Nest Box Audit

2024

Port of Brisbane

Report prepared by

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Cover shot - Brushtail Possum and joey in Nest Box 892

EXECUTIVE SUMMARY

The Port of Brisbane Pty Ltd has engaged in a long-term project which provides nest boxes at strategic locations across the buffer zones around the Port. These nest boxes provide additional artificial hollows to complement the naturally occurring ones in the landscape. The aim is to continue to provide artificial hollows to stabilise populations of native species and attract additional hollow-dependent fauna.

The purpose of this audit was to continue to monitor the usage of the boxes to ensure the ongoing success of the program.

After the 2023 audit, 20 new Cyplas boxes were installed, with the buffer zones then having 60 nest boxes across three sites.

At this audit, there were 59 boxes identified, with one of the old timber boxes having been lost to either disrepair or damage. There are currently 43 Cyplas and 16 Timber nest boxes. Of the Timber range, seven need to be replaced.

The habitation rate from the 59 boxes was 52%, which is a significant deterioration from the 65% in 2023. This is possibly due to the time it takes for the native fauna to re-establish themselves are nest box replacements the previous year.

At this 2024 audit, six species of native fauna were identified.

Three separate species of mammals were recorded in the boxes – gliders, possums and microbats. There were eleven documented sightings of colonies of Common Brushtail Possums, with an additional five boxes with evidence of use. There was one sighting of Gliders, although eight boxes showed signs of use. The Possums and Gliders were at the Pritchard Street and Wynnum North Road sites.

There were two boxes with Microbats at Pritchard Street, one box at Wynnum North Road with native Sugarbag Bees and another with evidence of use by a reptile.

Lucinda Drive did not record any occupancy or habitation in any of the four nest boxes.

Unlike previous years, there was no evidence of occupancy or habitation by native bird species, and this is a concerning sign for the diversity of the site.

EXECUTIVE SUMMARY, contd.

The nest boxes have been monitored for feral European Bee habitation at site visits by Hollow Log Homes, as there were five active hives previously discovered at the 2022 Audit, with no activity at the 2023 Audit. In 2024 there were three hive sites.

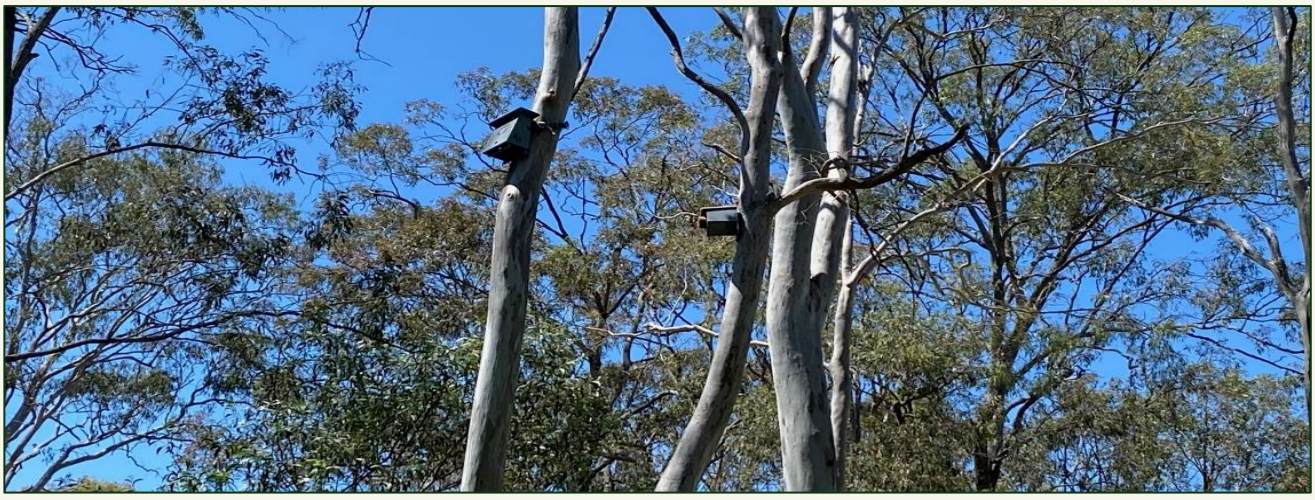
As noted at previous audits, there were boxes that needed repair and some that were beyond repair and needed to be removed and replaced with the longer-lasting Cyplas Range of nest boxes. Overall 52 of the 59 nest boxes are still in serviceable condition.

The establishment and auditing of the program, and now with updated maintenance and replacement programs, has allowed for the continuation of suitable habitat for native wildlife. The current results show that mammals and other native species are in the area and have established colonies and breeding patterns.

This important, long-term sustainability project may need further enhancements to the surrounding native vegetation to ensure its ongoing success.

This year's results are disappointing, although with a 52% overall habitation rate the site is still providing hollow dependent fauna with suitable shelter and breeding sites. There are promising signs of recovery though, with the recording of microbats, and both possum and glider joeys.

Recommendations include the ongoing yearly assessment of nest box use, with replacement of dilapidated nest boxes as soon as practicable.



Nest Boxes 2134 and 2235 in situ at Pritchard Street, POB

INTRODUCTION

This report outlines the November 2024 audit findings of the nest box inspection program at three sites - Pritchard Street (40 boxes); Wynnum North Road (15 boxes); and Lucinda Drive (4 boxes) – all within the buffer zones at the Port of Brisbane Pty Ltd (POB), Queensland.

This is a follow-up audit for fauna monitoring/box inspection, continuing the long-term monitoring that commenced in 2008 and has occurred annually since 2010. This aligns with POB's 2030 Target Goal within their Sustainability Strategy to improve the quality of designated environmental areas across Port land, supported by external assessment.

The previous 2023 Audit Report detailed the follow up work that was performed by Hollow Log Homes (HLH) to install 20 new Cyplas boxes allowing for 60 nest boxes across three sites to be used by native fauna.

At this 2024 audit, 59 boxes were located with their contents analysed for native fauna use and nesting.

Further analysis of the occupancy, evidence of use and overall habitation rates of the nest boxes is detailed in the Results section, noting there has been a decline of use by native fauna.

There is some replacement of nest boxes required, and a recommendation is that POB engages HLH to perform this work as soon as practicable.

Nest Boxes 376, 1933 and 5201 at Pritchard Street

NEST BOX AUDITING

The audit was undertaken by Hollow Log Homes personnel on 26 November 2024, with data recorded via excel spreadsheet.

The weather for the audit was fine with a maximum temperature of 27.0°C. The winds were predominantly north to north-easterly at up to 20kph with relative humidity averaging in the high 60% range.

This audit covers 59 nest boxes (of diverse types) installed across the site on existing tree species including Blue Gum, Casuarina, Moreton Bay Ash and Spotted Gum.

The audited boxes are 4-8 metres above the ground allowing for ease of monitoring and maintenance whilst situating them within an arboreal habitat.

Each nest box's information is recorded (example below) including GPS datum, box type, material, occupying species or evidence of use/nesting, pest species, and other observations.

GPS ID	Box type	Box condition	Material	Photo time (hhmm)	Occupancy 1=Yes 0=No	Species (nil if not occ)	Usage 1=Yes 0= No	Evidence of Use by	Notes	Insect/ Pest
178	Possum	Good	Cyplas	938	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
279	Microbat Single	needs new lid	Plywood	934	1	Microbat	Occ	occ	Occupied by Microbats	
376	Possum	Good	Cyplas	1004	0	nil	1	BT Possum	Possum Scat, Brushtail Possums remove nesting material.	
772	Glider RE	Good	Plywood	912	0	nil	1	Glider	Gliders bring eucalyptus leaves into hollows	european bee hive

The following process was used at the audit:

- Checking the GPS datum for nest box locations
- Checking for signs of current or past use by native wildlife (59 nest boxes)
- Check for pest species or evidence of pest species such as rats and feral bees
- Photographing and/or video recording fauna observations
- Noting any major box repairs or replacements required
- Evaluating surrounding tree growth to ensure that access points are clear
- Providing a report on the audit

NEST BOX INSPECTION PROCESS

Condition monitoring involved conducting a visual inspection of 59 nest boxes, with those remaining intact in good condition.

To minimise disturbance to fauna, nest boxes and their contents were carefully inspected using a ground-based technique using an extendable pole.

The mounted blue-tooth camera was used to remotely view the condition of the nest boxes from the ground, assess internal signs of nest box use (nesting materials, live fauna) and wirelessly control the capture of images.

During the field inspection, findings were recorded using a pro-forma field data app. The images and recordings were later processed on the ground and animals encountered within the boxes identified. Where possible, documents and data were reviewed while on-site and verified.

Further identification and statistical analyses were conducted offsite to clarify occupancy and habitation rates per species per box type.

For this report, occupancy is defined as an animal which is present inside the box at the time of audit.

Evidence of use is the presence of an animal's recent use of the box such as nesting material, feathers, oil stains, scat and eggshells. When there was evidence of two separate species using a nest box, the most recent occupant was recorded.

NEST BOX FUNCTION AND TYPES

All boxes are specifically designed to replicate the function of a nesting site usually provided by a tree hollow.

All designs are based on research that shows that the species named will use the nest box types if they are in the area. Most are suitable for multiple species and as such the name of the nest box should serve as an indication of the design rather than guaranteeing which species will use the nest box at this specific site.

Cyplas Nest Box – Possum/Galah

The **Cyplas** ® range are constructed from food grade, UV stabilised, 100% Recycled HDPE (High Density Polyethylene) and Queensland Cypress.

Research has indicated that there is no habitation difference compared with traditional plywood boxes, and that European bees cannot sustain hives in the Cyplas nest boxes. These materials are expected to have a lifespan in excess of thirty years in situ.

The **Timber** range are constructed from ethically sourced exterior grade plywood with structural grade Cypress hardwood. These materials are expected to have a lifespan in excess of ten years in situ.

The **Habisure**™ wiring system is utilised, as it adapts to tree growth up to 1 metre in diameter.

43 nest boxes are now from the Cyplas range, with 16 remaining from the Timber range.

Timber Nest Box – Rear Entry Glider

SITE DETAILS

The Port of Brisbane (POB) operates in an industrial area that is at the mouth of the Brisbane River, immediately adjacent to the Moreton Bay Marine Park and protected RAMSAR wetlands. The port has buffer zones between the industrial site and the residential areas located to its south

POB is managed and developed by the Port of Brisbane Pty Ltd under a 99-year lease from the Queensland Government and has 29 operating berths and facilitates more than 2600 ships each year.

POB have three sites with artificial hollows installed to provide safe places for local wildlife. The following sites were audited, and all have a variety of nest boxes installed to ensure maximum use by native species, see Lucinda Drive (p.21); Pritchard Street (p.22); and Wynnum North Road (p.23).

POB is a heavily developed site, where most regional ecosystem types have been removed, but with pockets of native vegetation as remnants in the buffer zones where the nest boxes are located.

SITE DETAILS, contd.

This site contains regional ecosystems:

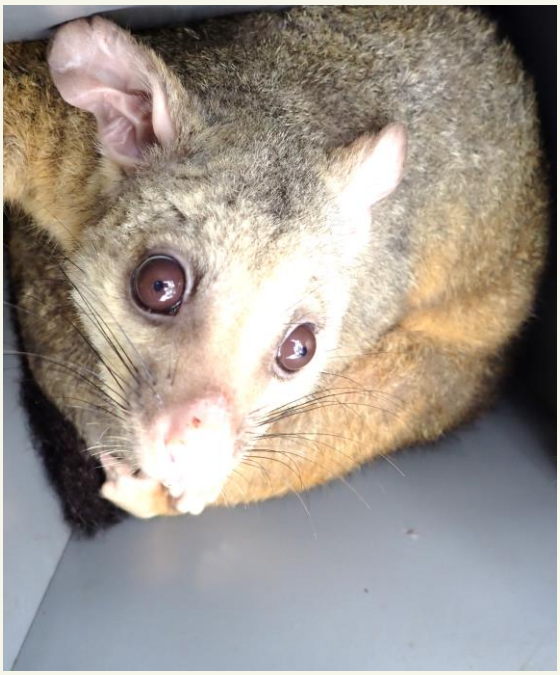
- 12.1.2 Saltpan vegetation including grassland
- 12.1.3 Mangrove shrubland to low closed forest
- 12.3.5 *Melaleuca quinquenervia* open forest to woodland with additional species including *Eucalyptus sp., Corymbia sp.,* and *Casuarina sp.*

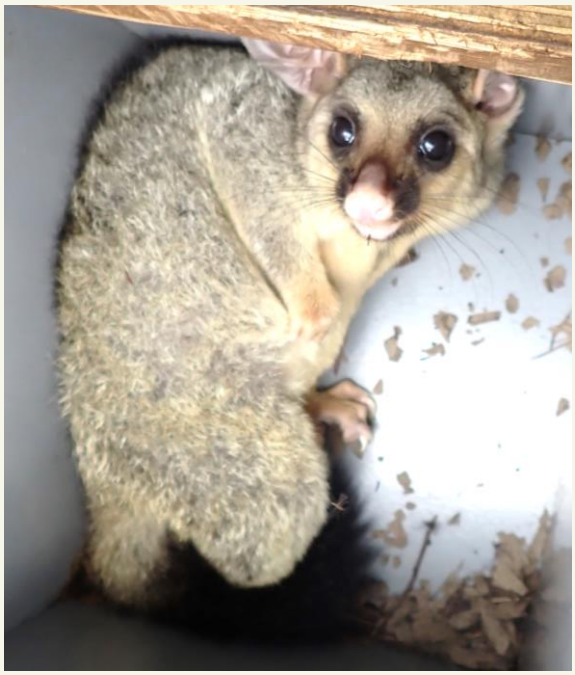
These are listed as a Biodiversity Status of 'No concern at present'

- 12.3.8 Swamps with *Cyperus spp., Schoenoplectus spp.* and *Eleocharis spp.* This RE has a Biodiversity Status "Of concern".

This is potential habitat for *Nature Conservation Act 1992 (Qld)* listed species including:

- Critically Endangered – Swift Parrot (*Lathamus discolor)*; Coxen's Fig Parrot (*Cyclopsitta diophthalma coxeni)*
- Endangered – Central Greater Glider (*Petauroides armillatus);* Koala (*Phascolarctos cinereus)*; land plant *Melaleuca irbyana*
- Vulnerable – Grey-headed Flying-fox (*Pteropus poliocephalus)* and White-throated Needletail (*Hirundapus caudacutus)*
- It is also home to many migratory bird species and plays an important role in the balance of ecosystems and habitat for these.





Brushtail Possums were found across the POB sites, with these two being in Nest Boxes 5201 and 1733 at the Pritchard Street site.

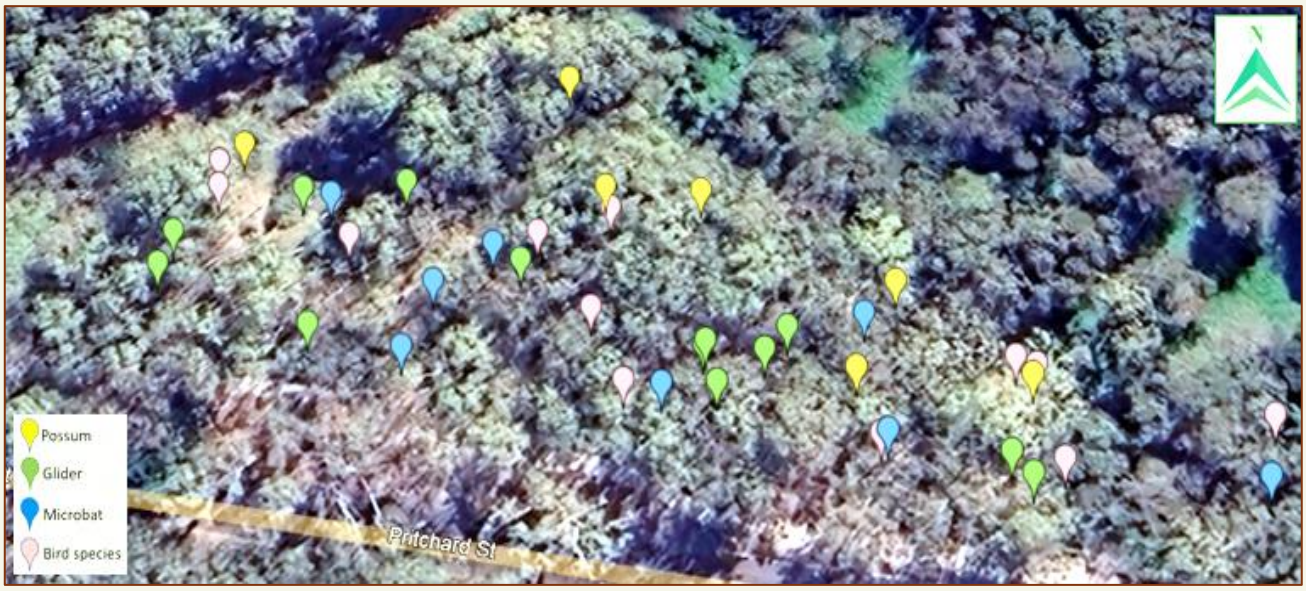
NEST BOX POSITIONING ACROSS SITE

There are now 59 nest boxes across the three POB site's environmental areas, with the coloured pins denoting the location of each type of nest box (map previously supplied in high quality for functional viewing).

Lucinda Drive - 4 Nest Boxes – Glider Rear Entry (2), Barn Owl (2)

Wynnum North Rd – 15 Nest Boxes - Boobook Owl/Wood Duck (1); Glider Front Entry (1); Glider Rear Entry (3); Kookaburra (3); Microbat (1); Owlet-nightjar (2); Possum (2); Small Parrot (2)

NEST BOX POSITIONING ACROSS SITE, contd.



Pritchard Street – 40 Nest Boxes: Boobook Owl/Wood Duck (4); Glider Front Entry (1); Glider Rear Entry (12); Kookaburra (1); Microbat (8); Owlet-nightjar (4); Pardalote (1); Small Parrot (2); Possum (7)

Pritchard Street location where Pacific Black Duck nest was found on the ground below Nest Box 1933.

RESULTS FROM 2024 AUDIT

The results of the audit across the 59 boxes showed an overall habitation rate of 52% which included Possums, Gliders, Microbats, Native Bees and Reptiles.

There were two boxes that had evidence of use by wildlife including nesting materials and animal scat, but the type of species was unable to be determined. This is recorded in the table as one 'Undetermined' species.

The results show an overall decline of 13% from the previous year where the 2023 audit revealed an overall habitation rate of 65% compared with the current rate of just 52%. The occupancy rate decreased from 30% to 25% and the Evidence of Use rate also decreased from 35% to 27%.

2024 Native Species' Occupancy and Evidence of Use

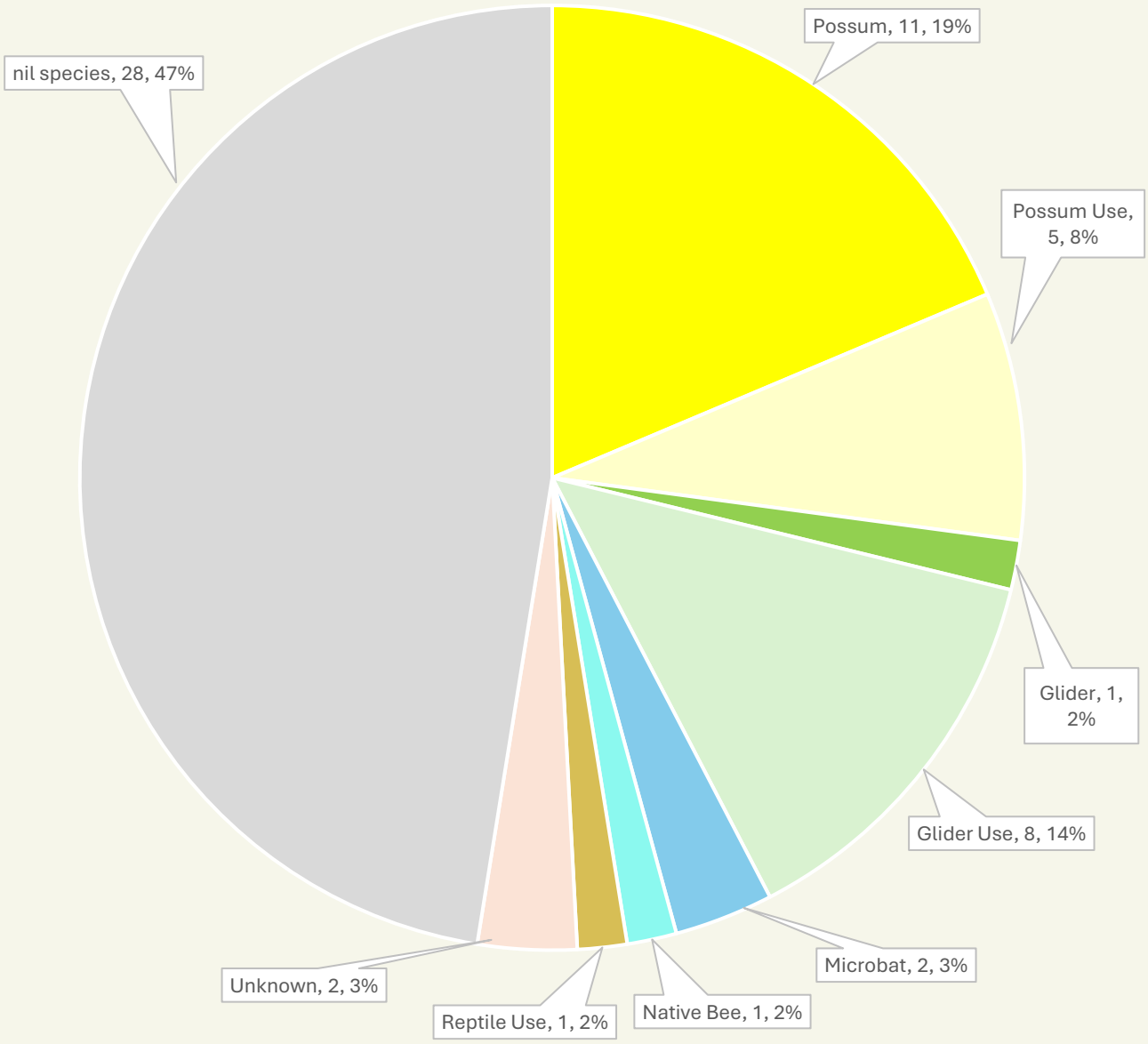
Number of boxes	Boxes in good condition	Occupancy Rate	Evidence of Use Rate	Overall Habitation Rate	Number of native species
59	52 88% **1 box was not found from previous audit**	15 25%	16 27%	31 52%	6 Mammal 3 Insect 1 Reptile 1 Undetermined 1

There were six species using 31 of the 59 boxes across the site, with sighted occupancy in 15 of the boxes at the audit. This is a decrease in species type from eight to six, which is the complete lack of any bird occupancy or sightings as compared to 2023.

For the 2024 audit, the species type, percentage of boxes attributed to each species either as occupied or evidence of use, are shown in the following chart.

RESULTS FROM 2024 AUDIT, contd.

2024 NATIVE SPECIES' OCCUPANCY AND EVIDENCE OF USE
3 sites – Lucinda Drive, Pritchard Street, Wynnum North Rd



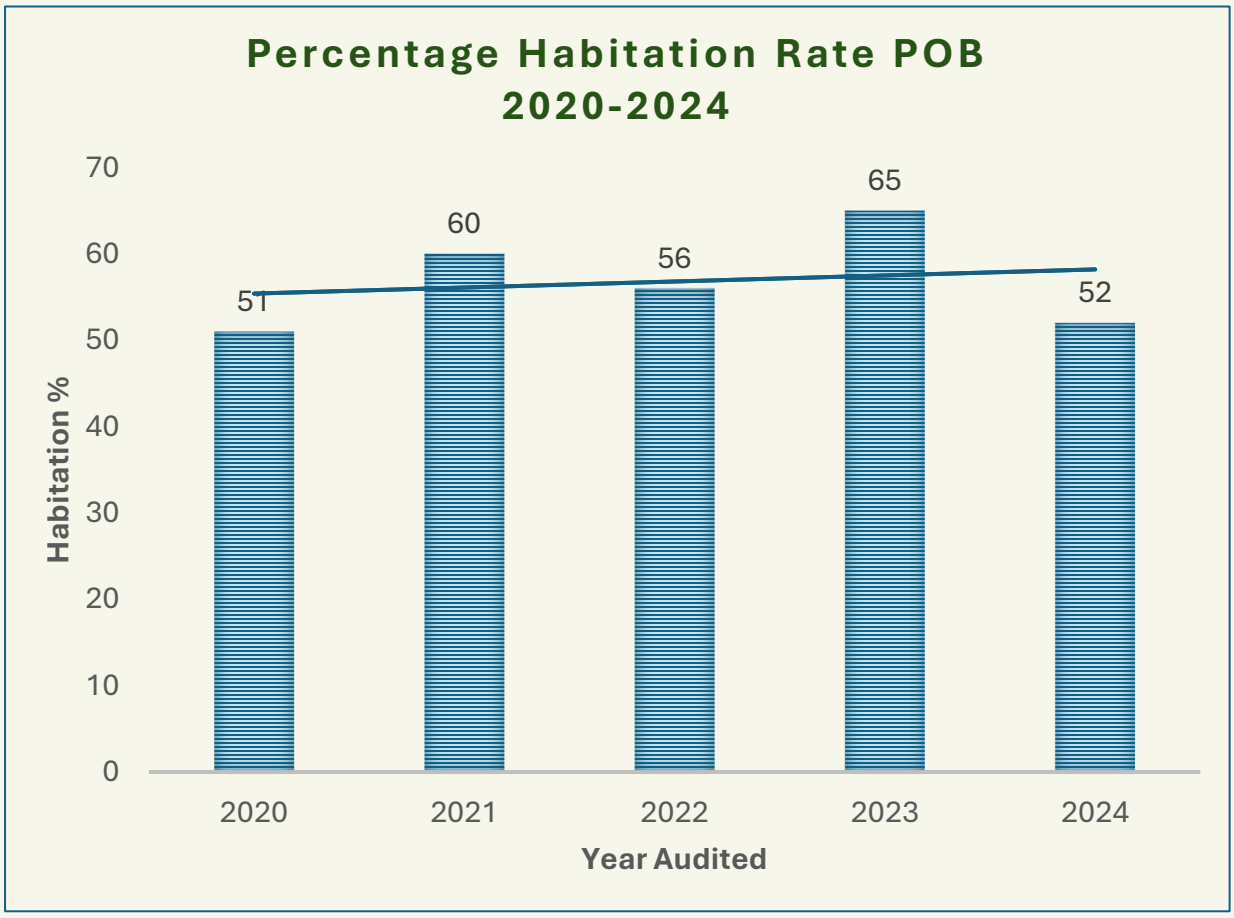
The overall habitation rate of 52% of nest boxes suggests that although the overall number of species is decreasing, the placement of boxes is still beneficial to the species utilising them. It also reassures that the nest boxes are being sought out by native fauna seeking hollows as a den resource.

These results show that the program is successful, and annual monitoring should continue.

RESULTS FROM 2024 AUDIT, contd.

The figure below highlights the trend of changes in habitation rates (expressed as a percentage) across the past five years of audits, 2020-2024.

The marked decline from 2021 to 2022 improved significantly at the 2023 audit, but has dropped even further at the 2024 audit. This could be attributed to the renewal of nest boxes, with fauna taking a while to re-establish.



During this inspection, 15 of the 59 boxes were found to contain a native species and a further 16 had evidence of use, providing an overall habitation rate of 31.

Of these, one box had evidence of two distinct species with Gliders sharing usage with Microbats (box 992).

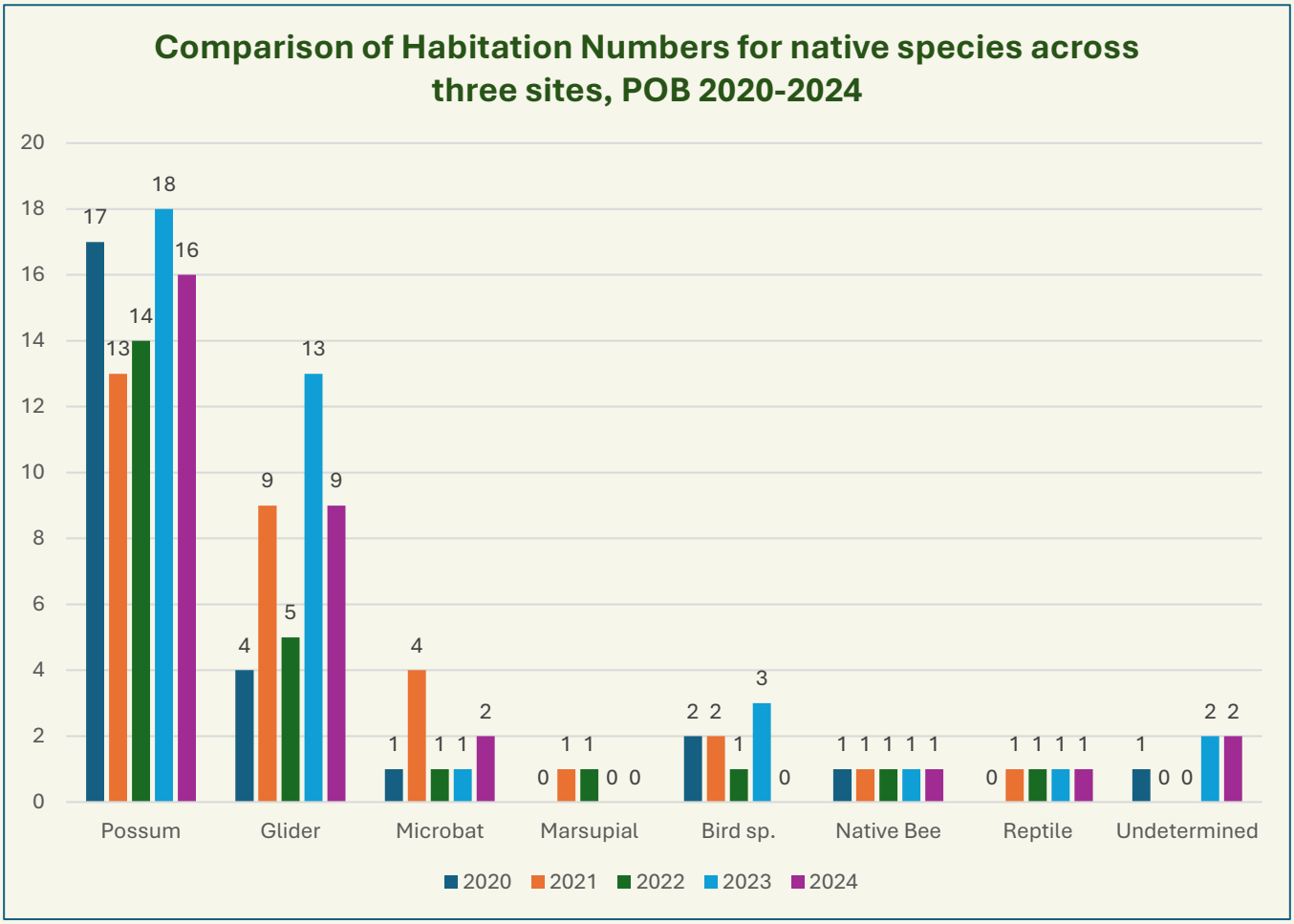
One box had the remains of a possum (box 1191).

NEST BOX CONTENTS AT 2024 AUDIT

Occupancy, Evidence of Use, Habitation by Species - 2024

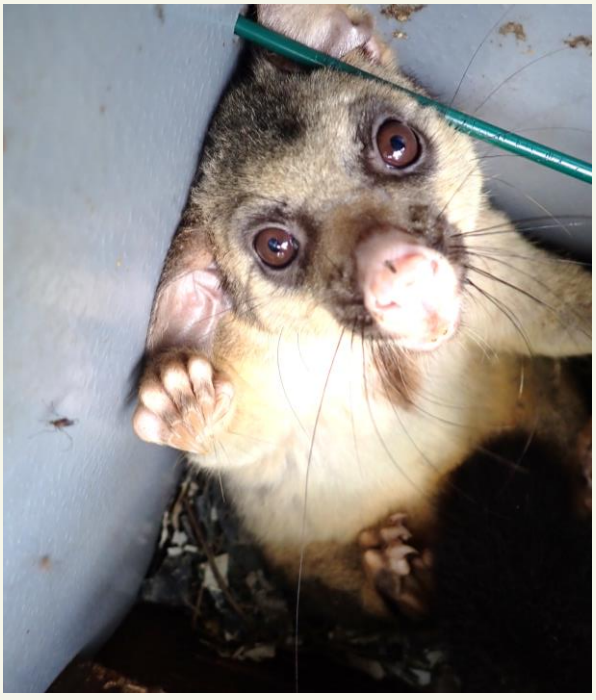
Species Present	Occupancy	Evidence of Use	Overall Habitation	Habitation Rate 2024	Increase/ Decrease from 2023
Possum	11	5	16	27.1%	-2.9%
Glider	1	8	9	15.3%	-4.7%
Microbat	2	0	2	3.4%	+1.4%
Native Bee	1	0	1	1.7%	similar
Bird species	0	0	0	0%	-5.0%
Reptile	0	1	1	1.7%	similar
Undetermined	0	2	2	3.4%	similar
Nil species				47.4%	
TOTAL	**15**	**16**	**31**		

A comparison of native species' habitation at five audits between 2020-2024 is useful as there is a similar number and types of nest boxes installed across the three sites. The bar graph below shows the habitation numbers in the nest boxes, a combination of confirmed occupancy and evidence of use by native species.



NEST BOX CONTENTS AT 2024 AUDIT, contd.

Possums have the greatest representation with sighted occupancy in 11 boxes and evidence of use in another 5. This result is almost 3% down on the 2023 audit. The overall habitation of 16 accounts for 27% of nest boxes being utilised. It was pleasing to see the joeys in residence with their families in some boxes.




Brushtail Possums and joeys in Nest Boxes 178, 1112, 1141, 1072

NEST BOX CONTENTS AT 2024 AUDIT, contd.

Gliders were identified in 9 boxes, represented by sighted occupancy in 1 box and evidence of use in another 8.

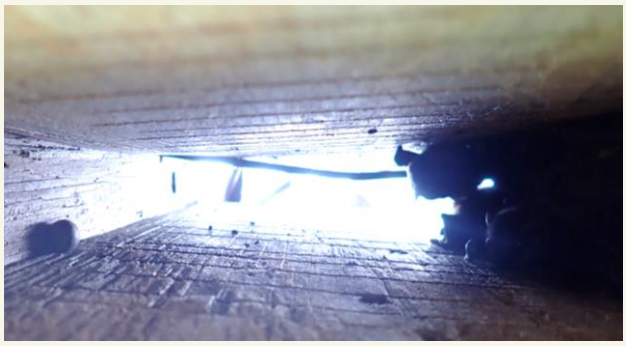
This gives Gliders the second highest representation across the site at 15%.

This is a decrease of almost 5% on the 2023 audit.

Colony of Gliders in Nest Box 5301 and evidence of glider nests were found in 8 boxes, with the drey being formed in Nest Box 882 with eucalyptus leaves.

NEST BOX CONTENTS AT 2024 AUDIT, contd.

Microbats were identified in 2 nest boxes. This is one more than at the 2023 audit, and continued monitoring at future audits is needed as Microbat populations are highly mobile and require a large number of nesting sites within their radius of habitation.



Microbats were present in Nest Boxes 279 and 992, both at Pritchard Street site

The presence of Carpet Python droppings in Box 3030 is not unexpected as they are arboreal and have been documented using nest boxes at POB sites previously.

Native Bees were occupying box 1211, and could be seen through the opening of an Owlet-nightjar box. This hive was active in 2023 and remains active at this audit.

Native Sugar Bag Bees in Nest Box 1211, Evidence of Use by Carpet Python in Box 3030, both at Wynnum North Road

NEST BOX CONTENTS AT 2024 AUDIT, contd.

Two nest boxes had evidence of native fauna use, with one box having the entrance chewed as if to widen it and the other with leaves, twigs and droppings. As the evidence did not positively identify a particular species, these have been recorded as “Undetermined”.

Undetermined use in Nest Boxes 2532 at Pritchard St and 3130 at Wynnum North Rd

This nest was found at the base of a tree, and was identified as Pacific Black Duck eggs from the egg type, nest and feathers. Audits at other sites have found these nests inside HLH nest boxes, and it was good to see such a healthy looking clutch of eggs.

Pacific Black Duck nest of eggs at the base of tree containing box 1933 at Pritchard St site.

NEST BOX CONTENTS AT 2024 AUDIT, contd.

❖ Lucinda Drive site

Lucinda Drive has four nest boxes installed in the buffer zone, comprised of: 2 Barn Owl and 2 Glider Rear Entry. All of the nest boxes inspected were found to be in good overall condition.

There was no recorded occupancy or habitation in any of the four boxes. The table below shows the decrease from 2023 to be 50%.

Occupancy, Evidence of Use, Overall Habitation by species – 2024 Lucinda Drive

Species Present	Occupancy	Nest Box GPS ID	Evidence of Use	Nest Box GPS ID	Overall Habitation	Habitation Rate	Increase/ Decrease from 2023 Audit
Carpet Python	0	--	0	--	0	0	-25%
Unknown	0	--	0	--	0	0	-25%
Nil species						100%	+50%
TOTAL	**0**		**0**		**0**	**4 boxes**	

Cluster of nest boxes at POB site. Nest box in the middle of photo is a Possum box, with a Small Parrot to the right and a Wood Duck above that.

NEST BOX CONTENTS AT 2024 AUDIT, contd.

❖ Pritchard Street site

Pritchard Street has 40 nest boxes installed in the buffer zone, comprised of: 4 Boobook Owl/Wood Duck; 1 Glider Front Entry; 12 Glider Rear Entry; 1 Kookaburra; 8 Microbat; 4 Owlet-nightjar; 1 Pardalote; 2 Small Parrot; and 7 Possum.

The occupancy and habitation rates can be seen in the table below. Habitation rates have decreased across all native species except Microbats, with an overall decrease of 13.5%.

Occupancy, Evidence of Use, Overall Habitation by species – 2024 Pritchard Street

Species Present	Occupancy	Nest Box GPS ID	Evidence of Use	Nest Box GPS ID	Overall Habitation	Habitation Rate	Increase/ Decrease from 2023 Audit
Possum	7	178, 802, 892, 1002, 1072, 1733, 5201	3	376, 1137, 1833	10	25%	-7%
Glider	1	5301	7	135, 143, 772, 822, 882, 942, 5231	8	20%	-2%
Microbat	2	279, 992	0	--	2	5%	+2.5%
Bird sp.	0	--	0	--	0	0	-7%
Unknown	0	--	1	2532	1	2.5%	same
Nil species						47.5%	+13.5%
TOTAL	**10**		**11**		**21**	**40 boxes**	

Whilst not recorded in the figures above, one nest box at this site had evidence of use by two species, Microbats and Glider, and was documented as Microbat.

NEST BOX CONTENTS AT 2024 AUDIT, contd.

❖ Wynnum North Road site

Wynnum North Road has 15 nest boxes installed in the buffer zone, comprised of: 1 Boobook Owl/Wood Duck; 1 Glider Front Entry; 3 Glider Rear Entry; 3 Kookaburra; 1 Microbat; 2 Owlet-nightjar; 2 Possum and 2 Small Parrot.

The occupancy and habitation rates can be seen in the table below. Habitation rates have decreased across all native species except Microbats, with the habitation rate being the same as 2023.

Occupancy, Evidence of Use, Overall Habitation by species – 2024 Wynnum North Rd

Species Present	Occupancy	Nest Box GPS ID	Evidence of Use	Nest Box GPS ID	Overall Habitation	Habitation Rate	Increase/ Decrease from 2023 Audit
Possum	4	1112, 1141, 1191, 2731	2	575, 1132	6	40%	+7%
Glider	0	--	1	1171	1	7%	-20%
Native Bee	1	1211	0	--	1	7%	same
Carpet Python	0	--	1	3030	1	7%	+7%
Unknown	0	--	1	3130	1	7%	+7%
Nil species						33%	same
TOTAL	**5**		**5**		**10**	**15 boxes**	

It is interesting to note that the Possums and Glider returned to the same nest boxes that they had used in 2023.

PEST STATUS

There was the feral pest species European Bee identified in three nest boxes at this audit (772, 972, 1335), all at the Pritchard Street site. Two were inactive and one was recently active. At this stage there is no requirement to move the bees, but it should be monitored at next audit.

Box 1355 with a recently active European Bee Hive remnant

Several nest boxes showed signs of ants, other insects and spider use, but this is usual and not considered to be detrimental to the native species occupying the nest boxes. The ants are likely the arboreal Dome-backed Spiny Ant, that makes nests by webbing leaves together with the silk produced by its larvae. These ants were identified at the 2023 audit, and their presence continues, but it should not detrimentally impact on native animal use.

Examples of insects include Ants (1231; Wasps (822)

IDENTIFIED SPECIES

The table below lists the identification notes and habits of the native species identified at this audit. The most common mammal species noted in this area have been included - being Common Brushtail Possum, Squirrel Glider and Gould's Wattled Bat.

Species	Scientific Name	NCA Status*	Habits
Possum	Common Brushtail *Trichosurus vulpecula*	C	Common. Nocturnal. Uses a large range/size of nest boxes for shelter/breeding up to 30 boxes per family. Possums remove the wood-chip mulch and leave a wide pair of scratch marks throughout the box and an oily resin throughout the inner walls when inhabited long enough (>6 months).
Glider	Squirrel Glider *Petaurus norfolcensis*	C	Common. Nocturnal. Each colony uses up to 5 nesting hollows. Colonies are loosely family based with up to 12 gliders in each colony, 3-5 individuals using one hollow. Boxes are lined with eucalyptus leaves forming an open nest in warm seasons and a closed nest in cold seasons. The entrance hole will be scuffed exclusively on one side because of their entry and exit. A landing pad adjacent to the nest hole is often apparent (scuff marks).
Microbat	Gould's Wattled Bat *Chalinolobus gouldii*	C	Common in southern-eastern Australia. Roosting by day, first of the nocturnal animals to alight before dusk, returning at dawn. Living in colonies of up to 30 individuals, they may use hollows/nest boxes to rest/digest food. The largest bat in the Chalinolobus genus and most common species to use nest boxes.
Insects	Native Bee – Sugarbag Bee *Trigona carbonaria*	--	Common throughout SEQ. Stingless native bee inhabits nest boxes, covering entrance hole with wax. Builds nests of wax and resin with a horizontal spiralled brood comb. 3-5mm in length, black with white hairs.
Reptiles	Carpet Python *Morelia spilota*	C	Semi-arboreal tree snakes, largely nocturnal but can be active at daytime. Shelter in hollow tree limbs, abandoned burrows. Lays up to 47 eggs.

*NCA Status C = Least Concern

NEST BOX COMPILATION AT 2024 AUDIT

The choice of nest box type which would be most suitable to attract native species is predicated on the type of species that would usually be in a location and the ability of animals to find suitable habitat and reliable food sources. At each audit it is important to check on which type of boxes are being used by native animals and whether any adjustments to positioning may need to occur.

The table below shows the number and type of each nest box audited in November 2024. A detailed spreadsheet containing information regarding location of each nest box, the occupancy or evidence of use and further field observations are incorporated at the end of this Report.

Compilation of installed nest box types – November 2024

	Pritchard Street		Wynnum North Road		Lucinda Drive	
BOX TYPE	**No.**	**BOX NUMBERS**	**No.**	**BOX NUMBERS**	**No.**	**BOX NUMBERS**
Barn Owl	0	-	0	-	2	732, 752
Boobook Owl/WD	4	892, 1137, 1833, 5201	1	1141	0	-
Glider Front Entry	1	2033	1	3030	0	-
Glider Rear Entry	12	143, 772, 782, 812, 822, 882, 972, 992, 1052, 2334, 5231, 5301	3	1171, 1221, 2830	2	742, 762
Kookaburra	1	1072	3	575, 1112, 1132	0	-
Microbat Single	1	279	1	1092	0	-
Microbat Double	3	1037, 2134, 2432	0	-	0	-
Microbat Triple	4	1012, 5191, 5271, 5291	0	-	0	-
Owlet-nightjar	4	135, 792, 1238, 2632	2	1211, 1231	0	-
Pardalote	1	2235	0	-	0	-
Possum	7	178, 376, 802, 922, 942, 1002, 1733	2	1191, 2731	0	-
Small Parrot	2	1933, 2532	2	1102, 3130	0	-
TOTALS	**40**		**15**		**4**	
TOTAL NUMBER	**59 Nest Boxes across 3 sites**					

NEST BOX COMPILATION AT 2024 AUDIT, contd.

A year-by-year comparison of the types of nest boxes that were installed at the five audits between 2020-2024 shows the way in which next box numbers and configurations have changed.

At the 2024 audit, there is one less nest box than counted in 2023 due to its dilapidation. When a comparison is made to the earlier years, there are now more boxes and a diverse type of boxes.

Whilst this hasn't resulted in improved results at the 2024 audit, this is most likely due to environmental issues at the site including weed species which inhibits native food sources and other environmental factors.

Compilation of installed nest box types – 2020-2024

	2020 AUDIT			2021 AUDIT			2022 AUDIT			2023 AUDIT			2024 AUDIT		
BOX TYPE	Pri	Wyn	Luc	Pri	Wyn	Luc	Pri	Wyn	Luc	Pri	Wyn	Luc	Pri	Wyn	Luc
Barn Owl	0	0	2	0	0	2	0	0	2	0	0	2	0	0	2
Boobook Owl/WD	4	2	0	5	1	0	5	1	0	4	1	0	4	1	0
Galah	1	0	0	1	0	0	1	0	0	-	-	-	-	-	-
Glider Front Entry	-	-	-	-	-	-	-	-	-	1	1	0	1	1	0
Glider Rear Entry	8	3	2	12	4	2	12	2	2	12	3	2	12	3	2
Kookaburra	1	1	0	0	2	0	0	2	0	1	3	0	1	3	0
Microbat	4	3	0	7	3	0	4	2	0	8	1	0	8	1	0
Owlet-nightjar	2	2	0	2	2	0	2	2	0	5	2	0	4	2	0
Pardalote	-	-	-	-	-	-	-	-	-	1	0	0	1	0	0
Possum	5	2	0	4	2	0	3	1	0	7	2	0	7	2	0
Small Parrot	3	2	0	2	1	0	1	1	0	2	2	0	2	2	0
TOTALS	**28**	**15**	**4**	**33**	**15**	**4**	**28**	**11**	**4**	**41**	**15**	**4**	**40**	**15**	**4**
TOTAL NUMBER	**47**			**52**			**43**			**60**			**59**		

OCCUPANCY/EVIDENCE OF USE BY BOX TYPE

A further comparison of the native species' habitation of particular nest box types between 2023 and 2024 is useful as there is a similar number and types of nest boxes installed across the 3 sites.

The table below shows the habitation numbers in the nest boxes, a combination of confirmed occupancy and evidence of use by native species.

As noted previously, there has been an overall decrease in the habitation numbers of native fauna from 2023, which has resulted in a significant decrease in the usage of both Glider and Possum nest boxes.

Occupancy, Evidence of Use, Overall Habitation by Nest Box type - 2024

Box Type	No. of Boxes	Occupied	Evidence of Use	Overall Habitation	Habitation Rate % 2024	Increase/ Decrease from 2023
Barn Owl	2	0	0	0	0	same
Boobook/WD	5	3	2	5	100%	same
Glider FE&RE	19	2	7	9	47%	-32%
Kookaburra	4	2	2	4	100%	same
Microbat	9	1	0	1	11%	same
Owlet-nightjar	6	1	1	2	29%	same
Pardalote	1	0	0	0	0	same
Possum	9	6	2	8	89%	-11%
Small Parrot	4	0	2	2	50%	same
TOTALS	**59**	**15**	**16**	**31**		

The most successful nest boxes with one hundred percent habitation rate were the Boobook/Wood Duck and Kookaburra. This is the same result as the 2023 audit. These two types of boxes make up one sixth of the nest boxes, so that is an excellent result.

The majority of Possum boxes were very successful with all but one being utilised, bringing the habitation rate to 89%. At the 2023 audit, all nine boxes were being used, so this is a similar result.

OCCUPANCY/EVIDENCE OF USE BY BOX TYPE, contd.

The four Small Parrot boxes had a 50% habitation rate which is the same as at the 2023 audit.

Other boxes that had the same habitation rate between the two audits were the Owlet-nightjar on 29%, and the Microbat types on 11%. The lack of evidence of habitation of Microbat nest boxes sometimes points to a limited number inhabiting the area, but with the increased sighted occupancy it is more likely that the open-bottom design does not allow the collection of bat faeces, so evidence of use is hard to ascertain.

This year the two Barn Owl boxes and the single Pardalote box failed to attract any usage by native species, and this is equal to the 2023 result.

The biggest decline was in the Glider boxes, with both the Front and Rear Entry types suffering a decline of 32%, and only achieved habitation in half of the 19 boxes.

The combination of the sighted occupancy and evidence of use of the 59 nest boxes at this audit shows that 52% of the nest boxes were being utilised, which is a disappointing result.

Brushtail Possums were noted mainly using the bigger boxes including Possum specific boxes, Boobook Owl/Wood Duck and Kookaburra.

The sighted occupancy and evidence of use by Gliders was predominantly in Glider Front and Rear Entry nest boxes, as expected.

The Microbats were sighted in both a Microbat specific box and a Rear Entry Glider box.

The Native Bees were still in the same Owlet-nightjar nest box and the evidence of a reptile was in a Front-Entry Glider box.

The boxes that had use by undetermined native fauna were in the smaller Small Parrot boxes.

As the boxes have now been installed for a period of two years, it should be expected to see an increasing habitation rate, and the decrease to 52% is therefore concerning.

SUMMARY

The 2024 nest box monitoring inspection and audit shows a continuing uptake by native species since the replacement of 20 nest boxes in 2023. The range of nest boxes across the three sites are offering hollow dependent fauna a suitable den resource.

This was represented by both a presence in the box and indications that boxes are being utilised, as seen by nesting leaves, feathers and other materials, presence of scratches, droppings and general interior usage.

The habitation rate of 52% at this 2024 audit represents a concerning decline of 13% since the 2023 audit. It would be expected that there will be a further growth in the number of native fauna who are accessing the installed nest boxes over coming years as the new boxes are accepted by native fauna, so this should be monitored closely.

This audit identified six species of native wildlife using 31 of the 59 nest boxes across the site, including with sighted occupancy. As this is a significant decrease from 2023, it may suggest a decline in both biodiversity and wider ecosystem health suggesting that further conservation efforts and surrounding habitat improvement initiatives may need to be evaluated and updated, particularly regarding additional plantings that would provide suitable habitat for food which supports native fauna

The overall habitation by Possums is the most prevalent, with Gliders and Microbats also being noted. With the small number of other native species, particularly the lack of bird species included in the habitation rates, it suggests that there are barriers to access such as insufficient food within the surrounding habitat. Consideration of nest box types to improve access by bird species and other arboreal mammals may lead to improvement in their usage patterns.

The ongoing conservation work that is being done on this site has important implications for the survival and promotion of native wildlife species in an area which has significant urban anthropogenic usage patterns.

Further annual review of the nest box project over coming years should also be complemented by additional conservation input by the Port of Brisbane.

RECOMMENDATIONS

1 Nest Box Monitoring/Auditing

Monitoring should occur annually, with scheduled reporting to check maximum effectiveness and uptake of boxes by hollow dependent fauna.

2 Maintenance

Potential maintenance should be identified during inspections alongside pruning of trees and weeding/grass removal at base to ensure accessibility.

The seven nest boxes that are in poor condition should be replaced as soon as practicable to allow re-settling of native fauna.

3 Additional Installations

No further installation of additional nest boxes needs to be considered at this time.

Older style timber nest box that is in poor condition.

SPREADSHEET OF COLLECTED DATA

Site	GPS ID	Box Type	Box Condition	Material	Photo Time (hhmm)	Occupancy 1=Yes 0=No	Species (nil if not occ)	Usage 1=Yes 0= No	Evidence of Use by	Notes	
Lucinda	732	Barn Owl	Good	Cyplas	1126	0	nil	0	nil	No evidence of vertebrate use	
Lucinda	742	Glider RE	Good	Cyplas	1124	0	nil	0	Nil	No evidence of vertebrate use	
Lucinda	752	Barn Owl	Good	Cyplas	1121	0	nil	0	nil	No evidence of vertebrate use	
Lucinda	762	Glider RE	Good	Cyplas	1118	0	nil	0	nil	No evidence of vertebrate use	
Pritchard	143	Glider RE	Good	Cyplas	951	0	nil	1	Glider	Gliders make a nest with eucalyptus leaves	
Pritchard	178	Possum	Good	Cyplas	938	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
Pritchard	279	Microbat Single	replace	Plywood	934	1	Microbat	Occ	occ	Occupied by Microbats	
Pritchard	376	Possum	Good	Cyplas	1004	0	nil	1	BT Possum	Possum Scat, Brushtail Possums remove nesting material.	
Pritchard	772	Glider RE	Good	Plywood	912	0	nil	1	Glider	Gliders bring eucalyptus leaves into hollows	european bee hive
Pritchard	782	Glider RE	Good	Plywood	913	0	nil	0	Nil	No evidence or recent vertebrate use, remnant wasp nest	wasp nest
Pritchard	792	Owlet-nightjar	replace	Plywood	-	0	nil	0	nil	no base, box needs to be removed, no photo	
Pritchard	802	Possum	Good	Plywood	917	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
Pritchard	812	Glider RE	Good	Plywood	-	0	euro bees	0	nil	euro bees, no photo	
Pritchard	822	Glider RE	Good	Plywood	921	0	nil	1	Glider	Gliders make a nest with eucalyptus leaves	wasp nest
Pritchard	882	Glider RE	Good	Cyplas	942	0	nil	1	Glider	Gliders make a nest with eucalyptus leaves	spider sharing
Pritchard	892	Boobook Owl/WD	Good	Cyplas	937	1	BT Possum	Occ	occ	Occupied by Brushtail Possums adult and joey	
Pritchard	922	Possum	replace	Plywood	-	0	nil	0	nil	no base remove, no photo	
Pritchard	942	Possum	Good	Plywood	1020	0	nil	1	Glider	Gliders make a nest with eucalyptus leaves	
Pritchard	972	Glider RE	replace	Plywood	949	0	nil	0	nil	Remnant bee hive, box needs replacing	european bee hive
Pritchard	992	Glider RE	Good	Plywood	952	1	Microbat	Occ	occ	Dual use - Microbat/Glider	
Pritchard	1002	Possum	Good	Cyplas	954	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
Pritchard	1012	Microbat Triple	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	
Pritchard	1037	Microbat Double	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	

SPREADSHEET OF COLLECTED DATA, contd.

Site	GPS ID	Box Type	Box Condition	Material	Photo Time (hhmm)	Occupancy 1=Yes 0=No	Species (nil if not occ)	Usage 1=Yes 0= No	Evidence of Use by	Notes	
Pritchard	1052	Glider RE	replace	Plywood	1009	0	nil	0	nil	no lid, replace	
Pritchard	1072	Kookaburra	Good	Cyplas	1012	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
Pritchard	1137	Boobook Owl/WD	Good	Cyplas	931	0	nil	1	BT Possum	Possum scat	
Pritchard	1238	Owlet-nightjar	Good	Cyplas	914	0	nil	0	nil	No evidence or recent vertebrate use, remnant wasp nest	wasp nest
Pritchard	1335	Owlet-nightjar	Good	Cyplas	940	0	nil	1	Glider	Gliders make a nest with eucalyptus leaves, Remnant European bee hive	european bee hive
Pritchard	1733	Possum	Good	Cyplas	956	1	BT Possum	Occ	occ	Occupied by brushtail Possum.Joey	
Pritchard	1833	Boobook Owl/WD	Good	Cyplas	1006	0	nil	1	BT Possum	Brushtail Possums remove nesting material	
Pritchard	1933	Small Parrot	Good	Cyplas	1007	0	nil	0	nil	No evidence of vertebrate use	ants
Pritchard	2033	Glider FE	Good	Cyplas	1009	0	nil	0	nil	No evidence of vertebrate use	ants/spiders
Pritchard	2134	Microbat Double	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	
Pritchard	2235	Pardalote	Good	Cyplas	959	0	nil	0	nil	No evidence of vertebrate use	
Pritchard	2334	Glider RE	Good	Cyplas	955	0	nil	0	nil	ants, no evidence of vertebrate use	ants
Pritchard	2432	Microbat Double	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	
Pritchard	2532	Small Parrot	Good	Cyplas	945	0	nil	1	Unknown	Hole chewed, some nesting material moved around and removed. Cobwebs made it difficult to get a good image inside.	spider web
Pritchard	2632	Owlet-nightjar	Good	Cyplas	944	0	nil	0	nil	No evidence of vertebrate use	
Pritchard	5191	Microbat Triple	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	
Pritchard	5201	Boobook Owl/WD	Good	Cyplas	1000	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
Pritchard	5231	Glider RE	Good	Cyplas	1018	0	nil	1	Glider	Gliders make a nest with eucalyptus leaves	spider
Pritchard	5271	Microbat Triple	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	
Pritchard	5291	Microbat Triple	Good	Cyplas	-	0	nil	0	nil	No evidence of vertebrate use, no photo	
Pritchard	5301	Glider RE	Good	Cyplas	925	1	Glider	Occ	occ	Occupied by squirrel glider	

SPREADSHEET OF COLLECTED DATA, contd.

Site	GPS ID	Box Type	Box Condition	Material	Photo Time (hhmm)	Occupancy 1=Yes 0=No	Species (nil if not occ)	Usage 1=Yes 0= No	Evidence of Use by	Notes	
Wynnum Nth	575	Kookaburra	Good	Cyplas	1040	0	nil	1	BT Possum	Brushtail Possums remove nesting material	
Wynnum Nth	1092	Microbat Single	replace	Plywood	1057	0	nil	0	nil	no top.	
Wynnum Nth	1102	Small Parrot	replace	Plywood	-	0	nil	0	nil	No base, Replace	
Wynnum Nth	1112	Kookaburra	Good	Cyplas	1052	1	BT Possum	Occ	occ	Occupied by Brushtail Possums adult and joey	
Wynnum Nth	1132	Kookaburra	Good	Cyplas	1054	0	nil	1	BT Possum	Brushtail Possums remove nesting material, ants	ants
Wynnum Nth	1141	Boobook Owl/WD	Good	Cyplas	1037	1	BT Possum	Occ	occ	Occupied by Brushtail Possums adult and joey	
Wynnum Nth	1171	Glider RE	Good	Cyplas	1050	0	nil	1	Glider	Gliders build a nest with eucalyptus leaves	
Wynnum Nth	1191	Possum	Good	Cyplas	1032	1	BT Possum	Occ	occ	Possum remains	
Wynnum Nth	1211	Owlet-nightjar	Good	Plywood	1045	1	Native Bee	Occ	occ	Occupied by native bees, Could not get a clear image. Used one from last year	
Wynnum Nth	1221	Glider RE	Good	Plywood	1043	0	nil	0	nil	No evidence of vertebrate use, ants	ants
Wynnum Nth	1231	Owlet-nightjar	Good	Cyplas	1042	0	nil	0	nil	No evidence of vertebrate use, ants	ants
Wynnum Nth	2731	Possum	Good	Cyplas	1031	1	BT Possum	Occ	occ	Occupied by Brushtail Possum	
Wynnum Nth	2830	Glider RE	Good	Cyplas	1033	0	nil	0	nil	No evidence of vertebrate use, ants	ants
Wynnum Nth	3030	Glider FE	Good	Cyplas	1047	0	nil	1	Carpet Python	Carpet python scat	
Wynnum Nth	3130	Small Parrot	Good	Cyplas	1036	0	nil	1	Unknown	hole chewed,	
						15		16		59 boxes	

Port of Brisbane
2024 Audit

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