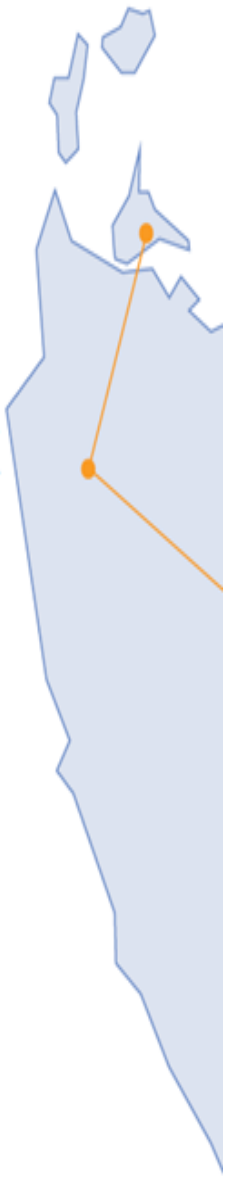
UPC AC Renewables AUSTRALIA

Jim's Plain & Robbins Island
Renewable Energy Parks



Robbins Island Renewable Energy Park

Appendix F

Roadkill Survey

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Robbins Island and Jim's Plain Renewable Energy Park Approvals

Roadkill Survey - 6 Month Assessment

November 2019

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1. Introduction

1.1 Background

GHD Pty Ltd (GHD) was engaged by UPC Robbins Island Pty Ltd to undertake a Tasmanian devil (*Sarcophilus harrisii*) roadkill assessment as per the Development Proposal and Environmental Management Plan Project Specific Guidelines for both Jim's Plain and Robbins Island Renewable Energy Parks. This species is listed as Endangered under the Federal *Environment Protection and Biodiversity Conservation Act 1999* and the Tasmanian *Threatened Species Protection Act 1995*.

The Project Specific Guidelines for both the Robbins Island and Jim's Plain Renewable Energy Parks require surveys to be undertaken in accordance with the Department of Primary Industries, Parks, Water and the Environment's (DPIPWE) *Survey Guidelines and Management Advice for Development Proposals that May Impact on the Tasmanian Devil* (the Guidelines). These Guidelines are a supplement to DPIPWE's Guidelines for Natural Values Surveys.

According to the Guidelines, projects involving 10% or greater increase in night time traffic[1] require a roadkill assessment, which involve a survey of road killed Tasmanian devils for 6 months of the year (or 3 months for weaned Tasmanian devils between January and April). Given the timing of the survey (starting in June 2018), a 6 month survey was undertaken.

1.1.1 Existing traffic levels

Traffic data obtained from the Circular Head Council (2016) indicate relatively low night time traffic volumes on the roads to be used for the two projects. Daily recorded traffic volumes on Harcus River Road range from 0 to 10 vehicles per hour (during a 24 hour period) and on Montagu Road near Smithton range from 0 to 200 vehicle movements per hour (during a 24 hour period). An overview of existing daily traffic rates, based on a 7 day week, is provided in Table 1. Note the traffic data varies from that within the traffic impact assessment traffic rates for this project which is based on a 5 day week.

Table 1 – Existing average daily traffic volumes for roads in the Assessment area, based on a 7 day week

Road	Daily LV volumes[2]	Daily HV volume
Montagu Road	313 (295-455)	155 (74-241)
West Montagu Road	260 (239-400)	127 (51-197)
Harcus River Road	35 (9 - 54)	29 (5-71)

LV = Light vehicle, HV = Heavy Vehicle. Measured minimum and maximum daily noted in brackets.

Considering night time traffic, these numbers are obviously towards the lower end, with only 0 to 1 vehicle movement per hour on Harcus River Road at 6 am and only around 50 vehicle movements per hour on Montagu Road (near Smithton) at 6 am.

Although the final traffic volumes and hours of movement for the Project are not yet known, it is considered likely that greater than 10% increase in night time traffic will be experienced during

[1] The Guidelines define night time as extending one hour before dusk and one hour after dawn.
[2] Minimum and maximum of measured volumes indicated in brackets.

some project stages, particularly during construction, as predicted in Table 1. As a consequence, a Tasmanian devil (*Sarcophilus harrisii*) roadkill assessment is required.

1.2 Scope and Limitations

The purpose of this survey was to provide an assessment of the extent and distribution of Tasmanian devil roadkill, and potential roadkill food sources, on roads considered to have a greater than 10% increase in night time traffic as a result of the proposed projects.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered, observations made and information reviewed at the date of preparation of the report. Roadkill can fluctuate at different times throughout the year, and between years, due to a range of factors including seasonal changes, external events or third party intervention.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer Section 1.6 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

1.3 Survey Area

The proposed Robbins Island and Jim's Plain Renewable Energy Parks are located within north-west Tasmania. Five roads have been identified to have a greater than 10% increase in night time traffic as a result of the proposed wind farm developments. These are detailed below and shown in Figure 1.

- Montagu Road from Smithton to West Montagu (approx. 15 km of sealed road)
- West Montagu Road from West Montagu to the intersection with Harcus River Road (approx. 6 km of sealed road)
- Harcus River Road from its junction with West Montagu Road to its junction with Little Harcus Road (approx. 8.5 km of unsealed road)
- Little Harcus Road from its junction with Harcus River Road to its junction with Jim's Plain Road (approx. 6.5 km of unsealed road)
- Robbins Island Road from West Montagu Road to the banks of Robbins Passage (approx. 3.5 km of unsealed road)

It is considered likely that the development will result in greater than 10% increase in night time traffic on these roads as they currently have relatively low traffic volumes. It should be noted that the increase in night time traffic would most likely only be experienced during construction of the two wind farm projects. Traffic related to operation of the wind farms would be much smaller than the growth in construction traffic, and would mostly be during the day.

2. Methodology

2.1 Field Survey

Roadkill was surveyed along the five roads identified within the survey area by an appropriately trained person (Figure 1). This equated to weekly surveys along approximately 39.5 km of road. Each road was driven in both travel directions during the weekly survey and the number of roadkill, including its location on the road (left or right side) was documented. Where possible, and safe to do so, roadkill was identified to species / animal group.

Where identification was not possible in the field, species were later identified via photographs by a suitably experienced ecologist, Dr Lisa Cawthen. For Tasmanian devils, the following photographs were recorded where possible: the animal's head, the animal's mouth and the animal's genitals to enable Devil Facial Tumour Disease (DFTD) identification, age and sex identification.

To avoid animals from being counted twice, where safe to do so, animals were removed from the road or road edge to the edge of the roadside reserve.

2.1.1 Permits

Field surveys were undertaken under the Department of Primary Industries, Parks, Water and Environment Permit to Take Wildlife Permit DA 18130 and Circular Head Council Activity within Road Reservation Permit (Ref ECM 417774).

2.2 Species Identification

Roadkill was identified to species or animal group using Van Dyck et al (2013).

Robbins Island

Jim's Plain

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Legend

- Our proposed mitigation measure area
- Robbins Island project site
- Jim's Plain project site
- Road

Roadkill incidents from June 2018 - December 2018

- Tasmanian Devil (6)
- Spotted-Tailed Quoll (3)

Road kill total per km

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20

UPC Robbins Island Pty Ltd
Robbins Island Renewable Energy Park

Job Number	32-1855801
Revision	A
Date	05 Nov 2019

Roadkill Survey Map

Figure 1

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©2019. Whilst every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: UPC Renewables - Boundary. The List - Dwellings, roads, tracks, elevation, watercourse, cadastre, land use, coastline, populated places. Created by:savenables

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3. Roadkill Assessment

3.1 Overview

Between 6/6/2018 and 12/12/2018, 26 weekly roadkill surveys were undertaken across 28 weeks. Where a survey was missed, another survey was completed at the next available opportunity, hence the 28 week survey period.

In total, 167 animals were recorded as roadkill, as detailed in Figure 1 and Figure 2. No injured wildlife were detected. Of these, nine records were of threatened species – six Tasmanian devil (*Sarcophilus harrisii*) and three spotted-tailed quoll (*Dasyurus masculatus*). The most common species was pademelon (*Thylogale eugennii*), comprising 37% of all roadkill records. 25% of roadkill records could not be identified to species or animal group due to the poor condition of the roadkill at the time of survey, and 16% could be identified as mammal due to the presence of fur. Threatened fauna comprised approximately 5.4% of roadkill.

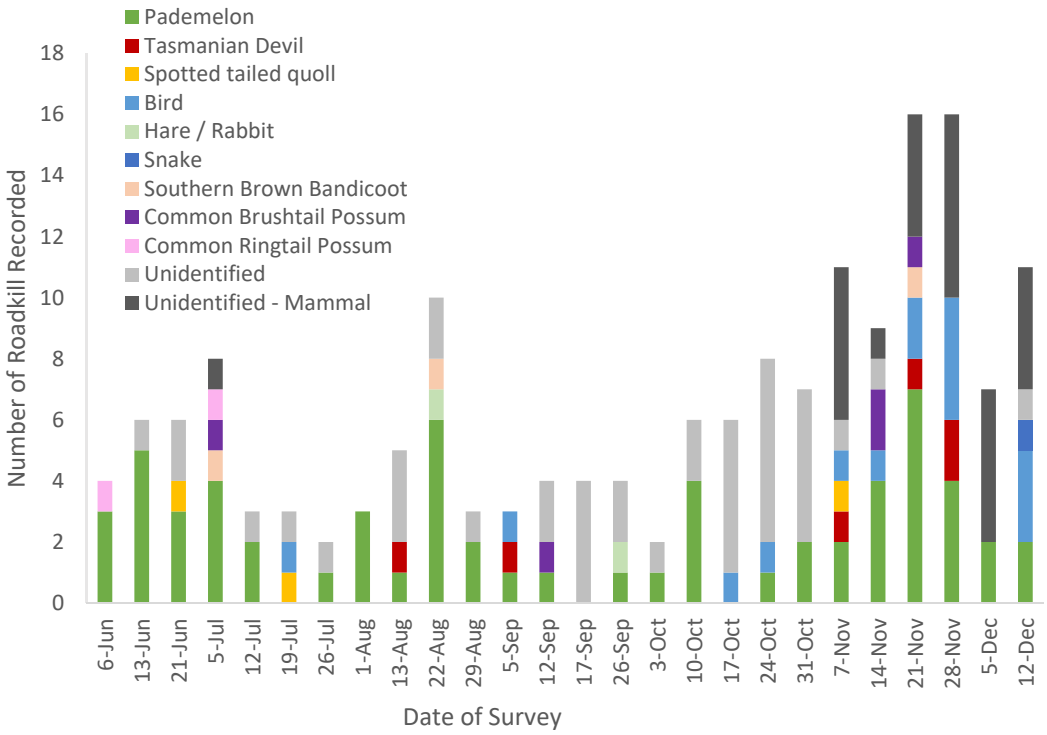

Figure 2 Weekly Roadkill in the survey area

67% of roadkill occurred on Montagu Road, 32% on West Montagu Road and 0.6% on Harcus River Road. No roadkill was identified Little Harcus Road or Robbins Island Road (Figure 3). Roadkill was not distributed evenly across these roads, with several 1 km long roadkill hot spots (stretches of road with more than 6 roadkill recorded during the survey) identified (Figure 1).

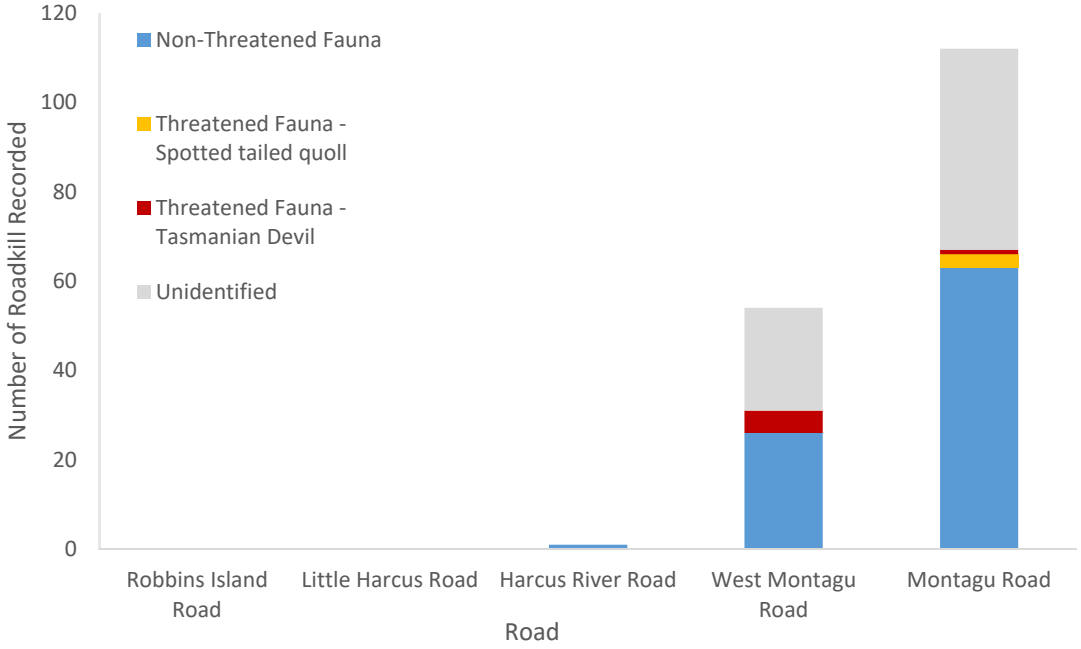

Figure 3 Threatened and Non-threatened Fauna Roadkill recorded in the survey area (by road name)

3.2 Key findings

During the survey:

- The majority of roadkill were nocturnal (night-time active) species, though some species, such as Tasmanian devils, are active day and night.
- Threatened fauna comprised 5.4% of the total roadkill recorded. This included:
  - Three spotted tailed quolls on Montagu Road
  - Six Tasmanian devils (five on West Montagu Road and one on Montagu Road).
- Survey results were compared with records on the Natural Values Atlas during the same time period[3], and no additional Tasmanian devils were recorded on the NVA compared to survey data.
- No indications of DFTD were identified on the Tasmanian devils (that could be physically assessed).
- Montagu Road recorded the highest proportion of roadkill. Records were not evenly spread with the highest density of records occurring within a 2 km stretch, approximately 2 km outside of Smithton.
- No roadkill was recorded on Little Harcus and Robbins Island Road, with a single roadkill recorded on Harcus River Road.
- Roadkill rates increased between in October and November, compared with winter months, consistent with the findings of other roadkill surveys from Tasmania (Fox *et al*. 2018).

[3] A review of the Natural Values Atlas (NVA) indicates that Tasmanian devil carcasses are routinely reported by residents to DPIPWE and recorded within the NVA.

3.3 Recommendations

There are a range of measures that can be considered for implementation to reduce the risk of wildlife-vehicle collisions resulting from construction and operational traffic for the Robbins Island and Jim's Plain Renewable Energy Parks This is particularly so for the construction phase, when the majority of increased traffic is likely to occur and increase the risk of a wildlife-vehicle collision.

Recommendations have been separated into the Construction Phase, where the increase in traffic associated with construction vehicles have the highest potential to increase roadkill, and the Operational Phase of the two projects.

Construction Phase

- Working with road managers (e.g. Circular Head Council), install roadkill mitigation measures, such as virtual fencing, to discourage animal movement onto roads when traffic is present. The installation of such fencing has the potential to significantly reduce Tasmanian devil roadkill (Fox *et al.* 2018). It is recommended that:
    - Roadkill hot spots (identified in Figure 1) have been identified to inform the placement of mitigation measures along 1 km segments of road where roadkill is highest. This roadkill hotspot consists of 2 x 1 km segments of road where >11 road kills per segment were recorded during the study, and contains the segments of road with the highest proportion of Tasmanian devil roadkill (5 of the 6 records during the study).
        - It is recommended that any consideration of virtual fencing be implemented here for at least 4.5 km eastward from the Robbins Island Road turn off. This would extend current virtual fencing on Woolnorth Road.
- Undertake weekly monitoring on key roads. This should include roads where survey results indicate that roadkill is minimal, namely Harcus River Road, Little Harcus Road and Robbins Island Road, to ensure that roadkill rates are not increasing significantly. Roadkill data collected should be reviewed quarterly to assess whether an increase in roadkill is occurring.
    - Where significant increases in roadkill are experienced, such as more than three Tasmanian devil roadkills in a three-month period, further management measures be developed and implemented to reduce roadkill.
- Minimise, as far as practicable, night-time traffic (and including travel speed) to and from site. To achieve this, potential measures include:
    - Encourage car-pooling and/or bussing of workers to and from site
    - Educate workers on local wildlife and the risk of a wildlife-vehicle collision in safety briefings and plans
    - Night time (from dawn to dusk) construction traffic to travel below 80 km/h, where practicable.
- Liaise with road managers (e.g. Circular Head Council) to support a weekly roadkill removal that discourages threatened fauna, such as Tasmanian devils, Tasmanian wedge-tailed eagle and spotted-tailed quolls, from foraging on roads and reduce risk of a wildlife-vehicle collision. It is recommended that the focus should be areas where the survey indicates that roadkill numbers are greatest, such as West Montagu Road and Montagu Road.

- Develop wildlife rescue procedures for construction workers for use in the incident an animal is hit and injured, or discovered, by a vehicle going to and from site.

Operational Phase

- Working with road managers (e.g. Circular Head Council), maintain roadkill mitigation measures, such as virtual fencing, where practicable and feasible.
- Liaise with road managers (e.g. Circular Head Council) to support regular roadkill removal that discourages threatened fauna, such as Tasmanian devils, Tasmanian wedge-tailed eagle and Spotted-tailed quolls, from foraging on roads and reduce risk of a wildlife-vehicle collision. It is recommended that the focus should be areas where roadkill numbers are greatest, as indicated by survey or other relevant data.
- Develop wildlife rescue procedures for operations and maintenance workers for use in the incident an animal is hit and injured, or discovered, by a vehicle going to and from site.

4. References

Fox, S., Potts, J.M., Pemberton, D., and Crosswell, D. (2018) Roadkill mitigation: trailing virtual fence devices on the west coast of Tasmania, *Australian Mammalogy*.

Van Dyck, S., Gynther, I., and Baker, A (2013) *Field Companion to the Mammals of Australia*, New Holland Publishers

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