FRAMING A BAT STRATEGY FOR THE WAIKATO REGION Themes, outcomes and engaging stakeholders

A discussion document for the Waikato Bat Alliance

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Waikato regional bat strategy: high level outline

PURPOSE OF STRATEGY	To provide a framework for mana whenua, councils and Department of Conservation to collaborate on bat habitat* protection and restoration measures in the Waikato region, share resources and information, align policies and planning, meet new national policy and legislation requirements for bats, and resolve dilemmas and conflict outside legal and planning challenges.			
VISION	The taaonga pekapeka-tou-roa, long-tailed bat is flourishing and treasured in a growing and developing Waikato region.			
ROLE OF ALLIANCE	To coordinate the collaboration of its members (all with a mandate to protect bat habitat or the bats themselves) and engage productively with stakeholders maximising opportunities to achieve its vision.			
PRINCIPLES OF WORK	Collaborative Landscape in perspective Respectful of all parties and world views/perspectives			
WORK STREAMS Outcomes	Planning and policy Across the Waikato region, high-level strategic collaboration between Alliance members has resulted in aligned and effective plans, policies and methods for bat habitat protection and restoration.	Research and monitoring Bat research and monitoring is regionally coordinated, resourced, and designed to address priority information needs. Mana whenua are empowered to contribute maatauranga iwi and hapuu.	Empowerment Communities and landowners have the knowledge, incentives and resources to ensure bats are a treasured, protected and enduring component of the Waikato region's identity	

^{*} Bat habitat = collection of locations that provide the resources and conditions needed for bats to be present, and will include, but may not be limited to, areas that provide for breeding, roosting, foraging, and commuting



This document

The **Waikato Bat Alliance** is a partnership of Waikato-Tainui, Te Haa o te Whenua o Kirikiriroa (THaWK), Ngā Iwi Tōpū O Waipā (NITOW), Waikato Regional Council, Hamilton City Council, Waipā District Council, Waikato District Council, and Department of Conservation.

The Alliance recognises:

- the taaonga status of pekapeka-tou-roa/long-tailed bats to mana whenua of the Waikato region
- the conservation ranking of these native mammals as Threatened, Nationally Critical (the highest threat category for a New Zealand species)
- long-tailed bats are found throughout the Waikato region although the complete range, resilience and sustainability of their populations are unknown
- the presence of bats in Hamilton city and Cambridge is distinctive because of the rarity of bats in New Zealand's urban landscapes
- the habitat of long-tailed bats in the Waikato is under threat
- that development and growth in the Waikato region will continue and therefore needs to be accommodated and managed to avoid, remedy or mitigate adverse effects on bat habitat.
- members of the Alliance have the mandate and regulatory responsibility to protect bat habitat, and
- once they are aware of them, the people of the Waikato have a strong interest in protecting and celebrating the region's bats.

These eight features indicate a complex interface between bats and people in the Waikato – a region where growth pressure overlaps with bat habitat, where there is a desire to protect bats, and where much about bat distribution and long-term needs is uncertain.

The Waikato Bat Alliance believes that addressing the conflicts and opportunities of bat habitat protection will require a region-wide aligned effort across all agencies with a mandate to protect bats and their habitat, as well as increased awareness, understanding and action from people everywhere. For these reasons, the Waikato Bat Alliance has agreed a high-level strategy will be important to shape its bat habitat protection initiatives, as well as a stakeholder engagement assessment to explore how best to involve the people of the region in bat habitat protection.

This document backgrounds the situation including the findings of the stakeholder assessment. It provides a framework for considering the issues and it presents the proposed high-level strategy. This framework will guide and inform collaborative action by the Alliance.

SCOPE

In terms of place, the scope of this document is focused on the approximately 5,900 square kilometres of land that comprises the Waikato and Waipā District Councils and Hamilton City Council — about one quarter of the total area that falls within the regional authority of the Waikato Regional Council (WRC).

It is acknowledged that the 8 other district councils within WRC's boundaries, together with mana whenua iwi and hapuu from these areas, also have an interest in long-tailed bats. The bats themselves will be flying across council boundaries. Sharing the work of the Waikato Bat Alliance and potentially expanding its membership to include all of the Waikato region may be an outcome of this strategy.



Approach to the work

This document is informed by:

- Five meetings of the Alliance and its working groups during 2020. These meetings shaped the parameters of the high-level strategy and agreed on essential contributing information.
- In-depth interviews with most Alliance members.
- Interviews with 25 external groups and individuals with an interest in Waikato bats.
- Background reading of research, expert witness statements and other papers and information.

CONSULTATION

This document is a working draft, designed to frame a proposed approach to bat habitat conservation and to draw organisations and individuals into its implementation over time.

While consultation has been extensive, not all interested parties have been able to be contacted during the time frame of this work. In particular it is to be noted that not all mana whenua represented on the Waikato Bat Alliance have had an opportunity to contribute to recent engagement on this document and that opportunity will need to be extended. Waikato Tainui were able to put forward their perspective and this is provided here.

Consultation with mana whenua should be regarded as incomplete.

Perspective of Waikato Tainui

For Waikato-Tainui pekapeka-tou-roa are a taaonga species and all taaonga species deserve protection.

The conservation of pekapeka-tou-roa should be considered holistically, engaging at the level of an ecosystem/te taiao, and inclusive of all interactions within that. In this respect, rather than a specific focus on pekapeka-tou-roa, there is value in considering the other species that live alongside them that will also benefit from conservation.

To protect pekapeka-tou-roa, we will need a much deeper understanding of her behaviour, her habitat and her needs. This understanding would be enhanced through region-specific, hapuu-specific, cultural monitoring and maatauranga. Waikato Tainui consider an important baseline of such monitoring to be the situation prior to 1863.

Planning for conservation needs to be long-term, a minimum of 50 years.



Waikato long-tailed bats – their story

WHERE ARE THEY?

Long-tailed bats are widely distributed throughout the Waikato region.

Particularly, bats are present in: native forests of Maungatautari, Pirongia, Karioi and the Hunua Ranges; in forest remnants on farm land around Raglan, Huntly, Ngaaruawaahia and Cambridge; and along forested river and stream edges in many places in the region. From these areas, bats' flyways extend across night-dark pasture, particularly where this includes suitable roost trees and linear features such as shelter belts.

In Hamilton City, bats are concentrated in the southern part of the city, in the deep, densely vegetated gully systems and along the Waikato River.

It is highly likely that known bat distribution will expand with increased survey effort. However, because bats are long-lived and highly mobile, finding more bats is not necessarily indicative of the long-term resilience of those populations.

WHAT DO THEY NEED?

Long-tailed bats are highly mobile species whose large home ranges are landscape in scale. They have specialist habitat requirements to provide for roosting, foraging, commuting, and socialising activities. In particular they require:

- Mature trees to roost and breed in. Long-tailed bats are evolved to roost in mature native tree species and they breed more successfully where these are available¹. Where native trees are not available, long-tailed bats depend on exotic trees. Every tree that is selected by bats as a roost is important, chosen by bats because of specific thermal qualities in a roost site. Trees that can provide those special roosts are limited in a fragmented landscape.
- Darkness. Bats avoid areas that are brightly lit at night by street lights and high-density housing. A small increase in housing density from one house to around five houses per hectare correlates with a decline in bat activity by 42%.²
- Productive foraging grounds Bats feed on insects above water, along linear landscape features like shelter belts, and across pasture, where these habitats are night-dark³.
- Flyways. Bats commute between resource patches if there is connectivity between these patches. Landscape connectivity for bats includes roost trees (where bats can rest at night between flying and feeding bouts, and roost during the day), linear features (such as shelter belts that they can fly along and get shelter from wind), and darkness. Some uncertainty remains about what degree of connectivity is important for long-tailed bats and what the major barriers are.
- Predator control to protect them from cats, mustelids, possums and rats.
- Large landscapes that combine all of these features. In and around Hamilton, the home range of individual female bats is up to 1,600 hectares³ and potentially larger than that. Long-tailed bats have high fidelity to their home range. Even when large parts of individual bats' home range are lost to tree felling or habitat disturbance, they are unlikely to move to an entirely new area⁴.



What's going on?

Long-tailed bat habitat is at risk in the Waikato region.

There are three direct threats to bat habitat and ecology, and a number of underpinning causes of those threats. The three direct threats are:

Land development and subdivision

The northern Waikato is undergoing rapid development. There is pressure to increase the area of land available for subdivision and housing, to clear marginal land for carbon storage forestry and to clear trees and forest remnants for dairy intensification. Some of the land where these pressures are focused is existing bat habitat.

Without consideration for bat habitat needs, land development can result in: loss of roost trees; loss of darkness through housing and street lighting; diminishing of connecting commuting routes through the construction of highways⁵ and the removal of shelter belts and vegetation cover; and an increase in predators, including cats accompanying housing subdivision.

Tree felling

Even without land intensification, trees that may be important bat roost sites are being felled as landowners tidy up properties, address health and safety concerns from falling branches, and access firewood. Tree felling can directly kill or injure bats if they are roosting inside them and cannot safely escape. Felling occupied maternity roosts can be catastrophic for a bat social group. And felling any roost tree where these are rare in a landscape diminishes bat habitat.

Predators

Rats, mustelids, possums and cats are all known predators of long-tailed bats.

BAT PROSPECTS

The cumulative and long-term effects on Waikato bats from these threats is unknown.

Bats are long-lived, more than 20 years, so they may persist in an area for decades. We can't yet tell if the widespread presence of bats in the region is evidence they are flourishing or masking a decline in survival. Monitoring⁶ indicates that their populations and social groups are small and that bats have largely disappeared from northern parts of Hamilton City, for example. That makes the breeding potential of every individual critically important.

With real gaps in our understanding of bat needs (how much light can they take? how large do development-free buffers need to be? how many of their roost trees can be cut down? do bat boxes provide short-term benefits? where are the bats anyway?), efforts to explore how we can live with bats while achieving our development goals are experimental, and based on limited existing knowledge and internationally recognised approaches.

Bats cannot be translocated so once they are gone, they are gone. Currently it is estimated that the long-tailed bat population nationally is declining by between six and nine percent a year⁷.



Complexity

Resolving the three direct threats to bats described above will require an exploration of underlying causes, and the challenges and opportunities within these.

In turn it will be helpful to recognise the Waikato bathuman interface as a <u>complex problem</u>, unlikely to be resolved by traditional approaches.

A complex problem has large number of interacting, uncertain and diverse elements to it and as a result, solution finding is elusive. Experts alone can't solve the problem. There are many compelling ideas but no one clear answer.

WORKING EFFECTIVELY WITH COMPLEX PROBLEMS

- There are increased levels of interaction and communication to gather perspectives, generate ideas and open up discussion. Teams that include all perspectives work together to assess which approach is likely to be a better fit for the opportunities that present themselves. There is unlikely to be a best practice or one correct answer so we look for emergent practice – the approach that is having some resonance.
- Certainty will always be elusive so the solution cannot wait for that.
- We set clear boundaries based on bottom lines and work within those.
- A good way to proceed is to discover what aspects of the problem are showing promising resolution and to understand why that is so.
- We'll only know that if we effectively monitor and asses.
- Stimulating small successes, persisting with the pieces that are making headway, helps attract resonating change.
- Using all this information we move forward bravely but cautiously, ready to shift direction if we our assumptions are emerging to be false.
- Respecting and drawing on a range of epistemologies and disciplines; balancing ecological understanding with maatauranga Maaori, social sciences and socioecological system approaches.

Underlying causes: challenges and opportunities

The three direct challenges to Waikato bats described above rest on underlying causes centred on:

- 1. Planning and policy
- 2. Research and monitoring
- 3. Empowerment
- 4. Collaboration

There are other, less tangible, factors that underpin the complex situation between bats and people in the Waikato. These four have been selected as offering the most practical pathways for resolution, and so forming a strong foundation for an effective, impactful and positive bat strategy.



CHALLENGE ONE: PLANNING AND POLICY

CHALLENGES

At the heart of this challenge is a fundamental and largely unexamined planning conflict between the requirement for bat habitat protection and the increasing Waikato population with associated urban expansion, housing demand, and infrastructure requirements. High growth councils are required under national policy (National Policy Statement on Urban Development -NPS UD) to make land available for urban growth and enable higher levels of intensification in existing urban areas. They are also required, under the Resource Management Act, to protect the habitat of endangered species. Under the Wildlife Act, 1953, anyone can be prosecuted if individual bats are disturbed, harmed, or killed. Conflict is most evident where bat habitat overlays housing development areas.

Unprecedented housing development pressure has revealed the gaps in current central government direction and inadequacies of existing local authority planning, policy and regulation to manage this conflict. Existing plans and policies were put in place when the range and needs of bats were even less known than they are now. As a result, planning and policy in the Waikato region are currently inadequate to protect bats and their habitat, and a case-by-case approach is being taken in assessing development proposals and resource consents.

The nature of bats as highly mobile, cryptic, landscape-scale species whose conservation requires people to protect most trees and vegetation in bat inhabited places, challenges the practicality of enforceable and affordable rules about tree felling. This is exacerbated by a lack of knowledge about bats within the planning and policy department of councils, by landowners and by the general public. It is also exacerbated by limited resources for enforcement of rules.

OPPORTUNITIES

A shift in focus is inevitable because:

- Reformed resource management law and a forthcoming National Policy Statement for Indigenous Biodiversity are likely to make habitat protection of highly mobile species such as bats a priority requirement for local government
- It is highly desirable to avoid planning and legal challenges in bat habitat-housing development conflicts, and
- With a growing awareness of bats and understanding of how special they are, there will a greater public desire to enhance their protection. It will become increasingly important for the councils to demonstrate how they are doing this.

As well as being driven by central government policy and law, along with emerging case law, there are existing opportunities to change plans, standards, and rules within local and territorial government to better resolve issues around bat habitat protection. These include district plan changes and reviews, spatial plan reviews, structure plans, reserve management plans, urban design standards, tree and roost protection protocols, and redrafting of indigenous biodiversity strategies. There is opportunity for the Alliance to work together at a strategic level to inform a consistent and effective pathway to collectively protect bat populations and bat habitats and meet other obligations (such as meeting demand for housing).



CHALLENGE TWO: RESEARCH AND MONITORING

CHALLENGES

Bat researchers and consultants are in short supply relative to the need for them. There are few university supervisors able to bring on a new cadre of researchers. Funding for bat research is very limited.

While the fundamentals of bat range and habitat needs are reasonably predictable, there are large and problematic gaps in knowledge that fall under three themes:

- Where are they? What is the range of each of the bat metapopulations, colonies and social groups in the Waikato? What constitutes a 'population'?
- How are they doing? Are they increasing, stable or decreasing? What does their population structure tell us about their long-term survival?
- What do they need? What are the long-term, sustainable requirements for roosts, darkness, flyways and disturbance?

Bats are not easy to study. They are night-active, cryptic, long-lived and use large landscapes in somewhat mysterious ways. Despite this complexity, science is being asked to confidently come up with options for developers and planners so firm and trusted rules can be put in place.

Monitoring of bat populations is taking place but it is largely piecemeal. At a landscape scale, monitoring is uncoordinated, inconsistent and underfunded and its overall purpose is not always clear.

Data on bats in the region is being collected by multiple sources but is not being collated centrally and not being fed back into decisionmaking for planning, policy and rules about bats.

OPPORTUNITIES

Likely because there are long-tailed bats within Hamilton city itself, the Waikato is a hot-spot of research and knowledge of bats in fragmented landscapes. Councils, DOC, Waikato University, Project Echo, Waka Kotahi and a number of consultants working in the region are all contributing to a growing body of knowledge about bats in a fragmented urban and peri-urban environment. With a broader alliance, mana whenua would be empowered to play their part as partners, with maatauranga iwi and hapuu contributing to knowledge and monitoring.

Understanding that bats are landscape-scale species and that new national policy is likely to require councils to consider the special needs of highly mobile species will help lift research efforts from piecemeal to connected. A landscape-scale overview of bats could also help define regional outcomes of monitoring, set clear questions, clarify who is responsible for it, and ensure it is coordinated regionally.

Technology and research methodology are improving all the time. Time, however, is also needed. Adaptive management approaches, caution and patience can help ecologists prepare planners and developers for the art of dealing carefully with uncertainty and experimentation.

Data could be centrally collated, interpreted and included in decision-making for plans and policies. Spatial mapping bat habitat would be an important contribution to decision-making.



CHALLENGE THREE: EMPOWERMENT

CHALLENGES

The uncertainties and constraints of bat habitat protection are compounded by two critical barriers for people everywhere:

Barriers of understanding

Across all stakeholders and partners there is limited knowledge of bats. In councils, consenting, planning and policy teams often do not have access to any information about bats. Landowners are usually unaware they have potential bat habitat on their land and if so, how that could be a good thing. Once bats are discovered there is little understanding about what landowners might do about that. Arborists, at the 'cutting edge' of human-bat interaction, may not recognise or even know to look for bat roosts in trees they have been asked to fell or trim.

Barriers to action

Landowners who encounter bats in trees on their property face a number of barriers to action. They are unsure who they should contact about bats and what official contact might lead to. It isn't clear what best practice is to protect bats, nor is it clear how retaining bat roosts will sit comfortably with health and safety requirements for dangerous trees. Only too clear, in the minds of some, are the costs of bats to subdivision potential. Ecological advice can be costly.

OPPORTUNITIES

There is already passion in the community for bats and a readiness to learn about them. The cultural lens for conservation of the natural world is shifting to concern and engagement. There is unprecedented recent expansion of community-based land care groups, predator and weed control groups and engagement in nature-based activities. This in turn connects with the mana whenua-inspired holistic approach to conservation, where the focus on an individual species (bats) is not as critical as an approach that embraces te taiao/whole ecosystems.

There are opportunities to upskill arborists and there are arborists willing to lead such an initiative. Modules for bat surveying and pruning for roost protection could easily be added to arborist training (Wintec and other training providers). Planners could be offered introductory training workshops in bat issues.

A campaign for bat pride would be engaging to the general public. Community groups and mana whenua have already demonstrated their interest in creating educational initiatives about bats. Bat tours and information evenings are sold-out events. Many landowners are interested to discover they have bat roosts on their land. Engaging local influencers and political leaders, a bat campaign has the potential to make bats a visible and treasured component of the region's identity.



CHALLENGE FOUR: COLLABORATION

CHALLENGES

The key parties with an interest in bats and bat habitat are mostly operating in isolation from one another.

Each council is having to independently draft policies, planning and rules for bat habitat protection. Not only is this piecemeal approach inefficient, but it misses opportunities for alignment and connectedness across landscapes. It also creates inconsistencies and inequities for stakeholders in the region.

Operating without collaborative ways of problem solving, parties are ending up in expensive legal and planning challenges as they argue over bat protection frameworks.

OPPORTUNITIES

As has been demonstrated, the various parties involved in bat habitat protection are dealing with complexity. One of the important defining conditions of working within complexity is collaboration - one group alone will never have all the answers, nor the resources to find all the answers. Increased levels of interaction and communication gather perspectives, generate ideas and open up discussion.

A collaborative working framework best fits the landscape-scale range of bats where, from a bat perspective, no jurisdictional boundary is apparent. It is also more able to embrace the holistic approach to conservation of te taiao that mana whenua call for. It could result in:

- Aligned plans, policies, methods and rules across landscapes
- Better designed plan provisions for bats and development
- Shared resources, information and data
- Shared solution finding outside legal challenges.

There are already community-based initiatives for landscape scale connectivity conservation (Maungatautari to Pirongia Ecological Corridor Project, led by NZ Landcare Trust). This, and other landowner-engaging initiatives offers a platform for collaboration where bat protection could become part of a suite of outcomes for te taiao which the Alliance as a collective could support and partner with.



Who will be part of the solution-finding?

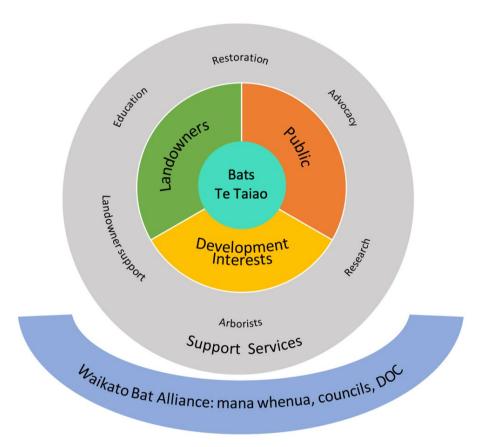
Outside the mana whenua-council-DOC partnership of the Waikato Bat Alliance there are a number of stakeholder cohorts.

In terms of direct influence on bats, landowners (both urban and rural), development interests and the general public form a central grouping.

Contributing to their knowledge, actions and opportunities are clusters of support services. The groups, businesses and institutions that deliver services for bat habitat protection do so across multiple outcomes. Because of this, it is clearer to group them by the service they deliver rather than by type of organisation they are.

Bat habitat protection services that are delivered in the community include:

- Education
- Advocacy
- Restoration
- Landowner support
- Research
- Arborists





Direct Influence Cohorts: LANDOWNERS

Landowners, both urban and rural, directly influence bat habitat protection. Their property-based decision-making and actions affect roost trees, flyways, darkness and the fate of bat predators. They are important stakeholders for the Alliance.

Landowners are a diverse cohort. They encompass land uses such as urban residential, golf courses, lifestyle blocks, land banks, horticulture, tourism, dairy and dry stock farms and forestry blocks, councils and DOC.

There is also diversity in their understanding and acceptance of conservation and in having sufficient resources to manage their property for conservation outcomes. This diversity ranges from landowners being deeply committed and actively engaged; interested but unaware and/or unable to act; disinterested; and actively oppositional.

Despite this diversity, most landowners have points in common.

- Many landowners will willingly engage with, or allow, conservation management of bats on their land but face barriers to action including: lack of knowledge and information; land management concerns (such as health and safety issues); the cost of bat-sensitive tree maintenance and ecological advice; and time availability to do predator control or restore vegetation. Incentives and breaking down these barriers are important engagement points.
- Landowners usually have pride in their land. Dying or weedy trees won't be seen first up as ecological treasures. On the other hand, having an extremely rare native mammal on their property can bring rewards.
- Landowners want to work with people they trust and know. Support organisations, including land care groups, community groups, locally-based NGOs, sector groups (such as Fonterra, Beef+Lamb, and Dairy NZ) and others are often closer to local landowners than council or DOC and can have a better understanding of the issues they face. These support groups are also influencers.
- Demonstration sites, field days, community meetings are enjoyable and informative ways for landowners to learn about bats and see practical ways to help them.
- Landowners are part of their communities and see what their neighbours do. Initiatives to protect
 bats will be visible and talked about locally as will neighbourhood development that fells roost trees
 or disturbs habitat. Consistency and fairness in sharing conservation costs and benefits are
 important to landowners.
- Landowners are positively influenced when: everyone is talking about the value of bats; when accurate information is easily sourced; where bat habitat protection is visible everywhere letter box stickers, social and mainstream media, in local and sector organisations' newsletters; and when barriers to action are easily overcome.



Direct Influence Cohorts: DEVELOPMENT INTERESTS

Development interests include: land developers creating housing subdivision along with the roading and other infrastructure that serves development; dairy intensification; and land clearance for carbon offset tree planting. The impact on bats and bat habitat of these actions have been discussed earlier in this report.

Development interests believe they have a lot at stake in being able to execute their plans with certainty, with fairness and without hindrance. Their interests have been well represented by councils because they are delivering outcomes that councils are required to enable (growth and housing supply). Some developers have put up serious legal and planning challenges to bat habitat protection proposals, in some cases against councils' own objectives on habitat protection.

Development interests note that the rules they are expected to comply with for bat habitat protection must also apply to other land users. A bat roost tree is important whether it is in a farmer's paddock or in the way of a new motorway.

Direct Influence Cohorts: GENERAL PUBLIC

There is a low level of general public understanding about bats. People are sometimes astonished to learn that Aotearoa even has bats. Increasing the general public's knowledge about bats is an important component of the Waikato Bat Alliance strategy.

People who understand the value, rarity and importance of bats create a public who are more likely to:

- understand and support bat habitat protection policies and initiatives
- praise landowners who act to protect bats
- volunteer for community conservation initiatives
- support funding being spent on bat habitat protection.

The Waikato Bat Alliance could play an important role in providing information and educational opportunities about bats directly to the public. The Alliance could align with and support organisations who are already doing this work. These groups are directly connected with the general public as well as with their own networks and alliances. Their involvement in this work is an important component of an awareness-raising strategy.



SUPPORT SERVICES

Contributing to the actions, knowledge and opportunities of landowners, development interests and the general public are clusters of support services.

The groups, businesses and institutions that deliver services for bat habitat protection include, but are not limited to, the following:

- Project Echo delivering education, awareness, research, advocacy
- Go Eco delivering education, advocacy, restoration, and capability development
- University of Waikato (and other New Zealand universities) and DOC providing research and education
- Manaaki Whenua providing research and education
- Consulting ecologists providing monitoring, research and advice
- Riverlea Environment Group engaged in advocacy and hands-on restoration
- Forest and Bird engaged in advocacy, education, awareness-raising
- Waikato Museum providing education and awareness
- Enviroschools providing education and awareness
- Predator Free Hamilton, Cambridge, Mystery Creek and Bush to Burbs engaged in hands-on restoration in urban/rural landscapes
- NZ Landcare Trust providing landowner support, hands-on restoration and awareness raising across landscape-scale connectivity restoration
- Sector support agencies and companies including Fonterra, Beef+lamb,
 DairyNZ, Federated Farmers, New Zealand Association of Small Farmers,
 HortNZ, QEII Trust. This group provides training, support and information to landowners and are also thought-leaders and advocates
- Arborists who provide tree felling and trimming services to landowners and development interests

WORKING WITH SUPPORT SERVICES

The groups, agencies and businesses that provide support services on bats are diverse in their interests, in how they are resourced and in the ways in which they contribute to the regional bat story. They have, in common an interest in contributing to the outcomes of the Waikato Bat Alliance.

Their engagement would be enhanced by the following:

Collaboration

Contributing their special skills, contacts and resources to a collaboratively agreed strategy.

Resourcing

Having access to fresh funding opportunities to pursue their piece of the bigger picture.

Opportunity

Having a place made in the strategy for their ideas and skills and reducing barriers to their engagement.



Bringing it all together

At the heart of the matter, the habitat of the nationally critical taaonga species, pekapeka-tou-roa, the long-tailed bat, overlaps both with housing and development plans for the people of the Waikato region and with landowners managing trees on their properties. As a result of these fundamental conflicts of space and land use, along with threats from predators, long-tailed bats are at risk, an outcome that no one wants. Finding solutions to this dilemma has, to date, been both elusive and fraught. There are, however, real opportunities emerging that can shape a positive response.

NEXT STEPS

Summarising key themes developed in this document, three factors will be important in bringing an effective strategy to life.

High level ownership within the Alliance

Executive and political leadership support for a Waikato Regional Bat Strategy across all Alliance members is needed to bring opportunities to life. The strategy described on the first page is scaled at a high-level to allow early buy-in to broadly described outcomes. Detailed objectives and actions must be developed once high-level agreement is reached.

An emphasis on collaboration

To break down the isolated, piecemeal and under-resourced approach to planning and policy development for bat habitat management, the Alliance parties can collaborate to: develop plans, polices and rules that reflect a boundary-less approach; develop a range of bat management tools; share information, resources and data; and avoid legal and planning challenges. Collaboration is also important with businesses, organisations and groups external to the Alliance as they bring resources and contacts essential to this work.

A willingness to think landscape scale connectivity

Long-tailed bats are highly mobile species whose large home ranges are landscape in scale. A regional bat strategy likewise needs to be thinking and planning at a landscape scale. Solutions and actions need to be connecting and aligning, enhancing opportunities that bring in broad alliances at bat-scale.



EXAMPLES OF EARLY INITIATIVES

Drawing on the interviews completed for this document, ideas for early initiatives emerge. Here's five of them:

Bat blitz

A collaborative Alliance-community bat blitz is designed, focused on likely, but currently unmonitored bat territory.

Bat habitat identification

Spatial planning gets underway to delineate special bat habitat areas and design planning rules essential for bat habitat protection.

Rules

A collaborative working group is established to help Alliance members agree on and define bat habitat protection rules, currently the centre of legal and planning challenges and the focus of angst by landowners, planners and arborists. While certainty about what is going work long-term for bats is elusive, clarity can still be provided. Rules for clarity would be set cautiously (so bats are less likely to be lost through experimentation) and they would be adjustable as research fills in knowledge gaps.

Capability development

- Support is provided to train arborists in basic bat habitat identification and management. Rules and resources are put in place to ensure councilcontracted arborists have this information.
- Modules for training planners in bat habitat protection are used by planners and policy makers throughout the region.
- Community groups and mana whenua are resourced to build public understanding of bats.
- Alliance members support and resource community-led landscape scale connectivity programmes where bat habitat protection could be advanced.

Regional bat team

Alliance members pool resources to support a roving regional bat team that supports each council in bat habitat protection advice. The team also works with landowners and support groups to provide free or inexpensive ecological advice to people wanting to manage habitat for bats. The team manages a central hub of information about bats, accessible to the public.



REFERENCES:

¹ Sedgeley J.A. and O'Donnell C.F.J. 2004. Roost use by long-tailed bats in South Canterbury: examining predictions of roost-site selection in a highly fragmented landscape. *New Zealand Journal of Ecology* 28(1): 1-18

²Le Roux D.S. and Le Roux N.N. 2012. Hamilton City-Wide Bat Survey 2011/12. Unpublished report prepared for Project Echo by Kessels and Associates, Hamilton. https://www.waikatoregion.govt.nz/assets/WRC/WRC-2019/2193861 Hamilton Citywide Bat Survey Report 2011 2012.pdf

³ Davidson-Watts 2019. Long-tailed bat trapping and radio tracking, baseline report 2018 and 2019 Southern Links, Hamilton. Report prepared for AECOM by Davidson-Watts Ecology (Pacific) Ltd.

⁴ Borkin K.M, and Parsons S. 2014. Effects of clear-fell harvest on bat home range. PLoS ONE 9(1): e86163. doi:10.1371/journal.pone.0086163

⁵ Borkin K.M., Smith D.H.V., Shaw W.B. and McQueen J.C. 2019. More traffic, less bat activity: the relationship between overnight traffic volumes and *Chalinolobus tuberculatus* activity along New Zealand highways. *Acta Chiropterologica* 21(2): 321–329.

⁶ Project Echo Hamilton city surveys 2011-2021, available here: https://www.waikatoregion.govt.nz/environment/biodiversity/bats/

⁷ Pryde M.A., Lettink M. and O'Donnell C.F.J. 2006. Survivorship in two populations of long-tailed bats (*Chalinolobus tuberculatus*) in New Zealand. *New Zealand Journal of Zoology* 33: 85-95; Pryde M.A., O'Donnell C.F.J. and Barker R.J. 2005. Factors influencing survival and long-term population viability of New Zealand long-tailed bats (*Chalinolobus tuberculatus*): Implications for conservation. *Biological Conservation* 126: 175-185.

