

Preliminary Western Ringtail Possum Habitat Assessment and Survey

Augusta Boat Harbour to Dead Finish,
Augusta



Litoria Ecoservices
Environmental Assessment, Planning & Management

Prepared November 2017
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for the Shire of Augusta
Margaret River

DRAFT

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1.0 INTRODUCTION

1.1 Background

Litoria Ecoservices (LE) was commissioned by the Shire of Augusta Margaret River to undertake a preliminary assessment of the potential for *Pseudocheirus occidentalis* (Western Ringtail Possum) (WRP) to occur within the a corridor proposed for the development of a walking trail between the Augusta Boat Harbour and Dead Finish. 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 Council resolved on 09 March 2016 to progressively construct a concrete dual use path from the Augusta Boat Harbour (ABH) to the Cape Leeuwin Lighthouse and to form a group to determine the most suitable alignment.

The group has developed a potential alignment for the first section of this 2m wide concrete dual use path between ABH and Dead Finish Rd, a distance of approximately 800m.

1.3 Site Description

The site represents a narrow band of coastal foreshore between Leeuwin Road and the coast ranging from primary dunes through degraded open areas to open heath, tall closed scrub and low closed peppermint forest. It is bounded to the north by the Augusta Boat Harbour and to the south by Dead Finish Rd. It is gently undulating and includes a number of beach tracks, lookouts and coastal carparks. The site location is shown in Figure 1.

1.4 Assessment Objectives and Scope

The preliminary assessment was undertaken in October and November 2017, with the following objectives:

1. To provide an indication of the likelihood of WRP utilising the site; and
2. To provide recommendations in relation to minimising impact on the species based on the findings of the preliminary Assessment.

1.5 Landform

The site is a gently undulating mix coastal foreshore less than 10m AHD.

The site lies within the Wilyabrup land system and the Busselton Margaret River Augusta Land Capability Survey describes the site as falling within land unit GrWLe3 – Wilyabrup exposed slopes phase. This unit is described as “Low Slopes (gradients generally 5-10%) exposed to strong winds off the ocean”

Soils are a mix of coastal sands over granite with occasional granite gneiss outcropping and expression.

1.6 Hydrology

No water courses or springs were encountered during the survey

1.7 Climate

Located in Western Australia's south-west, the area experiences a Mediterranean climate with hot dry summers and cool wet winters. Cape Leeuwin experiences an average annual rainfall of 961mm with the majority of this rain falling between May and October.

1.8 Vegetation

The site vegetation is dominated by coastal native vegetation with the majority of the site forming open 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 very good through to completely degraded.

No Priority or Threatened Ecological Communities (PEC or TEC) were identified on the site as part of the Flora and Vegetation Assessment.

2. METHODOLOGY

2.1 Scope of Work

This preliminary assessment has included the following elements:

- Desktop study to collate historical knowledge;
- a limited reconnaissance survey involving opportunistic observations made during the course of a Flora and Vegetation Assessment undertaken on the same reserve/ target corridor; 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 the following the following:

- 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)

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

2.3 Reconnaissance Survey

An initial site visit including habitat feature observations and records of indications of *Pseudocheirus occidentalis* (Western Ringtail Possum or WRP) (primarily drey presence and observations of scat) and *Isoodon obesulus subsp. Fusciventer* (Quenda) (the two significant species considered mostly likely to utilise the site as core habitat) were made on 29 October 2017. 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.

Following the observation of WRP scat and dreys during the daytime observations, Litoria Ecoservices were engaged to undertake two nights of spotlighting targeting potential WRP habitat within the reserve. The two nights of spotlighting were undertaken using a LED Lenser headtorch on the nights of 19 and 21 November 2017.

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 2017. Weather during this period was within the normal (post 2000) range for the season.
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 (5-10m) 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.

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 22 species of conservation significance previously recorded from surrounding areas (excluding marine and wader species) including 11 threatened species, 5 priority listed species, 4 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.

NAME	COMMON NAME	WA CONSERVATION CODE	COMMONWEALTH LISTING
Threatened Species			
<i>Austroassiminea lethra</i>	Cape Leeuwin Snail	VU	
<i>Botaurus poiciloptilus</i>	Australasian Bittern	T	Endangered
<i>Calyptorhynchus latirostris</i>	Carnaby's Cockatoo	T	Endangered
<i>Calyptorhynchus banksii</i> <i>subsp. Naso</i>	Forest Red-tailed Black-Cockatoo	T	Vulnerable
<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	T	Vulnerable
<i>Dasyurus geoffroii</i>	Chuditch	T	Vulnerable
<i>Nannatherina balstoni</i>	Balston's Pygmy Perch	T	Vulnerable
<i>Pezoporus flaviventis</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
Priority Species			
<i>Geotria australis</i>	Pouched Lamprey	P1	
<i>Hydromys chrysogaster</i>	Water-rat	P4	
<i>Isoodon obesulus</i> subsp. <i>Fusciventer</i>	Quenda, Southern Brown Bandicoot	P4	
<i>Macropus eugenii derbianus</i>	Tammar Wallaby	P4	
<i>Macropus irma</i>	Western Brush Wallaby	P4	
Migratory Species			
<i>Ardea alba</i>	Great Egret, White Egret	IA	IA
<i>Ardea ibis</i>	Cattle Egret	IA	IA
<i>Merops ornatus</i>	Rainbow Bee-eater	IA	IA
<i>Pandion haliaetus</i>	Osprey	IA	IA
Specially Protected Fauna			
<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.

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

The reconnaissance survey on 29th October identified the following features of the site:

- *Isoodon obesulus fusciventer* (Southern Brown Bandicoot, Quenda) diggings were observed through parts of the Southern portion of the site;
- *Pseudocheirus occidentalis* (Western Ringtail Possum) observations of scat, dreys were made within the portions of the site mapped as Low Closed Forest of *Agonis flexuosa*
- The Low Closed Forest of *Agonis flexuosa* throughout the site was considered as having significant potential as WRP habitat, with the southern portion of this vegetation unit showing widespread scat presence with some of the more dense locations highlighted within Figure 2
- Although no specific indications were observed during the limited survey, the Tall closed scrub of *Spyridium globulosum*, *Olearia axillaris* and *Leucopogon parviflorus* may also be utilised by WRP; and
- Although identified as having good habitat characteristics for WRP and having some WRP scat found within it, it is noted that the small pocket of Low Closed Forest of *Agonis flexuosa* within the northern part of the site only contained very sparse scat that was very old and it is suspected that this area is not currently being utilised by WRP.

The spotlighting undertaken on the night of 19 and 21 November 2017 provided the following observations or confirmations of value:

- A single WRP was observed within the vegetation immediately south west of the site; and
- Two WRP were observed within the south western portion of the site.

The locations of relevant 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:

- *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);
- *Macropus irma* (Western brush wallaby);
- *Tyto novaehollandiae subsp. Novaehollandiae* (Masked Owl)

Whilst this preliminary assessment was specifically focused on WRP, some preliminary advice and observation are provided below in relation to the other species based on the habitat observations made.

Western Ringtail Possum

The assessment highlighted the presence of Western Ringtail Possums (WRP) throughout the southern Low Closed Forest of *Agonis flexuosa*. This was evidenced by the presence of dreys, scat and spotlighting records. The observation of one juvenile within that area and the level of other indications of useage suggests that this area may form breeding habitat. Due to the difficulty in spotlighting due to the extreme density of vegetation there may be additional animals utilising the site that were not recorded during the spotlighting effort.

Quenda

Evidence (diggings) of this species were observed within the southern portion of the site confirming their utilisation of the site. Based on the limited number of diggings observed it is considered unlikely that Quenda are in high population densities or numbers within the site. The areas of dense *Lepidosperma gladiatam* understorey is considered good potential habitat for this species. It is possible that it is more widespread particularly utilising the other areas of the site containing dense understorey.

Brushtailed Phascogale

No sightings or evidence of Brushtailed Phascogale were recorded during the site work. There remains a possibility that they may utilise the site occasionally but it is considered that the site is unlikely to represent important habitat for the species.

Black Cockatoos

No Black Cockatoos of either species were observed on site during the survey. The site does not contain habitat suitable for roosting or nesting. It may be utilised for

feeding at certain times of the year but based on the floristics of the site it is not likely to represent a significant food resource for these species.

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. The limited area to be impacted by the proposal is not considered to be significant for this species.

4.2 Significant Habitat Features

The key significant habitat feature within the site is considered to be the Low Closed Forest of *Agonis flexuosa* within the southern portion of the site. This is considered to represent good habitat for the critically endangered WRP which has been confirmed to utilise and occupy the habitat and it is considered possible that this area forms breeding habitat for WRP. A number of dreys were found within this vegetation unit and WRP scat was widespread within the unit. More detailed assessment could both quantify and define the extent of scat coverage within this unit.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Findings

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

1. Two declared or priority fauna species were recorded on site during the survey including the critically endangered Western Ringtail Possum and the P4 species Quenda;
2. Confirmed Western Ringtail Possum utilisation of the site was within the Low Closed Forest of *Agonis flexuosa*;
3. Usage of the northern portion of the Low Closed Forest of *Agonis flexuosa* by WRP appears to be very occasional and limited;
4. Utilisation of the southern portion of the Low Closed Forest of *Agonis flexuosa* by WRP is likely to be quite widespread;
5. The density of the sitedifficulty in traversing parts of the site, and spotlighting within parts of the site make it possible that the numbers and/or extent of WRP utilisation of the site is greater than that observed during the limitations of the survey ;

5.2 Recommendations

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

1. Minimise clearing through the good and very good condition parts of the site.
2. In order to minimise the potential impacts on WRP it would be preferable to realign the proposed pathway eastwards to avoid clearing or disturbance of the Low Closed forest of *A. flexuosa*;
3. Conduct additional WRP survey work (including quantitative scat assessment and additional spotlighting) and monitoring throughout alternative times of the year in order to continue to develop a better understanding of the site population;
4. Schedule any clearing activities outside of breeding periods for conservation significant fauna in order to reduce potential disturbance or stress to breeding animals;
5. If clearing is to occur within the Low Closed Forest of *Agonis flexuosa*, wherever possible maintain branch and canopy connectivity alongside and over the pathway to minimise impacts on Western Ringtail Possum habitat;
6. Undertake strategic, effective bush regeneration and revegetation within the reserve to protect and enhance habitat;
7. 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;
8. Ensure hygiene management protocols are followed to address the potential spread and introduction of diseases such dieback and environmental weeds into the site; and
9. Ensure that any clearing within the Low Closed forest of *A. flexuosa* 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

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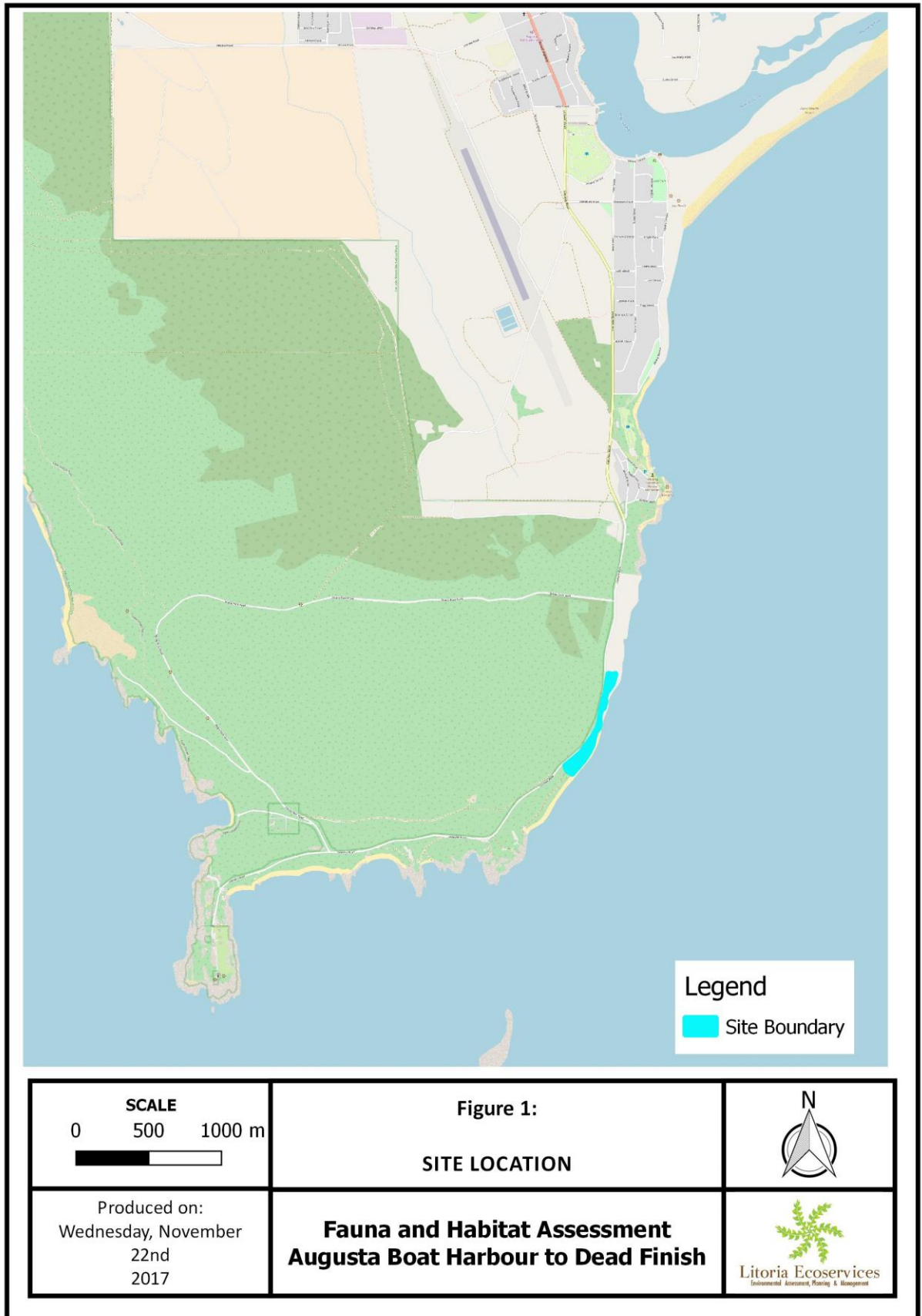
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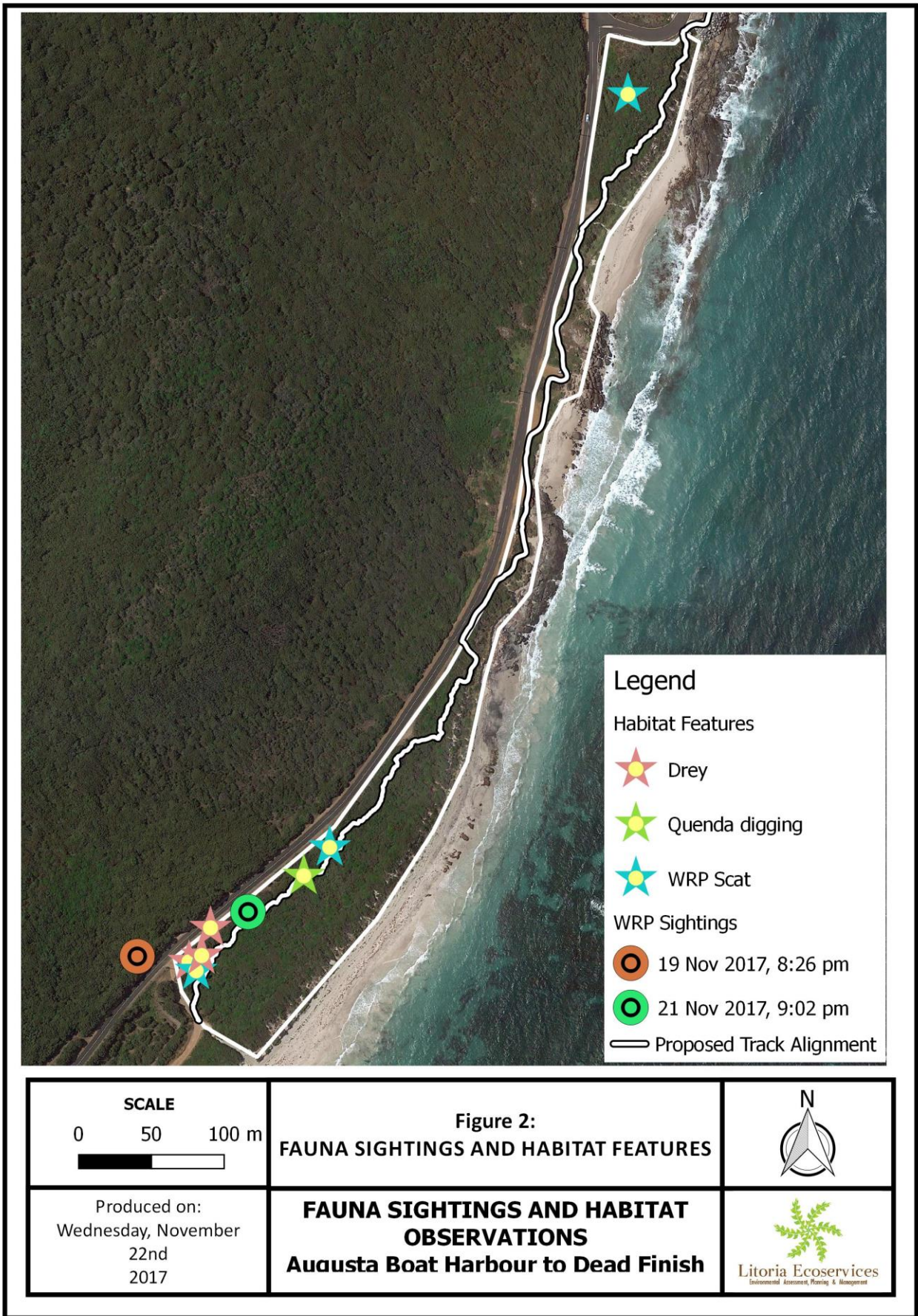
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FIGURES





APPENDIX 1 : SPOTLIGHTING OBSERVATION RECORDS

SPOTLIGHTING OBSERVATION RECORD 1:

Site: ABH to Dead Finish Foreshore **Date:**19/11/2017 **Observer:** Drew McKenzie

Wind:CALM **Moon Phase:** New **Cloud** (¹/₈): Clear **Rain:** No **Start:** 7:30 PM

Finish: 9:30 PM **Total Dist:** 1 km **Speed:** ~0.5km/hr

Record No.	Time	Species	# Ads	Sex	Juv/P y	Dist m	Plant sp occupied	Ht m	Comments
1	8:26	WRP	1			2m	<i>A. flexuosa</i>	3m	

SPOTLIGHTING OBSERVATION RECORD 2:

Site: ABH to Dead Finish Foreshore **Date:**21/11/2017 **Observer:** Drew McKenzie

Wind:~15knots **Moon Phase:** New **Cloud** (¹/₈): Clear **Rain:** No **Start:** 7:30 PM

Finish: 9:30 PM **Total Dist:** 1 km **Speed:** ~0.5km/hr

Record No.	Time	Species	# Ads	Sex	Juv/PY	Dist m	Plant sp occupied	Ht m	Comments
1	9:02	WRP	1	F	1	1m	<i>A. flexuosa</i>	3m, 5m	

APPENDIX 2: PHOTOS



WRP sighted 19/11/17



Juvenile WRP sighted 21/11/17



WRP Drey, Southern portion of the site



WRP Drey Southern portion of site



WRP Scat under the closed forest of *A.flexuosa*