BEFORE THE	Independent Hearing Panel appointed by the Hamilton City Council
UNDER	The Resource Management Act 1991
AND	
IN THE MATTER OF	Proposed Plan Change 9 to the Operative Hamilton City District Plan.

Summary Statement of Dr Kerry Maree Borkin (bat ecology in relation to SNAs)

Dated 19 May 2023

Department of Conservation Te Papa Atawhai
Private Bag 3072
HAMILTON 3240
Counsel acting: Michelle Hooper
Telephone: 0273246314
Email: mhooper@doc.govt.nz

A. INTRODUCTION

1. My full name is Dr Kerry Maree Borkin.
2. I prepared a statement of evidence dated 28 April 2023.
3. I do have some corrections to my statement of evidence. My corrections are set out in an Appendix to this summary statement.

B. SUMMARY STATEMENT

4. Long-tailed bats (Pekapeka, *Chalinolobus tuberculatus*) are a highly mobile species that is ranked as "Threatened- Nationally Critical" – the highest threat ranking in the Department of Conservation's threat classification system. This is due to previous and continuing habitat loss, and because each studied population where the predators of bats aren't controlled to low levels are declining. Habitat loss can occur, for example, even when trees are not removed because they are exposed to amounts of light and noise that bats cannot tolerate.
5. Pekapeka are present throughout the Waikato Region. They use parts of Hamilton when roosting, feeding, breeding, and socialising. Most often, bats are detected in the Southern part of Hamilton, and in areas that are less urbanised, quieter and darker, particularly gullies, parks, sportsgrounds, farms, lifestyle blocks and other green spaces. Whilst some pekapeka may roost within the currently urbanised areas of Hamilton, most quickly leave the areas around their roosts and fly to less developed areas to spend most of the night. In the Hamilton area, where there is higher housing density, more traffic, more roads, and more light, there are fewer bat detections. This means that in urbanised areas, with unrestricted light and noise and insufficient distance between these impacts and where the bats are flying or roosting, that bat activity has already declined.
6. These bats are highly philopatric (they are loyal to specific locations) and are particularly at risk in the Hamilton area because they regularly face the loss of roosts, where they shelter during the day and rest and socialise at night, and the loss of functional habitat. Roosts and habitat can lose their functionality due to urbanisation including traffic and increases in housing density, and when exposed to noise, light, or tree loss due to felling, removal or trimming.

7. Roosts can become unsuitable for bats to use, even when not felled or trimmed, if they are exposed to high levels of noise, light, or weather conditions because other surrounding trees have been removed or trimmed. This can mean that bats use roosts or areas less or may not be able to access areas they previously did. Lost roosts are difficult to replace because newly planted trees can take up to 80 years to form the types of cavities bats might use. Artificial roost boxes are a short-term 'fix' that require high levels of maintenance to ensure that they are safe for bats to use. Their temperatures vary widely, and we know little about how to replicate conditions bats need in a roost, or where to place them so they are attractive to and suitable for bats. When bats use roosts that have poor thermal qualities they have fewer weaned young and adult bats surviving.
8. There are currently no proposed restrictions on noise to protect the function of SNA for bats, despite the recent research which has found that there is less bat activity in the presence of noise. This known effect will, therefore, remain unmanaged. This means that there is a risk of areas within SNA losing their functionality for bats because of noise. Options recommended by other researchers as ways to mitigate noise impacts on fauna include, but are not limited to, noise barriers, substrate alterations and speed limits on roads, and restrictions on events and their locations.
9. Adding light to an area results in less bat activity in that place. In my evidence, I outline best practice principles for managing the impacts of light on bats. The proposed rules focussed on lighting do not follow all best practice principles. In my opinion, these should be followed, including:
    a. the use of 2700K rather than 3000K because of the associated reductions in the blue wavelength light that bats are sensitive to.
    b. Lower lux levels in line with international best practice and/or wider setbacks to reduce the amount of light SNA are exposed to.
    c. Reducing the length of time lights are on, including the restricting of lights on sensor timers to 1 min.
    d. Increasing distances lights are setback from areas bats use. These areas bats use – bat habitat – include roosts, both communal and solitary, and places used for breeding, foraging, and commuting.

10. When trees are felled, both colony sizes and home ranges – the areas bats use – get smaller. Rules associated with tree felling, removal and trimming, in my opinion, allow relatively large areas of trees to be removed or trimmed each year, and raise the risk of high levels of cumulative loss to SNA. In my opinion, the amount of tree felling, removal and trimming allowed in SNA should be reduced. In their current form, the proposed rules will run the risk of habitat in SNA losing its functionality for bats and being used less often by fewer bats.

11. Providing rules that focus on protecting the functionality of SNA for bats by managing the effects of noise, light, and tree loss, will protect the integrity of SNA as a whole for a range of fauna.

Appendix

Corrections to Primary Evidence

Paragraph 19.1 contains an error. It should read:

19.1 EUROBATS 8 guidelines also focus on minimising the amount of time that bats are exposed to light by recommending only using lights when they are needed.~~, and~~ Other international guidance documents for minimising the effects of lighting on bats particularly recommend that any external security lighting should be set on motion-sensors and short (1min) timers.[98] Allowing lighting to remain on for longer periods will not minimise effects of lighting on long-tailed bats as much as is possible or practical. In my opinion, if external security lighting/outdoor lighting are allowed under rules proposed in PC9, then these should be set on motion-sensors that are set to levels that means that they will only be triggered by movement by people or larger i.e., not cats, birds or similar, and will remain on for only short – 1 min – periods.

Delete footnote 98 and replace it with:

Bat Conservation Trust and the Institute of Lighting Professionals 2018.Bats and artificial lighting in the UK. Bats and the Built Environment series. Guidance Note 08/18 https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/