

Attachment 6

**Western Grey Kangaroo Survey
(Harewood, 2021)**

Western Grey Kangaroo

Survey

2020

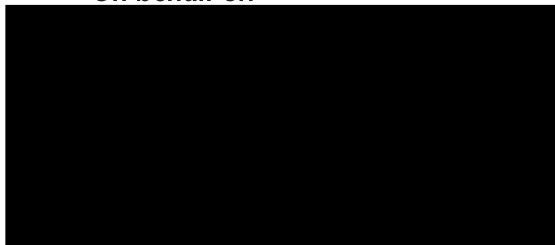


Lots 1-6 and 317 Harewood's Rd Dalyellup

December 2021

Version 1

On behalf of:



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1. INTRODUCTION

This report details the results of a western grey kangaroo (*Macropus fuliginosus*) survey of Lots 1-6 and 317 Harewood's Road, Dalyellup (the survey area).

The survey area is located about 10 kilometres south of the Bunbury central business district in south west Western Australia and is centred at approximately 33.415736° S and 115.614746° E (Figure 1). The survey area has a total area of about 189 hectares (ha).

It is understood that the landowners are proposing to expand existing sand extraction activities and then subsequently develop sections of the survey area as a residential development, with proposed works being confined to Lots 1-5 (area ~87 ha). The balance of the survey area (Lot 6 and 317 - ~102 ha) is to be reserved as regional open space. An undeveloped road reserve (a northern extension of Minninup Road) runs through the middle of the survey area in a north south direction (Figure 1).

2. SCOPE OF WORKS

The scope of work was defined as:

- Conduct a survey of kangaroo numbers and movement patterns within the survey area to inform the preparation of a “Kangaroo Management Plan”.
- Provide a summary of methods and results including plans and data.

3. METHODS

3.1 Vegetation Descriptions

Broad scale vegetation unit descriptions are provided based on observations made during field work.

3.2 Kangaroo Census

Typically, kangaroos seek refuge in woodland/bush areas during the day but move into open paddock areas/bush clearings to feed as the sun sets and during the night. WGKs numbers within the survey area were therefore counted using binoculars from a series of vantage points over a two-hour period around sunset on each survey day.

Movement from one vantage point to another was done in a manner aimed at reducing the possibility of WGKs being “spooked” so as to prevent animals regrouping in areas not as yet



surveyed or to locations outside the survey area. The numbers of WGKs visible in any one area was counted several times and the combined maximum recorded as the result.

The survey of WGK numbers was carried out every month from February 2020 to June 2020 at dusk on the following dates:

- February 29 2020;
- March 28 2020;
- April 26 2020;
- May 30 2020; and
- June 28 2020

3.3 Movement Patterns

During the dusk surveys detailed above, movement patterns were noted when animals were seen moving of their own volition (i.e. not when disturbed). In addition, ten motion sensing cameras were also installed at selected locations (e.g. runways/water tanks) to record kangaroo movement/numbers. These were positioned around or within the perimeter of the proposed development area only.

The location of camera traps is shown in Figure 2 with additional details provided in the table below.

Table 1: Camera Trap Details

Camera Number	Site	Start	Finish	Days
GH 20	Water Trough	05-04-2020	27-04-2020	22
GH 31	Water Trough	02-03-2020	27-04-2020	56
GH 16	East Boundary	03-03-2020	05-04-2020	33
GH 21	East Boundary	03-03-2020	04-04-2020	32
GH 24	East Boundary	07-03-2020	05-04-2020	29
GH 09	West Boundary	03-03-2020	28-04-2020	56
GH 23	West Boundary	03-03-2020	05-03-2020	2
GH 29	West Boundary	06-03-2020	14-04-2020	39
GH 46	West Boundary	02-03-2020	28-04-2020	57
GH 47	West Boundary	02-03-2020	27-04-2020	56



4. RESULTS

4.1 Vegetation Assessment

The identified vegetation units are shown in Figure 3.

Vegetated sections of the eastern half of the survey area contain a parkland cleared open forest of tuart with a highly variable midstorey of peppermint, jarrah, *Banksia* with occasional marri over an open shrubland (generally very sparse) of *Acacia*, basket bush and other shrub species over a grassland of introduced weeds on a subtle undulating sand dune. The north east corner of the survey area (~Lot 1) contains an open paddock with scattered trees and a small swamp/dampland.

The western half of the survey area contains an irregular shaped seasonally inundated swamp containing dense native sedges and *Typha*. The swamp is bounded on the east by a cleared paddock with a covering of dense grassland which is supported by the high water table. A subtle sand dune on the western side of the swamp supports a woodland of tuart with a midstorey of peppermint and occasional paperbark over an open shrubland of *Acacia*, and other shrub species over a low shrubland with a grassland of introduced weeds.

4.2 Kangaroo Census

The results of the kangaroo counts are summarised in Table 2 below.

Table 2: WGK Census Results - February to June 2020

Date	Time	No. of WGKs Observed		
		Development Area	ROS	Total
Feb 29 2020	~5:30pm to 7.30pm	7	12	19
Mar 28 2020	~4:50pm to 6.50pm	13	4	17
April 26 2020	~4:15pm to 6.15pm	5	13	18
May 30 2020	~3:50pm to 5.50pm	23	5	28
June 28 2020	~3:50pm to 5.50pm	5	8	13

4.3 Movement Patterns

Observations made during the dusk surveys and the results of the camera trap records suggest that there is considerable movement of a relatively small number of WGKs in and out of the survey area during the day.

A summary of the camera trap records is provided in Table 3 below. The raw camera trap results are held in Appendix A.



Table 3: Summary of Camera Trap Records

Camera Number	Site	Start	Finish	Days	Total WGK Records	Direction		WGK/Day
						In	Out	
GH 20	Water Trough	05-04-2020	27-04-2020	22	72	N/A	N/A	3.27
GH 31	Water Trough	02-03-2020	27-04-2020	56	156	N/A	N/A	2.79
GH 16	East Boundary	03-03-2020	05-04-2020	33	58	23	-35	1.76
GH 21	East Boundary	03-03-2020	04-04-2020	32	93	15	-78	2.91
GH 24	East Boundary	07-03-2020	05-04-2020	29	162	65	-97	5.59
GH 09	West Boundary	03-03-2020	28-04-2020	56	47	30	-17	0.84
GH 23	West Boundary	03-03-2020	05-03-2020	2	5	1	-4	2.50
GH 29	West Boundary	06-03-2020	14-04-2020	39	16	8	-8	0.41
GH 46	West Boundary	02-03-2020	28-04-2020	57	131	51	-80	2.30
GH 47	West Boundary	02-03-2020	27-04-2020	56	197	35	-162	3.52
Totals/AVG				382	937	228	-481	2.59

5. DISCUSSION

Observations made during the WGK assessment suggest that at any one time there are relatively few WGKs being present within the survey area with the maximum recorded being 28 individuals during the May 2020 survey period with, in this instance, most (23) being observed in the proposed development area. In contrast the lowest number recorded (13) was just a month later (June 2020), with fractionally more being observed within the proposed ROS area (8) compared to the proposed development area.

The proposed development area, at the time of the surveys contains two operational water troughs. Camera trap records indicate that these represent a focal point for WGK activity with individuals being attracted into the property from outside areas particularly in the drier months of the year.

The camera trap records indicate considerable movement of WGK individuals in and out of the proposed development area. On average each of the 10 camera traps recorded 2.6 WGK movements per day with most activity (80% of records) taking place between 4:00 pm and 8:00 am. This is likely to vary between seasons and is most likely related to daytime temperatures with WGKs seeking refuge in dense bush areas outside of the development area during the hotter, middle part of the day (i.e. most WGKs do not reside within the proposed development area in the middle of the day but begin to move in mid-afternoon and move out again in the morning).



FIGURES





Lots 1-6 & 317
Harewood's Road
Dalyellup
Survey Area

WGK Survey
 Drawn: G Harewood
 Date: Dec 2021
 Scale: 1:12,250
 Projection/Coordinate System: UTM/MGA Zone 50



- Legend**
- Proposed Development Area
 - Proposed Regional Open Space



Lots 1-6 & 317
Harewood's Road
Dalyellup

WGK Survey

Drawn: G Harewood




Date: Dec 2021

Scale: 1:12,250

Projection/Coordinate System: UTM/MGA Zone 50



Legend

-  Camera Trap
-  Proposed Development Area
-  Proposed ROS



WGK Survey	
Drawn: G Harewood	
Date: Dec 2021	
Scale: 1:12,250	
Projection/Coordinate System: UTM/MGA Zone 50	

Lots 1-6 & 317
Harewood's Road
Dalyellup

Vegetation Units



Legend

Proposed Development Area

Proposed ROS

APPENDIX A

CAMERA TRAP RECORDS



WGK**Records**

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 09	03/03/2020	05:35:00	1	In
GH 09	03/03/2020	05:36:00	1	In
GH 09	03/03/2020	19:52:00	1	In
GH 09	04/03/2020	04:44:00	1	In
GH 09	05/03/2020	19:26:00	1	Out
GH 09	05/03/2020	19:30:00	1	Out
GH 09	09/03/2020	05:14:00	1	In
GH 09	10/03/2020	04:38:00	1	In
GH 09	10/03/2020	04:40:00	1	In
GH 09	10/03/2020	04:45:00	1	In
GH 09	10/03/2020	04:46:00	1	In
GH 09	10/03/2020	04:46:00	1	In
GH 09	11/03/2020	23:38:00	1	Out
GH 09	13/03/2020	06:58:00	1	Out
GH 09	15/03/2020	05:40:00	1	In
GH 09	17/03/2020	01:31:00	1	In
GH 09	17/03/2020	01:34:00	1	In
GH 09	17/03/2020	04:57:00	1	Out
GH 09	19/03/2020	07:35:00	1	Out
GH 09	21/03/2020	19:13:00	1	Out
GH 09	22/03/2020	00:35:00	1	In
GH 09	22/03/2020	18:42:00	4	Inside feeding
GH 09	24/03/2020	04:27:00	1	In
GH 09	24/03/2020	04:29:00	1	In
GH 09	25/03/2020	05:10:00	1	In
GH 09	26/03/2020	06:56:00	1	Out
GH 09	29/03/2020	01:03:00	1	In
GH 09	30/03/2020	04:51:00	1	In
GH 09	30/03/2020	06:20:00	1	Out
GH 09	31/03/2020	05:28:00	1	In
GH 09	1/04/2020	02:57:00	1	In
GH 09	7/04/2020	05:38:00	1	In
GH 09	7/04/2020	07:16:00	2	In
GH 09	15/04/2020	23:59:00	1	In
GH 09	17/04/2020	07:06:00	1	In
GH 09	17/04/2020	07:07:00	1	In
GH 09	17/04/2020	07:09:00	1	In
GH 09	19/04/2020	22:51:00	1	Out
GH 09	20/04/2020	04:48:00	1	Out
GH 09	24/04/2020	01:58:00	1	In
GH 09	24/04/2020	05:47:00	1	In
GH 09	27/04/2020	16:51:00	1	In hopping
GH 09	28/04/2020	02:51:00	1	Out
GH 16	03/03/2020	06:25:00	2	Out
GH 16	06/03/2020	18:13:00	1	In
GH 16	06/03/2020	18:13:00	1	In
GH 16	08/03/2020	13:00:00	5	In

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 16	08/03/2020	18:27:00	1	In
GH 16	10/03/2020	07:05:00	3	Out
GH 16	10/03/2020	18:17:00	1	In
GH 16	14/03/2020	15:24:00	1	Out
GH 16	15/03/2020	18:52:00	1	In
GH 16	16/03/2020	14:52:00	1	Out
GH 16	16/03/2020	17:17:00	1	In
GH 16	17/03/2020	08:59:00	4	Out
GH 16	20/03/2020	07:12:00	3	Out
GH 16	20/03/2020	07:44:00	4	Out
GH 16	20/03/2020	18:06:00	1	In
GH 16	20/03/2020	18:26:00	2	In
GH 16	21/03/2020	06:13:00	1	Out
GH 16	21/03/2020	06:51:00	2	Out
GH 16	21/03/2020	06:54:00	1	Out
GH 16	21/03/2020	06:54:00	1	Out
GH 16	21/03/2020	18:13:00	1	In
GH 16	24/03/2020	18:06:00	1	In
GH 16	25/03/2020	23:27:00	1	Out
GH 16	28/03/2020	19:03:00	2	In
GH 16	29/03/2020	07:27:00	1	Out
GH 16	29/03/2020	08:27:00	2	Out
GH 16	30/03/2020	06:57:00	1	Out
GH 16	30/03/2020	19:16:00	2	In
GH 16	01/04/2020	17:46:00	1	In
GH 16	04/04/2020	07:31:00	1	Out
GH 16	04/04/2020	18:48:00	1	In
GH 16	04/04/2020	18:56:00	1	In
GH 16	05/04/2020	12:48:00	1	Out
GH 16	05/04/2020	15:14:00	5	Out
GH 20	05/04/2020	19:24:00	1	Water Tank
GH 20	05/04/2020	19:53:00	1	Water Tank
GH 20	06/04/2020	18:24:00	3	Water Tank
GH 20	06/04/2020	19:09:00	1	Water Tank
GH 20	06/04/2020	19:15:00	1	Water Tank
GH 20	06/04/2020	19:39:00	2	Water Tank
GH 20	06/04/2020	22:48:00	2	Water Tank
GH 20	07/04/2020	06:49:00	1	Water Tank
GH 20	07/04/2020	18:13:00	2	Water Tank
GH 20	07/04/2020	18:32:00	1	Water Tank
GH 20	07/04/2020	22:05:00	2	Water Tank
GH 20	08/04/2020	17:55:00	2	Water Tank
GH 20	08/04/2020	18:15:00	2	Water Tank
GH 20	08/04/2020	23:34:00	1	Water Tank
GH 20	09/04/2020	14:04:00	1	Water Tank
GH 20	10/04/2020	18:06:00	5	Water Tank
GH 20	10/04/2020	18:25:00	5	Water Tank
GH 20	10/04/2020	19:11:00	2	Water Tank
GH 20	10/04/2020	19:49:00	2	Water Tank

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 20	10/04/2020	22:06:00	2	Water Tank
GH 20	11/04/2020	01:19:00	1	Water Tank
GH 20	11/04/2020	06:42:00	2	Water Tank
GH 20	11/04/2020	07:01:00	2	Water Tank
GH 20	11/04/2020	17:26:00	1	Water Tank
GH 20	11/04/2020	17:38:00	2	Water Tank
GH 20	11/04/2020	18:08:00	1	Water Tank
GH 20	11/04/2020	20:32:00	1	Water Tank
GH 20	12/04/2020	21:47:00	2	Water Tank
GH 20	13/04/2020	00:35:00	1	Water Tank
GH 20	13/04/2020	02:28:00	1	Water Tank
GH 20	13/04/2020	07:41:00	1	Water Tank
GH 20	13/04/2020	08:27:00	2	Water Tank
GH 20	16/04/2020	18:00:00	1	Water Tank
GH 20	16/04/2020	18:16:00	2	Water Tank
GH 20	16/04/2020	18:37:00	1	Water Tank
GH 20	18/04/2020	08:17:00	1	Water Tank
GH 20	18/04/2020	18:03:00	1	Water Tank
GH 20	19/04/2020	22:37:00	1	Water Tank
GH 20	21/04/2020	03:17:00	1	Water Tank
GH 20	23/04/2020	20:55:00	1	Water Tank
GH 20	23/04/2020	22:04:00	1	Water Tank
GH 20	25/04/2020	10:19:00	1	Water Tank
GH 20	25/04/2020	22:05:00	2	Water Tank
GH 20	26/04/2020	17:46:00	1	Water Tank
GH 20	26/04/2020	23:54:00	1	Water Tank
GH 20	27/04/2020	17:55:00	1	Water Tank
GH 21	03/03/2020	18:41:00	1	In
GH 21	04/03/2020	07:15:00	2	Out
GH 21	04/03/2020	18:50:00	1	In
GH 21	06/03/2020	08:11:00	1	Out
GH 21	06/03/2020	08:38:00	7	Out
GH 21	07/03/2020	07:20:00	1	Out
GH 21	08/03/2020	09:24:00	4	Out
GH 21	10/03/2020	18:27:00	1	In
GH 21	13/03/2020	10:38:00	4	Out
GH 21	15/03/2020	12:06:00	1	Out
GH 21	16/03/2020	08:39:00	4	Out
GH 21	17/03/2020	06:36:00	2	Out
GH 21	17/03/2020	06:37:00	2	Out
GH 21	17/03/2020	17:43:00	1	In
GH 21	18/03/2020	06:45:00	1	Out
GH 21	18/03/2020	09:28:00	2	Out
GH 21	19/03/2020	16:39:00	1	In
GH 21	20/03/2020	10:41:00	1	Out
GH 21	21/03/2020	06:13:00	3	Out
GH 21	21/03/2020	07:13:00	2	Out
GH 21	21/03/2020	07:19:00	1	Out
GH 21	21/03/2020	07:49:00	1	Out

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 21	21/03/2020	09:07:00	1	Out
GH 21	21/03/2020	09:08:00	2	Out
GH 21	22/03/2020	07:31:00	2	Out
GH 21	22/03/2020	07:35:00	3	Out
GH 21	22/03/2020	07:37:00	2	Out
GH 21	22/03/2020	08:04:00	2	Out
GH 21	22/03/2020	08:11:00	1	Out
GH 21	23/03/2020	08:37:00	1	Out
GH 21	24/03/2020	08:21:00	2	Out
GH 21	24/03/2020	08:54:00	5	Out
GH 21	24/03/2020	15:04:00	3	In
GH 21	24/03/2020	15:04:00	2	In
GH 21	29/03/2020	08:49:00	4	Out
GH 21	30/03/2020	08:35:00	5	Out
GH 21	30/03/2020	14:00:00	1	In
GH 21	30/03/2020	14:03:00	4	In
GH 21	04/04/2020	07:45:00	4	Out
GH 21	04/04/2020	08:25:00	3	Out
GH 21	04/04/2020	08:34:00	1	Out
GH 21	04/04/2020	08:48:00	1	Out
GH 23	01/01/2011	01:11:00	1	Out
GH 23	01/01/2011	12:43:00	1	In
GH 23	02/01/2011	01:31:00	1	Out
GH 23	02/01/2011	12:39:00	2	Out
GH 24	02/03/2020	19:22:00	5	In
GH 24	03/03/2020	06:32:00	1	Out
GH 24	03/03/2020	06:45:00	1	Out
GH 24	03/03/2020	07:08:00	1	Out
GH 24	03/03/2020	18:14:00	2	In
GH 24	03/03/2020	18:17:00	1	In
GH 24	03/03/2020	19:15:00	1	In
GH 24	05/03/2020	06:34:00	3	Out
GH 24	08/03/2020	07:22:00	2	In
GH 24	08/03/2020	12:58:00	7	Out
GH 24	08/03/2020	13:07:00	1	Out
GH 24	08/03/2020	18:36:00	1	In
GH 24	08/03/2020	18:58:00	2	In
GH 24	09/03/2020	19:00:00	1	In
GH 24	09/03/2020	19:41:00	1	In
GH 24	11/03/2020	18:32:00	1	In
GH 24	12/03/2020	07:22:00	1	Out
GH 24	12/03/2020	07:34:00	2	Out
GH 24	12/03/2020	18:11:00	4	In
GH 24	15/03/2020	12:01:00	6	Out
GH 24	15/03/2020	16:58:00	3	In
GH 24	16/03/2020	09:01:00	1	Out
GH 24	16/03/2020	14:48:00	1	Out
GH 24	17/03/2020	08:57:00	3	Out
GH 24	19/03/2020	07:54:00	2	Out

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 24	19/03/2020	08:09:00	1	Out
GH 24	21/03/2020	07:20:00	2	Out
GH 24	21/03/2020	15:06:00	1	Out
GH 24	21/03/2020	17:41:00	1	In
GH 24	22/03/2020	07:09:00	1	Out
GH 24	23/03/2020	08:04:00	1	Out
GH 24	23/03/2020	08:43:00	2	Out
GH 24	23/03/2020	16:22:00	3	In
GH 24	25/03/2020	08:10:00	3	Out
GH 24	26/03/2020	09:28:00	2	Out
GH 24	28/03/2020	16:43:00	1	In
GH 24	28/03/2020	18:22:00	1	In
GH 24	28/03/2020	19:08:00	1	In
GH 24	29/03/2020	04:29:00	1	In
GH 24	30/03/2020	08:25:00	1	Out
GH 24	30/03/2020	08:43:00	1	Out
GH 24	30/03/2020	19:19:00	1	In
GH 24	31/03/2020	10:47:00	1	Out
GH 24	01/04/2020	18:05:00	2	In
GH 24	03/04/2020	08:10:00	5	Out
GH 24	05/04/2020	05:28:00	1	Out
GH 24	05/04/2020	15:35:00	1	In
GH 24	07/04/2020	07:26:00	5	Out
GH 24	07/04/2020	07:38:00	1	Out
GH 24	08/04/2020	18:30:00	1	In
GH 24	09/04/2020	07:11:00	2	Out
GH 24	09/04/2020	07:14:00	2	Out
GH 24	09/04/2020	17:30:00	3	In
GH 24	10/04/2020	06:39:00	1	Out
GH 24	10/04/2020	08:27:00	1	Out
GH 24	11/04/2020	07:07:00	2	Out
GH 24	11/04/2020	17:14:00	2	In
GH 24	11/04/2020	17:22:00	1	In
GH 24	12/04/2020	08:13:00	1	Out
GH 24	12/04/2020	08:16:00	2	Out
GH 24	13/04/2020	08:18:00	1	Out
GH 24	13/04/2020	16:01:00	1	In
GH 24	15/04/2020	06:57:00	1	In
GH 24	15/04/2020	17:52:00	1	In
GH 24	16/04/2020	07:49:00	1	Out
GH 24	16/04/2020	09:00:00	2	Out
GH 24	17/04/2020	07:14:00	2	Out
GH 24	18/04/2020	08:35:00	1	Out
GH 24	18/04/2020	09:20:00	1	In
GH 24	18/04/2020	18:25:00	1	In
GH 24	20/04/2020	15:19:00	2	In
GH 24	20/04/2020	17:57:00	1	In
GH 24	21/04/2020	03:26:00	1	Out
GH 24	21/04/2020	08:04:00	1	Out

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 24	21/04/2020	08:06:00	1	Out
GH 24	21/04/2020	08:07:00	1	Out
GH 24	21/04/2020	08:08:00	4	Out
GH 24	21/04/2020	09:26:00	4	Out
GH 24	21/04/2020	09:27:00	1	In
GH 24	21/04/2020	15:49:00	2	In
GH 24	21/04/2020	17:44:00	1	In
GH 24	22/04/2020	09:56:00	2	Out
GH 24	22/04/2020	16:19:00	1	In
GH 24	23/04/2020	08:48:00	1	Out
GH 24	23/04/2020	09:47:00	1	In
GH 24	23/04/2020	18:14:00	1	In
GH 24	25/04/2020	09:22:00	3	Out
GH 24	25/04/2020	10:18:00	2	Out
GH 24	25/04/2020	17:53:00	2	In
GH 24	26/04/2020	15:43:00	1	In
GH 24	26/04/2020	18:22:00	2	In
GH 24	27/04/2020	08:14:00	1	Out
GH 24	28/04/2020	17:00:00	2	In
GH 29	06/03/2020	18:52:00	2	Out
GH 29	07/03/2020	05:12:00	1	In
GH 29	08/03/2020	01:37:00	1	Out
GH 29	09/03/2020	02:18:00	1	In
GH 29	09/03/2020	17:49:00	1	Out
GH 29	05/04/2020	18:54:00	1	In
GH 29	05/04/2020	20:15:00	1	Out
GH 29	06/04/2020	00:12:00	1	In
GH 29	06/04/2020	07:11:00	1	In
GH 29	06/04/2020	19:35:00	1	Out
GH 29	08/04/2020	01:53:00	1	In
GH 29	08/04/2020	17:45:00	1	In
GH 29	13/04/2020	23:18:00	1	In
GH 29	14/04/2020	04:49:00	1	Out
GH 29	14/04/2020	06:51:00	1	Out
GH 31	02/03/2020	19:28:00	4	Water Tank
GH 31	03/03/2020	06:05:00	2	Water Tank
GH 31	03/03/2020	17:32:00	5	Water Tank
GH 31	04/03/2020	01:12:00	1	Water Tank
GH 31	04/03/2020	06:26:00	2	Water Tank
GH 31	04/03/2020	16:55:00	4	Water Tank
GH 31	05/03/2020	18:21:00	1	Water Tank
GH 31	05/03/2020	18:28:00	4	Water Tank
GH 31	06/03/2020	00:42:00	1	Water Tank
GH 31	06/03/2020	06:25:00	2	Water Tank
GH 31	06/03/2020	17:04:00	3	Water Tank
GH 31	07/03/2020	07:30:00	2	Water Tank
GH 31	07/03/2020	18:20:00	1	Water Tank
GH 31	08/03/2020	06:36:00	2	Water Tank
GH 31	08/03/2020	17:39:00	6	Water Tank

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 31	09/03/2020	05:16:00	1	Water Tank
GH 31	09/03/2020	17:33:00	3	Water Tank
GH 31	10/03/2020	07:15:00	1	Water Tank
GH 31	10/03/2020	07:19:00	1	Water Tank
GH 31	10/03/2020	17:25:00	2	Water Tank
GH 31	10/03/2020	19:14:00	2	Water Tank
GH 31	10/03/2020	21:08:00	3	Water Tank
GH 31	11/03/2020	23:31:00	2	Water Tank
GH 31	12/03/2020	00:25:00	2	Water Tank
GH 31	12/03/2020	18:33:00	3	Water Tank
GH 31	13/03/2020	02:21:00	2	Water Tank
GH 31	13/03/2020	18:24:00	5	Water Tank
GH 31	14/03/2020	00:13:00	4	Water Tank
GH 31	14/03/2020	17:38:00	1	Water Tank
GH 31	16/03/2020	08:49:00	1	Water Tank
GH 31	16/03/2020	17:45:00	3	Water Tank
GH 31	16/03/2020	18:38:00	2	Water Tank
GH 31	18/03/2020	19:03:00	2	Water Tank
GH 31	19/03/2020	16:00:00	1	Water Tank
GH 31	19/03/2020	17:29:00	4	Water Tank
GH 31	20/03/2020	22:13:00	3	Water Tank
GH 31	21/03/2020	18:58:00	1	Water Tank
GH 31	22/03/2020	05:44:00	3	Water Tank
GH 31	22/03/2020	17:51:00	3	Water Tank
GH 31	23/03/2020	17:46:00	2	Water Tank
GH 31	23/03/2020	21:05:00	2	Water Tank
GH 31	24/03/2020	20:24:00	2	Water Tank
GH 31	25/03/2020	05:56:00	2	Water Tank
GH 31	25/03/2020	16:49:00	2	Water Tank
GH 31	26/03/2020	19:13:00	1	Water Tank
GH 31	28/03/2020	18:07:00	3	Water Tank
GH 31	04/04/2020	20:18:00	2	Water Tank
GH 31	05/04/2020	21:44:00	4	Water Tank
GH 31	06/04/2020	18:05:00	3	Water Tank
GH 31	07/04/2020	03:27:00	4	Water Tank
GH 31	08/04/2020	19:21:00	1	Water Tank
GH 31	09/04/2020	00:27:00	2	Water Tank
GH 31	09/04/2020	20:01:00	3	Water Tank
GH 31	10/04/2020	00:01:00	2	Water Tank
GH 31	10/04/2020	17:52:00	6	Water Tank
GH 31	11/04/2020	21:19:00	1	Water Tank
GH 31	12/04/2020	06:43:00	1	Water Tank
GH 31	12/04/2020	20:12:00	1	Water Tank
GH 31	13/04/2020	02:45:00	1	Water Tank
GH 31	13/04/2020	16:04:00	2	Water Tank
GH 31	14/04/2020	22:02:00	1	Water Tank
GH 31	15/04/2020	18:12:00	3	Water Tank
GH 31	16/04/2020	19:39:00	1	Water Tank
GH 31	17/04/2020	17:09:00	2	Water Tank

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 31	19/04/2020	19:30:00	2	Water Tank
GH 31	25/04/2020	02:06:00	2	Water Tank
GH 31	26/04/2020	20:58:00	2	Water Tank
GH 31	27/04/2020	19:53:00	1	Water Tank
GH 46	02/03/2020	19:44:00	2	Out
GH 46	02/03/2020	23:26:00	1	Out
GH 46	03/03/2020	04:30:00	1	In
GH 46	03/03/2020	06:28:00	1	In
GH 46	04/03/2020	05:57:00	1	Feeding
GH 46	04/03/2020	20:21:00	2	Out
GH 46	04/03/2020	23:31:00	1	Out
GH 46	05/03/2020	06:37:00	1	Out
GH 46	05/03/2020	20:56:00	1	In
GH 46	06/03/2020	03:40:00	1	In
GH 46	07/03/2020	19:42:00	1	Out
GH 46	07/03/2020	20:17:00	1	Out
GH 46	08/03/2020	05:28:00	1	In
GH 46	08/03/2020	20:30:00	2	Out
GH 46	09/03/2020	06:00:00	1	In
GH 46	09/03/2020	06:05:00	1	In
GH 46	09/03/2020	19:16:00	1	Out
GH 46	09/03/2020	20:06:00	1	Out
GH 46	09/03/2020	20:26:00	2	Out
GH 46	12/03/2020	05:42:00	1	In
GH 46	12/03/2020	07:28:00	3	Out
GH 46	12/03/2020	19:17:00	3	Out
GH 46	12/03/2020	19:52:00	3	Out
GH 46	12/03/2020	21:40:00	1	Out
GH 46	12/03/2020	22:22:00	1	Out
GH 46	16/03/2020	19:48:00	1	Out
GH 46	17/03/2020	04:01:00	2	In
GH 46	17/03/2020	04:05:00	1	Out
GH 46	17/03/2020	06:01:00	1	In
GH 46	18/03/2020	06:40:00	3	In
GH 46	18/03/2020	07:05:00	1	In
GH 46	20/03/2020	01:44:00	1	In
GH 46	22/03/2020	17:40:00	2	Out
GH 46	22/03/2020	17:50:00	3	Out
GH 46	22/03/2020	17:52:00	3	Out
GH 46	22/03/2020	18:19:00	1	Out
GH 46	24/03/2020	06:21:00	1	In
GH 46	24/03/2020	20:22:00	2	In
GH 46	26/03/2020	06:06:00	1	Out
GH 46	26/03/2020	20:51:00	1	Out
GH 46	28/03/2020	02:28:00	1	Out
GH 46	28/03/2020	19:16:00	3	Out
GH 46	30/03/2020	04:27:00	1	In
GH 46	30/03/2020	18:15:00	2	Out
GH 46	30/03/2020	19:21:00	2	Out

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 46	31/03/2020	19:17:00	1	In
GH 46	05/04/2020	19:40:00	1	Out
GH 46	06/04/2020	23:48:00	1	Out
GH 46	7/04/2020	05:36:00	1	In
GH 46	7/04/2020	06:23:00	1	In
GH 46	7/04/2020	06:42:00	1	In
GH 46	7/04/2020	18:37:00	3	Out
GH 46	8/04/2020	06:02:00	1	In
GH 46	8/04/2020	18:55:00	3	Out
GH 46	8/04/2020	23:22:00	1	Out
GH 46	8/04/2020	23:49:00	1	Out
GH 46	10/04/2020	18:29:00	1	Out
GH 46	10/04/2020	18:30:00	1	Out
GH 46	11/04/2020	19:33:00	1	Out
GH 46	12/04/2020	02:38:00	1	In
GH 46	12/04/2020	02:51:00	1	In
GH 46	12/04/2020	06:20:00	2	In
GH 46	13/04/2020	05:47:00	1	In
GH 46	13/04/2020	06:31:00	2	In
GH 46	16/04/2020	17:40:00	1	Out
GH 46	16/04/2020	18:27:00	1	Out
GH 46	16/04/2020	18:51:00	2	Out
GH 46	17/04/2020	06:59:00	1	In
GH 46	17/04/2020	18:13:00	1	Out
GH 46	18/04/2020	18:03:00	1	Out
GH 46	18/04/2020	19:17:00	1	Out
GH 46	19/04/2020	01:07:00	1	In
GH 46	19/04/2020	19:41:00	1	Out
GH 46	20/04/2020	01:22:00	3	In
GH 46	20/04/2020	06:02:00	1	In
GH 46	20/04/2020	20:48:00	1	Out
GH 46	20/04/2020	22:13:00	1	Out
GH 46	21/04/2020	01:40:00	1	In
GH 46	21/04/2020	06:26:00	1	In
GH 46	21/04/2020	17:43:00	2	Out
GH 46	21/04/2020	20:22:00	1	Out
GH 46	22/04/2020	06:12:00	1	In
GH 46	22/04/2020	06:14:00	1	In
GH 46	22/04/2020	20:58:00	1	In
GH 46	23/04/2020	17:16:00	1	Out
GH 46	24/04/2020	01:19:00	1	In
GH 46	24/04/2020	06:24:00	1	Out
GH 46	24/04/2020	06:26:00	1	In
GH 46	25/04/2020	05:57:00	2	In
GH 46	25/04/2020	21:56:00	1	Out
GH 46	26/04/2020	06:42:00	1	Out
GH 46	27/04/2020	18:03:00	3	Out
GH 46	27/04/2020	18:54:00	1	Out
GH 46	27/04/2020	22:02:00	1	In

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 46	28/04/2020	02:03:00	2	In
GH 46	28/04/2020	05:50:00	1	In
GH 47	02/03/2020	19:55:00	2	Out
GH 47	02/03/2020	20:29:00	2	Out
GH 47	03/03/2020	20:50:00	2	Out
GH 47	03/03/2020	23:50:00	1	Out
GH 47	04/03/2020	18:05:00	2	Out
GH 47	04/03/2020	18:38:00	2	Out
GH 47	05/03/2020	20:12:00	1	Out
GH 47	05/03/2020	21:42:00	3	Out
GH 47	06/03/2020	01:49:00	1	In
GH 47	06/03/2020	18:41:00	1	Out
GH 47	07/03/2020	04:44:00	1	In
GH 47	07/03/2020	18:34:00	2	Out
GH 47	07/03/2020	19:33:00	1	Out
GH 47	08/03/2020	04:37:00	1	In
GH 47	08/03/2020	05:10:00	1	In
GH 47	08/03/2020	05:16:00	1	In
GH 47	08/03/2020	05:44:00	1	In
GH 47	08/03/2020	18:56:00	3	Out
GH 47	08/03/2020	21:47:00	1	In
GH 47	09/03/2020	18:22:00	1	Out
GH 47	09/03/2020	18:44:00	2	Out
GH 47	09/03/2020	20:14:00	2	Out
GH 47	09/03/2020	20:53:00	1	Out
GH 47	09/03/2020	21:07:00	1	Out
GH 47	09/03/2020	22:06:00	1	Out
GH 47	10/03/2020	18:28:00	6	Out
GH 47	10/03/2020	18:57:00	3	Out
GH 47	10/03/2020	19:11:00	2	Out
GH 47	12/03/2020	06:30:00	1	In
GH 47	12/03/2020	19:11:00	3	Out
GH 47	12/03/2020	21:45:00	1	Out
GH 47	13/03/2020	19:00:00	1	Out
GH 47	13/03/2020	19:23:00	3	Out
GH 47	14/03/2020	19:28:00	1	Out
GH 47	14/03/2020	19:43:00	3	Out
GH 47	15/03/2020	20:51:00	4	Out
GH 47	16/03/2020	20:36:00	1	Out
GH 47	17/03/2020	19:26:00	1	Out
GH 47	18/03/2020	02:24:00	1	In
GH 47	19/03/2020	06:11:00	1	In
GH 47	19/03/2020	07:10:00	2	In
GH 47	19/03/2020	18:27:00	2	Out
GH 47	19/03/2020	18:48:00	1	Out
GH 47	21/03/2020	18:55:00	2	Out
GH 47	21/03/2020	20:18:00	1	Out
GH 47	22/03/2020	18:43:00	6	Out
GH 47	22/03/2020	19:22:00	1	Out

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 47	25/03/2020	01:52:00	1	Out
GH 47	26/03/2020	05:30:00	1	In
GH 47	26/03/2020	18:48:00	1	Out
GH 47	27/03/2020	06:33:00	2	In
GH 47	27/03/2020	18:22:00	1	Out
GH 47	27/03/2020	20:41:00	1	Out
GH 47	28/03/2020	03:31:00	1	In
GH 47	28/03/2020	11:16:00	1	Out
GH 47	29/03/2020	05:46:00	1	In
GH 47	29/03/2020	18:43:00	1	Out
GH 47	29/03/2020	19:25:00	1	Out
GH 47	30/03/2020	18:52:00	3	Out
GH 47	30/03/2020	19:17:00	1	Out
GH 47	30/03/2020	21:03:00	2	In
GH 47	30/03/2020	21:51:00	1	Out
GH 47	31/03/2020	06:31:00	1	In
GH 47	31/03/2020	17:06:00	3	Out
GH 47	31/03/2020	18:14:00	1	Out
GH 47	31/03/2020	18:32:00	1	Out
GH 47	01/04/2020	19:00:00	2	Out
GH 47	01/04/2020	19:06:00	1	In
GH 47	01/04/2020	19:16:00	1	Out
GH 47	01/04/2020	19:36:00	1	Out
GH 47	01/04/2020	20:17:00	1	Out
GH 47	01/04/2020	20:36:00	3	Out
GH 47	02/04/2020	06:12:00	1	In
GH 47	03/04/2020	18:50:00	1	Out
GH 47	03/04/2020	20:04:00	1	Out
GH 47	04/04/2020	18:36:00	1	Out
GH 47	04/04/2020	19:53:00	4	Out
GH 47	05/04/2020	18:41:00	1	Out
GH 47	05/04/2020	19:48:00	1	Out
GH 47	05/04/2020	20:00:00	2	Out
GH 47	05/04/2020	20:14:00	2	Out
GH 47	06/04/2020	18:32:00	2	Out
GH 47	06/04/2020	19:40:00	2	Out
GH 47	06/04/2020	19:52:00	2	Out
GH 47	07/04/2020	19:55:00	1	Out
GH 47	09/04/2020	00:49:00	1	Out
GH 47	09/04/2020	06:14:00	2	In
GH 47	09/04/2020	18:32:00	1	Out
GH 47	10/04/2020	03:00:00	1	In
GH 47	10/04/2020	03:22:00	1	In
GH 47	10/04/2020	17:54:00	4	Out
GH 47	10/04/2020	19:11:00	2	Out
GH 47	10/04/2020	19:42:00	3	Out
GH 47	11/04/2020	06:36:00	2	In
GH 47	11/04/2020	22:38:00	1	Out
GH 47	12/04/2020	18:06:00	3	Out

Camera Number	Date	Time	Number	Comment/Direction of Travel
GH 47	12/04/2020	21:41:00	1	In
GH 47	13/04/2020	03:49:00	1	Out
GH 47	13/04/2020	18:31:00	1	Out
GH 47	13/04/2020	19:03:00	2	Out
GH 47	14/04/2020	17:42:00	1	Out
GH 47	14/04/2020	18:55:00	1	In
GH 47	16/04/2020	18:36:00	1	Out
GH 47	17/04/2020	18:14:00	2	Out
GH 47	17/04/2020	18:25:00	2	Out
GH 47	18/04/2020	20:45:00	1	Out
GH 47	19/04/2020	18:37:00	1	Out
GH 47	20/04/2020	01:17:00	1	In
GH 47	20/04/2020	18:57:00	1	Out
GH 47	21/04/2020	17:58:00	6	Out
GH 47	21/04/2020	19:06:00	1	Out
GH 47	24/04/2020	06:29:00	1	In
GH 47	25/04/2020	20:01:00	1	Out
GH 47	25/04/2020	20:44:00	1	Out
GH 47	26/04/2020	18:10:00	5	Out
GH 47	26/04/2020	18:33:00	2	Out
GH 47	27/04/2020	00:39:00	1	In
GH 47	27/04/2020	17:54:00	2	In
GH 47	27/04/2020	18:02:00	1	Out

DISCLAIMER

This fauna assessment report (“the report”) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Greg Harewood (“the Author”). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. In accordance with the scope of services, the Author has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

The conclusions are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of preparing the report. Also it should be recognised that site conditions, can change with time.

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

In preparing the report, the Author has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (“the data”). Except as otherwise stated in the report, the Author has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

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The Author will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.