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New South Wales

Warrell Creek to Nambucca Heads

Nest box Monitoring Report – Operational Phase, Year
Four (2022)

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Pacific Highway upgrade: Warrell Creek to Nambucca Heads (WC2NH)

Nest box monitoring – operational
phase Year four (2022)



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Project Team:

Dr D. Rohweder (review)

Mr Luke Andrews (field work and reporting)

Ms Amber English (field work)

Mr. D. White (Field work)

Report prepared for:

Transport for New South Wales



Cover Photo: Common ringtail possum denning in a possum box.

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Table of contents

1.	Introduction	1
1.1	Background.....	1
1.2	Installation sites and nest box design	2
2.3	Data summary and analysis	5
3.	Results.....	5
3.1	Use of nest boxes.....	5
3.1.1	Species diversity and nest box use	5
3.1.2	Occupancy and evidence of use rates	8
3.1.3	Nest box designs and target species	9
3.2	Nest box condition during construction and operation.....	10
4.	Discussion	11
4.1	Summary of key findings.....	11
4.2	Use of nest boxes by a wide variety of hollow-using native fauna species	12
4.3	Species use of nest boxes is consistent with the species targeted by the nest box design	12
4.4	Low rates of exotic fauna use	13
4.5	High level of nest box durability with minimal maintenance requirements.....	14
5.	Contingency Measures and Recommendations	15
5.1	Contingency Measures.....	15
5.2	Recommendations.....	15
6.	References.....	16
	Appendix A – Species list	18
	Appendix B – Year two operational phase nest box inspection data.....	19

List of tables

Table 1. Number of nest boxes and specific designs installed in the NBIZs along the WC2NH alignment. Specific Designs*: MB = Microchiropteran bats, SF = Scansorial mammals (e.g. Antechinus, Phascogale), SG = Small gliders (Feather-tail Glider, Sugar Glider), Po = Possums (Common Ring-tail Possum, Common Brushtail Possum and Short-eared Brush-tail Possum), P/L = Parrots (i.e. Eastern Rosella, Lorikeets), Co = Cockatoo (Sulphur-crested Cockatoo, Yellow-tailed Black Cockatoo, Glossy Black Cockatoo), SO = Smaller Owls (Southern Boobook, Barn Owl). * Refer to Table 2 for box dimensions.	2
Table 2. Design and installation specifications for nest boxes targeting specific species at WC2NH.	4
Table 3: The number of nest boxes occupied or displaying evidence of use by species and fauna groups during summer and winter year 4 operational monitoring at WC2NH. † = Introduced species. Use = evidence of use.	6
Table 4: Summary of key findings in relation to the NBPoM's performance criteria for WC2NH nest boxes.	11
Table 5: Potential problems outlined in NBMP and possible contingency measures.	15
Table 6: Recommendations based on findings from operational phase monitoring and response from TfNSW.	15

List of figures

Figure 1. Nest box locations adjacent to the WC2NH alignment.	3
Figure 2: Number and proportion of boxes used by vertebrate fauna (occupied or evidence of use), invertebrates (grouped native bees, ants and European bees), unused (vacant) and boxes not inspected (due to restricted access, damage or missing) during construction and operational phase monitoring at WC2NH.	9
Figure 3: Fauna recorded using design-specific box types during nest box monitoring (2016-2021) at WC2NH. Numbers in parenthesis indicate the number of boxes inspected per inspection (n=8). LG=Large Glider, SG=Small Glider, P/L=Medium Parrot, SM=Scansorial mammal, MB=Microbat, So=Small Owl, Po=Possum and C=Black Cockatoo. Nest boxes not inspected have been removed from the data summary.	10
Figure 4: Nest boxes requiring repair or replacement (repairs) during construction and operational phase monitoring at WC2NH, 2016-2022.	11

List of plates

Plate 1: Fauna recorded during year four operational nest box inspections at WC2NH (a) Short-eared brushtail possum using a possum box (b) <i>Antechinus</i> spp. nest with latrine deposited in corner of microbat box. (c) Scaly-breasted lorikeets using a small glider box. (d) Sugar glider x 4 recorded in a small glider nest box. (e) An abandoned European beehive in a parrot/lorikeet box (f) Lace monitor in a large glider box.	7
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1. Introduction

1.1 Background

In 2015, Transport for New South Wales (TfNSW), in conjunction with Acciona Ferrovial Joint Venture (AFJV), commenced the upgrade of the Pacific Highway between Warrell Creek and Nambucca Heads (WC2NH). WC2NH represents stage two of the Warrell Creek to Urunga Pacific Highway Upgrade (WC2U). WC2NH extends northward from the existing Allgomeria deviation south of Warrell Creek before re-joining the existing stage one Nambucca Heads to Urunga (NH2U) project north of Nambucca heads. The WC2NH project was opened to traffic in two stages:

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

The Ministerial Conditions of Approval (MCoA) for the WC2NH upgrade specified that appropriate actions are to be implemented to mitigate the impact of removing hollow bearing trees (HBT) on hollow dependent fauna. Such actions included the preparation of a Nest Box Plan of Management (NBPoM) in accordance with the MCoA 2.9, which states that:

"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."

A NBPoM was prepared to guide installation and monitoring of nest boxes for the WC2U upgrade (Lewis Ecological 2016). The NBPoM recommended 152 nest boxes be installed inside ten nest box replacement zones (NBRZs) adjacent to the WC2NH upgrade. A total of 60% of the nest boxes were installed before clearing operations (26 November to 11 December 2014) to provide temporary refuge for fauna displaced by clearing. The remaining 40% were installed following a final count of functional hollows removed during clearing. Due to limited suitable vegetation to support nest boxes within the prescribed zones, the project Environmental Representative approved a proposal to use additional and extend existing NBRZs in August 2016. This led to 143 nest boxes being installed across 12 NBRZs adjacent to the WC2NH alignment. The final number and type of nest boxes assigned to each area is described in Table 1 and the location of nest box areas across the alignment is shown in Figure 1.

As specified in the WC2NH Ecological Monitoring Program, bi-annual winter and summer nest box inspections are scheduled for years 3 (2016/17) and 4 (2017/18) of construction and years 2 (2020) and 4 (2022) of operation. Sandpiper Ecological Surveys (Sandpiper) was contracted to undertake operational phase monitoring. The following report presents the results of the year four operation phase nest box inspections conducted during the summer and winter of 2022. Results are presented in combination with year 2 operational (Sandpiper Ecological 2020) and construction phase monitoring (GeoLINK 2018). Findings are discussed in the context of the Potential Indicators of Success outlined in section 3.11.2 of the WC2NH Ecological Monitoring Program:

1. Use of nest boxes by a wide variety of hollow-using native fauna species
2. Low rates of nest box occupancy by feral species
3. Species use of nest boxes is consistent with the species targeted by the nest box design
4. High level of nest box durability, with minimal maintenance requirements.

1.2 Installation sites and nest box design

The WC2NH project covers a total length of 19.75km and extends from Warrell Creek in the south to Nambucca Heads in the north (Figure 1). The alignment bypasses the town of Macksville and the northern section traverses Nambucca State Forest (Figure 1). The NBRZs were located adjacent to the WC2NH alignment and labeled A through to G (7 zones), S through to U (3 zones) and include the two revised NBRZs (New NBRZ and OC5) (Table 1).

Eight nest box designs were installed across the WC2NH upgrade (Table 1). Nest box design dimensions were recommended based on habitat considerations for species known or considered likely to occur in the vicinity of the carriageway (Table 2). Small glider was the most common box with 30 installed across the project, followed by possum with 28 and large glider with 24 (Table 1). The highest number of nest boxes was installed in zone S (28 boxes). Zones U and G were the second and third most allocated zones with 19 and 17 boxes, respectively (Table 1). All nest boxes were constructed using plywood.

Table 1. Number of nest boxes and specific designs installed in the NBIZs along the WC2NH alignment. Specific Designs*: MB = Microchiropteran bats, SF = Scansorial mammals (e.g. Antechinus, Phascogale), SG = Small gliders (Feather-tail Glider, Sugar Glider), Po = Possums (Common Ring-tail Possum, Common Brushtail Possum and Short-eared Brush-tail Possum), P/L = Parrots (i.e. Eastern Rosella, Lorikeets), Co = Cockatoo (Sulphur-crested Cockatoo, Yellow-tailed Black Cockatoo, Glossy Black Cockatoo), SO = Smaller Owls (Southern Boobook, Barn Owl). * Refer to Table 2 for box dimensions.

NBRZ	Chainage	Specific designs*								Total
		Co	LG	MB	P/L	Po	SF	SG	So	
A	42565-43015		2			2	2			6
B	44765-44965	1		2	2	3	1			9
C	48265-48765			1		2	1	1		5
D	56865-57465		2	2	2	3	2	2	1	14
E	58565-59065				1	1		2		4
F	59465-60015		3		1	1	4	1		10
G	60115-60915	1	4		1	4	3	4		17
New NBRZ	Not specified		3		2	1	1	3	1	11
OC5	Not specified			4			2	1		7
S	53680-54100		5	5	3	5	2	7	1	28
T	55000-55400		2	1	2	2	1	4		12
U	55500 - 55750	1	3	2	3	4	2	5		20
Total		3	24	17	17	28	21	30	3	143

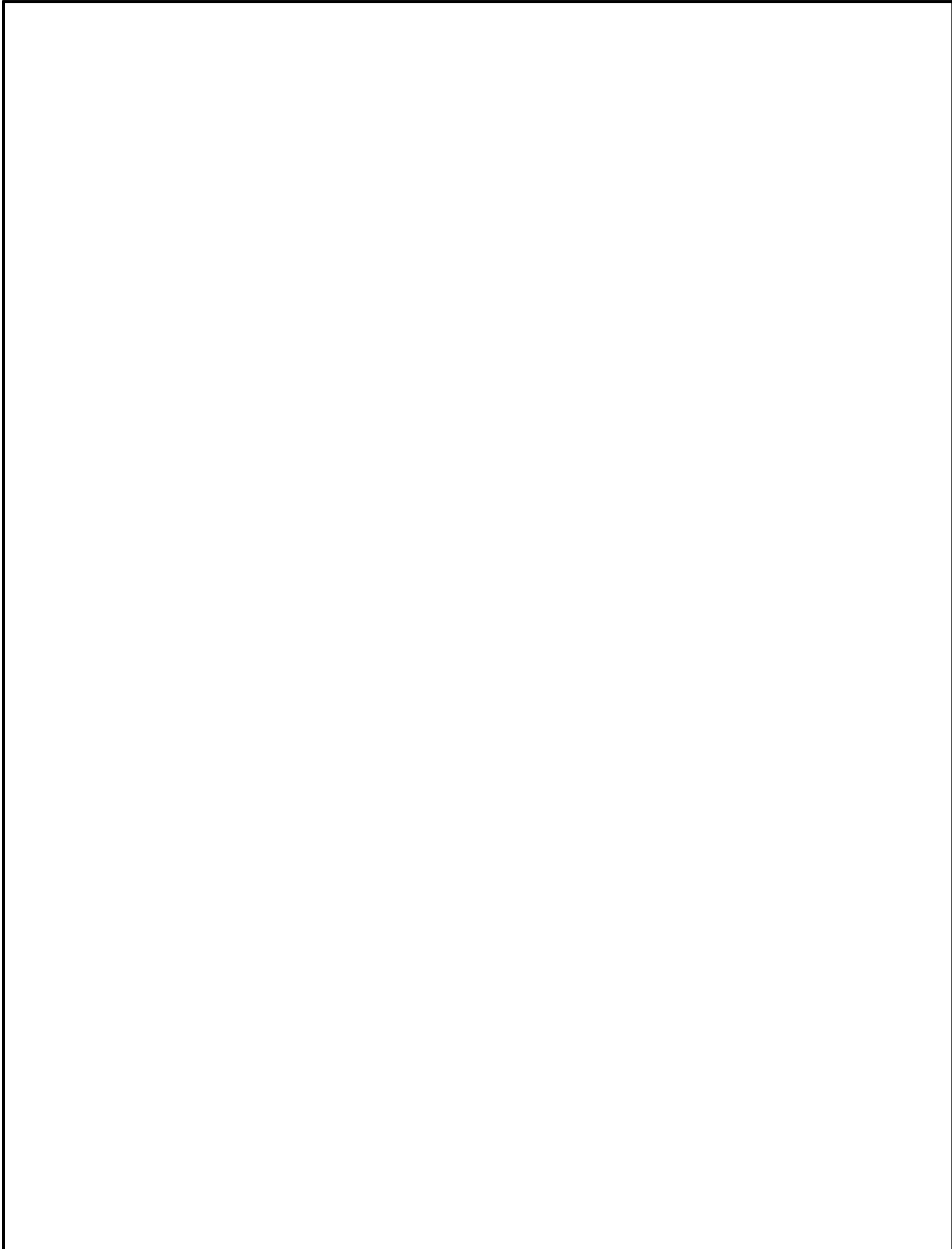


Figure 1. Nest box locations adjacent to the WC2NH alignment.

Table 2. Design and installation specifications for nest boxes targeting specific species at WC2NH.

Box Type	Inside measurements	Chamber depth (mm)	Entrance diameter (mm)	Height above ground (m)
Scansorial Mammal (SF)	180 x 180	300	35 – 40	5-8
Microchiropteran bat (MB)	200 x 200	400	10 – 30	5-8
Small Glider (SG)	200 x 200	300	40 – 45	5-8
Large Glider (LG)	250 x 300	400	70 – 90	5-8
Possom (Po)	250 x 300	400	85 – 100	5-8
Small Owl (So)	250 x 300	500	100	8-10
Cockatoo (Co)	300 x 400	1200	200	8-10
Parrot/Lorikeet (P/L)	200 x 200	400	65	5-8

2. Methods

2.1 Nest box inspections

Year four operational summer nest box inspections occurred between 2 and 11 February 2022. The winter inspection was carried out over four days between 21 and 25 July 2022. An ecologist was present during all inspections. A total of 138 nest boxes were inspected during the summer event and 135 in winter. Uninspected boxes included four boxes that were destroyed via private logging, two due to wire failure/falling from height, and one from being destroyed by a branch impact.

Nest boxes were inspected using a telescopic pole with an attached GoPro Hero 7 and Knog light unit. The GoPro was linked wirelessly to an iPad where an ecologist viewed the contents of each box. The lid of each box was carefully lifted, the interior photographed, and essential data recorded using a standard data sheet. One additional box was inspected by a qualified tree climber, under the supervision of an ecologist, due to tree growth restricting the lid from opening. Data recorded during all inspections included; weather conditions (i.e., rain, wind, cloud cover, ambient temperature), 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 scratch marks, box condition, wire condition, and comments on any changes in the surrounding habitat.

Box use was determined by direct observation of an animal or indirectly by nest characteristics. Nests were assigned an accuracy score, which included low (0-50% certain), moderate (50-75% certain), high (75-95% certain) or definite (100%). Box condition was allocated one of three ratings; good (nil or very little deterioration), minor damage (hinge deterioration, box delaminating, lid fallen off, wire or spring rusting), severe damage (box fallen, termite infestation). 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 signs 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/den characteristics of hollow-dependent fauna and published information.

2.2 Nest box maintenance

Nest boxes that had deterioration were assessed to determine the best ameliorative approach. Following the winter inspections, a tree climber reattached lids using new hinges and screws (n=6). Boxes where wire springs or wires had rusted and snapped (n=1) were reinstalled using the existing wire minus the spring. The wire was bent several times to allow for tree growth.

2.3 Data summary and analysis

Nest boxes considered to be used by fauna (evidence of use) contained either nests/dens (new or old), scats, remains or chew markings. Occupied boxes were recorded when fauna was directly observed within or leaving a nest box. Vacant boxes displayed no visual signs of use (as above) and were not occupied by fauna during the inspection. Some features of use were indistinguishable such as chew markings or fur, and were recorded as animal spp. Similarly, the leaf nest structure between feathertail gliders and sugar gliders can appear similar. As such, when glider nests were indistinguishable small glider spp. was recorded.

WC2NH inspection data was pooled across all previous sample periods during construction and operational monitoring to assess nest box use by targeted species. This data was then presented as a stacked bar plot showing the cumulative number of records for each species in relation to each specific nest box design (see Table 2).

3. Results

3.1 Use of nest boxes

3.1.1 Species diversity and nest box use

A total of nine native vertebrate species and one introduced species, the black rat, were detected using nest boxes during operational phase monitoring at WC2NH (Table 3). A further three unique genera (*Acrobates spp.*, *Antechinus spp.*, *Nyctophilus spp.*) and five fauna groups were recorded (Table 3). Of the 10 vertebrate species detected using nest boxes, mammals had the highest number of records among the fauna groups (Table 3). Sugar gliders exhibited the highest level of nest box use, followed by *Trichosurus spp.* (i.e., combined short-eared brushtail possum - *Trichosurus caninus*, and common brushtail possum-*Trichosurus vulpecula*) and *Antechinus spp.* across all sample periods (Table 3). In order of use, other mammals recorded included small glider spp. (i.e either feathertail glider or sugar glider), animal spp. *Acrobates spp.*, Microbat spp., *Nyctophilus spp.* Rodent spp. and the introduced black rat (Table 3).

Birds then reptiles were the next most commonly found groups using nest boxes (Table 3). Bird species recorded occupying nest boxes included scaly-breasted lorikeet and Australian owl nightjar (Table 3). Evidence of other bird species/groups, included rainbow lorikeet, white-throated treecreeper, and bird spp. No owls or cockatoo species were recorded during nest box monitoring. Lace monitor was the only reptile recorded with individuals found to be occupying nest boxes on 12 occasions (Table 3).

Invertebrate occupancy consisted of three groups, native bees, European bees, and ants (Table 3). Native bee occupancy increased slightly during operational monitoring from 16 hives in summer 2020 to 19 hives in winter 2022 (Table 3). European bees demonstrated intermittent use of nest boxes with

a total of 19 abandoned hives (evidence of use) in comparison to 22 active hives (occupied) recorded throughout operational nest box monitoring (Table 3). During the winter 2022 inspection, only three active European beehives were recorded (Table 3). Ant nests tended to establish in summer and be abandoned during winter (Table 3). During the final winter inspection, only three active ant nests were recorded (Table 3).

No threatened species were recorded in nest boxes during operational monitoring.

Table 3: The number of nest boxes occupied or displaying evidence of use by species and fauna groups during summer and winter year 4 operational monitoring at WC2NH. ¹ = Introduced species. Use = evidence of use.

Species/groups	2020				2022			
	Summer		Winter		Summer		Winter	
	Use	Occupied	Use	Occupied	Use	Occupied	Use	Occupied
Mammals								
<i>Antechinus spp.</i>	14		7		16		19	
Common brushtail possum		2				1		2
Short-eared brushtail possum		3		1		2		2
<i>Trichosurus spp.</i>	9		11		9		7	
Common ringtail possum	2				1			1
Sugar glider	31	12	26	13	15	11	11	10
<i>Acrobates spp.</i>	2		7		2		3	
Small glider spp.	3		2		10		14	
<i>Nyctophilus spp.</i>				1		2		
Microbat spp.	2		3	1	1			
Black rat ¹	1							
Rodent spp.					1			
Animal spp.	4		12		3		6	
Reptiles								
Lace monitor				6		2		2
Birds								
Australian owllet nightjar	2		4		1	1	2	1
Rainbow lorikeet			1					
Scaly-breasted lorikeet					1			1
White-throated treecreeper			2					
Bird spp.			1		2		1	
Invertebrates								
Native bee		16		16		19		19
European bee ¹	4	5	3	4	3	10	9	3
Ants	1	7		3		8		2



Plate 1: Fauna recorded during year four operational nest box inspections at WC2NH (a) Short-eared brushtail possum using a possum box. (b) *Antechinus* spp. nest with latrine deposited in corner of microbat box. (c) Scaly-breasted lorikeets using a small glider box. (d) Sugar glider x 4 recorded in a small glider nest box. (e) An abandoned European beehive in a parrot/lorikeet box (f) Lace monitor in a large glider box.

3.1.2 Occupancy and evidence of use rates

Nest box use by vertebrate species (i.e. evidence of use and occupancy) tended to increase during construction and remained relatively consistent during operational monitoring (Figure 2). Uptake of nest boxes during construction phase monitoring occurred over a relatively short period, with evidence of use rates increasing from 25% (36 boxes) in winter 2016 to 57% (82 boxes) in summer 2018 (Figure 2). By comparison, evidence of use rates during operational monitoring was generally higher than in construction phase monitoring but remained relatively consistent, ranging from 45% (65 boxes) in summer 2022 to 55% (79 boxes) in winter 2020 (Figure 2).

Occupancy rates for vertebrates tended to decrease over time whereas evidence of use increased (Figure 2). Occupancy rates were highest during the construction phase monitoring ranging from 15% (21 boxes) in summer 2018 to 24% (34 boxes) in winter 2017 (Figure 2). Comparatively, occupancy rates during operational monitoring ranged from 12% (17 boxes) in summer 2020 to 15% (22 boxes) in winter 2020. Overall vertebrate use (i.e. combined evidence of use and occupancy) ranged between 70% in winter 2020 and 59% during summer 2022 (Figure 3). The uptake of nest boxes over time corresponded with a decline in the number of vacant boxes, which ranged from 53% (76 boxes) during the initial construction phase inspection in 2016 to as low as 8% (12 boxes) during 2020 operational phase monitoring (Figure 2).

Occupancy of nest boxes by invertebrates increased during operational monitoring and typically peaked during the summer inspections (Figure 2). Occupancy by invertebrates during the construction phase ranged from 0.7% (one box) in winter 2016 to 5.6% (eight boxes) in summer 2018 (Figure 2). By comparison, invertebrate occupancy during operational monitoring ranged from 16% (23 boxes) during winter 2020 to 26% (37 boxes) in summer 2022 (Figure 2).

A small number of nest boxes were unable to be inspected during each sample. Collectively this equates to 26 nest boxes out of a total of 143 inspected on four occasions (572 boxes) during operational monitoring. Reasons for not inspecting boxes were private property access (winter 2020 12 boxes), private logging (4 boxes two occasions), wire failure/box on ground (2 boxes on two occasions), box destroyed by termites or branch (2 boxes one occasion) (see Appendix A, Table A1).

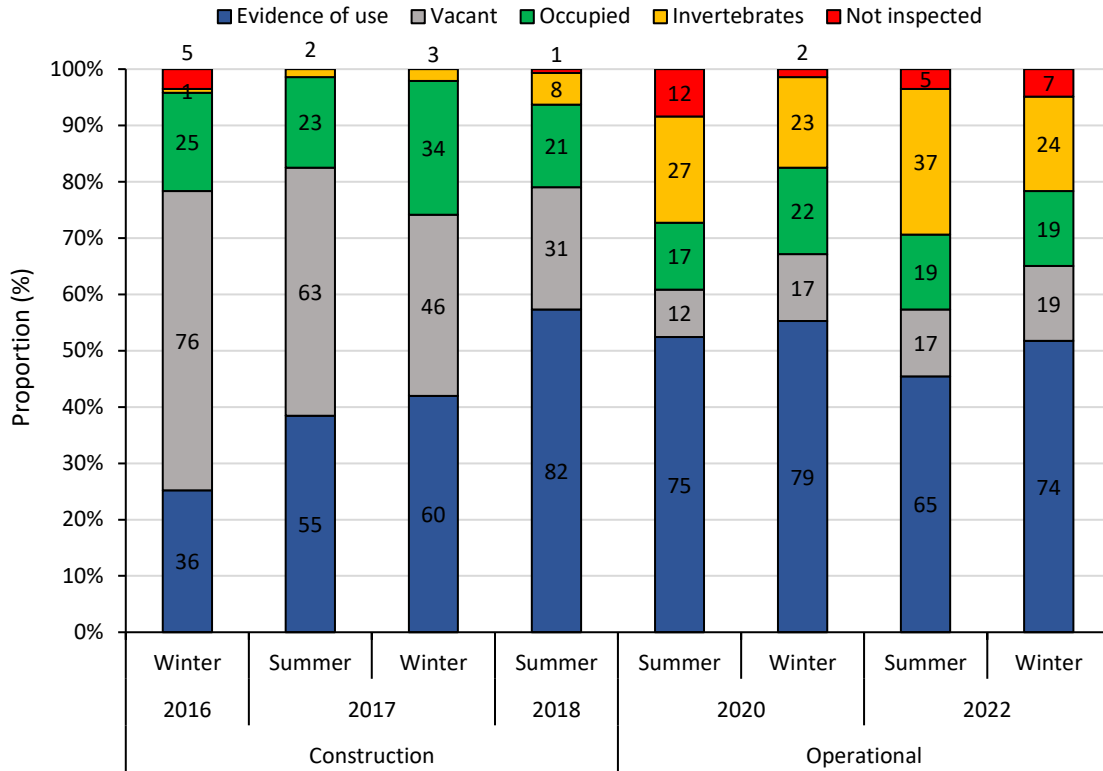


Figure 2: Number and proportion of boxes used by vertebrate fauna (occupied or evidence of use), invertebrates (grouped native bees, ants and European bees), unused (vacant), and boxes not inspected (due to restricted access, damage, or missing) during construction and operational phase monitoring at WC2NH.

3.1.3 Nest box designs and target species

Five of the eight nest box types (63%) recorded use by the target species/group (Figure 3). Small glider (SG) boxes recorded the highest use by a target species, with 63% of boxes inspected showing evidence of use or occupancy by small gliders (either sugar glider or *Acrobates* spp.; Figure 3). Possum (Po) boxes recorded 25% usage by possums (short-eared brushtail possum, common brushtail possum, common ringtail possum, and *Trichosurus* spp.) (Figure 3). Other targeted fauna included *Antechinus* spp. in 4% of scansorial fauna (SM) boxes, *Trichoglossus* spp and Australian owl night jar (lorikeet/bird) accounted for 9% of records in parrot/lorikeet boxes (P/L) and microbat spp. which were exclusively recorded in 9% of microbat (MB) boxes (Figure 3). No use by target species was recorded in the cockatoo (Co), small owl (SO) or large glider (LG) boxes (Figure 3).

Several species were often recorded in non-design-specific box types (Figure 3). Small gliders were found to use all box types with a preference for boxes with smaller entrance diameters and internal dimensions (e.g. SG, SM, LG, P/L) (Figure 3). Scansorial fauna (*Antechinus* spp.) were recorded in all nest box designs with the exception of SO and C box types (Figure 3). Possums were recorded in five box types with larger entrance holes (Figure 3). Among the bird species, a scaly-breasted lorikeet was detected in a non-design-specific SG box (Figure 3). Australian owl-nightjars and non-distinguishable bird nests were detected in Po, P/L, C, SG and LG boxes (Figure 3). Lace monitors (reptile) were recorded occupying LG, SG, Po, SO, C and P/L boxes (Figure 3). No cockatoo or small owl species were recorded.

Non-target invertebrates, such as ants, European and native bees, were detected in seven of the eight box designs (Figure 3). Cockatoo box was the only box not used by invertebrates. European bees (*Apis*

spp.) tended to favor large diameter entry boxes (Po, C, So, LG), whereas native bees (*Tetragonula* and *Austroplebeia* spp) boxes with smaller entry diameters (SG, SM, P/L) (See Appendix B, Table B1). Ants were found in all nest box designs except cockatoo and small owl (see Appendix B, Table B1).

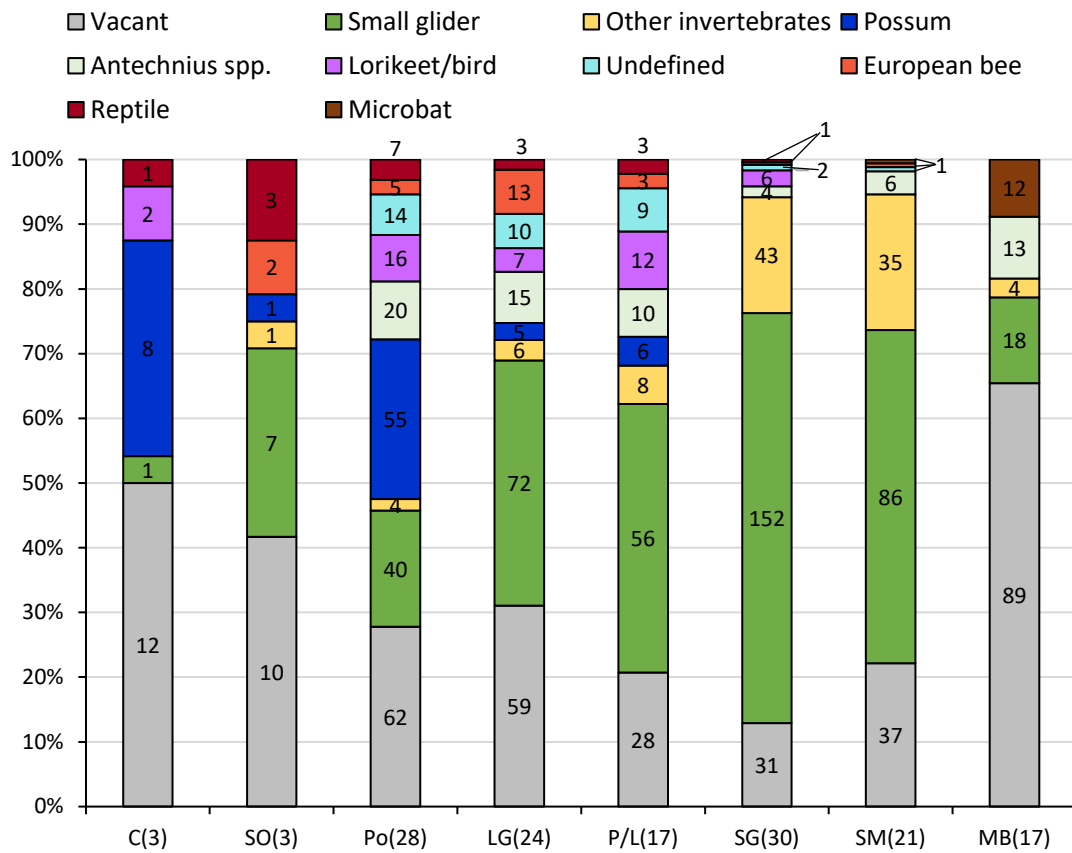


Figure 3: Fauna recorded using design-specific box types during nest box monitoring (2016-2022) at WC2NH. Numbers in parenthesis indicate the number of boxes inspected per inspection (n=8). LG=Large Glider, SG=Small Glider, P/L=Medium Parrot, SM=Scansorial mammal, MB=Microbat, So=Small Owl, Po=Possum and C=Black Cockatoo. Nest boxes not inspected have been removed from the data summary.

3.2 Nest box condition during construction and operation

A total of 13 (9%) boxes required maintenance or replacement during year 4 (2022) operational monitoring (Figure 4). Maintenance repairs were undertaken on seven nest boxes in September 2022. Maintenance repairs included hinge and lid reattachment (6 boxes) and wire/spring failure (1 box) (see Appendix, Table B1). A further six boxes require replacement due to private logging (n=4), wire failure/termite infestation (1) and branch impact (1) (see Appendix, Table B1).

Deterioration of nest boxes occurred over time with a higher level of maintenance being required during operational monitoring (18) than construction (1) (Figure 4). Indeed, maintenance requirements decreased from year 2 to year 4 operational monitoring. No control of ants or European bees was undertaken.

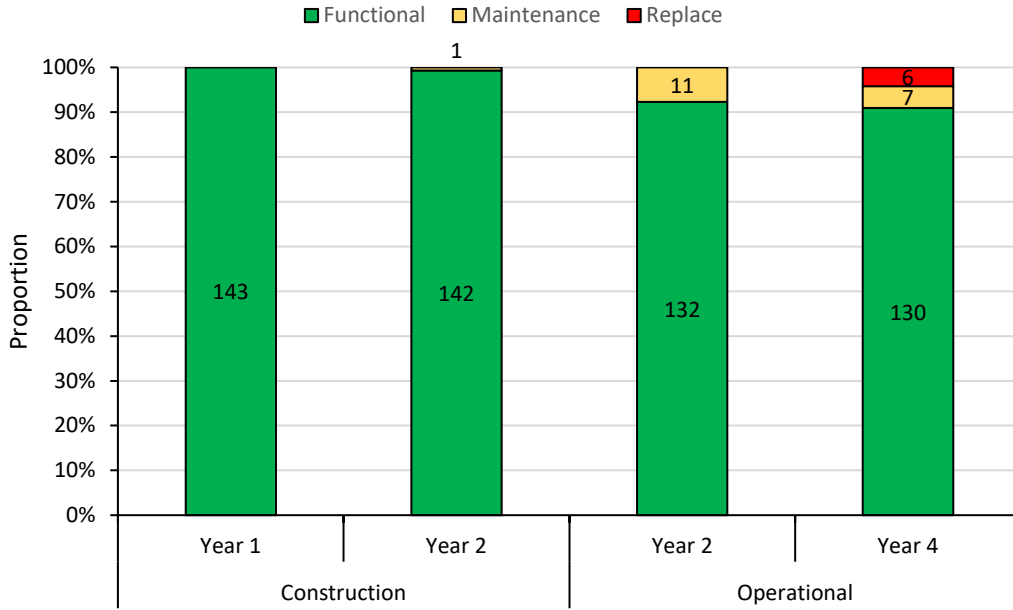


Figure 4: Nest boxes requiring repair or replacement (repairs) during construction and operational phase monitoring at WC2NH, 2016-2022.

4. Discussion

4.1 Summary of key findings

Table 4 presents a summary of major findings of operational nest box monitoring in the context of the performance measures outlined by the WC2NH NBPoM (Lewis Ecological 2016).

Table 4: Summary of key findings in relation to the NBPoM's performance criteria for WC2NH nest boxes.

Performance criteria	Finding
Use of nest boxes by a wide variety of hollow-using native fauna species	Species diversity of fauna occupying nest boxes at WC2NH was comparable with other Pacific Highway projects and is considered to meet the performance criteria of a wide variety of hollow using native species.
Species using nest boxes is consistent with the nest box design	At WC2NH small and medium nest boxes, including small glider, possum, lorikeet/parrot and scansorial mammal designs, were used by the target species. The target species did not use larger nest boxes, such as cockatoo, small owl, and large glider. These findings are consistent with other highway nest box programs.
Low rates of exotic fauna use	Overall, the incidence of feral species occupation was very low. European bees have been shown to abandon boxes within 12 months, which is consistent with other nest box projects.
Reduced maintenance requirements	Maintenance requirements were consistent with and/or lower than other highway projects.

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

Species richness at WC2NH during operational monitoring included nine native species and a further three unique genera (*Acrobates spp.*, *Antechinus spp.* and *Nyctophilus spp.*). It is also worth noting that the broader fauna classifications (i.e. Genera, Families and Groups) are likely to be species already confirmed using nest boxes. For example, *Trichosurus* spp. would be either a short-eared or common brushtail possum and as such have not been included as a unique genus. The species richness recorded at WC2NH is comparable with other nest box monitoring programs on the NSW north coast where between nine and 15 species have been detected during monitoring for the Hunter Expressway (Sandpiper 2013), Nambucca Heads to Urunga (NH2U) (Sandpiper 2021), Coopernook to Heron Creek (C2HC) (Sandpiper 2015), Sapphire to Woolgoolga (S2W) (Sandpiper 2020), Oxley Highway to Kundabung (O2K) (Danvers & Michniewicz 2018) and sections 1/2 of Woolgoolga to Ballina (W2B) (Sandpiper 2021b). Up to 24 species and unique genera have been recorded along sections 3-11 of W2B, however, the latter study sampled 663 nest boxes, which is more than five times the number monitored at WC2NH (Ecological 2019). The diversity of hollow-using native fauna recorded using nest boxes at WC2NH was relatively broad and consistent with previous highway monitoring projects.

Nest box use (i.e. sum of occupation and evidence of use) during operational monitoring at WC2NH ranged between 59% and 70%, which is similar to that reported at the nearby NH2U (60-70%) (Sandpiper 2021), S2W (51-64%) (Sandpiper 2020), W2B S1-2 (55%-56%) (Sandpiper 2021b) and, C2HC (66-74%) (Sandpiper 2015) highway projects. Nest box use at WC2NH is higher than reported for W2B sections 3-11 (47-53%) and OH2K (50-53%) during 2019 monitoring (Ecological 2019, Danvers & Michniewicz 2019). Overall, the use of nest boxes at WC2NH is comparable to or higher to previous monitoring projects and is considered a successful uptake by hollow-using native fauna.

Occupancy of nest boxes tended to be lower during operational monitoring in comparison to construction phase monitoring. This trend can be attributed to a tree climber being used as the preferred inspection method during the construction phase. Using a tree climber enables closer interrogation of box contents compared to pole cameras, including investigation of thick leaf litter that may conceal fauna, which can reveal higher levels of vertebrate activity.

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

Five of eight box types (63%) were used by target species during nest box monitoring at WC2NH. This included SG, SM, MB, and P/L designs which have successfully been used by target species in other highway monitoring projects including NH2U and W2B S-1/2 (Sandpiper 2021, 2021b). Factors known to affect nest box use by target species include (1) abundance of target species, (2) nest box entrance size, (3) availability of hollow resources within the nearby landscape (4) competitive interactions with other species; (5) rapid occupation of suitable boxes by mammals; and (6) location of boxes in the landscape. (Lindenmayer *et al* 2009; Goldingay *et al.* 2020; Groom 2010).

Small gliders (sugar and feathertail gliders) were frequent nest box users throughout both the construction and operation phase monitoring at WC2NH, accounting for 40% of fauna records and with evidence of use in all nest box types. This is consistent with findings by Goldingay *et al* (2020) and is likely a reflection of their broader habitat requirements, local abundance and high number of suitable boxes with small entrances. Small glider boxes had the highest use by a target species (63%),

consistent with monitoring at NH2U where small gliders used 59% of target SG boxes (Sandpiper 2021). Goldingay *et al.* (2020) found that small gliders were far more likely to use the small glider box due to its small diameter opening in comparison to other nest box designs such as possum, cockatoo and small owl. Lorikeet/parrot and scansorial mammal boxes also had small diameter entrances, which likely contributed to moderate levels of use by small glider. Furthermore, the high number of records may be attributed to the fact that once established, glider leaf nests tend to persist throughout monitoring regardless of whether it is currently being utilised.

Lorikeet/treecreeper and parrot boxes recorded relatively low use by target species (less than 12%). While the overall rate of uptake by target birds is relatively low, infrequent use of nest boxes by birds has been reported in other nest box programs associated with highway upgrades (Sandpiper 2015, 2020, 2021, 2021b) and in forest landscapes (e.g. Menkhorst 1984). Low use may be attributable to several factors. Unsuitable installation site (i.e. location in forest, position on tree & tree type), and unsuitable box treatment (i.e. absence of suitable substrate for parrots) may hinder uptake. Lack of design specificity is a potentially limiting factor, particularly for birds, and is still regarded as an emerging field of understanding in Australia (Le Roux *et al.* 2016). Low use by birds may also indicate that adequate hollow resources for these species exist in the local landscape. Indeed, some species may prefer natural hollows to nest boxes and only use nest boxes as temporary denning/roosting sites (Lindenmayer *et al.* 2009). Temporary use of nest boxes by roosting birds is difficult to detect as signs may not be readily apparent (e.g. guano/faeces) or may be covered by mammal leaf nests. Low use may also be indicative of competitive interactions from other species such as possums and gliders, which may negatively affect bird usage (see Goldingay and Stevens 2009; Menkhorst 1984). Indeed, the rapid occupation of smaller (bird) boxes by gliders and construction of leaf nests may render boxes unsuitable before birds begin searching for nest hollows.

Cockatoo and owl designs were not used by the target species, which is consistent with monitoring at other highway monitoring sites (Sandpiper Ecological, 2015, 2020, 2021, 2021b, Goldingay, 2019). Although glossy-black cockatoo (*C. lathami*) and red-tailed black cockatoo (*C. banksii*) have been recorded using round polyvinyl chloride nest boxes on Kangaroo Island and in western Victoria respectively (Goldingay & Stevens 2009), and Carnaby's black cockatoo (*C. latirostris*) has been recorded using a variety of designs in Western Australia (Groom 2010) there is a paucity of records of cockatoos using plywood nest boxes. It is unclear if this is due to poor design and/or placement, both of which influence box usage by Carnaby's cockatoo (Saunders *et al* 2020), or an adequate supply of suitable natural hollows. Similarly, there are few records of owls using nest boxes (Thomson 2006; Goldingay 2019). Indeed, owls and cockatoos have not been recorded using any nest boxes installed for the Pacific Highway upgrade and based on existing evidence these box designs should not be included in future nest box programs.

At WC2NH microbats recorded relatively low use (9%) albeit higher than several other highway nest box projects (Sandpiper 2015, 2020, 2021, 2021b). A paucity of knowledge in relation to roosting ecology of microbats and lack of species-specific box designs may contribute to low uptake (Goldingay 2019). A study investigating nest box use by Gould's wattled bat (*Chalinolobus gouldii*) found that occupancy increased 11 fold after a new nest box design was installed. However, Goldingay (2019) highlights that there is no benchmark for tree hollow use by microbats and given their mobile nature, nest boxes are unlikely to provide benefits apart from those associated with installation in drainage structures (bridges and culverts). Nonetheless, encouragingly *Nyctophilis spp.* and other evidence of microbats (scats) were recorded on twelve occasions during construction and operational monitoring (samples = 8) of microbat boxes at WC2NH.

4.4 Low rates of exotic fauna use

Rates of nest box use by feral species was low during both samples. European bees have been considered a problem for nest box programs as they occupy boxes to the exclusion of targeted species (Beyer and Goldingay, 2006; Lewis, 2016). Observations from previous research (Goldingay *et al.* 2015) suggest European beehive infestations can be ignored as hives are typically abandoned within 12 months and are replaced by native vertebrates. Evidence of this was recorded at WC2NH where abandoned European beehives were recorded on 19 occasions, often being replaced by small glider dens during the subsequent sample as seen at NH2U (Sandpiper, 2021). No ameliorative action was undertaken regarding active European beehives during 2022.

Ants were recorded at low occupancy rates throughout monitoring (<6%) at WC2NH. Ants are commonly found in nest boxes and there is limited information regarding potential competitive interactions between them and native vertebrates (Goldingay 2006). A study by Dobson (2002 cited in Beyer and Goldingay 2006) reported that squirrel gliders were not deterred by the presence of ants and feathertail gliders have been observed in bat boxes containing ants. No ameliorative action was undertaken regarding ant occupancy during 2022.

4.5 High level of nest box durability with minimal maintenance requirements

The majority of nest boxes at WC2NH (137) remain in reasonable condition and are considered functional. The number of boxes requiring repair or replacement will increase over time, although, considering they have been installed for 6-7 years most boxes have fared better than many other Pacific Highway monitoring sites. For example, all 79 boxes installed for the Cooperook to Herons Creek upgrade required maintenance or replacement seven years after installation (Sandpiper Ecological 2015), with a similar result recorded at Sapphire to Woolgoolga (Sandpiper, 2016). Beyer and Goldingay (2006) suggested that most plywood boxes would persist for ~5 years but conceded that box design and site features influenced longevity. The increased longevity of boxes at WC2NH may be due to the predominance of drier forest types on the upper ridges in the Nambucca State Forest where a majority of nest boxes have been placed in combination to the thicker (300mm) ply design. The benefit of thicker ply may be offset by use of springs to join wire to the box, which represents a weak point and should be avoided in future nest box programs. Screws, hinges and lids are consistent points of failure 4-7 years after installation (Sandpiper 2016) and constructing boxes with fixed hardwood lids would overcome this design limitation.

The six nest boxes that have been destroyed, four by logging, one by wire failure, and one by branch impact have not been replaced. Replacement of these boxes is recommended to maintain the nest box numbers specified in the NBPoM. Replacement boxes should include one large glider (box code: 4.4), one scansorial mammal box (C1.10), two possum boxes (C3.12 and HMP) and two small glider boxes (LG4.9, So.6.1).

The WC2NH nest box monitoring program has been undertaken in accordance with the requirement of the WC2NH Nest Box Plan of Management and is considered to have achieved the required objectives and therefore further monitoring is not warranted.

5. Contingency Measures and Recommendations

5.1 Contingency Measures

Contingency measures specified in the WC2NH NBPoM (Lewis Ecological 2016).

Table 5: Potential problems outlined in NBPoM and possible contingency measures.

Problem	Contingency/Corrective action
Poor uptake and usage rates by native fauna	Review the type and number of nest box designs. No action required – nest box occupancy and use by native species is consistent with other projects and is expected to increase over time.
Nest boxes being used by non-target species	Review the selection and number of nest box designs. No action required – 63% of the specific designed box types are being used by target species. Relocating boxes unlikely to improve use.
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 action required - incidence of feral species (European bees) occupation was low.
Nest boxes deteriorating rapidly and requiring maintenance	Identify causes of nest box failure, modify design and construct accordingly. Replace six boxes destroyed by private logging, wire failure and branch impact.

5.2 Recommendations

Recommendations from the year 4 operational phase nest box monitoring program are summarised in Table 6.

Table 6: Recommendations based on findings from operational phase monitoring and response from TfNSW.

Number	Recommendation	Transport for NSW Response
1.	Construction and operational phase nest box monitoring has addressed the WC2NH Nest Box Plan of Management's intent; further monitoring is not required.	Noted
2.	Cockatoo and small owl boxes should not be installed on future highway upgrade projects unless applied in a targeted manner to offset known and direct impacts on an existing nest tree.	Noted
3.	Future nest box programs should consider using fixed lids and only high-quality plastic-coated wire to attach boxes to trees.	Noted
4.	Replace the six boxes destroyed to maintain the recommended nest box numbers specified in the NBPoM. Replacement boxes should include one scansorial mammal box, two possum boxes, three small glider boxes.	The six boxes will be replaced as outlined in the report.

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Appendix A – Species list

Table A1: Common and scientific names for all species recorded during nestbox inspections at WC2NH 2020.

Common Name	Scientific Name
Sugar glider	<i>Petaurus breviceps</i>
	<i>Petaurus spp.</i>
Feathertail glider spp.	<i>Acrobates spp.</i>
Short-eared brushtail possum	<i>Trichosurus caninus</i>
Common brushtail possum	<i>Trichosurus vulpecula</i>
Brushtail possum spp.	<i>Trichosurus spp.</i>
Common ringtail possum	<i>Pseudocheirus peregrinus</i>
Lace monitor	<i>Varanus varius</i>
Australian owl-nightjar	<i>Aegotheles cristatus</i>
White-throated treecreeper	<i>Cormobates leucophaea</i>
Rainbow lorikeet	<i>Trichoglossus moluccanus</i>
Scaley-breasted lorikeet	<i>Trichoglossus chlorolepidotus</i>
Black rat	<i>Rattus rattus</i>

Appendix B – Year two operational phase nest box inspection data

Table B1: WC2NH nest box summer and winter 2022 inspection data. 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.

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Summer	A	A1.6	Scansorial Mammal	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	A	A5.7	Possum	11/2/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	A	A4.6	Large Glider	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	A	A1.13	Scansorial Mammal	11/2/22	Nil	0	FtG nest	Acrobates spp.	Functional	Fair	Nil
Summer	A	A4.11	Large Glider	11/2/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Summer	A	A5.1	Possum	11/2/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	B	B2.9	Microbat	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	B	B7.2	Cockatoo	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	B	B5.6	Possum	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	B	B8.6	Parrot Lorikeet	11/2/22	Nil	0	Pr ring tail possum nest	Common ringtail possum	Functional	Fair	Nil
Summer	B	B5.2	Possum	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	B	B1.3	Scansorial Mammal	11/2/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	B	B8.9	Parrot Lorikeet	11/2/22	Nil	0	Old European beehive and leaf nest	Old european beehive	Functional	Fair	Nil
Summer	B	B5.9	Possum	11/2/22	Nil	0	Btp nest	Trichosurus spp.	Functional	Fair	Nil
Summer	B	B2.13	Microbat	11/2/22	Active ants nest	1	Nil	Ants	Functional	Fair	Nil
Summer	C	C1.11	Scansorial Mammal	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Summer	C	C5.1	Possum	11/2/22	Nil	0	Btp nest	Trichosurus spp.	Functional	Fair	Nil
Summer	C	C2.2	Microbat	11/2/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	C	C5.4	Possum	11/2/22	Nil	0	Btp nest	Trichosurus spp.	Functional	Fair	Nil
Summer	C	C1.4	Small Glider	11/2/22	Nil	0	Sug nest	Sugar glider	Functional	Fair	Nil
Summer	D	D3.1	Small Glider	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	D	D2.4	Microbat	11/2/22	Nyctophilus spp.	10	Nil	Nyctophilus spp.	Functional	Fair	Nil
Summer	D	D8.5	Parrot Lorikeet	11/2/22	Sugar glider	1	Nil	Sugar glider	Functional	Fair	Nil
Summer	D	D1.7	Scansorial Mammal	11/2/22	Nil	0	Fresh Suger glider nest	Sugar glider	Functional	Fair	Nil
Summer	D	D4.5	Large Glider	11/2/22	Nil	0	Fresh Suger glider nest	Sugar glider	Functional	Fair	Nil
Summer	D	D2.7	Microbat	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	D	D5.18	Possum	11/2/22	Nil	0	Australian owlet nightjar	Australian owlet nightjar	Functional	Fair	Nil
Summer	D	D1.9	Scansorial Mammal	11/2/22	Sugar glider	3	Nil	Sugar glider	Functional	Fair	Nil
Summer	D	D8.4	Parrot Lorikeet	11/2/22	Nil	0	Old glider nest	Animal spp.	Functional	Fair	Nil
Summer	D	D3.11	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	D	D6.2	Small Owl	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	D	D5.3	Possum	11/2/22	Nil	0	Old leaf material	Animal spp.	Functional	Fair	Nil
Summer	D	D4.3	Large Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	D	D5.8	Possum	11/2/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	E	E5.8	Possum	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	E	E8.6	Parrot Lorikeet	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	E	E3.8	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	E	E3.18	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	F	F8.8	Parrot Lorikeet	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Actually possum box

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Summer	F	F5.16	Possum	11/2/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	F	F1.9	Scansorial Mammal	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	F	F4.1	Large Glider	11/2/22	Active ants nest	1	Nil	Ants	Functional	Fair	Nil
Summer	F	F1.2	Scansorial Mammal	11/2/22	Nil	0	Fresh sugar glider nest	Sugar glider	Functional	Fair	Nil
Summer	F	F3.7	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	F	F1.5	Scansorial Mammal	11/2/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	F	F4.12	Large Glider	11/2/22	Nil	0	Old European bee	Old european beehive	Functional	Fair	Nil
Summer	F	F3.6	Scansorial Mammal	11/2/22	Active ants nest	1	Sug glider nest	Ants	Functional	Fair	Nil
Summer	F	F5.3	Large Glider	11/2/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Summer	G	G5.15	Possum	11/2/22	Active ants nest	1	Nil	Ants	Functional	Fair	Beginning of ants nest
Summer	G	G4.9	Large Glider	11/2/22	Nil	0	Nil	Nil	Box need rebuild	Poor	Replace box
Summer	G	HMP	Possum	11/2/22	Nil	0	Nil	Nil	Box destroyed	Unkown	Need whole new
Summer	G	G3.13	Small Glider	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	G	G3.6	Small Glider	11/2/22	Sugar glider	2	Nil	Sugar glider	Functional	Fair	Nil
Summer	G	G8.7	Parrot Lorikeet	11/2/22	Nil	0	Leaves and scat check photo	Antechinus spp.	Functional	Fair	Nil
Summer	G	G4.3	Large Glider	11/2/22	Active ants nest	1	Old European bee	Ants	Functional	Fair	Nil
Summer	G	G4.8	Large Glider	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	G	G1.14	Scansorial Mammal	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	G	G5.11	Possum	11/2/22	Nil	0	Antechinus den	Antechinus spp.	Functional	Fair	Nil
Summer	G	G1.1	Scansorial Mammal	11/2/22	Nil	0	Acrobats spp. leaf nest	Acrobates spp.	Functional	Fair	Nil
Summer	G	G5.12	Possum	11/2/22	Nil	0	Btp den	Trichosurus spp.	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Summer	G	G3.17	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	G	G3.1	Small Glider	11/2/22	Nil	0	Sugar glider	Sugar glider	Functional	Fair	Nil
Summer	G	G4.1	Large Glider	11/2/22	Nil	0	Nil	Nil	Functional	Fine	Nil
Summer	G	G1.6	Scansorial Mammal	11/2/22	Sugar glider	3	Nil	Sugar glider	Functional	Fair	Nil
Summer	G	G7.1	Cockatoo	11/2/22	Nil	0	Old btposs nest	Trichosurus spp.	Functional	Fair	Took photo
Summer	New NBRZ	New NBRZ3.13	Small Glider	11/2/22	Nil	0	Sugar Glider nesting material	Sugar glider	Functional	Fair	New lid
Summer	New NBRZ	New NBRZ4.7	Large Glider	11/2/22	Nil	0	Glider nest with old euro beehive	Small glider spp.	Functional	Fair	Lids still on crooked-replace hinges
Summer	New NBRZ	New NBRZ8.1	Parrot Lorikeet	11/2/22	Nil	0	Old leaf nest	Animal spp.	Functional	Fair	Nil
Summer	New NBRZ	New NBRZ5.5	Small Glider	11/2/22	Nil	0	Sugar glider	Sugar glider	Functional	Fair	Nil
Summer	New NBRZ	New NBRZ4.2	Large Glider	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fine	Nil
Summer	New NBRZ	New NBRZ1.1	Scansorial Mammal	11/2/22	Nil	0	Old native beehive	Native bees	Functional	Fair	Nil
Summer	New NBRZ	New NBRZ6.1	Small Owl	11/2/22	Lace monitor	1	Old European bee	Lace monitor	Functional	Fair	Nil
Summer	New NBRZ	New NBRZ3.2	Small Glider	11/2/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Nil
Summer	New NBRZ	New NBRZ4.1	Large Glider	11/2/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Nil
Summer	New NBRZ	New NBRZ5.12	Possum	11/2/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Old eurobeehive replaced
Summer	New NBRZ	New NBRZ8	Parrot Lorikeet	11/2/22	Nil	0	Small glider	Small glider spp.	Functional	Fair	Reinstall lid
Summer	OC5	OC53.5	Small Glider	11/2/22	Active ants nest	1	Nil	Ants	Functional	Fair	Nil
Summer	OC5	OC52.5	Microbat	11/2/22	Nil	0	Microbat scat at base	Microbat spp.	Functional	Fair	Nil
Summer	OC5	OC52.3	Microbat	11/2/22	Active ants nest	1	Old sug nest and bee hive	Ants	Functional	Fair	Nil
Summer	OC5	OC52.1	Microbat	11/2/22	Sugar glider	3	Nil	Sugar glider	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Summer	OC5	OC52.6	Microbat	11/2/22	Nyctophilus spp.	15	Nil	Nyctophilus spp.	Functional	Fair	Nil
Summer	OC5	OC51.5	Scansorial Mammal	11/2/22	Nil	0	Sug nest with dead sug remains	Sugar glider	Functional	Fair	Nil
Summer	OC5	OC51.1	Scansorial Mammal	11/2/22	Not inspected	0	not inspected	Nil	cannot locate box		tree cut down
Summer	S	S5.13	Possum	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	S	S4.14	Large Glider	11/2/22	Nil	0	Sug nest	Sugar glider	Functional	Fair	Nil
Summer	S	S3.9	Small Glider	11/2/22	Sugar glider	5	Nil	Sugar glider	Functional	Fair	Nil
Summer	S	S4.2	Large Glider	11/2/22	Short-eared brushtail possum	2	Nil	Short-eared brushtail possum	Functional	Fair	Nil
Summer	S	S3.9	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	S	S2.3	Microbat	11/2/22	nil	0	nil	Nil	Functional	Fair	Nil
Summer	S	S1.4	Scansorial Mammal	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	S	S8.11	Parrot Lorikeet	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	S	S4.6	Large Glider	11/2/22	Nil	0	Glider nest	Small glider spp.	Functional	Fair	Nil
Summer	S	S2.12	Microbat	11/2/22	nil	0	nil	Nil	Functional	Fair	Nil
Summer	S	S2.8	Microbat	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	S	S1.2	Scansorial Mammal	11/2/22	Sugar glider	6	Sugar Glider nesting material	Sugar glider	Functional	Fair	Nil
Summer	S	S5.6	Possum	11/2/22	Nil	0	Old possum	Trichosurus spp.	Functional	Fair	Nil
Summer	S	S2.5	Microbat	11/2/22	Nil	0	Antechinus den old	Antechinus spp.	Functional	Fair	Nil
Summer	S	S3.1	Small Glider	11/2/22	Nil	0	Antechinus den old	Antechinus spp.	Functional	Fair	Nil
Summer	S	S4.4	Large Glider	11/2/22	Nil	0	Rodent nest	Rodent spp.	Functional	Fair	Nil
Summer	S	S5.17	Possum	11/2/22	Common brushtail possum	1	Nil	Common brushtail possum	Functional	Fair	Nil
Summer	S	S3.1	Small Glider	11/2/22	Nil	0	Sug nest	Sugar glider	Functional	Fair	Nil
Summer	S	S8.1	Parrot Lorikeet	11/2/22	Nil	0	Old sug	Small glider spp.	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Summer	S	S2.1	Microbat	11/2/22	Nil	0	Fresh antechinus den	Antechinus spp.	Functional	Fair	Nil
Summer	S	S5.1	Possum	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	S	S4.1	Large Glider	11/2/22	Nil	0	Sugnest	Sugar glider	Functional	Fair	Nil
Summer	S	S3.12	Small Glider	11/2/22	Sugar glider	5	Sug nest	Sugar glider	Functional	Fair	Nil
Summer	S	S8.3	Parrot Lorikeet	11/2/22	Nil	0	Sug nest	Sugar glider	Functional	Fair	Nil
Summer	S	S3.3	Small Glider	11/2/22	Nil	0	Bird nest	Bird spp.	Functional	Fair	photo check
Summer	S	S3.4	Small Glider	11/2/22	Nil	0	Scaly breasted lorikeet	Scaly-breasted lorikeet	Functional	Fair	photo check
Summer	S	S3.12	Possum	11/2/22	Not inspected	0	not inspected	Nil	cannot locate box	not inspected	tree cut down
Summer	S	S6.1	Small Owl	11/2/22	Not inspected	0	not inspected	Nil	cannot locate box	not inspected	tree cut down
Summer	T	T1.3	Scansorial Mammal	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	T	T3.4	Small Glider	11/2/22	Sugar glider	3	Nil	Sugar glider	Functional	Fair	Nil
Summer	T	T5.5	Possum	11/2/22	Nil	0	Btp nest	Trichosurus spp.	Functional	Fair	Nil
Summer	T	T8.4	Parrot Lorikeet	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	T	T4.9	Large Glider	11/2/22	Active European beehive	1		European bees	Functional	Fair	Nil
Summer	T	T3.3	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	T	T5.9	Possum	11/2/22	Australian owlet nightjar	1	Leaf nest	Australian owlet nightjar	Functional	Fair	Nil
Summer	T	T2.1	Microbat	11/2/22	Active ants nest	1	Nil	Ants	Functional	Fair	Nil
Summer	T	T4.8	Large Glider	11/2/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Summer	T	T3.14	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	T	T8.1	Parrot Lorikeet	11/2/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Nil
Summer	T	T3.2	Small Glider	11/2/22	Nil	0	Sug nest	Sugar glider	Functional	Fair	Nil
Summer	U	U3.7	Small Glider	11/2/22	Sugar glider	2	Nil	Sugar glider	Functional	Fair	Lid on ground needs

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
											hinge and reinstalled
Summer	U	U5.1	Possum	11/2/22	Nil	0	BTP spp.	Trichosurus spp.	Functional	Fair	Nil
Summer	U	U3.11	Small Glider	11/2/22	Not inspected	0	Not inspected	Nil	Functional	Fair	Nil
Summer	U	U8.2	Parrot Lorikeet	11/2/22	Nil	0	Glider nest	Small glider spp.	Functional	Fair	Nil
Summer	U	U4.7	Large Glider	11/2/22	Nil	0	Leaf nest	Small glider spp.	Functional	Fair	Nil
Summer	U	U5.7	Possum	11/2/22	Nil	0	Probable possum nest	Trichosurus spp.	Functional	Fair	Nil
Summer	U	U1.12	Scansorial Mammal	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	U	U3.8	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	U	U8.7	Parrot Lorikeet	11/2/22	Nil	0	Sugar glider nest	Sugar glider	Functional	Fair	Nil
Summer	U	U5.14	Possum	11/2/22	Lace monitor	1	Nil	Lace monitor	Functional	Fair	Nil
Summer	U	U4.5	Large Glider	11/2/22	Nil	0	Old antechinus	Antechinus spp.	Functional	Fair	Nil
Summer	U	U2.7	Microbat	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Summer	U	U1.1	Scansorial Mammal	11/2/22	Nil	0	Sug/feathertail	Sugar glider	Functional	Fair	Nil
Summer	U	U3.15	Small Glider	11/2/22	Sugar glider	1	Nil	Sugar glider	Functional	Fair	Nil
Summer	U	U4.4	Large Glider	11/2/22	Nil	0	Small glider leaf nest	Small glider spp.	Functional	Fair	Nil
Summer	U	U2.11	Microbat	11/2/22	Nil	0	Fresh antechinus spp. den	Antechinus spp.	Functional	Fair	Nil
Summer	U	U5.2	Possum	11/2/22	Short-eared brushtail possum	1	Nil	Short-eared brushtail possum	Functional	Fair	Nil
Summer	U	U3.5	Small Glider	11/2/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Summer	U	U8.3	Parrot Lorikeet	11/2/22	Nil	0	Bird nest	Bird spp.	Functional	Fair	Nil
Summer	U	U7.1	Cockatoo	11/2/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	A	A1.6	Scansorial Mammal	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	A	A5.7	Possum	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	A	A4.6	Large Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	A	A1.13	Scansorial Mammal	24/7/22	Nil	0	FtG nest	Acrobates spp.	Functional	Fair	Nil
Winter	A	A4.11	Large Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	A	A5.1	Possum	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	B	B2.9	Microbat	24/7/22	Nil	0	Some leaf material	Nil	Functional	Fair	Nil
Winter	B	B7.2	Cockatoo	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	B	B5.6	Possum	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	B	B8.6	Parrot Lorikeet	24/7/22	Nil	0	Old leaf nest	Animal spp.	Functional	Fair	Nil
Winter	B	B5.2	Possum	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	B	B1.3	Scansorial Mammal	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	B	B8.9	Parrot Lorikeet	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	B	B5.9	Possum	24/7/22	Nil	0	Btp den	Trichosurus spp.	Functional	Fair	Nil
Winter	B	B2.13	Microbat	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	C	C1.11	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	C	C5.1	Possum	24/7/22	Short-eared brushtail possum	1	Nil	Short-eared brushtail possum	Functional	Fair	Nil
Winter	C	C2.2	Microbat	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	C	C1.4	Small Glider	24/7/22	Nil	0	Chewing some emtrance	Animal spp.	Functional	Fair	Nil
Winter	C	C5.4	Possum	24/7/22	Common ringtail possum	2		Common ringtail possum	Functional	Fair	Photo taken
Winter	D	D2.4	Microbat	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Hinge faulty - no immediate need of repair
Winter	D	D1.7	Scansorial Mammal	24/7/22	Nil	0	Fresh Sugar glider nest	Sugar glider	Functional	Fair	Hinge faulty - no immediate need of repair

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	D	D3.1	Small Glider	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	D	D8.5	Parrot Lorikeet	24/7/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Nil
Winter	D	D4.5	Large Glider	24/7/22	Nil	1	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	D	D2.7	Microbat	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	D	D5.18	Possum	24/7/22	Nil	0	Australian owlet nightjar	Australian owlet nightjar	Functional	Fair	Nil
Winter	D	D1.9	Scansorial Mammal	24/7/22	Sugar glider	2	Nil	Sugar glider	Functional	Fair	Nil
Winter	D	D8.4	Parrot Lorikeet	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	D	D3.11	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	D	D6.2	Small Owl	24/7/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Winter	D	D5.3	Possum	24/7/22	Nil	0	Old leaf material	Animal spp.	Functional	Fair	Nil
Winter	D	D4.3	Large Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	D	D5.8	Possum	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	E	E5.8	Possum	24/7/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil
Winter	E	E8.6	Parrot Lorikeet	24/7/22	Sugar glider	1	Nil	Sugar glider	Functional	Fair	Nil
Winter	E	E3.8	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	E	E3.18	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	F	F8.8	Parrot Lorikeet	24/7/22	Nil	0	Nil	Nil	Reinstalled	Fair	Reinstalled box
Winter	F	F4.12	Large Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	F	F5.16	Possum	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	F	F1.9	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	F	F4.1	Large Glider	24/7/22	Lace monitor	1	Nil	Lace monitor	Functional	Fair	Nil
Winter	F	F1.2	Scansorial Mammal	24/7/22	Sugar glider	2		Sugar glider	Functional	Fair	Nil
Winter	F	F3.7	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	F	F1.5	Scansorial Mammal	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	F	F3.6	Scansorial Mammal	24/7/22	Nil	0	Fresh glider nest	Small glider spp.	Functional	Fair	Nil
Winter	F	F5.3	Large Glider	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	G	G5.15	Possum	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Beginning of ants nest
Winter	G	HMP	Possum	24/7/22	Nil	0	Nil	Nil	Requires replacement	not inspected	Box destroyed by branch
Winter	G	G3.13	Small Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Hinge snapped faulty, lid still on box
Winter	G	G7.1	Cockatoo	24/7/22	Nil	0	Old btposs nest	Trichosurus spp.	Functional	Fair	Lid broken, same lid bigger hinges, lid resting on box top
Winter	G	G4.3	Large Glider	24/7/22	Nil	0	Nil	Nil	Repaired	Fair	Lid on ground need bigger screws reuse lid
Winter	G	G3.6	Small Glider	24/7/22	Nil	0	Sugar glider nest	Sugar glider	Functional	Fair	Nil
Winter	G	G8.7	Parrot Lorikeet	24/7/22	Nil	0	Owlet nighjar	Australian owlet nightjar	Functional	Fair	Nil
Winter	G	G4.8	Large Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	G	G1.14	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	G	G5.11	Possum	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	G	G1.1	Scansorial Mammal	24/7/22	Nil	0	Acrobats spp. leaf nest	Acrobates spp.	Functional	Fair	Nil
Winter	G	G5.12	Possum	24/7/22	Nil	0	Btp den	Trichosurus spp.	Functional	Fair	Nil
Winter	G	G3.17	Small Glider	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	G	G3.1	Small Glider	24/7/22	Nil	0	Sugar glider	Sugar glider	Functional	Fair	Nil
Winter	G	G4.1	Large Glider	24/7/22	Nil	0	Nil	Nil	Functional	Fine	Nil
Winter	G	G1.6	Scansorial Mammal	24/7/22	Sugar glider	1	Nil	Sugar glider	Functional	Fair	Nil
Winter	G	G4.9	Large Glider	24/7/22	Nil	0	Nil	Nil	Requires replacement	not inspected	Wire failure box destroyed
Winter	New NBRZ	New NBRZ4.2	Large Glider	24/7/22	Nil	0	Old eurobeehive and sug nest	Nil	Functional	Fair	Box still functional
Winter	New NBRZ	New NBRZ3.13	Small Glider	24/7/22	Nil	0	Sugar Glider nesting material	Sugar glider	Repaired	Fair	New lid
Winter	New NBRZ	New NBRZ4.7	Large Glider	24/7/22	Nil	0	Glider nest with old euro beehive	Small glider spp.	Functional	Fair	Lids still on crooked-replace hinges
Winter	New NBRZ	New NBRZ3.2	Small Glider	24/7/22	Sugar glider	1	Sug glider nest	Sugar glider	Functional	Fair	Minor hinge wear
Winter	New NBRZ	New NBRZ4.1	Large Glider	24/7/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Minor hinge wear
Winter	New NBRZ	New NBRZ8.1	Parrot Lorikeet	24/7/22	Nil	0	Old leaf nest	Animal spp.	Functional	Fair	Nil
Winter	New NBRZ	New NBRZ5.5	Small Glider	24/7/22	Nil	0	Sugar glider	Sugar glider	Functional	Fair	Nil
Winter	New NBRZ	New NBRZ1.1	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	New NBRZ	New NBRZ6.1	Small Owl	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	New NBRZ	New NBRZ5.12	Possum	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Old eurobeehive replaced
Winter	New NBRZ	New NBRZ8	Parrot Lorikeet	24/7/22	Nil	0	Glider leaf nest	Small glider spp.	Repaired	Fair	Reinstall lid on ground new hinges
Winter	OC5	OC53.5	Small Glider	24/7/22	Active ants nest	1	Nil	Ants	Functional	Fair	Nil
Winter	OC5	OC52.5	Microbat	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	OC5	OC52.3	Microbat	24/7/22	Nil	1	Leaf nest	Antechinus spp.	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	OC5	OC52.1	Microbat	24/7/22	Nil	0	Glider nest	Small glider spp.	Functional	Fair	Nil
Winter	OC5	OC52.6	Microbat	24/7/22	Nil	1	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	OC5	OC51.5	Scansorial Mammal	24/7/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Nil
Winter	OC5	OC51.1	Scansorial Mammal	24/7/22	Not inspected	0	not inspected	Nil	Requires replacement	not inspected	tree cut down, need new box
Winter	S	S5.1	Possum	24/7/22	Common brushtail possum	1	Nil	Common brushtail possum	Functional	Wire broken still hanging	Grown into tree still functional
Winter	S	S4.14	Large Glider	24/7/22	Nil	0	glider leaf nest	Small glider spp.	Functional	Fair	Lid broken sitting on box not inspected
Winter	S	S3.3	Small Glider	24/7/22	Nil	0	Bird nest	Bird spp.	Repaired	Fair	Lid missing needs new lid chewed
Winter	S	S3.9	Small Glider	24/7/22	Sugar glider	4	Nil	Sugar glider	Repaired	Fair	Lid on ground need new lid
Winter	S	S3.12	Small Glider	24/7/22	Sugar glider	3	Sug nest	Sugar glider	Functional	Fair	Minor hinge wear
Winter	S	S5.13	Possum	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	S	S4.2	Large Glider	24/7/22	Short-eared brushtail possum	1	Nil	Short-eared brushtail possum	Functional	Fair	Nil
Winter	S	S3.9	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	S	S2.3	Microbat	24/7/22	nil	0	nil	Nil	Functional	Fair	Nil
Winter	S	S1.4	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	S	S8.11	Parrot Lorikeet	24/7/22	Nil	0	Sugar glider nest	Sugar glider	Functional	Fair	Nil
Winter	S	S4.6	Large Glider	24/7/22	Nil	0	Glider nest	Small glider spp.	Functional	Fair	Nil
Winter	S	S2.12	Microbat	24/7/22	nil	0	nil	Nil	Functional	Fair	Nil
Winter	S	S2.8	Microbat	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	S	S1.2	Scansorial Mammal	24/7/22	Nil	0	Sugar Glider nesting material	Sugar glider	Functional	Fair	Nil
Winter	S	S5.6	Possum	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	S	S2.5	Microbat	24/7/22	Nil	0	Antechnis den old	Antechinus spp.	Functional	Fair	Nil
Winter	S	S3.1	Small Glider	24/7/22	Sugar glider	3	Nil	Sugar glider	Functional	Fair	Nil
Winter	S	S5.17	Possum	24/7/22	Common brushtail possum	1	Nil	Common brushtail possum	Functional	Fair	Nil
Winter	S	S3.1	Small Glider	24/7/22	Nil	0	Small glider leaf nest	Small glider spp.	Functional	Fair	Nil
Winter	S	S8.1	Parrot Lorikeet	24/7/22	Nil	0	Old sug nest	Sugar glider	Functional	Fair	Nil
Winter	S	S2.1	Microbat	24/7/22	Nil	0	Antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	S	S4.1	Large Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	S	S8.3	Parrot Lorikeet	24/7/22	Nil	0	Sug nest	Sugar glider	Functional	Fair	Nil
Winter	S	S3.4	Small Glider	24/7/22	Scaly-breasted lorikeet	2	Nil	Scaly-breasted lorikeet	Functional	Fair	Photo taken
Winter	S	S4.4	Large Glider	24/7/22	Not inspected	0	Not inspected	Nil	Requires replacement	not inspected	tree cut down, need new box
Winter	S	S3.12	Possum	24/7/22	Not inspected	0	not inspected	Nil	Requires replacement	not inspected	tree cut down, need new box
Winter	S	S6.1	Small Owl	24/7/22	Not inspected	0	not inspected	Nil	Requires replacement	not inspected	tree cut down, need new box
Winter	T	T8.1	Parrot Lorikeet	24/7/22	Australian owlet nightjar	1	Sug glider nest	Australian owlet nightjar	Functional	Fair	Fled box no nest within
Winter	T	T1.3	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	T	T3.4	Small Glider	24/7/22	Nil	0	Sugar glider nest	Sugar glider	Functional	Fair	Nil
Winter	T	T5.5	Possum	24/7/22	Nil	0	Btp den	Trichosurus spp.	Functional	Fair	Nil
Winter	T	T8.4	Parrot Lorikeet	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	T	T4.9	Large Glider	24/7/22	Active European beehive	1	Nil	European bees	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	T	T3.3	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	T	T5.9	Possum	24/7/22	Nil	1	Leaf nest	Trichosurus spp.	Functional	Fair	Nil
Winter	T	T2.1	Microbat	24/7/22	Active ants nest	1	Nil	Ants	Functional	Fair	Nil
Winter	T	T4.8	Large Glider	24/7/22	Nil	0	Old European bee hive	Old european beehive	Functional	Fair	Nil
Winter	T	T3.14	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	T	T3.2	Small Glider	24/7/22	Sugar glider	1		Sugar glider	Functional	Fair	Nil
Winter	U	U3.7	Small Glider	24/7/22	Nil	0	Sugar Glider nesting material	Sugar glider	Repaired	Fair	Lid on ground needs hinge and reinstalled
Winter	U	U5.1	Possum	24/7/22	Nil	0	Btp den	Trichosurus spp.	Functional	Fair	Nil
Winter	U	U3.11	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	U	U8.2	Parrot Lorikeet	24/7/22	Nil	0	Glider nest	Small glider spp.	Functional	Fair	Nil
Winter	U	U4.7	Large Glider	24/7/22	Nil	0	Leaf nest	Small glider spp.	Functional	Fair	Nil
Winter	U	U5.7	Possum	24/7/22	Nil	0	Old leaf	Animal spp.	Functional	Fair	Nil
Winter	U	U1.12	Scansorial Mammal	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	U	U3.8	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	U	U8.7	Parrot Lorikeet	24/7/22	Lace monitor	1	Nil	Lace monitor	Functional	Fair	Nil
Winter	U	U5.14	Possum	24/7/22	Nil	0	Old leaf	Animal spp.	Functional	Fair	Nil
Winter	U	U4.5	Large Glider	24/7/22	Nil	0	Old antechinus nest	Antechinus spp.	Functional	Fair	Nil
Winter	U	U2.7	Microbat	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil
Winter	U	U1.1	Scansorial Mammal	24/7/22	Sugar glider	2		Sugar glider	Functional	Fair	Nil
Winter	U	U3.15	Small Glider	24/7/22	Nil	0	Sug glider nest	Small glider spp.	Functional	Fair	Nil
Winter	U	U4.4	Large Glider	24/7/22	Nil	0	Small glider leaf nest	Small glider spp.	Functional	Fair	Nil
Winter	U	U2.11	Microbat	24/7/22	Nil	0	FtG nest	Acrobates spp.	Functional	Fair	Nil
Winter	U	U5.2	Possum	24/7/22	Nil	1	Btp den	Trichosurus spp.	Functional	Fair	Nil

Season	Zone	Box code	Box types	Date	Fauna present	No. fauna	Fauna signs	Species	Box condition	Wire Condition	Comments
Winter	U	U3.5	Small Glider	24/7/22	Native beehive	1	Nil	Native bees	Functional	Fair	Nil
Winter	U	U8.3	Parrot Lorikeet	24/7/22	Nil	0	Antechinis nest	Antechinus spp.	Functional	Fair	Nil
Winter	U	U7.1	Cockatoo	24/7/22	Nil	0	Nil	Nil	Functional	Fair	Nil