

Western Ringtail Possum Habitat Assessment and Survey

Wallcliffe Rd Bike path,
Margaret River



Litoria Ecoservices
Environmental Assessment, Planning & Management

Prepared August 2020
by Litoria Ecoservices
for the Shire of Augusta
Margaret River

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TABLE OF CONTENTS	PAGE
1.0 INTRODUCTION	2
1.1 Background	2
1.2 Description of the proposal	2
1.3 Site Description	2
1.4 Assessment Objectives and Scope	2
1.5 Landform and Hydrology	2
1.7 Climate	3
1.8 Vegetation	3
2.0 WESTERN RINGTAIL POSSUMS IN THE SOUTH WEST – A BACKGROUND	9
2. METHODOLOGY	5
2.1 Scope of Work	5
2.2 Desktop Review	5
2.3 Reconnaissance Survey and Habitat Assessment	5
2.4 Spotlighting	5
3. FAUNA AND HABITAT ASSESSMENT	6
3.1 Variables influencing the assessment	6
3.2 Desktop Review	6
3.2.1 Database Searches and existing information	6
3.2.2 Citizen Science Survey Records	7
3.2.3 Connectivity	7
3.3 Results of the Reconnaissance Survey/Habitat Assessment	7
3.4 Spotlighting Results	8
4. DISCUSSION	9
4.1 Significant Species	Error! Bookmark not defined.
5. CONCLUSIONS AND RECOMMENDATIONS	10
5.1 Findings	10
5.2 Recommendations	10
6. REFERENCES	12
FIGURES	14
.....	ERROR! BOOKMARK NOT DEFINED.
APPENDIX 1: SPOTLIGHTING OBSERVATION RECORDS	18
APPENDIX 2: PHOTOS	21

1.0 INTRODUCTION

1.1 Background

Litoria Ecoservices (LE) was commissioned by the Shire of Augusta Margaret River to undertake a preliminary habitat assessment and survey for *Pseudocheirus occidentalis* (Western Ringtail Possum) (WRP) (listed as Critically Endangered under the Biodiversity Conservation Act 2016 within a portion of the Wallcliffe Road Bikepath corridor proposed for widening.

1.2 Description of the proposal

The Shire of Augusta Margaret River is proposing to widen three remaining sections of the Wallcliffe Rd cyclepath between Caves Road and town. The existing concrete path is approximately 1.5m wide and it is proposed to widen the path ~3m in order to address safety concerns and meet acceptable safety standards applied to use dual use paths of this nature. It is noted that a considerable portion of the existing path has already been replaced with bitumen and widened. The remaining unwidened portions represent the portions of the pathway going through remnant vegetation (as opposed to parkland cleared areas) and considered more likely to represent potential Western Ringtail Possum habitat and require clearing approvals.

The length of cycle path still requiring widening represents approximately 1300m. It is noted that although this 1300m of the pathway runs through remnant vegetation, for much of this length (approximately 900m) a highly degraded 1.5m to 2m strip already exists alongside the existing path within which widening of the existing pathway could occur with minimal disturbance to native vegetation

1.3 Site Description

The 1300m length of unwidened cycle path lies within Reserves 37326, 40289 and 12646 and in the main represents a mix of Jarrah Marri Forest and Low Peppermint forest. of developed but unsealed road reserve and ~20m of undeveloped road reserve. The vast majority of the site represents an unsealed road devoid of vegetation. The remaining area contains a mix of Jarrah/ Marri forest and introduced plantings/ weed infestations coupled with isolated areas of diverse remnant understory.

The site location is shown in Figure 1.

1.4 Assessment Objectives and Scope

The preliminary assessment and survey was undertaken during late July and August 2020, with the following objectives:

1. To provide an indication of the likelihood of WRP utilising the site;
2. To provide an understanding of the WRP populations utilising the remnant bushland surrounding the subject site; and
3. To provide recommendations in relation to minimising impact on the WRP based on the findings of the preliminary assessment.

1.5 Landform and Hydrology

The site is gently undulating with a minor drain/ tributary of the Margaret River at the very western extent of the site.

The site lies within the Cowaramup land system and the site as fall within the Cowaramup wet flats Phase (216CoCOw) – described as poorly drained flats and slight depressions with pale grey Mungite.

1.7 Climate

Located in Western Australia's south-west, the area experiences a Mediterranean climate with hot dry summers and cool wet winters. The closest BOM Weather Observation site in Witchcliffe reports a (long term) average annual rainfall of 951mm with the majority of this rain falling between May and October.

1.8 Vegetation

The site vegetation is a mix of good to very good degraded condition native remnant Jarrah Marri forest and Low Peppermint forest with degraded pockets. The existing location of the cyclepath is highly modified and for the most part includes an adjoining degraded strip.

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 subject site's vegetation is broadly mapped as a mix of:

- Cowaramup (C1) - This complex is described as "Open to tall open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla*-*Banksia grandis* on lateritic uplands in the hyperhumid zone." There is approximately 34.5% (18,982 ha) of the pre-European extent of this vegetation complex remaining
- Wilyabrup (W1) - This complex is described as "Tall open forest of *Eucalyptus diversicolor*-*Corymbia calophylla*-*Allocasuarina decussata*-*Agonis flexuosa* on deeply incised valleys in the hyperhumid zone." There is approximately 53.8% (7,296 ha) of the pre-European extent of this vegetation complex remaining.
- Wilyabrup (Ww1) - This complex is described as "Tall open forest of *Eucalyptus diversicolor*-*Agonis flexuosa*-*Callistachys lanceolata* with some *Corymbia calophylla* on flats and valleys in the hyperhumid zone." There is approximately 53.8% (2,268 ha) of the pre-European extent of this vegetation complex remaining.

It is noted that there is no minimal karri within the remnant vegetation and that Blackbutt or Yarri (*Eucalyptus patens*) occurs within some of the lower water gaining portions of the site.

It should also be noted that a number of high priority environmental weeds dominate occur within the site including Arum lily (*Zantedeschia aethiopica*), Early black wattle (*Acacia decurrens*), Flinders Range Wattle (*Acacia iteaphylla*) and Sydney golden wattle (*Acacia longifolia*).

2. METHODOLOGY

2.1 Scope of Work

This preliminary assessment has included the following elements:

- Desktop study to collate historical knowledge and existing and ongoing relevant reports;
- A site/ habitat assessment of the area proposed for clearing/ vegetation impact; and
- Targeted spotlighting.

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:

- DBCA Threatened and Priority Fauna Database (this utilised an approximate 10km buffer surrounding the survey area); and
- A review of the database of records from the Nature Conservation Margaret River Region's Citizen Science Western Ringtail Possum surveys which includes a transect immediately east of the site.

The Nature Conservation Western Ringtail Possum Citizen Science project involves 12 trained teams of two volunteer surveyors heading out and surveying twelve ~1km transects located between Cowaramup and Flinders Bay under a set methodology and a standardised survey kit and spotlights. The project involves four monitoring months across the year spread across the four seasons. Each monitoring month involves three one hour surveys of each 1km transect by a different pairing of volunteer surveyors.

These sources were used to gain an understanding of the existing WRP and BTP records and population size around the site and the broader Margaret River area.

2.3 Reconnaissance Survey and Habitat Assessment

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) was made on 28th July 2020. This assessment covered the entire subject area and assessment of the portion of the path proposed for widening in detail.

2.4 Spotlighting

Three non consecutive nights of spotlighting survey were undertaken using a H14R.2 1000lm LED Lenser headtorch on the nights of 28th and 30th of July and 1 August 2020. The surveys utilised a transect covering the site and adjoining portions of the Wallcliffe cycle way that are already widened. The total transect length was approximately 3.1km. It was surveyed by an experienced surveyor with over 150 hours experience undertaking similar surveys. The survey was undertaken at a speed of approximately 1km per hour covering both sides of the transect where suitable vegetation exists. Observations of possums were recorded noting GPS co-ordinates, possum species, number of individuals, approximate height of record, species of tree found in and activity when initially spotted.

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 16 years experience undertaking ecological assessments in both South East Queensland and South West WA including Level 1 assessment. Over 13 years of experience has focused on ecological assessment and management within the Capes region.
Scope: sampling methods/ intensity	No limitations with regard to scope. Given the small and accessible nature of the subject site, the entire site was able to be surveyed and assessed thoroughly.
Sources of Information	Documented information regarding the site and nearby surrounds was not considered limiting with respect to the assessment. The Capes region has been the focus of a number of targeted biological surveys and the assessment was able to utilise a number of relevant databases and local records.
Timing, weather, season	The survey was undertaken during Winter 2020. The survey was undertaken during a mix of wet and clear weather typical of winter conditions within the Capes. Surveying throughout the year would be preferable as population sizes can fluctuate seasonally as can their habitat utilisation.
Disturbances	No disturbances such as fire or clearing had recently occurred on or adjacent to the site.
Access	No limitations were encountered with respect to access to and through the site.

3.2 Desktop Review

The following provides results of the desktop review.

3.2.1 Database Searches and existing information

A search of the DBCA threatened species database accessed via the Shire of Augusta Margaret River highlighted the 65 records of WRP within a 2km radius of the survey transect dating back to 2007. Whilst the vast majority of this records are in or around the Margaret River township, two records relate directly to sightings within the unwidened portion of the cycleway.

3.2.2 Citizen Science Survey Records

At the time of the preparation of this assessment the Nature Conservation Western Ringtail Possum Citizen Science project had conducted seven quarterly surveys across a 21 month period. The closest transect within the longer term citizen science survey to the subject site represents the 'A Class Reserve' Foreshore transect which lies approximately 3km east of the eastern most portion of unwidened cyclepath. Nineteen individual 1km surveys have been conducted of this transect. The WRP records for this transect and the overall 12 transects covered by this citizen science project can be summarised as follows:

Table 2. Summary of the Citizen Science observations made to April 2020 vs the current cycleway survey

Details	'A Class Reserve' Foreshore [^]	Overall 12 transects	Unwidened portion of the cycleway*	Widened portion of the cycleway**
Individual surveys undertaken	19	230	3	3
WRP Individuals Recorded	204	686	15	10
Average no. of WRP recorded per ~1km survey	10.73	2.98	3.91	1.93

*~1280m collective survey length per survey

**~1720m collective survey length per survey

[^] It is noted that the 'A Class Reserve Foreshore' transect is almost entirely riparian - fringing the Margaret River and as such represents very different habitat and vegetation types in the most part.

3.2.3 Connectivity

It is noted that the site is directly connected to a small patch of good to very good condition remnant vegetation to the west and a linear patch of remnant vegetation forming the Wadandi Trail reserve to the east. 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/Habitat Assessment

The reconnaissance survey on 28th July identified the following features of the site:

- *Pseudocheirus occidentalis* (Western Ringtail Possum) scat was observed on site in multiple locations along the survey transect;
- *Pseudocheirus occidentalis* (Western Ringtail Possum) scat was observed in significantly higher densities within the western most portion of the unwidened pathway;

- A total of 6 *Pseudocheirus occidentalis* (Western Ringtail Possum) dreys were observed along the survey transect. A total of four of these occurred within the unwidened portion of the cycleway. All dreys observed within the unwidened portion of the cycleway were located within WA Peppermints (*Agonis flexuosa*) (the location of these dreys are shown within Figure 3);
- The presence of multiple preferred food trees of WRP within the subject site including *Agonis flexuosa*, *Corymbia callophylla*, *Eucalyptus marginata*, *Eucalyptus patens* and *Acacia longifolia**;
- A number of other large potentially hollow bearing marri (*Corymbia callophylla*) and yarri (*Eucalyptus patens*) trees occurs within the subject site;
- Generally good to very good condition remnant vegetation within the unwidened portions of the cyclepath with some degraded pockets or sections.

3.4 Spotlighting Results

The results from the spotlighting undertaken on the nights of 28th and 30th July and 1st August 2020 are provided as Appendix 1 and summarised in Tables 3 and 4 below.

Table 3. Summary of the records made over the entire ~3km transect within and around the subject site during the 3 surveys nights.

Species	No. of Sightings	Individuals*
Western Ringtail Possum	20	25
Brushtail Possum	7	8
Brush -tailed Phascogale	1	1

*Note: This number is highly unlikely to represent the actual number of different individuals recorded during the survey as in some instances it is likely that the same possum was recorded three times on each of the survey nights.

Table 4. Summary of the records made within the subject site portion of the survey transect during the 3 surveys.

Species	No. of Sightings	Individuals*
Western Ringtail Possum	12	15
Brushtail Possum	5	6
Brush-tailed Phascogale	0	0

The locations of these observations across the transect are mapped in Figure 4.

4. DISCUSSION

4.1 Western Ringtail Possums in the south west – a contextual background

The Western Ringtail Possum (WRP) *Pseudocheirus occidentalis* or Ngwayir or Ngaren is an arboreal, foliovore endemic to the wetter parts of the South West of Western Australia. It represents marsupial species reliant upon a relatively small group of trees and shrubs for the bulk of its diet.

The WRP is characterised by its slender, prehensile tail, its creamy white chest and short rounded ears. They have an adult weight range of between 700 and 1300 grams, a head and body length of between 30 and 40cm with a tail that is 30-41cm long with a white tip (de Tores 2008).

The WRP has recently been recognised as a Critically Endangered species under State and Commonwealth legislation (TSSC 2018). It has been documented (Woinarski et al. 2014) to have experienced a significant range contraction to less than 10% of its original predicted range with extensive localised extinctions throughout the inland portions of its original range. Total population is unknown but has been estimated (Woinarski et al. 2014) at less than 8000 mature individuals and is continuing to decline. The Western Ringtail Possum Recovery Plan (DPAW 2017) cites that the major causes of this decline are considered to include:

- climate change;
- habitat clearing and fragmentation;
- inappropriate fire regimes; and
- predation by foxes, feral cats and domestic pets,

The majority of study and research into the species to date has occurred within the Swan Coastal Plain and the Southern Forests. Areas such as the Capes region around Margaret River have not been the focus of the same volume of research and study. Given the significantly different geology, soils, hydrology and vegetation communities within the Margaret River region compared to the Swan Coastal Plain and the southern Forests, additional information on habitat preferences is needed in order to guide and direct management.

4.2 Survey Findings

The assessment highlighted the presence of Western Ringtail Possums (WRP) along the full length of the cyclepath between Caves Rd and Yalgardup Brook. This was evidenced by the presence of scat, dreys, and spotlighting records. The observation of juveniles within the survey transect and within the subject area suggests that the area is likely to represent breeding habitat.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Findings

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

1. The critically endangered Western Ringtail Possum was confirmed to utilise the subject site through scat, drey and spotlighting records;
2. Although the field work and duration of the assessment were insufficient to assess population size, it is noted that relative to the surrounding areas and other sites within the Capes region:
 - the vegetation within the unwidened portions of the cycleway and the contiguous native vegetation to the north and south recorded a moderate number of WRP sightings; and
 - the parkland cleared vegetation adjacent the already widened portions of the cycleway recorded a significantly lower number of sightings per km survey; and
3. Notably, the Conservation Dependent Brush tailed Phascogale was confirmed to utilise parts of the cycleway and although not recorded within the target areas of unwidened trail, they are likely to utilise those areas;
4. Whilst the proposal will occur within confirmed WRP habitat, given:
 - The existing cleared degraded strips adjacent much of the existing unwidened trail,
 - The opportunity to 'split' the trail if need be to avoid significant trees;
 - The opportunity to maintain canopy connectivity across the widened path;
 - The opportunity for bush regeneration and habitat enhancement to accompany the project;
 - No existing dreys being recorded immediately within the cycleway path; and
 - The potential for minimising the clearing footprint through pruning and retention of adjacent large trees

it is considered that the proposal can be managed in such a way as to avoid significant impact on WRP populations in the area.

5.2 Recommendations

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

1. Minimise the clearing footprint where ever possible utilising pruning over clearing.
2. Where possible maintain canopy connectivity across the cycleway by retention of large and mature trees on the edge of the cycleway;
3. Utilising the existing cleared or heavily degraded strips adjacent the existing pathway where ever possible, avoid vegetation containing dreys and or other large potential habitat trees;
4. Minimise root and soil disturbance as much a s possible to ensure that retained vegetation and trees have the best chance of long term survival as possible;
5. Ensure hygiene management protocols are followed to address the potential spread and introduction of diseases such dieback and environmental weeds into the site. (Especially at the currently undeveloped portion of Percy St which contains a number of dieback susceptible species);

6. Ensure that any clearing occurs in strict accordance with the DBCA Procedures to Minimise the Risk to Western Ringtail Possums during vegetation clearing and building demolition clearing protocols including the presence of a fauna spotter and handler on site to manage any disturbed animals (See Appendix 3); and
7. Undertaking bush regeneration, habitat enhancement and revegetation works as part of the project to support the long-term carrying capacity of the area for WRP.

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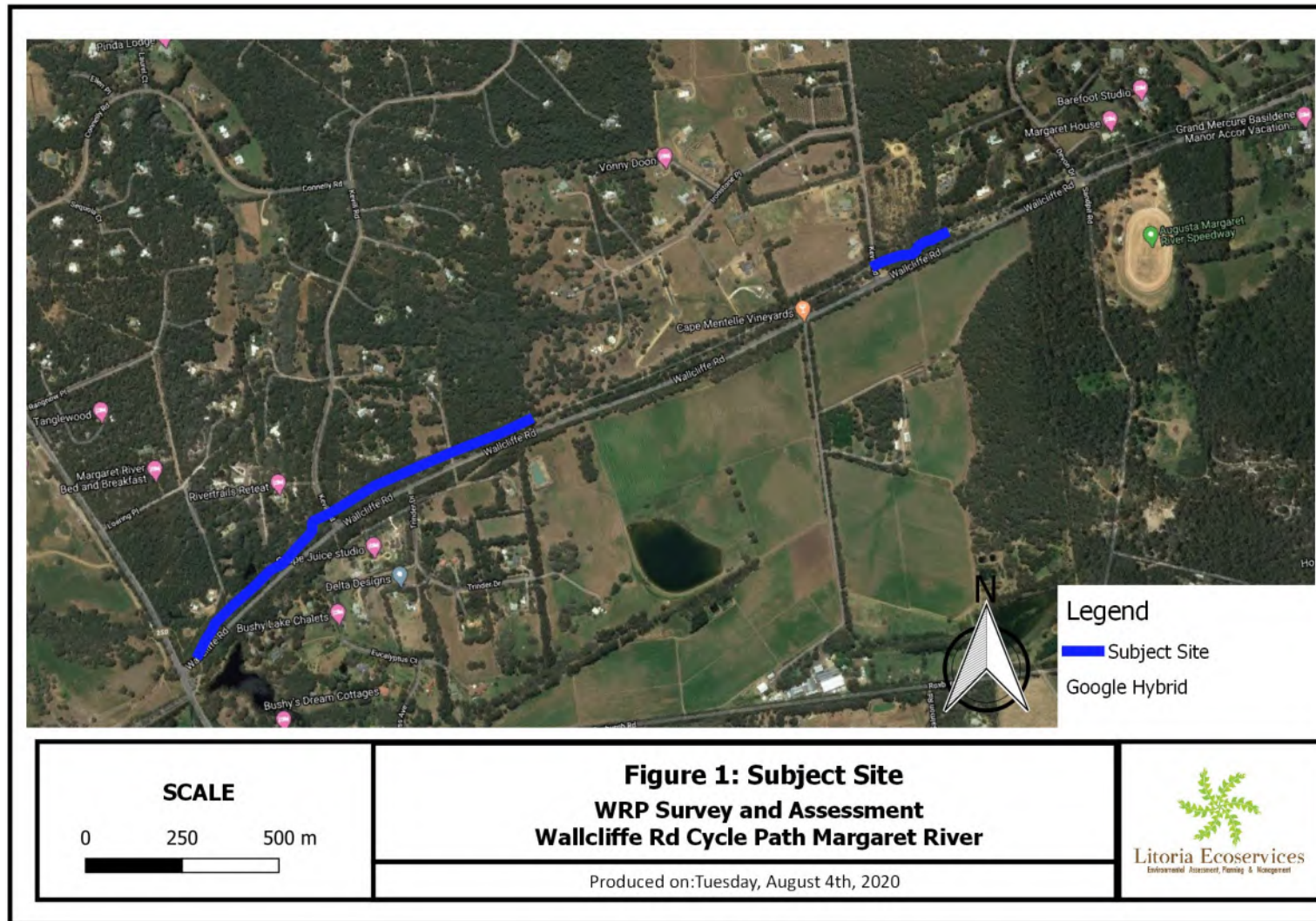
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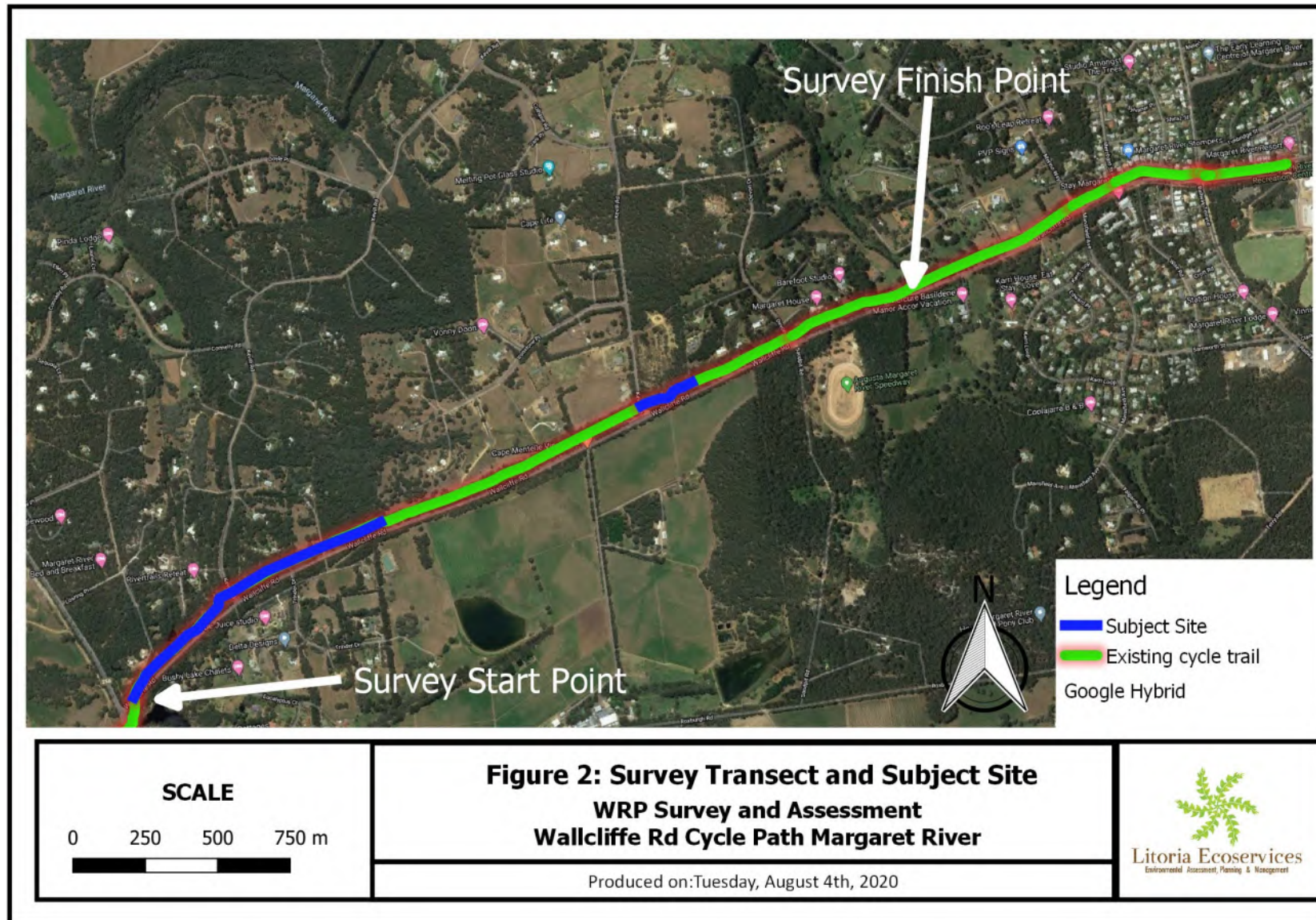
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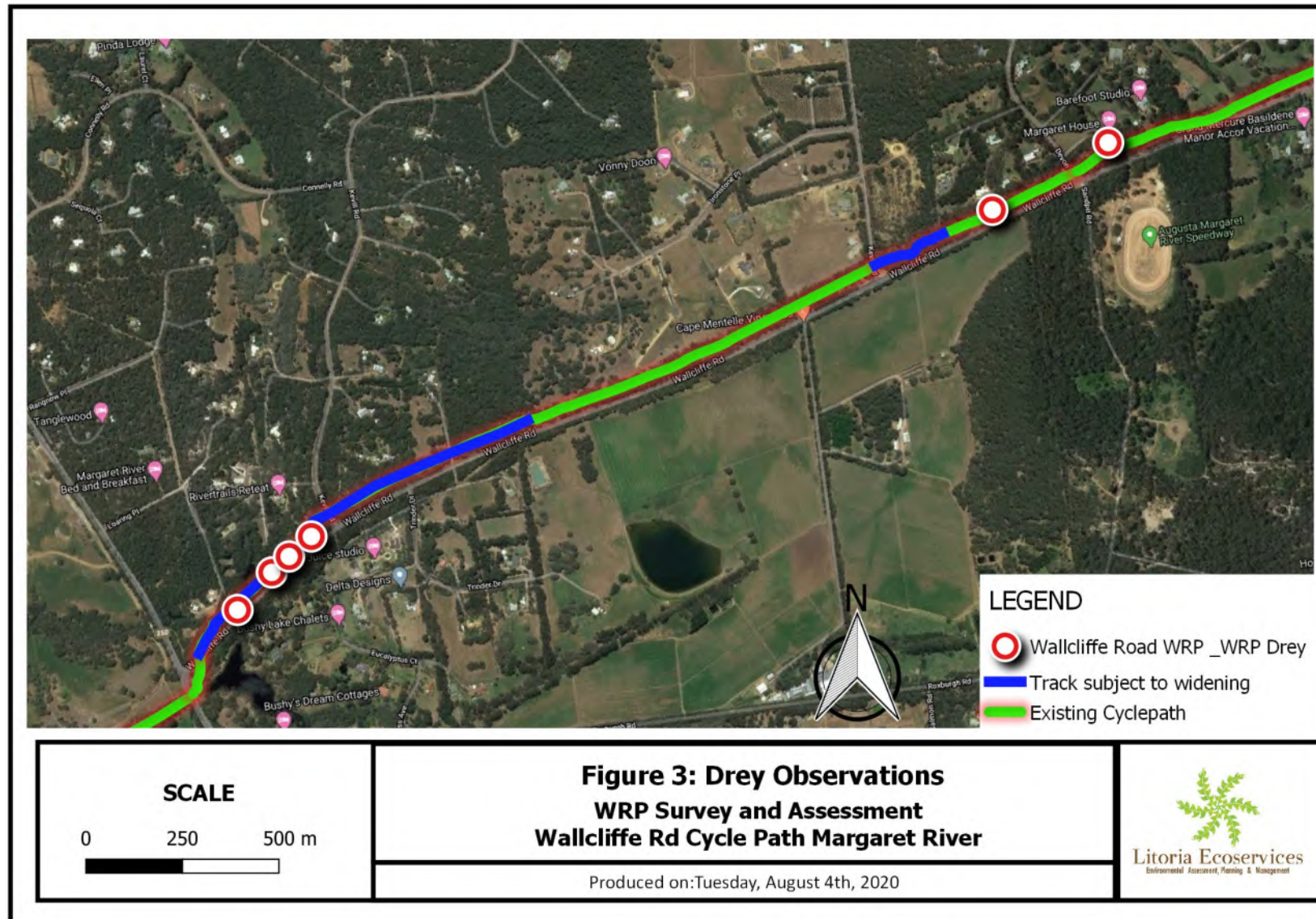
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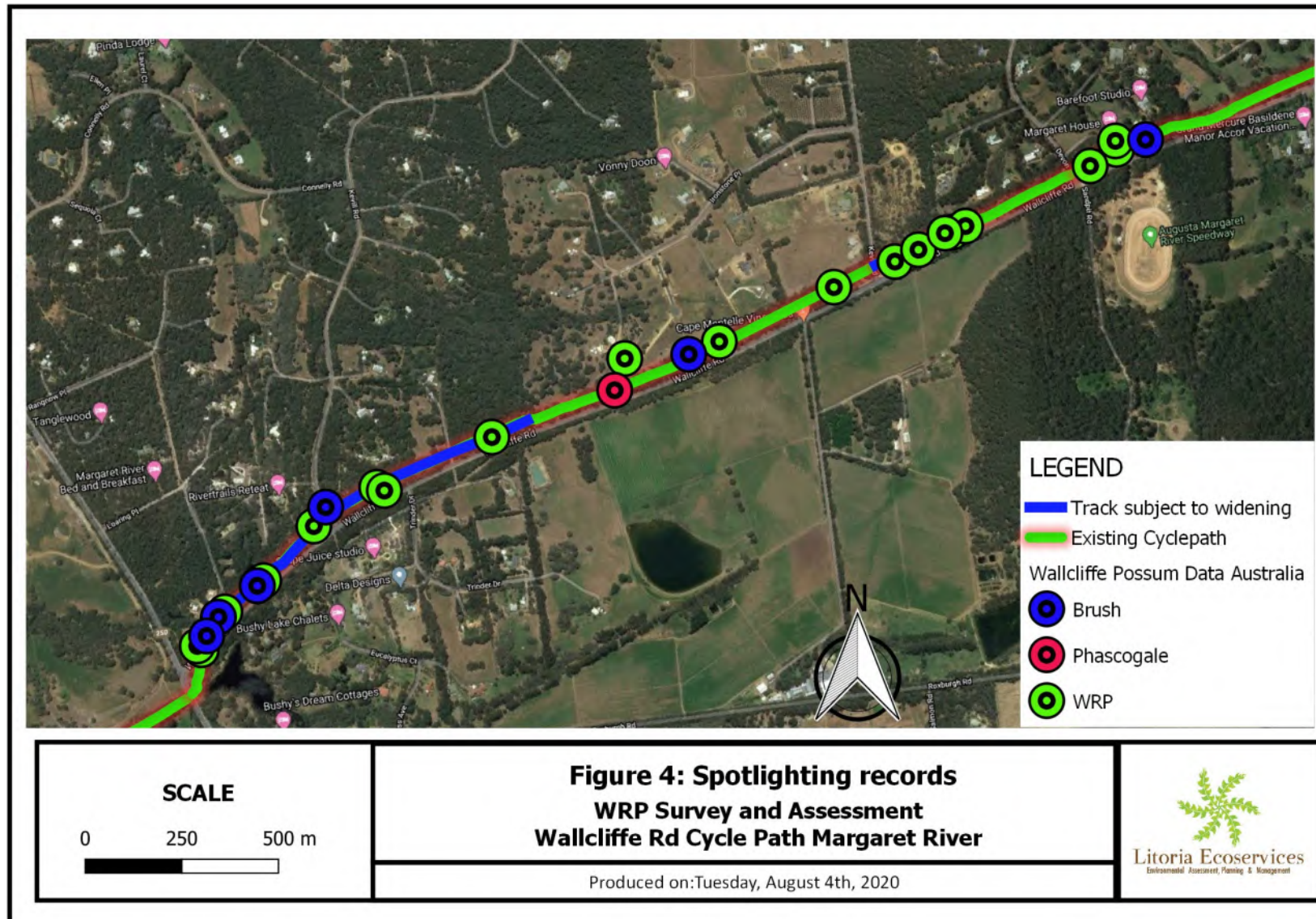
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FIGURES









APPENDIX 1: SPOTLIGHTING OBSERVATION RECORDS

SPOTLIGHTING OBSERVATION RECORD 1:

Site: Wallcliffe Rd Cycleway **Date:** 28/07/2020 **Observer:** Drew McKenzie

Wind: 5-15kn **Moon Phase:** First 1/4 **Cloud** ($1/8$): 50 - 100% **Rain:** Showers

Start: 6:35 PM **Total Dist:** ~3 km

Record No.	Time	Species	# Ads	Juv.	Plant sp occupied	Ht (m)	Comments
1	6:40	Brush	1		Blackbutt	18	Still
2	6:40	WRP	1		Blackbutt	20	Still
3	6:55	Brush	1		Marri	7	Travelling
4	7:07	WRP	1	1	Peppy	10	Still
5	7:23	Phascogale	1		Karri	15	Still
6	7:31	WRP	1		Karri	18	Still
7	7:44	WRP	1	1	Marri	15	Still
8	7:51	WRP	1	1	Marri	10	Still
9	7:53	WRP	1		Cork Tree	3	Still
10	8:02	WRP	1		Jarra	10	Still

SPOTLIGHTING OBSERVATION RECORD 2:

Site: Wallcliffe Rd Cycleway **Date:** 30/07/2020 **Observer:** Drew McKenzie

Wind: ~5knots **Moon Phase:** First $\frac{1}{4}$ - Full **Cloud** ($\frac{1}{8}$): Clear **Rain:** Nil **Start:** 6:55 PM

Record No.	Time	Species	# Ads	Juv.	Plant sp occupied	Ht (m)	Comments
1	7:02	WRP	1		Marri	8	Still
2	7:04	Brush	1		Marri	7	Still
3	7:11	WRP	1		Marri	15	Still
4	7:17	WRP	1		Peppy	15	Still
5	7:25	WRP	1		Blackbutt	20	Still
6	7:34	WRP	1	1	Marri	10	Still
7	7:46	WRP	1		Non-local Eucalyptus	20	Still
8	7:53	WRP	1		Non-local Eucalyptus	6	Still
9	7:57	WRP	1		Marri	8	Still

SPOTLIGHTING OBSERVATION RECORD 3:

Site: Wallcliffe Rd Cycleway **Date:** 1/08/2020 **Observer:** Drew McKenzie

Wind: < 5knots **Moon Phase:** First ¼ - Full **Cloud** ($\frac{1}{8}$): <5% **Rain:** None **Start:** 7:13 PM

Record No.	Time	Species	# Ads	Juv.	Plant sp occupied	Ht (m)	Comments
1	7:13	WRP	1		Marri	6	Browsing
2	7:16	WRP	1		Blackbutt	15	Still
3	7:20	Brush	2		Blackbutt	20	Still
4	7:27	Brush	1		Karri	6	Still
5	7:50	Brush	1		Spotted Gum	25	Still
6	8:05	WRP	1		Marri	18	Still
7	8:15	WRP	1		Peppy	10	Still
8	8:17	WRP	1		Peppy	2	Still
9	8:20	Brush	1		Marri	1	Still

APPENDIX 2: PHOTOS



Portions of unwidened pathway where existing cleared strip exists adjacent to the path



Western portion of unwidened path where very good condition vegetation exists either side of the existing path



Very good condition Jarrah Marri Forest



Dreys spotted within the low peppermint forest portion of the unwidened pathway