

Western Ringtail Possum Survey

11 Backwater Retreat, Quindalup

MARCH 2021



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Common terms/acronyms

BC Act	WA <i>Biodiversity Conservation Act 2016</i>
DAWE	Federal Department of Agriculture, Water and the Environment
DBCA	WA Department of Biodiversity, Conservation and Attractions, including the Parks and Wildlife Service
DBH	Diameter at Breast Height in centimetres
DWER	WA Department of Water and Environmental Regulation
EP Act	WA <i>Environmental Protection Act 1986</i>
EPBC Act	Federal <i>Environment Protection and Biodiversity Conservation Act 1999</i>
Project	The proposed action
Study area	The areas surveyed in this study
WA	Western Australia
WRP	Western Ringtail Possum (<i>Pseudocheirus occidentalis</i>)

1 Introduction

1.1 Background

The landowner, Mrs. Linda Bridge, of 11 Backwater Retreat, Quindalup, within the City of Busselton, proposes to build a dwelling within the lot. The circa 0.43 ha lot, herein referred to as the study area, is vegetated with Peppermint (*Agonis flexuosa*) over patches of Coastal Sword Sedge (*Lepidosperma gladiatum*). The study area is mapped in Figure 1 (Appendix A).

The study area contains habitat likely to be utilised by the Critically Endangered Western Ringtail Possum (WRP) (*Pseudocheirus occidentalis*). A targeted Western Ringtail Possum Survey and brief report was required to inform and support relevant clearing approval documentation.

1.2 Scope of works

A targeted Western Ringtail Possum Survey was required in line with appropriate survey guidelines, covering the study area. The survey was to include a daytime (diurnal) survey and nocturnal surveys on non-consecutive nights to map the distribution and abundance of WRP.

1.3 Regulatory context

1.3.1 Key legislation

Key environmental legislation relevant to the study is outlined in Table 1-1. Threatened fauna may be listed as critically endangered, endangered, or vulnerable species because they are under identifiable threat of extinction.

Table 1-1 Environmental legislation that may be relevant to the project

Legislation	Responsible Government Department	Aspect
Federal <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Federal Department of Agriculture, Water and the Environment (DAWE)	Western Ringtail Possum is listed as Matters of National Environmental Significance.
<i>Biodiversity Conservation Act 2016</i> (BC Act)	WA Department of Biodiversity, Conservation and Attractions Parks and Wildlife Service (DBCA)	Western Ringtail Possum is listed as threatened species under the BC Act.
<i>Environmental Protection Act 1986</i> (EP Act)	Environmental Protection Authority or DWER	Environmental impact assessment and management and offsets.

Threatened fauna species may be listed on the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (as updated) under S171 of the *Biodiversity Conservation Regulations 2018* of Part 2 of the *Biodiversity Conservation Act 2016* (BC Act). They can also be listed as threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as 'Matters of National Environmental Significance' (MNES), as defined in *Section 179* of the Act.

Western Ringtail Possum is listed as Critically Endangered under the both the WA BC Act and federal EPBC Act.

1.3.2 Guidelines

The survey considers the guidelines below.

- Technical Guidance - Terrestrial Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3, EPA (2002).

The following were also generally considered:

- Commonwealth Matters of National Environmental Significance – Significant impact guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999, Department of the Environment, Water, Heritage and the Arts (DEWHA)', (2009).
- Significant impact guidelines for the vulnerable western ringtail possum (*Pseudocheirus occidentalis*) in the southern Swan Coastal Plain, Western Australia Department of the Environment, Water, Heritage and the Arts (DEWHA)', (2009).

2 Methods

Surveys were undertaken by SW Environmental Principal, Shane Priddle. Shane is licensed under SW Environmental's *Section 28 Fauna Taking (Relocation) License* (FR28000016) and *Section 40* (TFA 2020-0013) of the *Biodiversity Conservation Act 2016*.

The survey included a diurnal (daytime) survey on the 18th February and nocturnal surveys on 18th of February and 5th March of 2021 (non-consecutive nights).

The diurnal survey focussed on identifying the habitat suitability, condition and extent, identifying potential WRP drey and refuge locations (e.g. hollows), and noting the presence or absence of scats. Scat searches were general and targeted areas such as the base of trees where they were most likely to be found.

Nocturnal surveys aimed to map the distribution and abundance of WRP. Surveys were undertaken by foot traverse using high powered LED head torch. They covered the entire study area. Climatic conditions at the time of the survey were suitable, ~15°C, no rain, and light winds on both nights¹.

In accordance with *Technical Guidance* (EPA 2020) potential survey limitations are identified below.

Table 2-1 Limitations of survey adequacy and accuracy

Aspect	Constraint	Comment
Competency / experience of the survey team, including experience in the bioregion surveyed	No	Suitably qualified individuals carried out the work: Shane Priddle (Ba Science; Certified Environmental Practitioner No.310) with 20 years' experience conducting fauna surveys throughout NSW and WA.
Scope, e.g. where faunal groups were excluded from the survey	No	The survey targeted WRP only.
Adequacy of the survey intensity and proportion of survey achieved	No	Suitable survey effort has been applied to cover the study area in its entirety.
The proportion of the task achieved and further work	No	The surveys were completed adequately, to a sufficient level with respect to the scope.
Timing/weather/season	No	The surveys were completed in later summer 2021. The survey timing and weather conditions were suitable to detect WRP.
Disturbances that may have affected results of survey	No	There were no disturbances that affected the survey.
Intensity (in retrospect, was the intensity adequate)	No	The survey effort was adequate to meet the project scope.
Completeness (e.g. was relevant area fully surveyed);	No	The entire study area was surveyed.
Resources (e.g. degree of expertise available in animal identification to taxon level);	No	The surveys were completed adequately.
Access problems;	No	Site was on private land and accessible.

¹ Weatherzone (2021) website, <https://www.weatherzone.com.au>, accessed 24.02.2021, 5.03.2021.

3 Desktop review

3.1 Species profile

Present populations of WRP occur in Peppermint and Peppermint-Tuart associations from Bunbury to Albany (SPRAT 2018). In dense, coastal Peppermint forest, home ranges are about 0.5 hectares to 1.5 ha and in eucalypt forests about 2.5 ha. In the northern jarrah forests, home ranges are larger and have been recorded to at least 5.6 ha.

Peppermint leaves form the basis of the WRP diet in coastal areas (between 79-100% based on a study of WRP near Busselton by Jones et al. 1994), but when unavailable, the dominant myrtaceous species are preferred. In the inland forest, Jarrah and Marri the main food source. Garden plant varieties are also exploited in urban areas. Observations in the Bunbury to Dunsborough region have shown that WRP also feed on new shoots, flowers, leaves and/or fruiting bodies from a range of flora including *Nuytsia floribunda*, *Acacia saligna*, *Hardenbergia comptoniana*, *Allocasuarina fraseriana*, *E. gomphocephala*, *E. rudis*, *Melaleuca viminea*, *M. cuticularis*, *M. raphiophylla*, *Kunzea glabrescens* and *Xylomelum occidentale* (Shedley and Williams 2014).

WRP use a range of nest and shelter sites to avoid predators and exposure to the weather. Dreys are constructed in the canopy if hollows are not available. Adequate nest and shelter sites are necessary components of good quality habitat (Shedley and Williams 2014).

3.2 Habitat connectivity, linkage or corridor values

The study area forms part of a larger connected coastal belt of native vegetation with numerous WRP recorded locally (Naturemap 2019). Similar more intact vegetation occurs immediately to the north of the site along the Toby Inlet, and patches of similar vegetation are present along the Caves Road verge to the south.

At a broader scale the regional scale ecological linkages (SWREL) mapping indicates the site is mapped as *1a: with and edge touching or <100m from a linkage*. This indicates broadly that vegetation within the study area has high value habitat connectivity, linkage or corridor importance at the patch and landscape scales (Molloy et al 2009).

3.3 Vegetation

Vegetation complexes are mapped and described across the site by Webb et al. (2016). Vegetation at the site is described as Quindalup Complex. This vegetation is generally suitable for supporting WRP populations where it is intact, well connected and of suitable size:

Quindalup Complex (55) Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of *Melaleuca lanceolata* (Rottnest Teatree) - *Callitris preissii* (Rottnest Island Pine), the closed scrub of *Acacia rostellifera* (Summer-scented Wattle) and the low closed *Agonis flexuosa* (Peppermint) forest of Geographe Bay.

4 Field survey results

Vegetation at the site includes a Low Open Forest of *Agonis flexuosa* (Peppermint) over cleared understorey or patches of Coastal Sword Sedge (*Lepidosperma gladiatum*). *Spyridium globulosum* and other native shrubs were also present in some places over the study area. There are a network of firebreaks and access tracks throughout the site. The Peppermint trees are typically small and multi-stemmed (<30cm DBH) through the canopy is broadly connected, within and offsite. Vegetation is relatively dense in adjacent properties, particularly to the north of the site (riparian Closed Forest associated with Toby Inlet).

Vegetation within the study area is generally considered to be in a Good to Very Good condition, depending on if the understorey is intact (EPA 2016).



Photo 1 Typical Low Open Forest of *Agonis flexuosa* (Peppermint) over areas of Coastal Sword Sedge (*Lepidosperma gladiatum*).



Photo 2 Typical Low Open Forest of *Agonis flexuosa* (Peppermint) showing cleared understorey.

No hollows were observed. Two dreys were identified along the eastern edge of the study area. Visibility was good within the study area and it is unlikely that any daytime refuges (dreys or hollows) were missed. It is noted that WRP may still use the Sword sedge and shrub vegetation for refuge during hot weather but were not occupying this habitat type on the day of the survey or were missed.

The field survey found three WRP within and close to the two dreys during the diurnal search on 18th February 2021 (refer to Figure 2, Appendix A). Follow up nocturnal surveys on the same day found five individuals feeding in canopy, within the study area, and an additional three WRP along the edges but outside of the lot.

The second night of spotlighting (5th March 2021) identified seven WRP within the study area. Pairs were observed at three of the locations.

The lower number of daytime refuges identified within the study area, compared to WRP observed is likely to be an indication of the presence of other better quality dense habitat close by but outside of the study area, associated with the Toby Inlet riparian zone. The habitat within the study area, particularly in the middle of the lot, is therefore likely to be being used for foraging and movement between adjacent habitats rather than nesting, at least at the time it was surveyed.

5 Conclusions and recommendations

The lot is being used by at least several WRP as part of a larger connected habitat patch. The habitat within the middle of the lot (pegged for the house site) is being used by WRP for foraging and movement between adjacent habitats, more so than for daytime refuge.

Given WRP are using the study area, the following recommendations are made to reduce, mitigate, and manage impacts to WRP:

- Retain as much vegetation and canopy connectivity as possible, particularly the large Peppermints which offer both refuge and feed resources.
- Ensure any future plantings include overstorey and midstorey species that are known to be used by WRP (myrtaceous trees and shrubs).
- Ensure dense understorey is retained/enhanced. This can be important to WRP during hot dry weather (e.g. Coastal sword sedge *Lepidosperma gladiatum*).
- Ensure an appropriately licensed fauna spotter is present prior to and during clearing under *Section 28* and *Section 40* of the *Biodiversity Conservation Act 2016*.

6 References

Note not all referenced in the text.

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Appendix A Figures

Figure 1 Study area


Figure 2 Western Rintail Possum survey results

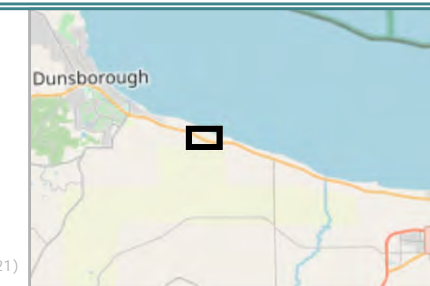


11 BACKWATER RETREAT,
QUINDALUP

WESTERN RINGTAIL POSSUM SURVEY

Ref: SW317
Date: 19/02/2021 Author: SP

 Study area



A3 @ 1:3000

0 10 20 40 m

GRID: GDA zone 50



Source: Base map © Esri and its data suppliers. SLIP Landgate (2021)

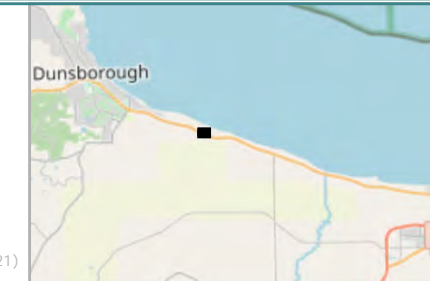


**11 BACKWATER RETREAT,
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WESTERN RINGTAIL POSSUM SURVEY

Ref: SW317
Date: 19/02/2021 Author: SP

- | | | |
|------------------------|---------------------|--------------|
| Day survey 18/02/2021 | ● Two WRP | □ Study area |
| ● Drey with single WRP | ● Three WRP | |
| ● Drey with two WRP | Nocturnal 5/03/2021 | |
| Nocturnal 18/02/2021 | ● Single WRP | |
| ● Single WRP | ● Two WRP | |



A3 @ 1:800
0 5 10 20 m
GRID: GDA zone 50

www.swenvironmental.com.au

Source: Base map © Esri and its data suppliers. SLIP Landgate (2021)