Fonterra Limited

Bat Survey & Effects Assessment
Te Rapa Private Plan Change Request

Bluewattle Ecology
ecological assessment + restoration

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Front photo courtesy of Department of Conservation Waikato – the moment a long-tailed bat takes flight after being captured for monitoring. Note its mouth is open for echolocation calling.

EXECUTIVE SUMMARY

RMA Ecology, on behalf of Fonterra Limited (Fonterra), engaged Bluewattle Ecology to undertake a bat survey and assessment of effects to inform and support its Private Plan Change ('PC17') request in Te Rapa.

The purpose of the PC17 is to rezone approximately 91 ha of land (the 'Plan Change Area') surrounding the Te Rapa Dairy Manufacturing Site (the 'Manufacturing Site'). PC17 does not seek to change any of the land within the Te Rapa Dairy Manufacturing Site or planning provisions relating to the Manufacturing Site. Amended provisions seek the alignment of activities across the zone, they do not seek to enable nor impede the activities of the Manufacturing Site..

The objectives of PC17 are to:

1. Rezone all Fonterra-land to Te Rapa North Industrial zone.

2. Protect the Te Rapa Dairy Manufacturing Site from incompatible surrounding land use and reverse sensitivity risk.

3. Future-proof rail access on the North Island Main Trunk Line ('NIMT').

The national bat database show detection rates of bats in the surrounding area, making the Plan Change Area a potential bat habitat.

On 17 October 2023 and 2 November 2023, visual inspections within the Plan Change Area were undertaken to analyse the potential habitat features of the trees, other vegetation and biophysical features (such as waterbodies) for long-tailed bats.

In addition, a bioacoustic survey was carried out at the Fonterra-owned land within the Plan Change Area during late spring and summer of 2023, which are the seasons when bats are typically most active. Four automated bioacoustic bat monitors ('ABMs') were strategically deployed, spanning from 17 October to 2 November 2023. All of these ABMs remained operational for a minimum of 12 valid survey nights, aligning with best practice.

No bat calls were recorded by any of the ABMs over the valid survey nights. However, bats could still utilise this area as the survey events did not cover all of the seasonally based periods where bats are potentially most active.

Nonetheless, previous surveys in the locality and the lack of high quality habitats within the Plan Change Area suggest bat utilisation is low or absent here (especially compared to southern, semi-rural Hamilton). Thus, the risk of harming bats associated with future land use changes that would be enabled by PC17 is considered to be low, given the lack of bat activity during the surveys in the Fonterra-owned land within the Plan Change Area. Even so, the high national threat status of this species and the suitability of commuting and roosting habitat (even low value) means that a buffer along the Waikato River is recommended to restrict the development of this area. In addition, it is recommended that habitat inspection and potential bat roost survey protocols are required if tree felling is sought during future development activities, residual effects management and compensation modelling is to be undertaken for each specific future development resource consent application, and artificial lighting restrictions are put in place along the edge of the buffer with the Waikato River. Details of these recommendations are set out in further detail within the body of the report.

1 INTRODUCTION

1.1 SCOPE

RMA Ecology, on behalf of Fonterra, engaged Bluewattle Ecology to undertake a bat survey and assessment on bats to inform and support PC17 for land surrounding the Te Rapa Dairy Manufacturing Site.

The purpose of PC17 is to rezone the Plan Change Area (approximately 91 ha of land surrounding the Manufacturing Site). PC17 does not seek to change any of the land within the Manufacturing Site or its related planning provisions. Amended provisions seek the alignment of activities across the zone, they do not seek to enable nor impede the activities of the Manufacturing Site..

The objectives of PC17 are to:

1. Rezone all Fonterra-land to Te Rapa North Industrial zone.
2. Protect the Te Rapa Dairy Manufacturing Site from incompatible surrounding land use and reverse sensitivity risk.
3. Future-proof rail access on the North Island Main Trunk Line ('NIMT').

The extent of the Plan Change Area is set out in Figure 1 below.

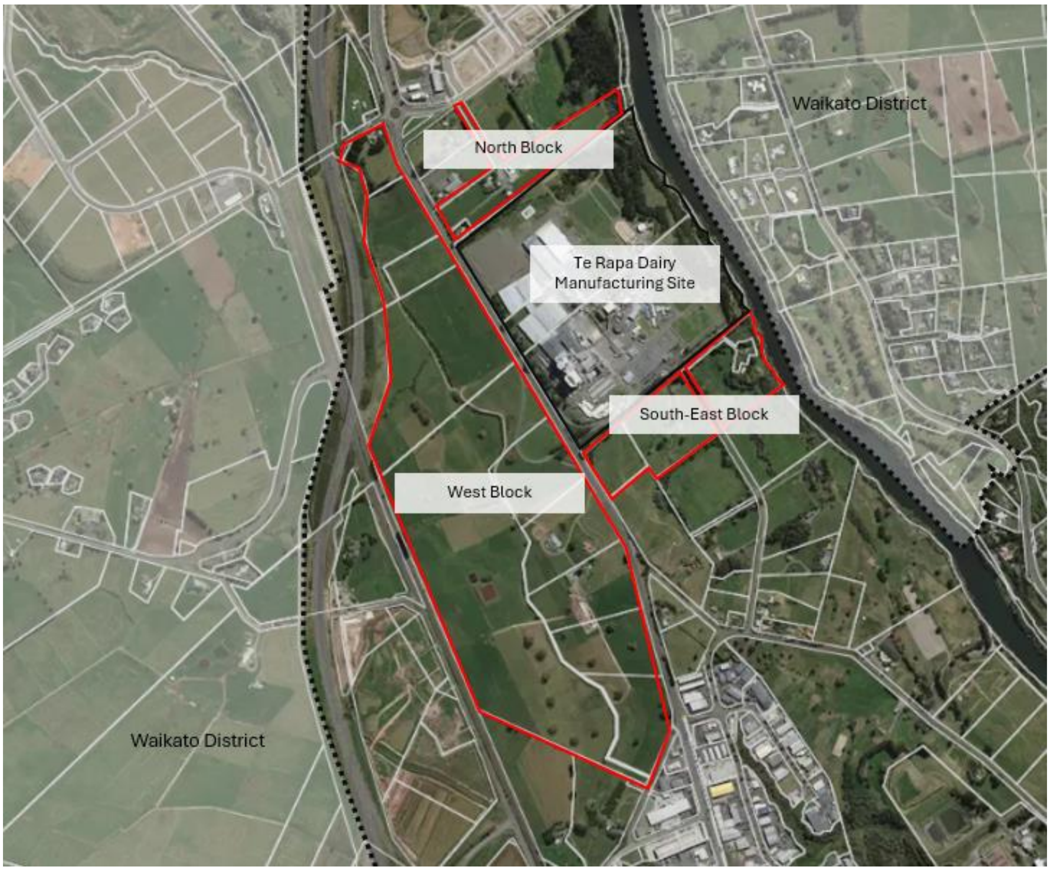

Figure 1: Plan Change Area (Red Outlines)

1.2 BACKGROUND

In accordance with O'Donnell et al.'s findings in 2022,[1] long-tailed bats (*Chalinolobus tuberculatus*) are listed as "Threatened - Nationally Critical" by the Department of Conservation (DOC)[2]. These bats have been consistently documented as using appropriate habitats along the Waikato River and the broader landscape surrounding the Plan Change Area, as supported by data from the DOC database and personal observations.

Despite being classified as Nationally Critically Endangered by DOC, the presence of long-tailed bats within highly modified landscapes (particularly in the Waikato and around Hamilton City), demonstrates they are able to adapt to major landscape change from indigenous vegetation to landscape dominated by almost 100% exotic vegetation over time. This is despite likely ongoing pressures from introduced animal competition and predation. It is plausible that they may utilise the native and exotic trees as well as the pasture habitat within the Plan Change Area for roosting and foraging purposes, in addition to relying on visual cues for commuting[3].

However, previous surveys in this locality have not detected bats (pers obs), and bat activity may be restricted because of the industrial activities adjacent to the Plan Change Area and the relatively low value habitat for bats within the Plan Change Area.

2 METHODOLOGY

2.1 LITERATURE AND DATABASE

The presence of bats in the wider landscape surrounding the Plan Change Area was determined by accessing the National Bat Database administered by DOC and the I-Naturalist NZ[4] database on 17 October 2023. In addition, the databases and reports on long-tailed bats held by Bluewattle Ecology were reviewed.

[1] O'Donnell, C. F., Borkin, K., Christie, J. E., Davidson-Watts, I., Dennis, G., Pryde, M. A., & Michel, P. 2023. *Conservation status of bats in Aotearoa New Zealand, 2022*. Department of Conservation, Te Papa Atawhai.

[2] O'Donnell, C.F.J.; Borkin, K.M.; Christie, J.; Davidson-Watts, I.; Dennis, G.; Pryde, M.; Michel, P. 2023: Conservation status of bats in Aotearoa New Zealand, 2022. New Zealand Threat Classification Series 41. Department of Conservation, Wellington. p. 18.

[3] O'Donnell, CFJ. 2000. Influence of season, habitat, temperature, and invertebrate availability on nocturnal activity of the New Zealand long- tailed bat (Chalinolobus tuberculatus). New Zealand Journal of Zoology 27: 207-221.

[4] https://www.inaturalist.org/observations (accessed 17 October 2023).

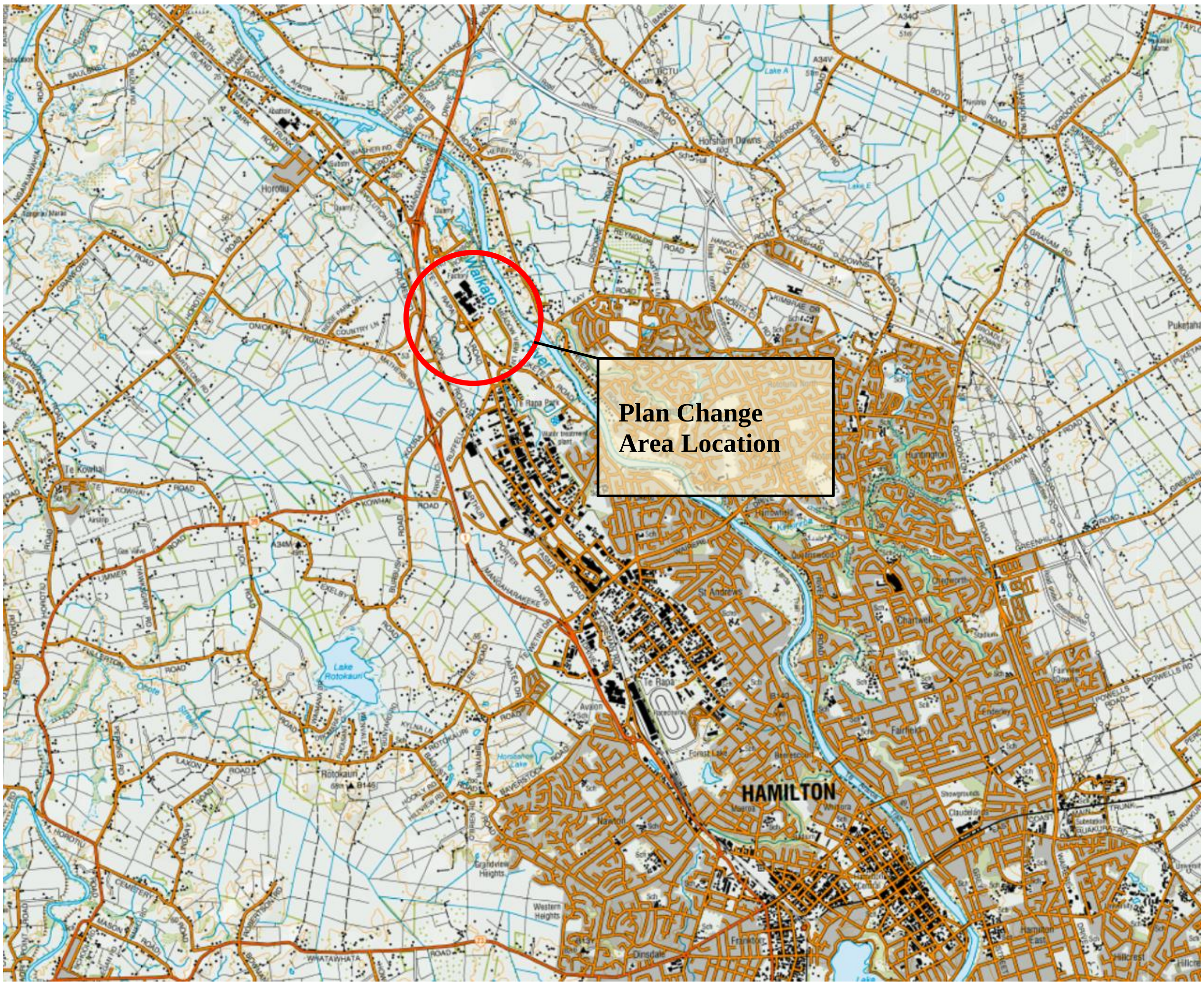

Figure 2. Location map of the Plan Change Area, Te Rapa Road, Hamilton.

2.2 HABITAT APPRAISAL

On 17 October 2023 and 2 November 2023, visual inspections were undertaken to analyse the potential habitat features of the trees, other vegetation and biophysical features (such as waterbodies) at the Plan Change Area for long-tailed bats. These inspections involved assessing the trees and other vegetation for their suitability as key structural attributes as potential long-tailed bat habitat.

2.3 BIOACOUSTICS SURVEY

Four ABMs (DB1, DB4, DB6 and DB8) of the DOC model 'AR4' were strategically deployed at the Fonterra-owned land within the Plan Change Area for a duration of 16 nights, spanning from 17 October to 2 November 2023 (Figure 3).

To ensure synchronisation, all detectors were calibrated with matching time and date settings set to New Zealand Standard Time (NZST). They were tested in the nights up to the survey, and pre-programmed to commence monitoring one hour before sunset and conclude one hour after sunrise. In spite of the testing, ABM DB8 was the only device that remained functional throughout the entire 16 survey nights. Conversely, DB1 operated for only three nights during the survey period, DB4 for just one night, and DB6 failed to record any data (Table 2). Hence, we conducted an additional survey using four different monitors (DB15, DB16, KB48 and DB0) at the same locations from 10 – 29 November

2023, all of which remained operational for a minimum of 12 valid survey nights (Table 1 and 2), aligning with best practices.

A deliberate separation of at least 50 metres was maintained between detector monitoring locations to enhance the probability of independent bat monitoring. The recorders were suspended at a minimum height of two metres above the ground to minimise the occurrence of superfluous detections caused by terrestrial insects, particularly cicada species.

The ABM data from this survey was processed through the DOC BatSearch version 3.2.3 software[5]. All long-tailed bat echolocation calls were manually checked by a DOC recognised bat expert. The timing of bat activity was reviewed with focus on activity within one hour of sunset and sunrise. The recording of activity during these periods was used to provide indications of potential long-tailed bat roosting activity on-site or nearby.

The survey was timed to optimise the probability of detecting long-tailed bats. It was carried out during late spring and summer 2023, which are the seasons when bats are typically most active. This encompasses the timeframe when females occupy maternity roosts (late spring to early summer) and when young bats become independent and establish territories (mid-summer). It is also noteworthy that long-tailed bat mating primarily takes place in the later stages of summer and throughout the autumn season.

2.4 EFFECTS ASSESSMENT APPROACH

A preliminary effects assessment and management recommendations of Plan Change Area on long-tailed bats was undertaken in accordance with the Ecological Impact Assessment guidelines (EcIA) developed by the Ecological Institute of Australia and New Zealand (EIANZ)[6].

[5] Sedgeley, J., O'Donnell, C., Lyall, J., Edmond H., Simpson, W., Carpenter, J., Hoare, J., McInnes, K. 2012. DOC best practice manual of conservation techniques for bats. Inventory and monitoring toolbox: bats DOCDM-131465. Department of Conservation, Wellington.

[6] Environment Institute of Australia and New Zealand Inc. (2018). Ecological Impact Assessment (EcIA). EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd Edition.

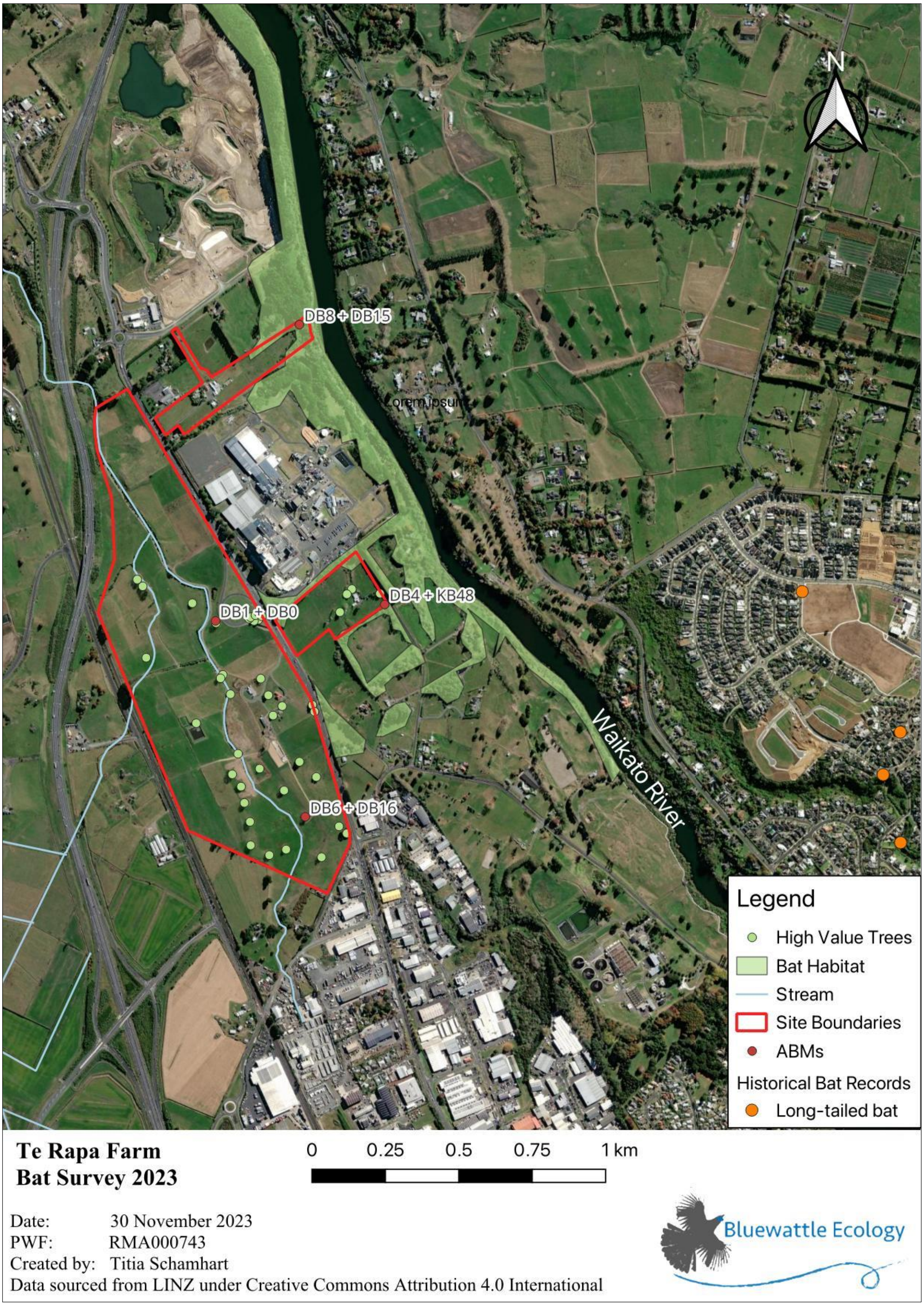

Figure 3. Locations of ABMs during the 17 October – 2 November and 10 – 29 November 2023 deployments at the Fonterra-owned land within the Plan Change Area, Hamilton.

3 RESULTS

3.1 LITERATURE AND DATABASE REVIEW

Based on a search across the national DOC bat database, I-Naturalist, and the Bluewattle Ecology database, there is documented evidence suggesting the historical presence of bats in the surrounding area, but none within the Plan Change Area itself.

The closest recorded bat activity was a singular bat pass noted to the east of the Plan Change Area in 2020 (see Figure 4). In addition, a substantial 90 bat passes were documented in 2011 by Kessels Ecology 2.5 kilometres to the north of the Plan Change Area. However, no bats have been found around the Te Rapa Dairy Manufacturing Site in previously commissioned surveys by Fonterra for baseline biodiversity studies (Kessels Ecology undertook a survey at this site in 2017 – G Kessels pers obs), or to the north. For example, site DB8 was also previously surveyed by Project Echo in 2020 as well as other nearby locations (see sites 27, 28 & 29 on the map in Figure 4), and no bats were found, despite some of the habitat being of high quality as foraging commuting and roosting habitat.

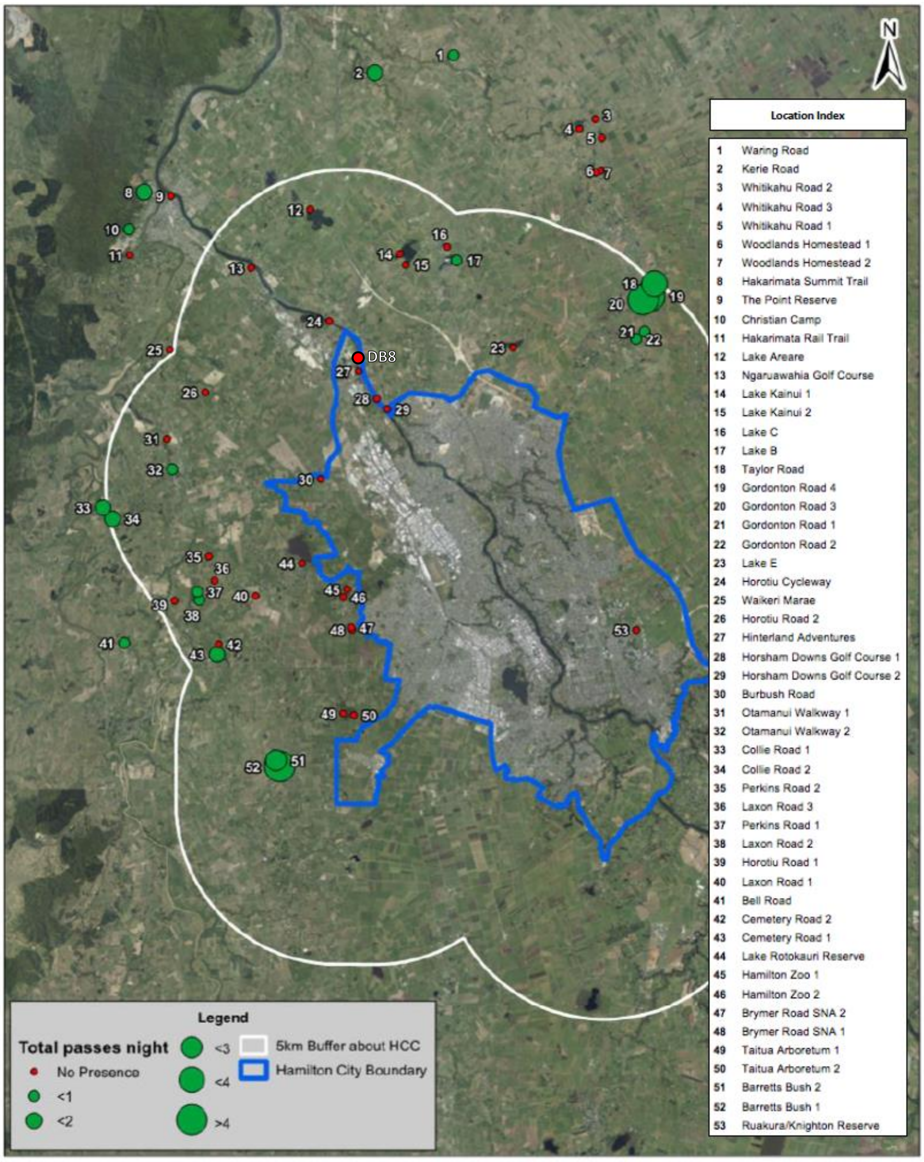

Figure 4. Results of annual citywide bat survey by Project Echo in 2020

3.2 BIOACOUSTICS SURVEY

3.2.1 VALIDITY OF SURVEY EVENT

Analysis of an existing data set[7,8] shows long-tailed bat activity is strongly influenced by temperature. It is suggested that bat monitoring should take place when temperatures one to four hours after sunset are >7°C, ideally >10°C. In this context, minimum temperatures remained above 7°C during the 16, and then, the additional 19 nights of the survey period (Table 1).

Maximum rainfall in the four hours after sunset until midnight was less than 10 mm over the entire survey period, and therefore rainfall is unlikely to have affected bat emergence during the 16, and then, additional 19 nights of surveying[9].

Wind conditions were suitable on the 16, and the additional 19 nights, of the surveyed period, with maximum wind gusts one to four hours after sunset below 5.6 m/s[10].

This gave a total of 35 suitable survey nights, which is in line with best practice[11].

3.2.2 BIOACOUSTICS RESULTS

Monitoring with four ABMs (DB1, DB4, DB6 and DB8) resulted in no confirmed bat detections.

In the first survey, ABM DB8 was functional for the entire 16 survey nights, but DB1 was functional for only three nights of the survey period, DB4 for one and DB6 failed to record (Table 2). Therefore, we conducted a follow-up survey using four different ABMs (DB15, DB16, KB48 and DB0), and no confirmed bat detections were recorded. ABM DB15 and KB48 operated consistently throughout the entire 19 nights of surveying, DB0 remained operational for 14 nights, and DB16 for 12 nights.

[7] O'Donnell, C., and J. Sedgeley. 2012. Introduction to bat monitoring v1.0:33.
[8] O'Donnell, C. 2000. Conservation status and causes of decline of the threatened New Zealand Long-tailed Bat Chalinolobus tuberculatus (Chiroptera: Vespertilionidae). Mammal Review 30:89–106.
[9] Appel, G., Bobrowiec, P., & Lopez-Baucells, A. (2019). *Temperature, rainfall, and moonlight intensity effects on activity of tropical insectivorous bats .pdf*. 1–12.
[10] Smith, D., K. Borkin, C. Jones, S. Lindberg, F. Davies, and G. Eccles. 2017. Effects of land transport activities on New Zealand's endemic bat populations: reviews of ecological and regulatory literature October 2017:249.
[11] Mueller, H. Davidson-Watts, I & Kessels, G. 2021. Peacocke Structure Plan Area Change – Long-tailed bat report. Consultancy report prepared for Hamilton City Council.

Table 1. Summary of weather conditions during the survey period. Data obtained from NIWA CLIFLO database, at station number 26117

Date (NZST)	Min. temperature (°C) between 19:00 – 00:00	Max. Precipitation (mm/h) between 19:00 – 00:00	Max. wind speed (m/s) between 19:00 – 00:00
17-Oct	15.6	2.9	3.7
18-Oct	16.4	0	3.7
19-Oct	13.2	0	2.6
20-Oct	16.2	0	3.9
21-Oct	12.3	0	4.8
22-Oct	14	0.1	2.5
23-Oct	14.7	0	3.7
24-Oct	14.6	0.4	3.7
25-Oct	14.2	0	5.1
26-Oct	16.2	0	4.9
27-Oct	8.8	0	5.9
28-Oct	8.4	0	3.5
29-Oct	13	0	4.1
30-Oct	15.5	3	3.4
31-Oct	16.4	0.2	3.3
1-Nov	12.9	0	4.7
10-Nov	10.2	0	2.9
11-Nov	9.5	0	2.9
12-Nov	11.2	0	4.1
13-Nov	8.3	0	1.5
14-Nov	12	0.1	1.9
15-Nov	12.5	0	2.2
16-Nov	12.7	0	1.9
17-Nov	17.1	0.9	3.1
18-Nov	15.1	0.6	2.1
19-Nov	16	1.1	1.5
20-Nov	16.5	0	2.2
21-Nov	17.1	0	1.7
22-Nov	15.3	0	2.7
23-Nov	14.9	0	4.4
24-Nov	11	0.3	3
25-Nov	12.9	0	3.4
26-Nov	12.9	0	5.7
27-Nov	13.4	0	2.6
28-Nov	15.2	2.4	4.3

Table 2. Summary bat survey results from the ABMs deployed at the Fonterra-owned Land within the Plan Change Area in October and November 2023.

Site	Nights detector was functional	Total no. bat passes	Mean no. of bat passes per night	No. of nights with bat passes	Percentage % of nights with bat passes	Feeding buzzes
DB1	3	0	0	0	0	0
DB4	1	0	0	0	0	0
DB6	0	0	0	0	0	0
DB8	16	0	0	0	0	0
DB15	19	0	0	0	0	0
DB16	12	0	0	0	0	0
KB48	19	0	0	0	0	0
DB0	14	0	0	0	0	0

3.3 ASSESSMENT OF EFFECTS ON LONG-TAILED BAT HABITAT

3.3.1 HABITAT UTILISATION ASSESSMENT

Generally, bats are edge adapted animals, using the edges of forest as a guide to commuting within a landscape. They are opportunistic feeders of insects, but generally will return to areas, often over water or alongside streams, rivers and lakes to feed on emerging flying insects. Bats can and do fly and forage over pasture but generally favour edge habitats.

While there is no evidence of bats over the Plan Change Area, data form other sites in the Waikato indicates that the Waikato River is likely a primary corridor and key habitat resource for long-tailed bats (see the areas mapped as 'Bat Habitat' in Figure 3) for the following reasons:

- Commuting habitat: The mature trees and shrubs along the Waikato River margin are likely to be used as regular commuting corridors across and along the eastern edge of the Plan Change Area.
- Foraging habitat: The main foregoing habitats are likely to be along the margins of the Waikato River. In this specific locality the data suggests that the open pastures and treeland areas of the Plan Change Area may be occasionally used for foraging but much less often than these other habitats along the river margin.
- Roosting habitat: The mature exotic trees within the Plan Change Area may possibly be used for roosting by solitary bats as occasional temporary roost by bats. There is no evidence that occupied bat roosts would be impacted by the Plan Change Area. However, bats utilise a large number of trees as roosts throughout their home range and this can vary from year to year so that predicting roost tree usage within a bat population's home range is difficult to predict. There are a number of trees within the Plan Change Area which could be utilised as bat roost trees which would be removed, or indirectly impacted, by future development resulting from PC17 – these are potential bat roost trees, and marked as 'High Value Trees' on Figure 3. Importantly, trees that fit this category are not currently known to be occupied by bats but

because they exhibit cavity bearing properties may be used by bats for roosting, although currently there is no evidence that they are occupied.

The eastern section of the Plan Change Area is adjacent to (and slightly includes) High-Value Bat Habitat along the river margin characterised by an abundance of trees with high roosting potential as shown in Figure 3 and in Appendix I, Figures 4.1 - 4.2 and 5.1 - 5.2. This specific habitat is particularly conducive to supporting bat populations due to the availability of numerous roosting sites.

Conversely, the western part of the Plan Change Area features a distinctive landscape with singular trees offering high roosting potential as shown in Appendix I, Figures 7.1 - 7.2 and 8.1 - 8.4. These scattered roosting opportunities contribute to the Plan Change Area's overall significance as bat habitat. However, this western habitat is somewhat reduced in habitat value because the trees area are largely in open pasture land, not generally favoured for roosting (being more exposed to inclement weather). This lower value of the western portion of the plan change area for bats is supported by the absence of detected bats in this area from multiple surveys. Nonetheless, the presence of a meandering stream (the Te Rapa Stream) in the western portion of the Plan Change Area (Appendix I, Figures 7.1 - 7.2) enhances the Plan Change Area's ecological value by providing potential commuting and foraging habitat for bats.

While any loss of an occupied roost tree can be considered to be a significant impact on a local population of bats, especially an occupied communal roost tree, the loss of potential roost trees is considered to be a lesser effect. However, given the uncertainty surrounding roost tree usage in rural Waikato landscapes, all potential roost trees should be checked immediately before felling in accordance with best practice protocols (see Appendix II), to ensure they are not occupied, and if they are, a contingency strategy to avoid or offset these adverse effects should be put in place to address all scenarios.

3.3.2 EFFECTS OF THE PLAN CHANGE

There may be a number of indirect and cumulative adverse effects of PC17 on bats in this locality, but given there is no evidence of utilisation of the Plan Change Area by bats, despite multiple surveys, over a number of years and seasons, the risk of adverse effects on bat habitat is considered to be limited to the margin of the Waikato River and potential bat roost trees.

In accordance with the EcIA guidelines the 'Magnitude of Effect' of loss of foraging and commuting habitats for long-tailed bats is considered to be 'Low' in the long-term[12]. This is because the loss of the habitat in this locality is a small proportion of pastureland and exotic habitat and there is a lack of

[12] Refer to Table 8 (p. 83) EcIA guidelines: Low: Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; and/or having a minor effect on the known population or range of the element/feature. Moderate: Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; and/or Loss of a moderate proportion of the known population or range of the element/feature; High: Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; and/or Loss of a high proportion of the known population or range of the element/feature; Very High: Total loss of, or very major alteration to, key elements/features/ of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; and/or Loss of a very high proportion of the known population or range of the element/feature.

convincing evidence that bats are using the Plan Change Area. Long-tailed bats are known to have a home range of hundreds of hectares (Dekrout et al 2014)[13].

In accordance with the EcIA guidelines the 'Magnitude of Effect of the loss of any occupied roost tree could range from 'Very High' if a communal bat tree is removed to 'High' if a solitary bat roost tree is removed. Suitable measures are required for robust prefelling checks of potential bat roost trees to ensure these are not occupied before being felled (Appendix II). If potential roost trees are proposed to be removed as part of future development, suitable resource consent conditions will be required to monitor all potential roost trees before felling, and to avoid removal of any occupied roost trees. If a known roost tree is to be removed, implementation of robust biodiversity offset or compensation measures will be required to address this loss of habitat. Nonetheless, there is a very small risk of finding an occupied roost tree within the Plan Change Area footprint, particularly if intrusion into the Waikato River margin is limited to as minimal an extent as possible.

EIANZ guidelines[14] to determine the effects of loss of this stand of trees on long-tailed bats within the Plan Change Area was determined as follows:

- Ecological Value: **High**.

Referring to section 5.2 of the EcIA guidelines, and acknowledging that no bats have been detected in this survey, but that a number of passes have been detected in the surrounding area (as indicated in Figures 3 and 4), the Plan Change Area has habitat that is considered suitable as potential roosting habitat (see Appendix I, Figure 6) and is suitable foraging and commuting habitat. The Plan Change Area may occasionally be used by this species, given that previous surveys have not detected bats within the locality, but still within the home range of this species, there is a risk bats may be present, particularly along the margins of the Waikato River.

- Magnitude of Effects: **Low**.

Referring to section 6.4.2 of the EcIA guidelines, this ABM survey indicates the probability of bats regularly utilising this habitat is low, and the loss of trees in the Plan Change Area approximating to a 'minimal change' situation; and likely having a minor effect on the known population or range of long-tailed bats in this locality.

- Overall Level of effects: **Low**.

Referring to section 6.4.3 and the matrix table; Table 10 of the EcIA guidelines, the overall level of effects, before mitigation is applied, is considered to be **Low**.

The application of the EcIA guidelines indicates that the modification of a small portion of potential long-tailed bat habitat is expected to result in a low level of ecological impact. Nonetheless, given the highly mobile nature of long-tailed bats, and its high threat status, it is recommended that suitable provisions are included as part of the PC17 request to ensure that the construction and operation phases of future development associated with PC17 are of low to very low levels of ecological impact.

[13] Dekrout, A.S., Clarkson, B.D. & Parsons, S. (2014). Temporal and spatial distribution and habitat associations of an urban population of New Zealand long-tailed bats (Chalinolobus tuberculatus), New Zealand Journal of Zoology, 41:4, 285-295, DOI: 10.1080/03014223.2014.953551

[14] https://www.eianz.org/document/item/4447

4 CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSION

At this point in time there is no evidence to suggest that long-tailed bats are using the Plan Change Area as foraging or commuting habitat. The bioacoustic survey for this assessment was conducted under optimal weather conditions, using best practice survey methods. This resulted in no confirmed bat detections, and is consistent with previous surveys in this area which also indicate that the usage of bats of the Plan Change Area was nil.

Nonetheless, the detection from a single or even second survey event does not conclusively establish the absence of long-tailed bats from the Plan Change Area beyond the surveyed timeframes. Given the elevated national threat status of this species, its high degree of mobility, seasonal fluctuations in habitat utilisation, and the frequent detection of bats in the vicinity, it is appropriate to acknowledge there is still a probability bats may use some of the Plan Change Area from time to time as commuting, foraging and roosting habitat, particularly along the margins of the Waikato River.

In addition, while the potential roost trees and streams vegetation within the Plan Change Area are likely less important, given the low usage of the Plan Change Area, this habitat may be used on occasion requiring assessment, and possibly effects mitigation, which given the low overall risk at the Plan Change Area, can be appropriately determined and set at the resource consent stage.

4.2 RECOMMENDATIONS

4.2.1 PROTECTION AND RESTORATION

The Waikato River's riparian margin will require protection as a likely significant habitat for bats. Therefore, land use changes involving industrial activities granted as a consequence of PC17 should ideally not come any closer than *a minimum* of 50 m from the edge of the Waikato River, and follow natural features, which show a clear demarcation as riparian margin buffer vegetation (Figure 3). This minimum buffer width is contingent on artificial lighting also being controlled at the 50 m buffer boundary to effectively result in zero illumination within the buffer to the river (see section 4.2.3 below).

Aside from the High-Value potential bat roost trees, the other shrub vegetation and pasture in the Plan Change Area can be removed without directly affecting potential bat roosting locations. However, this vegetation supports food production and flight paths, so some form of residual effects mitigation is required for this loss of potential lower-value habitat.

While the overall impact is low, we expect that some form of habitat enhancement/creation, pest control or a contribution to a local pest control project protecting bats and their habitats would be required as a compensatory measure to address the residual effects of loss of habitat for long-tailed bats (this is a common approach in Hamilton which Hamilton City Council supports).

A compensation model is recommended to determine the quantum of the compensation contribution. This is best suited to occur as part of the resource consent stage once details of the future development proposal, staging and any replanting details are known (and can inform the model). We recommend that the PC17 request includes planning provisions that require this compensation model to be undertaken at the resource consent stage.

4.2.2 TREE FELLING

While the potential risk of causing harm to bats during future construction of the Plan Change Area is assessed as low, primarily due to the absence of bat activity within the Plan Change Area during the survey, the high national threat status of this species and the suitability of some trees as potential roosts mean a precautionary approach is prudent. Consequently, it is recommended to implement tree felling protocols (as outlined in Appendix II) as a requirement of resource consents enabled by PC17 for the removal of all trees identified as High Value Bat trees in Figure 3.

4.2.3 ARTIFICIAL LIGHTING

As indicated by Schamhart et al. 2023[15], long-tailed bats exhibit sensitivity and aversion to artificial lighting.

Thus, artificial lighting restrictions are recommended for the buffer margin along the Waikato River margin where the high value bat habitat occurs. Artificial lighting strategies should establish specific limits for lighting intensity (<0.3 lux) and colour temperature (<2700 Kelvin) within a 25-metre width from the outer edge of this buffer along the Waikato River. These standards can be achieved by measures such as deploying special lights, light source shielding, restricting illumination during peak bat activity periods, and/or minimising the duration of night-time artificial lighting.

[15] Schamhart, T., Browne, C., Borkin, K. M., Ling, N., Pattemore, D. E., & Tempero, G. W. (2023). Detection rates of long-tailed bats (*Chalinolobus tuberculatus*) decline in the presence of artificial light. *New Zealand Journal of Zoology*, 1-11.

APPENDIX I – PHOTOS OF THE PLAN CHANGE AREA

Figure 4.1 and 4.2. Suitable roosting, foraging and commuting habitat at the Meadow View lane end of the Plan Change Area.

Figure 5.1 and 5.2. Small gully at the Waikato River boundary of the Plan Change Area, providing high-value roosting and foraging habitat.

Figure 6. Tree with High Roosting Potential at the centre of the western Plan Change Area, parallel to Te Rapa Road, adjacent to a small stream which provides valuable foraging and commuting habitat.

Figure 7.1 and 7.2. Trees with high roost potential at the centre of the western part of the Plan Change Area adjacent to a small stream which provides valuable foraging and commuting habitat.

	
Figure 8.1 - High Value Roost Tree at DB1	**Figure 8.2 - High Value Roost Tree between DB1 and DB6**
	
Figure 8.3 - High Value Roost Tree between DB1 and DB6	**Figure 8.4 - High Value Roost Tree at DB6**

APPENDIX II – TREE FELLING PROTOCOL

Protocols for minimising the risk of felling bat roosts

(Bat Roost Protocols (BRP))

Version 2: October 2021 approved by the New Zealand Department of Conservation's Bat Recovery Group

The use of these protocols should be a final step in the avoid/remedy/mitigate hierarchy. Avoidance of felling bat roost trees should be the first step in any project.

Purposes of this document:

1. To outline why protection of roosts is important for the persistence of New Zealand bats and why removal of known and potential roosts should be avoided.
2. Where roost removal cannot be avoided, to set out the minimum requirements and protocols for removing trees in areas where bats are present, to minimise the risk of killing bats.

This protocol does not eliminate the risk to bats of death or injury because bats or active bat roosts can be missed. The best way to eliminate risk of felling an active roost is to avoid felling any known or potential roosts.

Context

The status of New Zealand bats

New Zealand's two extant bat species (pekapeka) are classified as threatened.

Long-tailed bats are classified as 'Nationally Critical' because the species is likely to have a 70% decline in numbers within three generations.

Lesser short-tailed bats comprise three subspecies. The northern subspecies is classified as 'Nationally Vulnerable' because there are 1000-5000 mature individuals and the predicted decline in numbers is 10-50% within three generations. The central subspecies is 'Declining' because there are 20 000-100 000 mature individuals, and the predicted decline is 10-50% within three generations. The southern subspecies is 'Recovering' because there are 1000-5000 individuals, and the predicted increase is >10% within three generations.

Threats to bats

This document deals specifically with roost protection; however, roost protection is only part of the wider issue of habitat loss. Habitat loss through land clearance, habitat degradation, fragmentation and disturbance and loss of roosts reduces roosting, foraging and socialising areas. Individual bats and colonies are also threatened by the local felling of individual trees.

Bats have large home ranges which can include unprotected peri-urban habitat. Protecting habitat and maintaining connectivity of vegetation are crucial for bats being able to persist and flourish in the environment.

Predation and competition by introduced predators: mustelids, rats, cats, and possums have all been implicated in the decline of bats[1].

Roosts are critical to the survival of bats

Roosts are where bats gather to shelter during the day and at night. They are used to socialise, mate, give birth, and raise young. Bats have very specific requirements when they are choosing roosts and are not just choosing any

[1] O'Donnell CFJ; Christie JE; Hitchmough RA; Lloyd B; Parsons S 2010. The conservation status of New Zealand bats, 2009. New Zealand Journal of Zoology 37: 297– 311.

tree[2]. The specialised features of roosts make them rare and almost irreplaceable in any landscape or habitat type except over very long-time frames. People sometimes falsely suggest that "bats can just move to another tree". This is not the case, particularly where trees suitable as roosts are limited[3].

Bats demonstrate high site fidelity to existing roosts and their specific roosting areas, and they move on a rotation among these. Because roost trees are likely to be rare, and are occupied to fulfil specialised requirements, felling breeding roost trees even when bats are absent will have a significant negative effect. If the number of suitable roosts and their surrounding habitat is reduced in the landscape, bats are forced to use roosts that are less thermally efficient. This means they will use more energy to survive, resulting in reductions in survival and lower reproductive success. In this way, roost removal is likely to result in higher risk of local extinction.

Bats can roost in native or exotic vegetation – therefore it should not be presumed that exotic species such as pine trees will not support bats. Roosts, including maternity roosts, have been found in many exotic species including, but not limited to, pine, poplar, oak, and acacia species, black locust, willow, eucalyptus and Tasmanian blackwoods.

Bats are at risk of being injured or killed when trees are felled

If a tree is felled with a bat in it, it is highly likely that the bat will be injured or killed, although this may not be apparent at the time because injuries, such as bruises and fractures, which would hinder bats' ability to fly well, may take time to be obvious.

The highest risk of injuring or killing bats or trapping them within their roosts is when they are heavily pregnant, when young are still dependent on the roost (late November – February) and when bats are more likely to be in torpor (May – September). Heavily pregnant bats are slower and less agile, and young bats cannot fly, so their chances to escape are reduced when roost trees are felled. Also, it is possible that if the larger female-dominated maternity roosts are cut down when females are raising their young to independence (October-March), a whole colony of bats could be destroyed at one time.

During winter bats use torpor (a type of hibernation) more often than during other times of year, so if trees are cut down in winter, bats may be unable to rouse from torpor and to fly away in time to escape. Additionally, it is significantly harder, sometimes impossible, to detect bats roosting in trees during torpor. For these reasons, trees with potential bat roost features must not be cut down in winter. Bats also use torpor for short periods during summer, for example, if the weather gets cold, so the risk of killing or injuring bats that cannot escape falling trees exists at any time of the year.

Bat roost protocols and the RMA

The occurrence of bats and bat habitat is a matter of 'significance' under Section 6(c) of the Resource Management Act (RMA). Bat roost protocols have become a standard part of bat management plans that may be required under RMA consents. Where developments require consents, and bats (a threatened species) are present, the developments should 'Avoid' impacting bats and bat habitat. Bat roost protocols only attempt to minimise the number of bats killed by tree felling, therefore implementing bat roost protocols where bats are present should be considered a last resort after following the RMA hierarchy of "avoid, remedy, mitigate, offset, compensate".

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[2] Whilst we use the word tree frequently in this document, we acknowledge that bats also use non-tree vegetation as roosts and the terms tree and vegetation should be considered as interchangeable in the context of this document. We acknowledge that there are also non-vegetation roosts that are used and require protection. These include rocky bluffs, caves and occasionally buildings.

[3] Many references available, for example, Borkin KM; Parsons S. 2011. Sex-specific roost selection by bats in clearfell harvested plantation forest: improved knowledge advises management. Acta Chiropterologica 13(2): 373-383; Borkin KM; O'Donnell CFJ; Parsons S. 2011. Bat colony size reduction coincides with clear-fell harvest operations and high rates of roost loss in plantation forest. Biodiversity and Conservation 30; Sedgeley JA; O'Donnell CFJ 1999b. Roost selection by the long-tailed bat, *Chalinolobus tuberculatus*, in temperate New Zealand rainforest and its implications for the conservation of bats in managed forests. Biological Conservation 88:261–276; Sedgeley JA; O'Donnell CFJ 2004. Roost use by long-tailed bats in South Canterbury: Testing predictions of roost site selection in a highly fragmented landscape. New Zealand Journal of Ecology 28:1-18.

This protocol has therefore been framed following the RMA hierarchy by first focusing on the avoidance of effects, helping to identify and avoid the removal of roost trees, and to minimise the risk to bats of death or injury if avoidance is not possible. This approach is usually informed by gathering data on bats in the local areas and seeking advice from a competent bat ecologist.

Identifying and protecting *both active and inactive (i.e., trees used by bats at other times of year) roosts* by avoiding their removal is an important step in supporting the survival and persistence of bats.

Bat roost protocols and the Wildlife Act 1953

NZ bats are absolutely protected species under the Wildlife Act 1953. It is an offence to catch alive or kill, hunt, possess, molest, or disturb bats under the Act. Any projects where tree or vegetation removal overlaps with the occurrence of bats, there is a risk of killing or injuring any bats that may be present. Following the bat roost protocols minimises the chance of killing or injuring bats.

Bat roost protocol

When and how to use the protocol

Whenever vegetation removal is proposed in areas where bats are potentially present and where their habitat may be impacted, follow the decision tree (Figure 1) below as a guide to what sort of action should be undertaken. The decision tree is designed firstly to avoid felling bat roost trees, secondarily aimed at moving roost trees, and only if unavoidable, felling roost trees (but only once vacated).

None of the methods of inspecting roosts described below eliminates the risk of failing to identify bats when they are present. Therefore, techniques such as filling in cavities with expandable foam are not supported as a tool. This is because there is a risk of trapping bats that have not been detected within cavities. In addition, this method removes roosts from the landscape that bats are dependent on.

Definitions

Competencies: a set of competencies developed by the NZ Bat Recovery Group[4] to ensure that anyone working with bats is competent to do so. Contact bathandler@doc.govt.nz for a list of competencies and requirements to become an authorised competent bat worker.

Competencies referred to in this document:

2.1 Bagging storage, handling, measuring, weighing, sexing, aging, temporary marking and releasing appropriately:
For long-tailed bats: 50 individuals
For short-tailed bats: 50 individuals

3. High risk activities – Roost felling (all of these competencies include the understanding of what to do when bats are found during tree felling as per Appendix 6 of 'Initial veterinary care for New Zealand Bats' https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Initial_Vet_Care_NZ_Bats.pdf)

3.1 Assessing roost tree use using Automatic Bat Monitors - Demonstrate correct timing, placement, and interpretation of data for 10+ times according to DOC's Tree Felling Protocols.
3.2 Undertake roost watches/emergence counts at 10+ occupied roosts where the entrance is visible.
3.3 In at least two different forest/habitat types, including the forest/habitat type where trees are going to be assessed: evaluate 10+ potential roost features in trees (e.g., cavities, peeling bark, epiphytes).

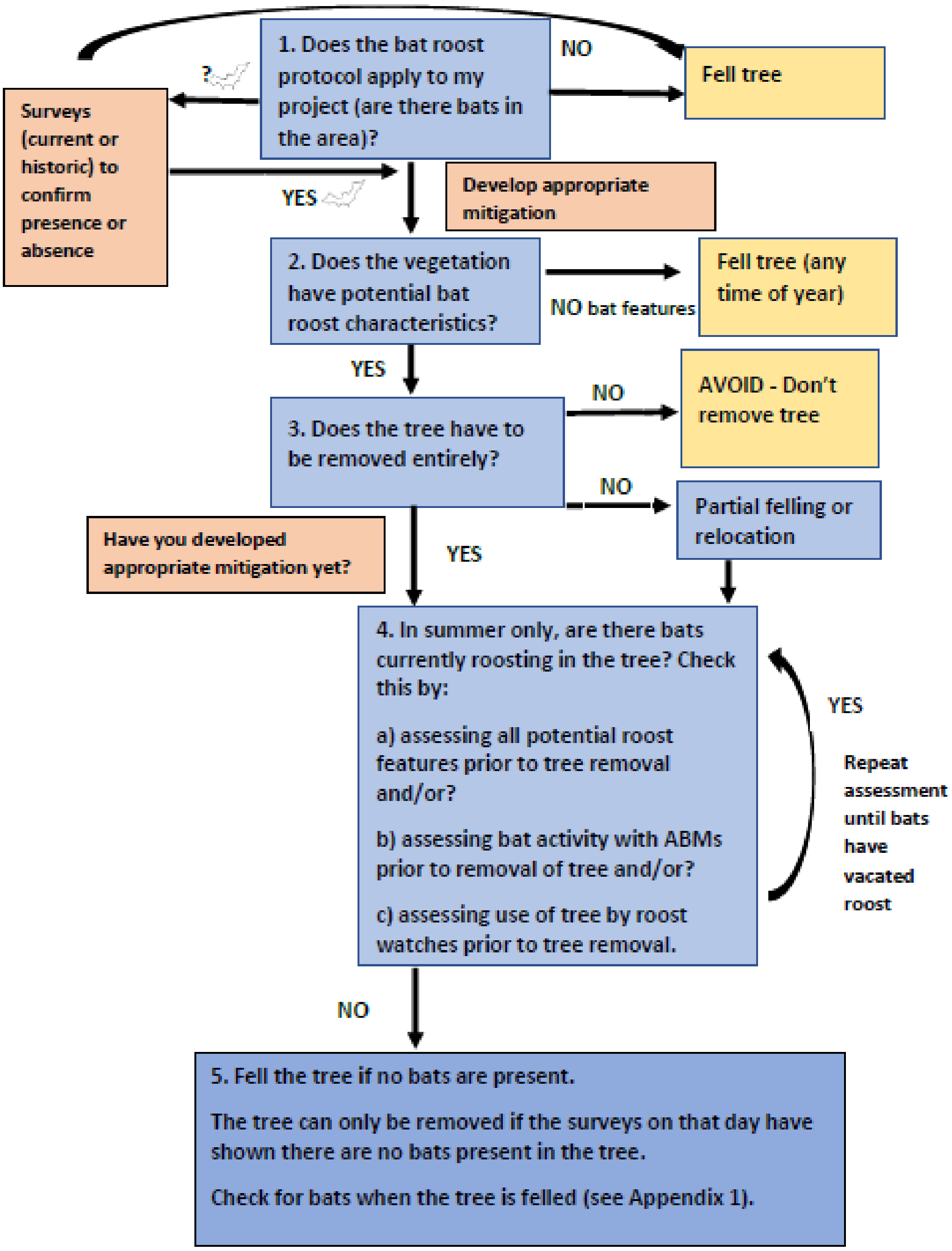
Authorised competent bat worker: A bat worker who has met the required ethical standards to be registered as a competent, authorised bat worker by the New Zealand Bat Recovery Group for the work which they are undertaking.

ABM: automated bat monitoring unit/detector

[4] A group of bat specialists that advise on bat issues and assess bat competencies

Figure 1. Tree removal in bat areas flow chart

Each numbered step relates to a step in the Decision Tool for Tree Removal. Follow each step fully in the text to work through the process.



Mitigation/compensation

If trees are felled and habitat lost, then compensation measures should be considered to address the adverse effects. What these measures should be is beyond the scope of this document. Provision of artificial roosts in the short-term and planting for the long-term are some of the methods commonly used in development projects, but their effectiveness is untested and a future research need.

Step 3. Does the tree have to be removed entirely?	Response	Who can make this assessment?	When?
a) Is the only option to remove the tree entirely?	If yes, continue to step 4 If no, consider leaving the tree in place, cutting off specific limbs only or relocating the tree. If any felling, partial felling (where the part to be felled has potential bat roost features) or tree relocation takes place you **MUST** proceed to step 4. If a roost (active/inactive) is confirmed, then advice should be obtained at a project level in writing from DOC before proceeding.	Project leader	Any time

Notes for Step 3

Trees must only be relocated when bats are absent and when standard automated bat monitoring unit (ABM) weather conditions are met (see notes section 4b for appropriate weather conditions), and in consultation with an authorised bat ecologist with all competencies of level 3: 'High risk activities – Roost felling'.

Step 4. Are there bats currently roosting in the tree? (Follow a or b or c or a combination)	Response	Who can make this assessment?	When
a) Are potential features being used by roosting bats? A tree climber may be required to check all features (see notes for 4a below). If roost is occupied repeat 4a another day until roost is vacated.	If yes, **THE TREE MUST NOT BE FELLED UNTIL BATS HAVE VACATED IT.** If no, the tree can be removed on the day of the tree inspection following step 5. If bats continue to use the roost, then the tree must not be cut down until the bats leave the roost. At this point re-consider again	An approved person at Competency Level 3.3 or an experienced tree-climber (e.g., an arborist) working with an approved person at Competency Level 3.3. If the latter, the tree climber must provide information along with photographs or video footage, to the approved person at Competency Level 3.3 who assesses and decides whether the tree can be removed.	October 1st to April 30th when the temperature is 7°C or greater at official sunset in the South Island or 10 °C or greater in the North Island.

	whether this tree must be felled. Advice must be obtained at a project level in writing from DOC prior to felling the tree.	If roosts are known or confirmed through this process, then this information must be communicated to the nominated DOC bat ecologist for this project.	
b) Is bat activity recorded at any time during two consecutive, valid survey nights preceding tree felling[13]? At least two nights are required as it is possible for bats to enter or leave a roost without echolocating, or to not leave the roost for a night.	If yes (bats are detected), survey must continue on subsequent nights[14] until no bat activity is recorded for two consecutive nights (to indicate bats have left the area) prior to felling. **OR** roost features of each tree must be visually assessed via climbing as in 3. If bat activity is consistent in the area and 2 nights with zero bat passes cannot be obtained, Go to 4c or 4a. If no bats are detected for two consecutive nights, the vegetation can be removed on the day immediately following the survey nights using the method in 5.	An approved person at Competency Level 3.1	October 1st to April 30th and when conditions meet the requirements for standard ABM weather conditions (see 4b notes).
c) Are bats observed entering the vegetation? This involves watching vegetation to identify bats returning to or exiting roosts. It should only be used in combination with previous ABM monitoring (4b) (see notes 4c for method). At	If yes (bats are seen at either watch), it is a confirmed roost. Removal of a roost should be avoided to minimise effects	An approved person at Competency Level 3.2[15].	Between October 1st and April 30th only **AND** when weather parameters meet

[13] Le Roux et al (2013) found that in and around Hamilton "The longest consecutive monitoring period without bat detections at each site was three nights during winter." Le Roux et al 2013. New Zealand Journal of Zoology (2013): Spatial and temporal variation in long-tailed bat echolocation activity in a New Zealand city, New Zealand Journal of Zoology, DOI: 10.1080/03014223.2013.827125.

[14] Subsequent nights may be those immediately following bat detection or later dates.

[15] If more than one person is required for a roost watch at a tree, a minimum of one approved person at Competency Level 3.2 must be present on site for the duration of the roost watch to supervise.

least two nights are required as it is possible for bats to enter or leave a roost without being detected, or to not leave the roost for a night.	of vegetation removal on bats. Techniques used previously to ensure previously active roosts are no longer active have included the following: Watches must continue on subsequent nights until no bats are observed entering or exiting the roost for two consecutive nights (to indicate the roost is no longer active) prior to felling. <u>If no bats are observed entering or exiting for two consecutive nights</u>, the vegetation can be removed on the day immediately following the survey nights using the method in 5.		the roost watch requirements.

Notes for Step 4.

4a) Tree climbing and inspection

Care must be taken while climbing trees to avoid disturbing, removing or destroying tree features with bat roost potential such as sections of loose bark or cavities in dead wood. Using mobile elevated platforms can be a good option. Bats are less likely to be active over colder periods, so climbing to check whether bats are present in potential roost features must take place between October 1st to April 30th when the temperature is 7 °C [16] (South Is) or 10 °C (North Is) or greater at official sunset on the night previous to inspection.

A tree climber may be required to check all potential bat roost features:

- Can bats be seen? An endoscopic camera should be available for this step and every possible corner of each potential roosting feature inspected, i.e., cavity/crack etc. Cracks, holes, and splits may lead to cavities or may be superficial. A cavity may be wet indicating no/low potential as a bat roost.

[16] O'Donnell CFJ 2000. Influence of season, habitat, temperature and invertebrate availability on nocturnal activity of the New Zealand long-tailed bat (*Chalinolobus tuberculatus*). New Zealand Journal of Ecology 207-221.

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- Can bats be heard? Search of tree features should be accompanied by use of a hand-held bat detector. If bats are present and not in torpor, then detection of presence listening at 25 kHz (for social calls) and 40 kHz (for echolocation calls) may help to determine if long-tailed bats are present. Short-tailed bat social calls are often audible or detected at 25-27 kHz.
- Is guano present or urine staining?

4b) ABM survey work

Bat activity is to be recorded using ABMs. Location of ABMs must provide sufficient coverage to be able to determine if bat roosts are present in one or more of the trees[17]. 'Valid' survey nights must have the following features:

- Begin one hour before official sunset and end one hour after official sunrise.
- Temperature 10°C or greater for the first four hours after official sunset time for the North Island and 7°C for the South Island[18].
- Precipitation < 2.5 mm in the first 2 hours after official sunset, and < 5 mm in the first 4 hours after official sunset.

Prior to the commencement of surveys, ABMs must be checked for correct operation at a site where bat activity is known to be regular, or by using the DOC – Bat Recorder Tester (Tussock Innovation Ltd) phone app made for this and available from Google Play Store. Faulty or suspect ABMs must not be deployed, and ABMs must be redeployed if faults occur.

4c) Roost watches

The following weather conditions define a valid night for roost watches:

- Temperature greater than 10°C all night between official sunset and sunrise for the North Island and 7 °C for the South Island.
- Precipitation < 2.5 mm for each two-hour period between official sunset and sunrise

Roost watches should include the deployment of ABMs and analysis of data for the night of the roost watch.

Emergence watches

- Each tree must be watched initially from sunset until it becomes too dark to see by sufficient people to observe all potential exit points. This must be supported by the use of handheld detectors. The aim of emergence watches is to identify potential roost locations within the vegetation. Infra-red and thermal imaging cameras may be useful in this process.

[17] Department of Conservation-manufactured AR4 bat detectors are considered likely to detect long-tailed bats only over short distances i.e., up to 30-60 m distant from the detector (S. Cockburn, Department of Conservation, pers. Comm.). This is similar to detection distances of other detector types.
[18] South Island temperatures are based upon O'Donnell (2000) as above. North Island temperatures are based on data collected in Kinleith plantation forest, centred around Tokoroa, Central North Island; Smith D, Borkin K. 2017. Appendix B: Influence of climate variables on long-tailed bat activity in an exotic conifer plantation forest in the central North Island. P 136-145. In: Smith, D, K Borkin, C Jones, S Lindberg, F Davies and G Eccles (2017). Effects of land transport activities on New Zealand's endemic bat populations: reviews of ecological and regulatory literature. NZ Transport Agency research report 623. 249pp.

Roost re-entry watches

The time when bats return to roosts can vary based on temperature and time of year.[19,20]

- Observers must then return the next morning and watch the tree to determine whether bats return to the vegetation.
- Roost re-entry watch timing should be based on patterns of activity recorded onsite with ABMs, i.e., as a guide watches should begin two hours prior to when the last passes were recorded on the ABMs on previous nights and finish one hour after official sunrise time. Where this information is not available and at minimum, watches shall begin two hours prior to official sunrise until one hour after sunrise. Infra-red and/or thermal imaging cameras may be useful as a supplementary tool in this process.

The methods above (Climbing and inspecting; ABM use and roost watches) can be implemented as in steps 4.

If bats are sighted, or sign detected, or a roost (active/inactive) is confirmed, the approved bat ecologist, as soon as possible, shall:

- Call the tree felling supervisor to inform them which affected tree(s) cannot be felled due to detection of bat sign.
- Send an email to the site manager, and a bat ecologist representing the council and DOC detailing the results of the survey and outlining the measures for protection or relocating the roost tree.
- A record (including photos) of any vegetation containing bat roosts shall be kept detailing the date; size, location and species of tree or other vegetation; roost type, e.g., cavity, peeling bark, broken branch; detail outlining how presence of bats was confirmed; the number of bats present; and species present, if known.

Step 5. Fell the tree if no bats present	**Response**	**Who can make this assessment?**	**When**
NB: Vegetation removal must take place on the day of tree inspection or the day immediately following night surveys that confirm that there are no bats present.			
a) If you have undertaken a visual inspection of the vegetation (following step 4a, then the vegetation can be removed **ONLY ON THE DAY OF INSPECTION** and meets the valid weather conditions (defined in notes 4c) at official sunset the day prior to inspection. If you have undertaken ABM surveys or roost watches 4b or 4c the vegetation can be removed **ONLY ON THE DAY IMMEDIATELY FOLLOWING SURVEY COMPLETION** (i.e., if the survey ends in morning the tree can be felled the same day only).		People who are familiar with the document shown in footnote[21], and physically able to check/inspect tree for signs of bats once felled.	When the inspection method chosen allows.
Trees must be inspected for signs of bats once felled and before removing from the site, if safe to do so. Follow Appendix 1 if bats are detected during vegetation removal.			

[19] Dekrout AS 2009. Unpublished PhD thesis. University of Auckland, New Zealand Pp 168.
[20] Griffiths R. 2007. Activity patterns of long-tailed bats (Chalinolobus tuberculatus) in a rural landscape, South Canterbury, New Zealand. New Zealand Journal of Zoology, 34:3, 247-258, DOI: 10.1080/03014220709510083.
[21] https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Bat_Care_Advice.pdf

Appendix 1. If bats are detected during tree relocation or removal

NB: Vegetation removal must take place on the day of tree inspection or the day roost watches or two consecutive nights of ABM data have confirmed that there are no bats present. If practical, trees are to be inspected for signs of bats once felled and before removing from site. People inspecting trees should be familiar with the Bat Care Advice document shown in footnote[22] and able to check/inspect tree for signs of bats once felled.

If during the felling of a tree bats are detected, felling of that tree must stop immediately if safe to do so, and DOC and an approved bat ecologist at Competency Level 2.1 must be consulted.

If bats do not fly away or are potentially injured/found on the ground, felling can only re-start once permission has been obtained from DOC after consultation with an approved bat ecologist at Competency Level 2.1.

If bats are detected once the tree has been felled, all further work must stop, and DOC and an approved bat ecologist at Competency Level 2.1 must be contacted. The felled tree must be thoroughly inspected by the approved bat ecologist for further bats.

If any bats are found on the ground or in the tree once felled, place the bat in a cloth bag in a dark, quiet place at ambient (or slightly warmer) temperature and take to a veterinarian for assessment as soon as possible. A maximum of two bats should be kept in one bag. After delivering the bat to the vet, contact an approved bat ecologist at Competency Level 2.1 in consultation with the vet and DOC (0800 DOC HOT, 0800 362 468).

Bats must be kept for three days under observation and must be kept out of torpor for this time. Additional detail is found at the links provided in this footnote[23]. Vets must euthanise bats whose injuries are causing suffering and are not likely to heal sufficiently to allow rehabilitation and return to the wild. The approved bat ecologist at Competency Level 2.1 and vet must consult with DOC to consider appropriate rehabilitation options where suffering is minimal and chances of return to the wild are high.

Euthanised bats or any dead bats (or bat parts) found must be handed to DOC.

[22] https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Bat_Care_Advice.pdf
[23] https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Initial_Vet_Care_NZ_Bats.pdf