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Microbat habitat Assessment for 6-8 Woodburn Street, Redfern

On the 15th July 2021 Abel Ecology visited the site of proposed works (6-8 Woodburn Street, Redfern) to conduct a microbat habitat assessment and to determine its value for native bat fauna and if a BDAR would be required.

The investigative team consisted of three Abel Ecology scientists; Mark Mackinnon (Senior Ecologist and Bushfire Scientist), Jesse Cass (Ecologist/Botanist), and Damien Cartwright (Bushfire Scientist).

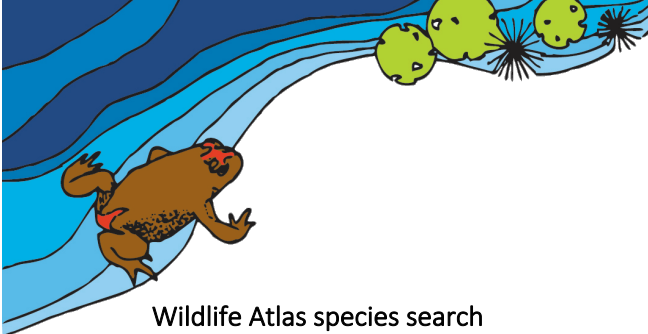
The buildings to be inspected are present on:

Lot 1 DP780307

Lot 1 DP121029

Materials and Equipment

- A Jetbeam BC40 Pro LED spotlight was used to maximise detection by eyeshine and movement of microbats both in the buildings and outside the buildings at dusk (Wotherspoon, D, (2019) Handheld spotlights for Night Field Survey. *Consulting Ecology* (43): 10-11.; Wotherspoon and Mackinnon (2020) Jetbeam BC40 Pro Handheld Spotlights for Night Field Survey. *Consulting Ecology* (45): 9-11).
- PPE (steel cap boots, high-vision vests, hardhats, gloves) were worn to prevent injuries
- Ladder (rated to 120 kg) was used to access roof tops and openings of wall cavities.
- Anabat II bat detector and the Anabat SD2 CF bat detector were used to record any ultrasonic frequencies from Microbat vocalisations.
- Apple iPads were used to record any notes and findings.



Wildlife Atlas species search

A search of the Atlas of NSW Wildlife found the following species that occur in the area within a 10 km radius.

Species	Common name	BC Act status	EPBC Act status	Nearest record
<i>Rhinolophus megaphyllus</i>	Eastern Horseshoe-bat	P		
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V		2km N
<i>Austronomus australis</i>	White-striped Freetail-bat	P		0.8 km SE
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed bat	V,P		
<i>Mormopterus</i> sp.	Mastiff-bat	P		3.2km NE
<i>Ozimops ridei</i>	Eastern Free-tailed Bat	P		1.2 km NW
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V,P	V	3.5 km E
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	P		1 km NE
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	P		
<i>Myotis macropus</i>	Southern Myotis	V,P		2.5 km N
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	P		2.1 km N
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	P		4 km NW
<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	P		5 km SE
<i>Vespadelus darlingtoni</i>	Large Forest Bat	P		4.8 km SSE
<i>Vespadelus pumilus</i>	Eastern Forest Bat	P		3.7 km E
<i>Vespadelus regulus</i>	Southern Forest Bat	P		3.6 km E
<i>Vespadelus vulturnus</i>	Little Forest Bat	P		2.4 km N, E, S, W
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		2.5 km SW

Method

The materials and methods were appropriate for the on-site buildings in their present condition, and photos taken of parts of the buildings that may have been roost sites (below).

A detailed description of areas of interest and survey method has been included below:

Once on site, the survey began by inspecting the exterior of buildings in Lot 1, DP780307, and Lot 1 DP121029. There were no obvious entry points or roosting locations observable from the roads at the exterior of the building. Staff proceeded to inspect the garage, accessible from the west side of the building. There were numerous roosting locations for bats within the garage space, including a small maintenance cupboard at the northern end of the carpark (Figure 1). However, there were two layers of mesh covering any opening into the garage, making it extremely unlikely for microbats to gain access into the garage (Figure 2). Additionally, no signs of stains, scratches, droppings, or individual microbats were found.

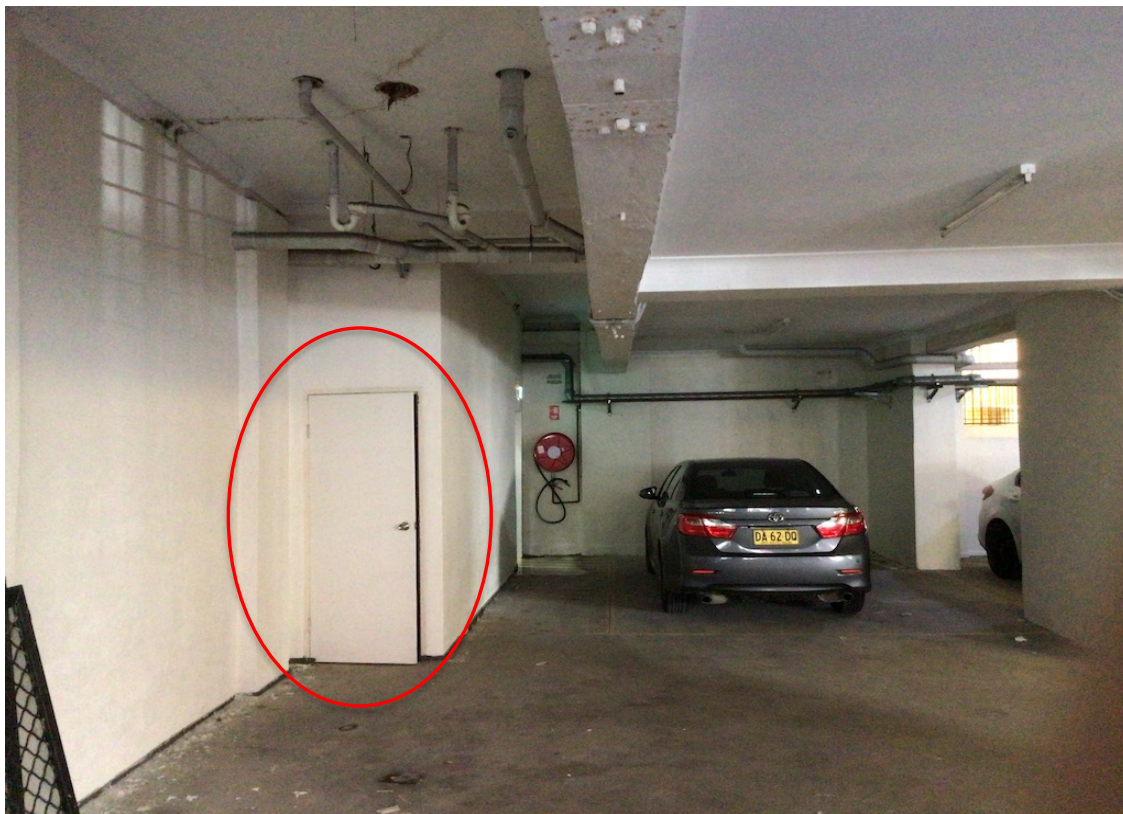


Figure 1. Garage with potential roosting location



Figure 2. Mesh covering possibly entry points into the garage

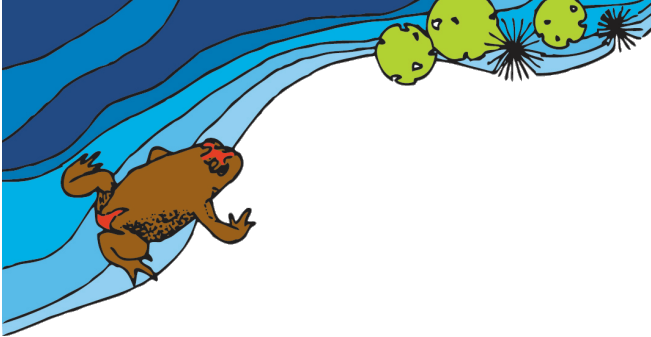


Figure 3. Roof cavities on ground floor



Figure 4. Ventilation grating on eastern wall

Staff proceeded to inspect the interior of the building, starting with the ground floor. There were several potential microbat roosting locations within a roof cavity, seen in Figure 3. Staff placed a ladder at the base of the cavities and climbed up to inspect and confirmed the suitability as a microbat roosting site. However, there were no entry points into the building for microbats to gain access to these spaces. Additionally, no signs of stains, scratches, droppings, or individual microbats were found. The first viable roosting site for microbats was found by staff at the southeast corner of the ground floor. A small dark room used to house water pipes for the building and a fire hydrant had a small vent with a gap wide enough for a microbat to potentially gain entry into the room (Figure 4). However, no signs of stains, scratches, droppings, or individual microbats were found. Abel Ecology staff then proceeded up the staircase to the first floor and began their inspections. However, no entry points or roosting locations were found on the first floor, and no signs of stains, scratches, droppings, or individual microbats were found.

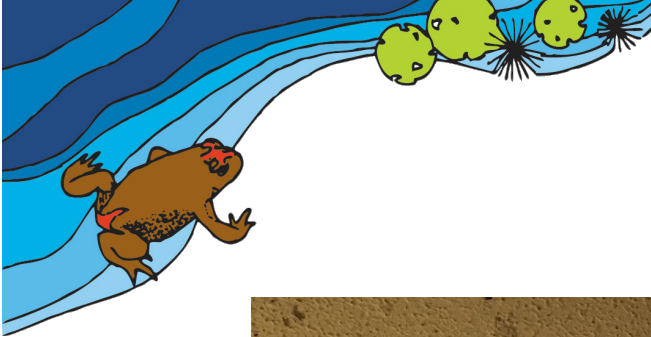


Figure 5. Wall cavity on top floor

Staff then proceeded up the staircase to the top floor and continued their inspections. A potential roosting location was found in the top floor within a wall cavity outside a residential apartment balcony (Figure 5). However, no signs of stains, scratches, droppings, or individual microbats were found at this potential roosting site. With permission from the owner, staff were allowed access into a top floor apartment to access and inspect the tower (Figure 6). However, after inspecting the tower, no potential roosting sites were identified and no signs of stains, scratches, droppings, or individual microbats were found.



Figure 6. The tower

The bat fly-out survey began at 16:50 and finished at 17:50. The ambient air temperature was 17.5°C when the survey started, and 16°C when the survey finished. In the Sydney basin, microbats are unlikely to emerge if the temperature drops below 14°C, therefore site conditions for microbat surveys were favourable. Three survey points were used for the fly-out survey:

1. The northern edge of the roof, overlooking lot 15 DP57107, lot 1 Dp724328, lot 1 Dp1093304, and the western wall of lot 3 and 4 of DP977379
2. The eastern edge of the roof, looking west (in direction of a local water source)
3. The western edge of the roof, looking east to spot any emerging microbats or bats flying over the building

Two Anabat recording systems were also deployed at two locations:

1. The northern edge of the roof, overlooking lot 15 DP57107, lot 1 Dp724328, lot 1 Dp1093304, and the western wall of lot 3 and 4 of DP977379
2. On a balcony ledge on the first floor, pointing in towards a large open section in the middle of the building, separating the two halves of the apartment building (Figure 7).



For the full one hour, staff observed the skies and any potential areas in which a microbat may emerge. Using torches, each staff member would observe the sky and building from their survey point, occasionally shining the torch to see any eye-shine or any microbats flying over or out of the buildings.

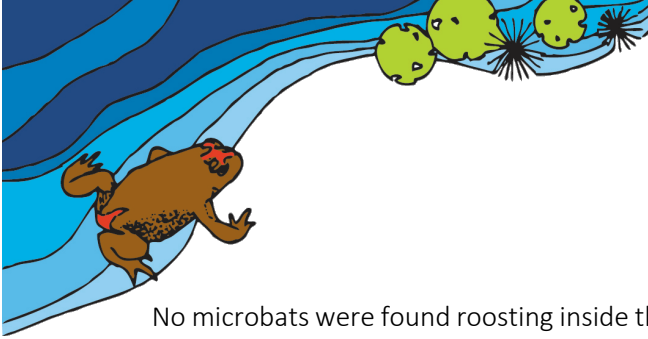


Figure 7. Open area separating the two-halves of the building



Figure 8. Lighting on the roof of the building

Observations



No microbats were found roosting inside the site buildings and no microbats were observed exiting site buildings. One microbat was observed flying over the building and heading towards the nearby pond, but this individual did not emerge from the study building. All facades of every building onsite had some form of light pollution from adjacent street lighting, neighbouring buildings, residential apartments within the building, or lighting on the building itself (Figure 8). There was little in the way of any dark elevated corners / areas where microbats could safely enter / exit the site without being spotted by potential predators. The current extent of night time light pollution on potential entry points into site buildings is not ideal for microbat occupation. No bat calls were recorded by Anabat.

Conclusion

Abel Ecology found no evidence of microbats using the site on 15th July 2021. A thorough search and observation of the onsite buildings and potential roost/den sites was conducted during favourable weather conditions when microbat activity would be expected. On that basis no Biodiversity Development Assessment Report is required.

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Dr Danny Wotherspoon

Abel Ecology