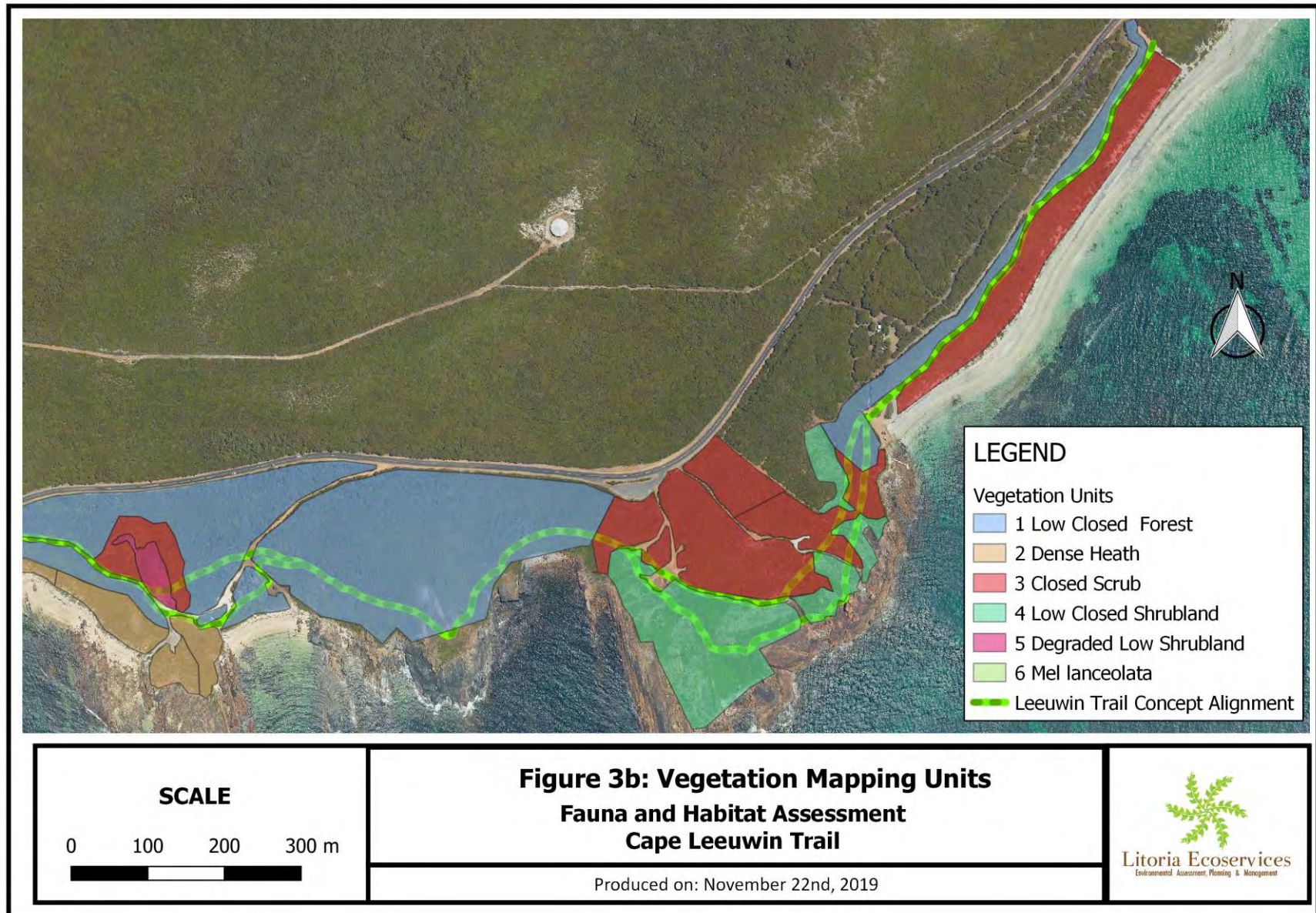




FIGURE 3 : VEGETATION MAPPING UNITS









**SPOTLIGHTING OBSERVATION RECORD 3:**

**Site:** Cape Leeuwin Trail - Dead Finish to Cape Leeuwin **Date:** 19/11/2019 **Observer:** [REDACTED]

**Wind:** ~15knots **Moon Phase:** 1/2 **Cloud (1/8):** 1/2 **Rain:** Approaching **Start:** 7:45 PM

**Finish:** 11 PM **Total Dist:** 3 km **Speed:** ~1km/hr

Record No.	Time (PM)	Species	# Ads	Sex	Juv/PY	Dist m	Plant sp occupied	Ht m	Comments
1	8:12	Chuditch	1			8m	Coastal Granite Rocks - no vegetation	Ground	Eyeshine spotted from ~100m away. The animal allowed my to approach to within 10m before retreating under the granite rocks.
2	8:50	WRP	1		1	7m	<i>A. flexuosa</i>	5m	
3	8:55	WRP	1		1	10m	<i>A. flexuosa</i>	6m	
4	9:23	WRP	1			2m	Marri moving into <i>Lepidosperma glad.</i>	1.5m then to ground	
5	9:31	WRP	1		1	2m	<i>A. flexuosa</i>	6m	
6	9:36	WRP	1			4m	<i>A. flexuosa</i>	4m	
7	10:07	WRP	1			10m	<i>A. flexuosa</i>	5m	
8	10:23	WRP	1			2m	<i>A. flexuosa</i>	3m	



APPENDIX 2: PHOTOS



WRP Dreys within the *Agonis flexuosa* Low Closed Forest.



WRP sighted 23/10/19



WRP sighted 19/11/19

**APPENDIX 3: NATUREMAP SEARCH RESULTS (10KM BUFFER)**

Animalia	
1	??
2	<i>Acanthaluteres brownii</i>
3	<i>Acanthaluteres spilomelanurus</i>
4	<i>Acanthaluteres vittiger</i>
5	<i>Acanthistius serratus</i>
6	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill) (Inland Thornbill)
7	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)
8	24262 <i>Acanthiza lineolata</i> (Western Thornbill)
9	24560 <i>Acanthorhynchus superciliosus</i> (Western Sparrowbill)
10	25035 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)
11	26636 <i>Accipiter fasciatus</i> (Brown Goshawk)
12	<i>Acentrogobius bifrenatus</i>
13	<i>Achoerodus gouldii</i>
14	42368 <i>Acrocephalus trilineatus</i> (Western Three-lined Skink)
15	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)
16	<i>Aeropus maculatus</i>
17	<i>Auricagodus suppositus</i>
18	<i>Alphichetta forsteri</i>
19	<i>Ammotretis rostratus</i>
20	24312 <i>Anas gracilis</i> (Grey Teal)
21	24316 <i>Anas superciliosa</i> (Pacific Black Duck)
22	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)
23	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)
24	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)
25	24265 <i>Aquila audax</i> (Wedge-tailed Eagle)
26	<i>Archhura higginsii</i>
27	24266 <i>Arctocephalus forsteri</i> (New Zealand Fur Seal) (long-nosed fur-seal)
28	24269 <i>Arctocephalus tropicalis</i> (Subantarctic fur-seal)
29	26668 <i>Ardea alba</i> (Great Egret)
30	41324 <i>Ardea modesta</i> (great egret, white egret)
31	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)
32	24341 <i>Ardea pacifica</i> (White-necked Heron)
33	41326 <i>Ardeona carnifex</i> (Flesh-footed Shearwater) (Fleshy-footed Shearwater)
34	41328 <i>Ardeona tenuirostris</i> (Short-tailed Shearwater)
35	26736 <i>Arenaria interpres</i> (Ruddy Turnstone)
36	<i>Arripis truttaceus</i>
37	25066 <i>Artamus leucorhynchus</i> (Black-faced Woodswallow)
38	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)
39	<i>Artibeus fuscus</i>
40	<i>Artibeus leucorhynchus</i>
41	<i>Atherosoma elongata</i>
42	<i>Atherosoma presbyteroides</i>
43	<i>Atherosoma wallacei</i>

**Fauna and Habitat Assessment**  
**Cape Leeuwin Trail Dead Finish to Cape Leeuwin, December 2019**

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
44.	<i>Aulohalaelurus labiosus</i>			
45.	<i>Austracantha minax</i>			
46.	34110 <i>Austroassiminea lethra</i> (Cape Leeuwin Freshwater Snail)		T	
47.	<i>Austrolabrus maculatus</i>			
48.	<i>Balami montana</i>			
49.	<i>Balami tegearioides</i>			
50.	<i>Barnardius zonarius</i>			
51.	24319 <i>Biziura lobata</i> (Musk Duck)			
52.	<i>Bodianus frenchii</i>			
53.	24724 <i>Cacatua pastinator</i> subsp. <i>pastinator</i> (Mull's Corella, Mull's Corella (Western Corella SW WA))		S	
54.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
55.	24427 <i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (Fan-tailed Cuckoo)			
56.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
57.	<i>Caesiopeca rasor</i>			
58.	24780 <i>Calidris alba</i> (Sanderling)		IA	
59.	25738 <i>Calidris canutus</i> (Red Knot, knot)		IA	
60.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
61.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
62.	<i>Callogobius depressus</i>			
63.	<i>Callogobius</i> sp.			
64.	25717 <i>Calyptrorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
65.	24731 <i>Calyptrorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
66.	24733 <i>Calyptrorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
67.	24734 <i>Calyptrorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
68.	48400 <i>Calyptrorhynchus</i> sp. (white-tailed black cockatoo)		T	
69.	<i>Caprichthys gymnura</i>			
70.	<i>Carcharhinus</i> sp.			
71.	25335 <i>Caretta caretta</i> (Loggerhead Turtle)		T	
72.	<i>Centropogon australis</i>			
73.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Munderara)			
74.	<i>Cercophonius sulcatus</i>			
75.	24186 <i>Chalinobius gouldii</i> (Gould's Wattled Bat)			
76.	24187 <i>Chalinobius morio</i> (Chocolate Wattled Bat)			
77.	25573 <i>Charadrius bicinctus</i> (Double-banded Plover)		IA	
78.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
79.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
80.	<i>Chelodactylus gibbosus</i>			
81.	<i>Chelidonichthys kumu</i>			
82.	<i>Chelmonops curiosus</i>			
83.	43380 <i>Chelodina collei</i> (South-western Snake-necked Turtle)			
84.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
85.	<i>Cherax quinquecarinatus</i>			
86.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
87.	<i>Chroicocephalus novaehollandiae</i>			
88.	<i>Chromis künzingeri</i>			
89.	24288 <i>Circus approximans</i> (Swamp Harrier)			
90.	24774 <i>Ciadorhynchus leucocephalus</i> (Banded Stilt)			
91.	<i>Cnidogobius macrocephalus</i>			
92.	<i>Cochleoceps bicolor</i>			
93.	<i>Cochleoceps</i> sp.			
94.	25675 <i>Coluricincla harmonica</i> (Grey Shrike-thrush)			
95.	24613 <i>Coluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
96.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
97.	<i>Conger wilsoni</i>			
98.	<i>Contusus brevicaudus</i>			
99.	25588 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
100.	<i>Coris auricularis</i>			
101.	<i>Corocephalus hartmeyerii</i>			
102.	<i>Corocephalus turneri</i>			
103.	25592 <i>Corvus coronoides</i> (Australian Raven)			
104.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
105.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
106.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
107.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
108.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
109.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
110.	<i>Cristiceps australis</i>			



**Fauna and Habitat Assessment**  
**Cape Leeuwin Trail Dead Finish to Cape Leeuwin, December 2019**

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Quary Area
111.	25027 <i>Ctenotus australis</i>			
112.	25031 <i>Ctenotus catenifer</i>			
113.	25049 <i>Ctenotus labillardieri</i>			
114.	24322 <i>Cygnus atratus</i> (Black Swan)			
115.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
116.	<i>Dactylophora nigricans</i>			
117.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
118.	<i>Dasyatis brevicaudata</i>			
119.	24092 <i>Dasyurus geoffroii</i> (Chuditch, Western Quoll)		T	
120.	25346 <i>Demochelys coriacea</i> (Leatherback Turtle)		T	
121.	<i>Dinolestes lewini</i>			
122.	<i>Diodon nictemerus</i>			
123.	25618 <i>Diomedea exulans</i> (Wandering Albatross)		T	
124.	<i>Dipulus hutchinsi</i>			
125.	<i>Dotiabrurus aenei</i>			
126.	24470 <i>Dromalus novaehollandiae</i> (Emu)			
127.	25251 <i>Echlopsis curta</i> (Bardick)			
128.	<i>Edelia vittata</i>			
129.	25096 <i>Egernia kingii</i> (King's Skink)			
130.	25100 <i>Egernia napoleonis</i>			
131.	<i>Egretta garzetta</i>			
132.	<i>Egretta novaehollandiae</i>			
133.	<i>Elianus axillaris</i>			
134.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
135.	<i>Elops hawalensis</i>			
136.	47937 <i>Eiseyornis melanops</i> (Black-fronted Dotterel)			
137.	<i>Engraulis australis</i>			
138.	<i>Enoplosus armatus</i>			
139.	<i>Eodelena iapidicola</i>			
140.	<i>Eolophus roseicapillus</i>			
141.	24651 <i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)			
142.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			
143.	<i>Epinephelides armatus</i>			
144.	24567 <i>Epthianura albitrons</i> (White-fronted Chat)			
145.	24043 <i>Eubalsena australis</i> (Southern Right Whale)		T	
146.	24818 <i>Eudyptula minor</i> subsp. <i>novaehollandiae</i> (Little Penguin)			
147.	<i>Eupetrichthys angustipes</i>			
148.	<i>Evliota bimaculata</i>			
149.	25621 <i>Falco berigora</i> (Brown Falcon)			
150.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
151.	25623 <i>Falco longipennis</i> (Australian Hobby)			
152.	<i>Favonigobius lateralis</i>			
153.	25727 <i>Fulica atra</i> (Eurasian Coot)			
154.	<i>Furgaleus macki</i>			
155.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
156.	<i>Gambusia affinis</i>			
157.	25404 <i>Geocrinia leai</i> (Ticking Frog)			
158.	<i>Geogarypus taylori</i>			
159.	34030 <i>Geotria australis</i> (Pouched Lamprey)		P3	
160.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
161.	<i>Girella tephraeops</i>			
162.	<i>Girella zebra</i>			
163.	24055 <i>Globicephala melas</i> (Long-finned Pilot Whale)			
164.	<i>Gonorynchus greyi</i>			
165.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
166.	24056 <i>Grampus griseus</i> (Risso's Dolphin)			
167.	<i>Gymnapistes marmoratus</i>			
168.	<i>Gymnothorax</i> sp.			
169.	<i>Gymnothorax woodwardi</i>			
170.	25627 <i>Haematopus fuliginosus</i> (Sooty Oystercatcher)			
171.	24487 <i>Haematopus longirostris</i> (Pied Oystercatcher)			
172.	<i>Haliaeetus semifasciata</i>			
173.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
174.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
175.	24296 <i>Hamirostra lsura</i> (Square-tailed Kite)			
176.	<i>Helicogramma decurvens</i>			
177.	25410 <i>Heleoporus eyrei</i> (Moaning Frog)			
178.	25118 <i>Hemiergis peronii</i> subsp. <i>tridactylis</i>			
179.	<i>Heteroclinus roseus</i>			
180.	<i>Heteroclinus</i> sp.			

**Fauna and Habitat Assessment**  
**Cape Leeuwin Trail Dead Finish to Cape Leeuwin, December 2019**

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
181.	<i>Heterodontus portusjacksoni</i>			
182.	47985 <i>Hieraaetus morphnoides</i> (Little Eagle)			
183.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
184.	<i>Hippocampus</i> sp.			
185.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
186.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakal)		P4	
187.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
188.	<i>Hyperlophus vittatus</i>			
189.	<i>Hypnos monopterygium</i>			
190.	<i>Hypoplectrodes nigroruber</i>			
191.	<i>Hypoplectrodes wilsoni</i>			
192.	<i>Hyporhamphus melanochir</i>			
193.	48588 <i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
194.	<i>Isopoda leishmanni</i>			
195.	<i>Itodes australiensis</i>			
196.	<i>Kyphosus cornelli</i>			
197.	<i>Lagynochthonius australicus</i>			
198.	24510 <i>Larus dominicanus</i> (Kelp Gull)			
199.	25638 <i>Larus pacificus</i> (Pacific Gull)			
200.	24512 <i>Larus pacificus</i> subsp. <i>georgii</i> (Pacific Gull)			
201.	<i>Latrodectus hasselii</i>			
202.	24557 <i>Leipoa ocellata</i> (Maileefowl)		T	
203.	<i>Lepidoblennius marmoratus</i>			
204.	47983 <i>Lepidogalaxias salamandroides</i> (Salamanderfish)		T	
205.	25133 <i>Lerista elegans</i>			
206.	25483 <i>Lerista microtis</i>			
207.	25154 <i>Lerista microtis</i> subsp. <i>microtis</i>			
208.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
209.	25739 <i>Limicola falcinellus</i> (Broad-billed Sandpiper)		IA	
210.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
211.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
212.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
213.	<i>Lophocitnia isura</i>			
214.	<i>Lotella rhacinus</i>			
215.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
216.	25650 <i>Malurus elegans</i> (Red-winged Fairy-wren)			
217.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
218.	24051 <i>Megaptera novaeangliae</i> (Humpback Whale)		S	
219.	24587 <i>Meliphreptus chloropsis</i> (Western White-naped Honeyeater)			
220.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
221.	24078 <i>Mesopiodon grayi</i> (Gray's Beaked Whale)			
222.	25419 <i>Metacrinia nicholisi</i> (Forest Toadlet)			
223.	<i>Meuschenia flavolineata</i>			
224.	<i>Meuschenia freyciheti</i>			
225.	<i>Microcanthus strigatus</i>			
226.	<i>Microcarbo melanoleucos</i>			
227.	<i>Mitotichthys meraculus</i>			
228.	25240 <i>Morone spilota</i> subsp. <i>montata</i> (Carpet Pygmy)			
229.	25322 <i>Morone spilota</i> subsp. <i>variegata</i> (Carpet Pygmy)			
230.	25111 <i>Morone</i> (Mecocoelata)			
231.	48008 <i>Morus serrator</i> (Australian Gannet)			
232.	<i>Mugil cephalus</i>			
233.	<i>Mugil</i> sp.			
234.	<i>Muraenichthys australis</i>			
235.	<i>Muraenichthys</i> sp.			
236.	24223 <i>Mus musculus</i> (House Mouse)			
237.	<i>Mustelus antarcticus</i>			
238.	25810 <i>Mylagra inquieta</i> (Restless Flycatcher)			
239.	<i>Nannoperca vittata</i>			
240.	<i>Nestypus obliquus</i>			
241.	24736 <i>Neophema elegans</i> (Elegant Parrot)			
242.	24739 <i>Neophema petrophila</i> (Rock Parrot)			
243.	<i>Nesaeostes parvus</i>			
244.	<i>Nicodamius mahnai</i>			
245.	25747 <i>Ninox connivens</i> (Barking Owl)			
246.	25252 <i>Notechis scutatus</i> (Tiger Snake)			
247.	<i>Notolabrus partus</i>			
248.	25742 <i>Numenius phaeopus</i> (Whimbrel)		IA	
249.	<i>Nunciopsis aspera</i>			
250.	25564 <i>Nycticorax nycticorax</i> (Rufous Night Heron)			

**Fauna and Habitat Assessment**  
**Cape Leeuwin Trail Dead Finish to Cape Leeuwin, December 2019**

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
251.	24194 <i>Myctophilus geoffroyi</i> (Lesser Long-eared Bat)			
252.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
253.	<i>Odax acroptilus</i>			
254.	<i>Omegophora cyanopunctata</i>			
255.	41347 <i>Onychoprion anaethetus</i> (Bridled Tern)		IA	
256.	<i>Ophichilus gracilis</i>			
257.	<i>Ophichilus pectoralis</i>			
258.	<i>Ophisurus serpens</i>			
259.	<i>Ophthalmolepis lineolatus</i>			
260.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
261.	<i>Pagrus auratus</i>			
262.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
263.	<i>Parablennius postoculomaculatus</i>			
264.	<i>Paraplesioptera meleagris</i>			
265.	<i>Parapriacanthus elongatus</i>			
266.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
267.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
268.	<i>Parma</i> sp.			
269.	<i>Parvicrepis</i> sp. 1			
270.	48057 <i>PeLAGODROMA marina</i> (White-faced Storm Petrel)			
271.	<i>PeLAGOS sexlineatus</i>			
272.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
273.	<i>Pempheris klunzingeri</i>			
274.	<i>Pempheris multiradiata</i>			
275.	<i>Pentasteron intermedium</i>			
276.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
277.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
278.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
279.	41348 <i>Pezoporus flaviventris</i> (Western Ground Parrot)		T	
280.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
281.	24664 <i>Phalacrocorax carbo</i> subsp. <i>novae-hollandiae</i> (Great Cormorant)			
282.	24665 <i>Phalacrocorax fuscescens</i> (Black-faced Cormorant)			
283.	24666 <i>Phalacrocorax melanoleucos</i> subsp. <i>melanoleucos</i> (Little Pied Cormorant)			
284.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
285.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
286.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
287.	25587 <i>Phaps elegans</i> (Brush Bronzewing)			
288.	48070 <i>Phascogale tapoatafa</i> subsp. <i>wambengeri</i> (South-western Brush-tailed Phascogale, Wambenger)		S	
289.	<i>Phoebastria immutabilis</i>			
290.	48071 <i>Phylidonyrs niger</i> (White-cheeked Honeyeater)			
291.	24596 <i>Phylidonyrs novaehollandiae</i> (New Holland Honeyeater)			
292.	<i>Phyllopteryx taeniolatus</i>			
293.	24073 <i>Physeter macrocephalus</i> (Sperm Whale)		T	
294.	<i>Pictilabrus laticlavus</i>			
295.	<i>Pictilabrus</i> sp.			
296.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
297.	<i>Platycephalus</i> sp.			
298.	25720 <i>Platyercus icterotis</i> (Western Rosella)			
299.	24747 <i>Platyercus spurius</i> (Red-capped Parrot)			
300.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
301.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
302.	<i>Podykipus collinus</i>			
303.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
304.	24681 <i>Pollocephalus poliocephalus</i> (Hoary-headed Grebe)			
305.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
306.	<i>Pseudocaranx dentex</i>			
307.	24166 <i>Pseudocheirus occidentalis</i> (Western Ringtail Possum, ngwayir)		T	
308.	<i>Pseudogobius olorum</i>			
309.	<i>Pseudolabrus biserialis</i>			
310.	<i>Pseudophycis breviuscula</i>			
311.	24063 <i>Pseudorca crassidens</i> (False Killer Whale)			
312.	<i>Pseudorhombus jenynsii</i>			
313.	24706 <i>Pterodroma macroptera</i> subsp. <i>gouldi</i> (Great-winged Petrel)			
314.	25712 <i>Puffinus assimilis</i> (Little Shearwater)			
315.	24715 <i>Puffinus huttoni</i> (Hutton's Shearwater)		T	
316.	24716 <i>Puffinus pacificus</i> (Wedge-tailed Shearwater)		IA	
317.	<i>Pugnaso curtirostris</i>			
318.	<i>Purpurecephalus spurius</i>			
319.	24243 <i>Rattus fuscipes</i> (Western Bush Rat)			

Fauna and Habitat Assessment  
Cape Leeuwin Trail Dead Finish to Cape Leeuwin, December 2019

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
320.	<i>Raveniella peckorum</i>			
321.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
322.	<i>Rhabdosargus sarba</i>			
323.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
324.	25614 <i>Rhipidura leucophrys</i> (White Wagtail)			
325.	<i>Schuettea woodwardi</i>			
326.	<i>Scobinichthys granulatus</i>			
327.	<i>Scomber australasicus</i>			
328.	<i>Scorpaena n. sp.</i>			
329.	<i>Scorpaena n. sp. A</i>			
330.	<i>Scorpaenodes steenei</i>			
331.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
332.	<i>Siliaginodes punctata</i>			
333.	<i>Siliago bassensis</i>			
334.	<i>Siliago schomburgkii</i>			
335.	<i>Siliago sp.</i>			
336.	<i>Siphonognathus beddomei</i>			
337.	<i>Siphonognathus caninus</i>			
338.	<i>Siphonognathus sp.</i>			Y
339.	24109 <i>Sminthopsis dolichura</i> (Little long-tailed Dunnart)			
340.	25515 <i>Sminthopsis griseoventer</i> (Grey-bellied Dunnart)			
341.	<i>Sphyræna novaehollandiae</i>			
342.	<i>Spratelloides robustus</i>			
343.	24645 <i>Stagonopleura oculata</i> (Red-eared Firetail)			
344.	48111 <i>Stenella attenuata</i> (Spotted Dolphin)			
345.	48113 <i>Stenella coerulescens</i> (Striped Dolphin)			
346.	48116 <i>Stercorarius antarcticus</i> (Brown Skua)		P4	
347.	24522 <i>Sterna bergii</i> (Crested Tern)			
348.	48594 <i>Sternula nereis</i> (Fairy Tern)			
349.	<i>Stichanum dorsale</i>			
350.	25655 <i>Stipiturus malachurus</i> (Southern Emu-wren)			
351.	24554 <i>Stipiturus malachurus subsp. westernensis</i> (Southern Emu-wren)			
352.	<i>Storosa tetraca</i>			
353.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
354.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
355.	<i>Sutorectus tentaculatus</i>			
356.	<i>Synchropus papilio</i>			
357.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
358.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
359.	<i>Tandanus bostocki</i>			
360.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
361.	34134 <i>Thalassarche carteri</i> (Indian Yellow-nosed Albatross)		T	
362.	34135 <i>Thalassarche cauta</i> (Shy Albatross)		T	
363.	34007 <i>Thalassarche chlororhynchos</i> (Atlantic Yellow-nosed Albatross)		T	
364.	44607 <i>Thalassarche melanophrys</i> (Black-browed Albatross)		T	
365.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
366.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
367.	<i>Threpterus maculosus</i>			
368.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
369.	<i>Thysanophrys chronasus</i>			
370.	25207 <i>Tiliqua rugosa subsp. rugosa</i>			
371.	<i>Tilodon sexfasciatus</i>			
372.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
373.	<i>Torquigener pleurogramma</i>			
374.	<i>Trachichthys australis</i>			
375.	<i>Trachinops brauni</i>			
376.	<i>Trachinops noarlungae</i>			
377.	<i>Trachurus novaezelandiae</i>			
378.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
379.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
380.	<i>Trinortolka incisa</i>			
381.	<i>Trygonorrhina fasciata</i>			
382.	30954 <i>Tursiops aduncus</i> (Indo-Pacific Bottlenose Dolphin)			
383.	24069 <i>Tursiops truncatus</i> (Bottlenose Dolphin)			
384.	24855 <i>Tyto novaehollandiae subsp. novaehollandiae</i> (Masked Owl (southwest))		P3	
385.	24386 <i>Vanelus tricolor</i> (Banded Lapwing)			
386.	<i>Venator immansueta</i>			
387.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
388.	<i>Vincentia punctata</i>			
389.	<i>Zephyrarchaea janineae</i>			