Pacific Highway Upgrade: Nambucca Heads to Urunga.

Nest box Monitoring Report - Operational Phase, Year Two (2018-2019)

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Final Report – Version 4
25 October 2019

Document Review

Date	Version	Status	Sent to	Represent	Delivered Format	Dispatched By
10/5/2019	A	Internal draft	D. Rohweder	SES	MSW	N. Priest
20/5/2019	B	Internal draft	D. Rohweder	SES	MSW	N. Priest
24/5/2019	1	Draft	K. Hincks	RMS	MSW	D. Rohweder
26/8/2019	1	Draft	D. Rohweder	SES	MSW	S. Walker
27/8/2019	2	Draft	S. Walker	RMS	MSW	N. Priest
26/9/2019	3	Draft	S. Walker	RMS	MSW	D. Rohweder

Document Distribution

Date	Version	Status	Sent to	Represent	Delivered Format	Dispatched By
25/10/2019	4	Final	S. Walker	RMS	MSW	N. Priest

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Cover Photo: Two sub-adult common brushtail possums (*Trichosurus vulpecula*) recorded using a nest box designed for possums during summer 2018 survey.

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1. Introduction

1.1 Background

The Nambucca Heads to Urunga (NH2U) Pacific Highway Upgrade forms stage one of the Warrell Creek to Urunga Pacific Highway Upgrade (WC2U). The NH2U project involved the construction of 22km of dual carriageway from Link Road, Nambucca Heads to Waterfall Way, Raleigh. The upgrade was opened to traffic in July 2016.

To mitigate potential impacts of clearing on hollow dependent fauna Ministerial Condition of Approval (MCoA) B6 required that:

"Prior to the commencement of any construction work that would result in the disturbance of any native vegetation, the Proponent shall, in consultation with the Office of Environment and Heritage (OEH) prepare and submit for the approval of the Director General a Nest Box Plan to provide replacement hollows for displaced fauna consistent with the requirements of SoC F7. The plan shall detail the number and type of nest boxes to be installed, which must be justified based on the number and type of hollows removed, the density of hollows in the area to be cleared and adjacent forest; and the availability of adjacent food resources."

The Nest Box Plan of Management (NBPoM) outlined the number of hollow-bearing trees (HBT) and the total number and size characteristics of hollows within HBT's (Lewis Ecological 2011). The NBPoM identified 225 HBT's containing 1389 hollows of various sizes within the NH2U alignment, and recommended that 315 nest boxes be installed, with 60% installed prior to or during clearing (phase one), and the remaining 40% installed after clearing (phase two) once the number of hollows removed was determined. A total of 190 boxes were installed in 2014 during phase one. Recalculation of nest box requirements, as per the NBPoM, indicated that a further 37 boxes were installed in phase two. A total of 227 nest boxes were installed on the NH2U project.

Sandpiper Ecological Surveys was engaged by RMS in early 2017 to implement the operational phase biodiversity and water monitoring program. As part of the monitoring package, bi-annual monitoring of nest boxes in years two and four is required. The following report presents the results of operational phase year two nest box monitoring conducted in winter 2018 and summer 2019. The report discusses the results in the context of the Potential Indicators of Success outlined in section 3.7.2 of the Ecological Monitoring Program (EMP) (Benchmark Environmental Management 2013) and uses comparisons to previous nest box surveys conducted by Sandpiper Ecological during the construction phase of the project (2014-2016).

1.1.1 Study area

The NH2U project is located within the Nambucca and Bellingen Shires on the north coast of New South Wales. The project extends from Link Road near Nambucca Heads, north for 22km bypassing the town of Urunga and joining the existing highway at Waterfall Way, Raleigh (Figure 1).

Figure 1: NH2U alignment showing nest box locations.

1.2 Installation sites

The NBPoM divided the WC2U project alignment into twenty-one nest box installation zones. These zones were labelled A through to R. Of these, eleven zones (H to R) were located within the NH2U project (Table 1). The installation zones were located adjacent to the project alignment and were on a combination of RMS land, state forest and private land (Figure 1). Forests NSW permitted boxes to be installed in creek lines and within 50m of the alignment within Little Newry State Forest west of the alignment, and in Newry State Forest east and west of the alignment. Where agreement with neighbouring land holders could not be obtained, such as in zones Q and R between chainages 79065 and 80765, boxes were installed in retained vegetation within the road corridor.

Table 1: Number of boxes installed in each nest box zone, chainages, broad landscape type and metres above sea level. DOF=Dry open forest, MOF=Moist open forest, RF = Riparian forest, MCF=Moist closed forest.

Nest Box Installation Zone	Chainage	No. of boxes	Broad Landscape Type	ASL (m)
H	61265-61865	3	DOF	20
I	64265-64865	32	DOF, MCF	22
J	66165-66765	30	DOF	33
K	68165-68815	67	DOF, RF	25
L	70065-70565	8	DOF	42
M	70565-71065	25	DOF	45
N	73465-74065	8	MOF	40
O	74365-74865	18	MCF	29
P	76165-76765	5	MCF	18
Q	79065-79765	20	MOF, DOF	35
R	80065-80765	11	MOF, DOF	35

1.3 Nest box designs

Nine nest box designs were installed across the NH2U upgrade (Table 2). Possum boxes were the most common boxes with 44 installed across the project followed by small glider with 38 and scansorial mammal with 37 (Table 2). The highest number of nest boxes were installed in zone K (67 boxes). Zones I and J were the second and third most allocated zones with 32 and 30 boxes respectively (Table 3).

Table 2: Design specifications of nest boxes installed on the NH2U project.

Box Type	Inside measurements	Chamber depth (mm)	Entrance diameter (mm)	Total boxes
Scansorial mammals (i.e. antechinus, brush-tailed phascogale)	180 x 180	300	35 – 40	37
Microchiropteran bats (fluttering and direct flying species)	200 x 200	400	10 – 30	25
Small gliders (i.e. sugar glider)	200 x 200	300	40 – 45	38
Larger gliders (i.e. yellow-bellied glider, greater glider)	250 x 300	400	70 – 90	33

Possums (brush-tails and ringtails)	250 x 300	400	85 – 100	44
Small owls (boobook owl, barn owl)	250 x 300	500	100	8
Black cockatoos/large parrots (king parrot)	300 x 400	1200	200	8
Medium-sized parrots (lorikeets/rosellas)	200 x 200	400	65	30
Large forest owls	550 x 550	800	200	4

Table 3: Number of each nest box design installed in each nest box zone on the NH2U project.

Box Type	Zone H	Zone I	Zone J	Zone K	Zone L	Zone M	Zone N	Zone O	Zone P	Zone Q	Zone R	Total
Large Glider	1	3	3	10	1	4	2	2	1	3	3	33
Small Glider	0	6	7	9	1	3	3	4	1	3	1	38
Scansorial	1	5	4	9	2	5	2	4	1	2	2	37
Medium Parrot	1	4	5	9	2	2	0	1	1	4	1	30
Possum	0	8	5	16	1	4	1	3	0	4	2	44
Black Cockatoo	0	2	1	3	0	2	0	0	0	0	0	8
Microbat	0	4	3	8	1	4	0	2	1	1	1	25
Large Forest Owl	0	0	0	1	0	0	0	1	0	1	1	4
Small Owl	0	0	2	2	0	1	0	1	0	2	0	8
Total	3	32	30	67	8	25	8	18	5	20	11	227

1.4 Box installation

Nest box trees were selected by an ecologist. Data collected during tree selection included: tree species; box type; location (GPS coordinates); box height; orientation; and box number. All nest boxes were installed by qualified tree climbers under supervision of an ecologist. Phase one nest boxes were installed between 11 and 14 March 2014, 7 and 9 April 2014, and 20 and 23 August 2014. The 37 phase two nest boxes were installed on 23 and 24 July 2015.

2. Methods

2.1 Nest box inspections

The first of the bi-annual, year two operational phase nest box monitoring events occurred over six days between 9 and 18 July 2018. The second inspection was carried out over five days between 15 and 18 January 2019 and on 14 February 2019. An ecologist was present during all inspections. A total of 227 nest boxes were inspected during the winter event and 221 in summer. Six boxes in summer were either destroyed by private logging or not located.

Nest boxes that were installed less than ten metres in height were inspected using a telescopic pole with a GoPro Hero 3+ and Knog light unit attached. The GoPro was linked wirelessly to an iPad where the contents of each box were viewed by an ecologist. The lid of each box was carefully lifted, the

interior photographed, and essential data recorded on a datasheet. Tree climbers inspected and photographed boxes higher than ten metres (n = 6). Data recorded during all inspections included; time and date of inspection, vertebrate fauna present, approximate age and number of fauna present, sex of the animals present (if discernible), fauna signs such as leaf nests, scats, wear or scratchings, box condition, wire condition, and comments on any changes in surrounding habitat. A probability rating of low (0-50%), moderate (50-75%), high (75-95%) or definite (95-100%) was assigned to each box where either an animal was identified, or fauna signs were recorded. Box condition was allocated one of three ratings; good (nil or very little deterioration), minor damage severe damage. Evidence of feral animal occupation such as European bees (*Apis mellifera*) was also recorded. Native beehives (*Austroplebeia* and/or *Tetragonula* spp.) were recorded in the fauna column of the datasheet.

Identification of fauna and fauna nests was based on the ecologist's experience, with reference to standard field guides (e.g. Menkhorst & Knight 2004; Churchill 2008; Tyler & Knight 2009; Triggs 1996) as required. The identification of fauna signs was based on previous experience of nest characteristics of hollow dependent fauna and published information.

2.2 Nest box maintenance

Nest boxes that had minor, moderate, or severe deterioration, were assessed to determine the best ameliorative approach. Nest box lids had detached and fallen to the ground on five boxes in the winter event and two boxes in the summer event. Tree climbers reattached all seven lids using new hinges and screws. Boxes where wire springs had rusted and snapped (n = 4) were re-installed using the existing box wire minus the spring. Wire was wrapped around the tree to allow for tree growth. Boxes that were inhabited by ants and required other maintenance were treated with a surface spray to reduce future inhabitation.

3. Results

3.1 Year two operational phase

3.1.1 Occupancy rates

During winter 2018, a total of 42 (18.5%) nest boxes were occupied by vertebrate fauna, with 29 (13.1%) occupied in summer 2019 (Table 4). In winter 2018 120 (52%) nest boxes showed evidence of use and in summer 2019 121 (54.7%) boxes showed evidence of use. The number of boxes either occupied or showing evidence of use in winter 2018 and summer 2019 were 162 (71%) and 150 (67.8%) respectively. Boxes showing evidence of use by European bees increased with 23 (10.1%) recorded in winter 2018 and 26 (11.7%) in summer 2019. The number of boxes with native beehives increased from 12 (5.2%) in winter 2018 to 20 (9%) in summer 2019. The number of boxes with evidence of ants remained steady with 26 boxes occupied in both monitoring events (Table 4).

Table 4: Number and proportion of boxes occupied or showing evidence of use by vertebrate fauna. *Phase 2 boxes not installed; Allan property not inspected. **Phase 2 boxes inspected, and Allan property inspected, four boxes missing. *** Phase 2 boxes inspected; Allan property not inspected. ****All boxes inspected. *****6 boxes destroyed, missing or not located.

Inspection	No. of boxes inspected	Boxes occupied (%)	Evidence of use (%)	Occupied or showing evidence of use (%)	Evidence of European bees (%)	Repaired or replaced (%)	Evidence of ants (%)	Native beehives (%)
Winter 2015	161*	14 (8.7%)	76 (47%)	90 (56%)	5 (3.1%)	0 (0%)	29 (18.0%)	2 (1.2%)
Summer 2016	223**	31 (14%)	101 (45.3%)	132 (59%)	16 (7.1%)	1 (0.4%)	45 (20.2%)	9 (4.0%)
Winter 2016	200***	34 (17%)	96 (48%)	130 (65%)	13 (6.5%)	1 (0.5%)	24 (12%)	9 (4.5%)
Winter 2018	227****	42 (18.5%)	120 (52%)	162 (71%)	23 (10.1%)	8 (3.5%)	26 (11.5%)	12 (5.2%)
Summer 2019	221*****	29 (13.1%)	121 (54.7%)	150 (67.8%)	26 (11.7%)	7 (3.1%)	26 (11.7%)	20 (9%)

3.1.2 Species diversity

A total of 13 vertebrate species were detected using nest boxes during year two of operational phase monitoring. A further four groups of vertebrate fauna were recorded. Of the 11 vertebrate species detected occupying nest boxes, sugar gliders (*Petaurus breviceps*) were the most abundant with 48 individuals recorded over the two events (Table 5, Plate 1). Common brushtail possums (*Trichosurus vulpecula*) were the second most common species with 21 individuals detected. A total of eight short-eared brushtail possums (*Trichosurus caninus*) were detected over the two monitoring events. Common ringtail possums (*Pseudocheirus peregrinus*) were only detected occupying boxes in winter with three individuals occupying three boxes (Plate 1). Lace monitors (*Varanus varius*) were recorded more in winter than summer with four in winter and one juvenile in summer. A single deceased immature dollarbird (*Eurystomus orientalis*) was detected in a nest box designed for small owls in the summer monitoring event (Plate 2). Rainbow lorikeets (*Trichoglossus moluccanus*) continue to show evidence of breeding in nest boxes in both seasons with three juveniles and two eggs detected during both the winter and summer monitoring events (Plate 2). A single owlet-nightjar (*Aegotheles cristatus*) was detected roosting in a possum box during the winter survey.

Plate 1: Sugar gliders denning gregariously (L). Common ringtail possum denning in a drey built within a possum box (R).

Plate 2: A deceased immature dollarbird recorded in a box designed for small owls (L). Two juvenile rainbow lorikeets detected in a medium parrot box (R).

Species detected via evidence of use only include Australian wood duck (*Chenonetta jubata*), feathertail glider (*Acrobates spp.*) and microbats (*Microchiroptera spp*.). Australian wood ducks leave distinctive nests made from down and wood chips with one nest recorded in a large owl box (R11) during summer 2019. Microbats often leave wear, stains and scats at roost sites and evidence of use was detected in three boxes, with possible use at a fourth box (Table 6, Plate 3). Feathertail gliders often completely fill nest boxes with fresh leaf and hide within it, making confirmation of occupation difficult. No threatened species were detected using nest boxes during year one operational phase monitoring. Black rat (*Rattus rattus*) was the only introduced vertebrate recorded, with one individual occupying a scansorial mammal box with a small petaurid nest in winter 2018 (Table 5, Plate 3).

Plate 3: A single microbat scat within a microbat box (L). A black rat recorded in a scansorial mammal box (R).

Table 5: Vertebrate species and number of individuals detected occupying nest boxes during winter (2018) and summer (2019) monitoring events. * denotes feral species.

Species	Winter 2018	Summer 2019	Total Year Two
Sugar glider	27	21	48
Small petaurid (sugar/squirrel glider)	0	4	4
Common brushtail possum	11	10	21
Short-eared brushtail possum	3	5	8
Common ringtail possum	3	0	3
Antechinus spp.	2	0	2
Rainbow lorikeet	3 + 2 eggs	3 + 2 eggs	6 + 4 eggs
Australian owlet-nightjar	1	0	1
Dollarbird	0	1	1
Lace monitor	4	1	5
Black rat*	1	0	1

3.1.3 Nest box designs and target species

Of the 13 vertebrate species detected using nest boxes during year two operational phase monitoring, eight were target species that had specific box designs installed. These include sugar glider, feathertail glider (small glider), short-eared brushtail possum, common brushtail possum, common ringtail possum (possum), *Antechinus* spp. (scansorial mammal), rainbow lorikeet (medium parrot) and microbat spp. (microbat). The remaining five species have more general denning/roosting requirements and may utilise a variety of box types. These species include dollarbird, Australian wood duck, Australian owlet-nightjar, lace monitor, and black rat. Non-target species are often detected in boxes (Table 6).

Antechinus spp were confirmed using one scansorial mammal box with two probable records and comprised 7.7% of all Antechinus records. The other 36 (92.3%) records were from boxes not designed for scansorial mammals (Table 6). Of the 88 confirmed possum records (i.e. common brushtail, short-eared brushtail, common ringtail and *Trichosurus* spp.) 34 were definite records from boxes designed for possums, eight were probable and three possible records of possum denning activity. In total, 51% of the possum records were detected in boxes designed for possums. The other records were from boxes with entrances large enough for possums to gain access including black cockatoo, large glider and small owl boxes (Table 6). Of the 173 small glider records including *Acrobates* spp., sugar glider and small *Petaurus* spp, 48 were definite records from boxes designed for small gliders. A total of 30% of small glider records were detected in small glider boxes. The remaining 70% of records were from box designs such as scansorial mammal (51 boxes) and medium parrot (26 boxes) which have similar dimensions to small glider boxes. All four (100%) microbat records were detected in microbat boxes. These included one definite, two probable, and one possible record. Of the seven rainbow lorikeet records, five were definite records from medium parrot boxes and two were from (rear entry) large glider boxes. A total of 71.4% of rainbow lorikeet records were from boxes designed for medium parrots. Boxes that were not used by the target species include black cockatoo, small owl, large forest owl and large glider.

Table 6: Species detected, evidence of use and nest box design used over year two surveys. LG=Large Glider, SG=Small Glider, MP=Medium Parrot, SC=Scansorial mammal, LFO=Large Forest Owl, MB=Microbat, SO=Small Owl, PO=Possum, BC=Black Cockatoo, D=Definite, Pr=Probable, Po=Possible, large forest owl and large glider.

	Winter 2018			Summer 2019			Operational phase monitoring, Year One totals	
Species/Group	No. boxes occupied	Box Type Used	No. Evidence of Use and Box type	No. boxes occupied	Box Type Used	No. Evidence of Use and Box type	No. occupied and box type	No. evidence and box type
Antechinus spp. *Antechinus spp.*			LG=1D, 3Pr, 6Po MP=1D, 2Pr PO=2Po, 3Pr SC=Pr SG=D	1	LG=1	LG=2D, 5Pr, 1Po MP=3Po, 3Pr PO=1Po, 1D, 1Pr SC=2Pr, 1D SO=D	LG=1	LG=2D, 8Pr, 7Po MP=1D, 5Pr, 3Po Po=1D, 4Pr, 3Po SC=1D, 2Pr SG=1D SO=1D
Common brushtail possum *Trichosurus vulpecula*	8	BC=1 LFO=1 PO=5 SO=1		10	LG=1 BC=2 PO=6 SO=1		LG=1 BC=3 PO=11 SO=2 LFO=1	
Short-eared brushtail possum *Trichosurus caninus*	4	BC=1, PO=3		3	SO=1 PO=2		BC=1 PO=5 SO=1	
Brushtail possum spp. *Trichosurus spp.*			BC=1D, 1Po LG= 2D, 3Pr, 1Po PO=7D, 4Pr, 2Po SO=3Pr, 1Po			BC=3D, 2Pr, 1Po LFO=1Pr LG=3Pr, 1Po PO=11D, 3Pr, 1Po SO=1D, 1Pr		BC=4D, 2Pr, 2Po LG=2D, 6Pr, 2Po LFO=1Pr PO=18D, 7Pr, 3Po SO=1D, 4Pr, 1Po
Common ringtail possum *Pseudocheirus peregrinus*			LG=1Po MP=2D, 1Pr	3	LG=1 MP=2	MP=1D, 1Pr PO=Pr	LG=1 MP=2	LG=1Po MP=3D, 2Pr PO=1Pr
Feathertail glider spp. *Acrobates spp.*			LG=1D MP=1Pr MB= 4D, 1Pr SC=1D, 1Pr			LG=1Pr MP=1Po MB=3Pr, 1Po SC=2Pr SG=1D		LG=1D, 1Pr MP=1Pr, 1Po MB=4D, 4Pr, 1Po SC=1D, 3Pr SG=1D
Sugar glider *Petaurus breviceps*	9	MP=1 SC=1 SG=7	Not recorded	16	SG=9 SC=4 LG=1 MB=1 MP=1	Not recorded	SG=16 MP=2 SC=5 LG=1 MP=1	N/A
Small Petaurus spp. *Petaurus spp.*	3	SC=1 SG=2	LG=6D, 2Pr MP=6D, 5Pr PO=1D, 3Pr, 2Po SC=17D, 4Pr, 2Po			LFO=1Pr LG=3D, 4Pr, 2Po MP=2Pr, 5D, 2Po PO=3Pr, 2D SC=16D, 2Pr SG=16D, 2Pr SO=1D	SG=2 SC=1	LG=9D, 6Pr, 2Po SG=29D, 4Pr SC=33D, 6Pr, 2Po PO=3D, 6Pr, 2Po SO=1D, 1Po

			SG=13D, 2Pr SO=1Po					MP=11D, 9Pr, 2Po LFO=1Pr
Microbat *Microchiroptera n sp.*			MB = 1D			MB=2Pr, 1Po		MB=1D, 2Pr, 1Po
Owlet nightjar *Aegotheles cristatus*			MP=1Po PO=1Po	1	PO=1	PO=2Po	PO=1	PO=3Po MP=1Po
Native beehive *Tetragonula spp.*	20	MP=1 SC=10 SG=9		11	SG=5 SC=5 MP= 1	SG=1D	SC=15 SG=14 MP=2	SG=1D
European beehive *Apis mellifera*	4	LG=2 PO=1 SC=1	LG=1D MP=3D SO=2D	2	LG=1 MP= 1	LG=9D MP=2D PO=1D SC=4D SG=1D SO=3D	LG=3 PO=1 MP=1 SC=1	LG=10D PO=1D MP=5D SC=4D SG=1D SO=5D
Ants *Polyrachis spp. (pr)*	27	BC=2 LG=3 MP=7 MB=3 PO=2 SC=5 SG=5		26	MP= 7 SC=5 SG=6 LG=2 PO=2 MB= 3 BC=1		BC=3 LG=5 MP=14 MB=6 PO=4 SC=10 SG=11	
Lace monitor *Varanus varius*	1	LG=1		4	MP= 1 LG=1 SO=2			LG=2 MP=1 SO=2
Rainbow lorikeet *Trichoglossus moluccanus*	3	LG=1 MP=2	MP=1D	3	MP= 2 LG=1		LG=2 MP=4	MP=1D
Dollar bird (deceased) *Eurystomus orientalis*	1	SO=1					SO=1	
Australia Wood duck *Chenonetta jubata*			LFO=1D					LFO=1D
Black Rat *Rattus rattus*				1	SC=1	MP=1Pr	SC=1	MP=1Pr

3.1.4 Nest box maintenance

A total of eight boxes required maintenance or replacement in winter 2018 and seven in summer 2019 (Figure 4). Three of the seven boxes recorded in the summer 2019 survey were destroyed by private logging operations. A common brushtail possum was recorded using a damaged nest box (I7) designed for black cockatoos, the tree had stretched the wire to the point the strain had caused the screws to give way compromising the integrity of the box. This box was one of the boxes felled by private logging operations on the Allan property at Valla. Possum box M1 showed evidence of severe termite damage (Plate 4). The springs used on several boxes showed evidence of deterioration and failure of this component is likely over the next few years. A total of seven boxes were treated for ant inhabitation.

Plate 4: A possum box showing severe damage by termites.

3.2 Temporal comparison

3.2.1 Occupancy rates

During winter 2018, a total of 42 (18.5%) nest boxes were occupied by vertebrate fauna, with 29 (13.1%) occupied in summer 2019. These statistics are relatively comparable to the winter and summer surveys of 2016 where 34 (17%) and 31 (14%) nest boxes were occupied respectively. The number of boxes with evidence of use ranged from 120 (52%) in winter 2018 to 121 (54.7%) in summer 2019. Boxes occupied and with evidence of use over the five survey events since the construction phase show an increase from 90 (56%) in winter 2015, to 130 (65%) in winter 2016 and

peaking at 162 (71%) in winter 2018 with a minor decline to 150 (67%) in summer 2019 (Figure 2).

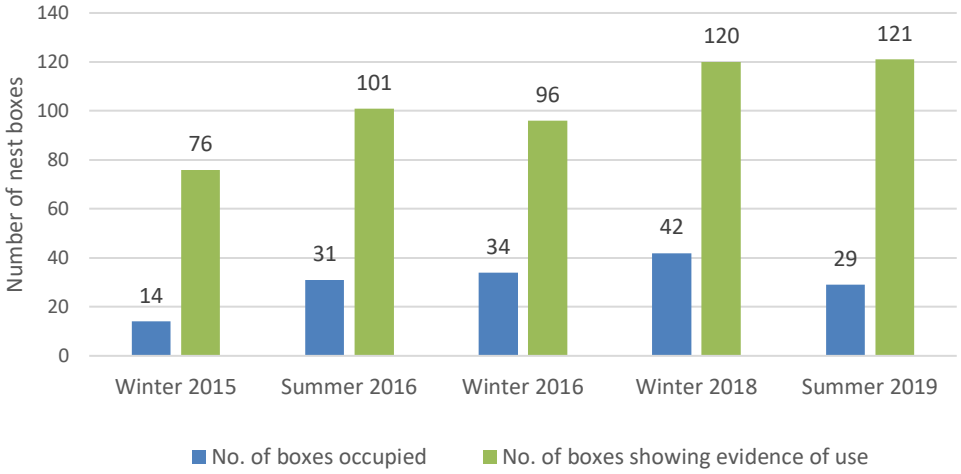

Figure 2: Occupancy and evidence of use rates over five monitoring events conducted by Sandpiper Ecological.

Boxes showing evidence of European bee occupation increased steadily over the five monitoring events from five boxes in winter 2015 to 23 in winter 2018 and 26 in summer 2019 (Figure 3).

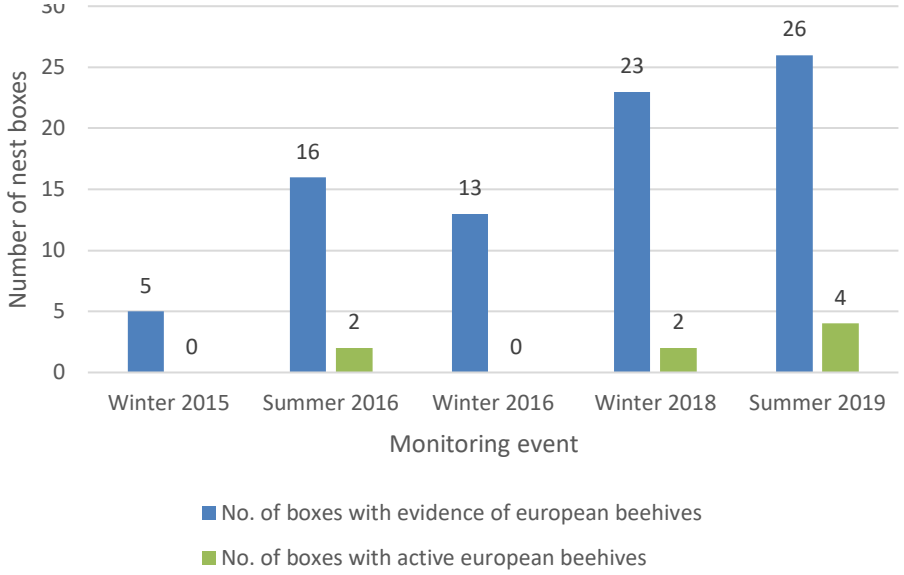

Figure 3: Evidence of European bee use and European bee active occupation over five survey events conducted by Sandpiper Ecological.

3.2.2 Species diversity

With 13 species detected, species diversity in year two of operational phase monitoring was comparable to summer and winter 2016. Winter 2015 recorded nine vertebrate species in one survey only, summer 2016 and winter 2016 recorded 14 species combined.

3.2.3 Nest box maintenance

The number of nest boxes requiring maintenance or replacement has increased over the five monitoring events from zero in winter 2015 to one in summer and winter 2016 and eight in winter 2018 and seven in summer 2019 (Figure 4).

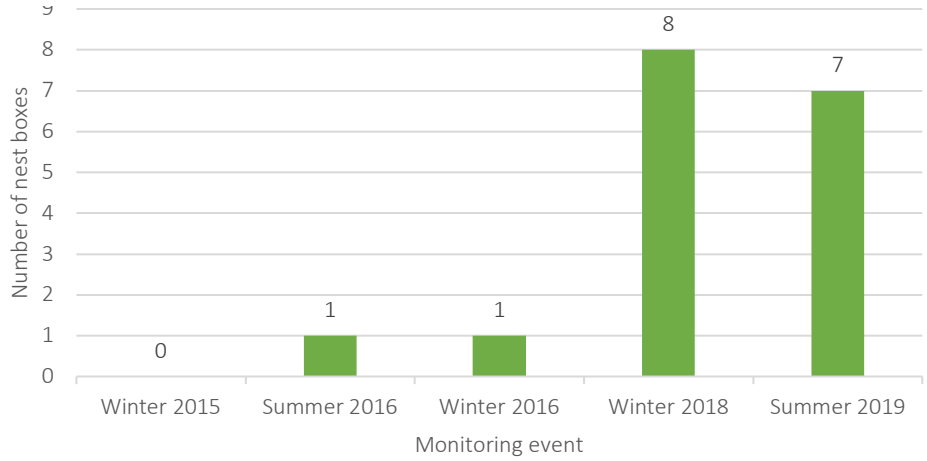

Figure 4: Nest boxes requiring repair or replacement over five monitoring events conducted by Sandpiper Ecological.

4. Discussion

The outcomes of the year two operational phase nest box monitoring are discussed in the context of the performance criteria outlined in section 3.7.2 of the EMP. Key findings in relation to performance criteria are presented in Table 7.

Table 7: Summary of key findings in relation to performance criteria.

Performance criteria	Finding
Low rates of nest box occupancy by feral species	Overall, incidence of feral species occupation was low. European bees tend to vacate nest boxes within months and vertebrate fauna species have been recorded reoccupying boxes after European bee abandonment.
Use of nest boxes by a wide variety of hollow-using native fauna species	Species diversity occupying nest boxes on the NH2U project is higher than or consistent with other Pacific Highway projects.
Species using nest boxes is consistent with the nest box design	Small and medium nest boxes, including small glider, possum, parrot, scansorial mammal and microbat designs, were used by the target species. Larger nest boxes, such as large cockatoo and large forest owl, were not used by the target species.
High level of nest box durability with minimal maintenance requirements	In 2018/19 6% of boxes required basic maintenance, which is similar to other nest box projects on the north coast. Box deterioration is predicted to increase after 5-6 years, particularly where boxes occur in moist forest.

4.1 Low rates of nest box occupancy by feral species

Rates of nest box use by feral species during the year two monitoring surveys are considered low. Two feral species were recorded, a single black rat during the winter survey and European bees in both surveys. Although the occurrence of European bees of 10.1% to 11.7% seem significant, these figures incorporate occupation at the time of monitoring, and evidence of use including abandoned hives. The proportion of boxes with active hives in year two ranged from 1.7% to 0.9%, which is comparable to nest box monitoring results at Coopernook to Herons Creek where 2.5% of boxes were

occupied by European bees (Sandpiper 2015), and Oxley Highway to Kempsey where occupation peaked at 1.2% in winter (Danvers & Michniewicz 2018). European bee occupation at N2U exceeds that recorded at Sapphire to Woolgoolga and Woolgoolga to Halfway Creek where occupation rates of zero were recorded (Sandpiper Ecological 2016; 2017)

Evidence of use by European bees at NH2U is expected to rise as bees tend to abandon boxes once the hive outgrows the space available (Goldingay *et al* 2015). It is uncommon for European bees to occupy the same box for more than six months (Sandpiper unpublished data). Boxes that have been occupied by European bees are often reoccupied by vertebrate species (Sandpiper Ecological 2013). Common brushtail possums have been observed consuming abandoned honeycomb (N. Priest pers obs 2017).

The single record of a black rat in a scansorial mammal box was probably an individual seeking temporary refuge as no archetypal black rat nest was recorded. Black rats construct distinctive nests, often using human litter and other miscellaneous materials. No black rat nests were detected in nest boxes on the project and the black rat recorded was denning in a typical small petaurid nest. Other feral species that commonly occupy nest boxes such as common starling (*Sturnus vulgaris*) and common myna (*Acridotheres tristis*) were not detected during year two operational monitoring (Le Roux et al 2016).

4.2 Use of nest boxes by a wide variety of hollow-using native fauna species

Species richness at N2U was comparable to or higher than other nest box projects on the north coast of NSW with a total of 13 species recorded. For example, between nine and 15 species were detected during monitoring for the Hunter Expressway (Sandpiper 2013), nine species were detected at C2HC and S2W (Sandpiper 2015, 2016), and 11 species at OH2K (Danvers & Michniewicz 2018). The latter study sampled 514 nest boxes which is more than double the number monitored at NH2U.

4.3 Species use of nest boxes is consistent with the species targeted by the nest box design

While nest boxes are designed with specific species or groups in mind, some fauna have broader habitat requirements and will occupy any space that serves the purpose of roosting or nesting (Franks *et al* 2003). Reptiles such as lace monitors are an example of this. Many nest box designs will serve as nesting/denning/roosting sites for multiple species (Sandpiper Ecological 2013, 2015, 2016, 2017, 2018).

Five of nine box types, or 55%, were used by the target species. Small glider, possum, scansorial mammal, medium parrot, and microbat box designs were all utilised by the target species. Black cockatoo, large glider, large forest owl and small owl box designs were not used by the target species. In general, black cockatoo and large forest owl nest boxes have proven ineffective for the target species (Sandpiper Ecological 2015, 2017). There is a paucity of records of large forest owls and cockatoos using plywood nest boxes on the east coast of Australia. Glossy-black cockatoos (*Calyptorhynchus lathami*) on Kangaroo Island and red-tailed black cockatoos (*C. banksii*) in western Victoria have been recorded using round polyvinyl chloride nest boxes (Goldingay & Stevens 2009). Carnaby's black cockatoo (*C. latirostris*) has been recorded using a variety of different designs in Western Australia (Groom 2010). The low use of nest boxes by black cockatoos on the north coast of NSW may be due to a higher abundance of natural hollows, although poor design and/or placement of nest boxes may contribute to low use.

There are few records of large forest owls using nest boxes. During a five-year study of nest box use by a resident breeding pair of masked owls (*Tyto novaehollandiae*) in the Newcastle area Thompson (2006) recorded one immature owl roosting in a nest box for 26 consecutive nights and another individual on two nights. These results suggest irregular use of nest boxes by the species with natural hollows being favoured for nesting.

4.4 High level of nest box durability with minimal maintenance requirements.

During the winter 2018 survey, 3.5% of boxes required maintenance or replacement and in summer 2019, 3.1% required maintenance. These numbers are comparable to other projects with nest boxes of similar design, installation habitats, and installation dates. For example, 3.5% of boxes required maintenance or replacement after four years at OH2K (Danvers & Michniewicz 2018), and 3.3% of boxes required maintenance or replacement on the HEX project after three years (Sandpiper 2015).

Nest box condition tends to decline over time depending on construction material, habitat conditions and exposure. The number of boxes requiring repair or replacement is expected to increase over time. The weak points are screws and hinges which tend to weather and corrode relatively quickly (within 4-7 years) (Sandpiper 2016). At C2HC and S2W maintenance and replacement rates increased significantly 5-6 years after installation. An inspection of nest boxes at S2W in 2016, six years after installation, found that 22% of boxes required maintenance or replacement and this number increased to 33% in 2019 (Sandpiper 2016, 2019). All of the 79 boxes installed at C2HC required maintenance or replacement seven years after installation (Sandpiper Ecological 2015). Many of the boxes were completely rotten, had major termite attack or the screws and hinges had failed (Sandpiper 2015).

5. Contingency Measures and Recommendations

5.1 Contingency Measures

Table 7-2 in section 7.4 of the NBPoM outlines potential problems and has a requirement for contingency measures to be developed to mitigate any problems that have been detected through operational phase nest box monitoring. An analysis of these problems in relation to the NH2U nest box program is provided in Table 7.

Table 8: Potential problems outlined in NBPoM and possible contingency measures. Mitigation measures applicable to the project are addressed in bold text in table below.

Problem	Contingency/Corrective Action
Nest boxes being used by non-target species	Review the selection and number of nest box designs. **No immediate action required – 55% of boxes being used by target species.** **If low uptake of target species in the larger box designs (i.e. large cockatoo and owl) continues in year four of the operational phase, options to improve the function of these boxes should be considered.**
Nest boxes become occupied by exotic or invasive fauna	Review/modify nest box design to exclude undesirable species, treat if applicable or relocate those nest boxes to another location. **No immediate action required - incidence of feral species occupation was low. Continue to treat ant infestations with surface spray opportunistically.**
Poor uptake and usage rates by	Review the type and number of nest box designs. **No action required – nest**

native fauna	**box occupancy and use by native species is consistent with other projects.**
Nest boxes deteriorating rapidly and requiring maintenance	Identify causes of nest box failure, modify design and construct accordingly**. No immediate action required - continue to monitor nest box deterioration and undertake basic repairs as required.**

5.2 Recommendations

- Continue monitoring as per the NH2U Biodiversity Monitoring Program brief.
- After future monitoring events, replace completely degraded, non-functional ply boxes with best practice hollow supplementation (e.g. chainsaw hollows, high durability nest boxes).

6. References

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Appendix A1 – Nest Box Inspection Data Winter 2018

Table A1: Data for winter (9/7/2018 – 18/7/2018) nest box inspections along the NH2U Pacific Highway Upgrade. CBtP = Common Brushtail Possum; SEBtP = Short-Eared Brushtail Possum; BtPoss = Brushtail Possum (Common or Short-eared); CRtP = Common Ringtail Possum; SuG = Sugar Glider; FtG = Feathertail Glider; OnJ = Owlet Nightjar; Euro = European; pet = Petaurid; Pr = Probable; Po = Possible, Def = Definite.

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
H	H1	Large glider	12/7/18	Nil	Old Euro bee hive	High	Good	Good
H	H2	Medium Parrot	12/7/18	Lace Monitor x 1	Old small pet nest	High	Good	Good
H	H3	Scansorial mammal	12/7/18	Nil	Recently used small pet nest	High	Good	Good
I	I1	Microbat	11/7/18	Ants	Nil	NA	Good	Good
I	I2	Possum	11/7/18	Nil	Messy leaf nest, Antechinus	Low	Good	Good
I	I3	Small glider	11/7/18	Native Bees	Native Beehive	Def	Good	Good
I	I4	Medium Parrot	11/7/18	Nil	Pr CRtP drey	Med	Good	Good
I	I5	Possum	11/7/18	Nil	BtPoss spp. wear	High	Good	Good
I	I6	Large glider	11/7/18	CBtP (m) x 1	CBtP den	Def	Good	Good
I	I7	Black Cockatoo	18/7/18	CBtP x 1	CBtP den	Def	Box falling apart-needs repair	Stretched to limit
I	I8	Medium Parrot	11/7/18	Nil	Messy leaf nest and chewing at entrance, pr FtG	Low	Minor termite damage	Good
I	I9	Microbat	11/7/18	Nil	Fresh pr FtG nest	Med	Good	Good
I	I10	Possum	11/7/18	Nil	Heavy BtPoss spp. use and old Euro beehive	High	Good	Good
I	I11	Scansorial mammal	11/7/18	Nil	Recently used small pet nest	High	Good	Good
I	I12	Small glider	11/7/18	SuG x 2	SuG nest	Def	Good	Good
I	I13	Possum	11/7/18	CBtP (m) x 1	CBtP den	Def	Good	Good
I	I14	Medium Parrot	11/7/18	Nil	Pr Antechinus nest	Med	Good	Good
I	I15	Scansorial mammal	11/7/18	Black Rat (pr) x 1	Old small pet nest	Med		
I	I16	Microbat	11/7/18	Nil	Nil	NA	Good	Good
I	I17	Medium Parrot	11/7/18	Nil	Very old flattened leaf nest. Extensive chewing around entrance. Pr old small pet nest, maybe BtPoss spp.	Low	Good	Good
I	I18	Small glider	11/7/18	Nil?	Extensive small pet nest	High	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
I	I19	Possum	11/7/18	CBtP x 1	CBtP den	Def	Good	Good
I	I20	Small glider	11/7/18	Nil?	Small pet nest	Med	Good	Good
I	I21	Black Cockatoo	11/7/18	Nil	Fresh BtPoss spp. nest	High	Good, wire loosened	Good
I	I22	Large glider	11/7/18	Nil	Very old BtPoss spp. nest	Med	Good	Good
I	I23	Scansorial mammal	11/7/18	Native bees	Native Beehive	Def	Good	Good
I	I24	Small glider	11/7/18	Native bees	Native Beehive	Def	Good	Good
I	I25	Large glider	11/7/18	Nil	Evidence of old water inundation. Newer leaves on top BtPoss spp.?	Med	Good	Good
I	I26	Scansorial mammal	11/7/18	Native bees	Native Beehive	Def	Good	Good
I	I27	Possum	11/7/18	Nil	BtPoss spp. use, few feathers, po OnJ	High	Good	Good
I	I28	Microbat	11/7/18	Nil	Old pr FtG nest	Med	Termite damage	Good
I	I29	Scansorial mammal	11/7/18	Native bees	Native Beehive	Def	Good	Good
I	I30	Possum	11/7/18	Nil	BtPoss spp. nest	High	Good	Good
I	I31	Small glider	11/7/18	SuG x 4	SuG nest	High	Good	Good
I	I32	Possum	11/7/18	Ants	Very old BtPoss spp. nest	Med	Good	Good
K	K1	Possum	10/7/18	Nil	Nil	High	Good	Good
K	K2	Microbat	10/7/18	Nil	Nil	NA	Good	Good
K	K3	Small glider	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K4	Large glider	10/7/18	Nil	Extensive scrappy leaf nest, FtG	Med	Good but pushed back against tree trunk, limited access from above	Good
K	K5	Medium Parrot	10/7/18	Native bees	Native Beehive	Def	Good	Good
K	K6	Scansorial mammal	10/7/18	Nil	Old small pet nest. Chewing around entrance	High	Good	Good
K	K7	Large glider	10/7/18	CRtP x 1	CRtP drey	Def	Good	Good
K	K8	Possum	10/7/18	Ants	Very old CRtP drey	Med	Good	Good
K	K9	Possum	10/7/18	Nil	Wear from BtPoss spp.	High	Good	Good
K	K10	Large glider	10/7/18	Nil	Extensive freshish leaf nest, pr small pet nest	Med	Good, entrance from top blocked	Good
K	K11	Possum	10/7/18	Nil	Scattered leaf nest, pr small pet or SEBtP	Med	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
K	K12	Microbat	10/7/18	Nil	Po FtG nest	Low	Good	Good
K	K13	Scansorial mammal	10/7/18	Nil	Old Antechinus nest	Med	Good	Good
K	K14	Medium Parrot	10/7/18	Nil	Old Antechinus nest, very old small pet nest	Med	Good	Good
K	K15	Small glider	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K16	Possum	10/7/18	Nil	Pr BtPoss spp. nest	Med	Good	Good
K	K17	Large glider	10/7/18	Nil	Few scattered leaves, some scat, prob Antechinus nest	Med	Good	Good
K	K18	Microbat	10/7/18	Nil	Nil	NA	Good	Good
K	K19	Small Owl	10/7/18	Nil	Old small pet nest, old Euro beehive	High	Good	Good
K	K66	Black Cockatoo	10/7/18	CBtP x 1	BtPoss spp. use	Def	Good	Good
K	K20	Small glider	10/7/18	Pr SuG x 1	Old small pet nest	High	Good	Good
K	K21	Medium Parrot	10/7/18	Ants	Chewing at entrance	NA	Good	Good
K	K22	Possum	10/7/18	Nil	BtPoss spp. use	High	Good	Good
K	K23	Scansorial mammal	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K24	Large forest owl	18/7/18	Nil	Extensive leaf nest, flattened in corner, pr small pet then BtPoss spp. on top	Med	Good	Good
K	K25	Microbat	10/7/18	Nil	Nil	NA	Good	Good
K	K26	Possum	10/7/18	Nil	BtPoss spp. use	High	Good	Good
K	K27	Small Owl	10/7/18	SEBtP x 1	SEBtP nest	Def	Good	Good
K	K28	Large glider	10/7/18	Ants	Scattered old leaves, po BtPoss spp.	Low	Good	Good
K	K29	Scansorial mammal	10/7/18	Nil	Pr Antechinus nest	Med	Good	Good
K	K30	Small glider	10/7/18	Nil	Freshish small pet nest	High	Good	Good
K	K31	Medium Parrot	10/7/18	Nil	Old CRtP drey	High	Good	Good
K	K32	Possum	10/7/18	Nil	BtPoss spp. use	High	Good	Good
K	K33	Scansorial mammal	10/7/18	Nil	Extensive old small pet nest and old Euro beehive	High	Good	Good
K	K34	Small glider	18/7/18	Nil	Small pet nest	High	Lid reattached	Good
K	K35	Microbat	10/7/18	Nil	Nil	NA	Good	Good
K	K36	Possum	10/7/18	CBtP x 1	CBtP nest	Def	Good	Good
K	K37	Medium Parrot	10/7/18	Ants	Nil	NA	Good	Good
K	K38	Scansorial mammal	10/7/18	Nil	Old small pet nest and old Euro	Med	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
					beehive			
K	K67	Large glider	10/7/18	Antechinus spp. x 2 (min)	Antechinus nest	Def	Good	Good
K	K39	Medium Parrot	10/7/18	Nil	Few scattered old leaves and old Euro Beehive	High	Good	Good
K	K40	Microbat	10/7/18	Nil	One single scat, pr microbat spp.	High	Good	Good
K	K41	Black Cockatoo	10/7/18	Ants	Few scattered leaves	Med	Lid reattached	Good
K	K42	Possum	10/7/18	OnJ x 1	Prob old BtPoss use	Def	Good	Good
K	K43	Large glider	10/7/18	Nil	Very old pet nest, scuff marks on tree trunk around box and Old Euro beehive.	High	Good	Good
K	K44	Large glider	10/7/18	Nil	Old Antechinus spp. nest	High	Good	Good
K	K45	Scansorial mammal	10/7/18	Nil	Old Antechinus spp. nest	High	Good	Good
K	K46	Possum	10/7/18	Nil	Old small pet/OnJ nest	Low	Good	Good
K	K47	Small glider	10/7/18	Ants	Old small pet nest	High	Good	Good
K	K48	Small glider	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K49	Possum	10/7/18	Nil	Old small pet nest with Antechinus taken over	High	Good	Good
K	K50	Large glider	10/7/18	Nil	Very old small pet nest, very old Euro beehive	High	Good	Good
K	K51	Scansorial mammal	10/7/18	SuG x 2	SuG nest	Def	Good	Good
K	K52	Possum	10/7/18	Nil	Nil	NA	Good	Good
K	K53	Medium Parrot	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K54	Microbat	10/7/18	Nil	Nil	NA	Good	Good
K	K55	Small glider	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K56	Medium Parrot	10/7/18	Nil	Old small pet nest	High	Good	Good
K	K57	Large glider	10/7/18	SuG (M) x 1	SuG nest	High	Good	Good
K	K58	Possum	10/7/18	SEBtP x 1	SEBtP nest	Def	Good	Good
K	K59	Microbat	10/7/18	Nil?	Packed with leaf probable FtG nest	Med	Good	Good
K	K60	Black Cockatoo	10/7/18	Nil	BtPoss spp. use	High	Good	Good
K	K61	Small glider	10/7/18	Nil	Old FtG nest	High	Good	Good
K	K62	Scansorial mammal	10/7/18	Nil	Freshish scrappy small pet nest	Med	Good	Good
K	K63	Possum	10/7/18	Nil	Freshish scrappy small pet nest	Med	Good	Good
K	K64	Medium Parrot	10/7/18	Ants	Pr old small pet nest	Med	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
K	K65	Possum	10/7/18	SEBtP x 1	SEBtP nest	Def	Good	Good
J	J1	Medium Parrot	10/7/18	Rainbow Lorikeet (prob) x 2	Rainbow Lorikeet nest	Def	Good	Good
J	J2	Possum	10/7/18	Nil	BtPoss spp. nest	High	Good	Good
J	J3	Scansorial mammal	10/7/18	Native bees	Native Beehive	Def	Good	Good
J	J4	Small glider	10/7/18	Nil	Small pet leaf nest, chewing at entrance	High	Good	Good
J	J5	Small Owl	10/7/18	Nil	BtPoss spp. nest	High	Good	Good
J	J6	Large glider	10/7/18	Nil?	Extensive freshish, messy leaf nest. Small pet nest and Antechinus scats.	Med	Good	Good
J	J7	Microbat	9/7/18	Nil	Nil	NA		
J	J8	Scansorial mammal	9/7/18	Native Bees	Native Beehive	Def	Good	Good
J	J9	Possum	9/7/18	Nil	Old small pet nest	High	Good	Good
J	J10	Microbat	10/7/18	SuG x 3	SuG nest	Def	Good	Good
J	J11	Possum	10/7/18	Nil	CBtP use	High	Good	Good
J	J12	Small glider	10/7/18	Native bees	Native Beehive	Def	Good	Good
J	J13	Medium Parrot	10/7/18	Nil	Small pet nest, chewing at entrance	High	Good	Good
J	J14	Small glider	9/7/18	Nil	Old small pet nest	High	Good	Good
J	J15	Small Owl	9/7/18	CBtP x1	CBtP nest	Def	Good	Good
J	J16	Large glider	9/7/18	Rainbow Lorikeet (prob) x 2 eggs	Feathers and old Euro beehive	Def	Good	Good
J	J17	Medium Parrot	9/7/18	Rainbow Lorikeet x 1	Head at entrance	Def	Good	Good
J	J18	Possum	9/7/18	CBtP x 1	CBtP den	Def		
J	J19	Scansorial mammal	9/7/18	SuG x 1	SuG nest, chewing around entrance	Def	Good	Good
J	J20	Large glider	10/7/18	Nil	Few old leaves and old Euro bee hive, Antechinus nest	High	Good	Good
J	J21	Small glider	10/7/18	Nil	Old native beehive	Def	Good	Reattached
J	J22	Black Cockatoo	10/7/18	Nil	CBtP den	High	Good	Good
J	J23	Small Glider	9/7/18	SuG x 1	SuG nest and chewing around entrance	Def	Good	Good
J	J24	Possum	9/7/18	CBtP x 2	CBtP den	Def	Good	Good
J	J25	Scansorial mammal	9/7/18	Ants	Minor chewing around entrance	NA	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
J	J26	Medium Parrot	9/7/18	CRtP x 1	CRtP Drey	Def	Good	Good
J	J27	Microbat	9/7/18	Nil	Nil	NA	Good	Good
J	J28	Small glider	9/7/18	SuG x 2 (min)	SuG nest	Def	Good	Very loose
J	J29	Medium Parrot	9/7/18	CRtP x 1	Fresh CRtP drey	Def	Good	Good
J	J30	Small Glider	9/7/18	Nil	Very old small pet nest	High	Good	Good
L	L1	Medium parrot	11/7/18	Nil	Very old small pet nest, ants	High	Good	Good
L	L2	Small glider RE	11/7/18	Ants	Nil	NA	Lid reattached 18/7/18	Good
L	L3	Scansorial mammal	11/7/18	SuG x 1	SuG nest	Def	Good	Good
L	L4	Possum	11/7/18	Ants	Nil	NA	Good	Good
L	L5	Microbat	11/7/18	Nil	Nil	NA	Good	Good
L	L6	Scansorial mammal	11/7/18	Nil	Small pet nest	High	Good	Good
L	L7	Medium parrot	11/7/18	Ants	Very old Antechinus nest	Med	Good	Good
L	L8	Large glider	11/7/18	Nil	Extensive scrappy leaf nest (pr small pet), mud wasp	Low	Good	Good
M	M1	Possum	11/7/18	Nil	Nil	NA	Good	Good
M	M2	Microbat	11/7/18	Nil	Nil	NA	Extensive termite damage	Good
M	M3	Scansorial mammal	11/7/18	Ants	Nil	NA	Good	Good
M	M4	Small glider	11/7/18	Ants	Nil	NA	Good	Good
M	M5	Microbat	11/7/18	Ants	Nil	NA	Good	Good
M	M6	Small owl	11/7/18	Nil	Very old Antechinus nest and very old Euro beehive	High	Good	Good
M	M7	Scansorial mammal	11/7/18	Nil	Small pet nest	High	Good	Good
M	M8	Microbat	11/7/18	Nil	Nil	NA	Good	Good
M	M9	Large glider	11/7/18	Euro bees	Euro Beehive	Def	Good	Good
M	M10	Medium Parrot	11/7/18	SuG x 1	SuG nest	Def	Good	Good
M	M11	Possum	11/7/18	Nil	BtPoss spp. use	High	Good	Good
M	M12	Small glider	11/7/18	Ants	Nil	NA	Good	Good
M	M13	Possum	11/7/18	Nil	Po old BtPoss spp. use	Med	Good	Good
M	M14	Scansorial mammal	11/7/18	Nil	Pr old FtG nest	Med	Good	Good
M	M15	Black Cockatoo	11/7/18	Nil	Few scattered leaves and chew marks at entrance, pr BtPoss spp.	Low	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
M	M16	Large glider	11/7/18	Nil	Small pet nest	High	Good	Good
M	M17	Medium parrot	11/7/18	Ants	Old scrappy leaf nest, pr small pet used by Antechinus	Med	Good	Good
M	M18	Scansorial mammal	11/7/18	Nil	Old small pet nest and Euro beehive	High	Good	Good
M	M19	Possum	11/7/18	Nil	Pr Antechinus nest	Med	Good	Good
M	M20	Large glider	11/7/18	Nil	Old Antechinus nest and old Euro beehive	Med	Good	Good
M	M21	Small glider	11/7/18	Ants	Nil	NA	Good	Good
M	M22	Microbat	11/7/18	Nil	Nil	NA	Minor termite damage	Good
M	M23	Scansorial mammal	11/7/18	Nil	Old pet nest old Euro beehive	High	Good	Good
M	M24	Black Cockatoo	11/7/18	Nil	Few scattered leaves, prob BtPoss spp. and water inundation	Low	Water inundation	Good
M	M25	Large Glider	11/7/18	Nil	Very old leaf nest, old Euro beehive	Low	Good	Good
N	N1	Large glider	11/7/18	Nil	Very old leaf nest, po Antechinus	Med	Good	Good
N	N2	Possum	11/7/18	Nil	Scattered euc leaf nest	NA	Good	Good
N	N3	Scansorial mammal	11/7/18	Nil	Old small pet nest	High	Good	Good
N	N4	Scansorial mammal	11/7/18	Nil	Fresh small pet nest	High	Good	Good
N	N5	Large glider	11/7/18	Lace Monitor x 1	Nil	Def	Good	Good
N	N6	Small glider	11/7/18	Nil	Old small pet nest	High	Good	Good
N	N7	Small glider	11/7/18	SuG x 1	SuG nest and old Euro beehive	Def	Good	Wire loose
N	N8	Small glider	11/7/18	Native Beehive	Nil	Def	Good	Good
O	O1	Large glider	12/7/18	Nil	Extensive old scrappy leaf nest (pr small pet) old Euro beehive and old ant nest	Med	Good	Good
O	O2	Scansorial mammal	12/7/18	Nil	Old small pet nest	High	Good	Good
O	O3	Small glider	12/7/18	Nil	Freshly used small pet nest	High	Good	Good
O	O4	Large glider	12/7/18	Nil	Old scattered leaf nest, po Antechinus	Med	Tab broken off	Good
O	O5	Scansorial mammal	12/7/18	Nil?	Twigs, fresh leaflets, messy leaf nest, FtG	Med	Good	Good
O	O6	Small glider	12/7/18	Ants	Old small pet nest	High	Good	Good
O	O7	Small owl	12/7/18	Lace Monitor x 1	Nil	Def	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
O	O8	Medium Parrot	12/7/18	Nil	Pr rat spp nest	Med	Re-installed	Ok
O	O9	Scansorial	12/7/18	Nil	Recently used small pet nest	High	Good	Good
O	O10	Possum	12/7/18	Nil	BtPoss spp. den	High	Good	Good
O	O11	Microbat	12/7/18	Nil	Nil	High	Lid deliminating but still functioning	Good
O	O12	Possum	12/7/18	Nil	Nil	High	Good	Good
O	O13	Scansorial mammal	12/7/18	SuG x 1	Old pet nest, no new leaf	High	Good	Good
O	O14	Microbat	12/7/18	Nil	Nil	NA	Good	Good
O	O15	Large forest owl	12/7/18	Nil	Nil	NA	Good	Good
O	O16	Possum (ad)	12/7/18	Nil	Nil	NA	Good	Good
O	O17	Small glider	12/7/18	Native bees	Native beehive	Def	Box on ground, replace	Wire snap
O	O18	Small glider	12/7/18	Pr SuG x 1	Old nest, no new leaf	High	Good	Good
P	P1	Microbat	11/7/18	Nil	Few Scats, prob microbat spp.	High	Good	Good
P	P2	Small glider	11/7/18	Ants	Nil	NA	Good	Good
P	P3	Scansorial mammal	11/7/18	Ants	Nil	NA	Good	Good
P	P4	Large glider	11/7/18	Nil	Few fresh leaves, Antechinus scat (pr)	Med	Good	Good
P	P5	Medium Parrot	11/7/18	Nil	Small pet nest and minor chewing around entrance	High	Good	Good
Q	Q1	Possum	11/7/18	Nil	Nil		Good	Good
Q	Q2	Scansorial mammal	11/7/18	Nil	Old small pet nest	High	Good	Good
Q	Q3	Medium Parrot	11/7/18	Nil	Nil		Good	Good
Q	Q4	Small Owl	11/7/18	Nil	Probable BtPoss spp. nest and old Euro beehive	Med	Good	Good
Q	Q5	Small glider	11/7/18	Pr SuG x 2	SuG nest	High	Good	Good
Q	Q6	Scansorial mammal	11/7/18	Nil	Recently used small pet nest	High	Good	Good
Q	Q7	Large glider	11/7/18	Ants	Nil	NA	One hinge loose, box sitting against trunk, not sure how accessible for gliders	Good
Q	Q8	Possum	11/7/18	Ants	Nil	NA	Good	Good
Q	Q9	Medium parrot	11/7/18	Nil	Leaves, po Antechinus nest, old Euro beehive	Med	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
Q	Q10	Large glider	11/7/18	Nil	Old Euro beehive	Def	Good	Good
Q	Q11	Possum	11/7/18	Ants	Nil	NA	Good	Good
Q	Q12	Small glider	11/7/18	Nil	Old small pet nest	High	Good	Good
Q	Q13	Medium Parrot	11/7/18	Nil	Nil	NA	Good	Good
Q	Q14	Large glider	11/7/18	Nil	Old Euro beehive	Def	Good	Good
Q	Q15	Microbat	11/7/18	Nil	Nil	High	Good	Wire quite loose
Q	Q16	Small owl	11/7/18	Lace Monitor x 1	Nil	Def	Good	Very loose on tree
Q	Q17	Small glider	11/7/18	Nil	Old small pet nest and old Euro beehive	High	Good	Good
Q	Q18	Medium Parrot	11/7/18	Euro bees	Euro beehive	NA	Good	Good
Q	Q19	Large forest owl	11/7/18	Nil	Nil	NA	Good	Good
Q	Q20	Possum (ad)	11/7/18	Nil	Nil	NA	Good	Good
R	R1	Large glider	9/7/18	Nil	Nil	NA	Good	Good
R	R2	Scansorial mammal	9/7/18	Nil	Old small pet nest	High	Good	Good
R	R3	Microbat	9/7/18	Nil	Possible microbat wear	Med	Good	Good
R	R4	Possum	9/7/18	CBtP x 1	CBtP den	Def	Good	Good
R	R5	Large glider	9/7/18	Nil	Nil	NA	Lid missing, full of water.	Good
R	R6	Scansorial mammal	9/7/18	Nil	Fresh small pet nest	Def	Good	Good
R	R7	Large glider	9/7/18	Nil	Old small pet nest	High	Good	Good
R	R8	Possum	9/7/18	Nil	Nil	NA	Good	Good
R	R9	Medium parrot	9/7/18	Nil	Old small pet nest	High	Lid missing	Good
R	R10	Small glider	9/7/18	SuG x 3 (min)	Fresh SuG nest	Def	Good	Good
R	R11	Large forest owl	9/7/18	Nil	Nil	NA	Good	Good

Appendix A2 – Nest Box Inspection Data Summer 2019

Table A2: Data for winter (9/7/2018 – 18/7/2018) nest box inspections along the NH2U Pacific Highway Upgrade. CBtP = Common Brushtail Possum; SEBtP = Short-Eared Brushtail Possum; BtPoss = Brushtail Possum (Common or Short-eared); CRtP = Common Ringtail Possum; SuG = Sugar Glider; FtG = Feathertail Glider; OnJ = Owlet Nightjar; Euro = European; pet = Petaurid; Pr = Probable; Po = Possible Def = definite.

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
H	H1	Large glider	17/1/19	Nil	Very old leaf, CBtP den	Low	Good	Good
H	H2	Medium Parrot	17/1/19	Nil	Small petaurid nest	High	Good	Good
H	H3	Scansorial mammal	17/1/19	Nil	Small petaurid nest	Mod	Good	Good
I	I1	Microbat	17/1/19	Nil	Nil		Good	Good
I	I2	Possum	17/1/19	Nil	Decomposing leaf - small petaurid	Mod	Good	Good
I	I3	Small glider	17/1/19	Native beehive		Def	Good	Good
I	I4	Medium Parrot	17/1/19	Nil	Antechinus spp. den	High	Good	Good
I	I5	Possum	17/1/19	CBTP		Def	Good	Good
I	I6	Large glider	17/1/19	Nil	BtPoss den	High	Good	Good
I	I7	Black Cockatoo	17/1/19	Tree felled - box destroyed				
I	I8	Medium Parrot	17/1/19	Nil	Old euro beehive - some bees present	High	Good	Good
I	I9	Microbat	17/1/19	Tree felled, box not found				
I	I10	Possum	17/1/19	Nil	BtPoss den	High	Good	Good
I	I11	Scansorial mammal	17/1/19	Nil	Small petaurid nest	High	Good	Good
I	I12	Small glider	17/1/19	Tree felled - box not found				
I	I13	Possum	17/1/19	Nil	BtPoss den	High	Good	Good
I	I14	Medium Parrot	17/1/19	Small black ants	Small petaurid nest - Old	High	Good	Good
I	I15	Scansorial mammal	17/1/19	Nil	Small petaurid nest	High	Good	Good
I	I16	Microbat	17/1/19	Nil	Nil		Good	Good
I	I17	Medium Parrot	17/1/19	Nil	Nil		Good	Mod - rusty spring
I	I18	Small glider	17/1/19	Sugar glider x 4		Def	Good	Good
I	I19	Possum	17/1/19	CBTP		Def	Good	Good
I	I20	Small glider	17/1/19	Sugar glider		Def	Good	Good
I	I21	Black Cockatoo	14/2/19	CBtP x 1		Def	Good, getting tight	
I	I22	Large glider	14/2/19	Nil	Nil		Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
I	I23	Scansorial mammal	17/1/19	Native beehive		Def	Good	Good
I	I24	Small glider	17/1/19	Native beehive		Def	Good	Mod - rusty spring
I	I25	Large glider	17/1/19	Could not open lid	Box still functional		Good, lid stuck	Good
I	I26	Scansorial mammal	17/1/19	Native beehive		Def	Good	Good
I	I27	Possum	17/1/19	Nil	BtPoss den	High	Good	Good
I	I28	Microbat	17/1/19	Nil	FtG nest	High	Good	Good
I	I29	Scansorial mammal	17/1/19	Native beehive		Def	Good	Good
I	I30	Possum	17/1/19	Nil	Decomposing leaf, old BtPoss den	Mod	Good	Good
I	I31	Small glider	17/1/19	Sugar glider x 3		Def	Good	Good
I	I32	Possum	17/1/19	Nil	BtPoss den	High	Good	Good
K	K1	Possum	15/1/19	Nil	BtPoss den	Mod	Good	Good
K	K2	Microbat	15/1/19	Nil	Nil		Good	Good
K	K3	Small glider	15/1/19	Native beehive		Def	Good	Mod -rust where spring contacts trunk
K	K4	Large glider	15/1/19	Nil	Very old small pet nest	High	Good	Good
K	K5	Medium Parrot	15/1/19	Native beehive		Def	Good	Good
K	K6	Scansorial mammal	15/1/19	Nil	Small petaurid nest	High	Good	Mod
K	K7	Large glider	15/1/19	Nil	CRtP den	Mod	Good	Good
K	K8	Possum	15/1/19	Nil	ONj den	Low	Good	Good
K	K9	Possum	15/1/19	Nil	Nil		Good	Good
K	K10	Large glider	15/1/19	Nil	Small petaurid nest	High	Good	Mod
K	K11	Possum	15/1/19	Nil	Antechinus den	Mod	Good	Mod
K	K12	Microbat	15/1/19	Nil	FtG nest	Mod	Good	Good
K	K13	Scansorial mammal	15/1/19	Nil	Old petaurid nest	Mod	Good	Good
K	K14	Medium Parrot	15/1/19	Nil	FtG spp. nest	Mod	Good	Good
	K14b	Medium parrot	15/1/19	Black ants	Small petaurid nest (old)	Mod	Good	Good
K	K15	Small glider	15/1/19	Native bees		Def	Good	Good
K	K16	Possum	15/1/19	Nil	Old BtPoss spp. den	Low	Good	Good
K	K17	Large glider	15/1/19	Nil	Antechinus spp. den	Mod	Good	Good
K	K18	Microbat	15/1/19	Nil	Nil		Good	Mod
K	K19	Small Owl	15/1/19	Nil	Decomposed leaf, small petaurid nest	Med	Good	Good
K	K66	Black Cockatoo	15/1/19	CBtP x 1	CBtP den	Def	Good	Mod
K	K20	Small glider	15/1/19	Nil	Small petaurid nest	High	Good	Good
K	K21	Medium Parrot	15/1/19	Ants	Nil		Good	Mod

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
K	K22	Possum	15/1/19	Nil	BtPoss den	High	Good	Good
K	K23	Scansorial mammal	15/1/19	Nil	Small petaurid nest	Mod	Good	Good
K	K24	Large forest owl		CBtP x 1	Ext leaf nest	Def	Good	Good
K	K25	Microbat	15/1/19	Nil	Nil		Good	Good
K	K26	Possum	15/1/19	Nil	BtPoss den	High	Good	Mod
K	K27	Small Owl	15/1/19	Nil	BtPoss den	Mod	Good	Mod
K	K28	Large glider	15/1/19	Nil	Ext leaf nest, some fresh leaf, few wats prob SuG then Ante	High	Good	Good
K	K29	Scansorial mammal	15/1/19	Ants	Nil		Good	Good
K	K30	Small glider	15/1/19	Ants	Small petaurid nest	Mod	Good	Good
K	K31	Medium Parrot	15/1/19	Nil	CRtP den	Mod	Good	Good
K	K32	Possum	15/1/19	Na	Na		Box fallen	Spring snapped
K	K33	Scansorial mammal	15/1/19	Native beehive, box full	Na	Def	Good	Mod
K	K34	Small glider	17/1/19	Sugar glider x 3	Na	Def	Good	Good
K	K35	Microbat	17/1/19	Nil	Nil		Good	Mod - spring rusty
K	K36	Possum	17/1/19	CBTP	Na	Def	Good	Good
K	K37	Medium Parrot	17/1/19	Nil	Antechinus spp	High	Good	Good
K	K38	Scansorial mammal	17/1/19	Nil	Small petaurid	High	Good	Good
K	K67	Large glider	17/1/19	Nil	Antechinus den	High	Good	Good
K	K39	Medium Parrot	15/1/19	Nil	Old euro beehive/ small petaurid	Mod	Good	Good
K	K40	Microbat	15/1/19	Black ant nest	Nil		Good	Good
K	K41	Black Cockatoo	15/1/19	SEBtP x 2	Nil, minor ants.	Def	Good	Good
K	K42	Possum	15/1/19	Nil	Old small petaurid nest	Mod	Good	Good
K	K43	Large glider	15/1/19	Nil	Old petaurid nest, BtPoss fur at entrance (prob)	High	Good	Good
K	K44	Large glider	16/1/19	Lace monitor - juvenile	Nil	Def	Good	Good
K	K45	Scansorial mammal	16/1/19	Nil	Antechinus spp. den	Mod	Good	Good
K	K46	Possum	16/1/19	Nil	BtPoss den	Mod	Good	Good
K	K47	Small glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
K	K48	Small glider	17/1/19	Nil	Old small petaurid nest	High	Good	Good
K	K49	Possum	17/1/19	Nil	Old small pet nest, taken over by Ante	Mod	Good	Good
K	K50	Large glider	17/1/19	Nil	Antechinus, old leaf & poss scats	Low	Good	Good
K	K51	Scansorial mammal	15/1/19	Nil	Small petaurid den	High	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
K	K52	Possum	15/1/19	Nil	Nil		Good	Good
K	K53	Medium Parrot	15/1/19	Nil	Small petaurid nest	High	Good	Good
K	K54	Microbat	15/1/19	Nil	FtG nest	High	Good	Good
K	K55	Small glider	16/1/19		Box not found			
K	K56	Medium Parrot	16/1/19	Small black ants	Small petaurid - Old	Mod	Good	Mod - spring rusty & stretched
K	K57	Large glider	16/1/19	Nil	Small petaurid	High	Good	Good
K	K58	Possum			Box not found			
K	K59	Microbat	16/1/19	Nil	FtG nest	High	Good	Good
K	K60	Black Cockatoo	16/1/19	Nil	Nil		Good	Mod - springs stretched
K	K61	Small glider	16/1/19	Petaurus spp x 1	Small petaurid nest	Def	Good	Good
K	K62	Scansorial mammal	16/1/19	Nil	Small petaurid nest	High	Good	Good
K	K63	Possum	16/1/19	Nil	Small petaurid nest - Old	High	Good	Mod- spring stretched
K	K64	Medium Parrot	16/1/19	Black ants	Small petaurid nest	Mod	Good	Good
K	K65	Possum	16/1/19	Nil	BtPoss den	High	Good	Good
J	J1	Medium Parrot	17/1/19	Rainbow lorikeet (juv)	Lorikeet nest	Def	Good	Good - bark on wire
J	J2	Possum	17/1/19	Nil	Scattered leaf, BtPoss den	Mod	Good	Good
J	J3	Scansorial mammal	17/1/19	Native beehive		Def	Good	Good
J	J4	Small glider	17/1/19	Sugar glider x 1		Def	Good	Good
J	J5	Small Owl	17/1/19	CBTP		Def	Good	Good
J	J6	Large glider	17/1/19	Nil	Extensive freshish, messy leaf nest. Small pet, Antechinus Scats.	Mod	Good	Good
J	J7	Microbat	17/1/19	Nil	Nil		Good	Good
J	J8	Scansorial mammal	17/1/19	Native beehive	Na	Def	Good	Good
J	J9	Possum	17/1/19	Nil	Decomposing leaf, small pet nest	Mod	Good	Good
J	J10	Microbat	17/1/19	Nil	Old FtG nest	High	Good	Good
J	J11	Possum	17/1/19	SEBtP	Na	Def	Good	Good
J	J12	Small glider	17/1/19	Native bees	Na	Def	Good	Good
J	J13	Medium Parrot - small glider	17/1/19	Sugar glider x 2	Na	Def	Good	Good
J	J14	Small glider	17/1/19	Nil	Small petaurid nest	High	Good	Good
J	J15	Small Owl	17/1/19	Dead Dollarbird	Scattered decomposed leaf	High	Good	Mod - spring stretched &

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
								rusty
J	J16	Large glider	17/1/19	Lorikeet nest - 2 eggs	Scattered leaf	Def	Good	Good
J	J17	Medium Parrot	17/1/19	Rainbow lorikeet chicks x2	Na	Def	Good	Good
J	J18	Possum	17/1/19	SEBtP	Na	Def	Good	Good
J	J19	Scansorial mammal	17/1/19	Sugar glider x 4	Na	Def	Good	Good
J	J20	Large glider	17/1/19	Nil	Few old leaves and old European bee hive, Antechinus nest	High	Good	Good
J	J21	Small glider	17/1/19	Native beehive	Na	Def	Good	Poor - snapped - box hanging from tree branch
J	J22	Black Cockatoo	17/1/19	Nil	BtP	High	Good	Mod - springs stretched & rusty
J	J23	Small Glider	17/1/19	Sugar glider x 2	Na	Def	Good	Good
J	J24	Possum	17/1/19	SEBtP	Na	Def	Good	Good
J	J25	Scansorial mammal	17/1/19	Nil	Nil		Good	Good
J	J26	Medium Parrot	17/1/19	Nil	Nil		Good	Good
J	J27	Microbat	17/1/19	Nil	Nil		Good	Good
J	J28	Small glider	17/1/19	Native beehive	Old petaurid nest	Def	Good	Good
J	J29	Medium Parrot	17/1/19	Nil	CRtP den	High	Good	Good
J	J30	Small Glider	17/1/19	Nil	Old petaurid nest	High	Good	Good
L	L1	Medium parrot	18/1/19	Nil	Small petaurid - old	Mod	Good	Good
L	L2	Small glider RE	18/1/19	Black ants - small	Nil		Good	Good
L	L3	Scansorial mammal	18/1/19	Nil	Small petaurid nest	High	Good	Good
L	L4	Possum	18/1/19	Black ants	Nil		Good	Good - spring stretching
L	L5	Microbat	18/1/19	Nil	Nil		Good	Good
L	L6	Scansorial mammal	18/1/19	Nil	FtG nest	High	Good	Mod - spring rusty
L	L7	Medium parrot	18/1/19	Black ants	Antechinus spp den	Mod	Good	Mod - spring rusty
L	L8	Large glider	18/1/19	Nil	Small petaurid - Old nest	Mod	Good	Mod - spring rusty
M	M1	Possum	18/1/19	Nil	Loose leaf nest, BtPoss spp.	Low	Good	Good
M	M2	Microbat	18/1/19	Nil	Nil		Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
M	M3	Scansorial mammal	18/1/19	Nil	Small petaurid nest		Good	Good
M	M4	Small glider	18/1/19	Black ants	Nil		Good	Good
M	M5	Microbat	18/1/19	Black ants	Nil		Good	Good
M	M6	Small owl	18/1/19	Nil	Small petaurid nest - old	High	Good	Good
M	M7	Scansorial mammal	18/1/19	Black ants	Small petaurid nest - old	High	Good	Good
M	M8	Microbat	18/1/19	Black ants	Nil		Good	Mod - spring rusty
M	M9	Large glider	18/1/19	Nil	Old European beehive	High	Good	Good
M	M10	Medium Parrot	18/1/19	Black ants	Small petaurid nest	High	Good	Good
M	M11	Possum	18/1/19	Nil	BtPoss den	Mod	Good	Good
M	M12	Small glider	18/1/19	Black ants	Nil		Good	Good
M	M13	Possum	18/1/19	European bees	Nil	Def	Good	Good
M	M14	Scansorial mammal	18/1/19	Nil	Antechinus	Mod	Good	Good
M	M15	Black Cockatoo	18/1/19	Black ants	Nil		Good	Mod - wire stretched & rusty
M	M16	Large glider	1/1/19	Nil	FtG nest	High	Mod - 1 hinge loose	Good
M	M17	Medium parrot	18/1/19	Nil	Antechinus den	High	Good	Good
M	M18	Scansorial mammal	18/1/19	Small black ants	Small petaurid nest	High	Good	Good
M	M19	Possum	18/1/19	Small black ants	Probable Antechinus nest	Mod	Good	Mod - spring rusty
M	M20	Large glider	18/1/19	Nil	Old Antechinus nest and old Euro beehive	Mod	Mod - minor termite	Mod - spring rusty
M	M21	Small glider	18/1/19	Black ants	Nil	High	Good	Good
M	M22	Microbat	18/1/19	Nil	Nil		Good	Good
M	M23	Scansorial mammal	18/1/19	Native beehive	Old petaurid den	Def	Good	Good
M	M24	Black Cockatoo	18/1/19	Nil	BtP - scattered leaf	High	Good	Mod - springs stretched & rusty
M	M25	Large Glider	18/1/19	Nil	Small petaurid - old	High	Good	Good
N	N1	Large glider	16/1/19	European bees	Na	Def	Good	Good
N	N2	Possum	16/1/19	Nil	Brushtail possum	Mod	Good	Good
N	N3	Scansorial mammal	16/1/19	European bees - no hive yet	Small petaurid nest	Def	Good	Good
N	N4	Scansorial mammal	16/1/19	Petaurus spp. x 2	Small petaurid nest	Def	Good	Good
N	N5	Large glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
N	N6	Small glider	16/1/19	Nil	Small petaurid nest	Mod	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
N	N7	Small glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
N	N8	Small glider	16/1/19	Native beehive	Na	Def	Good	Good
O	O1	Large glider	16/1/19	Black ants	Small petaurid (old)	High	Good	Good
O	O2	Scansorial mammal	16/1/19	Nil	Small petaurid nest	High	Good	Good
O	O3	Small glider	16/1/19	Nil	Small petaurid nest	High	Good	Mod
O	O4	Large glider	16/1/19	Nil	Old scattered leaf nest poss Antechinus	Low	Good	Mod - spring rusty
O	O5	Scansorial mammal	16/1/19	Native beehive	Na	Def	Good	Good
O	O6	Small glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
O	O7	Small owl	14/2/19	Nil	Old Euro bee hive	High	Good	Good
O	O8	Medium Parrot	14/2/19	Nil	Nil		Good	Moderate
O	O9	Scansorial	16/1/19	Native beehive	Small petaurid nest (old)	Def	Good	Good
O	O10	Possum	16/1/19	CBtP	Na	Def	Good	Good
O	O11	Microbat	16/1/19	Nil	Nil		Mod- lid delaminating	Good
O	O12	Possum	16/1/19	Nil	Nil		Good	Good
O	O13	Scansorial mammal	16/1/19	Nil	Small petaurid nest	High	Good	Good
O	O14	Microbat	16/1/19	Nil	Nil		Mod - 1 hinge broken	Good
O	O15	Large forest owl	14/2/19	Nil	Nil		Good	Good
O	O16	Possum (ad)	16/1/19	Nil	Nil		Good	Good
O	O17	Small glider	16/1/19	Native beehive	Nil		Good	Snapped
O	O18	Small glider	16/1/19	Petaurus spp	Small petaurid nest	Def	Good	Good
P	P1	Microbat	16/1/19	Nil	Nil		Good	Good
P	P2	Small glider	16/1/19	Black ant nest	Nil		Good	Good
P	P3	Scansorial mammal	16/1/19	Brown ant nest	Nil		Good	Good
P	P4	Large glider	16/1/19	Nil	BtPoss den	High	Good	Good
P	P5	Medium Parrot	16/1/19	Nil	Small petaurid nest	High	Good	Good
Q	Q1	Possum	16/1/19	Nil	Nil		Good	Good
Q	Q2	Scansorial mammal	16/1/19	Nil	Small petaurid nest	High	Mod - minor termite damage	Good
Q	Q3	Medium Parrot	16/1/19	Nil	Decomposing leaf - Onj	Mod	Good	Good
Q	Q4	Small Owl	16/1/19	Nil	Probable BtPoss spp nest and old Euro beehive	Mod	Good	Good
Q	Q5	Small glider	16/1/19	Nil	Antechinus	High	Good	Good
Q	Q6	Scansorial mammal	16/1/19	Native beehive	Na	Def	Good	Good
Q	Q7	Large glider	16/1/19	European bees	Na	Def	Good	Good

Zone	NB zone/number	Box Type	2018 Winter					
			Inspection Date	Fauna	Signs	Probability	Box condition	Wire Condition
Q	Q8	Possum	16/1/19	Nil	Nil		Good	Good
Q	Q9	Medium parrot	16/1/19	Nil	Small petaurid nest (old)	Mod	Good	Good
Q	Q10	Large glider	16/1/19	Black ant nest	Nil		Good	Good
Q	Q11	Possum	16/1/19	Nil	BtPoss den	Mod	Good	Good
Q	Q12	Small glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
Q	Q13	Medium Parrot	16/1/19	Nil	Nil		Good	Good
Q	Q14	Large glider	16/1/19	Nil	Nil		Good	Good
Q	Q15	Microbat	16/1/19	Nil	Nil		Good	Good
Q	Q16	Small owl	16/1/19	Nil	Nil		Good	Good
Q	Q17	Small glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
Q	Q18	Medium Parrot	16/1/19	Nil	Old European beehive	High	Good	Good
Q	Q19	Large forest owl	14/2/19	Nil	Nil		One hinge loose	Good
Q	Q20	Possum (ad)	14/2/19	Nil	Nil		Good	Good
R	R1	Large glider	16/1/19	Nil	BtPoss den	Mod	Good	Good
R	R2	Scansorial mammal	16/1/19	Nil	Small petaurid nest	High	Good	Good
R	R3	Microbat	16/1/19	Nil	Microbat scats	High	Good	Good
R	R4	Possum	16/1/19	2 x CBTP	Na	Def	Good	Good
R	R5	Large glider	16/1/19	Nil	BtPoss den	Mod	Poor - lid fallen off	Good
R	R6	Scansorial mammal	16/1/19	Black ants	Small petaurid nest	High	Good	Good
R	R7	Large glider	16/1/19	Nil	Small petaurid nest	High	Good	Good
R	R8	Possum	16/1/19	Nil	BtPoss den	Mod	Good	Good
R	R9	Medium parrot	16/1/19	Nil	Small petaurid nest (old)	High	Poor- lid missing	Good
R	R10	Small glider	16/1/19	Sugar glider x 2	Na	Def	Good	Good
R	R11	Large forest owl	14/2/19	Nil	Old Aus wood duck nest	High	Good	Good

Appendix A3 – Installation data for NH2U nest boxes.

Table A3: Location, height, orientation, habitat, installation date, tree species and box type for all nest boxes installed on NH2U project. DOF = Dry Open Forest, R = Riparian, MOF = Moist Open Forest, SF = Swamp Forest

Zone	Box type	Easting	Northing	Tree species	Height	Orientation	Habitat	Installation date
H	Large glider	497438	6610869	Blackbutt	8	n	DOF	23/07/2015
H	Parrot	497436	6610865	Blackbutt	8	ne	DOF	23/07/2015
H	Scansorial	497415	6610872	Turpentine	5	n	DOF	23/07/2015
I	Microbat	497573	6613805	Turpentine	6	nw	DOF	11-14/3/2014
I	Possum	497573	6613805	Turpentine	5	ene	DOF	11-14/3/2014
I	Small glider	497577	6613821	Tallowwood	8	ne	DOF	11-14/3/2014
I	Medium Parrot	497770	6613817	Blackbutt	7	ene	DOF	11-14/3/2014
I	Possum	497792	6613837	Turpentine	5	ne	DOF	20-23/8/2014
I	Large glider	497745	6613845	Mahogany spp	8	ne	DOF	11-14/3/2014
I	Black Cockatoo	497722	6613853	Blackbutt	10	ne	DOF	11-14/3/2014
I	Medium Parrot	497735	6613898	Blackbutt	8	ne	DOF	11-14/3/2014
I	Microbat	497915	6613786	Blackbutt	6	nw	DOF	11-14/3/2014
I	Possum	497903	661301	Turpentine	5	e	DOF	11-14/3/2014
I	Scansorial mammal	497904	6613817	Blackbutt	5-6	n	DOF	11-14/3/2014
I	Small glider	497957	6613801	Blackbutt	7	n	DOF	11-14/3/2014
I	Possum	498171	6614027	Mahogany spp	6	ne	DOF	20-23/8/2014
I	Medium Parrot	498173	6614022	Angophora costata	7	n	DOF	20-23/8/2014
I	Scansorial mammal	498191	6614024	Ironbark	5	ne	DOF	20-23/8/2014
I	Microbat	498205	6614107	Ironbark	7	n	R	20-23/8/2014
I	Medium Parrot	498216	6614088	Ironbark	7	ne	R	20-23/8/2014
I	Small glider	498226	6614109	Ironbark	6	n	R	11-14/3/2014
I	Possum	498030	6613997	Blackbutt	6	n	DOF	20-23/8/2014
I	Small glider	498052	6613984	Blackbutt	8	n	DOF	20-23/8/2014
I	Black Cockatoo	497969	6613897	Blackbutt	9	e	DOF	20-23/8/2014
I	Large glider	497969	6613897	Blackbutt	6	n	DOF	20-23/8/2014
I	Scansorial mammal	497986	6613890	Tallowwood	5	ne	DOF	11-14/3/2014
I	Small glider	497640	6613903	Tallowwood	7	ne	DOF	11-14/3/2014
I	Large glider	497629	6613911	Blackbutt	9	n	DOF	11-14/3/2014
I	Scansorial mammal	497629	6613911	Blackbutt	5	ne	DOF	20-23/8/2014
I	Possum	497645	6613879	Mahogany spp	5	n	DOF	11-14/3/2014
I	Microbat	498010	6613782	Blackbutt	8	nw	DOF	11-14/3/2014
I	Scansorial mammal	498012	6613785	Turpentine	5	n	DOF	11-14/3/2014
I	Possum	498016	6613748	Blackbutt	5	n	DOF	20-23/8/2014
I	Small glider	498168	6613877	Blackbutt	6	n	DOF	11-14/3/2014
I	Possum	498168	6613879	Mahogany spp	5	ne	DOF	11-14/3/2014
K	Possum	500179	6617307	Turpentine	5	ne	DOF	20-23/8/2014

Zone	Box type	Easting	Northing	Tree species	Height	Orientation	Habitat	Installation date
K	Microbat	500168	6617299	Tallowwood	5	ne	DOF	20-23/8/2014
K	Small glider	500185	6617296	Blackbutt	6	ne	DOF	20-23/8/2014
K	Large glider	500191	6617334	Blackbutt	9	ne	DOF	11-14/3/14
K	Medium Parrot	500234	6617075	Swamp Mahogany	8	n	SF	11-14/3/14
K	Scansorial mammal	500227	6617073	Swamp Mahogany	5	e	SF	20-23/8/2014
K	Large glider	500221	6617084	Swamp Mahogany	8	ne	SF	20-23/8/2014
K	Possum	500214	6617098	Swamp Mahogany	5	e	SF	11-14/3/14
K	Possum	500305	6617077	Turpentine	6	n	DOF	20-23/8/2014
K	Large glider	500299	6617068	Blackbutt	6	n	DOF	11-14/3/14
K	Possum	500208	6616923	Hoop Pine	5	n	SF	20-23/8/2014
K	Microbat	500210	6616915	Rainforest tree	5	nr	SF	11-14/3/14
K	Scansorial mammal	500221	6616910	Rainforest tree	6	ne	SF	11-14/3/14
K	Medium Parrot	500141	6616830	Flooded Gum	9	ne	DOF	20-23/8/2014
K	Small glider	500149	6616818	Ironbark	6	n	DOF	11-14/3/14
K	Possum	500124	6616832	Tallowwood	7	ne	DOF	11-14/3/14
K	Large glider	500112	6616856	Ironbark	9	ne	DOF	20-23/8/2014
K	Microbat	500094	6616866	Tallowwood	6	nw	DOF	20-23/8/2014
K	Small Owl	500090	6616863	Tallowwood	9	n	DOF	11-14/3/14
K	Small glider	500099	6617338	Tallowwood	6	ne	DOF	20-23/8/2014
K	Medium Parrot	500090	6617341	Tallowwood	6	n	DOF	11-14/3/14
K	Possum	503761	6617327	Mahogany spp	7	n	DOF	20-23/8/2014
K	Scansorial mammal	500116	6617340	Tallowwood	6	n	DOF	20-23/8/2014
K	Large forest owl	500102	6617222	Blackbutt	15	e	DOF	11-14/3/14
K	Microbat	500130	6617222	Blackbutt	6	n	DOF	11-14/3/14
K	Possum	500081	6617223	Blackbutt	7	n	DOF	11-14/3/14
K	Small Owl	500102	6617143	Pink Bloodwood	9	se	DOF	20-23/8/2014
K	Large glider	500109	6617126	Blackbutt	9	ne	DOF	20-23/8/2014
K	Scansorial mammal	500116	6617137	Unidentified spp	6	ne	DOF	11-14/3/14
K	Small glider	500132	6617160	Tallowwood	6	ne	DOF	11-14/3/14
K	Medium Parrot	500280	6617214	Blackbutt	8	ne	DOF	20-23/8/2014
K	Possum	500298	6617201	Blackbutt	5	ne	DOF	20-23/8/2014
K	Scansorial mammal	500305	6617183	Turpentine	5	n	DOF	20-23/8/2014
K	Small glider	500387	6617267	Blackbutt	8	ne	DOF	20-23/8/2014
K	Microbat	500387	6617267	Blackbutt	5	nw	DOF	20-23/8/2014
K	Possum	500378	6617280	Blackbutt	6	se	DOF	20-23/8/2014
K	Medium Parrot	500366	6617266	Tallowwood	5	n	DOF	20-23/8/2014
K	Scansorial mammal	500347	6617262	Blackbutt	5	e	DOF	11-14/3/14
K	Medium Parrot	500049	6616797	Flooded Gum	7	n	DOF	11-14/3/14
K	Microbat	500060	6616801	Tallowwood	5	w	DOF	20-23/8/2014

Zone	Box type	Easting	Northing	Tree species	Height	Orientation	Habitat	Installation date
K	Black Cockatoo	500031	6616822	Tallowwood	8	n	DOF	20-23/8/2014
K	Possum	500045	6616836	Tallowwood	7	ne	DOF	11-14/3/14
K	Large glider	500018	6616827	Tallowwood	7	ne	DOF	11-14/3/14
K	Large glider	500106	6616715	Pink Bloodwood	9	ene	DOF	20-23/8/2014
K	Scansorial mammal	500140	6616724	Pink Bloodwood	4	ne	DOF	20-23/8/2014
K	Possum	500140	6616724	Pink Bloodwood	7	n	DOF	20-23/8/2014
K	Small glider	500141	6616722	Tallowwood	8	n	DOF	20-23/8/2014
K	Small glider	500233	6616810	Tallowwood	7	e	DOF	20-23/8/2014
K	Possum	500233	6616814	Tallowwood	5	ne	DOF	20-23/8/2014
K	Large glider	500222	6626795	Ironbark	8	n	DOF	11-14/3/14
K	Scansorial mammal	500286	6616991	Swamp Mahogany	5	ne	SF	20-23/8/2014
K	Possum	500286	6616991	Swamp Mahogany	7	n	SF	20-23/8/2014
K	Medium Parrot	500286	6616991	Swamp Mahogany	8	n	SF	20-23/8/2014
K	Microbat	500294	6616984	Swamp Mahogany	5	n	SF	20-23/8/2014
K	Small glider	500284	6616981	Swamp Mahogany	8	n	SF	20-23/8/2014
K	Medium Parrot	500020	6616725	Blackbutt	8	ne	DOF	20-23/8/2014
K	Large glider	500020	6616725	Blackbutt	9	n	DOF	20-23/8/2014
K	Possum	499992	6616729	Tallowwood	6	se	DOF	11-14/3/14
K	Microbat	500022	6616719	Tallowwood	6	nw	DOF	11-14/3/14
K	Black Cockatoo	499973	6616679	Blackbutt	12	ne	DOF	20-23/8/2014
K	Small glider	499973	6616679	Blackbutt	8	ne	DOF	20-23/8/2014
K	Scansorial mammal	499978	6616664	Blackbutt	5	e	DOF	11-14/3/14
K	Possum	499998	6616661	Tallowwood	6	ne	DOF	11-14/3/14
K	Medium Parrot	500081	6616645	Blackbutt	6	ne	DOF	11-14/3/14
K	Possum	500091	6616648	Mahogany spp	7	n	DOF	11-14/3/14
K	Black Cockatoo	500146	6617364	Blackbutt	9	e	DOF	11-14/3/14
K	Large glider	500403	6617230	Blackbutt	6	ne	DOF	
J	Medium Parrot	498971	6615572	Flooded Gum	8	n	MOF	11-14/3/14
J	Possum	498971	6615585	Tallowwood	8	e	MOF	11-14/3/14
J	Scansorial mammal	498971	6615585	Tallowwood	5	n	MOF	11-14/3/14
J	Small glider	499089	6615567	Blackbutt	7	ne	DOF	20-23/8/2014
J	Small Owl	499087	6615562	Blackbutt	9	ne	DOF	20-23/8/2014
J	Large glider	499085	6615556	Blackbutt	8	n	DOF	20-23/8/2014
J	Microbat	499118	6615485	Tallowwood	8	n	DOF	20-23/8/2014
J	Scansorial mammal	499149	6615484	Tallowwood	5	n	DOF	20-23/8/2014
J	Possum	499149	6615484	Tallowwood	8	ne	DOF	20-23/8/2014
J	Microbat	498949	6615660	Blackbutt	8	nw	DOF	11-14/3/14
J	Possum	498948	6615683	Tallowwood	5	ne	DOF	20-23/8/2014
J	Small glider	498948	6615683	Tallowwood	8	ne	DOF	11-14/3/14

Zone	Box type	Easting	Northing	Tree species	Height	Orientation	Habitat	Installation date
J	Medium Parrot	498966	6615612	Flooded Gum	8	ne	DOF	20-23/8/2014
J	Small glider	499267	6615539	Blackbutt	5	ne	DOF	20-23/8/2014
J	Small Owl	499282	6615566	Blackbutt	8	ne	DOF	11-14/3/14
J	Large glider	499286	6615570	Blackbutt	8	ne	DOF	20-23/8/2014
J	Medium Parrot	499291	6615595	Tallowwood	8	n	DOF	11-14/3/14
J	Possum	499297	6615577	Mahogany spp	6	n	DOF	11-14/3/14
J	Scansorial mammal	499307	6615586	Mahogany spp	5	n	DOF	11-14/3/14
J	Large glider	499011	6615777	Tallowwood	8	e	DOF	20-23/8/2014
J	Small glider	499001	6615776	Swamp Mahogany	5	n	DOF	11-14/3/14
J	Black Cockatoo	498971	6615738	Blackbutt	10	e	DOF	20-23/8/2014
J	Parrot	499375	6615627	Blackbutt	7	ne		23/07/2015
J	Scansorial	499364	6615643	Blackbutt	6	ne		23/07/2015
J	Small Glider	499364	6615633	Blackbutt	8	e		23/07/2015
J	Possum	499385	6615657	Blackbutt	6	n		23/07/2015
J	Microbat	499401	6615648	Melaleuca quinqunervia	5	nw		23/07/2015
J	Small glider	499483	6615763	Swamp Mahogany	8	ne		23/07/2015
J	Parrot	499469	6615767	Blackbutt	7	e		23/07/2015
J	Small Glider	499493	6615758	Swamp Mahogany	7	ne		23/07/2015
L	Medium parrot	500283	6618795	Blackbutt	6	e	DOF	20-23/8/14
L	Small glider	500245	6618767	Tallowwood	7	n	R	20-23/8/14
L	Scansorial mammal	500247	6618741	Red Mahogany	5	n	R	20-23/8/14
L	Possum	500258	6618762	Blackbutt	7	n	R	20-23/8/14
L	Microbat	500285	6618764	Turpentine	6	w	R	20-23/8/14
L	Scansorial mammal	500400	6618915	Swamp Mahogany	4	ne	R	20-23/8/14
L	Medium parrot	500356	6618908	Blackbutt	8	n	DOF	20-23/8/14
L	Large glider	500377	6618919	Blackbutt	8	n	DOF	20-23/8/14
M	Possum	500288	6619042	Blackbutt	7	ne	R	7-9/4/2014
M	Microbat	500290	6619029	Blackbutt	5	nw	R	7-9/4/2014
M	Scansorial mammal	500261	6619028	Turpentine	5	ne	R	7-9/4/2014
M	Small glider	500159	6618998	Blackbutt	8	n	DOF	7-9/4/2014
M	Microbat	500155	6619003	Blackbutt	8	nw	DOF	7-9/4/2014
M	Small owl	500132	6619005	Blackbutt	9	n	DOF	7-9/4/2014
M	Scansorial mammal	500128	6619009	Small-fruited Grey Gum	5	ne	DOF	7-9/4/2014
M	Microbat	500028	6618992	Blackbutt	8	nw	DOF	7-9/4/2014
M	Large glider	500024	6618987	Mahogany spp	5	n	DOF	7-9/4/2014
M	Medium Parrot	500013	6618966	Tallowwood	7	e	DOF	7-9/4/2014
M	Possum	500016	6618972	Blackbutt	7	ne	DOF	7-9/4/2014
M	Small glider	499921	6619024	Ironbark	5	ne	R	7-9/4/2014
M	Possum	499918	6619063	Brush Box	5	ne	R	7-9/4/2014

Zone	Box type	Easting	Northing	Tree species	Height	Orientation	Habitat	Installation date
M	Scansorial mammal	499918	6619064	Brush Box	4	se	R	7-9/4/2014
M	Black Cockatoo	499891	6619070	Blackbutt	9	ne	R	7-9/4/2014
M	Large glider	499880	6619070	Small-fruited Grey Gum	8	ne	R	7-9/4/2014
M	Medium parrot	500376	6619030	Tallowwood	5	n	R	7-9/4/2014
M	Scansorial mammal	500391	6619019	Tallowwood	4	ne	R	7-9/4/2014
M	Possum	500382	6619010	Blackbutt	7	ne	DOF	7-9/4/2014
M	Large glider	500382	6619018	Tallowwood	8	n	DOF	7-9/4/2014
M	Small glider	500506	6618807	Tallowwood	5	n	DOF	7-9/4/2014
M	Microbat	500526	6618813	Blackbutt	8	nw	DOF	7-9/4/2014
M	Scansorial mammal	500518	6618808	Blackbutt	5	ne	DOF	7-9/4/2014
M	Black Cockatoo	500523	6618865	Blackbutt	10	ne	DOF	7-9/4/2014
M	Large Glider	500530	6618859	Tallowwood	6	ne	DOF	7-9/4/2014
N	Large glider	499925	6621808	Small-fruited Grey Gum	7	ne	R	7-9/4/2014
N	Possum	499934	6621849	Blackbutt	7	n	R	7-9/4/2014
N	Scansorial mammal	499934	6621849	Pink Bloodwood	5	e	R	7-9/4/2014
N	Scansorial mammal	499618	6621961	Tallowwood	5	n	DOF	7-9/4/2014
N	Large glider	499621	6621977	Blackbutt	6	n	DOF	7-9/4/2014
N	Small glider (RE)	499846	6621927	White Mahogany	8	e		23/07/2015
N	Small glider (RE)	499857	662192?	White Mahogany	8	ne		23/07/2015
N	Small glider	499866	6621928	Angophora costata	6	ne		23/07/2015
O	Large glider	499141	6622325	Small-fruited Grey Gum	8	ne	DOF	7-9/4/14
O	Scansorial mammal	499141	6622325	Turpentine	5	n	DOF	7-9/4/14
O	Small glider	499115	6622334	Blackbutt	8	n	DOF	7-9/4/14
O	Large glider	499193	6622483	Mahogany spp	8	n	DOF	7-9/4/14
O	Scansorial mammal	499211	6622495	Tallowwood	4	ne	DOF	7-9/4/14
O	Small glider	499220	6622455	Pink Bloodwood	6	n	DOF	7-9/4/14
O	Small owl	498694	6622645	Pink Bloodwood	10	n		24/07/2015
O	Parrot	498697	6622640	grey gum	8	ne		24/07/2015
O	Scansorial	498652	6622707	Turpentine	5	n		24/07/2015
O	Possum	498646	6622709	Ironbark	8	nw		24/07/2015
O	Microbat	498926	6622580	ironbark	5	nw		24/07/2015
O	Possum	498935	6622587	Grey Gum	6	e		24/07/2015
O	Scansorial	498962	6622582	Ironbark	5	e		24/07/2015
O	Microbat	498910	6622598	Bloodwood	5	w		24/07/2015
O	Large forest owl	499038	6622513	Bloodwood	13	e		24/07/2015
O	Possum (ad)	As above		Bloodwood	7	ne		24/07/2015
O	Small glider (RE)	499074	6622518	Tallowwood	8	ne		24/07/2015
O	Small glider	499166	6622500	Bloodwood	6	n		24/07/2015
P	Microbat	498030	6624064	Swamp Mahogany	6	nw	SF	7-9/4/14

Zone	Box type	Easting	Northing	Tree species	Height	Orientation	Habitat	Installation date
P	Small glider	498028	6624062	Swamp Mahogany	5	n	SF	7-9/4/14
P	Scansorial mammal	498024	6624070	Turpentine	5	n	DOF	7-9/4/14
P	Large glider	497993	6624118	Blackbutt	6	n	DOF	7-9/4/14
P	Medium Parrot	497983	6624166	Pink Bloodwood	6	e	DOF	7-9/4/14
Q	Possum	498155	6626510	Turpentine	6	ne	MOF	7-9/4/14
Q	Scansorial mammal	498156	6626518	Tallowwood	5	ne	MOF	7-9/4/14
Q	Medium Parrot	498177	6626545	Turpentine	6	ne	MOF	7-9/4/14
Q	Small Owl	498221	6626600	Tallowwood	10	se	MOF	7-9/4/14
Q	Small glider	498224	6626596	Mahogany spp	6	ne	MOF	7-9/4/14
Q	Scansorial mammal	498241	6626629	Pink Bloodwood	5	ne	MOF	7-9/4/14
Q	Large glider	498242	6626651	Mahogany spp	6	ne	MOF	7-9/4/14
Q	Possum	498245	6626662	Mahogany spp	6	ne	MOF	7-9/4/14
Q	Medium parrot	498372	6626901	Tallowwood	6	n	MOF	7-9/4/14
Q	Large glider	498380	6626915	Mahogany spp	5	n	MOF	7-9/4/14
Q	Possum	498420	6626935	Tallowwood	6	e	MOF	7-9/4/14
Q	Small glider	498079	6626595	Pink bloodwood	7	nw		24/07/2015
Q	Parrot	498102	6626635	Grey gum	8	nw		24/07/2015
Q	Large glider	498096	6626643	White mahogany	10	n		24/07/2015
Q	Microbat	498100	6626653	Grey Ironbark	5	nw		24/07/2015
Q	Small owl	498210	6626859	Tallowwood	9	nw		24/07/2015
Q	Small glider	498231	6626907	White stringybark	8	nw		24/07/2015
Q	Parrot	498234	6626915	Pink bloodwood	8	ne		24/07/2015
Q	Large forest owl	497902	6626256	Ironbark	17	w		24/07/2015
Q	Possum (ad)	As above		Grey ironbark	7	ne		24/07/2015
R	Large glider	498809	6627460	Mahogany spp	6	me	DOF	7-9/4/14
R	Scansorial mammal	498808	6627449	Pink Bloodwood	5	ne	DOF	7-9/4/14
R	Microbat	498813	6627450	Ironbark	7	nw	DOF	7-9/4/14
R	Possum	498787	6627462	Ironbark	6	e	DOF	7-9/4/14
R	Large glider	498737	6627363	Swamp Mahogany	7	ne	R	7-9/4/14
R	Scansorial mammal	As above		Swamp Mahogany	5	n	R	7-9/4/14
R	Large glider	498693	6627498	Grey gum	8	ne	MOF	7-9/4/14
R	Possum	498688	6627495	Ironbark	6	ne	MOF	7-9/4/14
R	Medium parrot	498712	6627545	Grey gum	8	ne	MOF	7-9/4/14
R	Small glider	498627	6627448	Tallowwood	7	ne		24/07/2015
R	Large forest owl	499037	6627775	Pink Bloodwood	14	ne		24/07/2015