
NEWHAM ROADSIDES NOCTURNAL FAUNA SURVEYS

Prepared for Macedon Ranges Shire Council



Plate 1 Sugar Glider (*Petaurus brevipes*) (Photo by William Terry)

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1.0 INTRODUCTION

1.1 Project Context

Macedon Ranges Shire Council engaged the author to conduct nocturnal fauna surveys across ten roadsides at Newham and surrounding districts across autumn and winter, 2020. The aim of the project was to highlight the ecological significance of these roadsides and to establish baseline data for an ongoing monitoring program. The surveys were funded by a federal government grant, which also included delivery of a community workshop to discuss the findings of the surveys and the importance of roadside vegetation and habitat.

This report presents the methods and results of the surveys and discusses potential threats and management considerations for faunal habitat across high value roadsides.

1.2 Study area

The survey area included 10 x 500m transects that were established across ten separate roadsides (Table 1). The sites were selected by Macedon Ranges Shire Council, with input from Newham Landcare Group and the author. Each transect was assessed twice.

Table 1 Roadside survey sites and coordinates for start of transects

Road name	Locality	Zone	Easting	Northing
Bolgers Lane	Newham	55H	289361	5870652
Boundary Road	Pipers Creek	55H	284633	5873066
Hennerbergs Road	Cobaw	55H	291132	5870891
Jim Road	Newham	55H	285570	5868165
McKinley Track	Cobaw	55H	289185	5873669
Millers Road	Newham	55H	290437	5865229
Monument Road	Romsey	55H	294193	5864415
Oakleys Lane	Lancefield	55H	295644	5872451
Sheltons Road	Newham	55H	290965	5869100
Whitebridge Road	Cobaw	55H	292499	5870389

2.0 METHODOLOGY

2.1 Data review

Prior to undertaking the fauna surveys, a search of the Victorian Biodiversity Atlas (VBA) was undertaken to determine potential fauna species that might occur across the roadsides. The transect locations were provided by Council in shapefile format and loaded into QGIS software.

2.2 Nocturnal spotlighting

Each of the ten 500m transects were assessed on two occasions between March and June, 2020. The total number of spotlight hours for the project was 16.91, averaging around 50 minutes per transect. Effort was also taken to only conduct spotlighting during suitable weather conditions, avoiding nights with high winds, heavy rain or a full moon.

The observers slowly walked along the 500m transect, shining a spotlight from ground level to the top of canopy. Torches used were generally at least 1000 lumens. Binoculars were used to assist with identifying species observed at distance.

All mammal and bird species observed or heard were recorded, including the number of individuals seen at one point and the tree species that they were utilising. Frog species were only recorded as incidental, so no estimates of population size were undertaken.

Once the 500m had been walked, the observers returned to the start point, noting any new additional records as incidentals.

2.3 Status of significant flora and fauna

The status of Victorian threatened or poorly known flora and fauna taxa follows the Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2013) and the Advisory List of Threatened Plants in Victoria (DEPI 2014).

3.0 RESULTS

3.1 Overview

A total of 27 fauna species, made up of 683 individuals, were recorded across all transects. The average number of animals observed per spotlighting hour was just over 40. This comprised 10 bird, 12 mammal and five frog species. For arboreal mammals, there were a total of 206 observations, or just over 12 per spotlighting hour. All data has been added to the Victorian Biodiversity Atlas. A summary of species recorded is presented in Table 2 below.

Table 2 Fauna species recorded across the 10 transects, March-July 2020

Common name	Scientific name	Count
Birds		
Australian Magpie	<i>Gymnorhina tibicen</i>	8
Australian Wood Duck	<i>Chenonetta jubata</i>	10
Dusky Moorhen	<i>Gallinula tenebrosa</i>	3
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	7
Little Corella	<i>Cacatua sanguinea</i>	132
Long-billed Corella	<i>Cacatua tenuirostris</i>	2
Masked Lapwing	<i>Vanellus miles</i>	5
Red Wattlebird	<i>Anthochaera carunculata</i>	1
Southern Boobook	<i>Ninox boobook</i>	6
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	130
Mammals		
Black Wallaby	<i>Wallabia bicolor</i>	6
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	1
Common Brushtail Possum	<i>Trichosurus vulpecula</i>	50
Common Ringtail Possum	<i>Pseudocheirus peregrinus</i>	125
Eastern Grey Kangaroo	<i>Macropus giganteus</i>	24
European Rabbit	<i>Oryctolagus cuniculus</i>	4
Feathertail Glider	<i>Acrobates pygmaeus</i>	1
Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	1
Koala	<i>Phascolarctos cinereus</i>	1
Micro-bat spp.	NA	39
Sugar Glider	<i>Petaurus breviceps</i>	28
White-striped Freetail Bat	<i>Austronomus australis</i>	5
Frogs		
Plains Froglet	<i>Crinia parinsignifera</i>	Not counted
Common Froglet	<i>Crinia signifera</i>	Not counted
Southern Brown Tree-frog	<i>Littoria ewingii</i>	Not counted

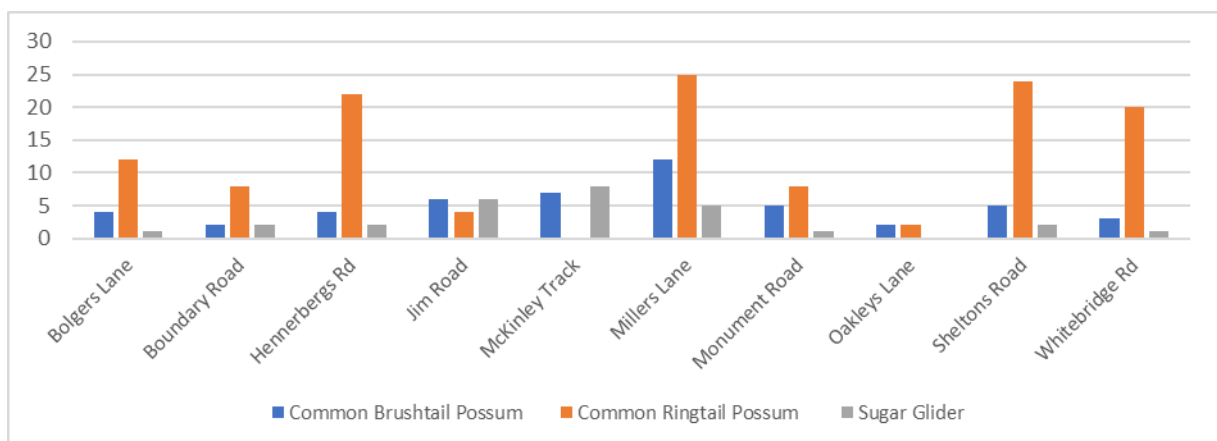
Spotted Marsh-frog	<i>Limnodynastes tasmaniensis</i>	Not counted
Whistling Tree-frog	<i>Litoria verreauxii</i>	Not counted

3.2 Variation between sites

When comparing three of the key arboreal marsupials, there was significant variation between sites:

- Common Brushtail Possum (*Trichosurus vulpecula*) – this species was recorded at all sites, with the highest numbers observed at Millers Lane (12 sightings), followed by McKinley Track (7 sightings).
- Common Ringtail Possum (*Pseudocheirus peregrinus*) - this species was recorded at all sites with the exception of McKinley Track. The highest numbers were observed at Millers Lane (25 sightings), followed by Sheltons Road (24 sightings), Hennerbergs Road (22 sightings) and Whitebridge Road (20 sightings).
- Sugar Glider (*Petaurus brevipes*) – this species was recorded at all sites with the exception of Oakleys Lane. The highest numbers were observed at McKinley Track (8 sightings), followed by Jim Road (6 sightings) and Millers Lane (5 sightings).

Table 3 Abundance of Common Ringtail Possum, Common Brushtail Possum and Sugar Glider across the study area.



3.3 Favoured tree species

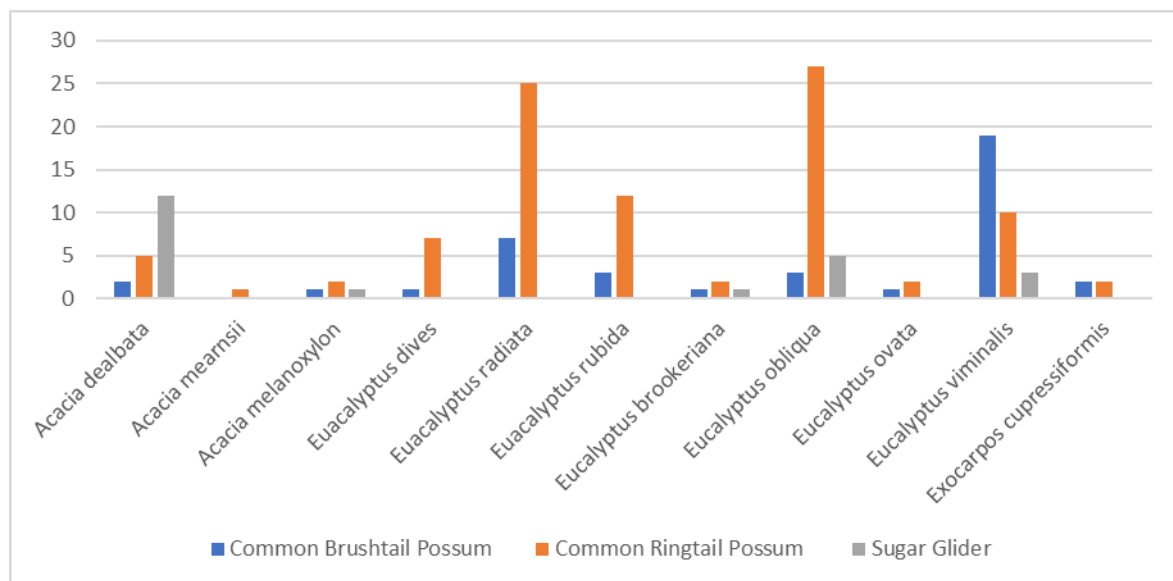
When comparing the tree species that each of the three above mammals were utilising, the following patterns were observed:

- Common Brushtail Possum (*Trichosurus vulpecula*) – was recorded on most of the dominant tree species but favoured Manna Gum (*Eucalyptus viminalis*). This is probably mostly due to

the dominance of this tree across much of the study area, but may also be due to the high occurrence of Manna Gums with hollows and that brushtails are comfortable foraging higher in the canopy (Manna Gum side branches are generally located at least 5-10m from the ground).

- Common Ringtail Possum (*Pseudocheirus peregrinus*) – was recorded on most of the dominant tree species but favoured Messmate (*Eucalyptus obliqua*), followed by Narrow-leaf Peppermint (*Eucalyptus radiata*), Candlebark (*Eucalyptus rubida*) and Manna Gum (*Eucalyptus viminalis*).
- Sugar Glider (*Petaurus brevipes*) – this species was mostly found on Silver Wattle (*Acacia dealbata*), a favoured food plant, but was also recorded on Messmate (*Eucalyptus obliqua*), Manna Gum (*Eucalyptus viminalis*), Brooker Gum (*Eucalyptus brookeriana*) and Blackwood (*Acacia melanoxylon*).

Table 4 Favoured tree species of Common Ringtail Possum, Common Brushtail Possum and Sugar Glider across the study area.



3.4 Significant species

There were several notable observations across the study area, including:

- A single sighting of a Brush-tailed Phascogale (*Phascogale tapoatafa*) in a Messmate (*Eucalyptus obliqua*) at Boundary Road. This species is listed as vulnerable in Victoria and as threatened under the Flora and Fauna Guarantee Act 1988. Based on local database and

anecdotal records, there appears to be a relatively stable population of this species in the Newham area.

- A single sighting of a Feathertail Glider (*Acrobates pygmaeus*) on a Narrow-leaf Peppermint (*Eucalyptus radiata*) at Sheltons Road. Although not listed as threatened in Victoria, there are only several previous records of this species locally, mostly from around the Cobaws.
- A single observation (heard only) of a Koala (*Phascolarctos cinereus*) at Whitebridge Road. This species has become uncommon locally.
- A previously unknown population of the rare Brooker Gum (*Eucalyptus brookeriana*) was recorded on Monument Road. This is a significant outlier from the next nearest populations closer to Trentham and is possibly the most easterly record of this species in Australia.



PPlate 2 Ringtail Possum (*Pseudocheirus peregrinus*), (Photo by William Terry)



Plate 3 Family of Laughing Kookaburra (*Dacelo novaeguineae*) (Photo by William Terry)



Plate 4 Southern Boobook (*Ninox boobook*), (Photo by William Terry)



Plate 5 Brush-tailed Phascogale (*Phascogale tapoatafa*) (Photo by William Terry)



Plate 6 Common Brushtail Possum (*Trichosurus vulpecula*) (Photo by William Terry)

4.0 DISCUSSION

The results of the spotlighting program revealed that the Newham roadsides support a relatively high diversity and abundance of fauna species. This can be illustrated when comparing with a similar spotlighting program that was recently conducted across various sites on Mount Macedon. For that study, the average number of species observed for each spotlight hour was approximately 10, whereas for the Newham study area, the average number of species observed for each spotlight hour was just over 40.

This high diversity and abundance of fauna species is impressive when considering that the roadsides often survive as linear strips of vegetation, occasionally being contiguous with larger areas of bushland. But roadsides contain several attributes that explain their importance for fauna:

- Roadsides typically have a higher density of hollow-bearing trees and ground logs, largely because they have been spared the extensive timber and firewood harvesting that many state forests have been subjected to.
- Roadsides have often been less affected by wildfire or controlled burning than larger areas of bushland. Fire can not only impact fauna directly, but can remove important habitat attributes such as hollow-bearing trees and ground logs.
- The Newham roadsides protect some of the regions more fertile ecosystems which have otherwise been cleared or degraded by agricultural practices. Fertility has implications for native ecosystems, as the more productive soils and warmer temperatures (than the higher elevation forests of Mount Macedon) can support higher nutrient loads and therefore diverse food webs.

The current study has clearly highlighted the importance of roadside vegetation for native fauna populations. At least one threatened species was recorded as well as several that are locally uncommon. The roadsides also serve as critical habitat links between larger patches of bushland. Ongoing protection and management of the roadsides will be essential in order to maintain their significant zoological values. Important actions to achieve in the coming years include:

- Ongoing monitoring of fauna species, using the transects established during this project.
- Control of high threat weed species.
- Protection of large trees, logs and understorey vegetation from roadworks and other construction.
- Installation and management of nest-boxes, targeting areas with limited hollow-bearing trees.
- Educating the local community regarding the importance of roadside habitat.

5.0 REFERENCES

DEPI (2014) *Advisory List of Threatened Plants in Victoria – 2014*. Department of Environment and Primary Industries, East Melbourne Victoria.

DSE (2013) *Advisory List of Threatened Vertebrate Fauna*. Department of Sustainability and Environment, East Melbourne Victoria.