

Nambucca Heads to Urunga Pacific Highway Upgrade: Operational Phase, Year One.

Operational Phase Biodiversity Monitoring –
Year One 2018.

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Cover Photo: A short-eared brushtail possum (*Trichosurus caninus*) using fauna furniture to cross under the highway at the Burke's Lane underpass.

Disclaimer:

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1. Introduction

Roads and Maritime Services New South Wales (RMS), in conjunction with Lend Lease Engineering (LLE) commenced the upgrade of the Pacific Highway between Nambucca Heads and Urunga in 2013. The Nambucca Heads to Urunga (NH2U) upgrade is located on the mid-north coast of New South Wales and covers a 22-kilometre section of highway stretching from Link Road at Nambucca Heads to Waterfall Way, north of Urunga (Figure 1). The project was opened to traffic in July 2016 and construction completed in February 2018.

RMS engaged Sandpiper Ecological Surveys (SES) in May 2017 to conduct biodiversity monitoring as part of the operational phase of the NH2U upgrade. The following report discusses the methods and results of year one operational phase monitoring of fauna underpasses, exclusion fencing, and widened vegetated medians.

1.2 Background

The Minister for Planning approved the NH2U upgrade under Part 3A (now repealed), Section 75J of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 19 July 2011 subject to the Minister's Conditions of Approval (CoA) being met.

The project was granted approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 21 November 2013. Condition 13 of the DoE approval is most relevant to this report. It requires the person taking the action to provide a report to the Minister "detailing the success and/or failings of fauna crossings, fencing and road medians in achieving their intended purpose". The specific requirements of condition 13 are covered throughout the report and a section has been included in the discussion on the success and/or failings of fauna crossings, exclusion fencing and widened vegetated medians.

As part of the obligations under the Minister's CoA B10, an Ecological Monitoring Program (EMP) was to be produced and implemented. RMS engaged Benchmark Environmental Management to prepare the EMP and in June 2013 the plan was finalised. The EMP and threatened species management strategies outline the detailed monitoring requirements to satisfy the Minister's CoA.

The EMP charted the following mitigation measures to be monitored;

- Pre-clearing and clearing procedure;
- Fauna underpass structures and exclusion fencing;
- Widened vegetated medians;
- Nest box installation;
- Landscape rehabilitation;
- Protection of in-situ flora populations; and
- Establishment of translocation areas.

Outlined within the EMP was a requirement to conduct construction phase (Year 3) monitoring. This was conducted in spring 2014 and autumn 2015 (Sandpiper Ecological 2015). The construction phase monitoring established a baseline dataset of fauna recorded adjacent to the alignment and refined methods for underpass monitoring that have been adopted during the operational phase.

1.3 Scope

The intent of operational phase biodiversity monitoring, as outlined in the project brief, is to investigate the effectiveness of habitat connectivity mitigation measures (i.e. fauna underpasses, vegetated medians and exclusion fencing). The following report details the results of year one operational phase fauna underpass, fauna exclusion fence and road-kill monitoring as well as vegetated median monitoring. The report focuses

on targeted fauna outlined in the EMP (Benchmark 2013) - koala (*Phascolarctus cinereus*), spotted-tailed quoll (*Dasyurus maculatus*), brush-tailed phascogale (*Dasyurus tapoatafa*) yellow-bellied glider (*Petaurus australis*) and squirrel glider (*Petaurus norfolcensis*) but also analyses use or otherwise by other native fauna species.

1.3.1 Fauna underpasses and exclusion fence monitoring

The EMP outlines, in section 3.5.4, potential indicators of success or performance criteria, these include:

- Low rates of use of fauna underpasses and adjacent habitats by feral predators;
- High levels of fauna underpass use by a wide variety of native fauna species;
- Evidence of use by dispersing individuals and different age cohorts;
- Use by cover-dependent species and species with low mobility; and
- Low incidence of fauna road strike mortality.

Section four of this report contains an analysis of year one results against the aforementioned performance criteria.

The monitoring program included seven fauna underpasses and one control underpass (Table 1). Six of the eight underpasses were newly constructed box culverts and one was a bridge over the railway at the southern extent of the project. The eighth underpass was a control culvert on the old Pacific Highway at McGrath’s Creek. Monitored underpasses were named Tyson’s, Access G, North Martell’s, South Martell’s, Dalhousie, Burke’s, Railway, and McGrath’s (Figure 1, Table 1).

Five of the underpasses monitored were combined structures constructed for the dual purpose of fauna passage and drainage, or in the case of Railway, a utility corridor. Two structures, Access G and Martell’s south were dedicated underpasses. The McGraths control site was a dedicated drainage culvert that is used incidentally by fauna.

Table 1: Location and size of monitored underpasses on the NH2U alignment. MOF = Moist open forest, DOF = Dry open forest, CI = Cleared land, SF = Swamp forest, R = Riparian forest.

Chainage & Habitat	Location	Type	Length	No. & Size (# x W x H)
61800 (MOF)	Railway	Rail Bridge	90	2 x 25.7 x 7.2
68470 (SF/MOF/DOF)	Burke’s	RCBC	72.4	1 x 3.6 x 2.4 4 x 3.6 x 1.2
73800 (R/DOF)	Dalhousie	RCBC	36.5 (SB) 42 (NB)	1 x 2.4 x 2.4
75250 (MOF)	South Martell’s	RCBC	67.4	1 x 3 x 3
75800 (MOF)	North Martell’s	RCBC	75.7	1 x 3 x 3
78800 (MOF/CI)	Access G	RCBC	58.9	2 x 2.4 x 3.0
80220 (MOF)	Tyson’s	RCBC	27 (SB) 25 (NB)	2 x 3 x 2.1
Control Site				
Off site (MOF/R)	McGrath’s	RCBC	18	3 x 2.4 x 1.5

Floppy top fauna exclusion fence is connected to all monitored structures and extends for the majority of the alignment. The purpose of monitoring exclusion fence was to determine which species move through the fence and to compare species encountering the fence with those recorded in nearby underpasses.

1.3.2 Vegetated medians

The NH2U upgrade includes two widened vegetated medians to provide connectivity for gliders, with a particular focus on yellow-bellied glider (*Petaurus australis*) and squirrel glider (*Petaurus norfolcensis*) which are both listed as vulnerable by the *Biodiversity Conservation Act 2016* (BCA 2016). The location of the Dalhousie and Tyson’s vegetated medians are illustrated on Figure 1 and described in Table 2.

Table 2: Location and length of monitored vegetated medians on the NH2U alignment. MOF = Moist open forest, DOF = Dry open forest

Chainage & Habitat	Location	Type	Length
MOF/DOF CH 73800	Dalhousie	Vegetated Median	1035m
MOF CH 80220	Tyson’s	Vegetated Median	570m

As with the underpass mitigation structures, the EMP outlines several potential indicators of success for vegetated medians:

- Evidence of regular use of median vegetation by the target glider species;
- Evidence of use by dispersing individuals and different age cohorts; and
- Use by glider species other than threatened species e.g. sugar glider.

The data from year one monitoring of the vegetated medians is assessed against the performance criteria in section four of this report.

1.4 Study area

The NH2U project extends for 22km from Link Rd, Nambucca Heads in the south to Waterfall Way, Urunga in the north. The single control and seven impact sites were spaced along the NH2U Pacific Highway upgrade alignment between chainage 61800 (Railway) and 80220 (Tyson’s Flat) (Figure 1). The context of each impact site differed and included: a railway corridor; vegetated median (Dalhousie & Tyson’s); underpass with adjoining service roads (Burke’s); two dedicated underpasses in potential koala habitat (Access G & Martell’s South); combined structures situated within vegetated medians (Dalhousie and Tyson’s). The control site at McGrath’s Creek was located under the existing Pacific Highway, 280m east of the alignment (Figure 1).



Figure 1: Map showing the study area with underpasses and widened vegetated medians.

2. Methods

2.1 Survey timing, effort and constraints

Year one monitoring was conducted in autumn and spring 2018. The autumn monitoring period operated from 12 March to 29 May 2018 and the spring period from 24 September to 29 November 2018. Survey effort for each monitoring component during each sample period is presented in Table 3.

Constraints around suitability of climatic conditions for frog traverses were evident in autumn where only 13 surveys were conducted due to lack of rain and adequate humidity to trigger frog dispersal. Conditions were better in spring when the required five samples per site were completed.

Safety issues constrained identification of roadkill, which meant that some carcasses had to be identified through binoculars. Further, traffic noise during nocturnal surveys can mask animal calls and reduces detectability of target species such as yellow-bellied glider, which is typically detected by call.

Table 3: Survey effort for each component of year one operational phase monitoring. VM = Vegetated Median, HF = Hair Funnels, UP = Underpass, Ad Hab = Adjacent Habitat, FF = Fauna Fence, av = average. *Reduced effort due to lack of appropriate survey conditions.

Sample period	Survey Effort											
	VM Spot	VM HF	UP Cams	UP HF	Sand Pads	Frog Traverse	Tracks/Scat Searches	Roadkill	Ad. Hab. Search	Ad. Hab. Cams	Ad. Hab. Spot	FF Cams
Autumn	3 samples/site/ 9 hrs	78 nights	77 days (av)	45 days	6 visits/6 weeks	13 samples /4.3 hrs*	3 traverses per underpass/8 hrs	2 samples/site/9 hrs	2 samples/site/27.5 hrs	25 days (av)	2 samples/site/16 hrs	Not monitored
Spring	3 samples/site/ 9 hrs	70 nights	64 days (av)	24 days	6 visits/5.5 weeks	5 samples/site/13.3 hrs	3 traverses per underpass/8 hrs	2 samples/site/9 hrs	2 samples/site/26hrs	23 days (av)	2 samples/site/16 hrs	30 days (av)
Total	6 samples/ 18 hrs	138 nights	141 days	69 days	12 visits/11.5 weeks	53 samples /17.6 hrs	6 traverses/16 hrs	72 samples/ 18 hrs	64 samples/53.5 hrs	48.3 days	64 samples/32 hrs	30 days

2.2 Adjacent Habitat Surveys

2.2.1 Camera monitoring

Cameras were deployed in the adjacent habitat using a combination of Scoutgaurd KG680V, Moultrie S-50i and Browning Strike Force Pro. One camera was installed on a tree on the east and west side of each underpass within 50m of the underpass entrance and orientated towards a bait station containing chicken and tuna oil (Plate 1). Four cameras were installed at McGrath's Creek control site to detect fauna on both sides of the creek. Cameras were set to take a burst of three photos with a ten second delay between activation. Cameras were installed at approximately 0.5m above ground and positioned 2.5m from a bait station.



Plate 1: Adjacent habitat camera trap set up. Browning Strike Force Pro mounted on a tree directed at a bait station. This camera at Tyson's west detected Long-nosed potoroo.

2.2.2 Active search

A one-hectare area of habitat adjoining each side of each underpass was searched diurnally by one or two ecologists for one-person hour. Active searches targeted diurnal fauna and nocturnal fauna seeking refuge in logs and ground vegetation. Ecologists searched under logs, among ground vegetation, and leafy debris, and in hollow logs for fauna. All fauna and signs of fauna, along with standard weather variables including wind, rain, relative humidity, cloud cover and ambient temperature were recorded in a survey proforma on an iPad. Active searches were conducted twice per monitoring event (Table 3).

2.2.3 Spotlighting

A one-hectare area of habitat adjoining each side of each underpass was spotlighted by two ecologists for a period of 30 minutes twice per monitoring event (Table 3). Spotlighting was concentrated on fence lines, the forest edge and tracks but also included a meandering traverse of intact forest where applicable. Hand-held Led-Lenser 320 lumen torches were used to detect fauna. All fauna and fauna signs, along with standard weather variables were recorded in a survey proforma and on an iPad whilst in the field.

2.3 Underpass Monitoring

2.3.1 Camera monitoring

Reconyx HC500 cameras were used for monitoring underpasses and set to take a series of three photos with no delay between activation. Cameras were armed continuously for the two seasonal monitoring periods and batteries and SD cards checked and/or swapped after four weeks.

Underpass cameras were installed in two different configurations between the autumn and spring monitoring periods. In autumn, single cameras were installed, in each cell, where underpasses had more than one cell (e.g. Tyson's, Access G and Dalhousie). Cameras were mounted to the underpass wall and oriented to capture both the floor of the underpass and the fauna furniture in an attempt to cover both crossing features (Plate 2). This approach was consistent with the construction phase (baseline) sample. In single cell culvert underpasses (North Martell's, South Martell's, Burke's and Railway) one camera was installed at both ends of the culvert facing toward the middle with at least one camera focusing on both the floor of the culvert and fauna furniture (Plate 2). A total of 18 cameras were deployed in underpasses during the autumn monitoring event.

After analysis of autumn camera data, it was concluded that a separate camera was required to adequately detect fauna using the fauna furniture. This was adopted for the spring monitoring period and each cell that supported fauna furniture had a camera installed centrally on the railing facing east. All floor cameras were installed on cell walls in the centre of the culvert at approximately 300mm above floor level, facing east. This resulted in each cell containing fauna furniture having two cameras installed and cells without fauna furniture having one camera installed. A total of 21 cameras were deployed during the spring monitoring event.

At the McGraths Creek control site, due to the higher likelihood of inundation, two Scoutguard KG680V cameras were installed on star pickets at the eastern entrance to the culvert facing the entrance (i.e. facing west).

Cameras were housed within security cases and attached to underpass walls using dynabolts and plastic wedges to allow for correct orientation and to minimise the likelihood of theft. In underpasses where fauna furniture was installed, cameras were installed above the rail and orientated along the rail to detect fauna using the furniture and to minimise false triggers. Cameras were set to take a series of three photographs with no delay between triggers. Trigger sensitivity was set to high.

2.3.2 Sand pad monitoring

To compliment camera monitoring sand pads were installed in the centre of each cell at each site. Each sand pad was installed using a mix of brickie's sand and a local beach sand and smoothed out with a cement trowel at the start of monitoring and after each inspection (Plate 2). Sand pads were approximately 1m wide and 50mm deep. A small channel (200mm wide) was left in the centre of pads installed in combined structures to allow for drainage. Sand pads were monitored on a weekly basis for four weeks during each monitoring period. During each inspection pads were systematically scanned for prints using a hand-held torch, if required. An ecologist, with experience identifying fauna tracks, inspected each pad. Tracks were identified to species, genus or group and the number and direction of crossings recorded. In some cases, tracks were photographed and sent to colleagues for assistance with identification.



Plate 2: Underpass sand pad at Railway (L). Sand pad installation at Tyson's underpass (R).

2.3.3 Scat and track searches

All underpasses were searched for scats and tracks. This involved a 20-minute traverse of the structure and apron by one ecologist with a spotlight recording any scats, tracks or other signs left by fauna. Surveys focussed on the fauna furniture and areas of accumulated sand/mud. Scat and track surveys were carried out three times per monitoring event.

2.3.4 Frog survey

Frog surveys of underpasses were carried out when conditions were conducive to frog dispersal (i.e. after rainfall and when relative humidity exceeded 80%). Each survey involved a foot-based traverse of the underpass entrance and structure by two ecologists, each with a spotlight for a period of 20-minutes. All frogs detected were recorded on a standard proforma along with standard weather variables.

2.3.5 Hair funnels

Two hair funnels were installed on fauna furniture at each site where fauna furniture was installed (i.e. all sites except Railway and McGrath's). Funnels were baited with peanut butter, oats and honey and left insitu for a minimum of three weeks per monitoring event. Wafers were collected and sent to Robyn Carter Hair Identification for analysis.

2.4 Exclusion Fence Monitoring

2.4.1 Camera monitoring

Fauna fence cameras were installed on a bracket attached to a fence post and orientated along the fence towards the underpass entrance at a height of approximately 400mm (Plate 3). Distance from the culvert entrance ranged from 10m to 60m and was dependent on obtaining a reasonable line of sight. Ground vegetation was trimmed at some sites to improve visibility and reduce the incidence of false triggers. All fence cameras were Scoutguard KG680V models except for two at Burke's west which were Reconyx HC500. Reconyx cameras were used to enable python locks to secure the camera to the post to reduce the likelihood of theft. All Scoutguard cameras were scheduled to arm at 4pm and disarm at 9am. Cameras

were set to take a series of three photos with a ten second delay between activation. Exclusion fence camera monitoring effort is illustrated in Table 3 and appendix A16.



Plate 3: Typical exclusion fence camera installation. A Scoutgaurd KG680V mounted on a steel bracket attached to fence post.

2.4.2 Opportunistic observations

Fauna interactions with the exclusion fence were noted on an opportunistic basis whilst conducting other activities.

2.5 Roadkill Monitoring

Roadkill surveys were performed by one or two ecologists twice per sample period and included both the east and west sides of the highway at each site. Surveys were scheduled to occur near the beginning and end of each monitoring period with 2-5 weeks between the autumn surveys and 5.5 weeks between the spring surveys. Surveys involved a slow walk traverse 250m north and south of each culvert entrance. Walking speed varied but each 500m traverse took between 15 minutes and one hour to complete. During the traverse ecologists scanned the road surface, shoulder and edge of batter for road-killed fauna. Carcasses situated near the centre of the carriageway were inspected with the aid of binoculars. Each roadkill specimen was identified to species level where possible, and highly degraded carcasses were often identified to genus or group only. Due to decomposition processes, carcasses were often difficult to identify to a species level. Degraded carcasses were categorised into taxonomic groups; birds, reptiles, mammals, amphibians and unknown. Data collected on each road-killed specimen included species, genus, group, location (GDA 94) and notes on nearby fence condition, any live fauna observed inside the roadway and basic weather variables (e.g. hot and sunny). Specimens situated on the road shoulder or batter edge were moved off the road. Data were recorded on and iPad during surveys.

2.6 Vegetated Median Monitoring

2.6.1 Spotlighting

At each vegetated median, a 500m transect was established on both the east and west side of the alignment and within the median. All transects within a site were parallel to each other. Each transect was traversed by an experienced ecologist using a hand-held 320 lumen Led-Lenser torch at a speed of one kilometre per hour. Surveys occurred between 1930hrs and 0100hrs. When gliders were detected, species was recorded, and individuals were observed until direction of movement could be ascertained. Other data recorded included behaviour (i.e. feeding, transit, grooming) and weather variables including wind, rain, relative humidity, ambient temperature, and moon phase.

2.6.2 Hair funnel monitoring

Hair funnel sampling was conducted at both medians. A transect containing 20 hair funnels at 25m spacing was installed on the east, and west sides of the highway and within the median at each site. Funnels were baited with peanut butter, honey and oats and installed at approximately 6m high on a suitable tree. Rough-barked trees with a DBH greater than 400mm were typically selected. Each tree was sprayed with honey water to help attract gliders to the funnel. Hair funnels were installed for two periods of six weeks during the autumn and spring monitoring events with baits and wafers swapped after three weeks. A total of 120 hair funnels were installed over the two medians. A total of 78 hair funnel nights were sampled in autumn and 70 in spring.

2.7 Photo Analysis

All 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. Menkhorst & Knight 2003; Pizzey & Knight 2007). Input from multiple ecologists was sought to identify some images.

2.7.1 Adjacent habitat

Fauna detected in adjacent habitat was scored on a presence-absence basis. All detections are presented in appendix A9.

2.7.2 Underpasses

Animals 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. In autumn when cameras were installed at both ends of a culvert, a complete crossing was recorded when an animal showed directional movement in the same direction on both cameras. Animals that were recorded on one camera showing directional movement but not recorded on the other camera were recorded as incomplete crossings. If an animal passed one camera and returned within 10 minutes this was deemed an incomplete crossing. Crossing definitions are consistent with those used at other Pacific Highway monitoring sites (e.g. Sandpiper Ecological 2017) and represent a conservative approach to identification of complete crossings. It is noteworthy that other researchers (e.g. Soanes *et al.* 2015) have used directional movement as evidence of full 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”.

2.7.3 Exclusion fence

Fauna detected during analysis of fence camera monitoring included species, accuracy, direction of movement (e.g. toward underpass, away from underpass), fauna interactions with the fence (e.g. climbs through fence, climbs up fence). This data is presented in appendix A17.

2.8 Data Summary

Data has been summarised and presented as present/absent, cumulative totals, proportions of totals for the entire sample period combined and spring and autumn.

2.9 Habitat Assessment

A habitat assessment was conducted at both east and western sides of each underpass site. This involved one ecologist recording habitat class, dominant canopy, mid-story and groundcover species as well as an over arching habitat class 9e.g. moist open forest, riparian)

3. Results

3.1 Species Richness

A total of 87 vertebrate fauna species and a further 12 animal groups were detected during year one operational phase monitoring for the NH2U Pacific Highway upgrade. Of the 87 species, 33 (37.9%) were birds, 28 (32.2%) were mammals, 13 (14.9%) were reptile species and 13 (14.9%) were amphibian (frog) species (Table 4; scientific names are provided in Appendix A1). Only birds detected on camera or via tracks in sand pads were recorded. The exception to this was a group of glossy black cockatoos, listed as vulnerable under the *Biodiversity Conservation Act* 2016, which were recorded flying over the alignment during an active search at North Martell's.

One possible squirrel glider was recorded during spotlight surveys of vegetated medians on 23 October 2018 (appendix A2). Because it could not be confidently identified and because of the lack of squirrel glider records in the area, it is only regarded as a possible squirrel glider record. Further, during construction phase, 73 sugar gliders were relocated from habitat trees and no squirrel gliders were recorded (Sandpiper Ecological 2014). Bionet includes one squirrel glider record near Oyster Creek Road from 2002.

Table 4: Species detection methods for year one operational phase monitoring. SPT VM = Spotlighting Vegetated Median, SPT = Spotlighting Adjacent Underpass Habitat, AHC = Adjacent Habitat Camera, UPC = Underpass Camera, SP = Sand Pads, AS = Active Searches, STS = Scat/Track Searches, FT = Frog Traverses, RK = Roadkill Surveys, VMHF = Vegetated Median Hair Funnels, UPHF = Underpass Hair Funnels, FFC = Fauna Fence Camera.

Species	SPT VM	SPT	AHC	UPC	SP	AS	STS	FT	RK	VMHF	UP HF	FFC
Koala (possible)						*						
Short-beaked echidna			*	*	*	*						*
Common brushtail possum		*	*							*		
Short-eared brushtail possum		*	*	*								*
Brushtail possum sp.		*		*	*	*				*	*	
Common ringtail possum	*	*									*	
Sugar glider	*	*								*		
Squirrel glider (possible)	*									*		
Yellow-bellied glider (possible)										*		
Feathertail glider spp.	*											
Fawn-footed melomys		*		*						*		
Water rat			*	*	*							
Bush rat			*									
Swamp rat			*									
Rattus sp.				*	*	*	*					
Rodent sp.		*	*	*	*	*	*		*	*		*
Yellow-footed antechinus										*		
Brown antechinus				*						*		
Dusky antechinus											*	
Antechinus spp.			*	*			*			*	*	*
Eastern bent-wing bat									*			
Microbat spp.		*		*			*		*			
Eastern grey kangaroo				*								
Swamp wallaby		*	*	*	*	*	*					*
Red-necked wallaby			*									
Wallaby spp.					*	*	*					
Long-nosed potoroo			*									
Macropod spp.		*										
Long-nosed bandicoot			*									*
Northern brown bandicoot			*	*								*
Bandicoot sp.				*	*	*	*					*
Grey-headed flying-fox	*	*										
Flying-fox spp.	*	*										
Large mammal									*			
Medium mammal												*
Small mammal				*	*				*			*
Eastern small-eyed snake		*										
Red-bellied black-snake						*						
Marsh snake						*			*			
Carpet python									*			

Species	SPT VM	SPT	AHC	UPC	SP	AS	STS	FT	RK	VMHF	UP HF	FFC
Medium snake						*			*			
Small snake									*			
Eastern water dragon			*	*	*	*	*					*
Lace monitor			*	*	*	*	*		*			*
McPheii's skink			*	*								
Land mullet		*	*									
Blue-tongue lizard						*						*
Rainbow skink						*			*			
Common garden skink						*						
<i>Lampropholis spp.</i>						*			*			
<i>Concinnia spp.</i>						*						
<i>Scincidae spp.</i>									*			
Lizard spp.				*								
Reptile spp.							*		*			
<i>Crinia signifera</i>		*				*		*				
<i>Uperolia spp.</i>		*						*				
<i>Pseudophryne coriacea</i>		*				*		*				
<i>Adelotus brevis</i>		*				*		*				
<i>Mixophyes fasciolatus</i>		*						*				
<i>Limnodynastes peronii</i>		*				*		*				
<i>Litoria revelata</i>		*						*				
<i>Litoria fallax</i>		*				*		*				
<i>Litoria peronii</i>		*						*				
<i>Litoria tyleri</i>		*						*				
<i>Litoria nasuta</i>		*						*				
<i>Litoria latopalmata</i>		*						*				
<i>Litoria gracilentata</i>								*				
<i>Litoria sp.</i>	*											
Large frog							*					
Medium frog									*			
Frog sp.			*		*							
Tawny frogmouth	*								*			
Barn owl		*										
Southern boobook									*			
Australian owl nightjar		*										
Grey goshawk			*									
Noisy pitta		*	*									
Glossy-black cockatoo						*						
Wonga pigeon			*									
Pacific emerald dove			*									
Eastern whipbird			*									
Eastern yellow robin			*									
Australian brush turkey			*									*
Rufous fantail			*									

Species	SPT VM	SPT	AHC	UPC	SP	AS	STS	FT	RK	VMHF	UP HF	FFC
Grey fantail									*			*
Superb fairywren			*									*
Variigated fairywren									*			
Fairywren sp.									*			*
Welcome swallow				*			*					
Australian logrunner			*									
Red-browed finch			*									*
Sacred kingfisher			*									
Azure kingfisher				*								
Grey shrikethrush			*									*
Yellow-faced honeyeater									*			
Lewins honeyeater			*	*					*			*
White-cheeked honeyeater									*			
Yellow thornbill									*			
White-browed scrubwren			*						*			*
Australian magpie									*			
Laughing koookaburra									*			
Buff-banded rail									*			
Dollarbird									*			
Pacific black duck				*					*			
Waterbird sp.					*		*					
Medium bird sp.									*			
Small bird sp.									*			
Total native species												
Total fauna groups												
Striped gudgeon		*						*				
Mosquito fish		*		*								
House mouse			*									
Black rat			*	*	*		*				*	*
Fox			*	*	*	*	*		*			*
Dog			*	*			*					*
Cat			*	*	*		*					*
Cow			*									
Human				*	*							*
Motorbike				*	*							*
Car				*								*

3.2 Adjacent Habitat Surveys

Adjacent habitat surveys recorded a total of 69 species via camera trap monitoring, active searches and spotlighting. This is comparable to the 66 species detected during construction phase monitoring in 2014 and 2015 (Sandpiper 2015).

3.2.1 Camera monitoring

A total of 38 species were detected by cameras installed in adjacent habitat (Table 4). Of these, 18 (47.3%) were mammals, 15 (39.4%) birds, four (10.5%) reptiles and one (2.6%) amphibian. Native species represented 32 (84%) of the 38 species and feral species the remaining six (16%). Notable records included a long-nosed potoroo (*Potorous tridactylus*) on the western side of the Tyson's underpass (Plate 4). Long-nosed potoroos are listed as vulnerable by the NSW *Biodiversity Conservation Act 2016 (BCA 2016)* and by the *EPBC Act 1999*. Another noteworthy record was a water rat (*Hydromys chrysogaster*) at the McGrath's control site. Black rats were detected at all locations during spring monitoring.



Plate 4: Long-nosed potoroo detected in adjacent habitat at Tyson's west (L).

3.2.2 Active searches

Active searches recorded a total of 17 species and evidence of another eight species (Table 4). The 17 species recorded included, nine (52.9%) reptiles, and six (35.2%) amphibians and two bird and mammal species (5.8% respectively). One possible koala scat was recorded at Burke's west under a tallowwood (*Eucalyptus microcorys*).

3.2.3 Spotlighting

A total of 25 species were recorded during spotlight surveys in adjacent habitat (Table 4). Of these, 12 (48%) were frogs, eight (32%) were mammals, three (12%) were birds, and two (8%) were reptiles. Sugar gliders (*Petaurus breviceps*) were recorded exiting nest boxes in adjacent habitat at Access G.

3.3 Underpass Monitoring

3.3.1 Camera monitoring

A total of 19 species were confirmed using underpasses (Table 4). Additional records include four taxa that could only be identified to genus or group - *Antechinus* spp., rodent spp., bandicoot spp. and lizard spp. Individuals identified to genus or group only could belong to one of the confirmed species and therefore cannot be classified as a separate species. Of the 19 confirmed species, 16 (83%) were recorded making complete crossings and three (17%) made incomplete crossings (Table 5). Incomplete crossings were recorded for Lewin's honeyeater, azure kingfisher, and laughing kookaburra, species that do not require underpasses to move across highways.

Of the 19 confirmed species, 15 (79%) were native and 4 (21%) were introduced. Eastern water dragon, lace monitor, short-eared brushtail possum, swamp wallaby and *Antechinus* spp. all made more than 10 complete crossings during the sample period. Swamp wallaby and eastern water dragon made nine and eight incomplete crossings respectively (Table 5). Differences in camera setup and survey effort between spring and autumn preclude the ability to draw definitive comparisons between seasons. Obvious differences in occurrence were recorded for fox and dog with both species recorded more frequently in autumn than spring despite lower survey effort. Thirteen species made complete crossings using the floor and eight species used the fauna furniture, four species used both (Appendix A14).

Table 5: Species detected making complete and incomplete crossings on underpass cameras.

Species	Complete crossings		Total complete crossings	Incomplete crossings		Total incomplete crossings
	Autumn	Spring		Autumn	Spring	
Swampy wallaby	5	12	17	3	6	9
Eastern grey kangaroo	0	1	1	0	0	0
Short-beaked echidna	2	4	6	0	0	0
Short-eared brushtail possum	1	27	28	0	1	1
Brushtail possum spp.	0	0	0	0	1	1
Northern brown bandicoot	0	2	2	0	0	0
Bandicoot spp.	0	2	2	0	0	0
Brown antechinus	0	2	2	0	0	0
<i>Antechinus</i> spp.	0	12	12	0	3	3
Fawn-footed melomys	0	1	1	0	0	0
Rodent spp.	0	8	8	0	0	0
Water rat	0	3	3	0	0	0
Lace monitor	2	26	28	0	0	0
Eastern water dragon	0	37	37	0	8	8
McPheii's skink	0	1	1	0	0	0
Lizard spp.	0	1	1	0	1	1
Pacific black duck	8	0	8	0	0	0
Lewin's honeyeater	0	0	0	0	1	1
Azure kingfisher	0	0	0	0	2	2
Laughing kookaburra	0	0	0	0	3	3
Sub-total	18; 5 spp	139; 11 spp	157; 12 spp	3; 1 spp	26; 6 spp	29; 7 spp
Black rat	3	286	289	1	104	105
Fox	17	8	25	3	1	4
Cat	3	10	13	2	3	5
Dog	22	1	23	1	0	1
Sub-total	45; 4spp	305; 4spp	350; 4spp	7; 4 spp	108; 3spp	115; 4spp
Totals	63	444	507	10	128	138

Substantially more fauna were detected in spring (572 detections) than autumn (73 detections; Table 5; Figure 2). This difference is attributed to changes in camera setup, inclusion of additional cameras in spring, and season.

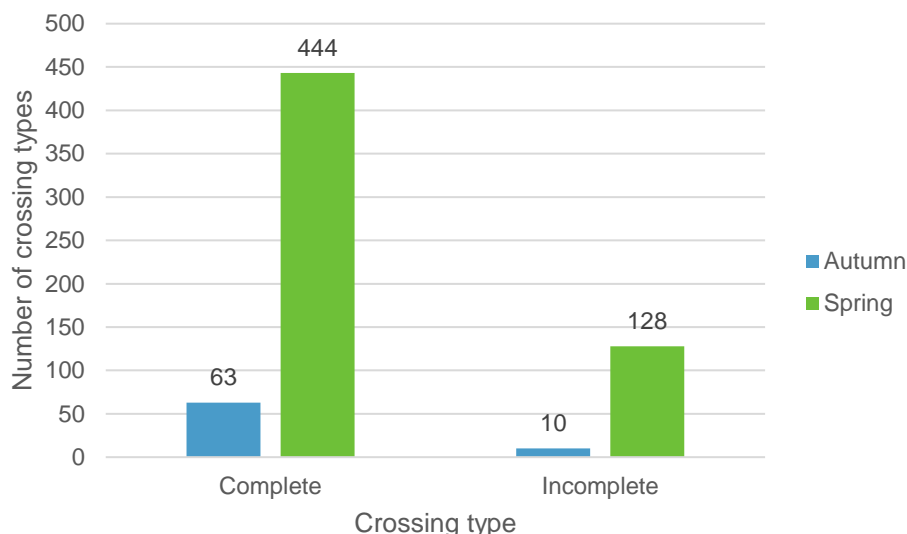


Figure 2: Graph showing complete and incomplete crossings for spring and autumn monitoring periods.

A total of 507 complete crossings were recorded during year one monitoring (Table 5; Figure 2). Of these, 157 (30%) were by native species. Four feral species made up the remaining 350 (69%) complete crossings. The most commonly recorded species was black rat (*Rattus rattus*) with 289 complete crossings over the two monitoring periods and 105 incomplete crossings. Of the complete crossings by black rats, 234 (80.9%) were via fauna furniture and 55 (19.1%) were via the floor (Appendix A14).

The most commonly detected native species was eastern water dragon (*Intellagama lesueurii*) with 37 complete crossings and eight incomplete crossings. All eastern water dragon detections were during the spring monitoring event. Eastern water dragons were recorded using the fauna furniture on 30 (81%) occasions and the underpass floor on seven (19%) occasions. Lace monitor (*Varanus varius*) and short-eared brushtail possum (*Trichosurus caninus*) were the third most commonly recorded species with 28 complete crossings each. Lace monitors made 28 complete crossings in spring, of which twenty (71.4%) were via the floor and eight (28.6%) were via fauna furniture. Interestingly, no incomplete crossings were recorded for lace monitors.

Of the 28 complete crossings made by short-eared brushtail possums, 27 were in spring and 25 (89.2%) were via the fauna furniture (Plate 5). Only one incomplete crossing was recorded for short-eared brushtail possum. Species recorded making complete crossings on the underpass floors included Eastern grey kangaroo, short-eared brushtail possum (Plate 6) and swamp wallaby (Table 5).

Detection of fauna on fauna furniture during autumn monitoring was limited, a result attributed to camera setup. Native species recorded using fauna furniture in autumn were Antechinus spp. and McPheii's skink (*Egernia mcpheii*; Plate 7).



Plate 5: Short-eared brushtail possum using fauna furniture to cross under the highway at Burkes Lane.



Plate 6: Eastern grey kangaroo performs a complete crossing in an easterly direction at Tyson's underpass (L). A short-eared brushtail possum performs a complete crossing in a westerly direction at Burke's (R).



Plate 7: *Antechinus* spp. crossing on fauna furniture in an easterly direction at Dalhousie (L). A probable McPheii's skink detected on fauna furniture in Dalhousie underpass (R).

3.3.2 Sand pad monitoring

Seven species were recorded via tracks in sand pads (Table 4). These were short-beaked echidna (*Tachyglossus aculeatus*) (Plate 8), eastern water dragon (*Intellagama lesueurii*), lace monitor (*Varanus varius*), water rat (*Hydromys chrysogaster*), human, dog (*Canis lupis familiaris*) and fox (*Vulpes vulpes*). A further 11 animal groups (i.e. small frog, water bird etc.) were recorded. The most commonly recorded group of animals were rodents. Wallaby species were recorded on 16 occasions (Plate 8). Water rat tracks were detected at McGrath's control site and a small snake was detected at Access G. The most species rich site was McGraths with eight different species detected followed by Tyson's with six.



Plate 8: Short-beaked echidna tracks at South Martell's underpass (L). Wallaby tracks and tail scrape at Tyson's underpass (R).

3.3.3 Scat and track search

Signs of rodent, microbat, eastern water dragon, frog and possible antechinus scats were recorded in underpasses. The most commonly detected tracks were fox, dog, cat, wallaby and human. The most active sites were McGrath's with nine species leaving scats and/or tracks and Tyson's with eight species leaving scats or tracks.

3.3.4 Frog survey

A total of 13 frog species were recorded during frog surveys (Table 4). Most frogs were recorded calling from permanent basins near the entrance to underpasses (Plate 9). Striped marsh frogs (*Limnodynastes peronii*) were recorded moving on the culvert apron at Access G and Tyson's following light rain, and one

eastern sedge frog (*Litoria fallax*) was recorded moving on fauna furniture at the eastern entrance to the Access G culvert. A single striped marsh frog was incidentally detected in the middle of Tyson's eastern culvert on the 23 March moving in a westerly direction (Plate 10).



Plate 9: Two species of frog recorded near permanent basins during targeted surveys were *Uperolia* spp. (L), and Peron's tree frog (*Litoria peronii*) (R).



Plate 10: Striped marsh frog recorded moving through the Tysons east culvert on 23 march 2018.

3.3.5 Underpass hair funnels

Five species were detected via hair analysis from hair funnels installed on fauna furniture within underpasses. These were black rat, common ringtail possum (*Pseudocheirus peregrinus*), dusky antechinus (*Antechinus swainsonii*), brushtail possum spp. (*Trichosurus sp.*), and *Antechinus* spp. Black rats were detected at four underpasses via this method. Brushtail possum spp. was recorded at Burke's underpass only. Cameras recorded short-eared brushtail possum at that site. Common ringtail possum and dusky antechinus were recorded at Dalhousie underpass only. The record of dusky antechinus matches detections in arboreal hair funnels in the Dalhousie median, and ringtail possums were recorded in adjacent habitat during spotlighting. Neither species was detected by underpass cameras.

3.4 Underpass and Adjacent Habitat Comparison

A total of 70 positively identified species/groups were detected in the adjacent habitat by all survey methods and 25 species were detected in underpasses by all survey methods (Table 6).

Table 6: Comparison between species and fauna groups recorded in underpasses via camera, sand pad and active searches versus species detected in adjacent habitat via camera and active searches. * Includes species recorded using underpasses during operational phase monitoring of the Coopernook to Herons Creek (Sandpiper Ecological 2015), Sapphire to Woolgoolga (Sandpiper Ecological 2018), Glenugie (Sandpiper Ecological 2017), and Woolgoolga to Ballina (Sandpiper Ecological unpublished data) upgrades.

Species	Species recorded using underpasses in northern NSW*	Underpass	Adjacent Habitat
Koala	X		*
Short-beaked echidna	X	*	*
Common brushtail possum	X		*
Short-eared brushtail possum	X	*	*
Brushtail possum sp.		*	*
Common ringtail possum		*	*
Fawn-footed melomys		*	*
Water rat	X	*	*
Bush rat			*
Swamp rat	X		*
Rattus spp.		*	*
Rodent spp.		*	*
Yellow-footed antechinus	X		*
Dusky antechinus		*	*
Brown antechinus	X	*	*
Antechinus spp.		*	*
Microbat sp.		*	*
Swamp wallaby	X	*	*
Red-necked wallaby	X		*
Wallaby sp.		*	*
Long-nosed potoroo	X		*
Macropod sp.			
Long-nosed bandicoot	X		*
Northern brown bandicoot	X	*	*
Bandicoot sp.		*	*

Species	Species recorded using underpasses in northern NSW*	Underpass	Adjacent Habitat
Eastern small-eyed snake	X		*
Red-bellied black-snake			*
Marsh snake			*
Medium snake			*
Small snake		*	
Eastern water dragon	X	*	*
Lace monitor	X	*	*
McPheii's skink		*	*
Land mullet	X		*
Blue-tongue lizard			*
Rainbow skink			*
Common garden skink			*
<i>Lampropholis</i> spp.			*
<i>Concinnia</i> spp.			*
Lizard sp.		*	
Reptile sp.			
<i>Crinia signifera</i>			*
<i>Uperolia</i> sp.			*
<i>Pseudophryne coriacea</i>			*
<i>Adelotus brevis</i>			*
<i>Mixophyes fasciolatus</i>	X		*
<i>Limnodynastes peronii</i>	X	*	*
<i>Litoria revelata</i>			*
<i>Litoria fallax</i>			*
<i>Litoria peronii</i>			*
<i>Litoria tylei</i>			*
<i>Litoria nasuta</i>			*
<i>Litoria latopalmata</i>			*
<i>Litoria gracilentata</i>	X		*
Australian owl nightjar			*
Grey goshawk			*
Noisy pitta			*
Glossy-black cockatoo			*
Wonga pigeon			*
Pacific emerald dove			*
Eastern whipbird			*
Eastern yellow robin			*
Australian brush turkey			*
Rufous fantail			*
Superb fairywren			*
Welcome swallow	X	*	*
Australian logrunner			*
Red-browed finch			*
Sacred kingfisher			*

Species	Species recorded using underpasses in northern NSW*	Underpass	Adjacent Habitat
Azure kingfisher		*	*
Grey shrikethrush			*
Lewins honeyeater		*	*
White-browed scrubwren			*
Pacific black duck	X	*	
Waterbird sp.		*	*
Striped gudgeon		*	*
Mosquito fish		*	*
House mouse			*
Black rat	X	*	*
Fox	X	*	*
Dog	X	*	*
Cat	X	*	*
Cow	X		*
Human	X	*	*
Total		25	70

3.5 Exclusion Fence Monitoring

A total of 19 species, three genera, and four groups were recorded during fauna fence monitoring, including four introduced species (Table 7). A total of 151 fauna detections were recorded during exclusion fence monitoring (Appendix A). The most commonly recorded species was black rat with 63 detections, followed by swamp wallaby with 12 detections and superb fairy-wren (*Malurus cyaneus*) with nine detections. Black rats and other rodent spp. were recorded moving through the fence both toward the highway and away from the highway on 61 occasions. Small birds such as superb fairy wrens and red browed finches (*Neochmia temporalis*) were also regularly detected moving through the fence. Access G had the most detections with 44 followed by Dalhousie with 32 and South Martell's with 29. One *Uperolia* spp. was recorded outside the fence during spotlight surveys in spring.

Eleven of the 19 confirmed species, two genera (*Trichosurus* spp. & *Antechinus* spp), and two fauna groups recorded at the exclusion fence were also recorded in underpasses (Table 7). Excluding birds, 14 of 18 species (or 78%) recorded at exclusion fence were also recorded in underpasses. Species/groups not recorded in underpasses but recorded at the fence (excluding birds) include long-nosed bandicoot (*Parameles nasuta*), small mammal, medium mammal and blue-tongue skink. All of these species/groups could fall into species/groups recorded in underpasses. For example, long-nosed bandicoot could be Bandicoot spp, and blue-tongue skink could be Lizard spp. Overall the results show a high correlation between species recorded at the exclusion fence and those recorded using nearby underpasses.

Table 7: Species and species groups recorded at the exclusion fence and within underpasses.

Species recorded at fence	Recorded in underpass
Swampy wallaby	
Short-beaked echidna	*
Short-eared brushtail possum	*
<i>Trichosurus</i> spp.	*
Northern brown bandicoot	*
Long-nosed bandicoot	
Bandicoot spp.	*
<i>Antechinus</i> spp.	*
Rodent spp.	*
Small mammal	
Medium mammal	
Lace monitor	*
Eastern water dragon	*
Blue-tongue skink	
Brush turkey	
Lewin's honeyeater	*
Grey fantail	
Superb fairywren	
Malurus spp.	
White-browed scrubwren	
Grey shrike-thrush	
Red-browed finch	
Introduced species	
Black rat	*
Fox	*
Cat	*
Dog	*

3.6 Roadkill Monitoring

A total of 22 species were recorded as roadkill where species level identification was possible, and a further 15 fauna groups were identified (Appendix A6). Figure 3 compares number of road-killed animals between underpass sites with Tyson’s and Burke’s recording the most with 16 kills followed by Dalhousie with 15. During autumn 20 birds, 17 reptiles, 10 mammals, six amphibians, and four unknown animals were recorded (Figure 4). During spring, 12 birds, three reptiles, two mammals, one amphibian and two unknown animals were recorded (Figure 4).

A total of 77 individuals were recorded along the four kilometres sampled on four occasions during year one operational phase monitoring. Birds whose movement is not affected by fauna exclusion fence accounted for 37% of roadkill, small mammals and reptiles that can move through the fence made up 52% of roadkill and four individuals (5% of all records) that should have been prevented from accessing the road corridor by the exclusion fence, were recorded as roadkill. These species were fox, cat, a large mammal, and a medium animal. The remaining 6% of roadkill records were so degraded they could not be allocated a fauna class.

In late 2017 there was a public record of a road-killed koala along the old Pacific Highway within 500m of the Burke’s underpass. Another koala roadkill was recorded along the Pacific Highway near Access G in

late 2016. Investigations in the area showed a nearby gate in the exclusion fence had been damaged and left open.

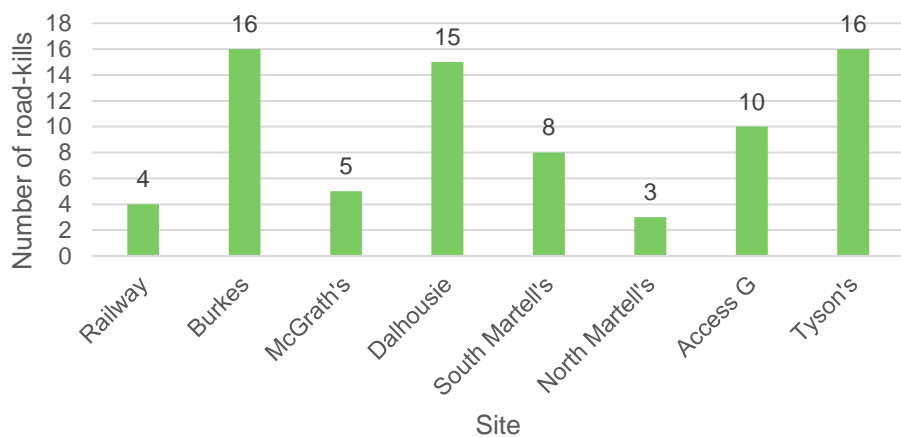


Figure 3: Roadkill by underpass study site.

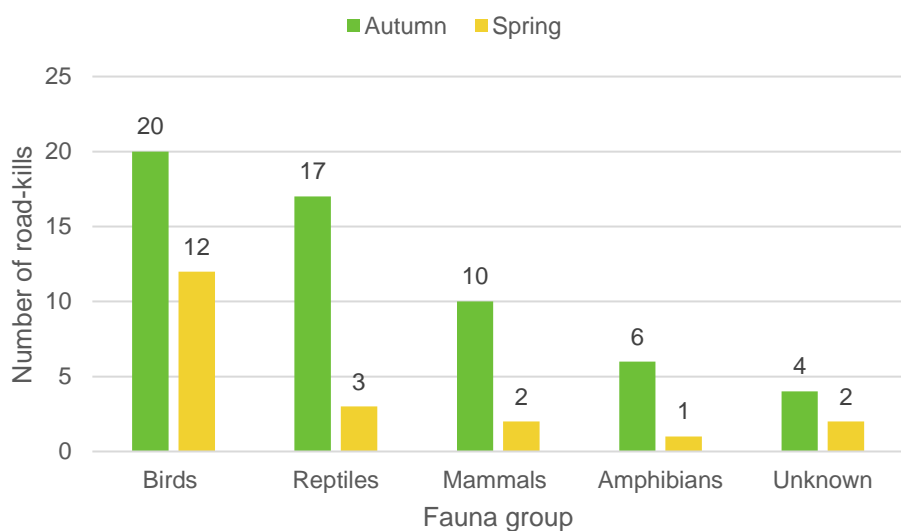


Figure 4: Roadkill by taxonomic group and seasonal monitoring period.

3.7 Vegetated Median Monitoring

3.7.1 Spotlighting

Spotlight surveys of vegetated median transects (i.e. east, west and within) at Dalhousie and Tyson's detected seven sugar gliders, one possible squirrel glider and one feathertail glider. Two sugar gliders were recorded within medians, with the remaining five individuals recorded either east or west of the medians. Sugar glider records within medians occurred on 8 May at Dalhousie and 10 May at Tyson's (Appendix A2). Other species recorded during vegetated median surveys were grey-headed flying-fox (both sites), common ringtail possum (Dalhousie west) and *Litoria spp.* (Dalhousie median & Tyson's west).

3.7.2 Hair funnels

Hair funnel monitoring in autumn detected animals at 50 (41%) of the 120 sites that hair funnels were installed. Monitoring in spring detected animals at 28 (23.3%) of the 120 sites. In autumn, two funnels

(DW16 & DW17) contained probable yellow-bellied glider (*Petaurus australis*) hair. Both funnels were situated on the west side of the Dalhousie median and DW16 was a glide pole (appendix A5). In spring a probable yellow-bellied or greater glider (*Petauroides volans*) hair was recorded at site TM9 inside the Tysons vegetated median.

Due to the similarity of sugar and squirrel glider hair, these species were grouped and classified as sugar/squirrel glider. Sugar/squirrel glider hair was recorded at 21 hair funnel sites in autumn and six in spring. Of these, five were recorded in the Tyson's median and four in the Dalhousie median. Other species detected in hair funnels were dusky antechinus (*Antechinus swainsonii*), yellow-footed antechinus (*Antechinus flavipes*), brown antechinus (*Antechinus stuartii*), brushtail possum spp. (*Trichosurus* sp.), black rat, fawn-footed melomys (*Melomys cervinipes*) and house mouse (*Mus musculus*).

3.8 Targeted Threatened Fauna

3.8.1 Adjacent habitat

No individuals or evidence of brush-tailed phascogale or spotted-tail quoll was recorded during adjacent habitat surveys. One old and desiccated possible koala scat was recorded beneath a mature tallowwood at Burke's west. The age of the scat suggests possible use 3-6 months prior to the observation. The landowner at Burkes west reported finding a dead juvenile koala in early 2017 (L. Ford pers comm).

3.8.2 Underpasses and fauna fence

None of the three targeted threatened fauna species were detected using any of the eight underpasses or moving along the exclusion fence.

3.8.3 Vegetated medians

Two possible records of yellow-bellied glider were obtained on the west side of the Dalhousie median during the autumn monitoring event and one possible yellow-bellied or greater glider record was obtained in the Tyson's median during spring monitoring. Squirrel/sugar glider hair was detected at 27 sites, 10 at Dalhousie and 17 at Tyson's, including nine records inside the median (five at Tyson's and four at Dalhousie). One possible squirrel glider was detected during spotlight surveys on 23 October on the west side of the Dalhousie median.

3.9 Habitat Assessment

Results of habitat assessment can be found in appendix A15.

4. Discussion

Results from year one of operational phase monitoring will be discussed with reference to the performance criteria described in the EMP and outlined in section 1.2 of this report.

4.1 Underpass and exclusion fencing monitoring

4.1.1 Rates of use of fauna underpasses and adjacent habitats by feral predators

Four terrestrial feral species were detected in fauna underpasses, including three feral predator species - fox, cat and dog. A total of 61 (12%) of the 507 complete (underpass) crossings were by feral predator species. Foxes accounted for 25 (4.9%), dogs for 23 (4.5%) and cats for 13 complete crossings (2.5%) (Table 5). When compared to previous underpass monitoring projects at Sapphire to Woolgoolga (230 fox crossings) and Glenugie (70 fox crossings) the number of fox crossings detected during year one of monitoring at NH2U is relatively low (Sandpiper Ecological 2017a & b). Three years of underpass monitoring at C2HC saw foxes only detected on two occasions and only in year three (Sandpiper 2015) suggesting fox abundance may be greater at some locations. Thirty four cat crossings were recorded during year one at Glenugie, illustrating that the number of cats detected at NH2U was also relatively low.

The lower incidence of feral predator crossings during year one may in part be attributed to the relatively intact vegetation that adjoins many underpasses. Feral species such as foxes, cats and dogs are opportunistic and readily habituate to artificial structures, tracks and disturbed environments. Indeed, fox, and cat were recorded using the underpasses during construction, and cats were the most frequently recorded species at that time (Sandpiper Ecological 2015).

Black rats accounted for 57% of total complete crossings. Whilst this species is not regarded as a feral predator its presence may deter other small mammals. The high incidence of black rats at NH2U is due in part to targeted monitoring of fauna furniture, a feature that has not been sampled in most previous studies. Newly constructed culverts may represent ideal habitat for black rats due to their known ability to colonise degraded and artificial environments (Watts 1995). The presence of rocky areas (scour protection) for shelter, and regrowth vegetation with no established native competitors may represent ideal environments. The success of revegetation on batters surrounding underpasses and resultant high density of litter cover may also contribute to higher abundance of black rats (Cox *et al.* 2001). The high frequency of black rat detections suggests that individuals are utilising the culverts as part of their nightly foraging range.

The high incidence of black rats in the underpasses may also attract cats and foxes which are known to follow prey populations (Read *et al.* 2001). Feral predators, due to their opportunistic behaviour and ability to utilise degraded habitat, are more likely to utilise artificial structures and cross areas of degraded habitat. Many native species, such as swamp wallabies and antechinus, are cover dependent and less inclined to cross cleared areas to access underpasses. As revegetation continues to establish and provide cover, use of underpasses by native species may increase.

4.1.2 High levels of fauna underpass use by a wide variety of native fauna species

A total of 15 native species were recorded in underpasses and of these, 14 made complete crossings. Sixty-nine species were recorded in adjacent habitat and 41 of these were native species that could use underpasses. Fifteen species, or 36% of species recorded in adjacent habitat, that could potentially use the underpasses, were recorded making complete crossings. This result is comparable to the Sapphire to Woolgoolga upgrade where between 23 and 50% of fauna recorded in adjacent habitat utilised underpasses (Sandpiper Ecological 2018).

Use of underpasses at NH2U is likely to increase over time as site features improve. This particularly relates to the limited vegetation at some entrances to underpasses and the large grade and large areas of

scour protection (exposed rock) that may currently hinder access by some species. This is especially so at Dalhousie Creek and North Martell's. As flood events wash sediment into scour protection and vegetation continues to establish the coarse nature of these entrance areas and the level of cover should improve and encourage underpass access. Further, some of the species recorded in adjacent habitat are small animals with small home ranges. Examples of this include common garden skink and rainbow skink. These species are unlikely to use underpasses unless there is adequate cover near entrances and within the structure.

4.1.3 Evidence of use by dispersing individuals and different age cohorts

Use by different age cohorts is difficult to confirm from photo images and sand tracks. Other methods such as mark-release-recapture methods would likely be required to provide definitive proof.

4.1.4 Use by cover-dependent species and species with low mobility

Use by species such as brown antechinus, dusky antechinus and short-eared brushtail possum suggests that some cover-dependent species are using underpasses on the NH2U upgrade. Antechinus species are largely cover-dependent, so their use of underpasses is encouraging. Antechinus were predominantly detected using the fauna furniture. Fauna furniture mimics logs often used by antechinus to move through their habitat. The presence of small snakes, lizards and frogs in underpasses is also encouraging as these species tend to have small home ranges and are often cover-dependent.

Whilst the initial results of monitoring are encouraging it is essential that vegetation continue to establish in scour protection at culvert entrances. Over time sediment and organic material is expected to accumulate in scour protection improving conditions for native ground cover establishment.

4.1.5 Low incidence of fauna road strike

A total of 77 animals were recorded during road-kill surveys over the 4km sample area during year one operational phase monitoring. This equates to 19.25 individual/km sampled. Extrapolated over the 22km length of the project a total of 424 animals may have been killed during the sample period. Road strike density at NH2U was substantially higher than recorded along the Warrell Creek to Nambucca Heads upgrade (WC2NH) where densities of 2.38 animals/km and 2.94 animals/km were recorded in October 2018 and January 2019 respectively (Sandpiper Ecological 2018 & 2019). Whilst the large difference in mortality rate between sites is in part due to survey method (walk versus vehicle transects) the NH2U upgrade appears to have a high incidence of road strike.

When species that either move over (birds) or through (small mammals, reptiles and frogs) the fence are excluded from the data road-strike density is reduced to 1 individual/km. This is very similar to the findings at WC2NH of 1.01/km in October and 0.91 individuals/km in January. Monitoring at NH2U indicates that the fauna exclusion fence is effective at excluding large terrestrial fauna from accessing the road corridor.

4.2 Widened Vegetated Medians

4.2.1 Evidence of use of median vegetation by the target glider species

A possible yellow-bellied glider or greater glider was recorded in the Tyson's median at site 9 in spring, and two probable records of yellow-bellied gliders at DW16 and DW17 on the west side of the Dalhousie median occurred in autumn. These results are significant given the low abundance of yellow-bellied glider in the study area. It is also encouraging that DW16 was a glide pole located on the western edge of the Dalhousie median. Further discussion on the occurrence of threatened gliders is provided in section 4.3.2. Difficulty in distinguishing between sugar and squirrel glider hair makes accurate identification of squirrel

glider through hair analysis difficult (*pers. comms.* R. Carter). Consequently, several hair samples were identified as sugar/squirrel glider. Based on spotlighting and clearing surveys these samples are most likely sugar glider.

4.2.2 Evidence of use by dispersing individuals and different age cohorts

Confirming the age of individuals is virtually impossible using the survey methods outlined in the EMP. Spotlighting detected no immature glider species but again, circumstances (animals high in canopy, limited light, glare from traffic etc.) restricted the ability to accurately ascertain age. No adult animals with back young or pouch young were observed, and all gliders were determined to be adults.

4.2.3 Use by glider species other than threatened species

Sugar gliders were recorded within medians on two occasions, on 8 May 2018 a single sugar glider was detected feeding on lerps in canopy vegetation at the Dalhousie median. On 10 May 2018 a sugar glider was observed in a pink bloodwood (*Corymbia intermedia*). Hair samples support the direct observation of sugar gliders with 19 records of sugar/squirrel gliders obtained within median vegetation. Monitoring shows that vegetated medians at Dalhousie and Tyson's are facilitating movement across the highway by sugar gliders. This finding is consistent with monitoring conducted for the Bonville and Sapphire to Woolgoolga upgrades (Taylor & Rohweder 2012; Sandpiper Ecological 2018).

4.3 Targeted Threatened Species

4.3.1 Scansorial threatened species

Of the three target scansorial mammal species, only koala was detected during year one monitoring. A single desiccated koala scat was recorded at Burke's west on 15 March 2018. In late 2017 there was a public record of a road-killed koala within 500m of the scat record, and a juvenile koala was found dead in private property on the west side of the highway in early 2018 (L. Ford pers comm). During construction several koala sightings occurred between Ballard's Road and Dalhousie Creek (Sandpiper Ecological 2015). Pre-construction koala surveys recorded medium koala use north of the Access G underpass, and at Burke's, and high use koala habitat near the Martell's south underpass, and in Little Newry State Forest south of Ballard's Road (Owner & Rohweder 2015). The Dalhousie, Martell's south, and Burke's underpasses are situated in proximity to known koala habitat, although evidence suggests low koala abundance. For example, three koalas were detected in 660 spotlighting and preclear surveys during construction (Sandpiper Ecological 2015). The absence of confirmed underpass use by koalas is most likely due to low population density and spatial use of home ranges over the short monitoring period.

Year one operational phase monitoring of underpasses on the Warrell Creek to Nambucca Heads Pacific Highway upgrade has detected regular koala use of some underpasses suggesting the species is not averse to using underpasses shortly after operation commences (Sandpiper Ecological unpublished data).

Spotted-tailed quolls are uncommon in coastal northern NSW. Pre-construction and operational phase monitoring for several Pacific Highway Upgrades indicates that the species occurs in low densities and occupies large home ranges. Targeted camera trap surveys for quolls at Glenugie, NH2U, WC2NH, and Oxley Highway to Kempsey (OH2K) have failed to detect the species (Sandpiper Ecological 2011; Owner & Rohweder 2015; Lewis Ecological 2014; Geolink 2017) yet road-killed individuals have subsequently been recorded near several of the sites monitored. The low density of quolls is supported by Bionet data with five records near the NH2U alignment since 2000. Whilst the presence of resident quolls is possible the likelihood of detecting individuals in underpasses is low. Spotted-tailed quolls have been infrequently recorded using underpasses, with one record at Glenugie, one recorded at OH2K, and one record on the Bulahdelah to Coolongolook upgrade (AMBS 2002; Sandpiper Ecological 2017; Niche unpublished data).

Brush-tailed phascogale is a sparsely distributed species that prefers dry open woodland with sparse groundcover (Van Dyck *et al* 2013). Other important habitat features include patches of dense litter layer, abundant fallen logs and rough-barked trees. Habitats surrounding the upgrade are generally unsuitable for brush-tailed phascogale as they are dominated by moist forest with dense ground vegetation. The lack of suitable habitat adjoining underpasses is supported by Bionet data with no records of brush-tailed phascogales in the study area since 2000.

The detection of long-nosed potoroo at Tyson's west is significant as this is only the second record of the species within the project corridor. The species was recorded during construction phase monitoring surveys at Dalhousie west in 2015 (Sandpiper 2015). Long-nosed potoroos were not picked up during baseline surveys for the project, comparable to the C2HC project where the species was only detected during operational phase monitoring (Sandpiper 2015). The species has also been recorded using underpasses at Buladelah to Coolongolook (AMBS 2002) suggesting that with further monitoring there may be an uptake of use by the species.

4.3.2 Arboreal threatened species

Three probable yellow-bellied glider hair samples provide preliminary evidence that the species utilises habitat adjoining vegetated medians and the Tysons median. Yellow-bellied gliders occur in low abundance in the study area. The Bionet database includes four records of the species in habitat surrounding the medians for the period January 2000 to January 2019 (Bionet 2019). Yellow-bellied gliders were not detected during construction phase surveys or during subsequent spotlight surveys at underpasses.

Hair samples were considered probable yellow-bellied glider as only a single distinguishable hair was left on each sample. If more hairs were available for analysis the records may have been regarded as definite (R. Carter pers comm 2018). The probable records are not sufficient evidence to warrant the trapping and radio-tracking requirement outlined in section 3.6.2 of the EMP. Trapping yellow-bellied gliders is very difficult with low likelihood of trap success. Their low abundance would further make the likelihood of a successful trapping and radio-tracking program very low. Various options should be considered for the second year of median monitoring including: apply the same methods as year one; expand hair funnel and spotlighting to include quarterly sampling; or combine hair funnel samples with baited camera traps installed within each median.

At the time of writing the EMP, greater glider (*Petauroides volans*) was not listed as a threatened species. In 2016 the species was listed as vulnerable by the EPBC Act. No confirmed records of greater gliders occurred during year one of operational phase monitoring.

4.4 Species Richness

With a total of 87 vertebrate fauna species detected during year one of operational phase monitoring, species diversity is considered high when compared with other pacific highway project locations (e.g. AMBS 2002; Taylor & Goldingay 2003; Hayes & Goldingay 2009; Sandpiper Ecological 2009, 2010, 2015). High species richness is attributed to the relatively high habitat quality surrounding the project corridor and dense ground vegetation and abundant woody debris. Many sample sites are also located on creeks or drainage lines where diversity is generally higher. Fauna often use riparian strips as corridors through landscapes and as a source of shelter, water and prey (Lada *et al*, 2008).

4.5 EPBC Act Condition 13

Condition 13 of the EPBC Act approval specifies that one year following completion of construction works the person taking the action must provide a report to the Minister detailing the success and/or failings of fauna crossings, fencing and road medians in achieving their intended purpose. The condition specifies five components that must be addressed.

1. Baseline data collected as a requirement of conditions 9 and 12;

Baseline data on underpass use was collected during the construction phase (see; Sandpiper Ecological 2014 & 2015) and targeted surveys for koala and spotted-tailed quoll occurred immediately prior to commencement of clearing (see Owner & Rohweder 2015). Key findings from these surveys are referred to throughout the discussion (see Section 4).

2. The number, design and location of fauna crossings, fencing and road medians, accompanied by maps and photographs;

Outlined in sections 1 and 2 of this report.

3. Details of a monitoring program to determine the long-term success of fauna crossings, fencing and road medians (including timing, duration, methodology, and performance objectives);

Methods to be used to monitor underpasses, exclusion fence and vegetated medians were specified in the EMP and, in the case of underpasses, refined during the construction phase sample. The timing, duration and methods used during year one operational phase monitoring are described in Section 2. These methods will be applied in subsequent years unless results suggest that a change is warranted. Performance objectives are discussed in Section 4.

4. The success of fauna crossings to date;

Outlined in section 3 and 4 of this report.

Initial results from year one operational phase monitoring are encouraging. A total of 11 native species and four native fauna groups made complete crossings of underpasses. Widened vegetated median monitoring detected one possible yellow-bellied glider record within the Tysons median and sugar gliders were spotlighted in both medians on one occasion each and detected in 19 hair funnel samples. Road-kill surveys detected four animals that should have been stopped from entering the highway by exclusion fence and the mortality rate is consistent with other nearby upgrades (Sandpiper Ecological unpublished data). Continued monitoring will produce a valuable dataset and serve to demonstrate trends in fauna interaction with the highway.

5. A comparison of data/results from other projects involving upgrades to the Pacific Highway regarding the long-term success of fauna crossings and/or fencing;

Reference to findings of other Pacific Highway monitoring projects has been included in the discussion where required. This was addressed in section 4 of this report and determinations regarding long-term success or otherwise will develop further as data is gathered over years two and three of the operational phase monitoring.

5. Recommendations

- Continue the operational phase monitoring program in accordance with the EMP.
- Undertake additional analysis of feral predator use of underpasses following year two monitoring to determine if a targeted control program is required.
- Consider including baited arboreal camera traps in the vegetated medians to monitor glider use of the median and to compliment spotlight and hair funnel sampling.

6. References

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Appendix A – Survey Data

Table A1: Common and scientific names for all species recorded during year one of operational phase monitoring on NH2U.

Species	Scientific name
Koala	<i>Phascolarctos cinereus</i>
Short-beaked echidna	<i>Tachyglossus aculeatus</i>
Common brushtail possum	<i>Trichosurus vulpecula</i>
Short-eared brushtail possum	<i>Trichosurus caninus</i>
Brushtail possum sp.	<i>Trichosurus sp.</i>
Common ringtail possum	<i>Pseudocheirus peregrinus</i>
Sugar glider	<i>Petaurus breviceps</i>
Squirrel Glider (prob)	<i>Petaurus norfolcensis</i>
Yellow-bellied glider	<i>Petaurus australis</i>
Feathertail glider sp.	<i>Acrobates spp.</i>
Fawn-footed melomys	<i>Melomys cervinipes</i>
Water rat	<i>Hydromys chrysogaster</i>
Bush rat	<i>Rattus fuscipes</i>
Swamp rat	<i>Rattus lutreolus</i>
Rat spp.	<i>Rattus spp.</i>
Rodent spp.	<i>Rodentia spp.</i>
Yellow-footed antechinus	<i>Antechinus flavipes</i>
Brown antechinus	<i>Antechinus stuartii</i>
Antechinus spp.	<i>Antechinus spp.</i>
Eastern bent-wing	<i>Miniopterus orianae oceanensis</i>
Microbat spp.	
Swamp wallaby	<i>Wallabia bicolor</i>
Red-necked wallaby	<i>Macropus rufogriseus</i>
Wallaby spp.	
Long-nosed potoroo	<i>Potorous tridactylus</i>
Macropod spp.	
Long-nosed bandicoot	<i>Parameles nasuta</i>
Northern brown bandicoot	<i>Isodon macrourus</i>
Bandicoot spp.	
Grey-headed flying-fox	<i>Pteropus poliocephalus</i>
Flying-fox spp.	<i>Pteropus spp.</i>
Large mammal	
Medium mammal	
Small mammal	
Eastern small-eyed snake	<i>Rhinoplocephalus nigrescens</i>
Red-bellied black-snake	<i>Pseudechis porphyriacus</i>
Marsh snake	<i>Hemiaspis signata</i>
Carpet python	<i>Morelia spilota</i>
Medium snake	
Small snake	
Eastern water dragon	<i>Physignathus lesueurii</i>
Lace monitor	<i>Varanus varius</i>
Egernia mcpheii	<i>Egernia mcpheei</i>
Land mullet	<i>Bellatorias major</i>
Blue-tongue lizard	<i>Tiliqua scincoides</i>
Garden sun-skink	<i>Lampropholis delicata</i>
Grass sun-skink	<i>Lampropholis guttichinoti</i>
Lampropholis spp.	<i>Lampropholis spp.</i>
Concinnia spp.	<i>Concinnia spp.</i>
Scincidae spp.	<i>Scincidae spp.</i>
Lizard spp.	
Reptile spp.	
Clicking froglet	<i>Crinia signifera</i>
Toadlet spp.	<i>Uperolia spp.</i>
Red-backed broodfrog	<i>Pseudophryne coriacea</i>
Tusked frog	<i>Adelotus brevis</i>
Great barred frog	<i>Mixophyes fasciolatus</i>
Striped marsh frog	<i>Limnodynastes peronii</i>
Whirring tree frog	<i>Litoria revelata</i>
Eastern sedge frog	<i>Litoria fallax</i>
Emerald-spotted tree frog	<i>Litoria peronii</i>
Laughing tree frog	<i>Litoria tyleri</i>
Striped rocket frog	<i>Litoria nasuta</i>
Broad-palmed rocket frog	<i>Litoria latopalmata</i>
Graceful tree frog	<i>Litoria gracilentata</i>
Tree frog spp.	<i>Litoria spp.</i>
Large frog	
Medium frog	

Species	Scientific name
Frog spp.	
Tawny frogmouth	<i>Podargus strigoides</i>
Barn owl	<i>Tyto delicatula</i>
Southern boobook	<i>Ninox boobook</i>
Australian owl nightjar	<i>Aegotheles cristatus</i>
Grey goshawk	<i>Accipiter novaehollandiae</i>
Noisy pitta	<i>Pitta versicolor</i>
Glossy-black cockatoo	<i>Calyptorhynchus lathami</i>
Wonga pigeon	<i>Leucosarcia melanoleuca</i>
Pacific emerald dove	<i>Chalcophaps longirostris</i>
Eastern whipbird	<i>Psophodes olivaceus</i>
Eastern yellow robin	<i>Eopsaltria australis</i>
Australian brush turkey	<i>Alectura lathami</i>
Rufous fantail	<i>Rhipidura rufifrons</i>
Grey fantail	<i>Rhipidura albiscapa</i>
Superb fairywren	<i>Malurus cyaneus</i>
Variiegated fairywren	<i>Malurus lamberti</i>
Fairywren spp.	
Welcome swallow	<i>Hirundo neoxena</i>
Australian logrunner	<i>Orthonyx temminckii</i>
Red-browed finch	<i>Neochmia temporalis</i>
Sacred kingfisher	<i>Todiramphus sanctus</i>
Azure kingfisher	<i>Ceyx azureus</i>
Grey shrikethrush	<i>Colluricincla harmonica</i>
Yellow-faced honeyeater	<i>Caligavis chrysops</i>
Lewins honeyeater	<i>Meliphaga lewinii</i>
White-cheeked honeyeater	<i>Phylidonyris niger</i>
Yellow thornbill	<i>Acanthiza nana</i>
White-browed scrubwren	<i>Sericornis frontalis</i>
Australian magpie	<i>Cracticus tibicen</i>
Laughing kookaburra	<i>Dacelo novaeguineae</i>
Buff-banded rail	<i>Gallirallus philippensis</i>
Dollarbird	<i>Eurystomus orientalis</i>
Pacific black duck	<i>Anas superciliosa</i>
Waterbird spp.	
Medium bird spp.	
Small bird spp.	
Striped gudgeon	<i>Gobiomorphus australis</i>
Mosquito fish	<i>Gambusia affinis</i>
House mouse	<i>Mus musculus</i>
Black rat	<i>Rattus rattus</i>
Red fox	<i>Vulpes vulpes</i>
Dog	<i>Canis lupus familiaris</i>
Cat	<i>Felis catus</i>
Cow	<i>Bos taurus</i>
Human	<i>Homo sapien</i>

Table A2: Widened vegetated median spotlighting data. SuG = sugar glider, GHFF = grey-headed flying fox, SqG = squirrel glider, FtG = feathertail glider, FF sp. = flying fox species, msb = moves small branches, rl = rustles leaves.

Site	Date	Observers	Start Time	Finish Time	Species	Comments	Flowering	Moon	Wind	Rain	Visibility	Air Temp	Humidity
Autumn 2018													
Dalhousie EAST	17/04/2018	NP/SJ	1916	1948	Nil		Nil	0/4	Msb	Nil	Good	21	84
	08/05/2018	NP/SJ	2000	2032	Nil		Nil	0/4	RL	Nil	Good	18.6	91
	10/05/2018	NP/SJ	1905	1935	Nil		Nil	0/4	Nil	Nil	Good	22.4	66
Dalhousie MEDIAN	17/04/2018	NP/SJ	1842	1915	Nil		Nil	0/4	Msb	Nil	Good	22.2	81
	08/05/2018	NP/SJ	2035	2105	SuG x 1 SE@40s10w, GHFF	Feeding on lerps in canopy	Flooded Gum x 1	0/4	RL	Light	Moderate	18.5	98
	10/05/2018	NP/SJ	1834	1905	Nil		Flooded Gum x 1	0/4	Nil	Nil	Good	22.4	66
Dalhousie WEST	17/04/2018	NP/SJ	1810	1840	SuG x 1 SE@380n10w	Feeding on insect - cricket	Nil	0/4	Msb	Nil	Good	22.2	81
	08/05/2018	NP/SJ	2107	2137	Nil		Nil	0/4	RL	Light	Moderate	18.5	98
	10/05/2018	NP/SJ	1800	1833	SuG x 2, SuG1.SE@250n5w, SuG2.SE@400n15w	SuGs in transit.	Nil	0/4	Nil	Nil	Good	22.4	66
Spring 2018													
Dalhousie EAST	27/09/2018	NM/SM	1955	2025	Nil		Tallowwood	Last 1/4	Nil	Nil	Good	14.3	90
	23/10/2018	MJ	1958	2028	Nil								
	06/11/2018	DR	2045	2115	Nil								
Dalhousie MEDIAN	27/09/2018	NP	1955	2025	Litoria sp.	3 tree frogs in one Flooded Gum	Tallowwood	Last 1/4	Nil	Nil	Good	14.3	90
	23/10/2018	MJ	2029	2100	Nil								
	06/11/2018	DR	2011	2043	Nil	Tallowwood, Mahogany sp.							
Dalhousie WEST	27/09/2018	NP	2027	2059	Nil		Tallowwood	Last 1/4	Nil	Nil	Good	14.3	90
	23/10/2018	MJ	2101	2131	Possible SqGx1	On trunk of DW7							
	06/11/2018	DR	1940	2010	CRtP	Tallowwood, Mahogany sp.							

Site	Date	Observers	Start Time	Finish Time	Species	Comments	Flowering	Moon	Wind	Rain	Visibility	Air Temp	Humidity
Tyson's EAST	27/09/2018	NM/SM	1837	190	GHFF		Tallowwood	Last 1/4	Msb	Nil	Good	15.8	81
	23/10/2018	NP	2057	2127	FF sp.		Tallowwood	Full	Nil	Nil	Good	21.8	81
	06/11/2018	NP	2045	2115	SuGx2, FtG sp. x 1, TF	All individuals in same flowering Ironbark	Ironbark, Tallowwood	1st 1/4	Nil	Light shower	Good	23.9	84
Tyson's MEDIAN	27/09/2018	NP	1837	1907	Nil		Grey Ironbark, Tallowwood	Last 1/4	Msb	Nil	Good	15.8	81
	23/10/2018	NP	2026	2056	Nil			Full	Nil	Nil	Good	21.8	81
	06/11/2018	NP	2011	2043	Nil		Tallowwood	1st 1/4	Nil	Light shower	Good	23.9	84
Tyson's WEST	27/09/2018	NP	1910	1940	GHFF		Grey Ironbark, Tallowwood	Last 1/4	Msb	Nil	Good	15.8	81
	23/10/2018	NP	1955	2025	Nil		Mahogany sp.	Full	Nil	Nil	Good	21.8	81
	06/11/2018	NP	1940	2010	Nil		Mahogany sp.	1st 1/4	Nil	Light shower	Good	23.9	84

Table A3: Nocturnal spotlight surveys of adjacent habitat. GHFF = grey-headed flying fox, SuG = sugar glider, Lit. = Litoria, SEBtP = short-eared brushtail possum, FtG = feathertail glider sp., CBtP = common brushtail possum, BtPoss = Brushtail possum species, TF = Tawny Frogmouth, CRtP = common ringtail possum, Pseud. = Pseudophryne species, Lim = Limnodynastes species, Lit = Litoria species, A. brevis = Adelotus brevis, Upe sp. = Uperolia species, ONJ = Owlet-Nightjar.

Location	Side	Date	Obs. No.	Observers	Start Time	Finish Time	Species	Wind	Rain	Visibility	Air Temp	Humidity	Comment
Autumn 2018													
Tyson's	East	18/04/2018	1	NP/SJ	1800	1830	GHFF	Nil	Showers in day	Moderate	21.9	84.5	
	West	18/04/2018	1	NP/SJ	1850	1920	SuG x 3, GHFF	Nil	Showers in day	Moderate	21.9	84.5	SuGx2 emerged from nest box "R10"
	West	11/05/2018	2	NP/SJ	2026	2100	SuGx1	Nil	Nil	Good	10.4	60	SuG had head at entrance to box "R10"
	East	11/05/2018	2	NP/SJ	2100	2130	SuGx2, GHFF, Black Rat	Nil	Nil	Good	10.4	60	SuGx1 had Head at entrance to SG nest box
Access G	East	18/04/2018	1	NP/SJ	1930	2000	GHFF, Crinia signifera, Lit. revelata	Nil	Nil	Moderate	22.5	81	
	West	18/04/2018	1	NP/SJ	2020	2050	GHFF, Crinia signifera,	Nil	Nil	Moderate	22.5	81	
	East	10/05/2018	2	NP/SJ	2115	2145	SuGx1, Crinia signifera	Nil	Nil	Good	14	90	
	West	10/05/2018	2	NP/SJ	2145	2215	SEBtPx1, Rodent spp.x1, Crinia signifera	Nil	Nil	Good	14	90	
Nth Martell's	East	19/04/2018	1	NP/SJ	2220	2250	GHFF, Black Rat (prob), Macropod spp.	Nil	Nil	Good	18.8	87	
	West	19/04/2018	1	NP/SJ	2250	2320	Nil	Nil	Nil	Good	18.8	87	
	East	09/05/2018	2	NP/SJ	2305	2335	GHFF, Macropod spp.	Nil	Nil	Moderate	14.8	94	
	West	09/05/2018	2	NP/SJ	2335	5	GHFF	Nil	Nil	Moderate	14.8	94	
Sth Martell's	East	09/05/2018	1	NP/SJ	2216	2246	SuGx1, Crinia signifera, Uperolia spp.	Nil	Nil	Moderate	15.8	94	SuG feeding in flowering Flooded Gum. Frogs around drainage basin
	West	09/05/2018	1	NP/SJ	2145	2215	L. revelata, Crinia signifera	Nil	Nil	Moderate	15.8	94	Frogs around drainage basin
	East	11/05/2018	2	NP/SJ	1945	2015	Macropod spp, Crinia signifera, Lit. revelata	Nil	Nil	Good	8.5	85	Frogs around drainage basin
	West	11/05/2018	2	NP/SJ	2016	2050	SEBtPx1, Crinia signifera	Nil	Nil	Good	8.5	85	Frogs calling around drainage basin
Dalhousie	East	18/04/2018	1	NP/SJ	2100	2130	SuGx1, GHFF, CBtPx1, Microbat spp.	Nil	Nil	Moderate	19.3	99	
	West	18/04/2018	1	NP/SJ	2150	2220	FtGx1, GHFF, Noisy Pitta	Nil	Nil	Moderate	19.3	99	
	East	11/05/2018	2	NP/SJ	2140	2210	GHFF	Msb	Nil	Good	13.4	41	
	West	11/05/2018	2	NP/SJ	2211	2245	Nil	Msb	Nil	Good	13.4	41	
Burke's	East	19/04/2018	1	NP/SJ	1955	2026	GHFF	Msb	Nil	Good	18	88	
	West	19/04/2018	1	NP/SJ	2027	2058	FF spp.	Msb	Nil	Good	18	88	
	East	09/05/2018	2	NP/SJ	1925	1955	FtGx1, GHFF, Rodent spp.x2	Nil	Nil	Moderate	17.3	88	

Location	Side	Date	Obs. No.	Observers	Start Time	Finish Time	Species	Wind	Rain	Visibility	Air Temp	Humidity	Comment
Railway	West	09/05/2018	2	NP/SJ	1955	2025	BtPoss spp, GHFF	Nil	Nil	Moderate	17.3	88	
	East	09/05/2018	1	NP/SJ	1806	1836	SEBtPx1, TF, Macropod spp.	Nil	Nil	Good	18.6	88	
	West	09/05/2018	1	NP/SJ	1840	1910	CBtPx1, SEBtPx1	Nil	Nil	Good	18.6	88	
	East	11/05/2018	2	NP/SJ	1804	1835	SuG/SqGx1, GHFF	Nil	Nil	Good	11.1	76	SuG/SqG feeding in flowering banksia
Mcgrath's	West	11/05/2018	2	NP/SJ	1340	1910	CRTPx1	Nil	Nil	Good	11.1	76	
	East	19/04/2018	1	NP/SJ	2112	2142	GHFF	Nil	Nil	Good	17.2	89	
	West	19/04/2018	1	NP/SJ	2142	2212	GHFF	Nil	Nil	Good	17.2	89	
	East	05/09/2008	2	NP/SJ	2035	2105	CRTPx1, Melomys cervinnipes x1, GHFF	Nil	Nil	Moderate	16.4	92	
	West	09/05/2018	2	NP/SJ	2105	2135	SuGx2, GHFF	Nil	Nil	Moderate	16.4	92	SuGs feeding in Pinus radiata
Spring 2018													
Tyson's	East	05/11/2018	1	DR	1945	2015	Swamp Wallaby, Pseud. coriacea, Lim. peronii, Lit fallax, Lit peronii.	Nil	Nil	Moderate	22.7	85	
	West	05/11/2018	1	NP	1945	2015	SuGx1, E. Small-eyed snake, ONj	Nil	Nil	Moderate	22.7	85	
	East	07/11/2018	2	NP	1950	2020	Lim. peronii, Pseud. coriacea, Lit. tyleri	Nil	Light shower	Moderate	26	90	
	West	07/11/2018	2	DR	1950	2020	Lim. peronii,	Nil	Light shower	Moderate	26	90	
Access G	East	05/11/2018	1	DR	2025	2055	Swamp Wallaby, Lit peronii, Lim peronii. Upe. sp.	Nil	Nil	Moderate	22.7	85	
	West	05/11/2018	1	NP	2025	2055	Lit. Nasuta, Lit fallax, ad brevis, tyleri,	Nil	Nil	Moderate	22.7	85	
	East	07/11/2018	2	NP	2027	2057	Lit. tyleri, Lit. fallax, Lit peronii, Lim. peronii, Upe sp.	RL	Light shower	Moderate	25.4	87.1	
	West	07/11/2018	2	DR	2027	2057	A. brevis, Lit. nasuta, Pseudo. coriacea, SuG, SuG/SqG	RL	Light shower	Moderate	25.4	87.1	
Nth Martell's	East	05/11/2018	1	DR	2108	2138	Nil	Nil	Nil	Moderate	22.5	86	
	West	05/11/2018	1	NP	2108	2138	Lit. fallax	Nil	Nil	Moderate	22.5	86	
	East	07/11/2018	2	NP	2106	2136	Nil	Nil	20mm in prev hr	Moderate	25.3	88.1	
	West	07/11/2018	2	DR	2106	2136	SuG, Lim. peronii, Pseud. coriacea, A. brevis, Lit. fallax	Nil	20mm in prev hr	Moderate	25.3	88.1	
Sth Martell's	East	05/11/2018	1	DR	2150	2220	Lit. fallax, Ad.brevis, Lit. peronii	Nil	Nil	Moderate	22.5	86	
	West	05/11/2018	1	NP	2150	2220	Lim. peronii, Lit. peronii, Lit. tyleri, Upe sp., Ad. brevis	Nil	Nil	Moderate	22.5	86	

Location	Side	Date	Obs. No.	Observers	Start Time	Finish Time	Species	Wind	Rain	Visibility	Air Temp	Humidity	Comment
	East	07/11/2018	2	NP	2142	2212	Lit. fallax, Lim. peronii, Lit. peronii, Lit. latopalmata	Nil	Light showers	Moderate	23.3	94.1	
	West	07/11/2018	2	DR	2142	2212	Lim. peronii, Lit. peronii, Lit. tyleri, Upe sp., Black Rat	Nil	Light showers	Moderate	23.3	94.1	
Dalhousie	East	05/11/2018	1	DR	2230	2300	SEBtPx2, SuG, ONJ, Lit. fallax, Lit. peronii	Nil	Nil	Moderate	21.2	90	
	West	05/11/2018	1	NP	2230	2300	Nil	Nil	Nil	Moderate	21.2	90	
	East	07/11/2018	2	NP	2215	2245	Pseudo. coriacea, Lit. fallax	RL	20mm in prev 3hrs	Moderate	23.3	91.5	
	West	07/11/2018	2	DR	2215	2245	M. fasciolatus, Pseudo. coriacea	RL	20mm in prev 3hrs	Moderate	23.3	91.5	
Burke's	East	05/11/2018	1	DR	2310	2340	Lit fallax, CBtP, Lim peronii,	Nil	Nil	Moderate	21.2	90	
	West	05/11/2018	1	NP	2310	2340	Land mullet, Barn Owl, SuG/SqG	Nil	Nil	Moderate	21.2	90	
	East	07/11/2018	2	NP	2333	0003	Lit. fallax	Nil	20mm earlier in evening	Moderate	24.1	90	
	West	07/11/2018	2	DR	2333	0003	Nil	Nil	20mm earlier in evening	Moderate	24.1	90	
Railway	East	05/11/2018	1	DR	2345	0015	SEBtP	Nil	Nil	Moderate	21	90	
	West	05/11/2018	1	NP	2345	0015	ONj	Nil	Nil	Moderate	21	90	
	East	07/11/2018	2	NP	0004	0034	SuG	Nil	Light shower	Moderate	23.6	97	
	West	07/11/2018	2	DR	0004	0034	Nil	Nil	Light shower	Moderate	23.6	97	
Mcgrath's	East	05/11/2018	1	DR	0025	0055	SuG, Ad. brevis, Lit. tyleri, Lit. peronii, Lit. fallax	Nil	Nil	Moderate	21	90	
	West	05/11/2018	1	NP	0025	0055	Ad. brevis, Lit. fallax, Upe. sp.	Nil	Nil	Moderate	21	90	
	East	07/11/2018	2	NP	2258	2330	Lit. fallax	Nil	Light shower	Moderate	24.4	90.5	
	West	07/11/2018	2	DR	2258	2330	Lit. fallax, Upe sp.	Nil	Light shower	Moderate	24.4	90.5	

Table A4: Frog survey data. Lit = Litoria spp., C. = Crinia spp., Pseud. = Pseudophryne spp., Lim. = Limnodynastes spp., M. fasciolatus = Mixophyes fasciolatus.

Location	Date	Obs. No.	Observers	Start Time	Finish Time	Species (entrance)	Species (culvert)	Wind	Rain	Visibility	Air Temp	Humidity	Notes
Autumn 2018													
Tyson's	27/03/2018	NA	NP				Lim peronii x 1						Frog moving E->W. Incidental
	18/04/2018	1	NP/SJ	1830	1950	Striped Gudgeon, mosquito fish	Nil	Nil	Nil	Moderate	22	83	
	11/05/2018	2	NP/SJ	2130	2150	Nil	Nil	Nil	Nil	Good	14	62	
Access G	18/04/2018	1	NP/SJ	2000	2020	Lit. fallax, Lit. revelata, C. signifera	Nil	Nil	Nil	Moderate	22.5	84	All frogs calling from dam near entrance
	10/05/2018	2	NP/SJ	2200	2220	Crinia signifera	Nil	Nil	Nil	Good	14	92	Frogs calling from dam near entrance
Nth Martell's	09/05/2018	1	NP/SJ	2300	2320	Nil	Nil	Nil	3mm in 24hr	Moderate	14.8	94	No frogs calling
Sth Martell's	09/05/2018	1	NP/SJ	2215	2235	Nil	Nil	Nil	3mm in 24hr	Moderate	15.4	92	L. revelata and Crinia signifera calling from drainage pond
	11/05/2018	2	NP/SJ	1930	1950	Nil	Nil	Nil	Nil	Good	14.8	69	
Dalhousie	18/04/2018	1	NP/SJ	2130	2150	Nil	Nil	Nil	Nil	Moderate	19.5	99	
	08/05/2018	2	NP/SJ	2135	2155	Nil	Nil	RL	Light	Moderate	18.5	98	L.fallax heard calling nearby
	11/05/2018	3	NP/SJ	2300	2320	Nil	Nil	Nil	Nil	Good	10.8	55	
Burkes	18/04/2018	1	NP/SJ	2230	2250	Lit. fallax	Nil	Nil	Nil	Moderate	21.9	86	Only one fallax
	09/05/2018	2	NP/SJ	2130	2150	Nil	Nil	Nil	3mm in 24hr	Moderate	16.2	91	
Railway													
Mcgrath's	09/05/2018	1	NP/SJ	2000	2020	Nil	Nil	Nil	3mm in 24hr	Moderate	17.4	88	
Spring 2018													
Tyson's	25/09/2018	1	NP/NM	1825	1840	C. signifera, Pseud. coriacea	Nil	RL	Nil. 32mm in prev 24hr	Good	15.6	90	
	28/09/2018	2	NP/SM	2000	2010	Lim. peronii, Lit. fallax, Lit. peronii, C. signifera	Nil	Nil	Nil	Good	21.5	100	Lim. peronii was moving toward culvert (W>E)
	16/10/2018	3	GM/OT	2045	2105	C.signifera, stripped gudgeon	Nil	Nil	6mm in 24hr	Good	21	84	L.tyleri calling from sed basin.
	06/11/2018	4	DR/NP	2155	2215	Lit. peronii, Lit. fallax	Nil	Nil	Light shower in previous hr	Good	26.6	83.2	
	07/11/2018	5	DR/NP	1950	2000	Lit. peronii, Lit. fallax, Pseud. coriacea.	Lim. peronii (1/e)	Nil	20mm in prev hr	Good	23.7	90.6	On apron in median
Access G	25/09/2018	1	NP/NM	1850	1910	C. signifera, Lit. fallax, Lit. tyleri, Lit. peronii	Nil	RL	Light rain. 32mm in prev 24hr	Good	14.6	92.6	All frogs calling around drainage basins

Location	Date	Obs. No.	Observers	Start Time	Finish Time	Species (entrance)	Species (culvert)	Wind	Rain	Visibility	Air Temp	Humidity	Notes
	28/09/2018	2	NP/SM	1945	1955	C. signifera, Lit. fallax, Lit. tyleri, Lit. peronii, Pseud. coriacea	Nil	Nil	Nil	Good	22.5	86.6	
	16/10/2018	3	GM/OT	2110	2130	C.signifera, Lit. fallax, L.tyleri, Lim. peronii	Nil	Nil	6mm in 24 hr	Good	20	90	Frogs calling from dam near entrance & entrance.
	06/11/2018	4	DR/NP	2220	2030	Lit. fallax, Lit. tyleri, Lit. peronii, A. brevis, Lit. nasuta,	Nil	Nil	Light shower prev hr	Good	24.1	91	
	07/11/2018	5	DR/NP	2027	2037	Lit. fallax, Lit. tyleri, Lit. peronii, A. brevis, Lit. Lim. peronii, Lit. latopalmata, Pseudo. coriacea	Lim. peronii (2/e), Lit. fallax (1/w)	Nil	20mm in prev hr	Good	25.1	90	Lim. peronii on eastern apron floor, fallax on FF at apron
Nth Martell's	25/09/2018	1	NP/NM	1918	1930	C. signifera, Lit. fallax	Striped Gudgeon x 2	RL	Light rain. 32mm in prev 24hr	Good	17.2	84.5	Gudgeon moving through culvert E>W
	28/09/2018	2	NP/SM	1920	1930	Lit. fallax	Nil	Nil	Nil	Good	20.8	100	
	16/10/2018	3	GM/OT	2220	2240	L.fallax, L.tyleri	Nil	Nil	6mm in 24 hr	Good	20	82	A. Brevis calling in nearby sedge pond.
	06/11/2018	4	DR/NP	2435	2245	C. signifera, Lim. peronii, Lit. fallax	Nil	Nil	Light shower prev hr	Good	24.9	98.4	
	07/11/2018	5	DR/NP	2107	2117	Lim. peronii, A. brevis, Pseud. coriacea, Lit. fallax	Nil	Nil	20mm in prev hr	Good	25.1	86.7	
Sth Martell's	25/09/2018	1	NP/NM	2045	2102	C. signifera, Lit. fallax, Lit. peronii, Lit. tyleri, Lit. revelata, Upe sp.	Nil	RL	Light rain. 32mm in prev 24hr	Good	16.5	100	
	28/09/2018	2	NP/SM	1900	1913	Lit. tyleri, Lit. fallax, Lit. peronii, Lim. peronii, Upe. sp., C. signifera	Nil	RL	Nil	Good	22.5	100	All frogs calling around dam.
	16/10/2018	3	GM/OT	2150	2210	C.signifera, L.fallax, L.tyleri, L. gracilentata (pr)	Nil	Nil	Yes	Good	20	92	
	06/11/2018	4	DR/NP	2250	2300	Lit. peronii, Lit. fallax, Lit. tyleri, A. brevis	Nil	Nil	Light shower earlier in night	Good	26	90.6	
	07/11/2018	5	DR/NP	2143	2153	Lit. tyleri, Lit. fallax, Lit. peronii, Lit. latopalmata, Upe sp.	Nil	Nil	20mm in evening	Good	24.4	94.1	
Dalhousie	25/09/2018	1	NP/NM	1940	1950	C. signifera	Nil	RL	Light rain. 32mm in prev 24hr	Good	17.5	83.6	
	27/09/2018	2	NP/NM/SM	2100	2110	C. signifera	Nil	Nil	Nil	Good	16	86	
	16/10/2018	3	GM/OT	2235	2255	C. signifera	Nil	Nil	6mm in 24hr	Good	21	85	
	06/11/2018	4	DR/ NP	2130	2150	Lit. peronii, Lit. fallax, Lit. tyleri, Lit. nasuta	Nil	Nil	Light shower in previous hr	Good	23	90	

Location	Date	Obs. No.	Observers	Start Time	Finish Time	Species (entrance)	Species (culvert)	Wind	Rain	Visibility	Air Temp	Humidity	Notes
	07/11/2018	5	DR/NP	2215	2230	M. fasciolatus, Pseudo. coriacea, Lit. fallax	Nil	RL	20mm in prev 3 hrs	Good	23.3	91.5	
Burke's	25/09/2018	1	NP/NM	2010	2020	Nil	Nil	RL	Light rain. 32mm in prev 24hr	Good	17.5	87.8	
	28/09/2018	2	NP/SM	2038	2048	A. brevis, Lit. fallax	Nil	MLB	Nil	Good	23.7	96	
	16/10/2018	3	GM/OT	2330	2350	Lit. fallax	Nil	Nil	6mm in 24hr	Good	23	81	
	06/11/2018	4	DR/NP	2325	2335	Lit. fallax	Nil	MSB	Light shower	Good	26.7	85.2	
	07/11/2018	5	DR/NP	2335	2345	Lit. fallax	Nil	Nil	20mm earlier in evening	Good	22.6	93.6	
Railway	25/09/2018	1	NP/NM	2025	2035	Nil	Nil	RL	Light rain. 32mm in prev 24hr	Good	17.6	82.7	
	28/09/2018	2	NP/SM	1820	1830	Nil	Nil	Nil	Nil	Good	22.9	78.7	
	05/11/2018	3	DR	1255	0035	Nil	Nil	Nil	Nil	Good	21	90	
	06/11/2018	4	DR/NP	2340	2350	Nil	Nil	Msb	Light shower	Good	26.7	90.1	
	07/11/2018	5	DR/NP	0005	0015	Nil	Nil	RL	Light shower	Good	23.6	97	
Mcgrath's	25/09/2018	1	NP/NM	1954	2004	Nil	Nil	RL	Light rain. 32mm in prev 24hr	Good	17.3	90.2	
	27/09/2018	2	NP/NM/SM	2115	2125	Nil	Nil	Nil	Nil	Good	14.5	91	
	16/10/2018	3	GM/OT	2305	2325	Lit. fallax	Nil	Nil	6mm in 24hr	Good	23	81	Heard A.brevis calling above culvert.
	06/11/2018	4	DR/NP	2310	2320	Lit. fallax, A. brevis	Nil	Msb	Light shower	Good	25.8	89.9	
	07/11/2018	5	DR/NP	2259	2310	Lit. fallax, A. brevis, Upe. sp.	Nil	Nil	20mm in evening	Good	22.9	96	

Table A5: Widened vegetated median hair funnel data. *P. breviceps* = *Petaurus breviceps*, *P. norfolcensis* = *Petaurus norfolcensis*, Pr = probable, Poss = possible, Eastng = Easting, Nthng = Northing.

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Dal_East 1	499755	6622025	Tallowwood	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East1A Pole	500051	6621710	Glide pole	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 2	499778	6622000	Red Mahogany	13/03/2018	30/4-2/5/2018	<i>T. vulpecula</i> (prob)	30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>P. breviceps</i> or <i>P. norfolcensis</i>
Dal_East 3	499788	6621991	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 4	499802	6621959	Blackbutt	13/03/2018	30/4-2/5/2018	<i>Trichosurus</i> sp.	30/4-2/5/2018	28-29/5/18	<i>Melomys cervinnipes</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 5	499845	6621902	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	Possum/Glider spp.	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Antechinus sp.
Dal_East 6	499908	6621887	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky Antechinus
Dal_East 7	499927	6621849	Flooded Gum	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 8	499947	6621808	Tallowwood	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	Possum/Glider spp.	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 9	499979	6621781	Red Mahogany	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>Melomys cervinnipes</i>
Dal_East 10	499987	6621764	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 11	499980	6621730	Flooded Gum	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 12	500051	6621710	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 13	500095	6621644	Red Mahogany	13/03/2018	30/4-2/5/2018	<i>Rattus rattus</i> (prob)	30/4-2/5/2018	28-29/5/18	<i>Antechinus</i> spp. (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 14	500102	6621607	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus flavipes</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 15	500102	6621580	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus</i> spp. (prob) & <i>P. breviceps</i> / <i>P.</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
									<i>norfolcensis</i> (prob)						
Dal_East 16	500123	6621570	Smoothbark Apple	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus flavipes</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 17	500119	6621548	Tallowwood	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus</i> spp.	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 18	500156	6621473	Red Mahogany	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 19	500276	6621207	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus flavipes</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_East 20	500284	6621243	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 1	499708	6621998	Tallowwood	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Melomys cervinnipes</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 2	499723	6621992	White Mahogany	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 3	499722	6621948	Blackbutt	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 4	499754	6621925	White Mahogany	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 5	499764	6621917	Flooded Gum	13/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 6	499797	6621910	Red Mahogany	14/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky Antechinus
Dal_Med 7	499812	6621844	Blackbutt	14/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus stuartii</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky Antechinus
Dal_Med 8	499851	6621846	Blackbutt	14/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus stuartii</i> & <i>Rattus rattus</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky Antechinus
Dal_Med 9	499855	6621807	Blackbutt	14/03/2018	30/4-2/5/2018	<i>Petaurus</i> sp. (prob)	30/4-2/5/2018	28-29/5/18	<i>Rattus rattus</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Antechinus sp.
Dal_Med 10	499881	6621791	Blackbutt	14/03/2018	30/4-2/5/2018	<i>Petaurus</i> sp. (prob)	30/4-2/5/2018	28-29/5/18	<i>Antechinus stuartii</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky Antechinus
Dal_Med 11	499954	6621739	Blackbutt	14/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps</i> / <i>P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Dal_Med 12	499919	6621703	Tallowwo od	14/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 13	500078	6621531	Ironbark	15/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18	<i>Antechinus stuartii</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 14	500012	6621531	Blackbutt	15/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18	<i>Antechinus stuartii</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 15	500020	6621515	Blackbutt	15/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 16	500097	6621472	Mahogany spp.	15/03/2018	30/4-2/5/2018	<i>Petaurus</i> sp. (prob)	30/4-2/5/2018	28-29/5/18	<i>Rattus rattus</i> or <i>Rattus fuscipes</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 17	500097	6621477	Blackbutt	15/03/2018	30/4-2/5/2018	<i>Petaurus</i> sp. (prob)	30/4-2/5/2018	28-29/5/18	<i>Rattus rattus</i> or <i>Rattus fuscipes</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 18	500125	6621442	Mahogany	15/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Rattus rattus</i> or <i>Rattus fuscipes</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 19	500197	6621254	Blackbutt	15/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_Med 20	500261	6621248	White Mahogany	15/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 1	499622	6622008	Glide Pole	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_WEst 2	499636	6621973	Pink Bloodwood	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 3	499705	6621943	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 4	499738	6621880	Red Mahogany	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 5	499732	6621850	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 6	499763	6621813	Ironbark	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky antechinus

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Dal_West 7	499760	6621752	Red Mahogany	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 8	499826	6621704	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 9	499856	6621677	Glide Pole	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	Small glider/possum	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 10	499817	6621671	Smoothbark Apple	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Dusky antechinus
Dal_West 11	499872	6621646	Ironbark	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 12	499885	6621623	Ironbark	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 13	499903	6621579	Tallowwood	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P.breviceps/P.norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 14	499927	6621542	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 15	499972	6621521	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P.breviceps/P.norfolcensis</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 16	499983	6621519	Glide Pole	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. australis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 17	500012	6621457	Mahogany spp.	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. australis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 18	500014	6621441	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Possum sp.
Dal_West 19	500165	6621248	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Dal_West 20	500177	6621243	Blackbutt	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 1	498665	6627349	Glide Pole	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 2	498648	6627340	Swamp Mahogany	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Antechinus</i> spp.	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 3	498615	6627268	Tallowwood	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 4	498610	6627278	Tallowwood	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 5	498456	6627053	Red Mahogany	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Tys_East 6	498464	6627047	Tallowwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Brushtail possum sp. (prob)
Tys_East 7	498443	6627022	Ironbark	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 8	498412	6626948	White Mahogan y	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Antechin us sp. (prob)
Tys_East 9	498411	6626965	Tallowwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18	Brushtail Possum sp. (prob)	22-26/10/18	22/11/18	Antechin us sp.
Tys_East 10	498409	6626948	Pink Bloodwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Melomys cervinnipes</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Antechin us sp.
Tys_East 11	498373	6626931	White Mahogan y	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18	<i>P. breviceps</i> / <i>P. norfolcensis</i>	22-26/10/18	22/11/18	Antechin us sp.
Tys_East 12	498362	6626908	Mahogan y spp.	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Melomys cervinnipes</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 13	498347	6626902	Glide Pole	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 14	498252	6626683	Tallowwo od	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 15	498221	6626654	Turpentin e	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps</i> / <i>P. norfolcensis</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 16	498208	6626657	Glide Pole	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 17	498198	6626630	SF Grey Gum	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps</i> / <i>P. norfolcensis</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 18	498184	6626589	SF Grey Gum	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps</i> / <i>P. norfolcensis</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_East 19	498181	6626564	Red Mahogan y	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps</i> / <i>P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18	<i>P. breviceps</i> / <i>P. norfolcensis</i>	22-26/10/18	22/11/18	Brown Antechin us
Tys_East 20	498151	6626559	Mahogan y spp.	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 1	468643	6627360	Tallowwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Tys_Med 2	498628	6627334	Tallowwo od	26/03/2018	30/4-2/5/2018	Rodent spp.	30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Possum sp.
Tys_Med 3	468611	6627271	Tallowwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 4	498577	6627288	Ironbark	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>Rattus rattus</i>
Tys_Med 5	498424	6627047	SF Grey Gum	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 6	498400	6627043	Pink Bloodwood	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 7	498367	6627010	Mahogany spp.	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 8	498344	6626986	Tallowwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Brushtail possum sp. (prob)
Tys_Med 9	498346	6626977	SF Grey Gum	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>P. australis</i> or <i>Petaurides volans</i> (Prob)
Tys_Med 10	498337	6626958	Red Mahogany	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 11	498318	6626920	Mahogany spp.	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>P. breviceps</i> or <i>P. norfolcensis</i>
Tys_Med 12	498313	6626898	Tallowwo od	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 13	498303	6626859	Mahogany spp.	26/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Possum sp.
Tys_Med 14	498200	6626624	Tallowwo od	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 15	498157	6626639	SF Grey Gum	27/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 16	498148	6626639	Red Mahogany	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Rattus rattus</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Tys_Med 17	498154	6626614	Ironbark	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Rattus rattus</i>	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	Brushtail possum sp. (prob)
Tys_Med 18	498124	6626607	White Stringybark	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 19	498144	6626577	SF Grey Gum	27/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_Med 20	498148	6626582	Pink Bloodwood	27/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 1	498616	6627402	Red Mahogany	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 2	498590	6627388	Red Mahogany	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 3	498560	6627361	Tallowwood	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 4	498539	6627333	Glide Pole	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 5	498336	6627014	Mahogany spp.	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18			22-26/10/18		22-26/10/18	22/11/18	
Tys_West 6	498329	6627029	Turpentine	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)		22-26/10/18		22-26/10/18	22/11/18	
Tys_West 7	498317	6626967	White Mahogany	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18			22-26/10/18		22-26/10/18	22/11/18	
Tys_West 8	498310	6626980	Turpentine	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 9	498280	6626978	Ironbark	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 10	498268	6626963	Turpentine	27/03/2018	30/4-2/5/2018	<i>Trichosurus</i> sp. (prob)	30/4-2/5/2018	28-29/5/18			22-26/10/18		22-26/10/18	22/11/18	
Tys_West 11	498252	6626884	Pink Bloodwood	27/03/2018	30/4-2/5/2018	<i>P. breviceps/norfolcensis</i>	30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 12	498222	6626870	Pink Bloodwood	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	

Funnel ID	Eastng	Nthng	Tree sp.	Autumn 2018 (session 1)			Autumn 2018 (session 2)			Spring 2018 (session 1)			Spring 2018 (session 2)		
				Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna	Install Date	Collect date	Fauna	Re-bait/wafer Date	Collect date	Fauna
Tys_West 13	498202	6626879	Tallowwood	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18			22-26/10/18		22-26/10/18	22/11/18	
Tys_West 14	498115	6626655	SF Grey Gum	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)		22-26/10/18		22-26/10/18	22/11/18	
Tys_West 15	498106	6626638	Turpentine	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>P. breviceps/P. norfolcensis</i> (prob)	25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>P. breviceps</i> or <i>P. norfolcensis</i> (prob)
Tys_West 16	498109	6626614	Pink Bloodwood	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	<i>P. breviceps</i> or <i>P. norfolcensis</i>
Tys_West 17	498081	6626616	Brushbox	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18		25-28/9/18	22-26/10/18		22-26/10/18	22/11/18	
Tys_West 18	498069	6626599	Pink Bloodwood	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18			22-26/10/18		22-26/10/18	22/11/18	<i>Antechinus</i> sp.
Tys_West 19	498072	6626598	Ironbark	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18			22-26/10/18		22-26/10/18	22/11/18	
Tys_West 20	498082	6626579	Pink Bloodwood	27/03/2018	30/4-2/5/2018		30/4-2/5/2018	28-29/5/18	<i>Mus musculus</i>		22-26/10/18		22-26/10/18	22/11/18	

Table A6: Roadkill survey data. TF = tawny frogmouth, SB = Southern boobook, Med = medium, UnID = Unidentified.

Site/Side	Date	Survey no.	Observers	Start	End	Road kill	Location	Cleared off Rd	Live fauna on Rd edge	Notes	Fence conditions	Weather
Autumn 2018												
Railway												
East	18/04/2018	1	NP/SJ	815	845	Med bird	20s	Y	Nil		Ok	Fine and humid
	11/05/2018	2	NP/SJ	930	1000	TF/SB	175s	Y	Nil	Unable to differentiate between TF/SB	Ok	Fine
West	18/04/2018	1	NP/SJ	846	917	Small vertebrae	50s	N	Nil		Ok	Fine and humid
	11/05/2018	2	NP/SJ	1001	1035	Nil			Nil	Echidna diggings on road side of fauna fence	Ok	Fine
Burkes												
East	17/04/2018	1	NP/SJ	1400	1430	UnID bird (prob TF)	5s	Y	Nil	Only feathers left	Ok	Fine and hot
	03/05/2018	2	NP	1540	1640	UnID small animal	10n	N	Nil		Ok	Fine and warm
						UnID small animal	210n	N	Nil	Only vertebrae left	Ok	
West	17/04/2018	1	NP/SJ	1433	1505	Fox	90s	Y	Nil		Ok	Fine and hot
						Dollar bird	150s	Y	Nil		Ok	
						Med bird (prob parrot)	180s	Y	Nil	Scattered bones, very old	Ok	
	03/05/2018	2	NP	1645	1745	Small bird	50n	N	Nil	On carriageway	Ok	Fine and warm
McGraths												
East	17/04/2018	1	NP/SJ	1135	1205	White-browed Scrubwren	10n	Y	Lampropholis sp.		Ok	Fine and warm
						Striped Marsh Frog	50n	Y		Between SB and NB lanes	Ok	Fine and warm
	03/05/2018	2	NP	1330	1430	Variegated Fairy-Wren	50s	Y	Nil		Ok	Fine
West	17/04/2018	1	NP/SJ	1207	1240	Nil			Nil	West side a bit unsafe.	Ok	Fine and warm
	03/05/2018	2	NP	1430	1530	Small mammal, prob Rat	15s	N	Scincidae spp.		Ok	Fine
Dalhousie												
East	13/03/2018	NA	NP			Carpet Python	220s	N		Incidental		
	18/04/2018	1	NP/SJ	700	730	Microbat spp.	175s	N	Nil	On carriageway	Ok	Fine and humid
						Rodent spp.	70s	Y			Ok	Fine and humid

Site/Side	Date	Survey no.	Observers	Start	End	Road kill	Location	Cleared off Rd	Live fauna on Rd edge	Notes	Fence conditions	Weather
						Lace Monitor	90n	Y		On median side	Ok	Fine and humid
						Med bird	130n	Y			Ok	Fine and humid
	01/05/2018	2	MJ	1500	1600	Microbat sp.	90n	Y	Nil		Ok	Fine
						Lewins honeyeater	180n	Y		On shoulder	Ok	Fine
						Med snake skeleton	115s			On shoulder	Ok	Fine
	08/05/2018	NA	NP			Carpet Python (prob)	5s	N		Incidental, down bank		Fine
West	18/04/2018	1	NP/SJ	735	805	Small bird	50n	Y	Nil		Ok	Fine and humid
						Med Frog	20s	Y			Ok	Fine and humid
						Med Frog (poss grac/chloris)	40s	N			Ok	Fine and humid
	01/05/2018	2	MJ	1605	1705	Nil			Nil		Ok	Fine
Martells South												
East	17/04/2018	1	NP/SJ	1025	1055	Small snake	70s	Y	Nil		Ok	Fine and warm
	03/05/2018	2	NP	1110	1210	Fairy-Wren spp.	20s	Y	Nil		Ok	Fine and warm
						Small bird	140n	N			Ok	Fine and warm
West	17/04/2018	1	NP/SJ	1100	1130	Small snake	60s	Y	Nil		Ok	Fine and warm
						Med bird	85s	N		Too disintegrated to ID/remove	Ok	Fine and warm
	03/05/2018	2	NP	1210	1310	Small native mammal spp.	150n	N	Nil	Dark fur, small tail.	Ok	Fine and warm
						Tawny Frogmouth	80s	N			Ok	Fine and warm
Martells North												
East	17/04/2018	1	NP/SJ	920	950	Nil			Nil		Ok	Fine and warm
	03/05/2018	2	NP	905	1005	Small native mammal spp.	180n	N	Nil	Dark fur, small tail.	Ok	Fine
West	17/04/2018	1	NP/SJ	952	1022	Nil			Nil		Ok	Fine and warm
	03/05/2018	2	NP	1005	1105	Nil						
	18/05/2018	NA	NP			Large mammal spp.	100s			Incidental		
Access G												
East	17/04/2018	1	NP/SJ	810	840	Cat	180s	Y	Nil		Ok	Fine and cool

Site/Side	Date	Survey no.	Observers	Start	End	Road kill	Location	Cleared off Rd	Live fauna on Rd edge	Notes	Fence conditions	Weather
						Blue-tongue Lizard	150s	Y			Ok	Fine and cool
						Buff-banded Rail	10s	Y			Ok	Fine and cool
						Eastern Bent-wing	180n	Y			Ok	Fine and cool
	03/05/2018	2	NP	700	800	Grey Fantail	100n	Y	Nil		Ok	Fine and cool
	29/05/2018	NA	NP			Med Snake spp	210s	N	NA	Incidental		
						Carpet Python	270s	N	NA	Incidental		
West	17/04/2018	1	NP/SJ	845	915	Marsh Snake	60n	Y	Nil		Ok	Fine and cool
	03/05/2018	2	NP	800	900	Nil			Nil		Ok	Fine and cool
Tyson's												
East	17/04/2018	1	NP/SJ	700	730	Striped Marsh Frog	198s	Y	UnID animal in drain		Ok	Fine and cool
						Med Frog Skelton	199s	Y			Ok	Fine and cool
						Reptile vertebrae	150s	Y			Ok	Fine and cool
						Reptile vertebrae	90s	Y			Ok	Fine and cool
						Tawny Frogmouth	40s	Y			Ok	Fine and cool
						UnID skeleton	20n	Y			Ok	Fine and cool
	02/05/2018	2	NP	1600	1630	Nil					Ok	Fine and warm
West	17/04/2018	1	NP/SJ	735	805	Pacific Black Duck	180n	Y	<i>Lampropholis</i> sp.		Ok	Fine and cool
						Prob Carpet Python	15n	Y			Ok	Fine and cool
						Reptile vertebrae	70s	Y			Ok	Fine and cool
						Tawny Frogmouth	100s	Y			Ok	Fine and cool
						Reptile vertebrae	90s	Y			Ok	Fine and cool
						Small snake vertebrae	200s	N		Broke apart - too fragile.	Ok	Fine and cool
	02/05/2018	2	NP	1630	1700	Med Frog	160s	Y			Ok	Fine and warm
						Carpet Python	205s	N		Fresh kill still on carriageway	Ok	Fine and warm
Spring 2018												

Site/Side	Date	Survey no.	Observers	Start	End	Road kill	Location	Cleared off Rd	Live fauna on Rd edge	Notes	Fence conditions	Weather
Railway												
East	26/09/2018	1	NM/SM	1400	1430	Nil					Ok	Raining
West	26/09/2018	1	NM/SM	1530	1600	Nil					Ok	Raining
Burkes												
East	27/09/2018	1	NM/SM	735	750	Nil					Ok	Fine
West	27/09/2018	1	NM/SM	755	820	UnID small bird	500306, 6616827	N			Ok	Fine
						UnID med bird	500249, 6616734	N		Very flattened	Ok	Fine
						UnID med bird	500204, 6616648	N			Ok	Fine
McGraths												
East	26/09/2018	1	NM/SM	1027	1037	Nil					Ok	Overcast
West	26/09/2018	1	NM/SM	1037	1047	Nil					Ok	Overcast
Dalhousie												
East	26/09/2018	1	NM/SM	815	840	Yellow-faced Honeyeater	499795, 6621937	Y			Ok	Overcast
						Yellow thornbill	499825, 6621921	Y			Ok	Overcast
West	26/09/2018	1	NM/SM	917	935	Nil					Ok	Overcast
Martells South												
East	25/09/2018	1	NM/SM	1215	1230	Nil					Ok	Showers
West	25/09/2018	1	NM/SM	1053	1110	UnID medium animal	50s	N			Ok	Showers
Martells North												
East	25/9/18	1	BT	1130	1155	Nil					OK	Showers
West	25/9/18	1	BT/OT	1205	1220	Magpie	250n	Y			Ok	Showers
Access G												
East	25/9/18	1	BT/OT	1240	1256	Boobook	20n	Y			Ok	Showers
West	25/9/18	1	BT/OT	1300	1318	Small snake	50n	Y			Ok	Showers
Tyson's												
East	25/09/2018	1	NM/SM	805	820	Nil					Ok	Showers
West	25/09/2018	1	NM/SM	830	845	Blue-tongue Lizard	498702, 6627494	N			Ok	Showers
						Kookaburra	498572, 6627350	N			Ok	Showers
McGraths												
East	02/11/2018	2	NM/OT	742	8:02	Nil					OK	Clear
West	02/11/2018	2	NM/OT	742	8:02	Carpet python	500769, 6620056	Y			OK	Clear

Site/Side	Date	Survey no.	Observers	Start	End	Road kill	Location	Cleared off Rd	Live fauna on Rd edge	Notes	Fence conditions	Weather
Burkes												
East	02/11/2018	2	GM/OT	900	920	Med bird	500377, 6616906	N			Ok	Clear
						Small mammal	500377, 6616906	N			Ok	Clear
						Magpie	500386, 6616920	Y			Ok	Clear
						Fox	500232, 6616629	Y			Ok	Clear
West	02/11/2018	2	NM/OT	810	834	White-cheeked honeyeater	500193, 6616625	Y			Ok	Fine
						Yellow-faced honeyeater	500346, 6616924	Y			Ok	Fine
Dalhousie												
West	02/11/2018	2	GM/OT	935	945	Nil					Good	Clear, some cloud
East	02/11/2018	2	GM/OT	945	1005	Frog sp.	499842, 6621897	Y			Good	Clear, some cloud
Railway												
West	02/11/2018	2	GM/OT	1015	1035	Nil		Y				
East	02/11/2018	2	GM/OT	1040	1050	Unid bone	497473, 6611189	Y			Good	Clear, some cloud
Martells sth												
West	02/11/2018	2	GM/OT	1100	1110	Nil					Good	Clear some cloud
East	02/11/2018	2	GM/OT	1110	1120	Nil						
Martells Nth												
West	02/11/2018	2	GM/OT	1125	1135	Nil					Good	Clear some cloud
East	02/11/2018	2	GM/OT	1135	1145	Nil						
Access G												
West	02/11/2018	2	GM/OT	1150	1200	Nil					Good	Clear some cloud
East	02/11/2018	2	GM/OT	1150	1200	Nil						
Tyson's												
West	02/11/2018	2	GM/OT	1205	1215	Nil					Good	Clear some cloud

Site/Side	Date	Survey no.	Observers	Start	End	Road kill	Location	Cleared off Rd	Live fauna on Rd edge	Notes	Fence conditions	Weather
East	02/11/2018	2	GM/OT	1205	1215	Nil						

Table A7: Daytime searches of adjacent habitat data. Msb = moves small branches, Mlb = moves large branches, RL = rustles leaves, Pseud. = Pseudophryne species, Lim = Limnodynastes species, Lit = Litoria species, Poss = possible, Prob = probable, E. water dragon = Eastern water dragon.

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Comments
Autumn 2018													
Tysons	14/03/2018	W	D1	MJ, SR	1430	1500	Msb	Nil	High	25.3	65	<i>Lampropholis guichenoti</i> (2/T)	OBS
												<i>Litoria fallax</i> (1/R)	OBS
	14/03/2018	E	D1	MJ, SR	1500	1530	Msb	Nil	High	26.2	64	<i>L. guichenoti</i> (1/F)	OBS
												<i>L. delicata</i> (1/F)	OBS
	02/05/2018	E	D2	NP	1354	1454	Msb	Nil	High	22	69	Bandicoot spp.	Diggings
												<i>Lampropholis</i> spp. (2/T)	OBS
												Wallaby spp.	Scat
	02/05/2018	W	D2	NP	1455	1555	Msb	Nil	High	21	73	Bandicoot spp.	Diggings
												<i>Lampropholis</i> spp. (3/T)	OBS
												Wallaby spp.	Scat
Access G	28/03/2018	E	D1	NP	1300	1400	Nil	Nil	High	25.6	75	<i>Lampropholis</i> spp. (multiple/T)	Numerous obs
												Bandicoot spp.	Diggings
												Rodent spp.	Scats
												Prob Brushtail Possum spp.	Scat
												E. Water dragon (1/T)	OBS Juv
	28/03/2018	W	D1	NP	1405	1507	Msb	Nil	High	26.7	70	<i>Lampropholis</i> spp. (multiple/T)	Numerous obs
	01/05/2018	E	D2	NP	1350	1450	Nil	Nil	High	22	74	<i>Lampropholis</i> spp. (1/T)	OBS
												Wallaby spp.	Scat
												<i>Crinia signifera</i> (3/C)	Heard call
												<i>Lit. fallax</i> (1/C)	Heard call
01/05/2018	W	D2	NP	1451	1551	Nil	Nil	High	21	70	<i>Lampropholis</i> spp. (1/T)	OBS	
Martell Nth	29/03/2018	E	D1	NP	815	915	Nil	Nil	High	23.2	85	Nil	
	29/03/2018	E	D1	NP	918	1018	Nil	Nil	High	24.1	80	<i>Crinia signifera</i> (1/T)	Heard call
	01/05/2018	E	D2	MJ	725	825	Msb	Nil	High	17.2	79	Swamp Wallaby	Scat
	01/05/2018	W	D2	MJ	826	926	Msb	Nil	High	18.9	73	Nil	
Martell Sth	28/03/2018	W	D1	NP	935	1040	Nil	Nil	High	23	95	E. Water Dragon (1/T)	OBS
												<i>L. delicata</i> (1/T)	OBS
												<i>Lampropholis</i> spp. (multiple/T)	OBS
												Marsh Snake (1/R)	

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Comments
												Swamp Wallaby	Scat
	28/03/2018	E	D1	NP	1045	1145	Nil	Nil	Nil	24	95	Med Snake (1/T)	OBS. Prob RBB. Near small pond
												Bandicoot sp.	Diggings
												Swamp Wallaby	Scat
												Marsh Snake (1/R)	OBS - 1
												Lampropholis spp. (multiple/T)	OBS - numerous
	01/05/2018	W	D2	MJ	945	1045	MSb	Nil	High	21.4	67	<i>Crinia signifera</i> (1/C)	Call
												<i>Pseudophryne coriacea</i> (1/C)	Call
												Swamp Wallaby	Scat
	01/05/2018	E	D2	MJ	1046	1146	MLB	Nil	High	22.2	64	<i>Crinia signifera</i> (1/C)	Call
												Swamp Wallaby	Scat
											Bandicoot sp.	Diggings	
											Lamprophilis sp. (1/F)	OBS	
											Poss. Echidna	Diggings	
Dalhousie	14/03/2018	E	D1	MJ	1230	1330	MSb	Nil	High	26	69	<i>L. guichenoti</i> (2/R)	OBS
	14/03/2018	W	D1	MJ, SR	1550	1620	MSb	Nil	High	26	63	Nil	
	30/04/2018	E	D2	MJ	1150	1250	MSb	NIL	High	21	58	Bandicoot sp.	Diggings
												Swamp Wallaby	Scat
												Lampropholis spp. (multiple/T)	OBS - numerous
												<i>Litoria fallax</i> (1/R)	OBS
30/04/2018	W	D2	MJ	1251	1351	MLB	Nil	High	21.5	58	Swamp Wallaby	Scat	
											<i>Litoria fallax</i> (1/R)	OBS	
Burkes	15/03/2018	E	D1	MJ	840	940	MSB	Nil	High	21.8	84	<i>L. guichenoti</i> (2/F)	OBS
												Brush-tail possum	Fresh scat
												Swamp wallaby	Old scat
	15/03/2018	W	D1	MJ, SR	950	1020	Nil	NIL	High	24.6	68	Swamp wallaby	Old scat
												Koala	Old scat
												<i>L. guichenoti</i> (1/F)	OBS
												<i>L. delicata</i> (1/F)	OBS
	19/04/2018	E	D2	NP/SJ	940	1010	Nil	Nil	High	24	65	Swamp Wallaby	Fresh Scat
												Lampropholis spp. (1/T)	Obs
												<i>Litoria fallax</i> (1/T)	OBS
											Water dragon	Scat	
											Rat spp.	Scat	
19/04/2018	W	D2	NP/SJ	1010	1040	Nil	Nil	High	24	65	Fox	Old scat	
											Bandicoot spp.	Diggings	

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Comments	
												Lampropholis spp.	OBS	
Railway	15/03/2018	E	D1	MJ, SR, NP	1100	1120	MSB	nil	High	25.5	63	<i>L. guichenoti</i> (2/F)	OBS	
												Bandicoot	Diggings	
												Poss. Echidna	Diggings	
												<i>L. delicata</i> (1/F)	OBS	
												Marsh snake (1/R)	OBS	
												Lampropholis sp. (1/F)	OBS	
	15/03/2018	W	D1	MJ, SR, NP	1124	1144	MSB	Nil	High	25.7	64	Prob. Marsh snake (1/T)	Obs	
													Lampropholis sp. (1/F)	OBS
													Poss. Echidna	Diggings
													Fox	Scat
	30/04/2018	E	D2	MJ	1425	1525	MLB	Nil	Med/high	21.7	55	Lampropholis spp. (1/T)	OBS	
30/04/2018	W	D2	MJ	1527	1627	MLB	Nil	Med/high	21.7	55	Swamp Wallaby	Scat		
												<i>Pseudophryne coriacea</i> (1/T)	Call	
												Bandicoot	Diggings	
McGraths	27/03/2018	W	D1	NP	1458	1600	Nil	Light	High	21.7	90	Bandicoot sp.	Wild dog x 2 observed crossing old pac hwy heading east	
												Wallaby sign (chewed palms)		
												Echidna/bird scratchings in leaf litter		
	28/03/2018	E	D1	NP	820	920	Nil	Nil	High	21.1	90	Lampropholis spp. (1/T)	OBS	
	19/04/2018	W	D2	NP/SJ	900	930	Nil	Nil	High	20	90	Lampropholis spp. (1/T)	OBS	
												Wallaby spp.	Scat	
												Marsh Snake (prob) (1/T)	OBS	
												Rat	Scat	
19/04/2018	E	D2	NP/SJ	830	900	Nil	Nil	High	20	90	Lampropholis spp. (1T)	Obs		
Spring 2018														
Tysons	25/09/2018	W	D1	NM/SM	900	930	MSB	Nil	High	14	86	Bandicoot sp.	Diggings	
	25/09/2018	E	D1	NM/SM	930	1000	Nil	Nil	High	16	74	<i>L. delicata</i> (1/T)	OBS	
												Lampropholis sp.	OBS	
	25/10/2018	W	D2	MJ	1035	1135	RL	NIL	fair	21.1	67	Wallaby sp.	Scat	
												Bandicoot sp.	Diggings	
												Lampropholis sp.	Obs	
												<i>C. Signifera</i>	Heard call	
	25/10/2018	E	D2	MJ/NP	1200	1230	Msb	Nil	Fair	21.5	71	Red bellied black snake (prob)	Obs	
												Lampropholis sp.	Obs multiple	

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Comments
												<i>L. fallax</i>	Obs
												Wallaby sp.	Scats
												Concinnia sp.	Obs
Access G	24/09/2018	E	D1	SM	1600	1700	Msb	Showers	Fair	16	90	Wallaby sp.	Scats
												Bandicoot sp.	Diggings
	25/09/2018	W	D1	NM/SM	1300	1330	RL	Showers	Fair	16	84	Bandicoot sp.	Diggings
												Wallaby sp.	scats
	24/10/2018	E	D2	MJ	1215	1315	MLB	Nil	Fair	22.7	76	<i>L. fallax</i> (3/R)	Obs
	24/10/2018	W	D2	MJ	1330	1430	MLB	Nil	Fair	23.5	74	<i>Adelotus brevis</i> x2	Heard call
												Bandicoot sp.	Diggings
												Wallaby sp.	scats
Martell Nth	26/09/2018	E	D1	NM/SM	1140	1210	Msb	Sprinkling	Fair	18	75	Bandicoot	Diggings
												Wallaby	scats
	26/09/2018	W	D1	NM/SM	1210	1240	Msb	Sprinkling	Fair	18	76	Wallaby	scats
												<i>L. fallax</i>	
												Prob fox	scats
	24/10/2018	E	D2	MJ	930	1030	Msb	NIL	High	23.3	73	Wallaby sp.	scats
	24/10/2018	W	D2	MJ	1030	1100	MLB	Nil	High	24.3	68	Blue tongued skink	Obs
												<i>L. fallax</i> (15/R)	Obs
												<i>L. peronii</i> >6	Heard call
												Bandicoot sp.	Diggings
Martell Sth	25/09/2018	W	D1	NM/SM	11:15	11:45	MSB	Nil	Fair	17	70	Wallaby spp.	scats
	25/09/2018	E	D1	NM/SM	1145	1215	MSB	Nil	Fair	17	70	Wallaby spp.	scats
												Bandicoot spp.	Diggings
	24/10/2018	W	D2	MJ	1440	1540	MLB	Nil	Fair	22.4	73	Lampropholis sp.	Obs
												Wallaby sp.	scats
												Echidna	Diggings
												<i>Crinia signifera</i>	Heard call
	24/10/2018	E	D2	MJ	1545	1645	MLB	Nil	Fair	22.6	72	Wallaby sp.	scats
											BTPossum	scats	
											<i>L. fallax</i>	Obs	

Site	Date	Side	Day/Night (survey no.)	Observers	Start Time	Finish Time	Wind	Rain	Visibility	Air Temp	Humidity	Species (no. of individuals / behaviour)	Comments
Dalhousie	26/09/2018	E	D1	NM/SM	740	810	Nil	Nil	Fair	16	79	Bandicoot	Diggings
												<i>Litoria fallax</i>	Heard call
	26/9/18	W	D1	NM/SM	845	915	Nil	Nil	Fair	16	79	Bandicoot diggings	Diggings
												Wallaby sp.	scats
												Echidna	Diggings
	18/10/2018	E	D2	NP	1500	1600	Nil	Nil	Good	22	78	Lampropholis sp.	obs
Burkes	24/09/2018	W	D1	SM	1230	1330	MSB	Showers	Fair	16.7	87	Wallaby sp.	scats
												Bandicoot	Diggings
												L. Gui 1/t	
	24/09/2018	E	D1	SM	1330	1430	Msb	Showers	Fair	16	88	Wallaby sp Scats	scats
												<i>L. Delicata</i> 1/t	
												Lampropholis sp. 1/t	
Railway	26/09/2018	E	Day	NM/SM	1440	1510	Msb	Showers	Fair	16	79	Nil	
	26/09/2018	W	Day	NM/SM	1620	1650	Msb	Showers	Fair	16	79	Nil	
													Swamp Wallaby incidental (E. Crossed tracks)
	25/10/18	E	D2	MJ	1530	1630	RL	Nil	Fair	20.8	75	Lampropholis sp.	OBS
												Wallaby sp. scat	scats
	25/10/18	W	D2	MJ	1633	1733	RL	Nil	Fair	21.4	75	Bandicoot sp.	Diggings
McGrath's												Wallaby sp.	Scat
												Fox	scats
	26/9/2018	E	D1	NM/SM	0955	1025	Nil	Nil	Fair	16	79	Wallaby sp.	Scat
	26/9/2018	W	D1	NM/SM	1047	1117	Nil	Nil	Fair	16	79	<i>L. delicata</i>	Obs
	19/10/2018	E	D2	NP	1110	1210	Msb	Nil	Good	22.6	75	<i>L. delicata</i>	obs
												Wallaby sp.	Scat, browsing sign
											Bandicoot sp.	Diggings	
19/10/2018	W	D2	NP	1215	1315	Msb	Nil	Good	22.6	75	Lampropholis sp.	Obs	

Table A8: Effort of adjacent habitat cameras. HWY = highway.

Site	Side	Easting	Northing	Date in	Date retrieved	Pics	Days Active	Notes	Bait
Autumn 2018									
Tyson	W	498642	6627443	12/03/2018	18/4/18	357	12	Just south of culvert	Chicken/tuna oil
	E	498717	6627357	12/03/2018	18/4/18	5250	31	On path leading to culvert	Chicken/tuna oil
Access G	W	497888	6626260	12/03/2018	18/4/18	258	17	North of culvert	Chicken/tuna oil
	E	498030	6626230	12/03/2018	18/4/18	27	22	Near big Ironbark	Chicken/tuna oil
Martells N	W	498277	6623340	12/03/2018	18/4/18	26	37	In thick scrub. Go north then west	Chicken/tuna oil
	E	498322	6623294	12/03/2018	18/4/18	3693	37	East of access Rd	Chicken/tuna oil
Martells S	W	498510	6622861	12/03/2018	18/4/18	1512	17	North west of culvert, follow pink tape	Chicken/tuna oil
	E	498612	6622920	12/03/2018	18/4/18	399	37	NE of culvert	Chicken/tuna oil
Dalhousie	W	499630	6621965	12/03/2018	18/4/18	354	37	20m into bush, straight out from culvert entrance	Chicken/tuna oil
	E	499787	6622028	12/03/2018	18/4/18	51	20	20m into bush from SE	Chicken/tuna oil
Burkes	W	500239	6616828	13/03/2018	16/4/18	987	35	Straight out from culvert, slightly north, 10m west	Chicken/tuna oil
	E	500359	6616752	13/03/2018	16/4/18	309	21	E of old HWY, in from pink tape	Chicken/tuna oil
Railway	W	497395	6611047	13/03/2018	17/4/18	117	36	SW of railway, NE of cedar Crk	Chicken/tuna oil
	E	497533	6611129	13/03/2018	17/4/18	57	36	SE of railway, E of old HWY, accessed from old HWY.	Chicken/tuna oil
Mcgraths	WS	500709	6619984	12/03/2018	16/4/18	183	18	Along fence line between Rd reserve and farm	Chicken/tuna oil
	WN	500736	6620026	12/03/2018	16/4/18	150	13	In Rd reserve north of Crk	Chicken/tuna oil
	ES	500744	6619965	12/03/2018	16/4/18	42	8	On track into culvert	Chicken/tuna oil
	EN	500781	6619993	12/03/2018	16/4/18	57	18	Up bank, toward east.	Chicken/tuna oil
Spring 2018									
Tyson	W	498678	6627502	25/09/2018	25/10/18	218	31		Chicken/tuna oil
	E	498724	6627401	25/09/2018	25/10/18	1346	16		Chicken/tuna oil
Access G	W	497880	6626196	25/09/2018	25/10/18	218	31		Chicken/tuna oil
	E	498036	6626235	25/09/2018	25/10/18	250	31		Chicken/tuna oil
Martell's N	W	498246	6623403	27/09/2018	24/10/18	1453	10		Chicken/tuna oil
	E	498467	6623429	27/09/2018	24/10/18	874	10		Chicken/tuna oil
Martell's S	W	498548	6622822	27/09/2018	25/10/18	2405	12		Chicken/tuna oil
	E	498612	6622883	27/09/2018	25/10/18	1893	31		Chicken/tuna oil
Dalhousie	W	499571	6621970	26/09/2018	25/10/18	873	30		Chicken/tuna oil
	E	499812	6622038	26/09/2018	25/10/18	314	30		Chicken/tuna oil
Burke's	W	500235	6616843	26/09/2018	24/10/18	754	29		Chicken/tuna oil
	E	500358	6616756	26/09/2018	24/10/18	4047	29		Chicken/tuna oil

Site	Side	Easting	Northing	Date in	Date retrieved	Pics	Days Active	Notes	Bait
Railway	W	497365	6611143	27/09/2018	24/10/18	1167	28		Chicken/tuna oil
	E	497553	6611229	27/09/2018	24/10/18	1824	28		Chicken/tuna oil
Mcgrath's	SW	500709	6619976	26/09/2018	24/10/18	224	29		Chicken/tuna oil
	NW	500734	6620063	26/09/2018	24/10/18	333	29		Chicken/tuna oil
	SE	500778	6619937	26/09/2018	24/10/18	687	4		Chicken/tuna oil
	NE	500758	6619997	26/09/2018	24/10/18	189	10		Chicken/tuna oil

Table A9: Adjacent habitat image review presence/absence data.

Species	Tyson's Flat (8022)		Access Rd G (78800)		Martell's Rd North (75800)		Martell's Rd South (75250)		Dalhousie Ck (73800)		Burkes Ln (68470)		Railway (61800)		McGraths Ck (Control)	
	E	W	E	W	E	W	E	W	E	W	E	W	E	W	E	W
Autumn 2018																
Echidna	*	*					*					*	*	*		
Antechinus sp.																*
Koala																
Long-nosed bandicoot												*				
Northern brown bandicoot	*	*		*	*		*		*							
Short-eared brushtail Possum		*					*	*							*	*
Common brushtail Possum		*									*		*		*	
Long-nosed potoroo																
Red-necked Wallaby																
Swamp wallaby	*		*		*				*	*	*	*	*		*	*
Water rat	*															
Bush rat					*											
Black rat	*								*	*	*	*	*	*		*
Rodent sp.							*									
Mouse sp.				*	*		*									
Dog				*												
Red fox										*	*					
Cat													*			
Cow																*
Australian brush-turkey																
Pacific black duck																
Wonga pigeon															*	*
Pacific emerald dove													*			
Bar-shouldered dove																
Wedge-tail eagle																
Kookaburra																
Eastern whipbird																*
Eastern yellow robin											*					*
Pale yellow robin																
Green catbird																
Superb fairy wren																
Yellow-throated scrub wren																

Species	Tyson's Flat (8022)		Access Rd G (78800)		Martell's Rd North (75800)		Martell's Rd South (75250)		Dalhousie Ck (73800)		Burkes Ln (68470)		Railway (61800)		McGraths Ck (Control)	
	E	W	E	W	E	W	E	W	E	W	E	W	E	W	E	W
White-browed scrub-wren																*
Currawong																
Noisy Pitta																*
Lace monitor	*	*		*	*	*	*	*	*	*		*		*		*
Eastern water dragon																
Land Mullet						*	*						*			
<i>Egernia mcphieii</i>					*											
No. spp/side	6	5	1	4	4	4	6	3	2	4	4	8	4	5	4	11
No. spp/site	8		5		7		7		4		9		7		12	
Spring 2018																
Echidna	*				*		*	*	*		*					
Antechinus sp.				*									*			
Koala																
Long-nosed bandicoot	*	*								*						
Northern brown b'icoot		*	*		*		*	*	*		*	*		*		
Short-eared b'tail Possum								*	*		*	*				
Common b tail Possum									*		*					*
Brush-tail possum sp.		*														
Long-nosed potoroo		*														
Red-necked Wallaby			*													
Swamp wallaby			*	*	*			*	*	*	*	*	*	*	*	*
Wallaby sp.								*								
Water rat							*								*	
Bush rat	*	*		*				*		*	*	*			*	
Swamp Rat		*		*												
Black rat	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Rodent sp.																
House mouse				*	*											
Mouse sp.																
Dog					*		*									*
Red fox					*							*				
Cat				*												
Cow																
Australian brush-turkey		*			*		*		*		*		*		*	*
Pacific black duck																
Wonga pigeon																*

Species	Tyson's Flat (8022)		Access Rd G (78800)		Martell's Rd North (75800)		Martell's Rd South (75250)		Dalhousie Ck (73800)		Burkes Ln (68470)		Railway (61800)		McGraths Ck (Control)	
	E	W	E	W	E	W	E	W	E	W	E	W	E	W	E	W
Pacific emerald dove																
Bar-shouldered dove					*											
Wedge-tail eagle																
Kookaburra																
Eastern whipbird											*					
Eastern yellow robin			*					*		*		*		*	*	*
Pale yellow robin																
Green catbird																
Superb fairy wren					*											
Yellow-throated scrub wren																
White-browed scrub-wren				*							*	*				
Currawong																
Noisy Pitta												*				
Lewin's Honeyeater			*													
Grey Goshawk				*												
Rufous Fantail												*				
Australian Logrunner												*				
Red-browed Finch											*					
Sacred Kingfisher													*			
Grey Shrike-thrush					*											
Lace monitor		*	*	*			*	*	*	*	*	*		*		
Eastern water dragon											*					*
Land Mullet				*								*				
<i>Egernia mcphieii</i>																
No. spp/site	4	9	7	11	11	1	7	8	7	7	12	14	4	5	5	8
No. spp/site	10		15		11		11		11		19		8		10	

Table A10: Underpass sand track data. Prob = probably, poss = possible, Lit = Litoria, Btposs = brushtail possum, unid = unidentified.

Site	Cell	Date	Check no.	Tracks (no. of/direction of travel)	Pad condition	Comments	
Autumn 2018							
Tyson's	NE	3/14/18	install			2 bags each (8 bags)	
		3/22/18	1	Rodent (1/E)	Moderate washout		
		3/27/18	2	Nil	Complete washout		
		4/16/18	Re-install				
		4/20/18	3	Rodent (1/?), Rodent (1/W), rodent (1/NDM)	Reset		
		05/03/2018	5	Bird (poss Egret spp.) (1/W), prob rats (3/NDM)			
		5/29/18	NA	Wallaby spp. (1/W)	Incidental. Wallaby left tail marks and tracks right through culvert (from wet sand)		
	SE	3/14/18	install				<i>Lit. Peronii</i> (1/W).
		3/22/18	1	Amphibian (1/E)	Moderate washout		
		3/27/18	2	Nil	Complete washout		
		4/16/18	Re-install				Med scats with insect remains
		4/20/18	3	Human (1/E&W), rat (1/E), rat (1/NDM)	Reset		
		4/26/18	4	Rat (4/E&W)			
		05/03/2018	5	Wallaby spp. (1/W)			
	NW	3/14/18	install				
		3/22/18	1	Rat (2/E & 1/W)	Minor washout		
		3/27/18	2	Nil	Complete washout		
		4/16/18	Re-install				
		4/20/18	3	Rat (1/E)	Reset		
		4/26/18	4	Rat (4/E&W)			
		05/03/2018	5				
		05/11/2018	NA	Wallaby spp. (1/W)	Incidental		
	5/29/18	NA	Wallaby spp. (1E&W)	Incidental			
	SW	3/14/18	install				
		3/22/18	1	Water rat (1/E)	Moderate washout		
		3/27/18	2	Nil	Complete washout		
		4/16/18	Re-install				
		4/20/18	3	Nil	Damp, reset		
4/26/18		4	Rat (2/E&W)				
05/03/2018		5	Nil				
Access G	N	3/14/18	install			2 bags each (4 bags)	
		3/21/18	1	Fox (2/E & 1/W), Rat (1/E)	Good but waterlogged		
		3/28/18	2	NA	Complete washout		
		4/16/18	Re-install				
		4/20/18	3	Rat (1/E)	Waterlogged		

Site	Cell	Date	Check no.	Tracks (no. of/direction of travel)	Pad condition	Comments
		4/26/18	4	Fox (1/E)	Waterlogged	
		05/03/2018	5	Nil	Very hard	
	S	3/14/18	install			
		3/21/18	1	Bandicoot (1/W)	Good but waterlogged	
		3/28/18	2	NA	Complete washout	
		4/16/18	Re-install			
		4/20/18	3	Nil		
		4/26/18	4	Cat (prob kitten) (1/W), small snake (1/NDM)	Waterlogged	
03/05/2018	5	Nil	Compact, hard			
Nth Martell's	Single	3/14/18	Install			2 bags
		3/21/18	1	Fox (1/E), water dragon (1/W)	Good but waterlogged	Inspected again on 22/3/18 complete sand washout
		3/27/18	2	Nil	Complete washout	
		4/16/18	Re-install			
		4/20/18	3	Rat (2/E), Rat (1/W)	Waterlogged but reset	
		4/26/18	4	Rat (1/W), Fox (1/W)	Moderate washout	
		05/03/2018	5	Nil		
Sth Martell's	Single	3/14/18	Install			2 bags
		3/22/18	1	Nil	Completely washed out	
		3/27/18	2	Nil	Complete washout	
		4/16/18	Re-install			
		4/20/18	3	Rat (1/EthenW)	Minor washout, reset.	
		4/26/08	4	Rat (1/E&W)	Severe washout	
		05/03/2018	5	Fox (1/W)		
Dalhousie	E	3/14/18	Install			2 bags each (4 bags)
		3/21/18	1	Water rat (1/W)	Minor washout and damage from motor bike	
		3/28/18	2	NA	Complete washout	
		4/16/18	Re-install			
		4/20/15	3	Motorbike	Moderate washout, reset	
		4/26/18	4	Rat (1/W), rat (1/W)	Minor washout	
		05/03/2018	5	Motorbike		
	W	3/14/18	Install			
		3/21/18	1	Rat (2/W), Frog (1/W)	Minor washout and damage from motor bike	
		3/28/18	2	NA	Complete washout	
		4/16/18	Re-install			
		4/20/18	3	Motorbike	Waterlogged, reset	
		4/26/18	4	Rat (1/E), motorbike	Minor washout	
		05/03/2018	5	Nil		

Site	Cell	Date	Check no.	Tracks (no. of/direction of travel)	Pad condition	Comments	
Burke's	Single	3/14/18	install			3 bags	
		3/22/18	1	Bandicoot (1/E&W), fox (1/E&W), brushtail possum spp. (1/W)	Moderate washout		
		3/27/18	2	Nil	Complete washout		
		4/16/18	Re-install				
		4/20/18	3	Human (1/E&W), Dog (1/E&W), Fox (1E&W) Rat (2/E)	Waterlogged but reset	Human walking dog most likely.	
		4/26/18	4	Fox (2/E), fox (1/W)	Good		
		05/03/2018	5	Wallaby spp. (1/E)			
Railway	N	4/17/18	Install			6 bags	
		4/26/18	1	Nil	Good	Hard to check properly through bins	
		05/03/2018	2	Nil			
		05/11/2018	3	Nil			
		5/18/18	4	Fox (1/E)			
		07/12/2018	5	Nil			
	S	4/17/18	Install				
		4/26/18	1	Nil	Good	Hard to check properly through bins	
		05/03/2018	2	Dog (1/W)			
		05/11/2018	3	Dog (1), Fox (1/W), bandicoot spp (1/W)			
		5/18/18	4	Fox (1/E)			
		07/12/2018	5	Car, Motorbike			
Mcgrath's	S	Too wet	1			2 bags each (6)	
		4/16/18	Install				
		4/20/18	3	Rat (2/E)	Waterlogged but reset		
		4/26/18	4	Small mammal (1)	Waterlogged		
		05/03/2018	5	Nil	Waterlogged		
	M	Too wet	1				
		4/16/18	Install				
		4/20/18	3	Rat (1/E)	Waterlogged but reset		
		4/26/18	4	Small mammal	Waterlogged		
		05/03/2018	5	Water bird (webbed feet) (1/W), water rat (1/W)	Waterlogged	Prob P. Black Duck	
	N	3/14/18	Install				
		3/22/18	1	Water rat (1/W), brushtail possum spp. (1/W), water dragon (1/E)	Underwater	Some tracks still visible	
		3/27/18	2		Mod-severe washout		
		4/16/18	Re-install				
		4/20/18	3	Rat (3/W), Rat (2/E), water rat (1/W)	Waterlogged but reset		

Site	Cell	Date	Check no.	Tracks (no. of/direction of travel)	Pad condition	Comments	
		4/26/18	4	Wallaby spp. (1/E&W), BtPoss (1/E&W), water rat (prob) (1/E), lizard spp. (1), rat (>4/E&W)	Waterlogged		
		05/03/2018	5	Wallaby spp. (1/W)	Waterlogged		
Spring 2018							
Tyson's	NE	25/09/2018	Install			2 bags each (8 bags)	
		29/09/2018	1	Rodent sp. (numerous/e&w)	Pr black rats		
		05/10/2018	2	Rodent sp. (numerous e&w); pr cat (1/w)	Good	Check pics	
		10/10/2018	3	Rodent spp (numerous east & west)	Good		
		25/10/2018	4	Rodent (multiple/e&w), Med Waterbird (webbed feet)(1/e), Lace Monitor (2/e), water dragon (1/e), large frog (1/e)	Ok		
	SE	25/09/2018	Install				
		29/09/2018	1	Rodent sp. (1/NDM)			
		05/10/2018	2	Rodent sp. (3+/e&w)	Good	Check pics	
		10/10/2018	3	Rodent (4e&w)	Good		
		25/10/2018	4	Rodent (5e&w), Lace Monitor (2/w)	Ok		
	NW	25/09/2018	Install				
		29/09/2018	1	Nil			
		05/10/2018	2	Nil	Good		
		10/10/2018	3	Nil	Moderate		
		25/10/2018	4	Cat (1/e)	Ok		
	SW	25/09/2018	Install				
		29/09/2018	1	Rodent sp. (1/NDM) rodent sp. (1/e) cat (1/w)			
		05/10/2018	2	Nil	Good		
		10/10/2018	3	Nil	Moderate		
		25/10/2018	4	Nil	Ok, some washout		
Access G	N	9/24/18	Install			2 bags each (4 bags)	
		29/09/2018	1	Rat sp. (4/e&w), Bandicoot sp. (1/W), Lace Monitor (3/e&w)			
		05/10/2018	2	Rodent sp. (2or3 e&w); pr water dragon (1/e); pr fox (NDM)	Damp, good	Single print pr fox.	
		10/10/2018	3	Cat (poss, east); Possum spp (poss, west); water dragon (east & west)	Check camera		
		2/11/18	4	Cat (1/both ways), lace Monitor (1/e)	Poor		
	S	9/24/18	Install				
		29/09/2018	1	Rodent sp. (numerous/e & w)			
		05/10/2018	2	Pr cat (1/w)	Damp, good	Check photo	
		10/10/2018	3	Goanna sp. (east); water dragon (poss, east); Rodent spp (E& W)			
		02/11/2018	4	Nil	Very poor, solid.		
		Single	25/09/2018	Install			2 bags

Site	Cell	Date	Check no.	Tracks (no. of/direction of travel)	Pad condition	Comments	
Nth Martell's		29/09/2018	1	Rodent sp. (3/w)			
		05/10/2018	2	Rodent sp. (NDM); pr water dragon (1/e)	Water logged		
		10/10/2018	3		Washed out -storm		
		02/11/2018	4	Rat (1/w), UniD track	Very poor, solid		
Sth Martell's	Single	25/09/2018	Install			2 bags	
		29/09/2018	1	Echidna (1/w) rodent sp. (1/w)			
		05/10/2018	2	Nil	Water logged		
		10/10/2018	3	Rodent sp (east)			
		25/10/2018	NA	Re-set			
		02/11/2018	4	Echidna (1/e, 1/w), Lace Monitor (1/e)	Poor		
Dalhousie	E	24/09/2018	Install			2 bags each (4 bags)	
		29/9/18	1	Cat (1/W) rodent sp. (1/w)			
		05/10/2018	2	Nil	Sand compacted	0.5 bag added	
		10/10/2018	3	Rodent (2east)	Poor, compacted - refurbished		
		25/10/2018	NA	Re-set			
		02/11/2018	4	Motorbike	Very poor, solid		
	W	24/09/2018	Install				
		29/9/18	1	Cat (1/W) rodent sp (1/e&w)			
		05/10/2018	2	Po bird sp. (NDM)	Partially water logged	Dirt bikes x2	
		10/10/2018	3	Goanna (1west); Rodent spp (E& W)			
		25/10/2018	NA	Re-set			
		02/11/2018	4	Nil	Very poor, solid.		
Burke's	Single	24/09/2018	Install			3 bags	
		29/09/2018	1	Rodent sp. (1/w)			
		05/10/2018	2	Rodent sp. (NDM), wallaby sp (2/e&w)., cat (or fox)	Good	Check pics	
		10/10/2018	3	Rodent sp (E&W); Fox (E&W); Bandicoot (juv east); unid (picture)	Moderate, becoming firm (gravel)		
		02/11/2018	4	Nil	Very poor - solid.	Lace Monitor tracks in old sand	
Railway	N	24/09/2018	Install			6 bags	
		28/09/2018	1	Fox (1/W)			
		19/10/2018	2	Brushtail possum sp. (prob) (1/e), cat (1/e)			
		26/10/2018	3	Nil			
		06/11/2018	4	Lace Monitor (1/e), Water Dragon (1/e&w). Prob cat/fox (1/w)			
	S	24/09/2018	Install				
		28/09/2018	1	Nil			
		19/10/2018	2	Fox (3w&2e), cat (1/e)			
		26/10/2018	3	Dog (2/w), Fox (1/e&w), Motorbike (1/e&w)			

Site	Cell	Date	Check no.	Tracks (no. of/direction of travel)	Pad condition	Comments	
		06/11/2018	4	Bandicoot sp. (1/e), Echidna (1/e), Rat (1/w), Motorbike			
Mcgrath's	S	25/09/2018	Install			2 bags each (6)	
		29/09/2018	1	Rodent sp. (1/w)			
		05/10/2018	2	Rodent sp. (NDM)	Water logged		
		10/10/2018	3	Rodent sp. (1e&1w)	Moist, good condition		
		02/11/2018	4	Nil	Saturated		
	M	25/09/2018	Install				
		29/09/2018	1	Wallaby sp. (1/w)			
		05/10/2018	2	Nil	Water logged		
		10/10/2018	3	Wallaby spp (2w, 2e), Rodent spp (e&w), Goanna (1e)	Moist, good condition		
		02/11/2018	4	Nil	Saturated		
	N	25/09/2018	Install				
		29/09/2018	1	Rodent sp. (NDM) wallaby sp. (1/w) brushtail Possum sp. (1/w)			
		05/10/2018	2	Wallaby sp (1/E & W); rodent sp. (NDM); Fox (1/W)	Water logged		
		10/10/2018	3	Wallaby (2e, 2w); Goanna (1e, 1w), Brushtail possum (1e); dog (min 2 ind, both east & west); Rodent sp (several E& W)			
		02/11/2018	4	Water dragon (both ways), Wallaby sp. (1/w)	Saturated		

Table A11: Underpass tracks/scats data.

Site	Cell	Date	Check no.	Scats/tracks (no. of animals/direction)	Comments
Tyson's	NE	22/03/2018	1	Rat scat, reptile scat	
		18/04/2018	2	Rat scat, Frog scat, water dragon	
		03/05/2018	3	Rat scat	
	SE	22/03/2018	1	Reptile scat	
		18/04/2018	2	Reptile scat, Rat scat	
		03/05/2018	3	Rat scat, water dragon, (all old)	
	NW	22/03/2018	1	Rat scat, frog scat on rail	
		18/04/2018	2	Rat scat, Frog scat on rail	
		03/05/2018	3	Rat scat, microbat scat, Frog scat on rail (all old)	
		11/05/2018	NA	Wallaby (1/W)	Incidental
	SW	22/03/2018	1	Rat scat	
		18/04/2018	2	Microbat scat, Rat, water dragon	
03/05/2018		3	Microbat scat, Rat scat		
Access G	N	21/03/2018	1	Rat scat	
		18/04/2018	2	Nil	Microbat sp. roosting but took flight
		03/05/2018	3	Nil	
	S	21/03/2018	1	Nil	
		18/04/2018	2	Bandicoot scat (prob), Rat scat, water dragon, microbat.	Bandicoot, Rat and WD Scats at entrance. Microbat Scats under railing
		03/05/2018	3	Microbat scat under railing	
Nth Martell's	Single cell	21/03/2018	1	Rat scats, large amphibian scats. Dog and fox prints at eastern opening and fresh wallaby scat	
		19/04/2018	2	Rat Scats, large amphibian scats	
		03/05/2018	3	Old rat Scats, dead Striped Gudgeon and one other UNID fish, microbat scats, scat pile under W. swallow nest.	
Sth Martell's	Single cell	22/03/2018	1	Amphibian scat	
		20/04/2018	2	Rat scat, microbat scat (>150 Scats)	
		03/05/2018	3	Rat scats, microbat Scats	
Dalhousie	E	21/03/2018	1	Probable water rat feeding signs - freshwater crustacean shell	
		18/04/2018	2	Rat scat	
		03/05/2018	3	Motorbike tracks	
	W	21/03/2018	1	Rat scat	
		18/04/2018	2	Water dragon scat, Rat scat	
		03/05/2018	3	Motorbike tracks, Rat Scats (old)	
Burke's	Single cell	22/03/2018	1	Fox scat, rat scats on rail and floor	Collected predator scat
		18/04/2018	2	Fox tracks, bird scat (prob W. swallow), Rat scat, microbat scat	

Site	Cell	Date	Check no.	Scats/tracks (no. of animals/direction)	Comments
		03/05/2018	3	Wallaby spp. (1/E&W), fox tracks	
Railway	Single cell	17/04/2018	1	Prob water dragon scat	
		18/05/2018	2	Nil	
		12/07/2018	3	Nil	
Mcgrath's	S	22/03/2018	1	NA	Underwater
		20/04/2018	2	NA	Too wet
		03/05/2018	3	Nil	Mostly underwater
	M	22/03/2018	1	NA	Underwater
		20/04/2018	2	NA	Too wet
		03/05/2018	3	Nil	
	N	22/03/2018	1	NA	Underwater
		20/04/2018	2	NA	Too wet
		03/05/2018	3	Large microbat scat (poss Eastern Horseshoe), large scat pile under Welcome swallow nest	
Spring 2018					
Tyson's	NE	25/9/18	1	Rat tracks	
		25/10/18	2	Med amphibian scat, med water bird 1xE, rat tracks, water dragon 1xE, rat scats	
		2/11/18	3	Rat Scats, lace Monitor tracks, water dragon tracks	
	SE	25/9/18	1	Rat tracks	
		25/10/18	2	Rat tracks, water dragon 1xE, unidentified small track?	
		2/11/18	3	Nil	
	NW	25/9/18	1	Rat tracks ; Wallaby 1xE	
		25/10/18	2	Med amphibian scat, Lampropholis delicata, rat scats (floor and rail), cat 1xW	
		2/11/18	3	Rat Scats	
	SW	25/9/18	1	Rat tracks ; bandicoot sp. 2xE	
		25/10/18	2	Nil	
		2/11/18	3	Rat Scats	
Access G	N	9/24/18	1	EW Dragon scats, Bandicoot sp. scat	
		24/10/18	2	Rat scats and tracks	
		2/11/18	3	Rat Scats, amphibian scats	
	S	9/24/18	1	Nil	
		24/10/18	2	Rat scats, water dragon 1xW & 1xE, amphibian 1xW	
		2/11/18	3	Lace Monitor/water dragon tracks	
Nth Martell's	Single cell	25/9/18	1	Rat tracks	
		26/10/18	2	Med amphibian scats, welcome swallow scats	
		2/11/18	3	Welcome swallow scats	
Sth Martell's		25/9/18	1	Nil (washed out)	

Site	Cell	Date	Check no.	Scats/tracks (no. of animals/direction)	Comments
Dalhousie	Single cell	24/10/18	2	Rat scats on rail and floor	
		2/11/18	3	Microbat scats	
		9/24/18	1	Nil	
	E	18/10/18	2	Nil	Recent rains washed away anything
		2/11/18	3	Nil	
		W	9/24/18	1	Possible Antechinus sp. scats
18/10/18	2		Nil	Recent rains washed away anything	
2/11/18	3		Nil		
Burke's	Single cell	9/24/18	1	Wallaby track, rodent sp. scat.	
		19/10/18	2	Lace Monitor (1/E), Rodent sp.	
		2/11/18	3	Lace Monitor (numerous), fox scat, bird scats, few microbat Scats	
Railway	Single cell	9/24/18	1	Nil	
		28/9/18	2	Wallaby sp. scats	
		19/10/18	3	Nil	
Mcgrath's	S	25/9/18	1	Nil (washed out)	
		25/10/18	2	Nil	
		2/11/18	3	Nil	
	M	25/9/18	1	Nil (washed out)	
		25/10/18	2	Rat tracks and scats	
		2/11/18	3	Bird scats, welcome swallow	
	N	25/9/18	1	Wallaby track, microbat scats	
		25/10/18	2	Wallaby 1xE, lace monitor 1xE, water dragon 1xW, dead black rat, Remains of welcome swallow, bandicoot 1xE, rat tracks	
		2/11/18	3	Lace Monitor, water dragon tracks (both ways), bird scats	

Table A12: Underpass camera effort.

Location	Cam Location	Date in	Date check	Pics	Batt %	Days Active	Date Retrieve	Pics	Days Active	Total Days Active	Comment
Autumn 2018											
Tyson's	NE	12/03/2018	03/05/2018	140	16	53	5/29/08	94	26	79	1 cam/cell
	SE	12/03/2018	03/05/2018	135	2	53	29/05/2018	71	26	79	
	NW	12/03/2018	03/05/2018	735	0	53	29/05/2018	48	26	79	
	SW	12/03/2018	03/05/2018	200	0	36	29/05/2018	60	26	62	
Access G	N	14/03/2018	03/05/2018	400	1	51	29/05/2018	59	26	77	1 cam/cell
	S	14/03/2018	03/05/2018	245	90	51	29/05/2018	38	26	77	
Martell's N	E	14/03/2018	03/05/2018	291	84	51	29/05/2018	50	26	77	
	W	14/03/2018	03/05/2018	117	75	51	29/05/2018	50	26	77	
Martell's S	E	13/03/2018	03/05/2018	161	43	52	28/05/2018	51	25	77	
	W	13/03/2018	03/05/2018	157	92	52	28/05/2018	35	25	77	
Dalhousie	W	13/03/2018	03/05/2018	1132	87	52	28/05/2018	257	25	77	
	E	13/03/2018	03/05/2018	1439	0	52	28/05/2018	441	25	77	
Burke's	E	13/03/2018	03/05/2018	181	83	52	28/05/2018	35	25	77	
	W	13/03/2018	03/05/2018	113	2	52	28/05/2018	35	25	77	
Railway	N	4/17/18	18/05/2018	3	79	32	12/07/2018	38	56	88	
	S	4/17/18	18/05/2018	16	87	32	12/07/2018	76	56	88	
Mcgrath's	NE	12/03/2018	03/05/2018	123	3/3	53	28/05/2018	105	25	78	Scout guard on star picket 5m NE of entrance
	SE	12/03/2018	03/05/2018	507	3/3	53	28/05/2018	54	25	78	Scoutguard on star picket 5m SE of entrance
Spring 2018											
Tyson's	NE	25/09/2018	25/10/2018	38	30	31	29/11/18	71	38	69	
	NE FF	25/09/2018	25/10/2018	259	84	31	29/11/18	336	38	69	
	SE	25/09/2018	25/10/2018	94	60	31	29/11/18	114	38	69	
	NW	25/09/2018	25/10/2018	216	81	31	29/11/18	159	38	69	
	NW FF	25/09/2018	25/10/2018	22	22	31	29/11/18	21	38	69	
	SW	25/09/2018	25/10/2018	236	80	31	29/11/18	202	38	69	
Access G	N	28/09/2018	25/10/2018	396	83	28	30/11/2018	449	37	65	Lockwood keys
	S FF	28/09/2018	25/10/2018	348	86	28	29/11/2018	366	36	64	
	S	28/09/2018	25/10/2018	356	70	28	29/11/2018	300	36	64	
Martell's N	Floor	27/09/2018	24/10/2018	189	71	28	29/11/18	205	36	64	
	FF	27/09/2018	24/10/2018	110	66	28	29/11/18	91	36	64	
Martell's S	Floor	28/09/2018	25/10/2018	465	26 - changed	28	29/11/2018	229	36	64	Same locks as North Martell's
	FF	28/09/2018	25/10/2018	213	76	28	29/11/2018	354	36	64	

Location	Cam Location	Date in	Date check	Pics	Batt %	Days Active	Date Retrieve	Pics	Days Active	Total Days Active	Comment
Dalhousie	W	26/09/2018	25/10/2018	827	94	30	29/11/18	3	36	66	Heavy duty cases
	W FF	26/09/2018	25/10/2018	573	99	30	29/11/18	387	36	66	Heavy duty cases
	E	26/09/2018	25/10/2018	423	68	30	29/11/18	114	36	66	Heavy duty cases
	E FF	26/09/2018	25/10/2018	624	69	30	29/11/18	438	36	66	Heavy duty cases
Burke's	Floor	26/09/2018	24/10/2018	231	91	29	27/11/2018		35		Heavy duty cases
	FF	26/09/2018	24/10/2018	722	64	29	27/11/2018		35		Heavy duty cases
Railway	N	24/09/2018	02/11/2018	215	66	33	29/11/18	42	16	49	Faces West
	S	24/09/2018	02/11/2018	565	72	33	29/11/18	130	27	60	
Mcgrath's	N	26/09/2018	24/10/2018	166	2/3	29	27/11/2018	147	33	62	Scout guard on star picket 5m NE of entrance
	S	26/09/2018	24/10/2018	48	2/3	29	27/11/2018	78	35	64	Scoutguard on star picket 5m SE of entrance

Table A13: Underpass image review data recorded in autumn 2018. Poss = possible, Pr = probable.

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.	Confirmed Crossing	Concurrent sand detection	Comments
Tyson's	NE	23/05/2018	2235	Swamp Wallaby	D	NDM	31-63	Poss		
	SE	31/03/2018	2103	Swamp Wallaby	D	W	36-40	Poss	No	May have made crossing to median area, but no evidence of crossing under NB carriageway.
		23/05/2018	2246	Swamp Wallaby	D	E	41-45	Complete		
		25/05/2018	0628	Swamp Wallaby	D	S	46-55	Complete		
		26/05/2018	2259	Black rat	D	NDM	56-60	Poss		
	NW			Nil						
	SW	22/05/2018	0706	Black rat	D	W	16-23	Complete		
		28/05/2018	0239	Black rat	D	NDM	26-30	Poss		
		29/05/2018	1256	Black rat	D	S	31-36	Complete		
	Access G	N	14/03/2018	2141	Fox	D	E	26-30	Complete	
21/03/2018			2301	Fox	D	E	226-235	Complete		
26/03/2018			2422	Fox	D	E	236-240	Complete		
10/04/2018			2217	Fox	D	E	256-260	Complete		
16/04/2018			0327	Fox	D	E	261-265	Complete		
22/04/2018			0531	Cat	D	E	351-360	Complete		
S		Nil								
Martell's N	E	16/03/2018	1651	Dog	D	E	21-26	Complete		
		19/03/2018	0125	Dog	D	E	31-34	Complete		
		04/04/2018	2349	Dog	D	E	121-123	Complete		
		16/05/2018	1228	Dog	D	E	31-35	Complete		
		22/05/2018	0534	Fox	D	W	36-40	Complete		
		24/05/2018	0759	Dogx3	D	W	41-45	Complete		
	W	16/03/2018	1650	Dog	D	E	21-25	Complete		
		17/03/2018	0505	Dog	D	E	26-30	Complete		
		26/03/2018	0512	Dog	D	W	41	Complete		
		27/04/2018	0330	Dog	D	E	76-80	Complete		
		16/05/2018	1227	Dog	D	E	21-25	Complete		
21/05/2018	0225	Fox	D	NDM	26-35	Poss				
Martell's S	E	14/03/2018	0706	Dog	D	W	31-35	Complete		
		15/03/2018	1728	Dog	D	W	36-40	Complete		
		16/03/2018	1806	Dog	D	W	41-45	Complete		
		18/03/2018	1243	Dog	D	E	46-53	Complete		
		18/03/2018	1626	Dog	D	W	56-60	Complete		
		26/03/2018	1104	Lace Monitor	D	E	66-70	Complete		
		03/04/2018	1940	Dog	D	W	81-120	Complete		

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.	Confirmed Crossing	Concurrent sand detection	Comments
	W	12/05/2018	1715	Swamp Wallaby	D	NDM	31-39	Poss		
		22/05/2018	0514	Fox	D	NDM	41-45	Complete		
		26/03/2018	1200	Lace Monitor	D	W	66-70	Complete		
		03/04/2018	1941	Dog	D	W	81-85	Complete		
		22/05/2018	0513	Fox	D	NDM	21-25	Complete		
Dalhousie	E	25/03/2018	0056	Dog	D	E	281-285	Complete		Motorbikes regularly crossing
		01/04/2018	0119	Black Rat	D	W	376-380	Complete		
		04/04/2018	1155	Dog	D	W	441	Complete		
		14/04/2018	1845	Black Rat	D	NDM	606-610	Poss		
		29/04/2018	0505	Black Rat	D	NDM	1311-1315	Poss		
		05/05/2018	1531	Humans	D	E	41-50	Complete		Motorbikes away
		06/05/2018	1236	Humans	D	E	71-75	Complete		Motorbikes away
		07/05/2018	1051	Dog	D	NDM	76-80	Poss		
		13/05/2018	1345	Humans	D	E	176-178	Complete		Motorbike away
		19/05/2018	1524	Humans	D	W	291-295	Complete		Motorbike toward
		19/05/2018	1642	Humans	D	E	301-305	Complete		Motorbikes away
		24/05/2018	1702	Humans	D	E	381-385	Complete		Motorbikes away
	25/05/2018	1455	Human	D	W	387	Complete		Motorbike toward	
	27/05/2018	1138	Human	D	W	409-415	Complete		Motorbike toward	
	W	25/03/2018	0054	Dog	D	E	451-455	Complete		
		04/05/2018	1516	Human	D	?	16	Complete		Motorbike-?
		05/05/2018	1505	Human	D	W	21-30	Complete		Motorbikes away
		05/05/2018	1530	Human	D	E	51-55	Complete		Motorbike towards
		05/05/2018	1530	Human	D	E	61-63	Complete		Motorbike towards
		05/05/2018	1530	Human	D	E	71-72	Complete		Motorbike towards
		06/05/2018	0906	Human	D	W	76-82	Complete		motorbikes away
		06/05/2018	1236	Human	D	E	89-95	Complete		Motorbikes towards
		07/05/2018	0851	Human	D	W	101-105	Complete		Motorbikes away
		13/05/2018	1247	Human	D	W	141-149	Complete		Motorbikes away
		13/05/2018	1344	Human	D	E	156-159	Complete		Motorbikes towards
		19/05/2018	1524	Human	D	W	161-165	Complete		Motorbike away
		20/05/2018	1525	Human	D	W	170-175	Complete		Motorbike away
		21/05/2018	1642	Human	D	E	176-180	Complete		Motorbike toward
24/05/2018		1652	Human	D	W	181-190	Complete		Motorbike away	
25/05/2018		1701	Human	D	E	191-198	Complete		Motorbike toward	
25/05/2018	1455	Human	D	W	201-215	Complete		Motorbike away		

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.	Confirmed Crossing	Concurrent sand detection	Comments
		26/05/2018	1013	Human	D	W	216-225	Complete		M away
		27/05/2018	1138	Human	D	W	226-245	Complete		M away
Burkes	E	26/03/2018	0220	Fox	D	W	26-30	Complete		
		01/04/2018	1905	Fox	D	W	36-40	Complete		
		19/04/2018	0425	Fox	D	W	66-75	Complete		
		25/04/2018	0515	Fox	D	W	91	Complete		
		21/05/2018	0326	Fox	D	W	11-15	Complete		
		21/05/2018	1944	Swamp Wallaby	D	W	16-20	Complete		
		28/05/2018	1015	Pacific black duck x 8	D	W	26-30	Complete		
		W	13/04/2018	0533	Fox	D	W	91	Complete	
	23/04/2018		2453	Fox	D	E	146-150	Complete		
	23/04/2018		1153	Fox	D	E	151-155	Complete		
Railway	N			Nil						
		04/07/2018	1427	Human	D	NDM				
	S	15/05/2018	0643	Fox	D	E	10-13	Complete	Yes	
		02/06/2018	1727	Cat	D	W	19-24	Poss	Yes	
		02/06/2018	1728	Cat	D	E	25-27	Poss		
		14/06/2018	1558	Cat	D	E	28-30	Complete		
		20/06/2018	2015	Car	D	NDM	31	NA	Yes	
		23/06/2018	2146	Echidna	D	E	43-45	Complete		
		30/06/2018	1743	Med mammal	Pr	W	46	Complete		
		10/07/2018	2102	Echidna	D	E	52-55	Complete		
10/07/2018	2329	Cat	D	W	58-61	Complete	Yes			
Mcgraths	NE	22/04/2018	2430	Swamp Wallaby	D	NDM	94-99	Complete	Yes	
		01/05/2018	1148	Pacific Black Duck	D	W	112-114	Complete	Yes	
		01/05/2018	1946	Fox	D	W	118-120	Poss		
		18/05/2018	2053	Short-eared Brushtail Possum	D	NDM	85-87	Complete	Yes	
		21/05/2018	1858	Swamp Wallaby	P	NDM	88-90	Complete	Yes	
	SE	Nil								
		04/05/2018	1935	Fox	D	NDM	1-3	Poss		

Table A14: Underpass image review data recorded in spring 2018. Prob = probable, poss = possible, Incomp = incomplete, comp = complete, EW dragon = Eastern water dragon, EG roo = eastern grey kangaroo, BtPoss = Brushtail possum, SEBtP = Short-eared brushtail possum, Flr = floor.

Site	Side	Cam	Date	Time	Species	Accu- racy	Crossing Type	Movement Direction	Image No's	Comments
Tyson's	NE	FF	25/09/2018	1857	Black rat	D	Incomp	W,turn,E	37-42	
		FF	26/09/2018	2042	Black rat	D	Incomp	W,turn,E	43-51	
		FF	27/09/2018	2125	Black rat	D	Comp	W	52-61	
		FF	28/09/2018	2115	Black rat	D	Incomp	W,turn,E	76-78	
		FF	28/09/2018	2004	Black rat	D	Comp	E	79-81	
		FF	28/09/2018	2210	Black rat	D	Incomp	NDM	82-84	
		FF	28/09/2018	2246	Black rat	D	Comp	W	85-90	
		FF	30/09/2018	2355	Black rat	D	Incomp	W,turn,E	91-96	
		FF	02/10/2018	2054	Black rat	D	Incomp	W,turn,E	97-105	
		FF	02/10/2018	2119	Black rat	D	Comp	E	106-108	
		FF	03/10/2018	2104	Black rat	D	Incomp	W,turn,E	112-117	
		FF	03/10/2018	2358	Black rat	D	Incomp	E,turn,W	118-123	
		FF	04/10/2018	1956	Black rat	D	Incomp	NDM	124-26	
		FF	04/10/2018	1956	Black rat	D	Incomp	NDM	124-26	
		FF	05/10/2018	2059	Black rat	D	Incomp	NDM	127-132	
		FF	06/10/2018	1829	Black rat	D	Comp	W	133-135	
		FF	06/10/2018	1950	Black rat	D	Incomp	E,turn,W	136-141	
		FF	06/10/2018	2007	Black rat	D	Comp	E	142-144	
		FF	06/10/2018	2233	Black rat	D	Incomp	E,turn,W	145-153	
		FF	07/10/2018	0100	Black rat	D	Incomp	NDM	154-156	
		FF	07/10/2018	1931	Black rat	D	Comp	W	157-160	
		FF	07/10/2018	2338	Black rat	D	Comp	W	163-168	
		FF	08/10/2018	0324	Black rat	D	Incomp	E,turn,W	169-177	
		FF	08/10/2018	1951	Black rat	D	Comp	W	178-183	
		FF	09/10/2018	1853	Black rat	D	Comp	W	184-186	
		FF	09/10/2018	2044	Black rat	D	Comp	W	187-192	
		FF	11/10/2018	2306	Black rat	D	Comp	W	193-196	
		FF	12/10/2018	1905	Black rat	D	Incomp	NDM	197-201	
		FF	13/10/2018	0105	Black rat	D	Incomp	E,turn,W	202-207	
		FF	14/10/2018	1020	Azure kingfisher	D	NDM	roost	214-216	
		FF	14/10/2018	2310	Black rat	D	Comp	E	217-219	
		FF	15/10/2018	1128	Azure kingfisher	D	NDM	roost	220-222	
		FF	17/10/2018	1931	Black rat	D	Comp	W	232-234	
FF	17/10/2018	2224	Black rat	D	Incomp	E,turn,W	235-239			

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		FF	17/10/2018	2341	Black rat	D	Comp	E	243-245	
		FF	20/10/2018	0257	Black rat	D	Comp	W,turn,E	246-248	
		FF	21/10/2018	2226	Black rat	D	Incomp	E,turn,W	249-252	
		Flr	25/09/2018	2107	Black rat	Pr	Incomp	NDM	13-15	
		Flr	21/10/2018	2218	Black rat	D	Comp	W	31-33	
		Flr	27/10/2018	2021	EW Dragon	D	Comp	E	22-24	
		Flr	03/11/2018	2318	EW Dragon	D	Comp	E	43-48	
		Flr	28/11/2018	2245	Black Rat	D	Incomp	W the E	67-69	
		FF	27/10/2018	0846	EW Dragon	D	Comp	W	25-30	
		FF	28/10/2018	0140	Black Rat	D	Comp	E	33-42	
		FF	31/10/2018	0920	EW Dragon	D	Comp	W	43-60	
		FF	31/10/2018	1854	Black Rat	D	Comp	W	61-63	
		FF	31/10/2018	2210	Black Rat	D	Comp	E	64-65	
		FF	01/11/2018	1101	EW Dragon	D	Comp	E	67-69	
		FF	02/11/2018	0108	Black Rat	D	Comp	W	70-78	
		FF	02/11/2018	2140	Black Rat	D	Incomp	NDM	118-120	
		FF	02/11/2018	2217	Black Rat	D	Comp	E	124-136	
		FF	03/11/2018	1129	EW Dragon	D	Comp	W	139-141	
		FF	03/11/2018	1954	Black Rat	D	Comp	W	142-148	
		FF	03/11/2018	2050	Black Rat	D	Comp	E	150-152	
		FF	04/11/2018	0050	Black Rat	D	Incomp	W then E	153-168	
		FF	06/11/2018	2200	Black Rat	Pr	Incomp	E then W	196-206	
		FF	08/11/2018	2046	Black Rat	D	InComp	E then W	208-222	
		FF	29/11/2018	2215	Black Rat	D	Comp	W	223-226	
		FF	10/11/2018	1953	Black Rat	D	Comp	E	229	
		FF	10/11/2018	2219	Black Rat	D	Comp	W	232-234	
		FF	11/11/2018	1912	Black Rat	D	Comp	E	235-236	
		FF	11/11/2018	2048	Black Rat	D	Comp	W	238-249	
		FF	12/11/2018	0322	Black Rat	D	Incomp	W then e	250-255	
		FF	12/11/2018	1853	Black Rat	D	Comp	W	262-267	
		FF	12/11/2018	2022	Black Rat	D	Comp	E	268-269	
		FF	12/11/2018	2047	Black Rat	D	Comp	W	271-276	
		FF	12/11/2018	2218	Black Rat	D	Comp	E	277-279	
		FF	15/11/2018	2048	Black Rat	D	Comp	W	280-283	
		FF	15/11/2018	2206	Black Rat	D	Comp	E	288-	
		FF	17/11/2018	0116	Black Rat	D	Incomp	W then E	289-97	
		FF	17/11/2018	2006	Black Rat	D	Comp	W	298-299	
		FF	17/11/2018	2154	Black Rat	D	Comp	E	300-301	

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		FF	19/11/2018	0123	Black Rat	D	Incomplete	E then W	303-309	
		FF	22/11/2018	1919	Black Rat	D	Comp	W	310-312	
		FF	22/11/2018	2141	Black Rat	D	Comp	E	313-314	
		FF	25/11/2018	2014	Black Rat	D	Comp	W	325-327	
		FF	27/11/2018	2143	Black Rat	D	Incomp	W then E	328-333	
	SE	Flr	29/09/2018	2307	Black rat	D	Incomp	NDM	31-33	
		Flr	30/09/2018	2307	Black rat	D	Comp	W	34-39	
		Flr	01/10/2018	1901	Black rat	D	Incomp	NDM	40-42	
		Flr	03/10/2018	1315	EW dragon	D	Comp	E	43-45	
		Flr	03/10/2018	2015	Black rat	D	Incomp	NDM	46-48	
		Flr	08/10/2018	2217	Black rat	D	Incomp	NDM	49-66	
		Flr	09/10/2018	2248	Black rat	D	Incomp	NDM	67-69	
		Flr	12/10/2018	2147	Black rat	D	Incomp	NDM	70-72	
		Flr	15/10/2018	2201	Black rat	D	Incomp	NDM	75-77	
		Flr	20/10/2018	2027	Black rat	D	Comp	W	79-81	
		Flr	21/10/2018	2014	Black rat	D	Comp	W	82-84	
		Flr	21/10/2018	2211	Black rat	D	Incomp	NDM	85-90	
		Flr	25/10/2018	1858	Black Rat	D	Comp	W	22-26	
		Flr	27/10/2018	1250	EW Dragon	D	Comp	E	28-30	
		Flr	27/10/2018	2120	Black Rat	D	Comp	W	31-33	
		Flr	30/10/2018	1917	Black Rat	D	Incomp	NDM	34-36	
		Flr	30/10/2018	2050	Black Rat	D	Comp	W	37-43	
		Flr	04/11/2018	0108	Black Rat	D	Comp	W	52-54	
		Flr	18/11/2018	1957	Black Rat	D	Incomp	NDM	73-75	
		Flr	19/11/2018	0121	Black Rat	D	Comp	E the W	76-80	
		Flr	20/11/2018	1858	EG Roo	D	Comp	E	82-87	
		Flr	20/11/2018	1955	Black Rat	D	Incomp	NDM	88-90	
		Flr	25/11/18	0116	Black Rat	D	Incomp	NDM	91-96	
		Flr	28/11/2018	1910	Black Rat	D	Incomp	NDM	97-108	
		NW	FF	03/10/2018	2345	Black rat	D	Comp	E	10-12
	FF		16/10/2018	0218	Black rat	Pr	Incomp	NDM	13-21	
	Flr		28/09/2018	0203	Black rat	D	Incomp	NDM	16-18	
Flr	04/10/2018		2027	Black rat	D	Comp	E	103-105		
Flr	05/10/2018		0115	Black rat	D	Incomp	NDM	106-114		
Flr	07/10/2018		2200	Black rat	D	Comp	E	130-132		
Flr	24/10/2018		0813	EW dragon	D	Incomp	NDM	208-210		
Flr	26/10/2018		0914	EW Dragon	D	Comp	W	76-87		
Flr	26/10/2018	1405	EW Dragon	D	Comp	E	88-96			

Site	Side	Cam	Date	Time	Species	Accu- racy	Crossing Type	Movement Direction	Image No's	Comments
		Flr	27/10/2018	0937	EW Dragon	D	Comp	W	100-102	
		Flr	02/11/2018	1234	EW Dragon	D	Comp	E	118-123	
		Flr	02/11/2018	2311	Black Rat	D	Comp	E	124-129	
		Flr	15/11/2018	1411	EW Dragon	D	Comp	W	136-139	
		Flr	24/11/2018	0930	EW Dragon	D	Incomp	NDM	148-150	
		FF	30/10/2018	2240	Black Rat	D	Comp	E	13-15	
	SW	Flr	27/09/2018	0341	Black rat	D	Incomp	NDM	65-75	
		Flr	28/09/2018	0304	Cat	D	Incomp	NDM	103-105	
		Flr	01/10/2018	2130	Cat	D	Comp	E	160-162	
		Flr	26/10/2018	0708	Cat	D	Comp	W	157-165	
		Flr	03/11/2018	1357	EW Dragon	D	Incomp	NDM	180-183	
Access G	N	Floor	29/09/2018	1509	Water dragon	D	Comp	W	10-12	
		Floor	29/09/2018	2127	Black rat	D	Incomp	NDM	22-27	
		Floor	30/09/2018	0141	Black rat	D	Incomp	NDM	28-30	
		Floor	30/09/2018	1119	Water dragon	D	Comp	E	91-93	
		Floor	01/10/2018	0445	Fox	D	Comp	E	94-96	
		Floor	02/10/2018	1147	Water dragon	D	Comp	E	97-99	
		Floor	03/10/2018	1522	Water dragon	D	Comp	W	100-105	
		Floor	05/10/2018	1105	Water dragon	D	Comp	E	106-111	
		Floor	06/10/2018	1341	Water dragon	D	Comp	W	190-193	
		Floor	06/10/2018	1400	Water dragon	D	Comp	E	196-198	
		Floor	06/10/2018	1403	Water dragon	D	Comp	E	199-204	Different individual
		Floor	08/10/2018	1317	Water dragon	D	Comp	E	205-210	
		Floor	08/10/2018	1610	Water dragon	D	Incomp	NDM	211-213	
		Floor	09/10/2018	0852	Water dragon	D	Comp	E	214-216	
		Floor	09/10/2018	1052	Water dragon	D	Comp	W	2178-225	
		Floor	09/10/2018	2325	Black rat	D	Incomp	NDM	229-237	
		Floor	10/10/2018	1334	Water dragon	D	Incomp	NDM	238-240	
		Floor	10/10/2018	1630	Water dragon	D	Incomp	NDM	241-243	
		Floor	11/10/2018	1402	Water dragon	D	Incomp	NDM	244-246	
		Floor	15/10/2018	2240	Fox	D	Comp	E	322-324	
		Floor	18/10/2018	1926	Fox	D	Comp	E	343-348	
		Floor	30/10/2018	1802	Cat	D	Incomp	NDM	298-312	Right in front of camera
		Floor	07/11/2018	1439	Water dragon	D	Comp	W	400	
Floor	07/11/2018	1451	Water dragon	D	Comp	W	403-407			
Floor	13/11/2018	1518	Lace monitor	D	Comp	W	418-429			

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
S	Floor		22/11/2018	1245	Lace monitor	D	Comp	W	430-435	
			28/11/2018	1552	Water dragon	D	Comp	E	436-437	
			28/11/2018	1647	Lace monitor	D	Comp	W	439-441	
	FF		3/10/18	2036	Black rat	Pr	Comp	E	43-45	
			4/10/18	2139	Black rat	D	Comp	E	46-51	
			5/10/18	2154	Black rat	D	Comp	W	55-69	
			5/10/18	2234	Black rat	D	Comp	E	70-72	
			6/10/18	0154	Black rat	D	Incomp	W, turn, E	73-87	
			7/10/18	0023	Black rat	D	Comp	W	88-91	
			7/10/18	0119	Black rat	D	Comp	E	94-96	
			8/10/18	1522	Water dragon	D	Incomp	NDM	97-111	
			8/10/18	1931	Black rat	D	Comp	W	115-120	
			8/10/18	2024	Black rat	D	Comp	E	121-123	
			8/10/18	2313	Black rat	D	Comp	W	124-141	
			9/10/18	0033	Black rat	D	Comp	E	142-144	
			9/10/18	2009	Black rat	D	Incomp	NDM	145-147	
			9/10/18	2131	Black rat	D	Comp	W	148-152	
			9/10/18	2207	Black rat	D	Incomp	NDM	154-156	
			10/10/18	0040	Black rat	D	Incomp	NDM	157-162	
			11/10/18	0017	Black rat	D	Comp	W	163-165	
			11/10/18	0223	Black rat	D	Comp	E	166-168	
			11/10/18	2007	Black rat	D	Comp	W	169-172	
			12/10/18	0008	Black rat	D	Comp	W	175-177	
			12/10/18	0111	Black rat	D	Comp	E	178-180	
			13/10/18	2045	Black rat	D	Comp	W	181-183	
			13/10/18	2014	Black rat	D	Incomp	NDM	184-186	
			13/10/18	2330	Black rat	D	Incomp	NDM	187-188	
			14/10/18	0044	Black rat	D	Comp	E	190-192	
			14/10/18	1853	Black rat	D	Comp	W	193-195	
			14/10/18	2056	Black rat	D	Comp	E	196-198	
	14/10/18	2212	Black rat	D	Comp	W	199-201			
	FF	15/10/18	1819	Blackrat	Pr	Incomp	NDM	202	One image, pr comp.	
	FF	15/10/18	1938	Black rat	D	Incomp	NDM	205-207		
	FF	15/10/18	2023	Black rat	D	Comp	W	208-209		
	FF	15/10/18	2324	Black rat	D	Comp	W	211-212		
	FF	16/10/18	0024	Black rat	D	Incomp	NDM	214-216		
	FF	16/10/18	222	Black rat	D	Incomp	NDM	217-219		

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		FF	16/10/18	1824	Black rat	D	Incomp	NDM	220	
		FF	16/10/18	1921	Black rat	D	Comp	W	223-224	
		FF	16/10/18	2115	Black rat	D	Comp	E	226-228	
		FF	16/10/18	2238	Black rat	D	Comp	E	229-231	
		FF	17/10/18	0007	Black rat	D	Incomp	NDM	232	One image, pr comp.
		FF	17/10/18	0144	Black rat	D	Comp	E	235-237	
		FF	17/10/18	1818	Black rat	D	Comp	W	238-240	
		FF	17/10/18	1955	Blackrat	D	Incomp	NDM	241-243	
		FF	17/10/18	2121	Black rat	D	Incomp	NDM	244	One image, pr comp.
		FF	17/10/18	2338	Black rat	D	Comp	E	247-249	
		FF	18/10/18	1903	Black rat	D	Comp	W	250-251	
		FF	18/10/18	2259	Black rat	D	Incomp	NDM	253-255	
		FF	19/10/18	1824	Black rat	D	Comp	W	256-258	
		FF	19/10/18	1958	Black rat	D	Incomp	NDM	262-264	
		FF	20/10/18	1820	Black rat	D	Comp	W	265-266	
		FF	20/10/18	2037	Black rat	D	Comp	W	268-269	
		FF	21/10/18	0215	Black rat	D	Comp	E	271-273	
		FF	21/10/18	1840	Black rat	D	Comp	W	274-275	
		FF	21/10/18	1935	Blackrat	D	Incomp	NDM	277-279	
		FF	21/10/18	2032	Black rat	D	Incomp	NDM	283-285	
		FF	22/10/18	0134	Black rat	D	Comp	E	286-288	
		FF	22/10/18	1133	Lace monitor	D	Comp	W	289-302	
		FF	22/10/18	2233	Black rat	D	Comp	W	304-306	
		FF	23/10/18	1251	Lace monitor	D	Comp	W	307-321	
		FF	23/10/18	2024	Black rat	D	Comp	W	322-323	
		FF	23/10/18	2238	Black rat	D	Incomp	NDM	325-327	
		FF	24/10/2018	1816	Black rat	D	Comp	W	328-322	
		FF	24/10/2018	1903	Black rat	D	Comp	W	334	Pr comp, bark moves in 2nd pic
		FF	24/10/2018	2020	Black rat	D	Comp	E	337-339	
		FF	24/10/2018	2226	Black rat	D	Comp	E	340-342	
		FF	25/10/2018	1851	Black rat	D	Comp	W	16-21	
		FF	25/10/2018	1930	Black rat	D	Comp	W	22-23	
		FF	25/10/2018	2301	Black rat	D	Comp	E	25-27	
		FF	25/10/2018	2325	Black rat	D	Comp	E	28-30	
		FF	26/10/2018	0802	Lace monitor	D	Comp	E	31-36	
		FF	26/10/2018	1340	Lace monitor	D	Comp	W	37-42	

leads to Urunga Pacific Highway Upgrade: Operational Phase, Year One.

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		FF	26/10/2018	2243	Black rat	D	Comp	W	43-45	
		FF	27/10/2018	0036	Black rat	D	Comp	E	46-48	
		FF	27/10/2018	1847	Black rat	D	Comp	W	49-50	
		FF	27/10/2018	1957	Black rat	D	Comp	E	52-54	
		FF	28/10/2018	1828	Black rat	D	Comp	W	55-59	
		FF	28/10/2018	1901	Black rat	D	Comp	W	61	
		FF	28/10/2018	1926	Black rat	D	Comp	E	64-66	
		FF	28/10/2018	2004	Black rat	D	Comp	E	67-69	
		FF	29/10/2018	1752	Cat	D	Comp	E	70-72	
		FF	29/10/2018	1956	Black rat	D	Comp	W	73-76	
		FF	29/10/2018	2057	Black rat	D	Comp	W	79-81	
		FF	29/10/2018	2248	Black rat	D	Comp	E	85-87	
		FF	29/10/2018	2345	Black rat	D	Comp	E	88-90	
		FF	30/10/2018	2136	Black rat	D	Comp	W	91-94	
		FF	30/10/2018	2213	Black rat	D	Comp	E	97-99	
		FF	31/10/2018	1917	Black rat	D	Comp	W	100	
		FF	31/10/2018	2013	Black rat	D	Comp	E	103-105	
		FF	01/11/2018	1941	Black rat	D	Comp	W	106-109	Different individual
		FF	01/11/2018	1947	Black rat	D	Comp	W	112-114	
		FF	01/11/2018	2025	Black rat	D	Comp	E	115-117	
		FF	01/11/2018	2102	Black rat	D	Comp	E	118-120	
		FF	02/11/2018	0822	Lace monitor	D	Comp	E	121-132	
		FF	02/11/2018	1500	Lace monitor	D	Comp	W	133-138	
		FF	02/11/2018	1840	Black rat	D	Comp	W	139-142	
		FF	02/11/2018	1855	Black rat	D	Comp	W	145-148	
		FF	02/11/2018	1924	Black rat	D	Comp	E	151-153	
		FF	02/11/2018	2131	Black rat	D	Comp	E	154-159	
		FF	03/11/2018	1956	Black rat	D	Comp	W	160	
		FF	03/11/2018	2044	Black rat	D	Comp	E	163-165	
		FF	04/11/2018	1936	Black rat	D	Comp	W	166-168	
		FF	04/11/2018	2049	Black rat	D	Comp	E	169-171	
		FF	05/11/2018	1841	Black rat	D	Comp	W	172-173	
		FF	05/11/2018	1945	Black rat	D	Comp	E	175-177	
		FF	06/11/2018	1946	Black rat	D	Comp	E	181-183	
		FF	07/11/2018	2116	Black rat	D	Comp	E	187-189	
		FF	08/11/2018	1855	Black rat	Pr	Comp	W	190-191	
		FF	09/11/2018	1903	Black rat	D	Comp	W	193-197	
		FF	09/11/2018	1954	Black rat	D	Comp	E	199-201	

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		FF	10/11/2018	1903	Black rat	D	Comp	W	202-203	
		FF	10/11/2018	1954	Black rat	D	Comp	E	205-207	
		FF	11/11/2018	1944	Black rat	D	Comp	W	208	
		FF	11/11/2018	2221	Black rat	D	Comp	E	211-213	
		FF	12/11/2018	0936	Lace monitor	D	Comp	E	214-219	
		FF	12/11/2018	2010	Black rat	D	Comp	W	220-221	
		FF	12/11/2018	2217	Black rat	D	Comp	E	223-225	
		FF	13/11/2018	2033	Black rat	D	Comp	W	226-228	
		FF	13/11/2018	2120	Black rat	D	Comp	E	229-231	
		FF	14/11/2018	1924	Black rat	D	Comp	W	232-236	
		FF	14/11/2018	1957	Black rat	D	Comp	E	238-240	
		FF	14/11/2018	2140	Black rat	D	Comp	W	241-243	
		FF	15/11/2018	1850	Black rat	D	Comp	W	247	
		FF	15/11/2018	2023	Black rat	D	Comp	E	250-252	
		FF	15/11/2018	2355	Black rat	D	Comp	E	253-255	
		FF	16/11/2018	0119	Black rat	D	Comp	W	256-259	
		FF	16/11/2018	0220	Black rat	D	Comp	E	259-261	
		FF	16/11/2018	2147	Black rat	D	Comp	W	262-264	
		FF	16/11/2018	2358	Black rat	D	Comp	E	265-267	
		FF	18/11/2018	1917	Black rat	D	Comp	W	268-269	
		FF	18/11/2018	2059	Black rat	D	Comp	W	271-274	
		FF	18/11/2018	2113	Black rat	D	Comp	E	277-279	
		FF	19/11/2018	0055	Black rat	D	Comp	E	280-282	
		FF	19/11/2018	1953	Black rat	D	Comp	W	283-284	
		FF	19/11/2018	2130	Black rat	D	Comp	E	286-288	
		FF	19/11/2018	2155	Black rat	D	Comp	W	289-292	
		FF	20/11/2018	1847	Black rat	D	Comp	W	295-296	
		FF	20/11/2018	1905	Black rat	D	Comp	W	298-299	
		FF	20/11/2018	2152	Black rat	D	Comp	E	301-303	
		FF	20/11/2018	2209	Black rat	D	Comp	E	304-306	
		FF	21/11/2018	0038	Black rat	D	Incomp	W then E	307-318	
		FF	21/11/2018	2238	Black rat	D	Comp	W	319-327	
		FF	22/11/2018	0031	Black rat	D	Comp	E	328-330	
		FF	24/11/2018	1901	Black rat	D	Comp	W	331-333	
		FF	27/11/2018	1040	Lace monitor	D	Comp	E	334-339	
		FF	28/11/2018	2128	Black rat	D	Comp	W	340-343	
		FF	28/11/2018	2253	Black rat	D	Comp	E	346-348	
		Floor	01/10/2018	1157	Water dragon	D	Comp	W	103-108	

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		Floor	02/10/2018	0931	Water dragon	D	Comp	E	109-111	
		Floor	03/10/2018	0131	Cat	D	Comp	W	112-115	
		Floor	08/10/2018	1631	Water dragon	D	Comp	E	214-216	
		Floor	09/10/2018	0859	Water dragon	D	Comp	W	217-219	
		Floor	10/10/2018	0247	Short-eared Brushtail Possum	D	Comp	W	220-225	Withback young
		Floor	10/10/2018	1238	Water dragon	D	Comp	W	226-231	
		Floor	31/10/2018	1423	Water dragon	D	Incomp	W then E	238-243	
		Floor	21/11/2018	0924	Lace monitor	D	Comp	E	280-282	
Martell's N		Floor	27/09/2018	1921	Black rat	D	Comp	E	31-33	
		Floor	28/09/2018	1849	Black rat	D	Incomp	NDM	34-36	
		Floor	28/09/2018	2133	Black rat	D	Comp	W	49-59	
		Floor	29/10/2018	2254	Black rat	D	Comp	W	61-66	
		Floor	30/09/2018	1125	Water dragon	D	Comp	E	67-69	
		Floor	01/10/2018	0040	Black rat	D	Incomp	NDM	70-84	
		Floor	01/10/2018	1903	Black rat	D	Incomp	NDM	85-90	
		Floor	01/10/2018	2030	Black rat	D	Incomp	NDM	91-93	
		Floor	01/10/2018	2202	Black rat	D	Incomp	NDM	94-96	
		Floor	05/10/2018	2154	Black rat	D	Comp	W	109-114	
		Floor	06/10/2018	2108	Black rat	D	Incomp	NDM	115-117	
		Floor	07/10/2018	2205	Black rat	D	Incomp	NDM	121-126	
		Floor	07/10/2018	2248	Black rat	D	Comp	W	127-132	
		Floor	08/10/2018	1321	Snake sp.	po	Incomp	NDM	133-135	On camera
		Floor	08/10/2018	1903	Black rat	D	Comp	E	136-138	
		Floor	10/10/2018	0002	Black rat	D	Incomp	E, turn, W	139-150	
		Floor	20/10/2018	2351	Black rat	D	Comp	E	154-156	
		Floor	22/10/2018	0617	Dog	D	Comp	E	157-159	
		Floor	23/10/2018	2000	Black rat	D	Comp	E	160-165	
		Floor	24/10/2018	2011	Black rat	D	Comp	W	34-39	
		Floor	28/10/2018	0033	Echidna	D	Comp	E	55-57	
		Floor	28/10/2018	2139	Black rat	D	Comp	W	58-60	
		Floor	29/10/2018	1928	Black rat	D	Comp	W	61-63	
		Floor	29/10/2018	2155	Black rat	Pr	Comp	W	64	
		Floor	30/10/2018	2208	Black rat	D	Comp	W	67-72	
		Floor	01/11/2018	0134	Black rat	D	Comp	E	76-80	
		Floor	01/11/2018	2152	Black rat	D	Comp	W	82-84	
		Floor	02/11/2018	2212	Black rat	Pr	Comp	E	106-108	
Floor	05/11/2018	1916	Black rat	D	Comp	W	109-114			

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		Floor	05/11/2018	2125	Black rat	D	Incomp	E then W	121-126	
		Floor	05/11/2018	2158	Black rat	D	Comp	W	127-130	
		Floor	07/11/2018	1916	Black rat	D	Comp	W	139-141	
		Floor	07/11/2018	2342	Black rat	D	Incomp	NDM	151-156	Walks around in circles
		Floor	09/11/2018	2043	Black rat	D	Comp	W	163-165	
		Floor	10/11/2018	2054	Black rat	D	Comp	E	166-168	
		Floor	13/11/2018	0024	Bandicoot spp	D	Comp	E	169-171	
		Floor	14/11/2018	2358	Black rat	Pr	Comp	E	172-174	
		Floor	17/11/2018	1926	Black rat	D	Comp	E	178-180	
		Floor	28/11/2018	0206	Black rat	D	Comp	W	187-192	
		FF	29/09/2018	1152	EW Dragon	D	Comp	W	32-38	
		FF	11/10/2018	2200	Black Rat	Pr	Incomp	NDM	55	
		FF	18/10/2018	2035	Black Rat	D	Comp	W	73-79	
		FF	21/10/2018	2033	Black Rat	D	Comp	W	82-83	
		FF	22/10/2018	2145	Black Rat	D	Comp	E	88-89	
		FF	24/10/2018	0752	EW Dragon	D	Comp	W	94-95	
		FF	24/10/2018	1914	Black Rat	D	Comp	E	7-9	
		FF	05/11/2018	2319	Black Rat	D	Comp	E	49-51	
		FF	15/11/2018	0110	Black Rat	D	Comp	E	67-68	
		FF	23/11/2018	2257	Black Rat	D	Comp	W	76-77	
FF	25/11/2018	0105	Black Rat	D	Comp	W	79			
FF	28/11/2018	0143	Black Rat	Pr	Comp	W	82-83			
Martell's S		Floor	29/09/2018	0153	Cat	D	Comp	E	172-180	
		Floor	03/10/2018	1102	Lace Monitor	D	Comp	E	286-297	
		Floor	04/10/2018	1138	Lace Monitor	D	Comp	W	299-303	
		Floor	20/10/2018	0042	NB Bandicoot	D	Comp	E	414-425	
		Floor	22/10/2018	1023	Lace Monitor	D	Comp	E	424-432	
		Floor	22/10/2018	1252	Lace Monitor	D	Comp	W	433-438	Gravid
		Floor	23/10/2018	0009	Black Rat	D	Comp	E	440-441	
		Floor	26/10/2018	1651	Echidna	D	Comp	W	13-15	
		Floor	26/10/2018	2311	Echidna	D	Comp	E	16-21	
		Floor	27/10/2018	2029	Fox	D	Incomp	W then E	22-24	
		Floor	31/10/2018	1114	Lace Monitor	D	Comp	E	25-36	
		Floor	02/11/2018	1951	Northern Brown Bandicoot	D	Comp	E	109-114	
		Floor	06/11/2018	0939	Lace Monitor	D	Comp	W	121-126	
		Floor	07/11/2018	1056	Lace Monitor	D	Comp	E	157-162	

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		Floor	16/11/2018	0301	Echidna	D	Comp	E	199-201	
		FF	28/09/2018	1952	Black Rat	D	Comp	W	55-57	
		FF	28/09/2018	2347	Brown Antechinus	Pr	Comp	W	58-65	
		FF	29/09/2018	2027	Black Rat	D	Comp	W	67-76	
		FF	29/9/18	2035	Brown Antechinus	Pr	Comp	W	78-80	
		FF	29/09/2018	2036	Black Rat	D	Comp	E	83-104	
		FF	30/09/2018	1948	Black Rat	Pr	Comp	E	105-108	
		FF	02/10/2018	0044	Black Rat	D	Comp	W	109-111	
		FF	02/10/2018	1918	Black Rat	D	Comp	E	112-114	
		FF	03/10/2018	0042	Black Rat	D	Comp	W	115-120	
		FF	04/10/2018	0120	Antechinus sp.	Po	Comp	W	121-123	Blurred pics
		FF	04/10/2018	0127	Black Rat	D	Comp	W	124-126	
		FF	06/10/2018	0115	Black Rat	D	Comp	W	130-132	
		FF	06/10/2018	0340	Black Rat	D	Comp	E	133-135	
		FF	06/10/2018	2331	Rodent sp.	D	Comp	E	136-138	
		FF	06/10/2018	2332	<i>Melomys cervinnipes</i>	Pr	Comp	E	139-147	
		FF	07/10/2018	0020	Black Rat	D	Comp	W	148-150	
		FF	07/10/2018	2218	Black Rat	D	Comp	W	151-152	
		FF	08/10/0008	0145	Antechinus sp.	D	Incomp	NDM	153-155	
		FF	08/10/2018	2007	Black Rat	Pr	Comp	E	156-158	
		FF	10/10/2018	0032	Antechinus sp.	D	Comp	E	159-165	
		FF	10/10/2018	2214	Black Rat	D	Comp	W	166-169	
		FF	11/10/2018	0335	Rodent sp.	D	Comp	E	170-172	
		FF	12/10/2018	0051	Rodent sp.	D	Comp	E	173-175	
		FF	15/10/2018	0137	Black Rat	Pr	Comp	E	176-180	
		FF	22/10/2018	0316	Antechinus sp.	D	Comp	W	196-198	
		FF	28/10/2018	1935	SEBiP	Pr	Comp	W	16	
		FF	28/10/2018	2008	SEBiP	D	Comp	E	19-21	
		FF	31/10/2018	0923	Black rat	D	Incomp	W then E	22-33	
		FF	03/11/2018	1540	EW Dragon	D	Comp	W	82-93	
		FF	09/11/2018	2217	SEBiP	D	Comp	E	169-171	
		FF	11/11/2018	0241	SEBiP	D	Comp	E	172-174	
		FF	16/11/2018	1908	SEBiP	D	Comp	W	175-176	
		FF	17/11/2018	0158	SEBiP	D	Comp	E	178-180	
		FF	17/11/2018	0316	SEBiP	D	Comp	E	181-183	
		FF	18/11/2018	0321	SEBiP	D	Comp	E	187-188	

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		FF	18/11/2018	1925	SEBtP	D	Comp	W	190-	
		FF	19/11/2018	0327	SEBtP	D	Comp	E	193-195	
		FF	19/11/2018	2210	SEBtP	D	Comp	W	196	
		FF	21/11/2018	1914	SEBtP	Pr	Comp	W	199	
		FF	22/11/2018	0327	SEBtP	D	Comp	E	202-210	
		FF	25/11/2018	0220	SEBtP	D	Comp	E	223-225	
		FF	25/11/2018	1959	SEBtP	D	Comp	W	226-227	
		FF	26/11/2018	0146	SEBtP	D	Incomp	E-W-E-W	229-291	Hanging out around camera
		FF	26/11/2018	2018	SEBtP	D	Comp	W	292-294	
		FF	27/11/2018	0037	SEBtP	D	Comp	E	298-300	
		FF	27/11/2018	0059	SEBtP	D	Comp	W	301-309	
		FF	27/11/2018	1943	SEBtP	D	Comp	W-E-W	313-324	
		FF	29/11/2018	0221	SEBtP	D	Comp	W	325-330	
Dalhousie	E	Floor	26/09/2018	2031	Black Rat	D	Comp	E	10-12	
		Floor	29/09/2018	1204	Motorbike	D	Comp	W	87-89	
		Floor	29/09/2018	1700	Motorbike x 2	D	Comp	E	91-93	
		Floor	30/09/2018	1237	Motorbike x 3	D	Comp	E	94-96	
		Floor	01/10/2018	1324	Motorbike	D	Comp	E	101-103	
		Floor	02/10/2018	2204	Cat	D	Comp	E	109-114	
		Floor	04/10/2018	1347	Motorbike	D	Comp	E	115-117	
		Floor	13/10/2018	1614	Motorbike x 3	D	Comp	E	367-369	
		Floor	14/10/2018	2006	Black Rat	Pr	Comp	E	370-372	
		Floor	14/10/2018	2158	Black Rat	D	Comp	W	273-378	
		Floor	15/10/2018	1929	Black Rat	D	Comp	W	379-381	
		Floor	20/10/2018	2139	Motorbike x 2	D	Comp	E	394-405	
		Floor	20/10/2018	2017	Black Rat	Pr	Comp	E	406-409	
		Floor	25/10/2018	1222	Human	D	Incomp	W then E	409-415	
		Floor	27/10/2018	1338	Motorbikes x 3	D	Comp	E	16-21	
		Floor	28/10/2018	1921	Black Rat	D	Comp	E	22-27	
		Floor	30/10/2018	2352	Black Rat	D	Comp	W	28-32	
		Floor	02/11/2018	2143	Black Rat	D	Comp	E	63	
		Floor	03/11/2018	0141	Black Rat	D	Comp	W	64-67	
		Floor	07/11/2018	1343	Lace Monitor	D	Comp	W	70-72	
		Floor	07/11/2018	2201	Rodent spp	D	Comp	E	76-78	
		Floor	16/11/2018	1908	Rodent spp	D	Comp	E	85-87	
Floor	16/11/2018	1935	Black Rat	D	Comp	E	88-90			
Floor	17/11/2018	1114	Humans x 4	D	Comp	W	94-96			

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		Floor	17/11/2018	1408	Humans x 5	D	Comp	E	100-105	
		Floor	25/11/2018	1929	Black rat	D	Comp	E	106-111	
		FF	28/09/2018	2214	Antechinus sp.	D	Comp	E	61-63	
		FF	29/09/2018	2059	Antechinus sp.	D	Comp	E	163-168	
		FF	29/09/2018	2130	Black Rat	D	Incomp	E then W	169-175	
		FF	02/10/2018	2113	Black Rat	D	Comp	E	226-228	
		FF	04/10/2018	2129	Black Rat	D	Comp	W	241-265	
		FF	06/10/2018	2041	Black Rat	D	Comp	E	415-417	
		FF	07/10/2018	1200	Black Rat	D	Comp	W	418-421	
		FF	10/10/2018	2126	Black Rat	D	Comp	W	487-498	
		FF	17/10/2018	2305	Black Rat	D	Comp	W	535-542	
		FF	19/10/2018	0134	Black Rat	D	Comp	W	556-560	
		FF	11/11/2018	2315	Black rat	D	Comp	W	232-233	
		FF	14/11/2018	0305	Antechinus spp	D	Incomp	E than W	256-261	
		FF	16/11/2018	0139	Antechinus spp	Pr	Comp	W	265-266	
		FF	16/11/2018	0353	Antechinus spp	Pr	Comp	W	268-269	
		FF	17/11/2018	0055	Black Rat	D	Comp	W	271-273	
		FF	17/11/2018	0327	Black Rat	D	Incomp	E than W	274-279	
		FF	20/11/2018	0006	Antechinus spp	D	Comp	E	343-366	Goes back and fourth for a while
		FF	20/11/2018	0341	Black Rat	Pr	Comp	E	367	
		FF	20/11/2018	2055	Antechinus spp	D	Comp	E	373-375	
		FF	21/11/2018	0337	Antechinus spp	D	Incomp	E than W	379-382	
		FF	22/11/2018	1959	Antechinus spp	D	Comp	E	385-387	
		FF	23/11/2018	0058	Antechinus spp	D	Comp	E	388-390	
		FF	26/11/2018	1938	Antechinus spp	D	Comp	W	403	
		FF	26/11/2018	1954	Black rat	D	Comp	W	406-409	
		FF	26/11/2018	2211	Black rat	D	Comp	W	412-413	
		FF	28/11/2018	2051	Black Rat	D	Comp	W	430-431	
	W	Floor	02/10/2018	2153	Cat	D	Comp	E	238-246	Same motorbikes as E culvert above
		Floor	20/10/2018	0946	EW Dragon	D	Comp	E	788-792	
		FF	27/9/18	1912	Black Rat	D	Comp	E	28-32	

Site	Side	Cam	Date	Time	Species	Accu- racy	Crossing Type	Movement Direction	Image No's	Comments
		FF	03/10/2018	2315	Black Rat	D	Incomp	E	187-189	
		FF	06/10/2018	0014	Black Rat	D	Comp	E	253-255	
		FF	6/10/18	1949	Black Rat	D	Incomp	W the E	256-258	
		FF	07/10/2018	0940	<i>Egernia mcpheii</i>	Pr	Comp	E	259-261	
		FF	07/10/2018	1956	Black Rat	Pr	Comp	W	262	
		FF	08/10/2018	1001	Lizard sp.	D	Comp	W	265-267	
		FF	08/10/2018	2015	Black Rat	Pr	Incomp	W	268- 275	
		FF	09/10/2018	1104	Lizard sp.	D	Incomp	NDM	277-279	
		FF	09/10/2018	2242	Black Rat	D	Comp	E	280-285	
		FF	14/10/2018	1946	Black Rat	D	Comp	E	499-502	
		FF	14/10/2018	2248	Black Rat	D	Incomp	NDM	503-04	
		FF	29/10/2018	2029	Black rat	D	Comp	E	73-75	
		FF	29/10/2018	2329	Black rat	D	Comp	W	76-78	
		FF	08/11/2018	0020	Black Rat	D	Comp	W	175-177	
		FF	08/11/2018	1955	Black Rat	D	Comp	E	178-189	
		FF	09/11/2018	2259	Black Rat	D	Incomp	W than E	211-213	
		FF	12/11/2018	2140	Black Rat	D	Incomp	W than E	220-234	
		FF	14/11/2018	2039	Black Rat	D	Comp	W	238-242	
		FF	14/11/2018	2346	Black Rat	D	Comp	E	244-246	
		FF	15/11/2018	2337	Antechinus spp	D	Comp	E	250-252	
		FF	16/11/2018	1914	Black Rat	D	Comp	W	253-254	
		FF	17/11/2018	0119	Black Rat	D	Comp	E	256-261	
		FF	19/11/2018	1201	Black rat	D	Comp	W	313-315	
		FF	19/11/2018	1234	Black rat	D	Comp	E	316-318	
		FF	19/11/2018	2352	Black rat	Po	Comp	W	319-321	
		FF	20/11/2018	1919	Black rat	D	Comp	W	325-326	
		FF	21/11/2018	0124	Black rat	D	Comp	E	328-330	
		FF	23/11/2018	2121	Black rat	D	Comp	E	349-351	
		FF	24/11/2018	1932	Black rat	D	Comp	W	352-357	
		FF	25/11/2018	0020	Black rat	D	Comp	E	358-360	
		FF	26/11/2018	0125	Black rat	D	Comp	E	361-363	
		FF	26/11/2018	1918	Black rat	D	Comp	W	364	
		FF	26/11/2018	2029	Black rat	D	Comp	E	367-369	
		FF	27/11/2018	2239	Black Rat	D	Comp	E	373-375	
		FF	28/11/2018	2111	Black Rat	D	Comp	W	376-377	
		FF	28/11/2018	2332	Black Rat	D	Comp	E	379-381	
Burke's		FF	29/09/2018	2316	Black rat	D	Comp	W	154-160	

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments		
	Single cell	FF	30/09/2018	0006	Black rat	D	Comp	E	163-165			
		FF	04/10/2018	2356	Black rat	D	Comp	E	169-180			
		FF	6/11/18	0141	Black rat	D	Comp	W	322-324			
		FF	06/10/2018	0226	Black rat	D	Comp	E	325-327			
		FF	07/10/2018	0258	Short-eared possum	D	Comp	W	328-333			
		FF	08/10/2018	2006	Black rat	D	Comp	W	334-336			
		FF	09/10/2018	2041	Black rat	D	Comp	W	337	Single image pr crossing		
		FF	10/10/2018	0219	Short-eared Brushtail possum	D	Comp	W	340-343			
		FF	11/10/2018	2224	Black rat	D	Comp	W	595-597			
		FF	13/10/2018	2008	Black rat	D	Comp	W	598	Single image pr crossing		
		FF	13/10/2018	2300	Black rat	D	Incomp	W,turn, E	601-612			
		FF	14/10/2018	0202	Short-eared possum	D	Comp	W	616			
		FF	16/10/2018	1812	Black rat	D	Comp	W	622-624			
		FF	18/10/2018	0024	Black rat	D	Incomp	W, turn, E	637-639			
		FF	19/10/2018	0205	Black rat	D	Comp	E	643-648	Makes a turn then cont. E		
		FF	20/10/2018	2134	Black rat	D	Comp	E	682-684			
		FF	21/10/2018	0008	Black rat	D	Comp	W	685-686			
		FF	22/10/2018	0048	Black rat	D	Comp	E	688-690			
		FF	22/10/2018	0103	Black rat	D	Comp	NDM	691-693			
		FF	03/11/2018	2208	BtPoss sp.	D	Comp	E	379-381			
		FF	06/11/2018	0032	BtPoss sp.	D	Incomp	E, turn, W	400-403			
		FF	08/11/2018	2311	BtPoss sp.	D	Comp	E	478-480			
		FF	13/11/2018	0059	BtPoss sp.	D	Comp	E	517-519			
		FF	16/11/2018	2259	SEBtP	Pr	Comp	E	520-522			
		FF	17/11/2018	2318	BtPoss sp.	D	Comp	E	523-525			
		FF	19/11/2018	0105	BtPoss sp.	D	Comp	W	526-529			
		FF	25/11/2018	0153	BtPoss sp.	D	Comp	W	0153			
		FF	26/11/2018	0014	BtPoss sp.	D	Comp	E	553-555			
				Floor	30/09/2018	2119	Bandicoot sp.	D	Comp	E	40-51	Po. long nose, small. X3 crossing E
				Floor	29/10/2018	2214	Black Rat	D	Comp	E	111-114	
		Floor	25/11/2018	0245	SEBtP	D	Comp	W	169-170			
Railway	N	Floor	14/10/2018	1808	Cat	D	Comp	E	88-93	Cam facing W		

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		Floor	09/11/2018	2303	Humans	D	Comp	E	25-38	
		Floor	18/11/2018	1744	Cat	D	Comp	W	40-42	
	S	Floor	30/09/2018	1146	Lace monitor	D	Comp	E	145-147	
		Floor	02/10/2018	0425	Fox	D	Comp	W	163	
		Floor	06/10/2018	0317	Fox	D	Incomp	NDM	178-192	
		Floor	22/10/2018	0846	Motor bike	D	Comp	W	352	
		Floor	22/10/2018	1427	Motor bike	D	Comp	E	355-356	Same bike as previous
		Floor	05/11/2018	0935	Motor bike	D	Comp	W	16	
		Floor	05/11/2018	1454	Motor bike	D	Comp	E	19	
		Floor	12/11/2018	1157	Lace monitor	D	Comp	W	82-84	
		Floor	13/11/2018	1153	Lace monitor	D	Comp	E	85-90	
		Floor	15/11/2018	1653	Humans	D	Comp	W	91-93	
		Floor	15/11/2018	1724	Humans	D	Comp	E	93-99	
		Floor	16/11/2018	0418	Cat	D	Comp	E	100-102	
		Floor	17/11/2018	0119	Human	D	Incomp	W then E	106-111	
		Floor	25/11/2018	0044	Swamp Wallaby	Pr	Comp	W	121-122	
		Floor	25/11/2018	0242	Fox	D	Comp	W	124-126	
Mcgrath's	N	Floor	27/09/2018	0620	Swamp Wallaby	D	Incomp	E	1-3	
		Floor	29/09/2018	0211	Medium mammal	D	Incomp	NDM	10-12	
		Floor	29/09/2018	2245	Brush-tail Possum sp.	Pr	Comp	E	22-24	
		Floor	30/09/2018	1754	Water Rat	Po	Comp	E	34-36	Climbs wall
		Floor	01/10/2018	0201	Swamp Wallaby	D	Comp	E	37-39	
		Floor	01/10/2018	0246	Fox	D	Comp	W	40-42	
		Floor	01/10/2018	0658	Swamp Wallaby	D	Comp	W	43-45	
		Floor	03/10/2018	1822	Swamp Wallaby	D	Comp	E	52-54	
		Floor	03/10/2018	2150	Bandicoot sp.	Po	Comp	E	55-57	
		Floor	06/10/2018	0744	Swamp Wallaby	D	Comp	W	67-69	
		Floor	07/10/2018	2014	Common Brush-tail Possum	D	Comp	E	70-72	
		Floor	07/10/2018	2211	Swamp Wallaby	Pr	Comp	E	73-75	
		Floor	08/10/2018	2228	Swamp Wallaby	D	Incomp	NDM	79-87	Drinks water

Site	Side	Cam	Date	Time	Species	Accuracy	Crossing Type	Movement Direction	Image No's	Comments
		Floor	09/10/2018	0617	Swamp Wallaby	D	Comp	W	88-90	
		Floor	09/10/2018	0945	Lace Monitor	D	Comp	E	91-108	
		Floor	10/10/2018	0555	Swamp Wallaby	D	Incomp	NDM	115-120	
		Floor	16/10/2018	0732	Swamp Wallaby	D	Incomp	NDM	127-129	
		Floor	20/10/2018	0840	Lace Monitor	D	Comp	E	145-147	
		Floor	21/10/2018	0620	Swamp Wallaby	D	Incomp	NDM	148-150	
		Floor	23/10/2018	0413	Fox with Possum sp. prey	D	Comp	E	151-153	
		Floor	24/10/2018	1023	Swamp Wallaby	D	Comp	W	163-165	
		Floor	26/10/2018	2347	Water Rat	D	Comp	E	13-15	
		Floor	27/10/2018	1908	Water Rat	Pr	Comp	E	19-20	Only see tail end (tail has white tip)
		Floor	31/10/2018	0647	Swamp Wallaby	D	Comp	E	22-24	
		Floor	02/11/2018	0919	Kookaburra	Pr	Incomp	NDM	28-30	
		Floor	02/11/2018	2325	Water Rat	D	Comp	E	37-39	
		Floor	04/11/2018	0218	Water Rat	D	Incomp	NDM	40-42	
		Floor	04/11/2018	0625	Swamp Wallaby	D	Incomp	NDM	49-60	
		Floor	11/11/2018	0353	Black Rat	D	Comp	W	88-90	
		Floor	12/11/2018	0127	SEBtP	D	Comp	W	91-96	
		Floor	12/11/2018	0329	Black Rat	Pr	Incomp	NDM	97-99	Climbs wall
		Floor	12/11/2018	0616	Kookaburra	D	Incomp	NDM	100-102	
		Floor	14/11/2018	1923	Swamp Wallaby	Pr	Compl	E	106-107	
		Floor	19/11/2018	0653	Kookaburra	D	Incomp	NDM	112-114	
		Floor	21/11/2018	0537	Swamp Wallaby	Pr	Comp	E	115	
		Floor	22/11/2018	2128	Fox W prey	D	Comp	W	127-132	
		Floor	23/11/2018	0707	Swamp Wallaby	D	Incomp	NDM	133-135	
		Floor	25/11/2018	0628	Swamp Wallaby	D	Comp	E	142-144	
	S	Floor	4/10/18	0058	Echidna	D	Incomp	NDM	22-25	
		Floor	13/11/2018	1624	Lewins honeyeater	D	Incomp	NDM	16-18	
		Floor	13/11/2018	2152	small mammal	D	Complete	E	19-21	

Leads to Urunga Pacific Highway Upgrade: Operational Phase, Year One.

Table A15: Site habitat assessment. Eucs = eucalypts, MoF = moist open forest, DoF = dry open forest, McF = moist closed forest.

Site	Side	Hab class	Dominant canopy spp.	Dominant sub canopy spp.	Dominant Ground cover	Comments
McGrath's	East	MoF, Riparian	Flooded Gum, Blackbutt, Tallowwood.	Cheese tree, Bangalow palm, tree fern.	Lantana, Paspalum, Gahnia.	
	West	MoF, Riparian	Flooded Gum, Radiata Pine, Blackbutt	Cheese Tree	Paspalum, Pine needles, Lantana.	
Burke's	East	DoF, Riparian	Blackbutt, Tallowwood,	Cheese Tree, Swamp Mahogany, emergent eucs.	Lantana, Paspalum, smilax, senna.	
	West	DoF, rainforest	Grey Ironbark, Tallowwood, Flooded Gum.	Emergent eucs, vines (in rainforest area), casuarina, acacia.	Bladey grass, Paspalum, senna, Bracken.	
South Martell's	East	McF	Flooded Gum, Grey Ironbark	Melaleuca spp., leptospermum spp., casuarina spp.	Typha, Cordyline spp.	
	West	McF	Flooded Gum, Grey Ironbark	Emergent eucs, casuarina spp	Lantana, cordyline spp.	
Tyson's	West	DoF	Flooded Gum, Tallowwood, Grey Ironbark, Mahogany	Melaleuca spp., emergent eucs	Lantana, cordyline spp, smylax, Paspalum spp.	
	East	McF	Swamp Mahogany, Mel. quin., Grey Ironbark	Melaleuca spp., casuarina spp., emergent eucs	Cordyline spp., Lantana	
Access G	West	McF	Mahogany spp, Grey Ironbark, flooded gum	Vines, emergent eucs, cheese Tree	Cordyline spp, sedges, lomandra	
	East	McF	Mahogany spp, Grey Ironbark, flooded gum, turpentine	Vines, emergent eucs, cheese Tree, melaleuca spp.	Cordyline spp, sedges, lomandra, gahnia	
Dalhousie	West	DoF	Mahogany spp., Pink Bloodwood, Grey Ironbark	Emergent eucs, casuarina spp.,	Bladey Grass, sedges	
	East	DoF	Blackbutt, Red Mahogany, turpentine, brushbox	Emergent eucs, vines,	Lomandra, bladey Grass, Lantana	
North Martell's	West	DoF	Blackbutt	Emergent Eucs, acacia spp.,	Gahnia, leptospermum spp.	Heavily logged state forest
	East	Regrowth	Acacia	NA	Lomandra, Paspalum, gahnia	Rehabilitated Land from upgrade
Railway	East	MCF	Pink Bloodwood, Tallowwood, Flooded Gum, Blackbutt	Emergent Eucs, acacia spp.	Lantana, grasses	
	West	MoF	Flooded Gum, Blackbutt	Emergent Eucs, Casuarina spp.	Bladey Grass, Cordyline spp.	

Table A16: Exclusion fence camera effort.

Site	Install	Easting	Northing	Date in	Date last pic	Retrieved	Pics	Days Active	Date in	Date last pic	Retrieved	Pics	Days Active	Battery
Dalhousie NW	26/09/2018	499667	6621992	26/09/2018	25/10/2018	25/10/18	447	29	06/12/2018	Empty	17/1/19	Empty	Empty	Flat
Dalhousie SW	26/09/2018	499678	6621921	26/09/2018	25/10/2018	25/10/18	1185	29	06/12/2018	10/12/2018	17/1/19	1806	5	Flat
Dalhousie NE	26/09/2018	499741	6622021	26/09/2018	20/10/2018	25/10/18	3336	24	06/12/2018	12/12/2018	17/1/19	1833	7	Flat
Dalhousie SE	26/09/2018	499776	6621970	26/09/2018	25/10/2018	25/10/18	393	29	06/12/2018	Empty	17/1/19	Empty	Empty	Flat
South Martells NW	28/09/2018	498535	6622868	28/09/2018	25/10/2018	25/10/18	54	27	06/12/2018	15/12/2018	17/1/19	3857	10	Flat
South Martells SW	28/09/2018	498544	6622855	28/09/2018	2/10/2018	25/10/18	18	4	06/12/2018	23/12/2018	17/1/19	2455	18	Flat
South Martells NE	28/09/2018	498595	6622902	28/09/2018	25/10/2018	25/10/18	405	27	06/12/2018	8/12/2018	17/1/19	2146	3	Flat
South Martells SE	28/09/2018	498601	6622894	28/09/2018	9/10/2018	25/10/18	525	11	06/12/2018	14/12/2018	17/1/19	3444	9	Flat
Burkes NW	28/09/2018	500278	6616806	28/09/2018	24/10/2018	24/10/18	27	26	06/12/2018	17/01/2019	17/1/19	33	43	Active
Burkes SW	28/09/2018	500267	6616778	28/09/2018	24/10/2018	24/10/18	NA	26	06/12/2018	17/01/2019	17/1/19	63	43	Active
Burkes NE	26/09/2018	500351	6616837	26/9/18	10/10/2018	24/10/18	861	14	06/12/2018	8/12/2018	17/1/19	597	3	Flat
Burkes SE	26/09/2018	500337	6616740	26/9/18	24/10/2018	24/10/18	8943	28	06/12/2018	16/12/2018	17/1/19	3060	11	Flat
North Martells NW	27/09/2018	498309	6623380	27/9/18	17/10/2018	24/10/18	36	20	06/12/2018	8/12/2018	17/1/19	2624	3	Flat
North Martells SW	27/09/2018	498324	6623341	27/9/18	8/10/2018	24/10/18	144	11	06/12/2018	17/12/2018	17/1/19	2379	12	Flat
North Martells NE	27/09/2018	498378	6623430	27/9/18	24/10/2018	24/10/18	1303	25	06/12/2018	10/12/2018	17/1/19	4461	5	Flat
North Martells SE	27/09/2018	498374	6623404	27/9/18	10/10/2018	24/10/18	174	13	06/12/2018	13/12/2018	17/1/19	4564	8	Flat
Tyson's NW	25/09/2018	498685	6627459	25/09/2018	12/10/2018	25/10/18	3044	13	06/12/2018	7/12/2018	17/1/19	2294	2	Flat
Tyson's SW	25/09/2018	498629	6627430	25/09/2018	4/10/2018	25/10/18	3410	9	06/12/2018	7/12/2018	17/1/19	2516	2	Flat
Tyson's NE	25/09/2018	498718	6627410	25/09/2018	23/10/2018	25/10/18	93	28	06/12/2018	3/01/2019	17/1/19	4296	29	Low
Tyson's SE	25/09/2018	498697	6627318	25/9/18	NA	25/10/18	3429	NA	06/12/2018	8/12/2018	17/1/19	2000	3	Flat
Access G NW	25/09/2018	497927	6626258	25/09/2018	25/10/2018	25/10/18	15	30	06/12/2018	18/12/2018	17/1/19	4585	13	Flat
Access G SW	25/09/2018	497900	6626205	25/09/2018	14/10/2018	25/10/18	1800	15	06/12/2018	11/12/2018	17/1/19	4348	6	Flat
Access G NE	25/09/2018	497983	6626218	25/09/2018	25/10/2018	25/10/18	1785	30	06/12/2018	7/12/2018	17/1/19	4151	2	Flat

Site	Install	Easting	Northing	Date in	Date last pic	Retrieved	Pics	Days Active	Date in	Date last pic	Retrieved	Pics	Days Active	Battery
Access G SE	25/09/2018	497962	6626183	25/09/2018	4/10/2018	25/10/18	2202	9	06/12/2018	7/12/2018	17/1/19	1793	2	Flat
Railway NW	27/09/2018	497487	6611131	27/09/2018	20/10/2018	24/10/18	100	23	06/12/2018	4/01/2019	17/1/19	9172	30	Low
Railway SW	27/09/2018	497432	6611096	27/09/2018	24/10/2018	24/10/18	726	23	06/12/2018	8/12/2018	17/1/19	2245	3	Flat
Railway NE	27/09/2018	497437	6611187	27/09/2018	3/10/2018	24/10/18	81	6	06/12/2018	20/12/2018	17/1/19	2700	15	Low
Railway SE	27/09/2018	497523	6611275	27/09/2018	7/10/2018	24/10/18	87	10	06/12/2018	14/12/2018	17/1/19	2340	9	Flat

Table A17: Underpass fence entrance image review data. FtB = fence to bush, BtF = bush to fence, TC = towards culvert, AfC = away from culvert, CUF = Climbs up fence, CDF = climbs down fence, AfF = Away from fence, BS = bush side, RS = road side, F- foraging, OF = on fence, CoF = climbs over fence, CtF = climbs through fence, NDM = no directional movement, IF = in fence, CaF = climbs along fence, TFE = towards fauna exit, AfFE = away from fauna exit.

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
Dalhousie	NW	30/09/2018	2328	Black rat	Pr	IF facing BS	37-39
		3/10/2018	0155	rodent spp	D	NDM	85-87
		3/10/2018	2332	Black rat	D	CUF BS	94-96
		4/10/2018	2132	Rodent spp	D	TC	100-102
		5/10/2018	0014	Black rat	Pr	AfC	103-105
		5/10/2018	0124	Black rat	D	stationary half way through fence facing bush	106-108
		5/10/2018	2142	Black rat	D	EXM	109-111
		6/10/2018	1954	Black rat	D	stationary half way through fence facing road	112-114
		7/10/2018	0003	Swamp wallaby	D	AfC/F	115-147
		9/10/2018	0038	Rodent spp	D	NDM	178-180
		10/10/2018	0244	Black rat	Pr	NDM OF	187-189
		10/10/2018	0428	Black rat	Pr	IF facing BS	190-192
		13/10/2018	0054	Black rat	Pr	CoF BS to RS	199-201
		17/10/2018	0356	Rodent spp	D	CtF BS to RS	205-207
	17/10/2018	2318	Rodent spp	D	NDM	229-231	
	SW	3/10/2018	2219	Swamp wallaby	D	AfC	445-450
		5/10/2018	0038	Swamp wallaby	D	TC	466-468
		6/10/2018	2234	Swamp wallaby	D	TC	469-474
		12/10/2018	0301	Swamp wallaby	D	NDM	667-669
		22/10/2018	1016	Red-browed finch	D	NDM OF	871-876
		7/12/2018	0129	Small mammal	D	CaF	163-165
		8/12/2018	1318	Lace monitor	D	BtF	1360-1362
		10/12/2018	0005	Black rat	D	CdF	1805-1806
	NE	29/09/2018	1829	Rodent spp	D	BtF	121-126
		1/10/2018	2037	Small mammal	D	NDM	382

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		2/10/2018	2046	Black rat	Pr	NDM	637-639
		2/10/2018	2104	Black rat	Pr	BtF	640-642
		3/10/2018	0056	Rodent spp	D	FtB	643-645
		4/10/2018	0036	Black rat	Pr	BtF	832-834
		11/10/2018	2338	small mammal	D	BtF	1768-1770
		12/12/2018	1845	Swamp wallaby	D	NDM	1833
	SE	12/10/2018	2226	Black rat	Pr	NDM	52-54
		14/10/2018	0419	small mammal	D	NDM	61
		15/10/2018	2008	Rodent sp	D	TC	67-69
		17/10/2018	2042	Black rat	D	FtB	88-90
		18/10/2018	1859	Black rat	D	FtB	91-93
South Martells	NW	13/10/2018	0215	Rodent spp	D	IF	16
		16/10/2018	2045	Med mammal	D	TC	22-24
		16/10/2018	2357	Med mammal	D	TC	25-27
		16/10/2018	2359	Bandicoot spp	D	NDM	28-30
		6/12/2018	1821	Swamp wallaby	D	TC, F	208-234
		6/12/2018	2201	Black rat	D	CdF, FtB	235-240
		7/12/2018	2138	SEBtP	D	TC	1273-1275
		8/12/2018	2224	Fox	D	TC, AFC	2194-2199
		9/12/2018	0419	SEBtP	D	TC	2200-2202
		11/12/2018	0209	Swamp wallaby	D	AfC, F	3637-3666
		11/12/2018	0353	SEBtP	D	TC	3667-3669
		11/12/2018	1418	Lace monitor	D	TC	3673-3675
		11/12/2018	2134	Antechinus spp	Pr	FtB	3676-3678
		15/12/2018	0429	SEBtP	Pr	TC	3857
	SW	29/09/2018	2140	Rodent spp	Pr	RS of fence	13-14
		12/12/2018	2246	Swamp wallaby	D	AfC	1495-1500
		14/12/2018	2302	Black rat	D	CdF	1723-1725
		16/12/2018	0225	Dog	Po	TC	2098-2103
NE	29/09/2018	0159	Cat	D	AfC	1-3	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		30/09/2018	1850	Swamp wallaby	Pr	NDM	6
		1/10/2018	0612	Brush turkey	D	TC	7-9
		1/10/2018	0711	Brush turkey	D	AfC	10-12
		1/10/2018	0734	Brush turkey	D	TC	13-15
		1/10/2018	1734	Brush turkey	D	EXM	19-24
		2/10/2018	1921	Black rat	Pr	Climbing down fence	37-39
		16/10/2018	2219	Fox	D	TC	76-78
		17/10/2018	1833	Fox	D	AfC	79-81
		21/10/2018	1540	Brush turkey	D	TC	127-129
		23/10/2018	0255	Black rat	Pr	In fence	139-141
		7/12/2018	0428	Small mammal	D	NDM	100-102
		7/12/2018	2057	SEBtP	D	TC	1420-1422
		7/12/2018	2103	SEBtP	D	TC	1423-1425
SE		30/09/2018	0051	Black rat	Pr	CuF BS	1-3
		30/09/2018	2248	Black rat	Pr	FtB	10-12
		1/10/2018	0613	Brush turkey	D	AfC	19-21
		1/10/2018	0735	Brush turkey	D	EXM	25-33
		1/10/2018	0929	Female fairy wren spp	D	NDM	34-36
		1/10/2018	2017	Black rat	Pr	FtB	211-213
		2/10/2018	1857	Rodent spp	D	TC	313-315
		2/10/2018	2109	Black rat	D	CuF	316-318
		2/10/2018	2119	Black rat	Pr	TF	319-321
		7/10/2018	2200	Rodent spp	D	NDM	472-474
		7/10/2018	2250	Rodent spp	D	CUF	475-477
		7/10/2018	2348	Rodent spp	D	EXM	478-480
		8/10/2018	2022	Rodent spp	D	AfF	502-504
		7/12/2018	0036	Black rat	Pr	CuF	22-24
		7/12/2018	2143	Black rat	Pr	CuF	865-867
		8/12/2018	2013	Swamp wallaby	D	AfC	1519-1524
		10/12/2018	0132	Small mammal	D	NDM	2524-2547
		10/12/2018	2116	SEBtP	Pr	TC	3085-3087
		11/12/2018	0323	Fox	D	AfC	3088-3090

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		12/12/2018	0017	Small mammal	D	NDM	3121-3123
Burkes	NW	28/09/2018	1335	Domestic dog on leash	D	NDM	4
		1/10/2018	1751	Echidna	D	Towards fauna exit	7-9
		13/10/2018	1839	Echidna	D	Away from fauna exit-towards camera	10-15
		31/12/2018	0430	Cat	Pr	TC	25-27
	SW	nil					
	NE	26/09/2018	2309	Rodent spp.	Pr	NDM	5-6
		27/09/2018	1953	Black rat	Pr	Through fence	46-49
		28/09/2018	158	Rodent spp.	Pr	NDM	58
		28/09/2018	317	Swamp wallaby	D	NDM	61-66
		29/09/2018	1946	Black rat	Pr	Through fence	97-99
		30/09/2018	918	Superb fairy wren	D	On fence	118-120
		2/10/2018	520	Swamp wallaby	D	NDM	349-351
		3/10/2018	2324	Black rat	Pr	On fence	511-513
		4/10/2018	104	Swamp wallaby	D	NDM	514-516
		5/10/2018	1638	Superb fairy wren	D	On fence	592
		5/10/2018	2338	Black rat	Pr	CtF	595-597
		7/10/2018	2009	Black rat	Pr	CtF	598-602
		9/10/2018	43	Rodent spp.	D	TC RS	676-678
	SE	17/10/2018	0353	Fox	D	TC	7654-7656
		18/10/2018	2347	Black rat	D	CdF	7960-7968
	20/10/2018	1850	Fox	D	TC	8458-8460	
	21/10/2018	2228	Fox	D	TC	8461-8463	
	12/08/2018	0046	Black rat	Pr	CuF	1261-1263	
	12/08/2018	0052	Fox	D	AfC	1264-1266	
	16/12/2018	0215	Fox	D	AfC	3060	
North Martells	NW	29/9/18	1926	Bandicoot spp.	D	TC	1-3

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		02/10/2018	0:42	Northern brown bandicoot	D	NDM	10-15
		17/10/18	217	Dog	D	NDM	34-36
		6/12/2018	1423	Water dragon	D	NDM	232-546
		7/12/2018	1151	Water dragon	D	NDM	937-948
	SW	27/9/18	1837	Black rat	Pr	CuF	1-2
		3/10/18	2246	Long nosed bandicoot	Pr	TC	91-93
		5/10/18	154	Black rat	Pr	CuF	94-96
		6/10/28	342	Swamp wallaby	Pr	AfC	100-111
		6/10/18	1623	Swamp wallaby	D	NDM	115-117
		6/10/18	2134	Small mammal	Pr	NDM	122-123
		7/12/2018	0152	Bandicoot spp	D	BtF	103-105
		11/12/2018	0905	White browed scrubwren	D	IF	1732-1734
		11/12/2018	2142	Long-nosed bandicoot	Pr	NDM	1735-1737
		12/12/2018	0318	Long-nosed bandicoot	Pr	FtB	1738-1740
		15/12/2018	0818	Lewin's honeyeater	D	OF	1936-1938
	NE	28/9/18	945	Superb fairy wren	D	NDM	19-21
		1/10/18	839	Superb fairy wren	D	NDM OF	82-87
		22/10/18	911	Grey fantail	D	NDM	926-928
		7/12/2018	1059	Blue-tongue lizard	D	BtF	922-924
		8/12/2018	0357	Black rat	D	OF	1777-1779
		9/12/2018	0737	Grey shrike-thrush	Pr	NDM	2749-2751
	SE	7/12/2018	1707	Superb fairy wren	D	OF	1231-1233
		8/12/2018	1243	Superb fairy wren	D	IF	1552-1554
		8/12/2018	2153	Black rat	D	CtF	1987-1992
		10/12/2018	0442	Black rat	D	CtF	3151-3153

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		10/12/2018	1706	Superb fairy wren (female)	Pr	IF	4186-4188
		10/12/2018	2009	Black rat	D	CtF	4189-4191
		11/12/2018	1325	Superb fairy wren (female)	Pr	CtF	4204-4206
		11/12/2018	2159	Small mammal	D	FtB	4207-4209
		12/12/2018	0321	Rodent spp	D	RS BtF	4210-4211
		12/12/2018	1017	Superb fairy wren (female)	D	OF	4216-4217
		12/12/2018	2008	Black rat	D	NDM	4282-4284
Tysons	NW	5/10/2018	0857	Red browed finch	D	NDM OF	2080-2082
		5/10/2018	2026	Fox	D	TC	2086-2088
		6/12/2018	2206	Black rat	D	BtF	1549-1551
	SW	30/9/18	209	Echidna	D	AfC	264-272
		1/10/18	2356	Fox	D	TC	2191-2193
	NE	26/09/2018	1937	Rodent spp	D	OF RS	17-18
		18/10/2018	332	Black rat	D	BS CuF	52-54
		19/10/2018	149	Black rat	D	BS CuF	55-57
		20/10/2018	1918	Black rat	D	CoF BS to RS	73-75
		20/10/2018	2334	Black rat	D	CoF BS to RS	76-77
		7/12/2018	0009	Black rat	D	EXM	74-79
		7/12/2018	0056	Black rat	D	BtF	80-85
		8/12/2018	2340	Black rat	D	BtF	536-544
		9/12/2018	0111	Black rat	D	NDM	545-547
		10/12/2018	2155	Black rat	Pr	BtF	1316-1318
		13/12/2018	0315	Black rat	Pr	BtF	1331-1333
		18/12/2018	2124	Black rat	D	FtB	2009-2014
		19/12/2018	1441	Lace monitor	D	BtF	2108-2110
		20/12/2018	0456	Fox	D	TC	2111-2113
		20/12/2018	1121	Lace monitor	D	EXM	2117-2122

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		24/12/2018	0409	Rodent spp	D	BtF	2354-2356
		28/12/2018	0429	Rodent spp	D	BtF	3041-3043
		29/12/2018	0214	Black rat	Pr	EXM	3356-3376
		30/12/2018	0325	Small mammal	D	FtB	3671-3673
		31/12/2018	0129	Small mammal	D	FtB	3953-3955
		31/12/2018	2141	Black rat	D	FtB	4184-4186
		3/01/2018	0017	Black rat	D	BtF	4296
	SE	2/10/18	1624	Cat	D	TC	1912-1914
Access G	NW	27/09/2018	2222	Rodent spp	D	CDF	1-2
		6/12/2018	1201	Water dragon	D	NDM	97-159
		7/12/2018	1043	Water dragon	D	NDM	211-216
		7/12/2018	1629	Water dragon	D	NDM	1054-1113
		8/12/2018	0721	Swamp wallaby	D	TC	1114-1116
		8/12/2018	1118	Water dragon	D	NDM	1117-1119
		9/12/2018	1129	Water dragon	D	NDM	1648-1656
		10/12/2018	1407	Water dragon	D	NDM	2989-3033
		11/12/2018	0051	Swamp wallaby	D	AfC	3061-3084
		11/12/2018	1059	Water dragon	D	NDM	3085-3087
		12/12/2018	0108	Swamp wallaby	Pr	TC	3088-3090
		12/12/2018	1308	Water dragon	D	NDM	3091-3129
		12/12/2018	1346	Water dragon	D	NDM	3142-3177
		13/12/2018	2314	Black rat	Pr	CtF, FtB	3262-3266
		14/12/2018	1116	Water dragon	D	NDM	3280-3282
	14/12/2018	1204	Water dragon	D	NDM	3313-3318	

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		15/12/2018	1117	Water dragon	D	NDM	3790-3801
		15/12/2018	1422	Water dragon	D	NDM	4483-4494
		16/12/2018	0046	Fox x 2	D	BtF	4543-4545
	SW	26/09/2018	346	Rodent spp	D	OF DNM	4-9
		27/09/2018	1027	eastern water dragon	Pr	NDM	100-102
		3/10/2018	2357	Rodent spp	D	CDF BS	1057-1058
		6/10/2018	2036	Rodent spp	D	CaF AfC	1180-1182
		7/10/2018	0020	Black rat	Pr	OF BS	1186-1188
		9/10/2018	2209	small/med mammal	Pr	FtB	1657-1659
		14/10/2018	0812	Cat	D	TC	1798-1800
	NE	27/09/2018	600	Swamp wallaby	D	NDM	4-6
		29/09/2018	2142	Black rat	Pr	OF BS	133-138
		30/09/2018	2151	Black rat	Pr	CUF BS	190-192
		1/10/2018	1612	Superb fairy wren	D	IF	370-372
		3/10/2018	2029	Rodent spp	Pr	On camera	607-609
		3/10/2018	2121	Black rat	D	CDF BS	610-612
		3/10/2018	2206	Black rat	Pr	OF BS	613-615
		6/12/2018	1246	Water dragon	D	NDM	892-915
		6/12/2018	1433	Water dragon	D	NDM	1414-1440
		6/12/2018	1442	Water dragon	D	NDM	1465-1488
		6/12/2018	1554	Water dragon	D	NDM	1684-1713
		6/12/2018	2238	Black rat	D	CtF	1729-1731
		7/12/2018	0847	Water dragon	D	NDM	1744-1755
		7/12/2018	0954	Water dragon	D	AfC	2002-2415

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.
		7/12/2018	1128	Water dragon	D	TC	2614-2659
		7/12/2018	1303	Water dragon	D	AfC	3310-3312
		4/10/2018	2010	Rodent spp	D	OF BS	649-651
SE		4/10/2018	2156	Black rat	D	OF BS	652-653
		5/10/2018	108	Black rat	Pr	OF BS	658-663
		5/10/2018	148	Black rat	D	CUF BS	664-666
		5/10/2018	346	Black rat	D	CUF BS	667-672
		5/10/2018	429	Black rat	D	CtF BS-RS	673-678
		5/10/2018	919	Female fairy wren spp	D	IF facing RS	679-681
		5/10/2018	1957	Black rat	D	CtF BS-RS	682-684
		5/10/2018	2047	Black rat	D	CDF BS	685-687
		5/10/2018	2207	Black rat	Pr	NDM	691-693
		6/10/2018	134	Black rat	Pr	CUF BS	694-696
		6/10/2018	230	Rodent spp	D	On camera	697-702
		6/10/2018	457	Black rat	D	CUF BS	703-705
		6/10/2018	2148	Rodent spp	D	On camera	724-726
		7/10/2018	903	Superb fairy wren	D	IN facing RS	743-747
		7/10/2018	917	Superb fairy wren	D	IF	757-762
		8/10/2018	109	Black rat	Pr	CUF BS	808-810
		8/10/2018	340	Black rat	D	CDF BS	811-816
		8/10/2018	848	Superb fairy wren	D	IF facing RS	817-818
		8/10/2018	2304	Black rat	Po	OF	901-903
		10/10/2018	437	Black rat	Pr	CdF RS	976-978
		15/10/2018	2243	Black rat	Pr	NDM On fence	1072-1074
		16/10/2018	102	Black rat	Pr	AfC on fence	1075-1077
		17/10/2018	1954	Black rat	Pr	CDF BS	1093-1095
		18/10/2018	419	Black rat	D	On fence	1096-1098
		18/10/2018	2118	Black rat	D	CDF RS	1099-1101
		19/10/2018	0039	Black rat	Pr	CUF BS	1102-1104
		19/10/2018	2008	Black rat	Pr	CDF BS	1294-1296

Site	Side	Date	Time	Species	Accuracy	Movement	Pic No.	
		21/10/2018	438	Black rat	Po	On camera	1372-1374	
		7/12/2018	0515	Black rat	D	NDM	1235-1237	
Railway	NW	6/12/2018	2027	Echidna	D	FtB	31-36	
		8/12/2018	1707	Lace Monitor	D	OF	553-555	
		11/12/2018	0411	Swamp wallaby	D	F	1054-1071	
		12/12/2018	1839	Swamp wallaby	D	FtB	1078-1086	
		15/12/2018	0312	Swamp wallaby	D	FtB	1309-1323	
		17/12/2018	0330	Swamp wallaby	D	F	1651-1662	
		19/12/2018	2005	Swamp wallaby	D	FtB/F	2233-2244	
		20/12/2018	1905	Swamp wallaby	D	TC	2299-2313	
		20/12/2018	1945	Swamp wallaby	D	AfC	2317-2325	
		25/12/2018	0609	Swamp wallaby	Pr	BS NDM	3214-3216	
		25/12/2018	1346	Lace Monitor	Pr	FtB	3388-3390	
		26/12/2018	1828	Swamp wallaby	D	FtB	4192-4206	
		29/12/2018	0022	Swamp wallaby	D	F	5758-5778	
		SW	Nil					
		NE	27/09/2018	1906	Black rat	D	EXM	13-15
			1/10/2018	1925	Rodent spp	D	NDM	43
			7/12/2018	0955	Red-browed finch	D	OF	10-11
			7/12/2018	2100	Unid animal	D	BS TF	328-330
			7/12/2018	0129	Cat	D	FtB	331-333
			12/12/2018	0122	Brushtail possum spp	D	OF	1360-1362
		13/12/2018	0229	Black rat	Pr	EXM	1369-1371	
	SE	2/10/2018	1924	Black rat	Pr	CdF	70-72	
		2/10/2018	2351	Black rat	Pr	CuF CdF	73-78	