



Transport
**Roads & Maritime
Services**

Warrell Creek to Nambucca Heads

Underpass Monitoring Report – year one
operational phase 2018-2019

Roads and Maritime Services | September 2019



Document Review

Date	Version	Status	Sent to	Represent	Delivered Format	Dispatched By
13/9/19	A	Draft	D. Rohweder	SES	MSW	N. Priest
30/9/19	1	Draft	S. Hardiman	RMS	MSW	D. Rohweder

Document Distribution

Date	Version	Status	Sent to	Represent	Delivered Format	Dispatched By
10/10/2019	2	Final	S. Hardiman	RMS	MSW	D. Rohweder

Project team:

David Rohweder (Project management, field survey, reporting)
Nick Priest (Field survey, reporting)
Luke Andrews (Field survey)
Nirvarna Makings (Field survey)
Oska Taylor (Field survey)
Brendan Taylor (Review)

Report prepared for:

Roads and Maritime Services NSW

© Sandpiper Ecological Surveys 2019
ABN: 82 084 096 828

PO Box 401
ALSTONVILLE NSW 2477
P 02 6628 3559 | E david@sandpipereco.com.au

Disclaimer:

This report has been prepared in accordance with the scope of services described in the contract or agreement between Sandpiper Ecological Surveys (ABN 82 084 096 828) and Roads and Maritime Services New South Wales. The report relies upon data, surveys and measurement obtained at the times and locations specified herein. The report has been prepared solely for Roads and Maritime Services New South Wales and Sandpiper Ecological Surveys accepts no responsibility for its use by other parties. Sandpiper Ecological Surveys accepts no responsibility or liability for changes in context, meaning, conclusions or omissions caused by cutting, pasting or editing the report.

Table of contents

1. Introduction	1
1.1 Background	1
1.2 Study area	2
2. Methods	2
2.1 Timing and weather conditions	2
2.2 Underpasses	4
2.2.1 Sand pads	4
2.2.2 Scat and track search	5
2.2.3 Cameras	5
2.3 Adjacent habitat	7
2.3.1 Survey design	7
2.3.2 Trapping	7
2.3.3 Diurnal active search	8
2.3.4 Nocturnal active search	8
2.3.5 Opportunistic records	8
2.4 Exclusion fence	9
3. Results	9
3.1 Underpasses	9
3.1.1 Sand pads	9
3.1.2 Scat and track	11
3.1.3 Cameras	11
3.2 Adjacent habitat	18
3.3 Species recorded in underpasses and adjacent habitat	21
3.4 Exclusion fence	23
4. Discussion	23
4.1 Low rates of use of fauna underpasses and adjacent habitats by feral predators	23
4.2 High levels of fauna underpass use by a variety of native species	24
4.3 No change to densities, distribution, habitat use and movement patterns compared to baseline population data of target species	24
4.4 Evidence of use by dispersing individuals and different age cohorts	25
4.5 Use by cover-dependent species with low mobility	25
4.6 No breaches in fauna exclusion fencing	25
4.7 Low incidences of fauna road strike mortality	25
5. Recommendations	26
6. References	26
Appendix A – Species list	28
Appendix B – Field data	30

List of tables

Table 1: Underpasses sampled during operational phase monitoring of the WC2NH upgrade. SQ = spotted-tailed quoll; K = koala; GBF = giant barred frog; * sites consists of dual cell 3x3m box culverts with one cell providing wet passage for aquatic fauna; P/A = presence/absence.	1
Table 2: Summary of weather conditions recorded at the northern compound of the project site between 20 October and 20 December 2018 and between 1 June and 31 August 2019.....	2
Table 3: Camera survey effort during year one operational phase monitoring.	6
Table 4: Survey effort for sampling adjacent habitat on the WC2NH upgrade. S/S = spring/summer, W = winter, UP = Underpass.	8
Table 5: Species and groups of fauna recorded during sand pad monitoring at 12 underpasses on the WC2NH upgrade. * possible record only, SS = Spring/Summer, W = Winter.	10
Table 6: Species and fauna groups recorded during track and scat surveys of 12 underpasses on the WC2NH upgrade. ^l = introduced species, * = Threatened species SS = Spring/Summer, W = Winter.	11
Table 7: Number of complete crossings recorded for each species and fauna group at 12 underpasses on the WC2NH upgrade in spring/summer and winter of year one operational phase. C = complete crossing; IC = incomplete crossing; * = threatened species ^l = introduced species SS = Spring/Summer; W = Winter; SB = Short-beaked; EW = Eastern water	12
Table 8: Number of complete crossings made by each species/group at each of 12 underpasses monitored on the WC2NH upgrade. Sites 1 and 5 did not contain fauna furniture. ^l = introduced species, Fl = Floor, Fu = furniture, SS = Spring/Summer, W = Winter.	17
Table 9: Species of vertebrate recorded during surveys of habitat adjoining each side of all underpasses. ^ denotes threatened species; ^l = Introduced species, SS = Spring/Summer, W = Winter.....	18
Table 10: Species and fauna groups recorded using underpasses by all methods and those recorded in adjacent habitat. Shading denotes a species or group not confirmed in both areas that is likely to be represented in another species/group that was recorded in both areas, for example northern brown bandicoot is likely represented by Peramelidae spp. ^ denotes threatened species.	21
Table 11: Exclusion fence breaches with location description, GPS coordinates.....	23

List of figures

Figure 1: Location of underpass sample sites in relation to the WC2NH alignment.	3
Figure 2: Number of complete crossings by native and introduced species at each underpass during year one monitoring.....	13
Figure 3: Average number of complete crossings/week recorded in spring/summer and winter at each site. n = 12 for each site.	14
Figure 4: Complete crossings/week in spring/summer and winter by all species on underpass floor and fauna furniture during year one operational phase monitoring. Sites 1 and 5 do not have fauna furniture installed.	16

List of plates

Plate 1: Sand pad being installed in a fauna underpass on the WC2NH upgrade.....	4
Plate 2: Example of a pitfall trap line installed during adjacent habitat surveys (L). Setting up traps in adjacent habitat at Site 1 (R).	7
Plate 3: Koala tracks recorded on sand pads at Site 4 during spring/summer monitoring.....	9
Plate 4: Brushtail possum tracks (L) and short-beaked echidna tracks (R) recorded during winter sand pad monitoring.	9
Plate 5: Single cat responsible for the majority of completed crossings at Site 3.	14
Plate 6: Koala recorded at Site 12, moving east on 22 October (L) and west of 23 October (R).....	15
Plate 7: Short-eared brushtail possum crossings using fauna furniture at site 7 (L). Swamp wallaby making a complete crossing at site 8 (R).	15
Plate 8: Brown antechinus (L) captured in adjacent habitat during spring trapping and a sugar glider captured during winter trapping.	20
Plate 9: A green catbird captured in a cage trap during winter trapping (L). A short-eared brushtail possum captured in a cage trap during winter trapping (R).	20

1. Introduction

In 2015, Roads and Maritime Services (RMS) NSW, in conjunction with Acciona Ferrovia Joint Venture (AFJV), commenced the upgrade of the Pacific Highway between Warrell Creek and Nambucca Heads (WC2NH). The WC2NH project was opened to traffic in two stages:

- Stage 2a - 13.5km section from Lower Warrell Creek Bridge to Nambucca Heads opened on 18 December 2017; and
- Stage 2b - 6.25km section from the southern end of the project to the Lower Warrell Creek bridge opened on 29 June 2018.

Approvals for the WC2NH upgrade required monitoring of several species and mitigation measures during the operational phase. Species and mitigation measures targeted include koala, spotted tailed quoll, grey-headed flying-foxes, yellow-bellied glider, giant barred frog, green-thighed frog ponds, fauna underpasses, vegetated median, roadkill, exclusion fencing, and threatened flora. Sandpiper Ecological Surveys (Sandpiper) was contracted by RMS to deliver the WC2NH operational ecological and water quality monitoring program.

The objective of fauna underpass monitoring is “to assess use of underpasses by threatened and common fauna and to assess the effect of exclusion fencing on movement of small mammals, reptiles and frogs” (RMS 2018). Inspection of the exclusion fence occurs annually in winter and is reported on here.

The following annual report presents methods and results of the spring/summer 2018 and winter 2019 underpass and adjacent habitat surveys conducted in year one of the operational phase. Discussion and recommendations are developed in accordance with the project brief and the potential indicators of success as outlined in the Ecological Monitoring Program (EMP). A list of species names for fauna referred to in text and Tables is provided in Appendix A.

1.1 Background

The WC2NH upgrade features 23 fauna underpasses, including 13 sites with box culverts, three sites with pipe culverts and seven sites with bridges. Underpasses targeted for monitoring were specified in the WC2NH Ecological Monitoring Program (EMP; Table 1) and include eleven box culverts and one bridge. Site five includes a dual cell box culvert with one cell designated as a wet passage (for aquatic fauna) and the other as a dry cell. The dry cell includes a concrete ledge that provides dry passage for terrestrial fauna. Fauna underpasses were designed to target spotted-tailed quoll (*Dasyurus maculatus*), koala (*Phascolarctos cinereus*) and giant barred frog (*Mixophyes iteratus*). Giant barred frog is known to occur at site 1 (Upper Warrell Creek) only, whilst quoll and koala could occur at sites 2-12. Sites 9/10, and 11/12 consist of corresponding culverts on either side of the vegetated median.

Table 1: Underpasses sampled during operational phase monitoring of the WC2NH upgrade. SQ = spotted-tailed quoll; K = koala; GBF = giant barred frog; * sites consists of dual cell 3x3m box culverts with one cell providing wet passage for aquatic fauna; P/A = presence/absence.

Site	Chainage	Type	Structure	Dimensions	Fauna Furniture (P/A)	Substrate	SQ	K	GBF
1	42500	Combined	Bridge over Upper Warrell Ck		A	Soil			x
2	55120	Dedicated	Box Culvert	1 x 3000 x 3000	P	Concrete	x	x	
3	56410	Combined	Box Culvert	1 x 2400 x 2400	P	Concrete	x	x	
4	57770	Dedicated	Box Culvert	1 x 3000 x 3000	P	Mulch	x	x	
5	58510	Combined	Box Culvert	2 x 3000 x 3000*	A	Concrete	x	x	

Site	Chainage	Type	Structure	Dimensions	Fauna Furniture (P/A)	Substrate	SQ	K	GBF
6	58560	Dedicated	Box Culvert	1 x 3000 x 3000	P	Mulch	x	x	
7	59090	Dedicated	Box Culvert	1 x 3000 x 3000	P	Mulch	x	x	
8	59550	Dedicated	Box Culvert	1 x 3000 x 3000	P	Mulch	x	x	
9	59750 NB	Dedicated	Box Culvert	1 x 2400 x 2400	P	Mulch	x	x	
10	59760 SB	Dedicated	Box Culvert	1 x 2400 x 2400	P	Mulch	x	x	
11	60600 NB	Dedicated	Box Culvert	1 x 2400 x 2400	P	Mulch	x	x	
12	60610 SB	Dedicated	Box Culvert	1 x 2400 x 2400	P	Mulch	x	x	

1.2 Study area

The WC2NH project covers a total length of 19.75km and extends from Warrell Creek in the south to Nambucca Heads in the north (Figure 1). The alignment bypasses the town of Macksville and the northern section traverses Nambucca State Forest. Eleven underpasses are situated north of the Nambucca River and one (Site 1) is situated at Upper Warrell Creek near the southern extent of the project. Sites four to twelve adjoin Nambucca State Forest and sites two and three adjoin remnant vegetation on private land.

2. Methods

2.1 Timing and weather conditions

Spring/summer underpass monitoring was conducted between 15 October and 17 December 2018. Winter underpass monitoring was conducted between 11 June and 27 August 2019. Weather conditions over the spring/summer sample period were characterised by warm humid conditions with small amounts of rain (10-30mm) occurring at regular intervals (Table 2). Weather conditions over the winter sample period were characterised by mild temperature and low rainfall (Table 2). Rain events of 20-30mm during spring monitoring created moist conditions in underpasses conducive to movements by amphibians. Daily weather conditions recorded at the northern compound are presented in Tables B1 and B2, Appendix B.

Table 2: Summary of weather conditions recorded at the northern compound of the project site between 20 October and 20 December 2018 and between 1 June and 31 August 2019.

Monitoring period	Total rainfall	No. rain days	Max wind gusts	Relative Humidity	Max temp range (°C)	Min temp range (°C)
Spring/Summer	223mm	19	13-50kph	>70% on 90% of days	22.2-33.9	9.4-22.9
Winter	143.6mm	17	9.5-64kph	>70% on 83% of days	15.8-27	1.2-13.9

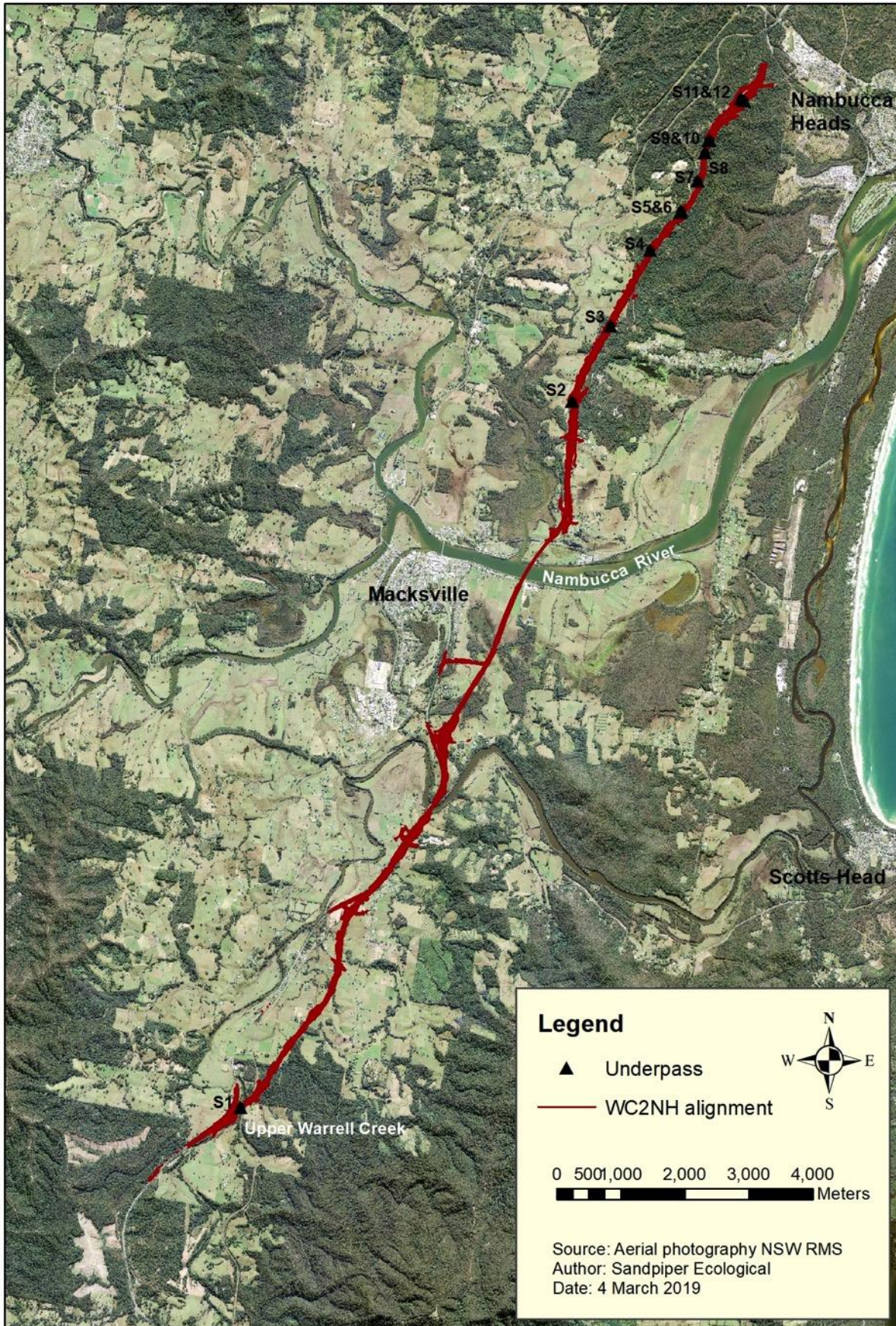


Figure 1: Location of underpass sample sites in relation to the WC2NH alignment.

2.2 Underpasses

2.2.1 Sand pads

During the spring/summer sampling period, sand pads were installed on 30 October (sites 2-12) and 14 November 2018 (site 1). During the winter sampling period, sand pads were installed on 14 June 2019. A 50:50 mix of brickies sand and washed beach sand was used for all sand pads. Two sand pads were installed at each site. In culverts, pads were installed 3-5m from each end, whilst at the bridge (site 1) one pad was installed on each side of Warrell Creek. Each pad was approximately 50mm deep by 1m wide and extended for the entire culvert width, or for 3m at site 1. At sites with a concrete ledge the pad covered both the floor and ledge (Plate 1). The exception was site 5 where the pad only covered the ledge due to standing water over the culvert floor.

Sand pads were inspected on eight consecutive days, 31 October to 7 November at sites 2-12 and 15-22 November at site 1 during the spring/summer sampling period and 14 June to 22 June 2019 during the winter sampling period. Inspections were conducted by an ecologist and included a systematic scan of each pad searching for fauna tracks. A small torch was used to illuminate the pad, if required. Information recorded included species or fauna group, number of traverses, direction of traverse and pad condition (good, moderate, poor). Pad condition focussed on suitability of the pad for registering good quality animal tracks. Tracks were identified with reference to Triggs (2004) and advice from senior ecologists. Tracks that could not be identified insitu were photographed and referred to a senior ecologist for identification.



Plate 1: Sand pad being installed in a fauna underpass on the WC2NH upgrade.

2.2.2 Scat and track searches

Each underpass was searched by a senior ecologist for scats and tracks on two occasions during each sample period. In spring/summer, sites 2-12 were sampled on 17 and 31 October and site 1 was sampled on 26 October and 8 November. During the winter sample, all sites were surveyed first on 12 and 13 June 2019 and second on 19 July 2019. The search involved a slow systematic traverse of each culvert using a hand-held spotlight (Led Lenser P14). Fauna furniture, the culvert floor, and joints were targeted. Areas of accumulated fine sediment were targeted for tracks. Tracks and scats were identified in-situ, with reference to Triggs (2004) and the ecologists experience, or photographed and sent to colleagues for identification.

2.2.3 Cameras

Two motion activated infra-red cameras were installed centrally in each underpass except at site 1 where a single camera, fixed to a star picket, was installed on each side of Warrell Creek, and site 5 where one camera was installed centrally in each cell. In total, 24 cameras were installed. Swift Enduro cameras were used at sites 2-12 and Reconyx HC500 cameras were used at site 1. In underpasses, both cameras were installed centrally, one on the fauna furniture, and one approximately 300mm above the culvert floor. All cameras were oriented to the east except for cameras at site one that were oriented to the north on the north side of Warrell Creek and south on the south side of Warrell Creek. The floor camera at site 9 was re-orientated to the west after false triggers were recorded during spring/summer sampling. Swift cameras were set to take 10 seconds of video with no delay between activation. Cameras at site 1 were positioned at approximately 1m above ground level and oriented towards ground vegetation near the creek bank. Reconyx cameras were set on time-lapse mode to take a picture at 1-minute intervals between 8pm and 6am each day throughout the spring/summer sample period and between 5pm and 6am during the winter monitoring period. Time-lapse mode is better suited to targeting frogs and was used successfully to monitor frog pipes on the Sapphire to Woolgoolga Pacific Highway Upgrade (Sandpiper Ecological 2017a, 2018a).

During the spring/summer sample period, cameras at sites 2-12 were installed on 16 and 17 October, with cameras at site 1 installed on 24 October. Cameras at sites 2-12 were checked on 21 and 22 November, and at site 1 on 14 November. Images were downloaded and batteries replaced, if capacity was below 50%. Cameras were retrieved on 17 December 2018. The total spring/summer sample period was 63 days at sites 2-12 and 54 days at site 1. Three cameras were damaged and one stolen on 14 December 2018. All damaged and stolen cameras were at sites 9 and 10. SD cards in the three damaged cameras were readable and data were lost from the fauna furniture camera at site 9 only. During the winter 2019 sample period cameras were installed on 17 and 18 of June and checked on 19 July 2019. Images were downloaded and batteries replaced, if capacity was below 50%. Cameras were retrieved on 27 August 2019, a sample period of 80 days.

The total number of sample days in spring summer was 1300 across all sites, with 1636 sample days recorded in winter 2019 (Table 3). A total of 2936 sample days was recorded during year one of the operational phase (Table 3). In spring/summer 11 of the 24 cameras were active for less than the 60-day minimum sample period, although two of these cameras, both at site 5, were active for 58 days each, one camera was stolen and three were damaged. During winter 2019, three cameras were active for less than the 60-day minimum sample period, and one of these was active for 58 days. Eight cameras were active for less than 120 days across both sample periods, with three of these active for between 110 and 119 days. Camera theft (at site 10) and a high incidence of false triggers, due high pedestrian activity, contributed to the low number of sample days at some sites.

Table 3: Camera survey effort during year one operational phase monitoring.

Location	Cam location	Days active		
		Spr/Sum	Winter	Total
1	North	49	52	101
	South	54	68	112
2	Furniture	63	72	135
	Floor	25	72	97
3	Furniture	29	72	101
	Floor	48	72	120
4	Furniture	63	72	135
	Floor	63	72	135
5	North	58	72	130
	South	58	72	130
6	Furniture	63	72	135
	Floor	63	72	135
7	Furniture	40	72	112
	Floor	63	72	135
8	Furniture	63	72	135
	Floor	63	72	135
9	Furniture	60	72	132
	Floor	60	72	132
10	Furniture	37	72	109
	Floor	43	18	61
11	Furniture	64	72	136
	Floor	63	72	135
12	Furniture	45	72	117
	Floor	63	58	121
Totals		1300	1636	2936

Image review

Images were uploaded to a computer and viewed using Windows Photo Viewer ©. A senior ecologist or ecologist reviewed all images, with reference to standard field guides (i.e. Menkhurst & Knight 2004; Pizzey & Knight 2007; Van Dyck *et al.* undated). Input from multiple ecologists was sought to identify some images.

Fauna were scored making a complete or incomplete crossing. A complete crossing was scored when an animal showed directional movement when detected by the centrally mounted underpass camera. An incomplete crossing was scored when an animal showed no directional movement (i.e. remained stationary in front of camera) or when an animal passed the camera but returned within 10 minutes. Crossing definitions are consistent with those used at other Pacific Highway monitoring sites (e.g. Sandpiper Ecological 2017b, 2018b, 2019) and crossing structure research programs (e.g. Soanes *et al.* 2015). Further, it represents a conservative approach to identification of complete crossings.

Data recorded for each active image included: site, date, time, species, accuracy (definite 90%+ certainty, probable 75-90% certainty, and possible 60-75% certainty), movement direction (east, west, no directional movement (animal stationary, returned), number of images and image numbers. A hierarchical approach

was adopted to species identification that included: species, genus or group. If a species could not be identified or assigned to a group, it was labelled as “unidentified species”. Microbats detected were recorded as presence only due to their transient nature and not being reliant on underpasses for thoroughfare.

2.3 Adjacent habitat

2.3.1 Survey design

A total of 18 sites were sampled at the 12 underpasses as part of the adjacent habitat surveys, with one site established on each side of an underpass or underpass pair in the case of sites 9/10 and 11/12. Adjacent habitat at sites 5 and 6 was sampled as one site as the underpass entrances were located within 50m of each other. Survey effort was reduced at site 3 due to concern about disturbing neighbours. No spotlighting or arboreal Elliott trapping occurred on the west side at site 3 and the diurnal active search was restricted to a small (100m x 30m) remnant of vegetation in the road reserve.

2.3.2 Trapping

Trapping methods applied during the survey included: cage traps, ground Elliott traps (Type A), arboreal Elliott traps (Type B), pipe traps, pitfall traps, and hair funnels. Trapping occurred within a 1ha area immediately adjacent to each culvert entrance and was conducted over three nights at each site. A maximum of 10 sites were sampled concurrently and trapping was conducted between 12 and 21 November 2018 during the spring/summer sample and between 12 and 18 June 2019 during the winter sample.

Traps were set in a “X” formation with five ground and five arboreal traps (4 type B Elliott traps and 1 pipe trap in spring/summer and 5 type B Elliott traps in winter) set at 20m intervals on one axis and two cage traps and two hair funnels set at 50m spacing on the other axis (Plate 2). A line of three pitfall traps with drift fence was set at the intersection of both lines (Plate 2). Pitfall traps typically followed the contour and were set near fallen logs and dense ground cover. Trap effort is summarised in Table 4.



Plate 2: Example of a pitfall trap line installed during adjacent habitat surveys (L). Setting up traps in adjacent habitat at site 1 (R).

Arboreal traps and ground Elliott traps were baited with a peanut butter, honey and oats mixture. Arboreal traps were installed 1.8m above ground and attached to a bracket. Pipe traps were replaced with type B Elliott traps in winter as no captures were recorded in pipe traps during spring/summer and to increase efficiency. Honey water was sprayed on the trunk above each arboreal trap, and bait was replaced as required. A plastic bag was placed over the end of each trap to provide cover, and a small amount of leaf litter was placed inside the trap. In spring/summer, Elliott and pipe traps were set on the western side of trees to provide shelter from the morning sun. Cage traps were set in a sheltered location and alternately baited with either peanut butter, honey and oats, or sardines. A tuna oil and water mix was sprayed around the entrance to cage traps baited with sardines. All traps were checked within four hours of sunrise. In spring/summer cage and Elliott traps were closed following the morning inspection and re-opened in the late afternoon. Pitfall traps were checked in the morning and again in mid-afternoon.

Captured fauna were identified to species or genus, and, where possible, sexed and aged. Fauna were identified with reference to standard field guides (Van Dyck *et al.* 2013; Menkhorst & Knight 2004; Wilson & Swan 2010). Fauna were not marked as the aim of sampling was to determine the range of species present in adjacent habitat.

2.3.3 Diurnal active search

Diurnal active searches were conducted by one or two ecologists and involved a meandering traverse of habitat within 100m of the underpass entrance at each sample site. Surveys involved searching leaf litter, rolling logs, observing reptile habitat (i.e. log piles, rocks, dense leaf litter) and looking for fauna signs such as scats and tracks. Each site was sampled twice during each sample period for a minimum of 30 person minutes/sample. Spring/summer diurnal active searches were conducted between 26 October and 22 November 2018. Winter diurnal active searches were conducted between 12 and 16 June 2019. A total of 2236 person minutes were spent conducting diurnal active searches (Table 4).

2.3.4 Nocturnal active search

Nocturnal surveys were conducted on each side of each underpass on two occasions during each sample period. One or two ecologists conducted spotlight surveys for 60 person minutes per underpass side/sample period (Table 4). Surveys were conducted using hand-held Led Lenser P14 spotlights and involved a meandering traverse of habitat within 200m of the culvert entrance. Fauna were detected by sight and call and identified to species or genus where possible. Spring/summer surveys were conducted between 8 and 22 November 2018 and winter surveys between 12 and 15 June 2019. A total of 2296 person minutes was spent conducting nocturnal active searches (Table 4).

2.3.5 Opportunistic records

Opportunistic observations of fauna near culvert entrances made whilst doing other monitoring activities such as koala, giant barred frog and yellow-bellied glider monitoring were recorded. All fauna observed whilst setting up equipment, with exception of birds, were also recorded.

Table 4: Survey effort for sampling adjacent habitat on the WC2NH upgrade. S/S = spring/summer, W = winter, UP = Underpass.

Component	Method / culvert side	No Samples	Total effort
Arboreal Elliott traps	5 x traps @ 20m spacing (S/S: 4 Type B Elliott traps and 1 pipe trap, W: 5 Type B Elliott traps)	3 nights/site	510 trap nights
Ground Elliott traps	5 x Type A Elliott traps @ 20m spacing	3 nights/site	540 trap nights
Cage traps	2 @ 50m spacing	3 nights/site	216 trap nights
Pitfall traps	1 x line of 3 pits with drift fence	3 nights/site	324 trap nights
Hair funnels	2 @ 50m spacing	14 nights/site	504 trap nights
Active diurnal search	30 person minute search at UP entrance	2 sample/site	2236 person minutes
Active nocturnal search	30 person minute search at UP entrance	2 samples/site	2296 person minutes

2.4 Exclusion fence

The entire length of the fauna exclusion fence was traversed on foot by one person on 15 June 2019. Any damage or holes in the fence where fauna could gain access to the highway were recorded on a datasheet, and the location logged using a hand-held GPS along with a written description of the issue and location.

3. Results

3.1 Underpasses

3.1.1 Sand pads

Seven species and 15 fauna groups were recorded during sand pad monitoring (Table 5). Two introduced species, cat (*Felis catus*), and red fox (*Vulpes vulpes*), were confirmed and it is likely that at least some of the *Rattus* spp. tracks were from the introduced black rat (*R. rattus*). Koala (*Phascolarctos cinereus*) was recorded on four occasions at site 4 (Plate 3), all in spring/summer, and a possible long-nosed potoroo (*Potorous tridactylus*) was recorded from two track sequences in winter at site 8. Long-nosed potoroo is listed as vulnerable by the NSW *Biodiversity Conservation Act 2016* and the federal *Environment Protection and Biodiversity Conservation Act 1999*. Short-beaked echidna was recorded at sites 2 and 7, and brushtail possum (*Trichosurus* spp.) was recorded at sites 3, 7 and 8 (Plate 4). The highest diversity of species/groups was recorded at site 8 (12 species/groups). Cat was the most frequently recorded species with 106 track sequences, followed by red fox with 29, and lace monitor with 26 (Table 5). Small rodent spp. were recorded 51 times and Dasyuridae spp. 31 times (Table 5).



Plate 3: Koala tracks recorded on sand pads at Site 4 during spring/summer monitoring.



Plate 4: Brushtail possum tracks (L) and short-beaked echidna tracks (R) recorded during winter sand pad monitoring.

Table 5: Species and groups of fauna recorded during sand pad monitoring at 12 underpasses on the WC2NH upgrade. * possible record only, SS = Spring/Summer, W = Winter.

Species/group	1		2		3		4		5		6		7		8		9		10		11		12		Total sequences (SS)	Total sequences (W)	Total sequences year one
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W			
Small Bird	2																								2		2
Medium Bird	1																								1		1
Waterbird	2																								2		2
Lace monitor							10						2		10						2		2		26		26
Small reptile	2								2															6	10		10
Medium reptile	1						2								2						2		3		10		10
Frog															2										2		2
Short-beaked echidna			10	4										2											10	6	16
Long-nosed potoroo*															2											2	2
Swamp wallaby		2												5											5	2	7
Wallaby spp.		1				4		2								1										8	8
Macropodidae spp.	1																								1		1
Dasyuridae spp			5						1		2	2			6		1					10			15	16	31
Peramelidae spp.			4		2				2						5								4		13		13
Koala							4																		4		4
<i>Trichosurus</i> spp.					2									6		9									2	15	17
Cat		2		2	16	37	4		4		1			9	6	4	1		2	2	4	4	4	4	42	64	106
Red fox			2		21		2				2				2										29		29
<i>Rattus</i> spp.			2						11								2								15		15
Canidae spp.					1																				1		1
Small rodent				1				4		4		16		4		2		10					6	4		51	51
Small mammal		2									1				2				1						4	2	6
Total species/group	6	4	5	3	5	2	5	2	5	1	4	2	2	4	8	5	3	1	2	1	3	3	4	3	19	9	22

3.1.2 Scat and track searches

Twelve species, five genera, and seven fauna groups were recorded during scat and track surveys of 12 underpasses (Table 6). Species recorded inside underpasses during the scat and track survey included: two bent-wing bats (*Miniopterus* spp) roosting at site 3, a minimum of six bent-wing bats at site 2, six *Nyctophilus gouldii* at site 11, and an eastern water dragon at site 5. Both little bentwing (*M. australis*) and eastern bentwing (*M. schreibersii*) are suspected to occur. Eastern water dragon was observed making a complete crossing of site 5. Possible long-nosed potoroo tracks were recorded on old sand pads at site 8 in spring/summer and winter. Koala tracks were recorded in old sand pads during the winter sample at sites 4, 9 and 10 (Table 6).

Table 6: Species and fauna groups recorded during track and scat surveys of 12 underpasses on the WC2NH upgrade. ¹= introduced species, * = Threatened species SS = Spring/Summer, W = Winter.

Species/Group	Site																								
	1		2		3		4		5		6		7		8		9		10		11		12		
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	
Short-beaked echidna				X								X				X		X		X					
<i>Antechinus</i> spp.				X																					
Small dasyurid												X													
Peramelidae spp.	X					X										X							X		
Koala*								X										X		X					
<i>Trichosurus</i> spp.								X					X	X		X									
Long-nosed potoroo *															X	X									
Eastern grey kangaroo				X																					
Swamp wallaby		X		X								X		X				X		X					
Macropodidae spp.	X	X						X					X	X											
<i>Miniopterus</i> spp. *				X	X																				
<i>Nyctophilus gouldii</i>																								X	
Microbat spp.						X			X	X													X		
Water rat									X																
House mouse									X		X							X		X					
Rodentia spp.	X			X	X				X	X							X								
Dog		X				X		X				X		X		X		X		X					
Fox ¹	X			X		X		X									X	X	X	X					
Cat ¹						X		X		X		X		X				X	X	X		X			X
Eastern water dragon	X								X																
Lace monitor		X		X					X							X									
Medium lizard		X																							
Amphibian (large)	X					X																			
Bird spp.		X				X																			
Total no. Species/groups	6	6	0	8	4	5	0	6	3	6	0	6	2	5	1	6	2	7	2	7	0	4	0	1	

3.1.3 Cameras

Species richness

Twenty-one species, one genus and five fauna groups were recorded during underpass camera monitoring in spring/summer and winter (Table 7 & Table C1, Appendix C). Intermediate egret and white-throated treecreeper were the only species recorded that did not make complete crossings (Table C1, Appendix C). Koala was the only threatened species recorded, with individuals detected at sites 4, 7, 9, 11 and 12 (Table 7). Five introduced species were recorded. Cat and red fox were recorded at 11 sites, house mouse (*Mus musculus*) at six sites and black rat at five sites (Table 7). The highest fauna diversity was recorded at sites 3 and 8 with 11 species/groups each, followed by site 2 (10 species/groups), site 6 (nine species), and site 7 with eight species. The lowest diversity was recorded at site 10 where four species were recorded.

Table 7: Number of complete crossings recorded for each species and fauna group at 12 underpasses on the WC2NH upgrade in spring/summer and winter of year one operational phase. C = complete crossing; IC = incomplete crossing; * = threatened species ^l = introduced species SS = Spring/Summer; W = Winter; SB = Short-beaked; EW = Eastern water

Species/ Groups	Site and Season																								Total	S/S	W
	1		2		3		4		5		6		7		8		9		10		11		12				
	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W			
Short-beaked echidna	1		13	7											1										22	14	8
Northern brown bandicoot															1										1	0	1
Long-nosed bandicoot				1																	4		3	8	0	8	
Peramelidae spp.														1	5									6	1	5	
Koala						10	1						2				1			2		2		18	17	1	
Short-eared brushtail possum					1								8	35	17	88								149	26	123	
Common brushtail possum					1																			1	1	0	
<i>Trichosurus</i> spp.	1				2										5	11				1				20	9	11	
Eastern grey kangaroo					2	6							3											11	5	6	
Red-necked wallaby			1	2			1						2			1								7	4	3	
Swamp wallaby	2	3	6	8	2	24					1	1	2		5	2	1							57	19	38	
Macropodidae spp.	1		2	9		25					3		1	1		2								44	7	37	
Water rat										8														8	0	8	
House mouse ^l				1		1				1	1	2						1					1	8	2	6	
Black rat ^l			5						3	2	1						1		2					14	12	2	
Rodentia spp.										3	1													4	1	3	
Small mammal spp.											1													1	1	0	
Red fox ^l		1	3	6	13	40	7			1	5				7	3	2	4	2			5		1	100	39	61
Cat ^l		1	2	1	68	182	8	4			10	3	4	2	8	2	6	3	3	1	11	15	12	8	354	132	222
European Hare ^l					1																			1	1	0	
Lace monitor			1			21					3		1		26	3	5	2	3	2	4		4	75	68	7	
Eastern water dragon					3															7		3		13	13	0	
Pacific black duck								2	3															5	2	3	
Pheasant coucal					1																			1	1	0	
Medium frog spp.	5	3																						8	5	3	
Total	10	8	33	35	94	277	48	5	5	18	26	6	23	38	69	119	16	10	10	3	25	24	21	13	936	380	556

Complete and incomplete crossings

A total of 936 (2.23/week) complete crossings were recorded in year one monitoring, including 380 (2.05/week) in spring/summer and 556 (2.38/week) in winter (Table 7). Total complete crossings were evenly split between native (49%) and introduced species (51%). This pattern was consistent in spring/summer (51% native; 49% introduced) and winter (48% native; 52% introduced). Of the introduced species, two feral predators, cat and red fox made up 95% of completed crossings. In winter, cats were responsible for 40% of all complete crossings, with 82% of these occurring at site 3. This contrasts to spring/summer when cats represented 35% of all complete crossings.

A total of 99 incomplete crossings were recorded and only two species, intermediate egret and white-throated treecreeper, that made incomplete crossings also made complete crossings (Table C1, Appendix C). Neither species is expected to utilise fauna underpasses.

The most widespread species were cat (10 sites S/S; 11 sites W), followed by lace monitor (9 sites S/S), red fox (8 sites W, 7 sites S/S), and swamp wallaby (7 sites S/S). A number of species were recorded at five sites, including koala (S/S), short-eared brushtail possum (W), house mouse (W), and black rat (S/S). Cat and red fox were recorded at all sites except site 5, and 7 respectively (Table 7).

Short-eared brushtail possum was the most common native species with 149 complete crossings (0.36/week), with 123 (0.53/week) recorded in winter, and 26 (0.14/week) in spring/summer. Lace monitor were recorded making 75 (0.18/week) complete crossings, swamp wallaby 44 (0.10/week), and short-beaked echidna 22 (0.05/week). Koala made 18 (0.04/week) complete crossings, with 10 of these recorded in spring/summer at site 4.

The number of complete crossings at the split median underpasses was consistent at sites 11 and 12 but varied between sites 9 and 10 (Table 7). Variation at sites 9 and 10 is attributed to theft of the site 9 floor camera in the second half of the spring/summer monitoring period.

Comparison of complete crossings by native and introduced species at each site highlights substantial differences in occurrence between the two groups. Native species were recorded making more complete crossings than introduced species at Sites 1, 2, 4, 5, 7 and 8. Introduced species were recorded making more complete crossings than native species at Sites 3, 6, 9, 10, 11 and 12 (Table 7). The 304 complete crossings at site 3, were due to a single (easily distinguished) cat that made crossings on most days (Figure 2, Plate 5). Macropods including swamp wallabies were detected at Sites 1, 2, 3, 6, 7, 8 and 9 (Plate 7). Medium frog was recorded crossing the camera monitoring zone at Site 1 on eight occasions.

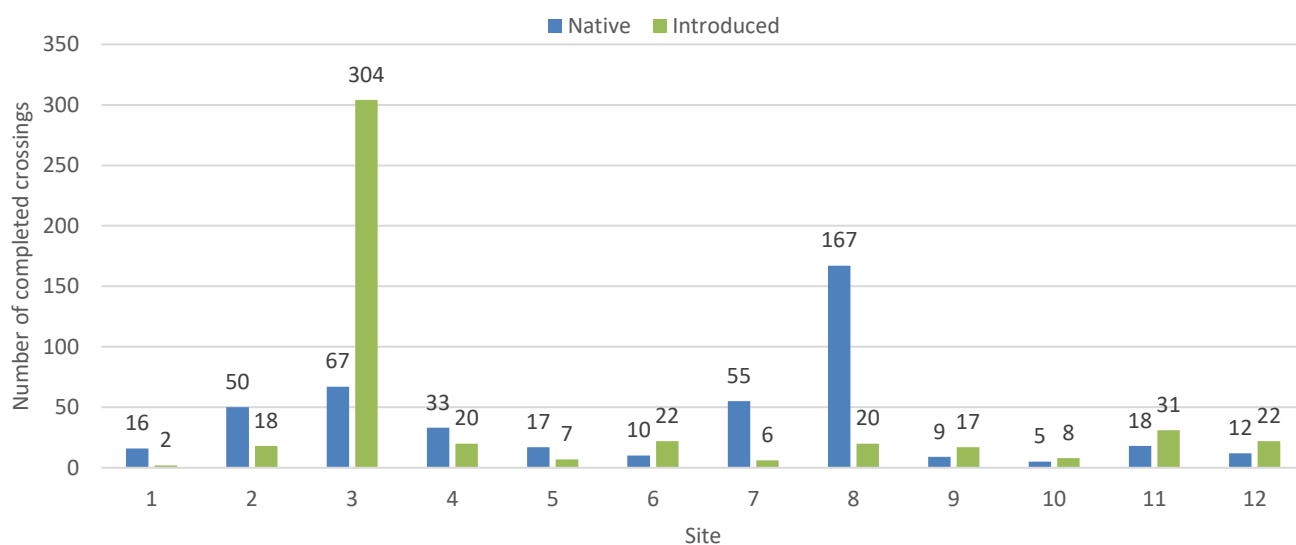


Figure 2: Number of complete crossings by native and introduced species at each underpass during year one monitoring.



Plate 5: Single cat responsible for the majority of complete crossings at Site 3.

The average number of completed crossings per underpass was 2.19/week (SD 2.24, n = 12) in spring/summer, and 2.32 (SD 3.83, n = 12) in winter. Average crossings/week were greater in spring/summer than winter at sites 1, 2, 4, 6, 9, 10, and 12 (Figure 3). The reverse occurred at sites 3, 7, and 8. The higher average number of crossings/week in winter is attributed to increased activity of cats (site 3), and small-eared brushtail possum (site 7 & 8).

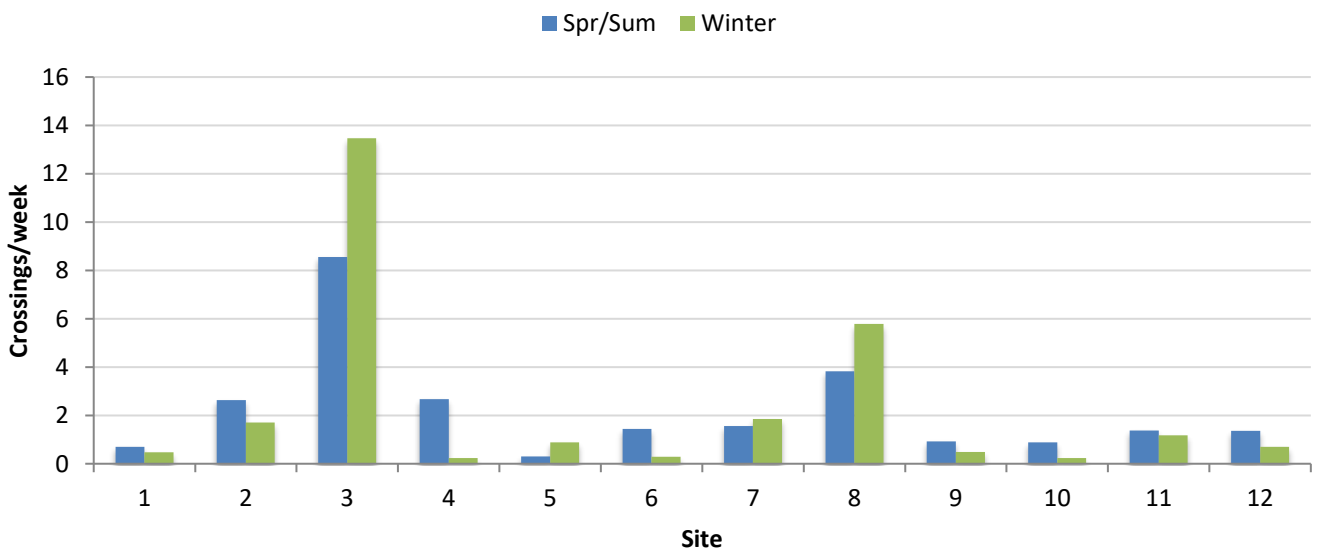


Figure 3: Average number of complete crossings/week recorded in spring/summer and winter at each site. n = 12 for each site.

Use of floor and fauna furniture

Fauna were recorded using both the underpass floor and fauna furniture. In total, 802 complete crossings (3.83/week) were recorded on the underpass floor and 134 complete crossings (0.75/week) were recorded on fauna furniture (Table 8). No fauna were recorded using fauna furniture at sites 9 and 10, and sites 1 and 5 did not contain furniture. Use of the underpass floor was substantially greater than use of furniture across all sites except sites 7 and 8 (Figure 3). Use of furniture exceeded use of the floor at site 7 and use was similar between the two features at site 8. The result at both sites was due to preferential use of furniture by short-eared brushtail possum. Brushtail possums were recorded using the floor at sites 3, 8 and 11. Other species to utilise the floor and furniture were water dragon, cat, and black rat (Table 8).

As expected, several terrestrial species were recorded using the floor only. Microbats were recorded roosting (temporarily) in the joins of the fauna furniture at Sites 2, 8 and 10. Koalas were recorded using the floor only (Plate 6).



Plate 6: Short-eared brushtail possum crossings using fauna furniture at site 7 (L).



Plate 7: Koala recorded at Site 12, moving east on 22 October (L) and west of 23 October (R).

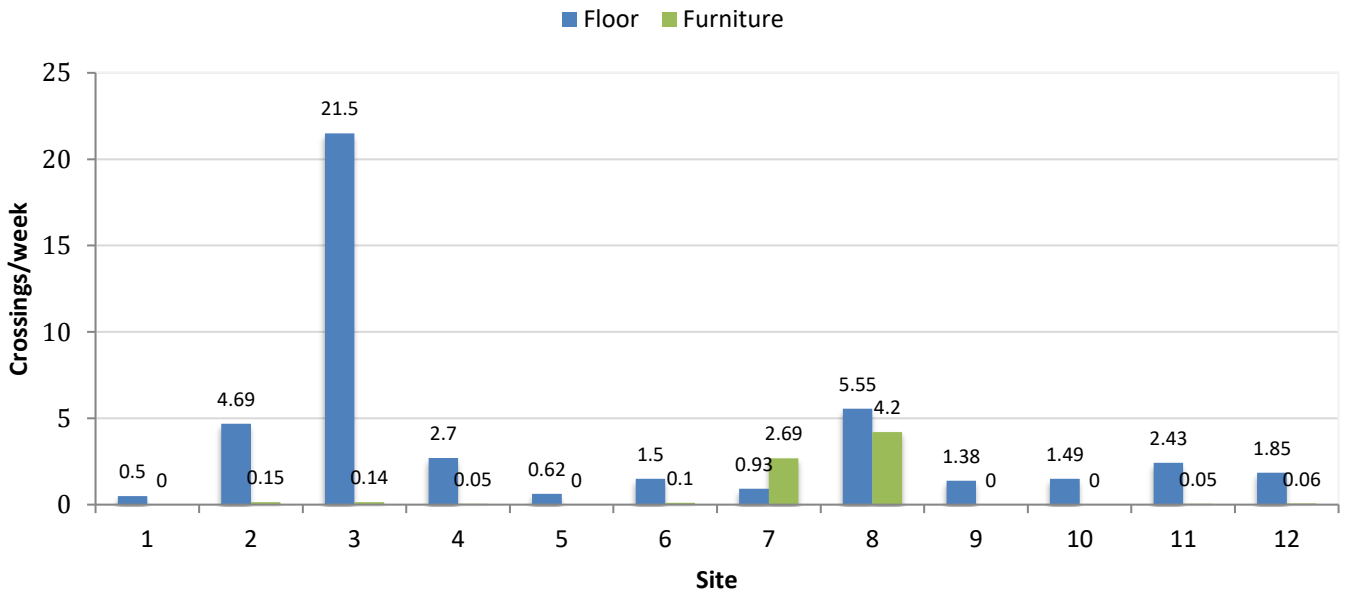


Figure 4: Complete crossings/week in spring/summer and winter by all species on underpass floor and fauna furniture during year one operational phase monitoring. Sites 1 and 5 do not have fauna furniture installed.

Table 8: Number of complete crossings made by each species/group at each of 12 underpasses monitored on the WC2NH upgrade. Sites 1 and 5 did not contain fauna furniture. ¹ = introduced species, Fl = Floor, Fu = furniture, SS = Spring/Summer, W = Winter.

Species/group	Site and number of complete crossings																						
	1		2		3		4		5	6		7		8		9		10		11		12	
	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	Fl	Fu	
Short-beaked echidna	0.03	1.44	0	0	0	0	0	0	0	0	0.05	0	0	0.05	0	0	0	0	0	0	0	0	0
Long-nosed bandicoot	0	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.17	0
Northern brown bandicoot	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0	0	0	0	0	0	0	0	0
Peramelidae spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0.31	0	0	0	0	0	0	0	0	0
Koala	0	0	0	0	0	0.57	0	0	0	0	0.1	0	0	0	0.5	0	0	0	0	0.1	0	0.11	0
Short-eared brushtail possum	0	0	0	0.06	0	0	0	0	0	0	0	2.69	1.61	3.84	0	0	0	0	0	0	0	0	0
Common brushtail possum	0	0	0	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Trichosurus</i> spp.	0.03	0	0	0.12	0	0	0	0	0	0	0	0	0.47	0.36	0	0	0	0	0	0.05	0	0	0
Swamp wallaby	0.14	1.01	0	1.4	0	0	0	0	0.1	0	0.1	0	0.36	0	0.05	0	0	0	0	0	0	0	0
Red-necked wallaby	0	0.22	0	0.12	0	0.05	0	0	0	0	0.1	0	0.05	0	0	0	0	0	0	0	0	0	0
Eastern grey kangaroo	0	0	0	0.41	0	0	0	0	0	0	0.16	0	0	0	0	0	0	0	0	0	0	0	0
Macropodidae spp.	0.03	0.79	0	1.46	0	0	0	0	0.16	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0
House mouse ¹	0	0.07	0	0	0	0.05	0	0.03	0.06	0	0	0	0	0	0.05	0	0	0	0	0	0	0.06	0
Black rat ¹	0	0.14	0.15	0	0	0	0	0.14	0	0.05	0	0	0	0	0.05	0	0.23	0	0	0	0	0	0
Water rat	0	0	0	0	0	0	0	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rodentia spp.	0	0	0	0	0	0	0	0.08	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cat ¹	0.03	0.22	0	14.47	0.14	0.57	0.05	0	0.62	0	0.31	0	0.52	0	0.48	0	0.46	0	1.32	0	1.06	0.06	0
Red fox ¹	0.03	0.65	0	3.09	0	0.36	0	0.03	0.26	0	0	0	0.52	0	0.32	0	0.23	0	0.25	0	0.06	0	0
European Hare ¹	0	0	0	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lace monitor	0	0.07	0	0	0	1.09	0	0	0.16	0	0.05	0	1.5	0	0.37	0	0.57	0	0.2	0	0.22	0	0
Eastern water dragon	0	0	0	0.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.05	0.17	0	0
Pacific black duck	0	0	0	0	0	0	0	0.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pheasant coucal	0	0	0	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium frog spp.	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.5	4.69	0.15	21.53	0.14	2.7	0.05	0.62	1.5	0.1	0.93	2.69	5.55	4.2	1.38	0	1.49	0	2.44	0.05	1.85	0.06	0

3.2 Adjacent habitat

Fifty species were recorded in habitat adjoining underpasses (Table 9). A further nine species were identified to genus level only. Most of these are likely to belong to one of the identified species. For example, *Petaurus* spp. was most likely a sugar glider and *Antechinus* spp. is most likely brown antechinus. Some records during active search and spotlighting were assigned to three families, Macropodidae (wallaby/kangaroo), Peramelidae (bandicoots), and Chelidae (freshwater turtles). Three threatened species were recorded in adjacent habitat. Yellow-bellied glider (*Petaurus australis*) was recorded on the west side of the alignment at site 8, giant barred frog (*Mixophyes iteratus*) was recorded on the west side of the alignment at site 1, little eagle (*Hieraaetus morphnoides*) and a pair of eastern osprey (*Pandion cristatus*) were recorded flying above the alignment at sites 11 and 12.

The majority of species/groups (48 in total) were detected by diurnal and nocturnal active searches (Table 9). Short-eared brushtail possum, sugar glider, and brown antechinus were captured in arboreal Elliott traps (Plates 8 & 9). No fauna was captured in pipe traps. Six species, four reptiles and two frogs, were captured in pitfall traps and five species were captured in ground Elliott traps. A total of eight species and two genera were detected via hair funnels. A total of 54 individuals were captured in all trap types in spring/summer and 62 in winter (Table 13). During spring/summer trapping 12 individuals were captured in cage traps, 15 in ground Elliott traps, 26 in pitfall traps and one in an arboreal Elliott trap (Plate 8). During winter 14 individuals were captured in cage traps, 43 in ground Elliott traps, one in pitfall traps and three in arboreal Elliott traps.

During spring/summer trapping, introduced black rat was the most commonly captured species (14 individuals), followed by garden skink (*Lampropholis delicata*; 9 individuals); *Calypotis ruficauda* (7 individuals), fawn-footed melomys (*Melomys cervinipes*; 5 individuals), grass skink (*L. guichenoti*; 4 individuals), and brown antechinus (*Antechinus stuartii*; 3 individuals, Plate 8).

During winter trapping, brown antechinus were the most commonly captured species (22 individuals), followed by fawn-footed melomys (10 individuals), black rat and house mouse (7 individuals each) and bush rat (six individuals). As to be expected, significantly fewer reptiles were recorded during the winter sampling period. Interestingly, three species of bird; green catbird (*Ailuroedus crassirostris*), eastern yellow robin (*Eopsaltria australis*), and eastern whipbird (*Psophodes olivaceus*) were captured in a cage trap at site 1 (Plate 9). Also in winter one feral cat was captured in a cage trap at site 7. Single cats were also captured in cage traps installed in underpasses at sites 3 and 7. All introduced mammals captured were euthanased.

Table 9: Species of vertebrate recorded during surveys of habitat adjoining each side of all underpasses. ^ denotes threatened species; ! = Introduced species, SS = Spring/Summer, W = Winter.

Species	Active Search		Spotlight		Ground Elliott trap		Arboreal Elliott trap		Pitfall trap		Pipe trap		Cage trap		Hair funnel	
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W
Mammals																
Short-beaked echidna	*															
Brown antechinus					*	*		*								*
<i>Antechinus</i> spp.																*
Northern brown bandicoot													*		*	
Long-nosed bandicoot																*
Peramelidae spp. (bandicoot)	*	*														
Yellow-bellied glider ^			*	*												

Species	Active Search		Spotlight		Ground Elliott trap		Arboreal Elliott trap		Pitfall trap		Pipe trap		Cage trap		Hair funnel	
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W
Sugar glider			*	*				*								
<i>Petaurus</i> spp.			*													
Common ringtail possum															*	
Feathertail glider				*												
Short-eared brushtail possum			*	*			*						*	*		
<i>Trichosurus</i> spp.															*	*
Swamp wallaby		*	*	*												
Macropodidae spp.	*	*	*	*												
Grey-headed flying fox ^				*												
<i>Pteropus</i> spp.				*												
Fawn-footed melomys				*	*	*								*		*
<i>Melomys</i> spp.					*	*										
Bush rat					*	*							*	*	*	
House mouse ¹						*										*
Black rat ¹					*	*							*	*	*	
<i>Rattus</i> spp.															*	*
Red fox ¹	*															
Cat ¹														*		
Reptiles																
Burton's legless lizard	*															
Lace monitor	*															
Eastern water dragon	*		*													
Agamid spp.		*														
<i>Calyptotis ruficauda</i>	*	*							*							
<i>Egernia mcphieii</i>	*															
Eastern water-skink	*															
<i>Lampropholis delicata</i>	*	*							*							
<i>Lampropholis guichenoti</i>									*							
<i>Lampropholis</i> spp.	*	*														
<i>Saiphos equalis</i>		*														
Blackish blind snake									*							
Coastal carpet python	*															
Yellow-faced whipsnake	*															
Black-bellied swamp snake	*															
Red-bellied black snake	*															
Small snake spp.		*														
<i>Chelidae</i> spp. (Freshwater turtle)	*															
Birds																
Little eagle^	*															
Tawny frogmouth			*	*												
Owlet-nightjar			*													
Glossy black cockatoo^		*														
Eastern whipbird														*		
Green catbird														*		
Eastern yellow robin														*		
Eastern osprey^		*														
Frogs																
<i>Litoria chloris</i>			*													
<i>Litoria fallax</i>	*		*													

Species	Active Search		Spotlight		Ground Elliott trap		Arboreal Elliott trap		Pitfall trap		Pipe trap		Cage trap		Hair funnel	
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W
<i>Litoria peronii</i> (tadpoles)	*															
<i>Litoria tyleri</i>			*													
<i>Litoria tyleri</i> (tadpoles)	*															
<i>Adelotus brevis</i>	*		*													
<i>Limnodynastes peronii</i>			*						*	*						
<i>Mixophyes fasciolatus</i>			*													
<i>Mixophyes iteratus</i> ^			*													
<i>Crinia signifera</i>			*	*												
<i>Pseudophryne coriacea</i>			*						*							
<i>Uperolia fusca</i>			*													
<i>Uperolia</i> spp.			*													
Total N° Species/groups	22	10	20	11	5	7	1	0	6	1	0	0	4	7	6	8

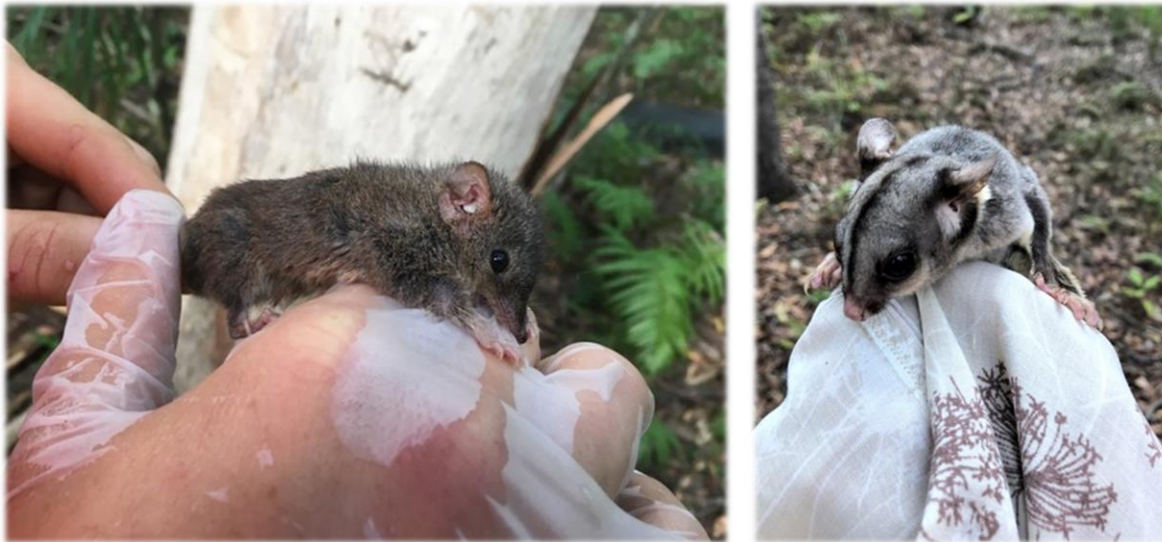


Plate 8: Brown antechinus (L) captured in adjacent habitat during spring trapping and a sugar glider captured during winter trapping.



Plate 9: A green catbird captured in a cage trap during winter trapping (L). A short-eared brushtail possum captured in a cage trap during winter trapping (R).

3.3 Species recorded in underpasses and adjacent habitat

A total of 46 species/groups were recorded in spring/summer and 34 species/groups in winter monitoring of underpasses and adjacent habitat (Table 10). Most of the individuals attributed to Genera, Families and Groups would be species that were confirmed during surveys. For example, *Trichosurus* spp. would be either short-eared or common brushtail possum, *Rattus* spp. would most likely be bush rat or black rat, *Antechinus* spp would be brown antechinus and small mammal and *Dasyuridae* spp. would most likely be one of the *Rattus* species or brown antechinus.

The use of various sample methods each with different degrees of accuracy in identifying fauna to species level has contributed to the large number of Families and groups recorded. Methods like sand pads only allow identification to the group level for some fauna and contribute substantially to the inclusion of broad groups such as small or medium reptile. The inclusion of broad groups makes it difficult to be definitive in determining how many species from adjacent habitat have used underpasses. In addition, infra-red cameras often miss small reptiles and frogs meaning these groups are under-represented in underpass monitoring results. It is likely that several of the fauna groups recorded in underpasses (particularly during sand pad surveys) include species that were recorded in adjacent habitat.

Excluding gliders, bats and birds, 32% of species/groups recorded in adjacent habitat were recorded in underpasses. For the reasons noted above this represents a substantial underestimate of the actual proportion of species present that are likely to be using underpasses. Notwithstanding, some species were recorded using the underpasses but not detected in adjacent habitat. These species include red-necked wallaby (*Macropus rufogriseus*), eastern grey kangaroo (*M. giganteus*), common brushtail possum (*T. vulpecula*), water rat (*Hydromys chrysogaster*), European Hare (*Lepus europaeus*) and possibly, long-nosed potoroo. Giant barred frogs were detected in adjacent habitat at site 1 but not recorded on underpass cameras.

Table 10: Species and fauna groups recorded using underpasses by all methods and those recorded in adjacent habitat. Shading denotes a species or group not confirmed in both areas that is likely to be represented in another species/group that was recorded in both areas, for example northern brown bandicoot is likely represented by *Peramelidae* spp. ^ denotes threatened species.

Species	Recorded in underpass		Recorded in adjacent habitat	
	SS	W	SS	W
Mammals				
Short-beaked echidna	*	*	*	
Brown antechinus			*	*
<i>Antechinus</i> spp.				*
<i>Dasyuridae</i> spp.	*	*		
Northern brown bandicoot		*	*	
Long-nosed bandicoot		*		*
<i>Peramelidae</i> spp.	*		*	*
Koala [^]	*	*	*	
Yellow-bellied glider [^]			*	*
Sugar glider			*	*
<i>Petaurus</i> spp.			*	
Common ringtail possum			*	
Feather tail glider				*
Short-eared brushtail possum	*	*	*	*
Common brushtail possum	*			
Long-nosed potoroo [^]	*			
<i>Trichosurus</i> spp.	*	*	*	*
Eastern grey kangaroo	*	*		
Red-necked wallaby	*	*		
Swamp wallaby	*	*	*	*
<i>Macropodidae</i> spp.	*	*	*	*
Grey-headed flying fox [^]				*
Flying fox spp.				*

Species	Recorded in underpass		Recorded in adjacent habitat	
	SS	W	SS	W
<i>Miniopterus</i> spp.^	*	*		*
Water rat		*		
Fawn-footed melomys			*	*
<i>Melomys</i> spp.			*	*
Bush rat			*	*
<i>Rodentia</i> spp.	*	*	*	*
Small mammal spp.	*			
Reptiles				
Burton's legless lizard			*	
Lace monitor	*	*	*	
Eastern water dragon	*		*	
<i>Agamid</i> spp.				*
<i>Calyptotis ruficauda</i>			*	*
<i>Egernia mcphieii</i>			*	
Eastern water skink			*	
<i>Lampropholis delicata</i>			*	*
<i>Lampropholis guichenoti</i>			*	
<i>Lampropholis</i> spp.			*	*
Saiphos equalis				*
Scincidae spp.			*	
Blackish blind snake			*	
Coastal carpet python			*	
Yellow-faced whipsnake			*	
Black-bellied swamp snake			*	
Red-bellied black snake			*	
<i>Chelidae</i> spp.			*	
Small snake spp.				*
Medium reptile spp.	*			
Small reptile spp.	*			
Birds				
Pacific black duck	*	*		
Intermediate egret	*			
Tawny frogmouth				*
Glossy black cockatoo^				*
Pheasant coucal	*			
White-throated treecreeper		*		
Green catbird				*
Eastern yellow robin				*
Eastern whipbird				*
Eastern osprey^				*
Little eagle^				*
Water bird spp.	*			
Medium bird spp.	*			
Small bird spp.	*			
Frogs				
<i>Litoria chloris</i>			*	
<i>Litoria fallax</i>			*	
<i>Litoria tyleri</i>			*	
<i>Adelotus brevis</i>			*	
<i>Limnodynastes peronii</i>			*	*
<i>Mixophyes fasciolatus</i>			*	
<i>Mixophyes iteratus</i> ^			*	
<i>Crinia signifera</i>			*	*
<i>Pseudophryne coriacea</i>			*	
<i>Uperolia fusca</i>			*	
<i>Uperolia</i> spp.			*	
Medium frog spp.	*	*		
Frog spp.	*			
Introduced				

Species	Recorded in underpass		Recorded in adjacent habitat	
	SS	W	SS	W
Cat	*	*		*
Red fox	*	*	*	
Black rat	*	*	*	*
European Hare	*			
House mouse	*	*		*

3.4 Exclusion fence

A total of three exclusion fence defects were recorded during the fence traverse (Table 14). Gaps where drains intersect the fence can be difficult to exclude fauna and installed flaps can become cluttered with debris after rain. Vegetation growing up fences may aid fauna ability to scale the fence. Unlocked/open gates have been implicated in the road-kill deaths of koalas on Nambucca Heads to Urunga upgrade (NH2U) and Section 11 of the Woolgoolga to Ballina (W2B) upgrade. In general, the exclusion fence was in good condition, although an audit by RMS identified several additional defects, which have been rectified.

Table 11: Exclusion fence breaches with location description, GPS coordinates.

Date	Fence Issue	Location	Easting	Northing	Status at time of reporting
15/06/2019	Unlocked fence gate	480m north of Old Coast Rd Bridge, SB.	497550	6610720	Gate is locked
15/06/2019	15cm gap under drain fence where there is no extension wire.	100m south of Old Coast Rd. SB.	497340	6610161	Gap has been repaired.
15/06/2019	Shrubs hang over fence for entire stretch of road.	850m north of Mattick Rd Bridge.	494585	6605590	The vegetation has been sprayed as part of routine maintenance.

4. Discussion

Results from year one of operational phase monitoring are discussed with reference to the indicators of success specified in the Ecological Monitoring Program (RMS 2018).

4.1 Low rates of use of fauna underpasses and adjacent habitats by feral predators

Five introduced species were detected during underpass monitoring and of these, two (red fox and cat) are considered feral predators. Cats (354) and foxes (100) made a combined total of 454 complete crossings, and were responsible for 48.5% of all complete crossings during year one monitoring. Compared to NH2U where year one monitoring recorded 12% use by feral predators (including dog *Canis lupus familiaris*) use at WC2NH high (Sandpiper Ecological 2019a). The number of fox crossings detected during year one of monitoring at WC2NH is less than recorded at Sapphire to Woolgoolga (230 crossings) and Cooperook to Herons Creek (C2HC; ~140 crossings) and more than at Glenugie (70 crossings) over similar sample periods (Sandpiper Ecological 2015, 2017a, b).

Year one operational phase monitoring at NH2U and Glenugie recorded 13 and 34 cats respectively. At WC2NH, most (304) of the 354 completed crossings by cats occurred at site 3, with the majority of these attributed to one (distinctive) individual. Site 3 is characterized by a disturbed and fragmented rural landscape compared to the contiguous forest adjoining sites 4-12. Records of cats, foxes and dogs from construction phase underpass monitoring at NH2U suggest feral predators habituate rapidly to underpasses (Sandpiper Ecological 2014).

During the winter sample single cats were removed from sites 7, 8 and 3. The number of completed crossings by cats declined from spring/summer to winter at sites 7 and 8 but not at site 3. This may be because the cat captured at site 3 was accidentally released by the council ranger in Macksville and may have returned to the site. Site 7 recorded four cat crossings in spring/summer and two in winter. Site 8 recorded eight cat crossings in spring/summer and two in winter. Whilst based on a small sample size the results suggest that removal of cats reduces crossings in the short term. Given the high use by one easily distinguished individual it is likely that targeted trapping could reduce cat crossings. Roads and Maritime Services conducted fox baiting at sites 8 and 9/10 in August 2019 but no evidence of bait take was recorded.

4.2 High levels of fauna underpass use by a variety of native species

A total of 21 species and five fauna groups were detected on underpass cameras. Twenty species, including 16 native species, made complete crossings and all five fauna groups made complete crossings. Of the five groups, three were native species, i.e. *Trichosurus* spp. and two could be either native or introduced. The number of native species making complete crossings is slightly higher than other comparable projects. For example, 14 native species made complete crossings in year one at NH2U, 12 native species in year one at W2B (sections 1&2) and five native species at S2W in the first year of monitoring (Sandpiper 2017, 2019a, b).

Year one operational phase results show that a higher diversity of vertebrates are using underpasses at WC2NH than at similar sites in northern NSW.

4.3 No change to densities, distribution, habitat use and movement patterns compared to baseline population data of target species.

The target species for underpass monitoring, as outlined in the project brief, are spotted-tailed quoll, koala and giant barred frog. No spotted-tailed quolls were detected using underpasses during year one monitoring. This is consistent with baseline monitoring where no spotted-tailed quolls were detected after three weeks of camera trapping at the locality (GeoLink 2014). The closest record to the project was a road killed individual recorded in 2014 near the southern end of the project (GeoLink 2014). Spotted-tailed quolls occur in low densities in northern NSW and the absence of records in underpasses is not unexpected.

Koalas occur in low densities in Nambucca State Forest and small numbers of individuals were recorded near the alignment during baseline (1 individual), construction phase (3 individuals), and year one operational phase (3 individuals) surveys (GeoLink 2014; Geolink 2017; Sandpiper Ecological 2018). Year one underpass monitoring recorded 18 complete crossings by koalas at four sites, with 10 crossings recorded at site 4. Year one population surveys indicate that the number of koalas occurring near the alignment has remained stable since the construction phase. There is no substantive baseline data to confirm if changes in habitat use and movement patterns have occurred. Operational phase results show that koalas are using underpasses to cross the highway alignment and are using habitat on both sides of the alignment (Sandpiper Ecological 2019c). Whilst it is unknown if changes in habitat use have occurred the year one results are encouraging as they suggest that koalas continue to maintain territory on both sides of the alignment.

Giant barred frogs were detected in adjacent habitat at site 1 but not recorded on underpass cameras. Monitoring has identified a substantial decline in population between 2013/14 (pre-construction baseline) and year one of the operational phase (Lewis 2014; Sandpiper Ecological 2019d). The population decline was initially noted during year one of the construction phase (Geolink 2015). Improved habitat connectivity beneath the Warrell Creek bridge in conjunction with significant rainfall events and reduced human

disturbance may allow the giant barred frog population to recover. Further monitoring is required to confirm if the species can rebound to previous population levels.

4.4 Evidence of use by dispersing individuals and different age cohorts

Underpass monitoring at WC2NH has demonstrated use by fauna of different age cohorts. Immature short-eared brushtail possums were regularly recorded making complete crossings following adults, particularly at sites 7 and 8. Analysing black and white videos in low resolution can prove difficult to determine age classes of fauna meaning some juveniles or dispersing immature individuals may have been recorded as adults.

4.5 Use by cover-dependent species with low mobility

Use of underpasses by cover-dependent species with low mobility is a subjective criterion. Small dasyurids (namely *Antechinus* spp.), and small to medium reptiles are considered cover dependent species with low mobility. Dasyurids and small to medium reptiles have been detected in sand pad monitoring but not by cameras. Whilst this result is not surprising cameras have detected house mouse at WC2NH, and *Antechinus* spp. at W2B, and NH2U (Sandpiper Ecological 2019a, b). Use of underpasses by cover dependent species is likely to improve as vegetation grows and matures, and finishing work ends. At present, revegetation near underpass entrances is in a relatively poor condition owing to ongoing finishing works and drought.

Underpass use by cover-dependent species with low mobility has been recorded during year one operational phase monitoring. With increased revegetation of underpass aprons it can be expected that use will increase.

4.6 No breaches in fauna exclusion fencing

Fauna exclusion fence was generally in good condition, although a small number of gaps were detected. Roadkill monitoring has identified minimal fauna mortality between Mattick Road and the northern extent where type 1 and 3 fence is continuous on both sides of the carriageway. Numerous gaps under the fence were detected on the Gumma floodplain, however, RMS has advised that this fence is targeted at exclusion of macropods only. To date there have been no recorded breaches of the fauna exclusion fence by any target species.

4.7 Low incidences of fauna road strike mortality

Road-killed fauna within fence excluded areas is considered low. Summer, autumn and winter 2019 roadkill monitoring recorded 3, 4 and 8 road-killed individuals respectively in areas where the exclusion fence should have prevented access to the highway. It should be acknowledged that road-killed fauna recorded within 100m of fence was included within this count and access to the highway could be attributed to entry via a fence end. Areas where exclusion fencing does not occur have exhibited substantially higher rates of medium to large mammal kills (i.e. around Bald Hill Road and Albert Drive) where 22 red-necked wallaby and macropod kills have been recorded during three seasonal samples in 2019 (Sandpiper 2018b; 2019e, f, g). Roadkill monitoring data show frogs, reptiles and small mammals, species that can move through exclusion fence continue to be killed on the highway but are also using underpasses to cross the highway. Without exclusion fence the incidence of road mortality would be substantially higher in the section between Mattick Road and the northern project extent.

4.8 Underpass survey effort

Underpass survey effort (i.e. number of days sampled) during spring/summer was compromised by initial technical difficulties at site 1, theft/destruction of equipment at sites 9 and 10, and higher than expected number of false triggers due to ongoing construction work and ecological survey work at all sites. Spring/summer 2018 was the first major deployment of the Swift 3C and Swift Enduro cameras by the survey team, and the first time that data were conducted using video rather than still images. The combination of video and high pedestrian activity caused SD cards to reach capacity prior to the scheduled one month inspection period. These issues were resolved prior to commencement of the winter sample period. Indeed, the need to sample fauna in the spring/summer period and the pre-christmas cut-off in sampling to reduce the risk of theft during the Christmas holidays compressed the year one sample period. In future spring/summer surveys the sample period will be extended further into spring.

5. Recommendations

1. Inclusion of infrared cameras as part of adjacent habitat monitoring should be considered.
2. Management to control feral predator use of underpasses should be evaluated. Feral cat management may reduce the incidence of feral predator species using underpasses. Targeted trapping with cage traps may be an effective means of reducing cat numbers.
3. Actively manage revegetation of underpass aprons, mulch around plants to retain moisture, replace dead plants and exclude people and machinery where possible.
4. Using time-lapse photography in underpasses should be considered to confirm use by small reptiles, frogs and small mammals.

6. References

- GeoLink (2014) Warrell Creek to Nambucca Heads Pacific Highway Upgrade, Koala Management Plan. Report prepared for Roads and Maritime service NSW.
- GeoLink (2014) Warrell Creek to Nambucca Heads Pacific Highway Upgrade, Spotted-tailed Quoll Management Plan. Report prepared for Roads and Maritime service NSW.
- Menkhorst, P. & Knight, F. (2004). *A field guide to the mammals of Australia*. Oxford University press, Melbourne.
- Pizzey, G. & Knight, F. (2007). *The field guide to the birds of Australia*. Harper Collins, Sydney.
- RMS (2018). *Warrell Creek to Nambucca Heads Operational Ecological and Water Quality Monitoring Brief*. NSW Government.
- Sandpiper Ecological (2017). Pacific Highway Upgrade – Glenugie: operational phase fauna crossing monitoring program (years 1-3). Report prepared for NSW Roads and Maritime Services.
- Sandpiper Ecological (2017). Pacific Highway Upgrade – Sapphire to Woolgoolga: operational phase fauna monitoring year 1 – Greys Dam Frog Pipes. Report prepared for Roads and Maritime Services.
- Sandpiper Ecological (2016). Pacific Highway Upgrade – Sapphire to Woolgoolga: operational phase fauna

monitoring year 1 – Greys Dam Frog Pipes. Report prepared for Roads and Maritime Services.

Sandpiper Ecological (2018a). Sapphire to Woolgoolga Pacific Highway Upgrade: operational phase fauna crossing monitoring program years 1-3. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2018b). Pacific Highway Upgrade – Warrell Creek to Nambucca Heads operational phase roadkill monitoring – annual report. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019a). Pacific Highway Upgrade –Nambucca Heads to Urunga underpass and vegetated median monitoring program monitoring – year 2 operational phase. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019b). Pacific Highway Upgrade – Woolgoolga to Ballina sections 1 and 2: Threatened Mammal Monitoring Program, Operation Phase. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019c). Pacific Highway Upgrade – Warrell Creek to Nambucca Heads operational phase monitoring program year one – koala population monitoring. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019d). Pacific Highway Upgrade – Warrell Creek to Nambucca Heads giant barred frog (*Mixophyes iteratus*) monitoring program – year 1 operational phase. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019e). Pacific Highway Upgrade – Warrell Creek to Nambucca Heads operational phase roadkill monitoring – summer monthly report. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019f). Pacific Highway Upgrade – Warrell Creek to Nambucca Heads operational phase roadkill monitoring – autumn monthly report. Report prepared for NSW Roads and Maritime Services.

Sandpiper Ecological (2019g). Pacific Highway Upgrade – Warrell Creek to Nambucca Heads operational phase roadkill monitoring – winter monthly report. Report prepared for NSW Roads and Maritime Services.

Soanes, K., Vesk, P. A. and van der Ree, R. (2015). Monitoring the use of road-crossing structures by arboreal marsupials: insights gained from motion-triggered cameras and passive integrated transponder (PIT) tags. *Wildlife Research*: 10.107.

Wilson, S. & Swan, G. (2010). A complete guide to reptiles of Australia. New Holland, Sydney.

Van Dyck, S., Gynther, I. & Baker, A. (2013). *Field companion to the mammals of Australia*. New Holland, Sydney.

Appendix A – Species list

Table A1: Common and scientific names for all species recorded during year one monitoring at WC2NH. ^ = Threatened species.

Common Name	Scientific Name
Koala [^]	<i>Phascolarctos cinereus</i>
Swamp wallaby	<i>Wallabia bicolor</i>
Red-necked wallaby	<i>Macropus rufogriseus</i>
Wallaby spp.	
Eastern grey kangaroo	<i>Macropus giganteus</i>
	<i>Macropodidae spp.</i>
Short-beaked echidna	<i>Tachyglossus aculeatus</i>
Yellow-bellied glider [^]	<i>Petaurus australis</i>
Sugar glider	<i>Petaurus breviceps</i>
	<i>Petaurus spp.</i>
Feathertail glider	<i>Acrobates pygmaeus</i>
Short-eared brushtail possum	<i>Trichosurus caninus</i>
Common brushtail possum	<i>Trichosurus vulpecula</i>
Brushtail possum spp.	<i>Trichosurus spp.</i>
Common ringtail possum	<i>Pseudocheirus peregrinus</i>
Northern brown bandicoot	<i>Isodon macrourus</i>
Long-nosed bandicoot	<i>Perameles nasuta</i>
	<i>Peramelidae spp.</i>
Fawn-footed melomys	<i>Melomys cervinnipes</i>
	<i>Melomys spp.</i>
Water rat	<i>Hydromys chrysogaster</i>
Bush rat	<i>Rattus fuscipes</i>
Murid spp.	<i>Muridae spp.</i>
Brown antechinus	<i>Antechinus stuartii</i>
	<i>Antechinus spp.</i>
Long-nosed potoroo [^]	<i>Potorous tridactylus</i>
Grey-headed flying fox [^]	<i>Pteropus poliocephalus</i>
Flying fox spp.	<i>Pteropus spp.</i>
Bent-wing spp.	<i>Miniopterus spp.</i>
Small mammal spp.	
	<i>Dasyuridae spp.</i>
McPhee's skink	<i>Egernia mcpheii</i>
Rainbow skink	<i>Lampropholis delicata</i>
Common garden skink	<i>Lampropholis guichenoti</i>
	<i>Lampropholis spp.</i>
Red-tailed calyptotis	<i>Calyptotis ruficauda</i>
Eastern water-skink	<i>Eulamprus quoyii</i>
Three-toed skink	<i>Saiphos equalis</i>
Skink spp.	<i>Scincidae spp.</i>
Coastal carpet python	<i>Morelia spilota</i>
Red-bellied black snake	<i>Pseudechis porphyriacus</i>
Yellow-faced whipsnake	<i>Demansia psammophis</i>
Black-bellied swamp snake	<i>Hemiaspis signata</i>
Blackish blind snake	<i>Anilius nigrescens</i>
Coastal carpet python	<i>Morelia spilota</i>
Burton's legless lizard	<i>Lialis burtonis</i>
Lace monitor	<i>Varanus varius</i>
Eastern water dragon	<i>Intellagama lesueurii</i>
	<i>Agamid spp.</i>
Freshwater turtle spp.	<i>Chelidae spp.</i>
Medium reptile spp.	
Small reptile spp.	
Small snake spp.	
Pacific black duck	<i>Anas superciliosa</i>
Pheasant coucal	<i>Centropus phasianinus</i>
Intermediate egret	<i>Ardea intermedia</i>
Tawny frogmouth	<i>Podargus strigoides</i>
Owlet-nightjar	<i>Aegotheles</i>
Little eagle [^]	<i>Hieraaetus morphnoides</i>

Common Name	Scientific Name
Eastern osprey^	<i>Pandion haliaetus</i>
Glossy Black Cockatoo^	<i>Calyptorhynchus lathami</i>
White-throated treecreeper	<i>Cormobates leucophaea</i>
Green catbird	<i>Ailuroedus crassirostris</i>
Eastern yellow robin	<i>Eopsaltria australis</i>
Eastern whipbird	<i>Psophodes olivaceus</i>
Water bird spp.	
Medium bird spp.	
Small bird spp.	
Eastern dwarf tree frog	<i>Litoria fallax</i>
Tyler's tree frog	<i>Litoria tyleri</i>
Red-eyed tree frog	<i>Litoria chloris</i>
Dusky toadlet	<i>Uperolia fusca</i>
	<i>Uperolia spp.</i>
Tusked frog	<i>Adelotus brevis</i>
Common eastern froglet	<i>Crinia signifera</i>
Great barred frog	<i>Mixophyes fasciolatus</i>
Giant barred frog^	<i>Mixophyes iteratus</i>
Striped marsh frog	<i>Limnodynastes peronii</i>
Red-backed toadlet	<i>Pseudophryne coriacea</i>
Medium frog spp.	
Frog spp.	
Cat	<i>Felis catus</i>
Red fox	<i>Vulpes vulpes</i>
Black rat	<i>Rattus rattus</i>
European hare	<i>Lepus europaeus</i>
House mouse	<i>Mus musculus</i>

Appendix B – Field Data

Table B1: Weather during the spring/summer monitoring period.

Date	MAXIMUM Wind Speed km/h	AVERAGE Wind Direction DESCRIPTION	AVERAGE Relative Humidity %	MAXIMUM Air Temperature DegC	MINIMUM Air Temperature DegC	TOTAL Rain Gauge mm
20/10/18	32.4	ESE	82.9	25.4	14.5	0.2
21/10/18	36	ESE	85.6	25.9	17.6	8.4
22/10/18	13.4	SW	90.1	24.9	17	0.2
23/10/18	18.5	SSW	87.9	25.8	14.9	0.2
24/10/18	25.3	S	85.7	26.1	16.1	0
25/10/18	16.9	SSW	80.7	27.5	17.4	0
26/10/18	13.6	S	82.2	24.2	15.1	0
27/10/18	20.5	SSW	80.5	28.2	16.6	0
28/10/18	19.9	SSE	81.6	25.4	14.4	0
29/10/18	16.4	SW	79.9	22.2	15.6	0
30/10/18	12.8	SSW	77.7	22.2	15.3	0
31/10/18	28.5	SSE	83.2	24.7	13.7	0
1/11/18	18.5	S	80.5	30.5	14.1	0
2/11/18	23	SSE	80.1	27.5	12.4	0
3/11/18	33.4	ESE	72.5	29.7	18.8	0
4/11/18	22.8	SSE	73.4	33.6	19.6	0
5/11/18	14.4	S	82.6	30	17.3	0
6/11/18	16.6	SSE	88.2	28.6	19.1	0
7/11/18	20.9	ESE	84.9	30.4	22.9	0.2
8/11/18	24	SSE	89.8	30.2	14.9	21
9/11/18	20.4	SW	76.8	23	10.7	0
10/11/18	17.4	S	74.2	22.9	13.5	0
11/11/18	32.1	S	79.3	25.4	12.8	0
12/11/18	20.5	SW	81	25.7	12.8	0
13/11/18	18.5	SSW	79.8	25	12.5	0
14/11/18	25	SE	81.5	25.1	13.3	0
15/11/18	25.9	SSE	82.8	27.1	18.5	0
16/11/18	21.2	SSE	83	28.4	19.1	0
17/11/18	15.4	SSW	83.6	26.1	18.1	0
18/11/18	24	SSW	87.8	26.3	16.6	14.2
19/11/18	16	SW	93	23	15.7	15
20/11/18	17.4	SSW	78.3	23.7	14.6	0.2
21/11/18	30.2	ESE	77.9	27	17.6	0
22/11/18	16	SSE	89.9	30.3	19.5	6
23/11/18	33.1	SW	58.9	31.7	9.4	0
24/11/18	31.1	WSW	44.6	28.1	10.3	0
25/11/18	20.5	SW	68	28.8	10.9	0
26/11/18	21.9	SSW	66.2	30.4	13.9	0
27/11/18	18.7	SSW	73	26.2	14.3	0
28/11/18	28.5	SE	83.3	27.1	17.8	0
29/11/18	33.5	SSW	69.2	28.7	18.3	9.6
30/11/18	17	SW	69.4	28.6	13.4	0
1/12/18	20.2	S	80.6	27.1	14.1	0
2/12/18	20.2	SSW	77.8	31.8	12.5	0
3/12/18	24.1	SSE	70.8	33.9	17.8	0
4/12/18	19.9	SSE	78.1	27.9	14.4	0
5/12/18	19.5	S	76.3	28.8	18.3	9.6
6/12/18	17.7	SSW	82	25.9	17	1.2
7/12/18	22.4	S	74.9	25.8	15.4	0.2
8/12/18	24	SSE	75.6	25.8	14.9	0
9/12/18	33.7	ESE	78.1	26.9	13.5	0
10/12/18	30.1	SE	80.9	27.4	14.7	0
11/12/18	26.2	SE	84.4	29.3	17.7	0
12/12/18	13.7	SSW	92.1	28.2	19.2	6.8
13/12/18	13	SE	89.9	26.2	18.1	0.8
14/12/18	29.3	ENE	88.4	28.5	19.8	14.8
15/12/18	38.2	NE	86.3	29	22.2	0
16/12/18	50	NE	88	28.8	22.2	0
17/12/18	27.1	ESE	97.2	25	17.5	101.6
18/12/18	40.5	ESE	89.8	27.7	18.1	0
19/12/18	28.2	ESE	72.8	28.7	21	0
20/12/18	23.1	SE	79.2	29.6	20.1	12.8

Table B2: Weather during the winter monitoring period.

Date	MAXIMUM Wind Speed km/h	AVERAGE Wind Direction DESCRIPTION	AVERAGE Relative Humidity %	MAXIMUM Air Temperature DegC	MINIMUM Air Temperature DegC	TOTAL Rain Gauge mm
1/06/2019	10.7	70.2	20.4	13	5.3	0
2/06/2019	15.4	84.4	20.7	17.8	11.3	1.6
3/06/2019	15.2	88.6	21.4	15.4	10.2	2
4/06/2019	14.2	62.5	23	35.5	8.3	0.4
5/06/2019	14.3	63.3	18.6	37.9	10.9	0
6/06/2019	11.8	78.2	20.4	23.7	5.9	0
7/06/2019	14.1	71.6	22.2	17.8	8.1	0
8/06/2019	15.4	85.2	22.3	23.7	12.4	2.2
9/06/2019	14.4	96.7	15.8	13	12.6	8.2
10/06/2019	14.2	88.3	23.4	11.8	8.5	1.8
11/06/2019	14.9	85	23.3	14.2	8.9	0
12/06/2019	15.4	82.3	27	17.8	8.2	0
13/06/2019	15.2	85.6	22.8	27.2	8.9	0
14/06/2019	17.3	83	26.1	13	11.2	0
15/06/2019	16.8	76.4	22.9	15.4	13.2	0
16/06/2019	16.1	79	20.6	13	13.9	0
17/06/2019	14.8	84.4	21.8	13	8.5	0
18/06/2019	14.2	75	22.5	22.5	8.7	0
19/06/2019	15.7	85.1	22.8	14.2	9.5	4.6
20/06/2019	11.8	73	20.9	17.8	6.3	0
21/06/2019	12.1	81.8	21	21.3	6	0
22/06/2019	10.6	67	20.1	22.5	2.7	0
23/06/2019	10.6	75.3	20.3	21.3	4.5	0
24/06/2019	13	74.6	20	18.9	9.9	0
25/06/2019	12.7	93.9	17.1	18.9	10.7	0
26/06/2019	13.3	95.1	17.8	17.8	10.8	0
27/06/2019	13.9	96.4	16.1	18.9	13	1.8
28/06/2019	14.9	86.2	20.5	17.8	11.5	60.6
29/06/2019	14.1	89.5	20.6	14.2	9.7	13.2
30/06/2019	14.4	90.5	20.9	11.8	8.9	0
1/07/2019	16.6	78.1	22.4	15.4	12.8	0
2/07/2019	13.8	84.8	21.7	15.4	8.3	0
3/07/2019	13.5	88.1	22.1	14.2	7.9	0
4/07/2019	16.2	83.4	22.5	20.1	12.2	0.2
5/07/2019	15.7	88.8	21.2	18.9	13.4	24.8
6/07/2019	14.4	89.9	19.5	23.7	11.3	12.2
7/07/2019	15.1	90.2	20.9	20.1	12.4	0
8/07/2019	12.9	91.2	19.2	13	8	0
9/07/2019	12.8	93.1	17.7	9.5	8	4.8
10/07/2019	12.3	81.7	21.9	16.6	5.4	3.4
11/07/2019	11	78.5	21.5	21.3	3.4	0
12/07/2019	13.4	67.8	23.9	24.9	5.6	0
13/07/2019	13.1	75	23.2	24.9	7	0
14/07/2019	12.8	53.3	21.9	45	5.3	0
15/07/2019	12.2	52.3	18.5	35.5	5.7	0
16/07/2019	9.7	72.4	19.7	39	1.9	0
17/07/2019	10.6	74.7	22.7	14.2	3	0
18/07/2019	12.6	68.4	20	29.6	5.8	0
19/07/2019	11.2	71.4	21.4	31.9	2.6	0
20/07/2019	10.7	73.9	21.9	16.6	3.9	0
21/07/2019	11.3	82.4	21.4	18.9	3.8	0
22/07/2019	12.1	82	22.3	17.8	4.7	0
23/07/2019	13.6	78.8	24.7	18.9	6.2	0
24/07/2019	13	74.7	25.9	20.1	3.6	0
25/07/2019	13.3	73.4	25.2	23.7	6.4	0
26/07/2019	14	83.4	21.1	18.9	7.2	0
27/07/2019	15	84.3	22.7	16.6	9.7	0
28/07/2019	14.4	79.3	23.7	21.3	7.9	0
29/07/2019	13.8	82.1	22.4	20.1	7.3	0
30/07/2019	13.8	83.2	22.6	17.8	9.2	0
31/07/2019	14.4	77	22.9	23.7	8.8	0
1/08/2019	13.2	86	18.7	18.9	8.6	1
2/08/2019	13.6	83.3	22.5	20.1	9	0
3/08/2019	13	86	21	20.1	6.7	0
4/08/2019	12.6	82.5	22.2	21.3	5.4	0
5/08/2019	13.4	80.7	22.8	16.6	7.3	0
6/08/2019	13.2	82.2	22	22.5	6.2	0
7/08/2019	13	75.3	25.2	23.7	4.7	0
8/08/2019	14.1	74.6	25.1	16.6	7.8	0
9/08/2019	16.6	47.7	25.8	60.3	4	0
10/08/2019	17.8	36.8	23.2	60.3	9.1	0

Date	MAXIMUM Wind Speed km/h	AVERAGE Wind Direction DESCRIPTION	AVERAGE Relative Humidity %	MAXIMUM Air Temperature DegC	MINIMUM Air Temperature DegC	TOTAL Rain Gauge mm
11/08/2019	14.5	35.7	20.1	63.9	11.2	0
12/08/2019	12	49	18.2	43.8	6.5	0
13/08/2019	11.7	72.4	21.3	30.8	4.2	0
14/08/2019	12.9	76.8	20.9	20.1	7.4	0
15/08/2019	13.6	84.6	19.5	21.3	7.4	0
16/08/2019	13.2	81.4	22.5	22.5	5.7	0
17/08/2019	13.2	70	23.7	24.9	4.8	0
18/08/2019	14.8	70	27	36.7	7.2	0
19/08/2019	15.8	79.3	21.3	31.9	9.8	0
20/08/2019	13.1	51.1	24.9	39	1.2	0
21/08/2019	11.1	65.5	21.2	22.5	4.4	0
22/08/2019	15.8	56.9	25.5	36.7	8.7	0
23/08/2019	15.8	54.2	25.3	53.3	8.9	0
24/08/2019	12	73.3	21.9	23.7	4.7	0
25/08/2019	13.6	79.6	22.4	31.9	5.6	0
26/08/2019	17.3	72.4	25.2	24.9	11.1	0
27/08/2019	16.7	82.9	24.9	22.5	10.8	0
28/08/2019	16.8	87.1	21.6	23.7	12.3	0
29/08/2019	16	86.6	22.3	26	9.8	0
30/08/2019	13.9	82.8	21.8	27.2	6.9	0.8

Table B3: Underpass camera survey effort for spring/summer monitoring.

Location	Cam Location	Easting	Northing	Date installed	Date checked	Pics	Last pic date	Days Active	Date removed	Pics	Days Active	Total Days Active
12	Furniture	497115	6610068	17/10/18	22/11/18	383	1/11/18	16	17/12/18	38	29	45
	Ground	497115	6610068	16/10/18	22/11/18	326	22/11/18	38	17/12/18	73	29	67
11	Furniture	497168	6610040	17/10/18	22/11/18	286	22/11/18	37	17/12/18	300	27	64
	Ground	497168	6610040	17/10/18	22/11/18	397	22/11/18	37	17/12/18	47	29	66
10	Furniture	496622	6609409	17/10/18	22/11/18	317	22/11/18	37	17/12/18	Stolen		37
	Ground	496622	6609409	17/10/18	22/11/18	543	5/11/18	20	17/12/18	75	23	43
9	Furniture	496622	6609409	17/10/18	22/11/18	169	22/11/18	37	17/12/18	37	23	60
	Ground	496622	6609409	17/10/18	22/11/18	412	22/11/18	37	17/12/18	47	23	60
8	Furniture	496506	6609219	17/10/18	22/11/18	110	22/11/18	37	17/12/18	19	26	63
	Ground	496506	6609219	17/10/18	22/11/18	202	22/11/18	37	17/12/18	85	26	63
7	Furniture	496438	6608780	17/10/18	22/11/18	154	30/10/18	14	17/12/18	14	26	40
	Ground	496438	6608780	17/10/18	22/11/18	158	22/11/18	37	17/12/18	30	26	63
6	Furniture	496188	6608319	17/10/18	21/11/18	10	21/11/18	36	17/12/18	13	27	63
	Ground	496188	6608319	17/10/18	21/11/18	138	21/11/18	36	17/12/18	50	27	63
5	North	496171	6608286	22/10/18	21/11/18	184	21/11/18	31	17/12/18	64	27	58
	South	496168	6608282	22/10/18	21/11/18	128	21/11/18	31	17/12/18	75	27	58
4	Furniture	495702	6607693	17/10/18	22/11/18	60	22/11/18	37	17/12/18	18	26	63
	Ground	495702	6607693	17/10/18	22/11/18	175	22/11/18	37	17/12/18	106	26	63
3	Furniture	495082	6606515	17/10/18	21/11/18	186	2/11/18	17	17/12/18	317	12	29
	Ground	495082	6606515	17/10/18	21/11/18	258	21/11/18	36	17/12/18	60	12	48
2	Furniture	494477	6605329	18/10/18	21/11/18	718	21/11/18	35	17/12/18	676	31	66
	Ground	494477	6605329	18/10/18	21/11/18	185	5/11/18	19	17/12/18	66	6	25
1	North	489300	6594286	30/10/18	22/11/18	13799	22/11/18	24	17/12/18	15000	39	63
	South	489262	6594252	24/10/18	22/11/18	17400	22/11/18	30	17/12/18	15000	39	69

Table B4: Underpass camera survey effort for winter monitoring.

Location	Cam Location	Easting	Northing	Date installed	Date checked	Battery	Pics	Days active	Date removed	Days Active	Pics	Total Days Active
12 median west	Furniture	497115	6610068	17/6/19	19/07/2019	100	93	33	27/08/2019	39	65	72
	Ground	497115	6610068	17/6/19	19/07/2019	Flat	51	17	27/08/2019	20	41	37
11 median east	Furniture	497168	6610040	17/6/19	19/07/2019	100	261	33	27/08/2019	39	181	72
	Ground	497168	6610040	17/6/19	19/07/2019	100	264	33	27/08/2019	39	151	72
10 median west	Furniture	496622	6609409	17/6/19	19/07/2019	100	72	33	27/08/2019	39	114	72
	Ground	496622	6609409	17/6/19	19/07/2019	100	1067	3	27/08/2019	15	286	18
9 median east	Furniture	496622	6609409	17/6/19	19/07/2019	100	29	33	27/08/2019	39	61	72
	Ground	496622	6609409	17/6/19	19/07/2019	80	57	33	27/08/2019	39	96	72
8 full length	Furniture	496506	6609219	17/6/19	19/07/2019	100	90	33	27/08/2019	39	71	72
	Ground	496506	6609219	17/6/19	19/07/2019	100	80	33	27/08/2019	39	101	72
7 full length	Furniture	496438	6608780	17/6/19	19/07/2019	100	78	33	27/08/2019	39	98	72
	Ground	496438	6608780	17/6/19	19/07/2019	100	57	33	27/08/2019	39	81	72
6 full length	Furniture	496188	6608319	17/6/19	19/07/2019	100	14	33	27/08/2019	39	6	72
	Ground	496188	6608319	17/6/19	19/07/2019	100	66	33	27/08/2019	39	43	72
5	North	496171	6608286	17/6/19	19/07/2019	100	25	33	27/08/2019	39	31	72
	South	496168	6608282	17/6/19	19/07/2019	100	30	33	27/08/2019	39	84	72
4	Furniture	495702	6607693	17/6/19	19/07/2019	100	34	33	27/08/2019	39	52	72
	Ground	495702	6607693	17/6/19	19/07/2019	100	61	33	27/08/2019	39	1	72
3	Furniture	495082	6606515	17/6/19	19/07/2019	75	309	33	27/08/2019	39	510	72
	Ground	495082	6606515	17/6/19	19/07/2019	100	45	33	27/08/2019	39	278	72
2	Furniture	494477	6605329	17/6/19	19/07/2019	100	486	33	27/08/2019	39	755	72
	Ground	494477	6605329	17/6/19	19/07/2019	100	503	33	27/08/2019	39	440	72
1	North	489300	6594286	18/6/19	19/07/2019	Reinstalled	12240	18	27/08/2019	14	9558	52
	South	489262	6594252	18/6/19	19/07/2019	Flat	19998	26	27/08/2019	13	9360	67

Table B5: All species detected in fauna underpasses by infrared camera during spring/summer monitoring. ^ = Threatened species, D = Definite, Pr = Probable, Po = Possible, NDM = no directional movement, EXM = exploratory movement, E then W = east then west.

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
12	Furniture	13/12/18	2213	Cat	D	E	36	Complete	
	Ground	17/10/2018	0105	Cat	D	W	38-40	Complete	
		17/10/2018	2332	Cat	D	W	50	Complete	
		22/10/2018	0147	Koala^	D	E	54	Complete	
		23/10/2018	0337	Koala^	D	W	77	Complete	
		28/10/2018	0020	Cat	D	W	145	Complete	
		31/10/2018	2237	Cat	D	E	199	Complete	
		5/11/2018	0840	Lace monitor	D	East	14	Complete	
		5/11/2018	1124	Water dragon	D	West	15	Complete	
		5/11/2018	2305	Cat	D	East	16	Complete	
		8/11/2018	1359	Water dragon	D	East	46	Complete	
		9/11/2018	2305	Cat	D	East	53	Complete	
		13/11/2018	1138	Water dragon	D	East	82	Complete	
		17/11/2018	1431	Lace monitor	D	East	102	Complete	
		19/11/2018	2307	Cat	D	West	103	Complete	
		20/11/2018	1855	Cat	D	West	104	Complete	
		1/12/2018	2005	SEBtP	D	NDM	33-42	Incomplete	Back and forth then climbs railing (prob)
		2/12/2018	1944	Cat	D	E	43	Complete	
		3/12/2018	1110	Lace Monitor	D	E	44	Complete	
		7/12/2018	1954	Cat	D	E	51	Complete	
11/12/2018	1056	Lace Monitor	D	W	52, 53	Complete			
13/12/2018	1955	Cat	D	W	54	Complete			
11	Furniture	3/11/2018	1400	Water dragon	D	East	172	Complete	
	Ground	22/10/2018	146	Koala^	D	East	26-34,36-42	Complete	
		23/10/2018	332	Koala^	D	West	49	Complete	
		28/10/2018	0015	Cat	D	W	214	Complete	
		31/10/2018	2243	Cat	D	E	259	Complete	
		3/11/2018	1042	Water dragon	Pr	East	215	Complete	
		5/11/2018	0121	Cat	D	West	219	Complete	
		5/11/2018	0832	Lace Monitor	D	East	225	Complete	
		5/11/2018	1459	Water dragon	D	West	226	Complete	
		5/11/2018	1518	Water dragon	D	East	227	Complete	
		8/11/2018	0804	Intermediate Egret	D	EXM	248-259	Incomplete	
		9/11/2018	2305	Cat	D	East	264	Complete	
		17/11/2018	1421	Lace Monitor	D	East	302	Complete	
		17/11/2018	2153	Cat	D	West	303	Complete	
		18/11/2018	2051	Cat	D	West	304	Complete	
		19/11/2018	2312	Cat	D	W-E	305-306	Incomplete	
		20/11/2018	1904	Cat	D	West	307	Complete	
		21/11/2018	0851	Water dragon	D	West	308	Complete	
		27/11/2018	2337	BtPoss spp.	D	E	227	Complete	
		2/12/2018	0232	Cat	D	W	229	Complete	
2/12/2018	1949	Cat	D	E	230	Complete			
3/12/2018	1109	Lace Monitor	D	E	231	Complete			
7/12/2018	1951	Cat	D	E	236	Complete			
10/12/2018	1417	EW Dragon	D	W	237	Complete			
11/12/2018	1103	Lace Monitor	D	W	238, 239	Complete			
13/12/2018	1008	EW Dragon	D	E	240	Complete			
17/12/2018	0054	Cat	D	W	243	Complete			
10	Furniture	27/11/2018	1945	Microbat spp.	D	NDM	8	Incomplete	Roosting in FF joins. Not recorded hereafter.

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
	Ground	19/10/2018	0259	Cat	D	E	11	Complete	
			0150	Fox	D	W	12	Complete	
		28/11/2018	0858	Lace Monitor	D	E	9	Complete	
		28/11/2018	2132	Black Rat	D	E	10	Complete	
		2/12/2018	2004	Black Rat	D	W	11, 12, 13	Complete	
		2/12/2018	2119	Cat	D	W	14	Complete	
		3/12/2018	1153	Lace Monitor	D	W	15	Complete	
		3/12/2018	1926	Black Rat	D	E then W	16, 17	Incomplete	
		4/12/2018	0241	Cat	D	W	18	Complete	
		7/12/2018	0006	Fox	D	E	30	Complete	
		13/12/2018	1311	Lace Monitor	D	E	34	Complete	
				Human x 2 tagging					
9	Furniture	5/11/2018	0034	Small mammal	Pr	NDM	111	Incomplete	Only eyeshine visible
				Cam stolen					
	Ground	19/10/2018	0303	Cat	D	E	39	Complete	
		21/10/2018	0030	Cat	D	E	40	Complete	
		21/10/2018	0152	Fox	D	W	41-42	Complete	
		7/11/2018	0247	Cat	D	W	309	Complete	
		20/11/2018	1248	Lace monitor	D	W	403	Complete	
		21/11/2018	0259	Koala^	D	W	404	Complete	
		22/11/2018	0258	Cat	D	W	409	Complete	
		26/11/2018	0356	Swamp Wallaby	D	W	236, 237	Complete	
		28/11/2018	2142	Black Rat	D	E	238	Complete	
		2/12/2018	0923	Lace Monitor	D	E	239	Complete	
		2/12/2018	2118	Cat	D	W	241	Complete	
		3/12/2018	1152	Lace Monitor	D	W	243	Complete	
		4/12/2018	0242	Cat	D	W	244	Complete	
		7/12/2018	0009	Fox	D	E	250	Complete	
		13/12/2018	1318	Lace Monitor	D	E	252	Complete	
14/12/2018	1404	Lace Monitor	D	E	253	Complete			
				Human x 2 tagging					
8	Furniture	31/10/2018	2250	SEBtP	D	E	34	Complete	
		7/10/2018	0233	SEBtP	D	E	65	Complete	
		10/11/2018	2339	SEBtP	D	E	72	Complete	
		12/11/2018	2138	SEBtP	D	E	88	Complete	
		29/11/2018	0026	BtPoss spp.	D	E	7	Complete	
		2/12/2018	0222	BtPoss spp.	D	E	9	Complete	
	Ground	9/12/2018	2109	Microbat spp.	D	NDM	13	Incomplete	Roosting in FF joins?
		17/10/2018	2303	Fox	D	E	12	Complete	
		19/10/2018	2135	SEBtP	D	E	13	Complete	
		21/10/2018	0140	Fox	D	E	14	Complete	
		22/10/2018	1418	Lace monitor	D	W	17	Complete	
		26/10/2018	1058	Lace monitor	D	W	22	Complete	
		27/10/2018	1119	Lace monitor	D	E	23	Complete	
		29/10/2018	2137	Cat	D	E	27	Complete	
		30/10/2018	2328	Bandicoot spp	Pr	E	50	Complete	
		31/10/2018	2004	Echidna	D	E	63-65	Incomplete	
		1/11/2018	1922	Cat	D	E	83	Complete	
		2/11/2018	1826	Cat	D	E	94	Complete	
		6/11/2018	2343	Cat	D	W	131	Complete	
		7/11/2018	0238	Cat	D	E	132	Complete	
10/11/2018	0012	Swamp wallaby	Pr	E	149	Complete			
10/11/2018	0944	Lace Monitor	D	W	150	Complete			
11/11/2018	0847	Swamp wallaby	D	W	151-152	Complete			

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		11/11/2018	1645	Swamp wallaby	Pr	E	153	Complete	
		12/11/2018	0921	Lace Monitor	D	W	155	Complete	
		17/11/2018	0007	Fox	D	E	187-189	Complete	
		18/11/2018	2328	Fox	D	E	190	Complete	
		20/11/2018	0824	Lace Monitor	D	W	192	Complete	
		20/11/2018	2036	SEBtP x 2	D	W	193	Complete	Mother with back young
		20/11/2018	2107	SEBtP x 2	D	E-W	194-195	Incomplete	
		20/11/2018	2137	SEBtP x 2	D	E	196	Complete	
		23/11/2018	2202	SEBtPx2	Pr	W	14	Complete	
		23/11/2018	2339	SEBtPx2	D	E	15	Complete	
		24/11/2018	2112	BtPoss spp.	Pr	W	20	Complete	
		26/11/2018	1216	Lace Monitor	D	W	21	Complete	
		26/11/2018	1602	Lace Monitor	D	E	22	Complete	
		28/11/2018	2142	SEBtPx2	D	E	24	Complete	
		29/11/2018	0751	Lace Monitor	D	W	26	Complete	
		30/11/2018	0829	Lace Monitor	D	W	27	Complete	
		30/11/2018	2136	Cat	D	W	28	Complete	
		1/12/2018	0226	Fox	D	E	29	Complete	
		2/12/2018	1031	Lace Monitor	D	E	31	Complete	
		2/12/2018	1455	Lace Monitor	D	E	32	Complete	
		2/12/2018	2129	BtPoss spp.x2	D	W	33	Complete	
		2/12/2018	2314	Cat	D	E	34	Complete	
		2/12/2018	2339	SEBtPx2	D	E	35	Complete	
		4/12/2018	1326	Lace Monitor	D	W	36	Complete	
		6/12/2018	0021	Fox	D	W	37	Complete	
		7/12/2018	1131	Lace Monitor	D	W	39	Complete	
		7/12/2018	1345	Lace Monitor	D	E	40	Complete	
		8/12/2018	2352	Cat	D	W	41	Complete	
		9/12/2018	1129	Lace Monitor	D	W	42	Complete	
		9/12/2018	1438	Lace Monitor	D	W	43	Complete	
		9/12/2018	1949	Swamp Wallaby	Pr	E	44	Complete	
		9/12/2018	1954	Swamp Wallaby	D	NDM	46/47	Incomplete	
		9/12/2018	1958	SEBtP	D	W	49	Complete	
		9/12/2018	2023	Swamp Wallaby	Pr	E	50	Complete	
		10/12/2018	1017	Lace Monitor	D	W	52	Complete	
		10/12/2018	1411	Lace Monitor	D	E	53	Complete	
		13/12/2018	0853	Lace Monitor	D	W	54	Complete	
		13/12/2018	1359	Lace Monitor	D	E	55	Complete	
		14/12/2018	1347	Lace Monitor	D	W	56	Complete	
		15/12/2018	0033	Fox	D	E	57	Complete	
		15/12/2018	1046	Lace Monitor	D	W	58	Complete	
		15/12/2018	1128	Lace Monitor	D	W	59	Complete	
		15/12/2018	1312	Lace Monitor	D	W	60	Complete	
		15/12/2018	1616	Lace Monitor	D	E	61	Complete	
7	Furniture	20/10/2018	0142	SEBtP	D	E	14	Complete	
		25/10/2018	2114	SEBtP x 2	D	W	15	Complete	
		5/12/2018	1955	SEBtP x 2	D	E	10	Complete	
		5/12/2018	2116	SEBtP x 2	D	W	11	Complete	
		6/12/2018	1937	SEBtP	Pr	E	12	Complete	Urinate on FF
	Ground	26/10/2018	1723	EG Kangaroo x 3	Pr	E	30-32	Complete	
		26/10/2018	2242	Red-necked wallaby	Pr	W	34-35	Complete	
		3/11/2018	0103	Swamp Wallaby	D	W	77	Complete	
		3/11/2018	1821	Cat	D	W	81	Complete	
		7/11/2018	0539	Macropod spp	D	E	95	Complete	
		8/11/2018	0011	Red-necked wallaby	Pr	W	98-99	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		11/11/2018	0351	Cat	D	E	107	Complete	
		11/11/2018	1846	Cat	D	W	109	Complete	
		20/11/2018	0013	Koala^	D	E	152	Complete	
		23/11/2018	1440	Lace Monitor	D	E	14	Complete	
		1/12/2018	1848	Swamp Wallaby	Pr	E	15	Complete	
		5/12/2018	2127	Cat	D	W	16	Complete	
		8/12/2018	2255	Koala^	D	W	19	Complete	
6	Furniture	3/12/2018	0013	Black Rat	Pr	W	6	Complete	
	Ground	18/10/2018	2321	Cat	D	W	16	Complete	
		20/10/2018	1935	Cat	D	W	17	Complete	
		21/10/2018	0144	Fox	D	W	18	Complete	
		21/10/2018	0312	Cat	D	W	19	Complete	
		1/11/2018	0257	Cat	D	E	51	Complete	
		2/11/2018	0130	Fox	D	W	58	Complete	
		2/11/2018	1919	Cat	D	W	61	Complete	
		3/11/2018	0434	Cat	D	E	62	Complete	
		7/11/2018	1311	Lace Monitor	D	E	86	Complete	
		8/11/2018	0057	Rodent spp	Pr	E	87	Complete	
		11/11/2018	0029	Fox	D	W	91	Complete	
		20/11/2018	0215	House mouse	Pr	E	136	Complete	
		24/11/2018	2033	Cat	D	E	15	Complete	
		25/11/2018	2341	Wallaby spp.	D	W	16	Complete	
		26/11/2018	0902	Lace Monitor	D	W	19	Complete	
		27/11/2018	2055	Small mammal spp.	D	W	20	Complete	
		30/11/2018	0434	Wallaby spp.	D	E	28	Complete	
		3/12/2018	0237	Fox	D	W	31	Complete	
		5/12/2018	1925	Cat	D	W	32	Complete	
5/12/2018	2017	Cat	D	E	33	Complete			
8/12/2018	2020	Fox	D	E	34	Complete			
9/12/2018	0032	Cat	D	E	35	Complete			
9/12/2018	2008	Swamp Wallaby	Pr	W	36	Complete			
10/12/2018	2311	Wallaby spp.	D	E	37	Complete			
14/12/2018	1142	Lace Monitor	D	E	38	Complete			
5	North	30/10/2018	1527	Microbat spp.	D	EXM	46-49	Incomplete	
		1/11/2018	0331	Microbat spp	D	NDM	62	Incomplete	
		7/11/2018	0109	Black rat	Pr	W	134	Complete	
		8/11/2018	0358	Microbat spp	D	EXM	142	Incomplete	
		10/11/2018	0005	Black rat	D	W	150-153	Complete	
		14/12/2018	2320	Black Rat	Pr	E	49	Complete	
	South	26/10/2018	0140	Microbat spp	D	EXM	42,51-53	Incomplete	
		27/10/2018	2251	Microbat spp	D	EXM	58-60	Incomplete	
		1/11/2018	0409	Microbat spp	D	EXM	76	Incomplete	
		3/11/2018	0407	Microbat spp	D	EXM	80,82-83	Incomplete	
		6/11/2018	1843	Microbat spp	D	EXM	88	Incomplete	
		9/11/2018	0355	Microbat spp	D	E	104	Complete	
		11/11/2018	0354	Microbat spp	D	EXM	105	Incomplete	
		14/11/2018	0401	Microbat spp	D	EXM	112	Incomplete	
		19/11/2018	1904	Microbat spp	D	EXM	117,120	Incomplete	
2/12/2018	0413	Microbat spp.	D	W	29	Complete			
7/12/2018	1656	PB Duck x 2	D	E	34, 35	Complete			
4	Furniture			Nil					
	Ground	17/10/2018	2006	Cat	D	W	55	Complete	
		20/10/2018	0108	Koala^	D	E	56	Complete	
		22/10/2018	1250	Cat	D	E	57-58	Complete	
		26/10/2018	1042	Lace monitor	D	E	68	Complete	
		30/10/2018	1020	Lace monitor	D	W	71	Complete	
		30/10/2018	1140	Lace monitor	D	E	72	Complete	
30/10/2018	2030	Koala^	D	E	93	Complete			

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		31/10/2018	1044	Lace monitor	D	E	98	Complete	
		31/10/2018	2131	House mouse	D	E	99	Complete	
		2/11/2018	0054	Fox	D	E	108	Complete	
		2/11/2018	0220	Cat	D	E	109	Complete	
		2/11/2018	0411	Cat	D	W	110	Complete	
		2/11/2018	0837	Lace monitor	D	W	51	Complete	
		2/11/2018	1201	Lace monitor	D	W	52	Complete	
		3/11/2018	1341	Lace monitor	D	E	55	Complete	
		4/11/2018	0132	Koala^	D	W	56	Complete	
		6/11/2018	1036	Lace monitor	D	W	70	Complete	
		7/11/2018	2015	Koala^	D	E	80	Complete	
		10/11/2018	1302	Lace monitor	D	W	81	Complete	
		10/11/2018	1840	Cat	D	W	82	Complete	
		10/11/2018	2254	Koala^	D	W	83	Complete	
		10/11/2018	2358	Fox	D	E	84	Complete	
		11/11/2018	1348	Lace monitor	D	E	85	Complete	
		12/11/2018	2305	Koala^	D	E	86	Complete	
		13/11/2018	0059	Koala^	D	W	87	Complete	
		15/11/2018	0937	Lace monitor	D	E	102	Complete	
		16/11/2018	2257	Fox	D	E	121	Complete	
		17/11/2018	0155	Cat	D	W	122	Complete	
		19/11/2018	2252	Koala^	D	E	136	Complete	
		20/11/2018	1228	Lace monitor	D	W	139	Complete	
		20/11/2018	2038	Cat	D	W	144	Complete	
		23/11/2018	1126	Lace monitor	D	E	69, 70	Complete	
		24/11/2018	1222	Lace Monitor	D	E	72	Complete	
		29/11/2018	0858	Lace monitor	D	E	77	Complete	
		29/11/2018	1734	RN Wallaby	Pr	W	80	Complete	
		1/12/2018	0432	Koala^	D	W	81	Complete	
		2/12/2018	0858	Lace Monitor	D	E	82	Complete	
		3/12/2018	0155	Fox	D	E	83	Complete	
		5/12/2018	1314	Lace Monitor	D	W	84	Complete	
		5/12/2018	2314	Fox	D	E	85	Complete	
		7/12/2018	0310	Cat	D	W	86	Complete	
		8/12/2018	0944	Lace monitor	D	E	87	Complete	
		8/12/2018	1045	Lace monitor	D	E	88	Complete	
		8/12/2018	2051	Fox	D	E	91-92	Complete	
		9/12/2018	1201	Lace Monitor	D	W	93	Complete	
		14/12/2018	2313	Koala^	D	E	96	Complete	
		15/12/2018	0249	Fox	D	W	97	Complete	
		15/12/2018	1245	Lace monitor	D	W	98	Complete	
3	Furniture	18/10/2018	0830	Welcome swallow x 2	D	NDM	7-81	Incomplete	Not recorded hereafter.
		30/10/2019	1009	Water dragon	D	E-W	82-97	Incomplete	
		23/11/2018	0101	Microbat spp.	D	W	38, 39, 40	Complete	Not recorded hereafter.
	Ground	18/10/2018	0002	Cat	D	E	5	Complete	
		19/10/2018	0841	Fox	D	E	7	Complete	
		20/10/2018	0831	Welcome swallow x 2	D	NDM	8	Incomplete	Not recorded hereafter
		20/10/2018	1522	Water dragon	D	E	12	Complete	
		20/10/2018	1606	Water dragon	D	W	13	Complete	
		22/10/2018	0109	Cat	D	W	15	Complete	
		22/10/2018	0549	Fox	D	East	16	Complete	
		23/10/2018	0945	Cat	D	West	17	Complete	
		24/10/2018	0319	Cat	D	West	18-19	Complete	
		24/10/2018	0452	Cat	D	East	20	Complete	
		24/10/2018	0517	Cat	D	East	22-31	Complete	
24/10/2018	2339	Cat	D	West	32	Complete			

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		25/10/2018	0104	Cat	D	East	33-34	Complete	
		25/10/2018	0342	Brush-tail Possum spp	D	East	35	Complete	
		26/10/2018	0255	Cat	D	West	36-37	Complete	
		26/10/2018	0518	Cat	D	East	38	Complete	
		27/10/2018	0908	Water dragon	D	East	39	Complete	
		27/10/2018	1942	Cat	D	West	42	Complete	
		27/10/2018	2207	Fox	D	West	43	Complete	
		27/10/2018	2209	Cat	D	West	44	Complete	
		27/10/2018	2331	Cat	D	East	45-69	Complete	
		28/10/2018	2004	Cat	D	West	71	Complete	
		29/10/2018	0307	Cat	D	East	72-73	Complete	
		29/10/2018	1854	Cat	D	West	74	Complete	
		29/10/2018	2009	Cat w prey	D	East	75	Complete	
		30/10/2018	1345	Pheasant coucal	D	West	76	Complete	
		30/10/2018	2006	Cat	D	West	105	Complete	
		30/10/2018	2031	Cat	D	East	106	Complete	
		30/10/2018	2200	Cat	D	West	107	Complete	
		31/10/2018	0220	Cat	D	East	108	Complete	
		31/10/2018	0450	Cat	D	East	109	Complete	
		31/10/2018	1817	Cat	D	West	117	Complete	
		31/10/2018	2013	Cat	D	East	118	Complete	
		1/11/2018	0107	Cat	D	West	119	Complete	
		1/11/2018	0249	Cat	D	East	120	Complete	
		1/11/2018	2330	Cat	D	West	131	Complete	
		2/11/2018	0232	Cat	D	East	132	Complete	
		2/11/2018	2017	Cat	D	West	142	Complete	
		2/11/2018	2346	Cat	D	East	143	Complete	
		3/11/2018	0037	Cat	D	West	144	Complete	
		3/11/2018	0401	Cat	D	East	145	Complete	
		3/11/2018	2124	Cat	D	West	152	Complete	
		4/11/2018	0607	Fox	D	East	154	Complete	
		4/11/2018	1859	Cat	D	W-E	157-158	Incomplete	
		5/11/2018	0319	Cat	D	East	159	Complete	
		6/11/2018	0106	Cat	D	West	167	Complete	
		6/11/2018	0334	Cat	D	East	168	Complete	
		7/11/2018	0312	Cat	D	East	178	Complete	
		7/11/2018	1938	Cat	D	West	182	Complete	
		7/11/2018	2218	Cat	D	East	183	Complete	
		7/11/2018	2227	Fox	D	West	184	Complete	
		8/11/2018	2207	Cat	D	West	185	Complete	
		9/11/2018	0224	Brush-tail Possum spp	D	East	186	Complete	
		9/11/2018	0253	Cat	D	East	187	Complete	
		9/11/2018	0352	Swamp Wallaby	D	East	188	Complete	
		9/11/2018	1951	Cat	D	West	191	Complete	
		9/11/2018	2114	Fox	D	West	192	Complete	
		10/11/2018	0030	Cat	D	East	193-194	Complete	
		11/11/2018	0117	Cat	D	West	196	Complete	
		11/11/2018	0304	Cat	D	East	197	Complete	
		11/11/2018	0346	Swamp Wallaby	D	East	198-199	Complete	
		11/11/2018	2132	Swamp Wallaby	D	W-E	200	Incomplete	
		11/11/2018	2209	Cat	D	East	201	Complete	
		12/11/2018	0050	Cat	D	West	203	Complete	
		12/11/2018	0207	Fox w prey	D	East	204	Complete	
		12/11/2018	0350	Cat	D	East	205	Complete	
		13/11/2018	0154	Cat	D	East	206	Complete	
		15/11/2018	0319	Cat	D	West	215	Complete	
		15/11/2018	0538	Cat	D	East	216	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		17/11/2018	0109	Fox	D	West	236	Complete	
		18/11/2018	0239	Cat	D	East	239	Complete	
		19/11/2018	0312	Common Brushtail possum	D	East	249	Complete	
		19/11/2018	2124	Cat	D	East	250	Complete	
		20/11/2018	0424	Cat	D	West	251	Complete	
		20/11/2018	0526	Cat	D	East	252	Complete	
		21/11/2018	0059	Cat	D	West	255	Complete	
		21/11/2018	0358	Cat	D	East	256	Complete	
		21/11/2018	2100	Fox	D	W	25	Complete	
		21/11/2018	2107	Cat	D	E	26	Complete	
		21/11/2018	0221	Fox	D	E	27	Complete	
		21/11/2018	0236	Fox	D	W	28	Complete	
		23/11/2018	0225	Cat	D	W	32	Complete	
		23/11/2018	0406	Cat	D	E	33	Complete	
		24/11/2018	0311	Cat	D	E	35	Complete	
		24/11/2018	0440	EG Kangaroo	Pr	E	36	Complete	
		25/11/2018	0229	Fox	D	E	38	Complete	
		25/11/2018	2048	Cat	D	W	39	Complete	
		25/11/2018	2306	Cat	D	E	40	Complete	
		26/11/2018	0242	Hare	Po	E	41	Complete	
		26/11/2018	0314	Cat	D	E	42	Complete	
		27/11/2018	0110	Fox	Pr	W	43	Complete	
		27/11/2018	0323	Cat	D	E	44	Complete	
		27/11/2018	2316	SEBtP	D	W	45	Complete	
		28/11/2018	2129	Cat	D	W	46	Complete	
		28/11/2018	2319	Cat	D	E	47	Complete	
		29/11/2018	0501	EG Kangaroo	Pr	E	48	Complete	
		29/11/2018	2009	Cat	D	W	51	Complete	
		2	Furniture	27/10/2018	2057	Black rat	D	W-E	41-46
28/10/2018	2049			Black rat	D	W-E	49-52	Incomplete	
31/10/2018	2003			Black rat	D	W-E	91-94	Incomplete	
2/11/2018	2124			Black rat	D	W	203	Complete	
2/11/2018	2144			Black rat	D	E	205-208	Complete	
7/11/2018	0045			Black rat	D	W-E	341-348	Incomplete	
8/11/2018	0040			Black rat	Pr	W	381	Complete	
17/11/2018	0213			Black rat	D	W-E	637-644	Incomplete	
19/11/2018	0321			Echidna	D	East	11	Complete	
20/11/2018	0502			Cat	D	East	12	Complete	
20/11/2018	1925			Echidna	D	West	13	Complete	
20/11/2018	2144			Echidna	D	West	14	Complete	
21/11/2018	2340			Fox	D	East	15	Complete	
23/10/2018	0122			Echidna	D	East	16-17	Complete	
23/10/2018	2022			Echidna	D	East	18	Complete	
24/10/2018	0329			Echidna	D	East	19	Complete	
26/10/2018	1923			Swamp Wallaby	Pr	West	24	Complete	
27/10/2018	0209		Swamp Wallaby	D	East	25	Complete		
27/10/2018	2014		Swamp Wallaby	D	EXM	26-36	Incomplete		
28/10/2018	2338		Swamp Wallaby	D	East	38	Complete		
29/10/2018	0045		Fox	D	East	39	Complete		
29/10/2018	0243		Swamp Wallaby	D	East	40	Complete		
29/10/2018	0410		Swamp Wallaby	D	East	41	Complete		
30/10/2018	1834		Swamp Wallaby	D	West	42	Complete		
31/10/2018	2353		Echidna	D	East	72	Complete		
1/11/2018	0102		Echidna	D	East	73	Complete		
2/11/2018	0218		Echidna	D	West	113	Complete		
3/11/2018	2249		Echidna	D	East	153	Complete		
23/11/2018	1223		Lace monitor	D	E	29	Complete		
23/11/2018	1854	RN Wallaby	Pr	E	35	Complete			
	Ground								

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		23/11/2018	2146	Black rat	Pr	E	36	Complete	
		24/11/2018	1934	Black rat	Pr	E	48	Complete	
		24/11/2018	2313	Fox	D	E	49	Complete	
		24/11/2018	2346	Cat	D	W	50	Complete	
		26/11/2018	0049	Echidna	D	E	59, 60	Complete	
		26/11/2018	0121	Wallaby spp.	D	E	61	Complete	
		26/11/2018	0237	Echidna	D	E	62	Complete	
		13/12/2018	2311	Med frog	D	NDM	2853	Incomplete	
		25/11/2018	2045	Echidna	D	W	1906	Complete	
		10/12/2018	0017	Macropod spp.	D	W	519	Complete	
1	North	31/10/2018	1205	BtPoss spp	D	W	306	Complete	
		2/11/2018	2127	Swamp Wallaby	Pr	NDM	1948	Incomplete	
		3/11/2018	0222	Swamp Wallaby	D	W	2243,2246	Complete	
		3/11/2018	2329	Swamp Wallaby	Pr	E	2670	Complete	
		6/11/2018	0147	Medium frog spp	D	E	4008-4017	Complete	
		6/11/2018	1112	Medium frog spp	D	E	4453-4461	Complete	
		7/11/2018	1920	Medium frog spp	D	W	4821-4825	Complete	
		21/11/2018	2246	Medium frog spp	D	NDM	91-96	Complete	
		22/11/2018	0112	Medium frog spp	D	E	237-240	Complete	
		13/12/2018	2311	Medium frog spp	D	NDM	2853	Incomplete	
	25/11/2018	2045	Echidna	D	W	1906	Complete		
	South	10/12/2018	0017	Macropod spp.	D	W	519	Complete	

Table B6: All fauna detections in underpasses during winter monitoring. ^ denotes threatened species.

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
12	Furniture			Nil full period					
	Ground	18/06/2019	0054	Cat	D	E	11	Complete	tabby
		20/06/2019	0320	Cat	D	E	26	Complete	tabby
		21/06/2019	1924	Cat	D	E	37	Complete	black cat
		22/06/2019	0446	Cat	D	E	38	Complete	tabby
		22/06/2019	0527	Cat	D	E	39	Complete	tabby
		24/06/2019	1933	house mouse	Pr	W	42	Complete	
		24/06/2019	2210	cat	D	W	43	Complete	tabby
		27/06/2019	0406	cat	D	E	44	Complete	brown cat
		30/06/2019	0304	Long-nosed bandicoot	D	E	49	Complete	
		3/07/2019	0144	Long-nosed bandicoot	D	E	51	Complete	
		23/07/2019	2354	Cat	D	E	6	Complete	tabby
25/07/2019	1953	Fox	D	W	12	Complete			
1/08/2019	0006	LN Bandicoot	D	E	17	Complete			
11	Furniture	nil							
	Ground	18/06/2019	0057	cat	D	E	7	Complete	tabby
		20/06/2019	322	cat	D	E	50	Complete	tabby
		21/06/2019	1929	cat	D	E	116	Complete	black cat
		22/06/2019	0453	cat	D	E	117	Complete	tabby
		22/06/2019	0530	cat	D	E	118	Complete	tabby
		22/06/2019	2118	cat	D	W	126	Complete	brown cat
		24/06/2019	2159	cat	D	W	127	Complete	tabby
		27/06/2019	0410	cat	D	E	131	Complete	brown cat
		30/06/2019	0038	Long-nosed bandicoot	D	W	136	Complete	
30/06/2019	0306	Long-nosed bandicoot	Pr	E	137	Complete			
3/07/2019	0146	Long-nosed bandicoot	Pr	E	141	Complete			

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		6/07/2019	0529	fox	D	E	143	Complete	
		10/07/2019	2348	cat	D	E	145	Complete	tabby
		12/07/2019	1820	fox	D	E	146	Complete	
		23/07/2019	2358	Cat	D	E	34	Complete	tabby
		1/08/2019	0009	LN Bandicoot	Pr	E	79	Complete	
		9/08/2019	0056	Fox	Pr	E	100	Complete	
		12/08/2019	0312	Fox	D	E	110	Complete	
		12/08/2019	0513	Cat	D	E	111	Complete	
		18/08/2019	0433	Fox	D	E	122	Complete	
		19/08/2019	0239	Cat	D	W	123	Complete	
		19/08/2019	1903	Cat	D	E	125	Complete	
		26/08/2019	0326	Cat	D	E	137	Complete	
27/08/2019	0318	Cat	D	W	144	Complete			
10	Furniture			microbat spp	present				
	Ground	18/06/2019	0150	cat	D	W	346	Complete	tabby
		19/08/2019	1200	Lace Monitor	D	W	10	Complete	
		27/08/2019	1210	Lace Monitor	D	E	20	Complete	
9	Furniture			nil					
	Ground	11/08/2019	0931	WT Treecreeper	Pr	E	11-12	Incomplete	
		22/06/2019	1803	cat	D	E	27	Complete	tabby
		23/06/2019	0218	fox	D	W-E	28-29	Incomplete	
		27/06/2019	2010	house mouse	D	E	30	Complete	
		5/07/2019	0122	cat	D	E	32	Complete	tabby
		10/07/2019	2358	fox	D	W	34	Complete	
		11/07/2019	0032	cat	D	E	35	Complete	
		16/07/2019	0052	fox	D	W	36	Complete	
		18/07/2019	2013	fox	D	W	38-41	Complete	
26/07/2019		0315	Fox	D	E	4	Complete		
19/08/2019	1154	Lace Monitor	D	W	62	Complete			
27/08/2019	1209	Lace Monitor	D	E	93	Complete			
8	Furniture	17/06/2019	1930	SEBtP	D	W	2	Complete	
		19/06/2019	0217	SEBtP	D	E	18	Complete	
		20/06/2019	0253	SEBtP	D	E	21	Complete	
		21/06/2019	0210	SEBtP	D	E	25	Complete	
		23/06/2019	0351	SEBtP	D	E	31	Complete	
		24/06/2019	0201	SEBtP	D	E	32	Complete	
		24/06/2019	1830	SEBtP	D	W	33	Complete	
		25/06/2019	0205	SEBtP	D	E	34	Complete	
		25/06/2019	0327	SEBtP	D	E	35	Complete	
		27/06/2019	0322	SEBtP	D	E	40-41	Complete	
		27/06/2019	1904	SEBtP	D	W	42	Complete	
		28/06/2019	0511	SEBtP	D	E	43	Complete	
		28/06/2019	1920	SEBtP	D	W	44	Complete	
		29/06/2019	0113	SEBtP	D	E	45	Complete	
		29/06/2019	0217	SEBtP	D	E	46	Complete	
		30/06/2019	2054	SEBtP	D	W	48	Complete	
		3/07/2019	0019	SEBtP	D	E	51	Complete	2 x individuals
		4/07/2019	0140	SEBtP	D	E	53	Complete	
		5/07/2019	0319	SEBtP	D	E	56	Complete	
		5/07/2019	0431	SEBtP	D	E	57	Complete	
		5/07/2019	1835	SEBtP	D	W	58	Complete	
		6/07/2019	0202	SEBtP	D	E	59	Complete	
		6/07/2019	0339	SEBtP	D	E	60	Complete	
		6/07/2019	2007	SEBtP	D	W	61	Complete	
		7/07/2019	0254	SEBtP	D	E	63	Complete	
		7/07/2019	0406	SEBtP	D	E	64	Complete	
		7/07/2019	1821	SEBtP	D	W	65	Complete	
8/07/2019	0226	SEBtP	D	E	66	Complete	2 x individuals		
9/07/2019	0220	SEBtP	D	E	67	Complete			
10/07/2019	0247	SEBtP	D	E	72	Complete	2 x individuals		
12/07/2019	2254	SEBtP	D	W	75	Complete			
13/07/2019	0342	SEBtP	D	E	76	Complete	2 x individuals		

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		13/07/2019	2258	SEBtP	D	W	77	Complete	
		15/07/2019	0348	SEBtP	D	E	78	Complete	
		15/07/2019	2136	SEBtP	D	W	79	Complete	
		16/07/2019	0415	SEBtP	D	E	80	Complete	
		16/07/2019	0437	SEBtP	D	E	81	Complete	
		19/07/2019	0400	SEBtP	D	E	85	Complete	2 x individuals
		19/07/2019	1818	SEBtP	Pr	W	5-6	Complete	
		21/07/2019	0251	SEBtPx2	D	E	10	Complete	
		23/07/2019	0042	BtPoss spp.	D	E	12	Complete	
		23/07/2019	1922	BtPoss spp.	D	W	13	Complete	
		24/07/2019	0306	SEBtP	Pr	W	14, 15	Complete	
		24/07/2019	1834	SEBtP	D	W	16	Complete	
		27/07/2019	0201	BtPoss spp.	D	E	20	Complete	
		30/07/2019	1829	SEBtP	D	W	21	Complete	
		1/08/2019	0146	BtPoss spp.	D	E	26	Complete	
		2/08/2019	0408	SEBtP	Pr	E	27	Complete	
		4/08/2019	0242	SEBtP	Pr	E	29	Complete	
		5/08/2019	0314	SEBtP	Pr	E	32	Complete	
		6/08/2019	0227	SEBtP x 2	Pr	E	35	Complete	
		8/08/2019	0251	SEBtP	Pr	E	38	Complete	
		10/08/2019	0250	SEBtP x 2	Pr	E	40	Complete	
		12/08/2019	0348	SEBtP x 2	Pr	E	46	Complete	
		13/08/2019	0400	SEBtP	Pr	E	49	Complete	
		14/08/2019	0408	SEBtP	Pr	E	51	Complete	
		16/08/2019	0233	SEBtP	Pr	E	53	Complete	
		18/08/2019	0319	SEBtP x 2	Pr	E	57	Complete	
		20/08/2019	0241	SEBtP	Pr	E	59	Complete	
		20/08/2019	2103	BtPoss spp	D	W	62	Complete	
		22/08/2019	0115	SEBtP	Pr	W	64	Complete	
		23/08/2019	0215	SEBtP	Pr	E	66	Complete	
		25/08/2019	0049	SEBtP	Pr	E	67	Complete	
		25/08/2019	0157	SEBtP	Pr	E	68	Complete	
		27/08/2019	0031	SEBtP	Pr	E	69	Complete	
				microbat spp	present				
	Ground	17/06/2019	2117	SEBtP	D	W	3	Complete	
		18/06/2019	0528	Swamp wallaby	Pr	E	4	Complete	
		19/06/2019	2343	SEBtP	D	E	24	Complete	
		21/06/2019	2145	echidna	D	E	31	Complete	
		22/06/2019	1851	cat	D	W	38	Complete	tabby
		23/06/2019	0715	Swamp wallaby	Pr	E	39	Complete	
		29/06/2019	1908	SEBtP	D	E	41	Complete	
		29/06/2019	2351	BtPoss spp	D	W	42	Complete	can only see end of animal
		30/06/2019	2312	SEBtP	D	W	43	Complete	
		2/07/2019	1920	SEBtP	D	E	44	Complete	
		3/07/2019	0259	BtPoss spp	D	W	45	Complete	can only see end of animal
		6/07/2019	0052	SEBtP	D	E	47	Complete	
		6/07/2019	1925	SEBtP	D	E	48-50	Complete	
		7/07/2019	0152	fox	D	W	52	Complete	
		7/07/2019	0215	fox	D	E	53	Complete	
		8/07/2019	2056	Northern brown bandicoot	Pr	E	59	Complete	
		11/07/2019	0250	SEBtP	D	E	60	Complete	
		11/07/2019	0323	SEBtP	D	E	62	Complete	
		12/07/2019	0137	SEBtP	Pr	W	63	Complete	
		17/07/2019	1931	SEBtP	D	E	64	Complete	
		17/07/2019	2032	fox	D	W	65	Complete	
		20/07/2019	0054	SEBtP	Pr	E	7	Complete	
		20/7/190	2151	Bandicoot spp.	D	E	9	Complete	
		21/07/2019	1853	BtPoss x 2	D	E	11	Complete	
		21/07/2019	2005	BtPoss	D	E	13	Complete	
		24/07/2019	2000	SEBtP	D	E	15	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		27/07/2019	2101	Cat	D	E	17	Complete	
		27/07/2019	2205	Bandicoot spp.	Pr	E	18	Complete	
		30/07/2019	0314	SEBtP	Pr	E	20	Complete	
		1/08/2019	0148	SEBtP	D	E	31	Complete	
		12/08/2019	0143	BTPoss spp.	D	W	44	Complete	
		16/08/2019	1156	Lace Monitor	D	E	49	Complete	
		16/08/2019	2135	SEBtP	D	E	53	Complete	
		16/08/2019	2333	Bandicoot spp.	D	E	54	Complete	
		17/08/2019	2317	SEBtP	D	E	55	Complete	
		20/08/2019	0144	Large macropod	D	E	56	Complete	
		21/08/2019	1957	SEBtP	D	E	68	Complete	
		22/08/2019	1433	Lace Monitor	D	E	71	Complete	
		23/08/2019	0115	RN Wallaby	Pr	W	72, 73	Complete	
		24/08/2019	0340	Large macropod	D	E	80	Complete	
		24/08/2019	1311	Lace Monitor	D	W	81	Complete	
		25/08/2019	2036	Bandicoot spp.	Pr	E	85	Complete	
26/08/2019	2203	Bandicoot spp.	Pr	E	93	Complete			
7	Furniture	20/06/2019	2012	SEBtP	D	W	18	Complete	
		20/06/2019	2103	SEBtP	D	E	19-23	Complete	
		20/06/2019	2320	SEBtP	D	W	24	Complete	
		24/06/2019	2136	SEBtP	D	W	35	Complete	
		27/06/2019	0252	SEBtP	D	E	36-38	Complete	2 x individuals
		30/06/2019	1937	SEBtP	D	W	40	Complete	
		30/06/2019	2249	SEBtP	D	E	41	Complete	
		1/07/2019	0151	SEBtP	D	W	42	Complete	
		2/07/2019	1951	SEBtP	D	W	44	Complete	
		8/07/2019	2000	SEBtP	D	W	47	Complete	
		9/07/2019	1908	SEBtP	D	W	48	Complete	
		11/07/2019	2129	SEBtP	D	W	49	Complete	
		12/07/2019	0136	SEBtP	D	E	50-52	Complete	
		13/07/2019	0400	SEBtP	D	E	53-55	Complete	
		14/07/2019	2234	SEBtP	D	W	56-57	Complete	
		15/07/2019	2112	SEBtP	D	W	59	Complete	
		15/07/2019	2227	SEBtP	D	E	60	Complete	
		16/07/2019	0251	SEBtP	D	W	61	Complete	
		17/07/2019	2027	SEBtP	D	W	67	Complete	
		19/07/2019	0022	SEBtP	D	E	71-73	Complete	2 x individuals
		19/07/2019	0221	SEBtP	D	E	74	Complete	
		22/07/2019	2110	SEBtP x 2	D	W	11	Complete	
		27/07/2019	0300	SEBtP	Pr	E	19, 20	Incomplete	
		28/07/2019	2057	SEBtP	D	W	21	Complete	
		29/07/2019	0223	SEBtP	D	E	22	Complete	
		30/07/2019	0032	SEBtP	D	E	23	Complete	marks FF
		3/08/2019	2131	SEBtP	D	W	26	Complete	marks FF
		5/08/2019	0008	SEBtP	D	NDM	28	Incomplete	
		6/08/2019	2009	SEBtP	D	W	32	Complete	
		11/08/2019	2010	SEBtP	D	W	42 - 45	Incomplete	
		13/08/2019	2053	SEBtP	D	W	48	Complete	
		13/08/2019	2150	SEBtP	D	W	49	Complete	
		20/08/2019	2007	SEBtP	D	W	74	Complete	
24/08/2019	2349	SEBtP	D	W	94	Complete			
26/08/2019	2201	SEBtP	D	W	95	Complete			
Ground	11/07/2019	1349	Cat	D	W	32	Complete		
	29/07/2019	0709	Cat	D	E	21	Complete		
	4/08/2019	1605	Med macropod	D	E	27	Complete		
6	Furniture			nil					
	Ground	21/06/2019	1738	house mouse	Pr	E	24	Complete	
		28/06/2019	1837	house mouse	Pr	E	27	Complete	
		5/07/2019	2156	cat	D	W	34	Complete	
		11/07/2019	2035	cat	D	E	47	Complete	tabby
		17/07/2019	0453	Swamp wallaby	D	E	48	Complete	
		23/07/2019	0136	Cat	D	W	6	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
5	North	24/08/2019	1419	Echidna	D	NDM	38	Incomplete	
		23/06/2019	0157	Fox	D	E	2	Complete	
		27/06/2019	0446	house mouse	Pr	E	6	Complete	
		16/07/2019	2157	house mouse	Pr	EXM	19	Incomplete	
		26/07/2019	0010	Black Rat	Pr	EXM	2106-2110	Incomplete	
	South	27/08/2019	0006	Rodent spp.	Pr	E	2128	Complete	
		19/06/2019	0431	Rodent spp	D	W	14	Complete	
		26/06/2019	0338	Water rat	D	W	16	Complete	
		26/06/2019	2130	Rodent spp	D	E	17	Complete	Swimming in water
		2/07/2019	0158	Water rat	D	W	19	Complete	
		2/07/2019	2036	Water rat	Pr	W	20	Complete	
		3/07/2019	2139	Water rat	D	W	21	Complete	
		20/07/2019	1850	Water rat	D	E	3	Complete	
		22/07/2019	2015	Water rat	D	W	4	Complete	
		23/07/2019	2115	Black rat	D	NDM	5	Incomplete	
		27/07/2019	2331	Black rat	D	NDM	8	Incomplete	
		29/07/2019	1820	Water rat	D	E	10	Complete	
		29/07/2019	2331	Water rat	D	E	12	Complete	
		4/08/2019	1524	P Black Duck	D	E	25-27	Complete	
		4/08/2019	1622	P Black Duck x 2	D	W then E	28 - 29	Complete	
24/08/2019	2331	Black Rat	D	E	78-80	Complete			
27/08/2019	0052	Black Rat	D	W	82	Complete			
4	Furniture	5/07/2019	2218	cat	D	W	25	Complete	tabby
		25/06/2019	0253	cat	D	W	81	Complete	tabby
	Ground	4/07/2019	0447	Koala^	D	E	84	Complete	
		11/07/2019	2111	cat	D	E	87	Complete	
		17/07/2019	1154	cat	D	W	88	Complete	
3	Furniture	7/07/2019	0411	cat	D	E	204	Complete	black, white paws
		16/07/2019	0510	cat	D	E	210	Complete	black, white paws
	Ground	17/06/2019	1909	cat	D	E	9	Complete	black, white paws
		17/06/2019	2017	cat	D	W	10	Complete	black, white paws
		17/06/2019	2311	cat	D	NDM	11-51,81-138	Incomplete	in trap
		18/06/2019	0237	cat	D	EXM	52-80	Incomplete	black, white paws hanging around other cat in trap
		18/06/2019	1949	cat	D	W	147-148	Complete	black, white paws
		19/06/2019	0050	cat	D	W	150	Complete	tabby and fat
		19/06/2019	0237	cat	D	E	151-152	Complete	black, white paws
		19/06/2019	0253	EG kangaroo	Pr	E	153	Complete	
		19/06/2019	0459	cat	D	E	154	Complete	tabby and poss pregnant
		19/06/2019	1929	cat	D	W	160	Complete	black, white paws
		19/06/2019	2327	cat	D	E	163	Complete	black, white paws
		20/06/2019	0246	cat	D	E	164	Complete	black, white paws
		20/06/2019	1654	cat	D	E	170	Complete	black, white paws
		20/06/2019	2025	cat	D	W	171-172	Complete	black, white paws
		20/06/2019	2211	cat	D	E	173	Complete	black, white paws
		21/06/2019	0455	cat	D	W	174	Complete	black, white paws
		21/06/2019	0516	cat	D	E-W	175	Incomplete	black, white paws
		21/06/2019	1518	cat	D	W	181	Complete	black, white paws
		21/06/2019	1608	cat	D	E	182	Complete	black, white paws
		21/06/2019	2332	cat	D	E	183	Complete	black, white paws
		22/06/2019	1856	cat	D	W	186	Complete	black, white paws
		23/06/2019	0836	Swamp wallaby	D	E	187	Complete	
		23/06/2019	1240	Swamp wallaby	D	W	188	Complete	
		23/06/2019	1955	cat	D	W	191	Complete	black, white paws
		23/06/2019	2310	cat	D	E	192	Complete	black, white paws
24/06/2019	1926	cat	D	W	193	Complete	black, white paws		
24/06/2019	2059	cat	D	E	195	Complete	black, white paws		
26/06/2019	0309	cat	D	W	197	Complete	black, white paws		
26/06/2019	0549	cat	D	E	199	Complete	black, white paws		
27/06/2019	0014	cat	D	W	200	Complete	black, white paws		

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		27/06/2019	0234	cat	D	E	201	Complete	black, white paws
		27/06/2019	0400	cat	D	W	202	Complete	black, white paws
		27/06/2019	0538	cat	D	E	203	Complete	black, white paws
		27/06/2019	1848	cat	D	W	204	Complete	black, white paws
		28/06/2019	0530	cat	D	E	205	Complete	black, white paws
		28/06/2019	1806	cat	D	W	206	Complete	black, white paws
		28/06/2019	2036	cat	D	E	208	Complete	black, white paws
		29/06/2019	0012	cat	D	W	209	Complete	black, white paws
		29/06/2019	0200	cat	D	W	210	Complete	black, white paws
		29/06/2019	0241	cat	D	E	211	Complete	black, white paws
		29/06/2019	0749	cat	D	E	212	Complete	black, white paws
		29/06/2019	1810	cat	D	W	213	Complete	black, white paws
		29/06/2019	2320	cat	D	E	214	Complete	black, white paws
		30/06/2019	0803	EG kangaroo	D	E	215	Complete	
		30/06/2019	0940	Swamp wallaby	D	W	218	Complete	
		1/07/2019	0037	cat	D	W	219-220	Complete	black, white paws
		1/07/2019	0524	cat	D	E	221-222	Complete	black, white paws
		1/07/2019	0729	EG kangaroo	D	E	223	Complete	
		1/07/2019	1843	EG kangaroo	D	W	225	Complete	
		1/07/2019	1946	cat	D	W	226	Complete	tabby and poss pregnant
		1/07/2019	2317	cat	D	E	227	Complete	tabby and poss pregnant
		2/07/2019	0152	cat	D	E	228	Complete	black, white paws
		2/07/2019	0441	cat	D	E	229	Complete	black, white paws
		2/07/2019	1852	cat	D	W	231	Complete	black, white paws
		2/07/2019	2233	cat	D	W	232	Complete	black, white paws
		3/07/2019	0042	cat	D	E	233	Complete	black, white paws
		3/07/2019	1944	cat	D	W	235	Complete	tabby and poss pregnant
		3/07/2019	2343	cat	D	W	236-237	Complete	black, white paws
		4/07/2019	0111	cat	D	E	238	Complete	tabby and poss pregnant
		4/07/2019	0322	cat	D	E	239	Complete	black, white paws
		4/07/2019	2101	cat	D	W	240	Complete	black, white paws
		5/07/2019	0448	cat	D	E	241	Complete	black, white paws
		6/07/2019	2029	cat	D	W	242	Complete	black, white paws
		6/07/2019	2338	cat	D	W	243	Complete	black, white paws
		7/07/2019	0345	cat	D	E	244	Complete	black, white paws
		7/07/2019	2124	cat	D	E	245	Complete	tabby and poss pregnant
		8/07/2019	0346	cat	D	E	246	Complete	black, white paws
		9/07/2019	0418	Swamp wallaby	D	E	247	Complete	
		9/07/2019	0439	cat	D	E	248	Complete	black, white paws
		9/07/2019	1211	cat	D	W	249	Complete	black, white paws
		9/07/2019	1536	cat	D	E	250	Complete	black, white paws
		9/07/2019	1837	cat	D	W	252	Complete	black, white paws
		10/07/2019	0425	cat	D	E	253	Complete	black, white paws
		10/07/2019	1807	cat	D	W	254	Complete	black, white paws
		10/07/2019	2036	cat	D	W	255	Complete	tabby and poss pregnant
		11/07/2019	0048	cat	D	E	256	Complete	black, white paws
		11/07/2019	0125	cat	D	W	257-258	Complete	black, white paws
		11/07/2019	0432	cat	D	E	259	Complete	black, white paws
		11/07/2019	1959	cat	D	W	260	Complete	black, white paws
		12/07/2019	0416	cat	D	E	261	Complete	black, white paws
		13/07/2019	0730	EG kangaroo	Pr	E	266	Complete	
		13/07/2019	2204	cat	D	W	268	Complete	black, white paws
		14/07/2019	0246	cat	D	E	269	Complete	black, white paws
		14/07/2019	0413	Swamp wallaby	D	E	270	Complete	
		14/07/2019	0433	cat	D	E	271-274	Incomplete	tabby and poss pregnant
		15/07/2019	0053	cat	D	E	276	Complete	black, white paws

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		15/07/2019	1416	cat	D	W	277	Complete	black, white paws
		15/07/2019	1631	cat	D	E	278	Complete	black, white paws with prey in mouth
		15/07/2019	1812	Swamp wallaby	Pr	W	279	Complete	
		15/07/2019	2105	cat	D	W	280	Complete	black, white paws
		16/07/2019	0020	cat	D	E	281	Complete	black, white paws
		16/07/2019	0328	cat	D	W	282	Complete	black, white paws
		16/07/2019	1903	cat	D	W	285	Complete	tabby and poss pregnant
		17/07/2019	0145	cat	D	E	287	Complete	black, white paws
		17/07/2019	0850	cat	D	E	289	Complete	black, white paws
		17/07/2019	1221	cat	D	W	290	Complete	black, white paws
		17/07/2019	1431	cat	D	E	291	Complete	black, white paws
		17/07/2019	2133	cat	D	E	293	Complete	black, white paws
		17/07/2019	2247	fox	D	E	294	Complete	
		17/07/2019	2315	cat	D	E	295	Complete	tabby and poss pregnant
		18/07/2019	0306	Swamp wallaby	Pr	E	296		
		18/07/2019	0645	cat	D	W	297	Complete	black, white paws
		18/07/2019	1431	cat	D	W-E	298-299	Incomplete	black, white paws
		18/07/2019	1645	cat	D	E	301	Complete	black, white paws
		18/07/2019	1843	cat	D	W	302	Complete	black, white paws
		18/07/2019	2340	cat	D	E	303	Complete	black, white paws
		19/07/2019	1411	Cat	D	W	6	Complete	
		19/07/2019	1547	Cat with prey	D	E	7	Complete	
		20/07/2019	0504	Cat	D	E	9	Complete	
		20/07/2019	1829	Cat	D	W	10	Complete	
		20/07/2019	2352	Cat	D	E	11	Complete	
		21/07/2019	0428	Cat	D	W	12	Complete	
		21/07/2019	0527	Cat	D	W	13	Complete	
		21/07/2019	1105	Cat	D	W	14	Complete	
		21/07/2019	1252	Cat	D	E	15	Complete	
		21/07/2019	1411	Cat	D	W	16	Complete	
		21/07/2019	1528	Cat	D	E	17	Complete	
		21/07/2019	1750	Cat	D	W	18	Complete	
		21/07/2019	1818	Cat	D	E	19	Complete	
		21/07/2019	1918	Cat	D	W	20	Complete	
		22/07/2019	0022	Wallaby spp.	D	E	21	Complete	
		22/07/2019	0433	Cat	D	E	22	Complete	
		22/07/2019	1421	Cat	D	W	32	Complete	
		22/07/2019	1552	Cat	D	E	33	Complete	
		22/07/2019	1758	Cat	D	W	35	Complete	
		22/07/2019	2328	Cat	D	E	36	Complete	
		23/07/2019	1517	Cat	D	E	37	Complete	
		23/07/2019	2155	Fox	D	E	38	Complete	
		24/07/2019	2240	Cat	D	E	39	Complete	
		25/07/2019	0343	Cat with prey	D	E	43	Complete	
		25/07/2019	2024	Cat	D	W	44	Complete	
		26/07/2019	0045	Cat	D	E	45	Complete	
		26/07/2019	0405	Wallaby spp.	D	E	46	Complete	
		26/07/2019	1943	Cat	D	W	47	Complete	
		26/07/2019	1946	Cat with prey	D	E	48	Complete	
		27/07/2019	0327	Fox	D	E	49	Complete	
		27/07/2019	0519	Large macropod	D	E	50	Complete	
		27/07/2019	1803	Swamp Wallaby	D	W	51	Complete	
		27/07/2019	2035	Cat	D	W	52	Complete	
		28/07/2019	0441	Swamp wallaby	D	E	53, 54	Complete	
		28/07/2019	0557	Wallaby spp.	D	E	55	Complete	
		28/07/2019	1752	Wallaby spp.	D	W	57	Complete	
		28/07/2019	2037	Cat	D	W	58	Complete	
		28/07/2019	2153	Wallaby spp.	D	E	59	Complete	
		29/07/2019	0227	Cat with prey	D	E	61	Complete	
		29/07/2019	2328	Cat	D	E	66	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		30/07/2019	0445	Fox	D	E	67	Complete	
		30/07/2019	0555	Wallaby spp.	D	E	68	Complete	
		31/07/2019	0426	Cat	D	E	72	Complete	
		1/08/2019	0355	Cat	D	E	77	Complete	
		1/08/2019	0534	Fox	D	E	78	Complete	
		1/08/2019	2012	Cat	D	W	79	Complete	
		1/08/2019	2155	Cat with prey	D	E	80	Complete	
		2/08/2019	0243	Cat	D	E	81	Complete	
		2/08/2019	2106	Cat	D	W	84	Complete	
		2/08/2019	2346	Fox	D	E	85	Complete	
		3/08/2019	0141	Cat	D	E	86	Complete	
		3/08/2019	0508	Wallaby spp.	D	E	87	Complete	
		4/08/2019	0216	Fox	D	W	88	Complete	
		4/08/2019	0310	Wallaby spp.	Pr	NDM	89	Incomplete	
		4/08/2019	0600	Fox	D	E	90	Complete	
		4/08/2019	1646	Swamp Wallaby	Pr	W	91	Complete	
		4/08/2019	1818	Large macropod	D	E	94	Complete	
		4/08/2019	2007	Cat	D	W	95	Complete	
		4/08/2019	2111	Fox	D	E	96	Complete	
		4/08/2019	2117	Cat	D	E	97	Complete	
		4/08/2019	2156	Cat	D	E	98	Complete	
		5/08/2019	0027	Fox	D	E	99	Complete	
		5/08/2019	0431	Wallaby spp.	D	E	100	Complete	
		5/08/2019	1828	Swamp wallaby	Pr	W	101-102	Complete	
		6/08/2019	0514	Wallaby spp.	D	E	103	Complete	
		6/08/2019	1321	Cat	D	W	104	Complete	
		6/08/2019	1341	Cat	D	E	105	Complete	
		6/08/2019	1857	Fox	D	W	106	Complete	
		6/08/2019	1907	Cat	D	W	107-108	Complete	Marks culvert wall
		6/08/2019	1917	Cat	D	E	110	Complete	
		6/08/2019	2047	Cat	D	W	111	Complete	
		6/08/2019	2137	Cat	D	W	112	Complete	
		6/08/2019	2145	Cat	D	E	113	Complete	
		7/08/2019	2023	Cat	D	W	114	Complete	
		7/08/2019	2110	Cat	D	E	115	Complete	
		8/08/2019	0507	Wallaby spp.	D	E	116	Complete	
		8/08/2019	1423	Cat	D	W	118	Complete	
		8/08/2019	1554	Cat	D	E	119	Complete	
		8/08/2019	1815	Cat	D	W	120	Complete	
		8/08/2019	2143	Swamp Wallaby	Pr	W	121-122	Complete	
		9/08/2019	0527	Swamp Wallaby	Pr	E	125-126	Complete	
		9/08/2019	0559	Large macropod	D	E	127	Complete	
		9/08/2019	2022	Cat	D	E	129	Complete	
		9/08/2019	2217	Swamp Wallaby	Pr	W	131	Complete	
		9/08/2019	2309	Cat	D	W	132	Complete	
		10/08/2019	0334	Cat	D	E	133	Complete	
		10/08/2019	0456	Wallaby spp.	D	E	134	Complete	
		10/08/2019	0509	Swamp Wallaby	D	E	135-136	Complete	
		10/08/2019	0521	Fox	D	E	137	Complete	
		10/08/2019	2337	Cat	D	W	141	Complete	
		11/08/2019	0400	Cat	D	E	143	Complete	
		11/08/2019	0425	Swamp wallaby x 2	Pr	E	144	Complete	
		11/08/2019	1828	Fox	Pr	E	145	Complete	
		12/08/2019	0135	Cat	D	W	147	Complete	
		12/08/2019	0619	Wallaby spp.	D	E	148	Complete	
		12/08/2019	0634	Wallaby spp.	D	E	149	Complete	
		12/08/2019	1436	Cat	D	W	153	Complete	
		12/08/2019	1531	Cat	D	E	154	Complete	
		12/08/2019	1927	Swamp Wallaby	D	W	155	Complete	
		12/08/2019	2125	Fox	D	E	156	Complete	
		13/08/2019	0331	Fox	D	E	157	Complete	
		13/08/2019	0527	Cat	D	W	161-162	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		13/08/2019	0658	Fox	D	E	163	Complete	
		13/08/2019	1930	Cat	D	E	164	Complete	May be pregnant
		13/08/2019	2105	Swamp Wallaby	Pr	W then stops	165	Incomplete	
		13/08/2019	2245	Cat	D	E	167	Complete	
		13/08/2019	2254	Cat	D	E	168	Complete	
		14/08/2019	0113	Cat	D	W	169	Complete	
		14/08/2019	1826	Fox	D	W	170	Complete	
		15/08/2019	0337	Swamp wallaby	Pr	E then W	171-172	Incomplete	
		15/08/2019	1834	Fox	D	W	173	Complete	
		16/08/2019	0349	Cat	D	E	179	Complete	
		16/08/2019	1816	Fox	D	W	181	Complete	
		17/08/2019	0703	Fox	Pr	E	182	Complete	
		17/08/2019	1748	Swamp wallaby	Pr	W	183	Complete	
		17/08/2019	1819	Fox	D	W	184	Complete	
		17/08/2019	2007	Wallaby spp.	D	E	185	Complete	
		17/08/2019	2218	Cat	D	E	186	Complete	
		18/08/2019	0147	Cat	D	W	187	Complete	
		18/08/2019	2034	Cat	D	W	188	Complete	
		18/08/2019	2231	Cat	D	E	189	Complete	
		19/08/2019	0533	Cat	D	W	190	Complete	
		19/08/2019	0548	Cat	D	E	191	Complete	
		19/08/2019	1621	Wallaby spp.	D	E	192	Complete	
		19/08/2019	1939	Cat with prey	D	E	193	Complete	
		19/08/2019	2238	Fox	D	E	194	Complete	
		20/08/2019	0336	Fox	D	W	199	Complete	
		20/08/2019	0547	Cat	D	E	200	Complete	
		20/08/2019	1352	Cat	D	W	207	Complete	
		20/08/2019	1738	Cat	D	E	209	Complete	
		20/08/2019	1833	Cat	D	W	210	Complete	
		20/08/2019	2057	Cat	D	W	211	Complete	
		20/08/2019	2304	Fox	Pr	E	213	Complete	
		20/08/2019	2327	Swamp Wallaby	Pr	W	215	Complete	
		21/08/2019	0015	Cat	D	W	216	Complete	
		21/08/2019	0323	Fox	D	W	217	Complete	
		21/08/2019	0413	Cat	D	W	218	Complete	
		21/08/2019	0438	Fox	Pr	E	219	Complete	
		21/08/2019	0530	Fox	D	W	220	Complete	
		21/08/2019	0710	Swamp wallaby	D	E	221	Complete	
		21/08/2019	1605	Wallaby spp.	D	W	226	Complete	
		21/08/2019	1903	Cat	D	W	227	Complete	
		22/08/2019	0204	Cat	D	E	228	Complete	
		22/08/2019	0249	Fox	Pr	E	229	Complete	
		22/08/2019	0712	Cat	Pr	E	230	Complete	
		22/08/2019	1834	Swamp wallaby	Pr	W	233-235	Complete	
		22/08/2019	1949	Fox	D	W	237	Complete	
		22/08/2019	1949	Fox	D	W	238	Complete	
		23/08/2019	0328	Wallaby spp.	D	E	239	Complete	
		23/08/2019	0434	Cat	D	E	240	Complete	
		23/08/2019	0733	Large macropod	D	E	242	Complete	
		23/08/2019	1750	Fox	D	W	243	Complete	
		23/08/2019	2137	Cat	D	W	246	Complete	
		24/08/2019	0130	Large macropod	D	E	247	Complete	
		24/08/2019	0244	Cat	D	W	248	Complete	
		24/08/2019	0318	Fox	D	W	250	Complete	
		24/08/2019	0735	Fox	D	E	251-252	Complete	
		24/08/2019	1541	Swamp Wallaby	D	W	253	Complete	Slips over
		24/08/2019	1814	Fox x 2	D	W	254	Complete	
		24/08/2019	2103	Cat	D	W	255	Complete	
		24/08/2019	2356	Cat	D	E	256	Complete	
		25/08/2019	0314	Cat	D	E	257	Complete	
		25/08/2019	0337	Cat	D	E then W	258	Incomplete	
		25/08/2019	0622	Fox	D	E	260	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		25/08/2019	0641	Fox	Pr	E	261	Complete	
		25/08/2019	1839	Fox	D	W	262	Complete	
		25/08/2019	2029	Cat	D	W	263	Complete	
		26/08/2019	0549	Wallaby spp.	Po	E	264	Complete	
		26/08/2019	0640	Fox	Pr	E	265	Complete	
		26/08/2019	1937	Cat	D	W	266	Complete	
		26/08/2019	2039	Swamp Wallaby	Pr	W	267	Complete	
		26/08/2019	2109	Cat	D	E	269	Complete	
		27/08/2019	0257	Fox	D	E	272	Complete	
		27/08/2019	0549	EG kangaroo	Pr	E	273	Complete	
		27/08/2019	0657	Wallaby spp.	D	E	274	Complete	
27/08/2019	0706	Wallaby spp.	Po	E	275	Complete			
2	Furniture			microbat spp	present				
	Ground	23/06/2019	0555	fox	D	E	78	Complete	
		24/06/2019	0130	Swamp wallaby	D	E	82	Complete	
		24/06/2019	0353	fox	D	E	83	Complete	
		10/07/2019	0516	echidna	D	E	250	Complete	
		15/07/2019	2030	echidna	D	E	386	Complete	
		18/07/2019	2357	echidna	D	W	475	Complete	
		19/07/2019	0255	Swamp wallaby	D	E	476	Complete	
		22/07/2019	0351	echidna	D	E	26	Complete	
		22/07/2019	2349	echidna	D	E	45	Complete	
		27/07/2019	2308	bandicoot spp	D	E	99	Complete	
		29/07/2019	1800	Swamp wallaby	D	W	126	Complete	
		29/07/2019	1959	Bandicoot spp	D	E	128	Complete	
		30/07/2019	0445	echidna	D	E	130	Complete	
		30/07/2019	0521	Wallaby spp	D	E	131	Complete	
		2/08/2019	0150	Cat	D	W	153	Complete	Black, white tips
		2/08/2019	2108	Bandicoot spp	D	E	162	Complete	
		3/08/2019	1757	Swamp wallaby	Pr	W	166	Complete	
		3/08/2019	1837	Swamp wallaby	Pr	E-W	167-168	Incomplete	
		8/08/2019	1806	Swamp wallaby	Pr	E-W	211-212	Incomplete	
		10/08/2019	0305	Swamp wallaby	Pr	E	245	Complete	
		11/08/2019	2336	Wallaby spp	D	E	253	Complete	
		12/08/2019	1806	Swamp wallaby	Pr	W	267	Complete	
		12/08/2019	1923	Swamp wallaby	Pr	W	269	Complete	
		13/08/2019	0112	Wallaby spp	D	W	270	Complete	
		13/08/2019	0541	Wallaby spp	D	E	271	Complete	2 x individuals
		18/08/2019	1923	house mouse	Pr	E	321	Complete	
		20/08/2019	2157	Echidna	D	E	358	Complete	
		21/08/2019	0258	Red-necked wallaby	Pr	E	359-361	Complete	2 x individuals
		21/08/2019	0521	Fox	D	E	362	Complete	
		22/08/2019	0259	Wallaby spp	D	E	384	Complete	
		22/08/2019	1951	Wallaby spp	D	W	390	Complete	
		22/08/2019	2303	Bandicoot spp	D	E	391	Complete	
	23/08/2019	0444	Wallaby spp	Pr	E	392	Complete		
23/08/2019	2141	Bandicoot spp	D	E	397	Complete			
23/08/2019	2220	Bandicoot spp	D	E	398	Complete			
24/08/2019	0031	Long-nosed bandicoot	D	W	399	Complete			
24/08/2019	2139	Swamp wallaby	Pr	W	404	Complete			
25/08/2019	0544	Wallaby spp	D	E	406	Complete			
25/08/2019	1824	Fox	D	W	408	Complete			
26/08/2019	1803	Fox	D	W	418	Complete			
26/08/2019	1842	Fox	D	W	419-420	Complete			
1	North	23/06/2019	210	swamp wallaby	D	NDM	3431	Incomplete	
		30/06/2019	1230	Medium frog	Po	W	8371-8390	Complete	
		30/06/2019	1803	Medium frog	Pr	E	8704-8918	Complete	
		3/07/2019	2020	Medium frog	Pr	E	1002-1005	Complete	
		22/07/2019	0255	Swamp wallaby	D	NDM	2181-2184	Incomplete	
		23/07/2019	0517	Swamp wallaby	D	W	3109-3114	Complete	
	South	30/07/2019	0558	Swamp wallaby	D	W	8631-8647	Complete	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic/vid No.	Complete or incomplete	Comments
		4/08/2019	0234	Swamp wallaby	D	NDM	2361-2372	Incomplete	
		30/07/2019	1741	Swamp wallaby	D	W	8697-8704	Complete	
		17/08/2019	0257	Medium macropod	Po	NDM	1397-1403	Incomplete	
		21/06/2019	1949	swamp wallaby	D	NDM	2510	Incomplete	
		12/08/2019	1709	Fox	D	W	8731	Complete	
		12/08/2019	1823	cat	D	E	8805	Complete	

Table B7: Results from spring/summer diurnal active searches. OBS = Observed, prob = probable.

Site	Date	Side	Day/Night (survey no.)	Obs	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	RH	Species (no. of individuals / behaviour)	Signs (scats/tracks)
11 & 12	26/10/2018	W	D1	NP	938	1010	RL	Nil	Good	22.5	76	Lampropholis spp.	OBS
												Wallaby spp.	Scats
	26/10/2018	E	D1	NP	1015	1045	RL	Nil	Good	22.5	76	Lace Monitor	OBS
												Yellow-faced whip snake	OBS
												Bandicoot spp.	Diggings
												Macropod spp.	Scat
												Lampropholis spp.	OBS
												Adelotis brevis	HC
												Little Eagle soaring above	
	14/11/2018	W	D2	DR	940	1010	Nil	Nil	Good	25	77	Lampropholis delicata x2	OBS
14/11/2018	E	D2	DR	1015	1050	Nil	Nil	Good	25	77	Egernia mcphoei	OBS	
											Lampropholis delicata	OBS	
											Lampropholis spp.	OBS	
22/11/2018											Swamp Snake	Incidental obs	
9 & 10	26/10/2018	W	D1	NP	1110	1140	MsB	Nil	Good	23	73	Nil	
	26/10/2018	E	D1	NP	1145	1215	MsB	Nil	Good	23	73	Wallaby spp.	Tracks
												Bandicoot spp.	Diggings
												Echidna	Diggings
	14/11/2018	E	D2	DR	1100	1135	Nil	Nil	Good	25	75	Lampropholis spp.	OBS
	14/11/2018	W	D2	DR	1137	1210	Nil	Nil	Good	25	75	Lampropholis spp.	OBS
											Litoria fallax	Heard	
8	1/11/2018	E	D1	NM/OT	1217	1232	MsB	Nil	Good	23.9	75	Lampropholis spp.	OBS
												Wallaby spp.	Scat
	1/11/2018	W	D1	NM/OT	1233	1248	MsB	Nil	Good	23.9	75	Bandicoot spp.	Diggings
												Wallaby spp.	Scat
	14/11/2018	W	D2	DR	1300	1330	Nil	Nil	Good	28	75	Lampropholis delicata	OBS
											Lampropholis spp.	OBS	
14/11/2018	E	D2	DR	1335	1410	Nil	Nil	Good	30	72	Nil		
7	1/11/2018	W	D1	NM/OT	1259	1314	MsB	Nil	Good	25.4	73	Wallaby spp.	Scat
	1/11/2018	E	D1	NM/OT	1315	1330	MsB	Nil	Good	24.7	69	Wallaby spp.	Scat
												Bandicoot spp.	Diggings
	16/11/2018	W	D2	LA	1400	1430	Nil	Light shower	Good	26	70	Wallaby spp.	Scat
											Small Scincidae spp.	OBS	

Site	Date	Side	Day/Night (survey no.)	Obs	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	RH	Species (no. of individuals / behaviour)	Signs (scats/tracks)
	16/11/2018	E	D2	NP	1400	1430	Nil	Light shower	Good	26	70	Nil	
5 & 6	6/11/2018	W	D1	NP	1047	1120	Nil	Nil	Good	26.9	75	Lampropholis delicata	OBS
	6/11/2018	E	D1	NP	1120	1150	Nil	Nil	Good	26.9	75	Carpet Python	OBS
												Lampropholis delicata	OBS
												Swamp Wallaby	Scat
												Tadpoles (prob Lit. tyleri, Lit peronii)	OBS
												Freshwater Turtle spp.	OBS
	16/11/18	W	D2	NP/LA	1145	1200	Nil	Nil	Good	22.6	74	Swamp snake	OBS
												Wallaby spp.	Tracks
												Lampropholis spp.	OBS
												Bandicoot spp.	Diggings
	16/11/18	E	D2	NP/LA	1200	1215	Nil	Nil	Good	22.6	74	Wallaby spp.	Scat, tracks
												Large snake spp.	Skin
												Lampropholis spp.	Obs
											Lampropholis delicata	OBS	
											Fox	Tracks	
											Tadpoles (prob Lit. tyleri, Lit. peronii)	OBS	
4	11/06/2018	W	D1	NP	1200	1230	Nil	Nil	Good	26	76	Lampropholis delicata	OBS
												Swamp Wallaby	OBS
	11/06/2018	E	D1	NP	1230	1300	Nil	Nil	Good	26	76	Lampropholis spp.	OBS
												Swamp Wallaby	Scat
	16/11/2018	W	D2	LA	1320	1350	Nil	Nil	Good	23.7	75	Swamp Wallaby (prob)	Heard
												Lampropholis spp.	OBS
	6/11/2018	E	D2	NP	1320	1350	Nil	Nil	Good	23.7	75	Lampropholis spp.	OBS
											Burton's Legless Lizard (prob)	OBS	
											Bandicoot spp.	Diggings	
3	9/11/2018	E	D1	NP	1130	1200	Nil	Nil	Good	22	55	Lampropholis spp.	OBS
												Wallaby spp.	Scat
												Bandicoot spp.	Diggings
	14/11/2018	W	D1	NP	920	950	Nil	Nil	Good	24	53	Bandicoot spp.	Diggings
												Lampropholis spp.	OBS
	16/11/2018	W	D2	NP/LA	1200	1245	Nil	Nil	Good	24.3	74	Calyptotis ruficauda	OBS

Site	Date	Side	Day/Night (survey no.)	Obs	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	RH	Species (no. of individuals / behaviour) (prob)	Signs (scats/tracks)
												EW Dragon	Scat
	16/11/2018	E	D2	NP/LA	1245	1300	Nil	Nil	Good	24.3	74	Bandicoot spp.	Diggings
2	9/11/2018	E	D1	NP	1020	1050	Nil	Nil	Good	21.3	53	Lampropholis spp.	OBS
												Wallaby spp.	Scats
												Echidna	Diggings
												Bandicoot spp.	Diggings
	11/09/2018	W	D1	NP	1050	1120	Nil	Nil	Good	21.3	53	Wallaby spp.	Scats
												Lampropholis spp.	OBS
	14/11/2018	W	D2	NP	1330	1400	MLB	Nil	Good	26	62	Bandicoot spp.	Diggings
												Wallaby spp.	Scat
												Lampropholis spp.	Obs
	14/11/2018	E	D2	NP	1400	1430	MLB	Nil	Good	26	62	Echidna	Tracks and diggings
											Bandicoot	Diggings	
											Lampropholis spp.	OBS	
1	8/11/2018	E	D1	NP	1230	1300	Msb	Nil	Good	20.2	60	Wallaby spp.	Scat
	8/11/2018	W	D1	NP	1300	1330	Msb	Nil	Good	20.2	60	Eastern Water Dragon	OBS
												Wallaby spp.	Scat
	14/11/2018	E	D2	NP	1100	1130	RL	Nil	Good	25.6	54	EW Dragon	OBS
												Wallaby spp.	Scats
												Water Skink	OBS
	14/11/2018	W	D2	NP	1130	1200	RL	Nil	Good	25.6	54	Red-bellied Black Snake	OBS
											EW Dragon	OBS	
											Wallaby spp.	Scat	

Table B8: Diurnal survey data for winter monitoring period.

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Signs (scats/tracks etc)	Comments
11&12	12/6/19	W	1	DR/LA	915	930						Lampropholis spp.	Obs	
	12/6/19	E	1	DR/LA	932	947						Swamp Wallaby	Scats	Osprey x 2 overhead
	15/6/19	W	2	NP	11:00	11:30	Nil	Nil	Good	18.4	74	Nil		
	15/6/19	E	2	NP/LA	11:30	12:00	Nil	Nil	Good	18.4	74	Calyptotis ruficauda		
9&10	12/6/19	W	1	NP	13:00	13:30	Msb	Nil	Good	23.1	61	Bandicoot spp.	Diggings	
	12/6/19	E	1	NP	1340	1410	Msb	Nil	Good	23.1	61	Nil		
	15/6/19	W	2	LA	12:00	12:30	Nil	Nil	Good	18.2	74	Nil		
	15/6/19	E	2	NP	12:00	12:30	Nil	Nil	Good	18.2	74	Nil		
8	12/6/19	E	1	NP	1430	1500	Msb	Nil	Good	23.4	46	Bandicoot spp.	Diggings	
	14/6/19	W	1	NP	1535	1605	Nil	Nil	Good	20.9	74	Nil		
	15/6/19	E	2	NP	12:30	13:00	Nil	Nil	Good	18.2	74	Nil		
	15/6/19	W	2	LA	12:30	13:00	Nil	Nil	Good	18.2	74	Nil		
7	13/6/19	W	1	DR	1015	1045						Swamp Wallaby		
												Lampropholis delicata		
	13/6/19	E	1	DR	1055	1127						Calyptotis ruficauda		
												Glossy Black Cockatoo	Feeding sign	
	15/6/19	E	2	NP	1305	1335	Nil	Nil	Good	18.5	71	Nil		
	15/6/19	W	2	LA	1305	1335	Nil	Nil	Good	18.5	71	Nil		
5&6	12/6/19	E	1	DR	1200	1230						Nil		
	12/6/19	W	1	DR	1235	1305						Nil		
	16/6/19	W	2	NP	1215	1245	Nil	Nil	Good	20	86	Nil		
	16/6/19	E	2	NP	1245	1315	Nil	Nil	Good	20	86	Nil		
4	13/6/19	E	1	NP	12:00	12:30	Nil	Nil	Good	22	54	Small snake spp.	OBS	
												Bandicoot spp.	Diggings	
												Wallaby spp.	Scat	
	13/6/19	W	1	NP	12:30	13:00	Nil	Nil	Good	22	54	Nil		
	16/6/19	E	2	DR	11:30	12:00						Nil		
	16/6/19	W	2	DR	12:00	12:30						Nil		

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Signs (scats/tracks etc)	Comments
3	12/6/19	W	1	DR/LA	11:00	1115						Bandicoot spp.	diggings	
	12/6/19	E	1	DR/LA	1120	1150						Nil		
	16/6/19	E	2	NP	11:10	11:40	Nil	Nil	Good	19	96	Saiphos equalis		
	16/6/19	W	2	NP	11:40	12:10	Nil	Nil	Good	19	96	Nil		
2	12/6/19	W	1	DR/LA	1010	1025						Lampropholis spp.		
	12/6/19	E	1	DR/LA	1030	1045						Agamid spp.		
												Bandicoot spp		
												Lampropholis spp.		
												Swamp Wallaby		
	16/6/19	W	2	DR	1000	1030						Lampropholis spp.		
												Swamp Wallaby		
	16/6/19	E	2	DR	1032	1105						Lampropholis spp.		
												Swamp Wallaby		
1	6/12/19	W	1	NP	10:00	10:30	Nil	Nil	Good	18.5	60	Bandicoot	Diggings	
	6/12/19	E	1	NP	10:30	11:00	Nil	Nil	Good	18.5	60	Nil		
	16/6/19	E	2	NP	9:30	10:00	Nil	Nil	Good	19.1	95	Nil		
	16/6/19	W	2	NP	10:00	10:30	Nil	Nil	Good	19.1	95	Nil		

Weather key	Wind	Visibility	Behaviour Key
			F=forage
	Nil	Very dark (no moon/heavy cloud)	C=call
	Rustles leaves	Dark (quarter moon/some cloud)	R=rest/roost
	Moves small branches	Detail seen (qtr moon no cloud)	T=transit/moving
	Moves	Bright (half+	

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Signs (scats/tracks etc)	Comments
	large branches	moon no cloud												
	Moves canopy													

Table B9: Results from nocturnal active searches for spring/summer. Upe = Uperolia spp., P. coriacea = Pseudophryne coriacea, ONj = Owlet-nightjar, A. = Adelotus, M. = Mixophyes, Lim. = Limnodynastes, Lit = Litoria, YBG = Yellow-bellied glider.

Location	Side	Date	Obs. No.	Observers	Start	Finish	Species	Wind	Rain	Visibility	Air Temp	RH	Comment
11&12	E	08/11/2018	1	DR	2215	2245	P. coriacea, A. brevis, Upe. spp., Wallaby spp.	Nil	Nil	Good	15.6	65	
	W	08/11/2018	1	NP	2215	2245	Nil	Nil	Nil	Good	15.6	65	
	E	21/11/18	2	NP/NM	2230	2255	P. coriacea, A. brevis	Nil	Nil	Moderate	23	90	
	W	21/11/2018	2	DR, LA	2255	2315	Nil	Nil	Nil	Moderate	23	90	
9&10	E	08/11/2018	1	DR	2140	2210	ONj, P. coriacea	Nil	Nil	Good	16	64	
	W	08/11/2018	1	NP	2140	2210	A. brevis, P. coriacea	Nil	Nil	Good	16	64	
	E	21/11/2018	2	DR, LA	2235	2250	M. fasciolatus, A. brevis	Nil	Nil	Moderate	23	90	
	W	21/11/2018	2	DR, LA	2215	2230	P. coriacea	Nil	Nil	Moderate	23	90	
8	E	08/11/2018	1	DR	2107	2137	P. coriacea, A. brevis	RL	Nil	Good	16.1	65	
	W	08/11/2018	1	NP	2107	2137	A. brevis, Lit. fallax	RL	Nil	Good	16.1	65	
	E	21/11/2018	2	DR, LA	2145	2205	Sugar glider, Lim. peronii, A. brevis	Nil	light	Moderate	23	88	
	W	21/11/2018	2	DR, LA	2120	2140	Sugar glider, Lit. fallax, A. brevis; YBG (496489; 6609135)	Nil	light	Moderate	23	88	YBG heard calling from east side of H'way, clear call heard by both obs.
7	E	08/11/2018	1	DR	2030	2100	P. coriacea	Nil	Nil	Good	16.1	67	
	W	08/11/2018	1	NP	2030	2100	P. coriacea, A. brevis	Nil	Nil	Good	16.1	67	
	E	21/11/2018	2	DR, LA	2050	2110	A. brevis	Nil	light	Moderate	23	88	
	W	21/11/2018	2	DR, LA	2025	2040	Petaurus spp. (prob breviceps), A. brevis, P. coriacea	Nil	light	Moderate	23	88	
5&6	E	08/11/2018	1	DR	1950	2025	TF, Lit. peronii, Lit. fallax	Msb	Nil	Good	18.4	63	
	W	08/11/2018	1	NP	1950	2025	P. coriacea, Lit. tyleri, Long-finned eel	Msb	Nil	Good	18.4	63	Eel heading west in fish passage
	E	19/11/18	2	DR, LA	2320	2335	L. fallax, L. peroni, L. tyleri	Nil	Nil	Good	17.5	81	
	W	19/11/18	2	DR, LA	2300	2315	Ps. coriacea	Nil	Nil	Good	17.5	81	
4	E	16/11/2018	1	NP	1945	2015	Nil	Nil	Showers	Poor	20.6	83	
	W	16/11/18	1	NP	2015	2045	Nil	Msb	Rain	Poor	20	88	

Location	Side	Date	Obs. No.	Observers	Start	Finish	Species	Wind	Rain	Visibility	Air Temp	RH	Comment
	E	19/11/18	2	DR, LA	2125	2145	Ps. coriacea, Lim. peroni	Nil	Nil	Good	16.5	81	
	W	19/11/18	2	DR, LA	2105	2120	Ps. coriacea	Nil	Nil	Good	16.5	81	
3 (E only)	E	21/11/18	1	NP/NM	1955	2022	Ps. coriacea, Upe. fusca, C. signifera	Nil	Moderate	Moderate	22.4	90	
	E	22/11/18	2	NP/NM	1955	2015	SEBtP, Wallaby spp., Ps. coriacea	RL	Nil	Moderate	25.6	27	Dust storm
2	E	19/11/18	1	DR, LA	2230	2245	Ps. coriacea	Nil	Nil	Good	16.8	64	
	W	19/11/18	1	DR, LA	2205	2220	Nil	Nil	Nil	Good	16.8	64	
	E	21/11/18	2	NP/NM	2047	2104	A. brevis, C. signifera	Nil	Light	Moderate	21	97	
	W	21/11/18	2	NP/NM	2030	2045	Wallaby spp.	Nil	Light	Moderate	21	97	
1	E	19/11/18	1	DR, LA	2000	2015	Microbat spp.	Nil	Nil	Good	18	69.7	
	W	19/11/18	1	DR, LA	2020	2040	L. fallax, L. chloris, A. Brevis, M. iteratus (M, at trib), SEBtP x 2, swamp wallaby	Nil	Nil	Good	18	69.7	
	E	21/11/18	2	NP/NM	2200	2220	EW Dragon	Nil	Nil	Good	20	90	
	W	21/11/18	2	NP/NM	2130	2200	M. iteratus x 2 (F1: 489368, 6594460, M: 5m SW of previous location), A. brevis, L. fallax, EW Dragon	Nil	Nil	Good	20	90	

Table B10: Results from nocturnal active searches in winter. GHFF – Grey-headed flying-fox, FF = Flying-fox, SuG = Sugar glider, YBG = Yellow-bellied glider, C. = Crinia, FF Melomys = Fawn-footed Melomys, TF = Tawny Frogmouth, FtG = Feathertail glider, SEBtP = Short-eared brushtail possum, MLB = Moves large branches, MSB = moves small branches.

Location	Side	Date	Obs. No.	Observers	Start Time	Finish Time	Species	Wind	Rain	Visibility	Air Temp	Humidity	Comment
11&12	E	12/6/19	1	NP	1745	1815	GHFF	MLB	Nil	Good	19.3	74	
	W	12/6/19	1	DR	1745	1815	Nil	MLB	Nil	Good	19.3	74	
	E	15/6/19	2	DR/LA	1750	1805	GHFF						
	W	15/6/19	2	DR/LA	1805	1820	FF spp.						
9&10	E	12/6/19	1	NP	1820	1850	Nil	MLB	Nil	Good	19.3	74	
	W	12/6/19	1	DR	1820	1850	Nil	MLB	Nil	Good	19.3	74	
	E	15/6/19	2	NP	1730	1800	SuG	Nil	Nil	Good	17.1	78	
	W	15/6/19	2	NP	1800	1830	SuG	Nil	Nil	Good	17.1	78	
8	E	12/6/19	1	NP	1900	1930	Nil	Msb	Nil	Good	18.6	77	YBG heard from east
	W	12/6/19	1	DR	1900	1930	YbG , Swamp Wallaby	Msb	Nil	Good	18.6	77	
	E	15/6/19	2	DR/LA	1825	1840	C. signifera, Swamp wallaby						
	W	15/6/19	2	DR/LA	1840	1855	Sugar Glider, YBG						
7	E	13/6/19	1	NP	1740	1810	GHFF	Nil	Some drops	Good	20.2	72	
	W	13/6/19	1	DR	1740	1810	YBG (similar location to last night)	Nil	Some drops	Good	20.2	72	
	E	15/6/19	2	NP	1900	1930	Nil	Nil	Nil	Good	16.7	81	
	W	15/6/19	2	NP	1830	1900	YBG.HC@496438.6608922 , SuG	Nil	Nil	Good	16.7	81	
5&6	E	12/6/19	1	NP	1935	2005	GHFF	Msb	Nil	Good	18.6	77	
	W	12/6/19	1	DR	1935	2005	Swamp Wallaby	Msb	Nil	Good	18.6	77	
	E	15/6/19	2	DR/LA	1910	1925	GHFF						
	W	15/6/19	2	DR/LA	1925	1940	FF Melomys						
4	E	13/6/19	1	NP	1815	1845	TF	Nil	Some drops	Good	20.2	72	
	W	13/6/19	1	DR	1815	1845	SuG	Nil	Some drops	Good	20.2	72	
	E	15/6/19	2	NP	1945	2015	Nil	Nil	Nil	Good	16.8	80	
	W	15/6/19	2	NP	2015	2045	GHFF	Nil	Nil	Good	16.8	80	
3 (E only)	E	13/6/19	1	NP/DR	1855	1910	C. signifera	Nil	Nil	Good	19	87	
	E	15/6/19	2	NP	2050	2120	C. signifera, macropod spp.	Nil	Nil	Good	16.9	81	
2	E	13/6/19	1	NP	1915	1945	GHFF	Nil	Nil	Good	19	87	

Location	Side	Date	Obs. No.	Observers	Start Time	Finish Time	Species	Wind	Rain	Visibility	Air Temp	Humidity	Comment
	W	13/6/19	1	DR	1915	1945	FtG, GHFF	Nil	Nil	Good	19	87	
	E	15/6/19	2	DR/LA	1950	2005	GHFF						
	W	15/6/19	2	DR/LA	2005	2020	FtG, GHFF						
1	E	13/6/19	1	NP	2005	2035	Nil	Nil	Nil	Good	19.1	89	
	W	13/6/19	1	DR	2005	2035	SEBtP, GHFF	Nil	Nil	Good	19.1	89	
	E	15/6/19	2	DR/LA	2045	2100	Nil						
	W	15/6/19	2	DR/LA	2100	2115	SEBtP, Swamp Wallaby, GHFF						

Table B11: Adjacent habitat trapping data for winter. NR = Not recorded.

Site	Date	Trap type	Species	Sex	Weight	Comments
3 west	12/6/19	Small Elliot	Black Rat			Euthanised
3 east	12/6/19	Small Elliot	House mouse			Euthanised
5/6 west	12/6/19	Large Elliot (on ground)	Brown Antechinus	M	32g	
5/6 west	12/6/19	Small Elliot	Brown Antechinus	F	18g	
5/6 west	12/6/19	Small Elliot	Brown Antechinus	M	35g	
8 west	12/6/19	Small Elliot	Brown Antechinus	M	27g	
11/12 west	12/6/19	Small elliot	House mouse	M	12g	Euthanised
11/12 east	12/6/19	Small elliot	FF Melomys	M	NR	
9/10 west	12/6/19	Small elliot	Brown antechinus	M	25g	
3 west	13/6/19	Small Elliot	Black Rat			Euthanised
5/6 west	13/6/19	Small Elliot	Brown Antechinus	F	17g	
5/6 west	13/6/19	Small Elliot	Brown Antechinus	M	35g	
5/6 east	13/6/19	Small Elliot	Brown Antechinus	M	53g	
11/12 west	13/6/19	Small Elliot	House mouse	F	12g	Euthanised
11/12/ east	13/6/19	Small Elliot	Brown Antechinus	M	33g	
11/12 east	13/6/19	Cage	FF Melomys	F	NR	
8 east	13/6/19	Small elliot	FF Melomys	F	52g	
5/6 west	14/6/19	Small Elliot	Black Rat			Escaped
5/6 west	14/6/19	Small Elliot	Brown Antechinus	F	UK	Not well, euthanised after observation.
5/6 west	14/6/19	Cage	Black Rat			Euthanised
5/6 west	14/6/19	Small Elliot	House Mouse			Euthanised
5/6 east	14/6/19	Small Elliot	Brown Antechinus	F	18g	
8 west	14/6/19	Small Elliot	Brown Antechinus	F	28g	
8 west	14/6/19	Small Elliot	Brown Antechinus	M	39g	
8 west	14/6/19	Small Elliot	Melomys spp.	M	22g?	Weight probably incorrect
11/12 west	14/6/19	Small elliot	House mouse	F	9g	Euthanised
11/12 east	14/6/19	Small elliot	Brown Antechinus	M	32g	
11/12 east	14/6/19	Cage	FF Melomys	F	NR	
9/10 West	14/6/19	Small elliot	FF Melomys	F	63g	
9/10 west	14/6/19	small elliot	Brown antechinus	F	20g	
9/10 west	14/6/19	Small elliot	FF Melomys	M	70g	
9/10 west	14/6/19	small elliot	Brown antechinus	M	40g	
1 west	15/6/19	Cage	Green catbird			
2 west	15/6/19	Cage	Black Rat			Euthanised
2 east	15/6/19	Small Elliot	Brown Antechinus	M	33g	

Site	Date	Trap type	Species	Sex	Weight	Comments
2 east	15/6/19	Small Elliot	Bush Rat	M	100g +	Scales maxed out
7 west	15/6/19	Small elliot	Bush Rat	M	125g	
4 west	15/6/19	Small elliot	FF Melomys	M	97g	
4 west	15/6/19	Cage	Cat	M	NR	Euthanised
2 east	16/6/19	Small Elliot	Bush Rat	M	100g +	Probably same individual as yesterday
1 east	16/6/19	Cage	Black Rat			Euthanised
1 east	16/6/18	Cage	SEBtP	M		
1 west	16/6/19	Pitfall	Striped marsh frog			
7 west	16/6/19	Small elliot	FF Melomys	F	75g	
7 west	16/6/19	Small elliot	FF Melomys	F	75g	
4 west	16/6/19	Small elliot	Brown Antechinus	M	39g	
4 west	16/6/19	Small elliot	FF Melomys	M	85	
1 west	16/6/18	Cage	Eastern whipbird			
2 west	17/6/19	Small Elliot	House mouse			Euthanised
2 west	17/6/19	Cage	Black Rat			Euthanised
2 east	17/6/19	Large Elliot	Sugar Glider	F		Parous
2 east	17/6/19	Large Elliot	Brown Antechinus	M	35g	Both animals in same trap
2 east	17/6/19	Large Elliot	Brown Antechinus	M		Both animals in same trap. Escaped before weight taken.
2 east	17/6/19	Small Elliot	Bush Rat	M		Prob same individual as previous two morn
4 west	17/6/19	Small Elliot	House mouse	M	10g	
4 west	17/6/19	Small elliot	Brown Antechinus	M	NR	
4 west	17/6/19	Cage	Bush Rat	M	NR	
7 east	17/6/19	Small elliot	Brown antechinus	M	40g	
7 west	17/6/19	Small elliot	Bush Rat	F	105g	
7 culvert	17/6/19	Cage	Cat	M	NR	Euthanised
3 culvert	18/6/19	Cage	Cat	UK	NR	Taken to pound

Table B12: Adjacent habitat trapping data for spring/summer.

Site	Date	Trap type	Species	Sex	Weight	Comments
1 east	19/11/2018	Small cage	Black rat	F	NR	
1 east	19/11/2018	Large cage	Black rat	F	NR	
1 east	21/11/2018	Small elliott	Black rat	M	130	
1 west	19/11/2018	Small cage	Black rat	F	130g	Euthanised
1 west	21/11/2018	Small elliott	Black rat	F	130	Euthanised
1 west	21/11/2018	Large elliott	SEBtP	M	NR	
2 east	19/11/2018	Small elliott	Melomys spp.	M	87g	
2 east	19/11/2018	Small elliott	Melomys spp.	F	82g	Lactating
2 east	20/11/2018	Small elliott	Fawn-footed melomys	M	92g	
2 east	20/11/2018	Pitfall	Lampropholis delicata	Uk	NA	
2 east	21/11/2018	Small elliott	Black rat	F	150	
2 east	21/11/2018	Small elliott	Bush rat	M	120	
2 west	20/11/2018	Large cage	Black rat	M	NR	
2 west	20/11/2018	Pitfall	Lampropholis guichenoti	Uk	NA	
2 west	21/11/2018	Small elliott	Black rat	UK	NA	
3 east	15/11/2018	Pitfall	Lampropholis delicata x 2	UK	NA	
3 east	18/11/2018	Pitfall	Calyptotis ruficauda	Uk	NA	
3 east	18/11/2018	Pitfall	Lampropholis delicata	F		
3 west	16/11/2018	Pitfall	Calyptotis ruficauda	UK	NA	
3 west	16/11/2018	Pitfall	Calyptotis ruficauda	UK	NA	
3 west	17/11/2018	Pitfall	Lampropholis delicata	UK	NA	RN Wallaby in veg patch .
3 west	18/11/2018	Pitfall	Calyptotis ruficauda	UK	NA	
3 west	18/11/2018	Pitfall	Lampropholis guichenoti	UK	NA	
3 west	20/11/2018	Pit fall	Lampropholis guichenoti	UK	NA	
4 east	17/11/2018	Pitfall	Pseudophryne coriacea	UK	NA	
4 west	15/11/2018	Pitfall	Blackish blind snake	UK	NA	
4 west	18/11/2018	Small elliott	Black rat	M	183g	Euthanised
5&6 east	14/11/2018	Pitfall	Lampropholis delicata x 2	UK	NA	All animals in same trap.
5&6 west	14/11/2018	Pitfall	Lampropholis delicata	UK	NA	
5&6 west	15/11/2018	Small cage	Bush rat	M	120g	
5&6 west	15/11/2018	Small elliott	Bush rat	M	155g	
5&6 west	16/11/2018	Large cage	Northern brown bandicoot	UK	NA	
5&6east	15/11/2018	Pitfall	Calyptotis ruficauda	UK	NA	
7 east	16/11/2018	Pitfall	Lampropholis guitchinoti	UK	NA	
7 west	14/11/2018	Pitfall	Lampropholis delicata	UK	NA	
7 west	14/11/2018	Small cage	SEBtP	UK	NA	Released immediately
7 west	15/11/2018	Pitfall	Calyptotis ruficauda	UK	NA	
8 west	13/11/2018	Small elliott	Fawn-footed melomys	F	80g	Lactating teats

Site	Date	Trap type	Species	Sex	Weight	Comments
8 west	13/11/2018	Small elliot	Brown antechinus	F	30g	Evidence of recent pouch young
8 west	15/11/2018	Small elliot	Brown antechinus	F	37g	Evidence of recent pouch young
8west	14/11/2018	Small elliot	Fawn-footed melomys	Male	87g	
8west	14/11/2018	Pitfall	Red-backed toadlet	UK	NA	
9&10 east	14/11/2018	Pitfall	Lampropholis delicata	UK	NA	
9&10 east	15/11/2018	Large cage	SEBtP	UK	NA	
9&10 west	13/11/2018	Large cage	Black rat	F	NA	Euthanised
9&10 west	14/11/2018	Small cage	Black rat	M	NA	Euthanised
9&10 west	15/11/2018	Small cage	Black rat	UK	NA	Escaped
9&10 west	15/11/2018	Small elliot	Brown antechinus	UK	24g	
11&12 east	13/11/18	Pitfall	Calyptotis ruficauda	UK	NA	
11&12 west	14/11/2018	Pitfall	Striped marsh frog	Uk	NA	
11&12 west	14/11/2018	Small cage	Black rat	Male	100g	Euthanised
11&12 west	14/11/2018	Pitfall	Lampropholis delicata	UK	NA	

Table B13: Results from hair funnel sampling in adjacent habitat in spring/summer. BtPoss = Brushtail possum species, CRtP = Common ringtail possum.

Site	Side	Spring 2018		
		Install Date	Collect date	Fauna
1	E-1	12-16/11/18	30/11/2018	BtPoss spp.
	E-2	12-16/11/18	30/11/2018	
	W-1	12-16/11/18	30/11/2018	BtPoss spp.
	W-2	12-16/11/18	30/11/2018	Rattus spp.
2	E-1	12-16/11/18	30/11/2018	
	E-2	12-16/11/18	30/11/2018	Bush rat
	W-1	12-16/11/18	30/11/2018	Black rat
	W-2	12-16/11/18	30/11/2018	
3	E-1	12-16/11/18	30/11/2018	
	E-2	12-16/11/18	30/11/2018	
	W-1	12-16/11/18	30/11/2018	Northern brown bandicoot
	W-2	12-16/11/18	30/11/2018	
4	E-1	12-16/11/18	30/11/2018	
	E-2	12-16/11/18	30/11/2018	
	W-1	12-16/11/18	30/11/2018	
	W-2	12-16/11/18	30/11/2018	
5 & 6	E-1	12-16/11/18	30/11/2018	
	E-2	12-16/11/18	30/11/2018	
	W-1	12-16/11/18	30/11/2018	Rattus spp.
	W-2	12-16/11/18	30/11/2018	
7	E-1	12-16/11/18	30/11/2018	BtPoss spp.
	E-2	12-16/11/18	30/11/2018	Bush rat
	W-1	12-16/11/18	30/11/2018	
	W-2	12-16/11/18	30/11/2018	
8	E-1	12-16/11/18	30/11/2018	CRtP
	E-2	12-16/11/18	30/11/2018	BtPoss spp.
	W-1	12-16/11/18	30/11/2018	BtPoss spp.
	W-2	12-16/11/18	30/11/2018	
9 & 10	E-1	12-16/11/18	30/11/2018	BtPoss spp.
	E-2	12-16/11/18	30/11/2018	
	W-1	12-16/11/18	30/11/2018	
	W-2	12-16/11/18	30/11/2018	
11 & 12	E-1	12-16/11/18	30/11/2018	Carnivora spp.
	E-2	12-16/11/18	30/11/2018	
	W-1	12-16/11/18	30/11/2018	
	W-2	12-16/11/18	30/11/2018	

Table B14: Results from hair funnel sampling in adjacent habitat in winter. FF Melomys = Fawn-footed melomys.

Site	Side	Winter 2019		
		Install Date	Collect date	Fauna
1	E-1	13/06/2019	24/06/2019	Trichosurus spp.
	E-2	13/06/2019	24/06/2019	Trichosurus spp.
	W-1	13/06/2019	24/06/2019	House mouse
	W-2	13/06/2019	24/06/2019	
2	E-1	13/06/2019	24/06/2019	Antechinus spp.
	E-2	13/06/2019	24/06/2019	Antechinus spp.
	W-1	13/06/2019	24/06/2019	Rodent spp.
	W-2	13/06/2019	24/06/2019	Bush rat
3	E-1	13/06/2019	24/06/2019	House mouse
	E-2	13/06/2019	24/06/2019	
	W-1	13/06/2019	24/06/2019	Long-nosed bandicoot
	W-2	13/06/2019	24/06/2019	Possum spp.
4	E-1	13/06/2019	24/06/2019	
	E-2	13/06/2019	24/06/2019	FF Melomys
	W-1	13/06/2019	24/06/2019	
	W-2	13/06/2019	24/06/2019	
5/6	E-1	11/06/2019	19/06/2019	Antechinus spp.
	E-2	11/06/2019	19/06/2019	
	W-1	11/06/2019	19/06/2019	Rattus spp., Brown antechinus
	W-2	11/06/2019	19/06/2019	
7	E-1	11/06/2019	19/06/2019	Trichosurus spp.
	E-2	11/06/2019	19/06/2019	FF Melomys
	W-1	11/06/2019	19/06/2019	
	W-2	11/06/2019	19/06/2019	Bush rat. House mouse
8	E-1	11/06/2019	19/06/2019	
	E-2	11/06/2019	19/06/2019	
	W-1	11/06/2019	19/06/2019	Antechinus spp.
	W-2	11/06/2019	19/06/2019	
9/10	E-1	11/06/2019	19/06/2019	House mouse
	E-2	11/06/2019	19/06/2019	
	W-1	11/06/2019	19/06/2019	Trichosurus spp., FF Melomys
	W-2	11/06/2019	19/06/2019	
11/12	E-1	11/06/2019	19/06/2019	Antechinus spp.
	E-2	11/06/2019	19/06/2019	
	W-1	11/06/2019	19/06/2019	
	W-2	11/06/2019	19/06/2019	

Table B15: Sand pad data for spring/summer monitoring.

Location	Easting	Northing	Sand pad	Date	Action	Species (direction & no passes)	Pad condition
12 median west	497115	6610068	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	nil	Good
			West	31/11/2018		Nil	Good
			East	1/11/2018	Insp2	Cat (definite, 1e)	Fair
			West	1/11/2018		Cat (definite, 1e)	Fair
			East	2/11/2018	Insp3	Nil	Fair
			West	2/11/2018		Nil	Fair
			East	3/11/2018	Insp4	Nil	Fair
			West	3/11/2018		Nil	Fair
			East	4/11/2018	Insp5	Small reptile (definite, 1e,1w), medium reptile (definite, 3 e, 1w)	Fair
			West	4/11/2018		Medium reptile (definite, 2e, 1w meandering)	Fair
			East	5/11/2018	Insp6	Small reptile (definite, 2w, 1e, 1 meandering) cat (definite 1w meandering)	Fair
			West	5/11/2018		Small reptile (definite, 1w, 1e) cat (definite 1w)	Fair
			East	6/11/2018	Insp7	Lace monitor (definite 1e), medium size reptile (definite 1e, 1w) small reptile (definite, 1e 1w)	Fair
			West	6/11/2018		Lace monitor (definite 1e), medium size reptile (definite 1e, 1w) small reptile (definite, 1e 1w)	Fair
			East	7/11/2018	Insp8	Small reptile (definite 2e2w)	Poor
			West	7/11/2018		Small reptile (definite 2e2w)	Poor
11 median east	497168	6610040	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Nil	Good
			West	31/10/2018		Nil	Good
			East	1/11/2018	Insp2	Cat (definite, 1e)	Good
			West	1/11/2018		Cat (definite, 1e)	Fair
			East	2/11/2018	Insp3	Nil	Fair
			West	2/11/2018		Nil	Fair
			East	3/11/2018	Insp4	Nil	Fair
			West	3/11/2018		Nil	Fair
			East	4/11/2018	Insp5	Nil	Good
			West	4/11/2018		Nil	Fair
			East	5/11/2018	Insp6	Nil	Fair
			West	5/11/2018		Nil	Fair
			East	6/11/2018	Insp7	Lace monitor (definite 1e), medium reptile (definite 1e) cat (probable 1e)	Fair
			West	6/11/2018		Lace monitor (definite 1e), medium reptile (definite 1e) cat (probable 1e)	Fair
			East	7/11/2018	Insp8	Nil	Poor
			West	7/11/2018		Nil	Poor
10 median west	496622	6609409	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Small mammal (possible:1 track e/w)	Good
			West	31/10/2018		Nil	Good
			East	1/11/2018	Insp2	Nil	Fair

Location	Easting	Northing	Sand pad	Date	Action	Species (direction & no passes)	Pad condition
			West	1/11/2018		Nil	Fair
			East	2/11/2018	Insp3	Nil	Fair
			West	2/11/2018		Nil	Fair
			East	3/11/2018	Insp4	Nil	Fair
			West	3/11/2018		Nil	Fair
			East	4/11/2018	Insp5	Nil	Fair
			West	4/11/2018		Nil	Fair
			East	5/11/2018	Insp6	Nil	Fair
			West	5/11/2018		Nil	Fair
			East	6/11/2018	Insp7	Nil	Fair
			West	6/11/2018		Nil	Good
			East	7/11/2018	Insp8	Cat (definite 1w)	Poor
			West	7/11/2018		Cat (definite 1w)	Poor
9 median east	496622	6609409	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10-18	Insp1	Nil	Fair
			West	31/10/2018		Nil	Good
			East	1/11/2018	Insp2	Nil	Fair
			West	1/11/2018		Nil	Fair
			East	2/11/2018	Insp3	Nil	Fair
			West	2/11/2018		Nil	Fair
			East	3/11/2018	Insp4	Nil	Fair
			West	3/11/2018		Nil	Good
			East	4/11/2018	Insp5	Nil	Fair
			West	4/11/2018		Nil	Fair
			East	5/11/2018	Insp6	Nil	Fair
			West	5/11/2018		Nil	Fair
			East	6/11/2018	Insp7	Rat sp. (probable, 1e)	Fair
			West	6/11/2018		Rat sp. (probable, 1e)	Fair
		East	7/11/2018	Insp8	Cat (definite 1w)	Poor	
		West	7/11/2018		Cat (definite 1w) small Dasyurid (probable 1e)	Poor	
8 full length	496506	6609219	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Lace monitor (definite:1track e/w), Bandicoot sp. (definite 1track e/w), LN Potoroo (possible, 1track w/e)	Good
			West	31/10/2018		Lace monitor (definite:1track e/w), Bandicoot sp. (definite 1 track e/w), Bandicoot sp. (definite 1 track w/e).	Good
			East	1/11/2018	Insp2	Lace monitor (definite, 1 w), echidna (probable, 1 w)	Good
			West	1/11/2018		Lace monitor (definite, 1w), echidna (probable, 1 w)	Fair
			East	2/11/2018	Insp3	Cat (definite 1e)	Fair
			West	2/11/2018		Cat (definite, 1e)	Fair
			East	3/11/2018	Insp4	Definite lace monitor (1e) fox (probable, 1 e), definite medium sized reptile (1 e)	Fair
			West	3/11/2018		Definite lace monitor (1e) fox (probable, 1 e), definite medium sized reptile (1 e), Dasyurid(possible, 1e)	Fair
			East	4/11/2018	Insp5	Lace monitor (definite, 1w), Frog(definite, 1e)	Fair

Location	Easting	Northing	Sand pad	Date	Action	Species (direction & no passes)	Pad condition
			West	4/11/2018		Lace monitor (definite, 1w), Frog(definite, 1e)	Fair
			East	5/11/2018	Insp6	Dasyurid (possible 1w) small rodent (probable 1e)	Fair
			West	5/11/2018		Dasyurid (possible 2w 1e), probable small rodent (1e)	Fair
			East	6/11/2018	Insp7	Lace monitor (definite 1e)	Fair
			West	6/11/2018		Lace monitor (definite 1e) dasyurid (probable 1w)	Fair
			East	7/11/2018	Insp8	Cat (definite 1e1w), brushtail possum (definite 1e)	Fair
			West	7/11/2018		Cat (definite 1e1w), brush tail possum (definite 1e)	Fair
7 full length	496438	6608780	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Nil	Good
			West	31/10/2018		Nil	Good
			East	1/11/2018	Insp2	Nil	Good
			West	1/11/2018		Nil	Good
			East	2/11/2018	Insp3	Nil	Good
			West	2/11/2018		Nil	Good
			East	3/11/2018	Insp4	Definite swamp wallaby (1e)	Good
			West	3/11/2018		Definite swamp wallaby(1e,1w)	Good
			East	4/11/2018	Insp5	Cat (definite 1w)	Good
			West	4/11/2018		Cat (definite 1w)	Good
			East	5/11/2018	Insp6	Nil	Good
			West	5/11/2018		Definite swamp wallaby(1e,1w)	Good
			East	6/11/2018	Insp7	Nil	Good
			West	6/11/2018		Nil	Good
		East	7/11/2018	Insp8	Lace monitor (definite, 1w)	Good	
		West	7/11/2018		Lace monitor (definite, 1w)	Good	
6 full length	496188	6608319	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Nil	Good
			West	31/10/2018		Nil	Good
			East	1/11/2018	Insp2	Cat (definite, 1 e)	Good
			West	1/11/2018		Cat (definite, 1e)	Good
			East	2/11/2018	Insp3	Fox (probable 1 w)	Good
			West	2/11/2018		Fox (probable 1w)	Fair
			East	3/11/2018	Insp4	Probable cat (1e)	Fair
			West	3/11/2018		Probable cat (1e,1w)	Fair
			East	4/11/2018	Insp5	Possible small mammal(1e)	Fair
			West	4/11/2018		Nil	Fair
			East	5/11/2018	Insp6	Nil	Fair
			West	5/11/2018		Nil	Fair
			East	6/11/2018	Insp7	Dasyurid (possible 1e)	Fair
			West	6/11/2018		Nil	Fair
		East	7/11/2018	Insp8	Nil	Fair	
		West	7/11/2018		Dasyurid (possible 1e)	Fair	
5			West	30/10/2018	Install	NA	

Location	Easting	Northing	Sand pad	Date	Action	Species (direction & no passes)	Pad condition
			West	30/10/2018		NA	
			West	31/10/2018	Insp1	Nil	Good
			West	31/10/2018		Nil	Good
			West	1/11/2018	Insp2	Nil	Fair
			West (water)	1/11/2018		Cat (definite, 2e,2w)	Fair
			East	2/11/2018	Insp3	Nil	Fair
			West	2/11/2018		Nil	Fair
			West (water)	2/11/2018		Nil	Fair
			East	3/11/2018	Insp4	Nil	Fair
			West	3/11/2018		Nil	Fair
			West	3/11/2018		Nil	Fair
			East	4/11/2018	Insp5	Small reptile (probable, 1e)	Fair
			West	4/11/2018		Rat sp, (definite, 1e,1w, 1ew)	Fair
			West	4/11/2018		Small reptile (probable, 1e)	Fair
			East	5/11/2018	Insp6	Nil	Fair
			West	5/11/2018		Rat sp, (definite, 1e,1w)	Fair
			West	5/11/2018		Definite bandicoot (1e1w)	Fair
			East	6/11/2018	Insp7	Dasyurid (possible 1w)	Fair
			West	6/11/2018		Nil	Fair
			West	6/11/2018		Nil	Fair
			East	7/11/2018	Insp8	Rat sp (definite 1e1w)	Fair
			West	7/11/2018		Rat sp (definite 1e1w)	Fair
			West	7/11/2018		Rat sp (definite 1e1w)	Fair
4	495702	6607693	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Koala (definite: 1 e)	Good
			West	31/10/2018		Koala (definite: 1 e)	Good
			East	1/11/2018	Insp2	Lace monitor(definite: 1e)	Good
			West	1/11/2018		Lace monitor (definite , 1e)	Good
			East	2/11/2018	Insp3	Cat (definite, 1e 1w) Fox(definite 1e)	Good
			West	2/11/2018		Cat (definite 1 e 1w) Fox (definite 1 e)	Good
			East	3/11/2018	Insp4	Lace monitor (2w)	Good
			West	3/11/2018		Lace monitor (2w)	Good
			East	4/11/2018	Insp5	Koala (definite 1w) medium reptile (definite 1e) lace monitor (definite 1e)	Good
			West	4/11/2018		Koala (definite 1w) medium reptile (definite 1e) lace monitor (definite 1e)	Good
			East	5/11/2018	Insp6	Nil	Good
			West	5/11/2018		Nil	Good
			East	6/11/2018	Insp7	Nil	Good
			West	6/11/2018		Nil	Good
			East	7/11/2018	Insp8	Lace monitor (definite, 1w)	Good
			West	7/11/2018		Lace monitor (definite, 1w)	Good
3	495082	6606515	East	30/10/2018	Install	NA	

Location	Easting	Northing	Sand pad	Date	Action	Species (direction & no passes)	Pad condition
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Cat (definite, 3e, 2w)	Good
			West	31/10/2018		Cat (definite, 1e, 1 canid (probable 1 e)	Good
			East	1/11/2018	Insp2	Cat (definite, 1e, 1 w)	Fair
			West	1/11/2018		Cat (definite, 2e, 1 w)	Fair
			East	2/11/2018	Insp3	Cat (probable 1w), Fox (definite 1e)	Fair
			West	2/11/2018		Cat probable (1 w), Fox (probable e)	Fair
			East	3/11/2018	Insp4	Cat (definite, 1 e 1w) fox(probable 1w)	Fair
			West	3/11/2018		Cat (definite, 1 e) fox (probable 1e1w)	Fair
			East	4/11/2018	Insp5	Fox(definite, 1e,1w) Brushtail possum (definite, 1w)	Poor
			West	4/11/2018		Fox(definite, 1e,1w) Brushtail possum (definite, 1w)	Poor
			East	5/11/2018	Insp6	Fox(definite 2e,1w)	Poor
			West	5/11/2018		Fox(definite 2e,1w)	Poor
			East	6/11/2018	Insp7	Fox(definite 1e,1w)	Poor
			West	6/11/2018		Fox(definite 1e, 1w)	Poor
			East	7/11/2018	Insp8	Fox (probable 1e) bandicoot (definite 1w)	Poor
			West	7/11/2018		Fox (probable 1e) bandicoot (definite 1w)	Poor
2	494477	6605329	East	30/10/2018	Install	NA	
			West	30/10/2018		NA	
			East	31/10/2018	Insp1	Nil	Good
			West	31/10/2018		Nil	Good
			East	1/11/2018	Insp2	Echidna(definite, 1 w/meander)	Good
			West	1/11/2018		Echidna(definite, 1e, 1w/meander)	Good
			East	2/11/2018	Insp3	echidna (definite, 1 w) dasyurid (possible 1w)	Good
			West	2/11/2018		echidna (definite, 1 w) dasyurid (possible 1w)	Good
			East	3/11/2018	Insp4	Nil	Fair
			West	3/11/2018		Nil	Good
			East	4/11/2018	Insp5	Echidna (definite 1w)	Good
			West	4/11/2018		Echidna (definite 1w)	Good
			East	5/11/2018	Insp6	Definite bandicoot (1e1w)	Fair
			West	5/11/2018		Definite bandicoot (1e1w)	Fair
			East	6/11/2018	Insp7	Fox (definite, 1w) echidna (probable 1e) dasyurid (possible 1e)	Fair
			West	6/11/2018		Fox (definite, 1w) echidna (probable 1e)	Fair
			East	7/11/2018	Insp8	Echidna (definite 1w), dasyurid (possible 2e 1w) rat sp(definite 1e)	Fair
			West	7/11/2018		Echidna (definite 1w), dasyurid (possible 1e 1w) rat sp(definite 1e)	Fair
1	489375	6594290	North	14/11/2018	Install		
			South	14/11/2018			
			North	15/11/2018	Insp 1	Nil	Dry
			South	15/11/2018		Medium bird (prob 1e)	Dry
			North	16/11/2018	Insp 2	Nil	Dry, water added
			South	16/11/2018		Nil	Dry, water added

Location	Easting	Northing	Sand pad	Date	Action	Species (direction & no passes)	Pad condition
			North	17/11/2018	Insp 3	Wallaby sp. (1/e)	Dry, water added
			South	17/11/2018		Nil	Dry, water added
			North	18/11/2018	Insp 4	Small bird (1/e)	
			South	18/11/2018		Small bird (1/w); small lizard (1/w)	
			North	19/11/2018	Insp 5	Nil	
			South	19/11/2018		Nil	
			North	20/11/2018	Insp 6	Nil	
			South	20/11/2018		Nil	
			North	21/11/2018	Insp 7	Nil	
			South	21/11/2018		Med reptile (def 1/?), small reptile (prob 1/?)	
			North	22/11/2018	Insp 8	Water bird (def 1/w)	
			South	22/11/2018		Waterbird (def 1/meander)	

Table B16: Sand pad data for winter monitoring. D = definite.

Site	Pad	Date	Inspection	Species and Direction	Condition	Comment
1	N	15/06/2023	1	D wallaby 1 e 1w (probable swamp wallaby)	Fair	
	S			nil	Fair	
2	E			D echidna 1 e 1 w	good	
	W			D echidna 1 e 1 w	good	
3	E			D cat (2 e 3 w)	fair	
	W			D Cat (1 W)	fair	
4	E			Pr small rodent (2e, 2w)	good/firm in places	Small rodent = probable House Mouse
	W			nil	good	
5	E			nil	fair	
	SW			nil	fair	
	NW			nil	fair	
6	E			D small rodent (1e 1w)	good	
	W			D small rodent (1e 1w)	good	
7	E			D small rodent (1e 1w)	good	
	W			D small rodent (1e 1w)	good	
8	E			Nil	good	
	W			Nil	good	
9	E			Nil	fair	
	W			Nil	fair	
10	E			nil	fair	
	W			nil	Fair	
11	E			D small rodent (1w), Probable dasyurd (1E)	fair	
	W			D small rodent (1w), Probable dasyurd (1E)	fair	
12	E			Probable Dasyurid (1e)	fair	
	W			Probable Dasyurid (1e)	Fair	
1	N	16/06/2023	2	nil	Fair	Ant lions on pads
	S			nil	Fair	
2	E			D cat (1w)	good	
	W			D cat (1w)	good	
3	E			nil	fair	
	W			nil	fair	
4	E			nil	good/firm in places	
	W			nil	good	
5	E			nil	fair	
	SW			nil	fair	
	NW			D small rodent (1e)	fair	
6	E			nil	good	
	W			nil	good	
7	E			D cat (1 e 1w)	good	
	W			D cat (1 e 1w)	good	
8	E			D Brushtail Possum (1 E)	good	
	W			D Brushtail Possum (1 E)	good	
9	E			D small rodent (1e)	fair	
	W			D small rodent (1e)	fair	

Site	Pad	Date	Inspection	Species and Direction	Condition	Comment
10	E			nil	fair	
	W			nil	Fair	
11	E			Pr Dasyurid (2 e)	fair	Bounding pattern (probable antechinus sp.)
	W			Pr Dasyurid (2 e)	fair	
12	E			nil	fair	
	W			nil	Fair	
1	N	17/06/2023	3	nil	Fair	
	S			nil	Fair	
2	E			nil	good	
	W			nil	good	
3	E			nil	fair	
	W			nil	fair	
4	E			nil	good/firm in places	
	W			nil	good	
5	E			nil	fair	
	SW			nil	fair	
	NW			nil	fair	
6	E			nil	good	
	W			nil	good	
7	E			D cat (1 e), D Brushtail (1 e)	good	
	W			D cat (1 e), D Brushtail (1 e)	good	
8	E			Pr small rodent (1e)	good	
	W			Pr small rodent (1e)	good	
9	E			Pr small rodent (1e)	fair	
	W			Pr small rodent (1e)	fair	
10	E			nil	fair	
	W			nil	Fair	
11	E			Pr Small rodent (1e, 1 w), Pr dasyurid (1e,1w)	fair	
	W			Pr Small rodent (1e, 1 w), Pr dasyurid (1e,1w)	fair	
12	E			Pr Small rodent (1e, 1 w)	fair	
	W			Pr Small rodent (1e, 1 w)	Fair	
1	N	18/06/2023	4	nil	Fair	
	S			D cat 1 e	Fair	
2	E			D small rodent (1e)	good	
	W			nil	good	
3	E			Pr cat (1e,1w)	fair	
	W			Pr cat (1e,1w)	fair	
4	E			nil	good/firm in places	
	W			nil	good	
5	E			nil	fair	
	SW			D small rodent (1e)	fair	
	NW			Pr small rodent (1 e)	fair	
6	E			D small rodent (1e, 1w)	good	
	W			Pr Dasyurid (1 e 1 w)	good	
7	E			D cat (1 e,1w), D brushtail (1w)	good	Cat track meandering
	W			D cat (1e)	good	

Site	Pad	Date	Inspection	Species and Direction	Condition	Comment
8	E			Dcat (1e, 1 w)	good	
	W			Dcat (1e, 1 w)	good	
9	E			D small rodent (1e)	fair	
	W			D small rodent (1e)	fair	
10	E			nil	fair	
	W			nil	Fair	
11	E			nil	fair	
	W			nil	fair	
12	E			nil	fair	
	W			Pr Dasyurid (1e, 1 w)	Fair	Tracks bounding
1	N	19/06/2023	5	nil	Fair	
	S			nil	Fair	
2	E			nil	good	
	W			nil	good	
3	E			D cat (2e,2w)	fair	
	W			D cat (2e,2w)	fair	
4	E			nil	good/firm in places	
	W			nil	good	
5	E			nil	fair	
	SW			nil	fair	
	NW			nil	fair	
6	E			D small rodent (2 e)	good	
	W			D small rodent (4e, 2w)	good	Tracks indicate living in culvert spacing
7	E			nil	good	
	W			nil	good	
8	E			D Brushtail Possum (1 w)	good	
	W			D Brushtail (1w), D wallaby (1e)	good	
9	E			nil	fair	
	W			nil	fair	
10	E			D cat (1w)	fair	
	W			D cat (1w)	Fair	
11	E			D cat 1 e	fair	
	W			D cat 1 e	fair	
12	E			D cat 1 e	fair	
	W			D cat 1 e	Fair	
1	N	20/06/2023	6	nil	Fair	
	S			nil	Fair	
2	E			nil	good	
	W			nil	good	
3	E			D cat (2e 2w), D wallaby (1e)	fair	
	W			D cat (2e 2w), D wallaby (1e)	fair	
4	E			nil	good/firm in places	
	W			nil	good	
5	E			nil	fair	
	SW			D small rodent (1e)	fair	
	NW			D small rodent (1w)	fair	

Site	Pad	Date	Inspection	Species and Direction	Condition	Comment
6	E			nil	good	
	W			nil	good	
7	E			D echidna (1w)	good	
	W			D echidna (1w)	good	
8	E			nil	good	
	W			nil	good	
9	E			nil	fair	
	W			nil	fair	
10	E			nil	fair	
	W			nil	Fair	
11	E			nil	fair	
	W			nil	fair	
12	E			nil	fair	
	W			nil	Fair	
1	N	21/06/2023	7	D small mammal (1e, 1w)	Fair	Tracks bounding
	S			nil	Fair	
2	E			nil	good	
	W			nil	good	
3	E			D cat (1e,2w), D wallaby (1w)	fair	Probable redneck wallaby
	W			D cat (1e,2w), D wallaby (1w)	fair	
4	E			D wallaby (1w)	good/firm in places	Probable swamp wallaby
	W			D wallaby (1e)	good	
5	E			nil	fair	
	SW			D small rodent (1e, 1w)	fair	
	NW			nil	fair	
6	E			nil	good	
	W			nil	good	
7	E			nil	good	
	W			nil	good	
8	E			D brushtail (1e)	good	
	W			D brushtail (1e, 1w)	good	
9	E			D small rodent (1e,1w)	fair	
	W			D small rodent (1e,1w)	fair	
10	E			nil	fair	
	W			nil	Fair	
11	E			D cat (1e)	fair	
	W			D cat (1e)	fair	
12	E			D cat (1e)	fair	
	W			D cat (1e)	Fair	
1	N	22/06/2023	8	D wallaby (1w)	Fair	
	S			D cat (1 w)	Fair	
2	E			nil	good	
	W			nil	good	
3	E			Pr cat (3w, 2e)	fair	Prints overlapping and meandering
	W			Pr cat (2w, 2 e)	fair	Prints overlapping
4	E			nil	good/firm in places	

Site	Pad	Date	Inspection	Species and Direction	Condition	Comment
	W			nil	good	
5	E			nil	fair	
	SW			nil	fair	
	NW			nil	fair	
6	E			D small rodent (1e, 1w)	good	
	W			D small rodent (1e, 1w)	good	
7	E			D Brushtail (1e,1w)	good	Perhaps using fauna furniture
	W			D Brushtail (1w)	good	
8	E			D brushtail (1e)	good	
	W			D brushtail (1e)	good	
9	E			nil	fair	
	W			nil	fair	
10	E			nil	fair	
	W			nil	Fair	
11	E			nil	fair	
	W			nil	fair	
12	E			nil	fair	
	W			nil	Fair	

Table B17: Scat and Track search data for spring/summer.

Site	Cell	Date	Check no.	Scats/tracks	Comments
1	Bridge	26/10/2018	1	Wallaby sp. tracks, fox scats, large amphibian scat.	Scat in front of cam on south side
		8/11/2018	2	Wallaby sp. tracks, Bandicoot scats, rodent scats, Wallaby sp. scats. Dead EW Dragon stuck in fauna fence.	
2	1	17/10/2018	1	Nil	
		31/10/2018	2	Nil	
3	1	17/10/2018	1	Rat scat ground (pic), Bird scat on rail and ground	
		31/10/2018	2	Miniopterus sp. x2, Large frog scat.	
4	1	17/10/2018	1	Nil	
		31/10/2018	2	Nil	
5	2	17/10/2018	1	Nil	
		31/10/2018	2	E. Water Dragon (full crossing), microbat scat, rodent tracks.	
6	1	17/10/2018	1	Nil	
		31/10/2018	2	Nil	
7	1	17/10/2018	1	Brushtail possum scat	On FF
		31/10/2018	2	Wallaby sp. scat, Brushtail possum scat.	CBtP prob on FF (location of scat)
8	1	17/10/2018	1	Nil	
		31/10/2018	2	Nil	
9 & 10	East	17/10/2018	1	Nil	
	West	17/10/2018	1	Nil	
	East	31/10/2018	2	Cat tracks, fox tracks	
	West	17/10/2018	2	Cat tracks, Rattus sp.	
11 & 12	West	16/10/2018	1	Nil	
	East	16/10/2018	1	Nil	
	West	31/10/2018	2	Nil	
	East	31/10/2018	2	Nil	

Table B18: Scat and track data for winter monitoring period. BtPoss = Brushtail possum spp.

Site	Cell	Date	Check no.	Scats/tracks
1	NA	13/06/2019	1	Lacey Monitor, Wallaby spp. Med lizard spp. tracks, Wallaby scat
	NA	19/07/2019	2	Swamp wallaby tracks, bird tracks, canid scat
2	NA	13/06/2019	1	Swamp Wallaby, EG Kangaroo, Lace Monitor, echidna, Fox tracks, Antechinus scat on FF
	NA	19/07/2019	2	Rat, Swamp wallaby, Miniopterus spp roosting.
3	NA	13/06/2019	1	Microbat, bandicoot, Fox scat. Fox, cat tracks. Bandicoot scat
	NA	19/07/2019	2	Fox, microbat, dog
4	NA	13/06/2019	1	Cat, fox, koala, BtPoss spp., small macropod
	NA	19/07/2019	2	Human, dog, cat, koala
5	S	13/06/2019	1	Water rat scat and track
	N	13/06/2019	1	Water rat, lace Monitor track, microbat Scat.
	S	19/07/2019	2	House mouse
	N	19/07/2019	2	Cat, Rat
6	NA	13/06/2019	1	Echidna tracks
	NA	19/07/2019	2	Swamp wallaby, House mouse, canid, cat, small dasyurid
7	NA	13/06/2019	1	Wallaby tracks, BtPoss tracks, Cat tracks, Dog tracks
	NA	19/07/2019	2	BtPoss, cat, dog, swamp wallaby
8	NA	12/06/2019	1	Echidna, lace monitor, dog tracks. Possible Bandicoot scat
	NA	19/07/2019	2	BtPoss, canid, bandicoot, small macropod
10 & 9 median	NA	12/06/2019	1	Koala (1/e), echidna (2/e), Fox, cat tracks. Prob swamp Wallaby scat.
	E	19/07/2019	2	Cat, canid
	W	19/07/2019	2	House mouse, canid, cat, dog
Northern end median 12 & 11	E	13/06/2019	1	Microbat scat
	W	13/06/2019	1	Nil
	E	19/07/2019	2	Cat, Bandicoot, N. gouldii roosting
	W	19/07/2019	2	Cat

Table C1: Species recorded making incomplete crossings in year one operational phase.

Species/ Groups	Site and Season																								Tot
	1		2		3		4		5		6		7		8		9		10		11		12		
	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	S/S	W	
Short-beaked echidna												1				1									3
Northern brown bandicoot																									0
Long-nosed bandicoot																									0
Peramelidae spp.																									0
Koala																									0
Short-eared brushtail possum														3	4								1		16
Common brushtail possum																									0
Trichosurus spp.																									0
Eastern grey kangaroo																									0
Red-necked wallaby																									0
Swamp wallaby	1	4	1	2	1	2									1										24
Macropodidae spp.		1				1																			4
Water rat																									0
House mouse I										1															2
Black rat I			5							3									1						18
Rodentia spp.																									0
Small mammal spp.																	1								2
Red fox I																		1							2
Cat I					1	6															1				16
European Hare I																									0
Lace monitor																									0
Eastern water dragon					1					1															4
Pacific black duck																									0
Intermediate egret																						1			2
Pheasant coucal																									0
White-throated treecreeper																		1							2
Medium frog spp.	1		1																						4
	2	5	7	2	3	9	0	0	1	4	0	1	0	3	6	0	1	2	1	0	2	0	1	0	99

Table C2

Species/group	Site and number of complete crossings																																					
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W												
	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12														
	Fl	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F											
Short-beaked echidna	1		1	7												1																						
Long-nosed bandicoot				1																					4			3										
Northern brown bandicoot																	1																					
Peramelidae spp.																1	5																					
Koala							1	0		1					2					1					2			2										
Short-eared brushtail possum					1											8	3	5	1	3	4	1	8	7	0													
Common brushtail possum					1																																	
<i>Trichosurus</i> spp.	1				2												3	2	6	5					1													
Swamp wallaby	2	3	6	8			24						1	1	2			5	2		1																	
Red-necked wallaby			1	2	2			1							2					1																		
Eastern grey kangaroo					1		6								3																							
Macropodidae spp.	1		2	9			25						3		1	1				2																		
House mouse ¹				1				1					1	1	2										1				1									
Black rat ¹			2	3									3	2		1																						
Water rat													8																									
Rodentia spp.													3	1																								
Cat ¹		1	2	1	6	8	18	0	2	8		3	1			1	0	2		4	2		8	2		6	3	3	1	1	1	1	5	1	1	8		
Red fox ¹		1	3	6	1	3	40		7					1	5								7	3		2	5	2					5				1	
European Hare ¹					1																																	

Species/group	Site and number of complete crossings																																																					
	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W	SS	W																										
	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12																														
	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl	Fl																									
Lace monitor			1							2	1				3				1				2	6		3		5		2		3		2		4				4														
Eastern water dragon						3																													6	1					3													
Pacific black duck															2	3																																						
Pheasant coucal						2																																																
Intermediate egret																																																						
Medium frog spp.		5	3																																																			
Total	10	8	3	0	3	5	0	9	4	0	27	5	2	4	8	0	4	1	5	8	2	4	1	5	8	3	5	6	3	6	4	4	7	5	1	6	0	1	1	0	0	3	0	2	4	1	2	4	0	2	0	1	3	0