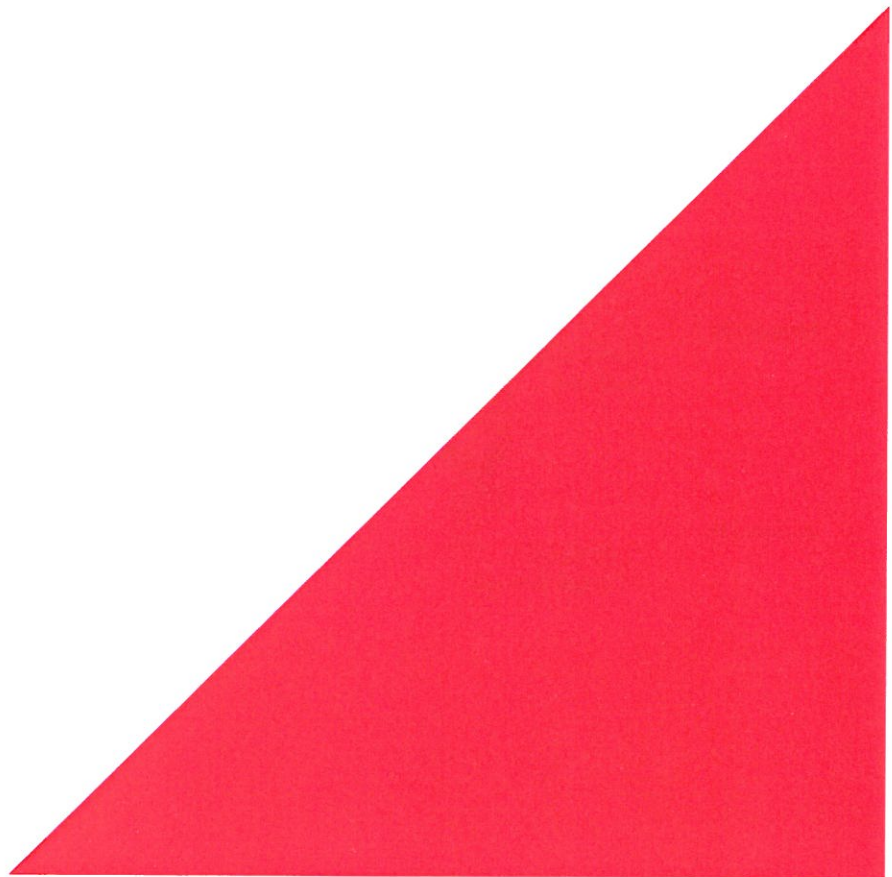




Southern Links NOR

Ecological Assessment

**Supplementary Long-tailed bat Survey
Report**





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Ecological Assessment

Supplementary Long-tailed bat Survey Report

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1 Introduction

This report provides supplementary information regarding the distribution of long-tailed bats within Southern Links Project Area to assist in responding to the section 92 request for further information dated 24th September 2013 from Hamilton City Council, Waipa District Council and Waikato District Council. Further surveys were undertaken in areas identified as likely and possible bat habitat in Figure 5 of the Ecological Assessment (Appendix L, AEE, NOR). Acoustic surveys were undertaken at the following properties:

- Letford Property (Hall Road)
- North View (Ohaupo Road)
- Sturtevant Property (Ohaupo Rd)
- Hepburn property (Ohaupo Rd)

2 Methodology

Automated bat monitors (ABMs) were deployed at each site to provide insight into timing and level of bat activity detected. ABMs were located to monitor trees, or groups of trees, considered to provide potential bat roost habitat, which exist along or near the proposed footprint. At all sites, ABMs were deployed for a minimum of five consecutive nights in fine weather, with dusk temperatures >10°C.

All aerial photographs within this report have been taken from Google Earth Pro.

3 Survey results

3.1 Letford Property (Hall Road)

This property borders a section of the Mangakotukutuku Stream gully, which at this point is dominated by willows (*Salix* spp.) and other weed species. A stand of large pines (*Pinus* sp.) exists on the eastern side of the gully, potentially offering roost habitat; also a single very large pine grows on the boundary with the Shaw property to the west. Four ABMs were deployed on February 10th for eight nights (Figure 1).

In total 36 bat passes were recorded over the eight nights (mean 1.1 passes/ABM/night). Activity tended to peak over two periods during the night (Figure 2), particularly in the 2nd and 3rd hours after sunset, suggesting intermittent feeding and commuting behaviour and possibly roosting nearby (e.g. downstream within the Mangakotukutuku Stream Gully). Altogether 27 of the 36 passes were recorded at ABMs 1 and 5, alongside the gully opposite the pine stand. Overall this represents a low level of activity, and does not currently indicate an important roost site for long-tailed bats.



Figure 1. Locations of ABMs on the Letford property, February 2014.

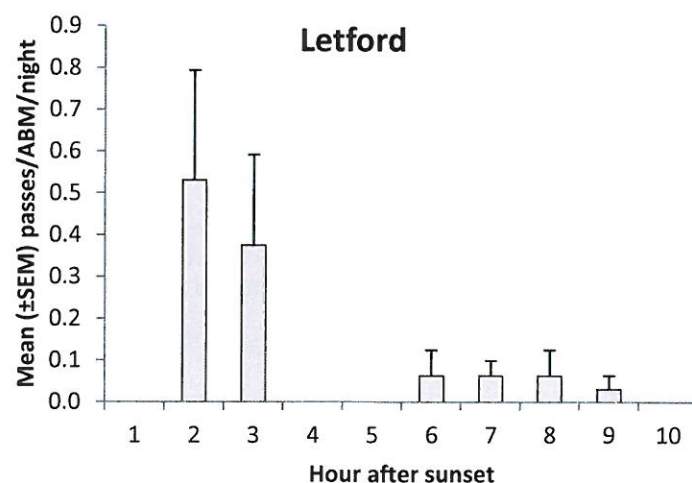


Figure 2. Summary of bat activity recorded at the Letford property, February 2014.

3.2 Northview (Ohaupo Road)

Although this property is not directly connected to the Mangakotukutuku Gully, large exotic trees (including oaks, *Quercus* sp.) line the main driveway and some may provide roost habitat. Five ABMs were deployed for 6 nights from February 12th (Figure 3).

In total, 29 bat passes were recorded at this property over six nights (mean 0.98 passes/ABM/night), a similar activity level to the Letford property. Activity was consistently

recorded through most hours of the night, however again at a very low level, suggesting intermittent use of the habitat. Altogether 27 out of 29 passes were recorded at ABMs 7 and 9. Activity was recorded within the first hour after sunset suggesting a bat or bats may have been roosting in reasonably close proximity, however this is only likely to be in very low numbers.



Figure 3. Locations of ABMs at the Northview property, February 2014.

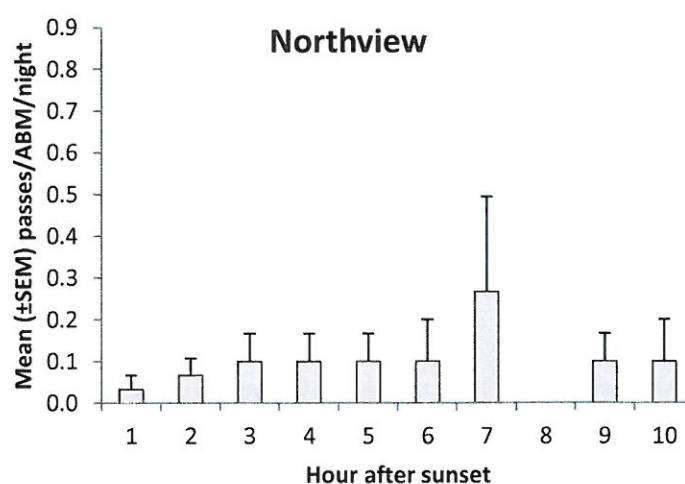


Figure 4. Summary of bat activity recorded at the Northview property, February 2014.

3.3 Sturtevant Property (Ohaupo Road)

This property includes a stand of mature oaks leading away from Ohaupo Road, with a number of poplars (*Populus* sp.) interspersed and nearby. Many appear to offer features conducive to bat roosting. Four ABMs were deployed for five nights from February 21st sited as shown in Figure 5.



Figure 5. Locations of ABMs at the Sturtevant property, February 2014.

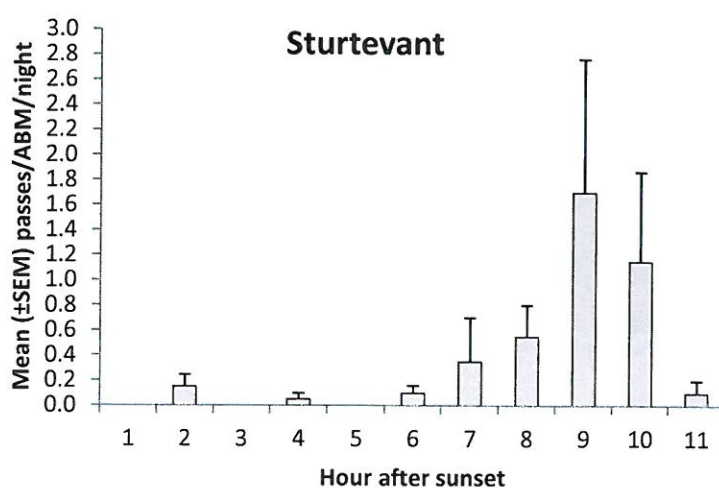


Figure 6. Summary of bat activity recorded at the Sturtevant property, February 2014.

A total of 83 passes were recorded over five nights (mean of 4.2 passes/ABM/night), with the majority recorded between the 7th–10th hours after sunset. The great majority of activity (75 out of 83 passes) was recorded on ABMs 5 and 7, within the main oak stand around the house,

consistently across the five nights. Very few passes were recorded at trees along or near the proposed footprint.

Despite the greater amount of activity later in the night at this property, the lack of early evening activity suggests bats active at the site roost elsewhere and forage here late in the night.

3.4 Hepburn Property (Ohaupo Road)

The Hepburn property sits adjacent to a finger of the Mystery Creek gully, and includes a number of mature oaks near the road, with London plane trees (*Platanus x acerifolius*), poplars and silver birch (*Betula pendula*) surrounding. Many offer potential bat roost features. Five ABMs were deployed for seven nights from February 18th 2014 (Figure 7).

Considering the abundant mature trees present, a surprisingly low level of activity was detected at the property (total 21 passes, mean 0.6/ABM/night). Activity was detected through most hours of the night including within the first two hours after sunset, but at a consistently low level. Altogether 17 out of 21 passes were detected at ABMs 8 and 10 in the main oak stand.



Figure 7. Locations of ABMs at the Hepburn property, February 2014.

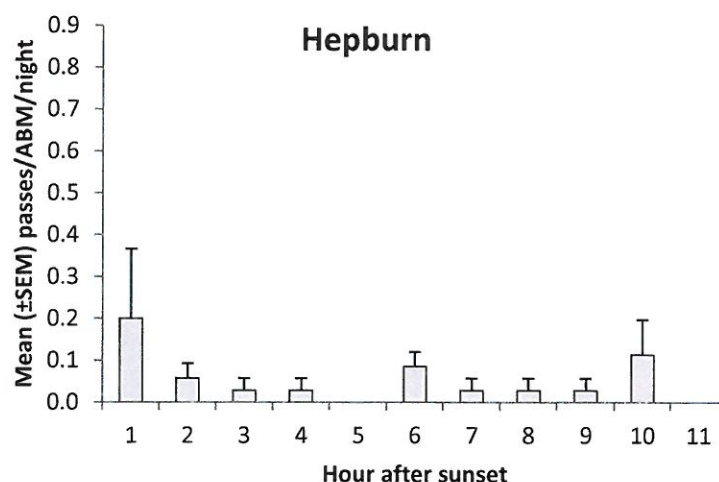


Figure 8. Summary of bat activity recorded at the Hepburn property, February 2014.

4 Discussion

A low level of activity was detected at all four properties, suggesting a small number of long-tailed bats primarily make use of habitat for feeding and commuting. Given the many mature trees on these properties, the presence of potential roost features, and the proximity to other sites of known bat habitat, the possibility that a bat or bats currently roost intermittently within the trees cannot be ruled out. As the trees on or near all four properties continue to mature over the next 15-20 years they will further develop features likely to offer roost habitat to bats, and providing the long-tailed bat population continues to persist in the Hamilton-Cambridge landscape the potential for these to be utilised for roosting will also increase.

The results of these surveys combined with the results of surveys detailed in the Ecological Assessment (Appendix L, AEE) strongly suggest that long-tailed bats utilise most, if not all, the suitable habitat within the central and eastern parts of the Project Area, although the level of usage is low in many areas. A revised distribution map to be compiled for the Project Area (Figure 9). This revised map shows confirmed and likely bat habitat and re-inforces the importance of the Waikato River corridor and gullies and well as larger stands of mature trees. While these are core areas of habitat it is likely that other habitat features such as shelterbelts and hedgerows are also used the bats.

The results of the survey also confirm, as has been found in a number of other locations to the south of Hamilton, that bats are active (albeit in low numbers in these cases) in habitat close to the existing State Highway network i.e. the Hepburn and Sturtevant Properties.

