Tā Te Kaunihera o Tāmaki Makaurau Whakamauru i te Tipu Riha mā ngā Ara Taiao – Te Toro ki ngā Mana Whenua

# Auckland Council Pest Plant Biological Control – Mana Whenua Engagement

Dr Ellery Kirkpatrick

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# Executive summary

Auckland Council operates a biocontrol programme to help control widespread pest plant species in the Tāmaki Makaurau / Auckland region. Auckland Council has obligations to Ngā Iwi Mana Whenua o Tāmaki Makaurau that historically have not been met by the biocontrol programme's Māori engagement. The purpose of this report was to support Auckland Council to engage meaningfully with mana whenua about the biocontrol programme by providing an overview of existing Māori engagement and perspectives on biocontrol across national and regional scales.

## Engagement at the national level

Engagement with Māori about biocontrol at the national level primarily occurs through the process of applying to the Environmental Protection Authority (EPA) to introduce biocontrol agents into the country. The EPA has many systems in place to ensure that Māori perspectives are included in the application process. However, a review of the literature and documentation associated with the process indicated that there are consistent issues with Māori engagement about biocontrol at the national level.

Key concerns identified were non-response of Māori to pre-lodgement engagement and calls for submissions, lack of mana whenua capacity and competing demands, limited local engagement beyond the release site, lack of Māori involvement at an early enough stage in the process, and limited availability and accessibility of information. Some efforts to address these concerns are already underway and require the collaborative participation of multiple agencies involved in the biocontrol process.

Through national engagement processes Māori respondents raised concerns over the potential implications of biocontrol for important cultural aspects such as kaitiakitanga, whakapapa, and taonga. Key concerns were also raised around non-target impacts, past failures, lack of confidence in research and monitoring, and the introduction of more exotic species into the environment. These concerns highlight the importance of ensuring that Māori perspectives are considered in the biocontrol process and that meaningful engagement occurs early in the process as well as at the proposed place of release, while noting that there is no singular Māori view on biocontrol, with each iwi, hapū, and whānau possessing a different perspective [17].

## Engagement at the regional level

Engagement with Māori about biocontrol at the regional level generally occurs through regional councils/unitary authorities. As delegates of the Crown, regional councils/unitary authorities have general obligations towards Māori, but there are no universal processes or expectations specifically regarding Māori engagement about biocontrol at the regional level. A survey of the regional councils/unitary authorities in the Biosecurity Working Group indicated that the regional approach to Māori engagement around biocontrol is ad hoc. Most councils will engage with all iwi in their region when acting as the main applicant in the EPA process for bringing new biocontrol

agents into the country. However, when intending to release new agents into their region very few councils engage with all iwi, focusing instead on iwi or hapū whose rohe covers the proposed release site. Very limited engagement occurs around releases of agents already present in the region, with only a couple of councils engaging with Māori groups in such instances.

Given the issues surrounding Māori engagement around biocontrol at the national level and the ad hoc nature of engagement at the regional level, it is therefore entirely possible for an agent to be released into the rohe of a particular iwi/hapū without any engagement with that iwi or hapū having taken place. Many councils are aware of the inadequacy of their past engagement with Māori around biocontrol and are currently seeking to improve their practices for the future.

## Engagement with the mana whenua of Tāmaki Makaurau / Auckland

Engagement with the Ngā Iwi Mana Whenua o Tāmaki Makaurau / Auckland about biocontrol has historically been ad hoc. Recognising the need for improved engagement, Auckland Council undertook a series of semi-structured interviews with mana whenua representatives from 18 of the 19 recognised mana whenua entities in the region. Each interview explored the mana whenua representative's opinions on and experiences with pests, pest plant management, and biocontrol.

While representatives held a variety of views, there was a general aversion to using herbicides for pest plant control, along with limited experience or understanding of Western approaches to biocontrol, and a lack of comfort in the use of biocontrol. Concerns were raised about the potential for biocontrol agents to negatively impact taonga, the surrounding environment, tikanga ā-iwi/ā-hapū, and whakapapa, as well as the lack of indigenous involvement in the process and the extensiveness of the scientific testing and monitoring regime.

Many of the mana whenua representatives interviewed expressed that Auckland Council and/or other agencies had failed to adequately engage with mana whenua about biocontrol. Evidence of the lack of engagement was seen in the lack of knowledge and awareness of biocontrol and its use in Tāmaki Makaurau / Auckland among many of the mana whenua representatives. Moving forward, mana whenua representatives wanted better communication and relationship building incorporated into the biocontrol programme. Several mana whenua representatives also expressed a desire for opportunities to train and be actively involved in the biocontrol space.

The following recommendations are suggested to guide future biocontrol delivery by Auckland Council:

- Mana whenua will be made aware of any releases of biocontrol agents within their rohe that have occurred in the past, and all subsequent monitoring that has occurred.
- All releases should be preceded by engagement with the mana whenua in whose rohe the release is proposed to take place and should not go ahead if that mana whenua is opposed to the release. Engagement should address accompanying tikanga for the release as well.

- Following releases, regular updates should be provided to the mana whenua in whose rohe the release was made, to provide information on the agent's establishment, spread, and impact.
- Auckland Council should identify and pursue opportunities for active mana whenua involvement and learning in the biocontrol process and in general pest plant management, and support Māori-led initiatives exploring the cultural implications of pest plant biocontrol.
- Auckland Council should seek mana whenua input to identify pest plant species to prioritise for biocontrol development.
- Auckland Council should look for opportunities to facilitate better engagement between mana whenua and other agencies involved in biocontrol, such as Manaaki Whenua Landcare Research and neighbouring regional councils, including advocating for involvement of tangata whenua early in the agent prioritisation process and development of guidance for engagement.

# Conclusion

There are issues in the current state of Māori engagement about biocontrol at both national and regional levels. The ad hoc nature and limited reach of historic engagement around biocontrol have led to a lack of Māori perspectives informing biocontrol process at the national scale and a lack of mana whenua knowledge and awareness of biocontrol processes at a regional scale.

Meaningful engagement with Māori around biocontrol is important, both because of the various obligations the agencies involved in biocontrol have towards Māori, and also because the use of biocontrol consistently raises concerns among Māori. For many Māori, biocontrol is a new kaupapa, and they are unfamiliar with the concepts and outcomes of its use. Investing in opportunities to further Māori understanding of and involvement in the biocontrol process is necessary to address concerns brought up around the use of biocontrol and support Māori to make well-informed decisions on whether they support or oppose it.

Historically, Auckland Council's biocontrol programme has involved limited engagement with the mana whenua of the region. Moving forward, Auckland Council will improve their engagement with Ngā Iwi Mana Whenua o Tāmaki Makaurau by focusing on building strong relationships, communicating clearly and consistently, and actively involving them in all stages of the biocontrol process. In doing so, Auckland Council has the opportunity to model and advocate for improvements to be made at the national level and in other regions, so that Māori are more adequately engaged in the biocontrol process across Aotearoa / New Zealand.

# Table of contents

# 1. Introduction

## 1.1 Rationale for the report

Auckland Council operates a biocontrol programme as a key tool in managing widespread pest plant species across the region, contributing to long-term, sustainable control efforts that protect indigenous biodiversity and primary production within the region. Historically there has been limited engagement with Ngā Iwi Mana Whenua o Tāmaki Makaurau with this programme, which fails to meet Auckland Council's obligations as a Tiriti partner and threatens the longevity of the biocontrol programme. The aim of this report was to support Auckland Council to engage meaningfully with mana whenua around the biocontrol programme, by providing an overview of existing Māori engagement and perspectives on biocontrol across national and regional scales. The information contained in this report was obtained through literature reviews, an email survey, and face-to-face interviews. The insights gained from this engagement will inform and strengthen Auckland Council's future collaboration with Ngā Iwi Mana Whenua o Tāmaki Makaurau on pest plant biocontrol initiatives.

## 1.2 Structure of this report

The first section of this report summarises the biocontrol process in Aotearoa / New Zealand, the agencies usually involved in pest plant biocontrol, and what is known from available literature about Māori perspectives on pest plants, pest plant control, and biocontrol. The second section summarises Māori engagement and perspectives on biocontrol at a national level by reviewing documents and literature associated with biocontrol applications to the Environmental Protection Authority. The third section presents information gathered from a survey of regional councils/unitary authorities to provide an overview of Māori engagement around biocontrol at a regional level. The fourth section focuses specifically on engagement with Ngā Iwi Mana Whenua o Tāmaki Makaurau / Auckland, summarising the process and outcomes of a series of face-to-face interviews with mana whenua representatives and outlining several recommendations for Auckland Council to more meaningfully engage with mana whenua about the biocontrol programme. The final section concludes the report with a brief summary of the key findings and recommendations.

## 1.3 The biocontrol process in Aotearoa / New Zealand

Once a pest species has been identified as a target for biocontrol, the biocontrol process typically involves five key steps: prioritisation, identification of natural enemies, host-specificity testing, regulatory approval, and monitoring (Figure 1.1). Māori engagement should be occurring at all stages of the process, but historically has only occurred consistently at one or two. Biocontrol practitioners

must first secure funding to pay for research into potential biocontrol agents for the chosen target species. This research is then carried out, which usually first consists of canvassing populations of the target pest species both in Aotearoa / New Zealand and in the plant's country or countries of origin to find natural enemies that could act as biocontrol agents. Potential biocontrol agents are then subjected to host-range testing to determine how host-specific agents are; whether they will attack anything other than the target pest species. Once this research has been carried out, the biocontrol practitioner, or someone acting on their behalf, will submit an application to the Environmental Protection Authority (EPA) asking for permission to release the biocontrol agent into the country. If the EPA approves the application, the biocontrol practitioner can then release the biocontrol agent into the environment. Sites where the biocontrol agents are released are then monitored to determine if the agent has successfully established a population, and what impacts the agent is having on the target pest species and surrounding environment.

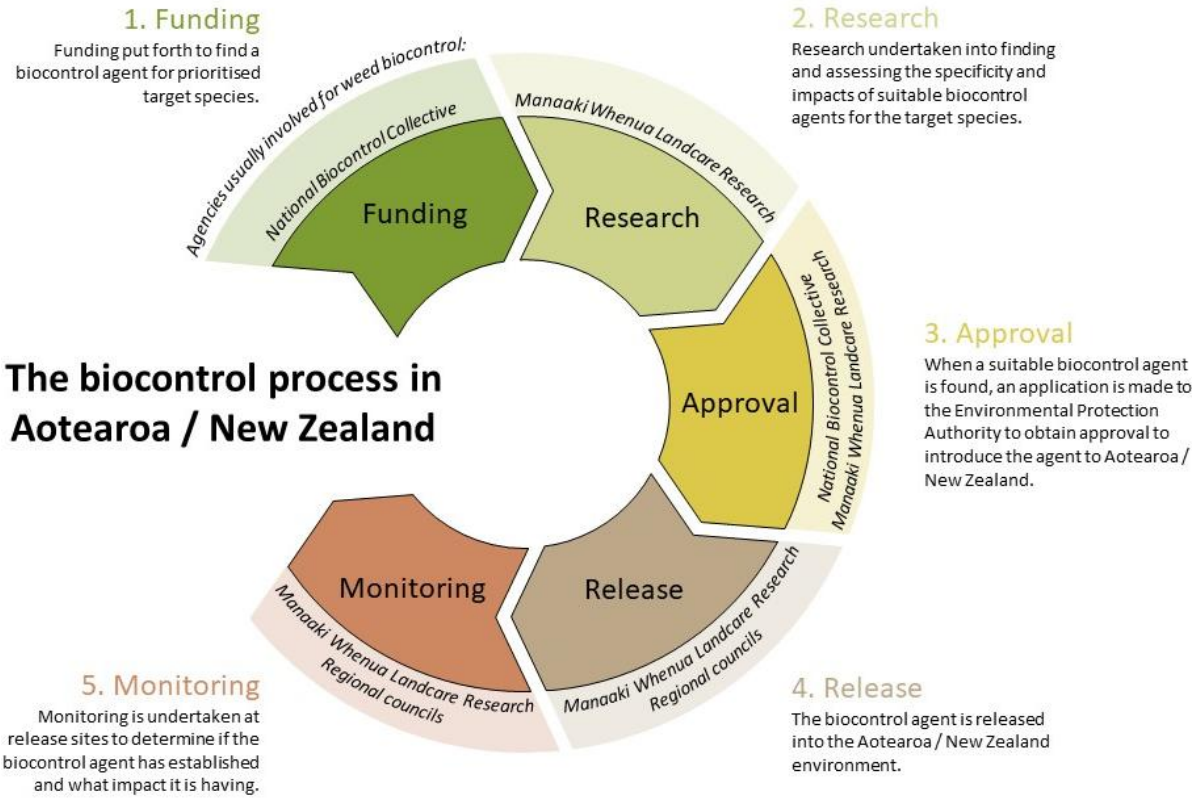


Figure 1.1 Broad summary of the biocontrol process in Aotearoa / New Zealand and the agencies usually involved for pest plant biocontrol. Note that Māori engagement should be occurring throughout all stages of this process.

## 1.4 Key organisations in pest plant biocontrol

### 1.4.1 National Biocontrol Collective

Formed in 2002, the National Biocontrol Collective (NBC) is a group currently composed of 15 regional councils and unitary authorities, and the Department of Conservation [1]. The collective nature of the NBC allows for national alignment on pest plant biocontrol programmes, collaborative prioritisation of target pest plant species, and pooled resources to fund research and rearing of biocontrol agents. In the years since its formation, the NBC has invested over $10 million into pest plant biocontrol research, which has resulted in the release of 25 biocontrol agents [1]. The NBC also initiates and funds monitoring to check whether established biocontrol agents are having any non-target impacts on other plant species in the environment. Research and monitoring funded by the NBC is generally carried out by Manaaki Whenua Landcare Research.

### 1.4.2 Manaaki Whenua Landcare Research

Manaaki Whenua Landcare Research hold most of the expertise in pest plant biocontrol science in Aotearoa / New Zealand. On behalf of, and with funding from, biocontrol practitioners they undertake or oversee the research for practically all pest plant biocontrol projects in the country, prepare the application to the EPA, and manage the application process. They also rear the agents for release, maintain a database of agent releases, conduct some post-release monitoring, publish a quarterly pest plant biocontrol newsletter, and run occasional biocontrol training and information workshops. To make post-release monitoring as simple and affordable as possible, Manaaki Whenua also developed the National Assessment Protocol, which was adopted by the NBC. The National Assessment Protocol follows a hierarchical, step-based approach that increases the complexity and expense of monitoring operations with each step [2]. Under the protocol, the focus of monitoring is on determining the agent's establishment and effectiveness rather than its potential non-target effects [2]. Although the National Assessment Protocol does not focus on non-target effects, Manaaki Whenua has also delivered ground-truthing of the safety and host-specificity claims of previous applications [3] [4] [5] [6] [7]. As a Crown Research Institute, Manaaki Whenua have no direct statutory obligations arising from a particular act of law (Crown Research Institutes Act 1992; [8]), but they have committed to upholding the principles of the Treaty of Waitangi [9].

### 1.4.3 The Environmental Protection Authority

Applicants wishing to introduce a new biological control agent to Aotearoa / New Zealand must apply for permission from the EPA, formerly the Environmental Risk Management Authority (ERMA). The EPA operates under the Hazardous Substances and New Organisms (HSNO) Act 1996 [10], which regulates the importation, field testing, and release of new organisms to Aotearoa / New Zealand, genetic modification, and the importation and manufacture of hazardous substances such as pesticides [11]. The provisions of the HSNO Act that relate to new organisms came into law in 1998 [11]. Under these provisions, a new organism must be proven to both have beneficial effects that outweigh any adverse effects and meet a set of minimum standards before approval is granted for its

introduction and release in Aotearoa / New Zealand (section 38, HSNO Act 1996). The effects of an organism are evaluated in the five key areas of environment, public health, economy, people and communities, and Māori culture, and are given a weighting based on whether the effects are significant or negligible [12]. The minimum standards require that any new organism will not cause any significant displacement of native species, deterioration of native habitats, adverse effects on human health and safety or Aotearoa / New Zealand's genetic diversity, and will not cause or vector disease or be parasitic, unless explicitly intended to (section 36, HSNO Act 1996). In assessing an application and making their final decision, the decision-making committee (appointed by the EPA board) receives advice from EPA staff and Ngā Kaihautū Tikanga Taiao (the Māori advisory committee, appointed by the EPA board), as well as considering any submissions from the public.

## 1.4.3.1 Inclusion of Māori perspectives in the EPA

### Ngā Kaihautū Tikanga Taiao

Ngā Kaihautū Tikanga Taiao, the Māori advisory committee, consists of 4-8 members that are appointed to their position by the EPA board [13]. ERMA established Ngā Kaihautū in 1998 to provide them with advice on Māori issues [14], and in 2003 Ngā Kaihautū was given statutory backing through an amendment of the HSNO Act 1996. This statutory backing was continued with the formation of the EPA in the Environmental Protection Authority Act 2011 (section 18 [15]). The purpose of Ngā Kaihautū is to provide a Māori perspective around HSNO issues and to protect, uphold, and apply tikanga and mātauranga Māori to EPA policy, processes, and decisions [16] [17] [18]. Ngā Kaihautū acknowledge that there is no single Māori perspective and views differ between iwi, hapū, marae, and whānau [17]. They therefore do not represent the unified views of Māori, acting instead as 'process guardians' to ensure that these distinct views have the opportunity to be heard by the EPA [14].

If an application has particular importance to Māori, Ngā Kaihautū can choose to appoint tikanga, mātauranga, and Tiriti experts to inform the decision-making process [17]. Ngā Kaihautū considers that the impact of any application on Māori should be considered in light of five areas of concern: te taiao (environment, native flora, and fauna); te ao Māori, mātauranga, and kaitiakitanga (culture); taha wairua and mauri (health and well-being); whai rawa ora (economic development and sustainability); and Te Tiriti o Waitangi (the Treaty of Waitangi) [17].

### Kaupapa Kura Taiao

Kaupapa Kura Taiao, made up of EPA staff, is the Māori unit of the EPA, and was established in 2003 to improve the participation of Māori in HSNO decision-making processes [19]. Kaupapa Kura Taiao provides support and advice to Ngā Kaihautū and the Authority and liaises with stakeholders to ensure that Māori perspectives are properly represented [20]. They ensure that applications to the EPA have considered Māori perspectives and meet the Treaty of Waitangi principles [21]. Kaupapa Kura Taiao also established and continue to manage the EPA's Māori network; Te Herenga [22].

### Te Herenga

Te Herenga, formerly the Māori National Network, is a network of Māori resource and environmental practitioners, managers, and experts who represent iwi, hapū, or Māori organisations [22]. It was

established by ERMA (prior to becoming part of the EPA) to improve Māori participation in HSNO decision-making [14], and the EPA uses the network to disseminate information on upcoming applications, hold regional and national hui and wānanga, and develop relationships with Māori stakeholders. Up to two representatives of each iwi, hapū, or Māori organisation can become members of Te Herenga, who are registered with the EPA [22]. Although its members may be representatives of iwi, hapū, and organisations, they act as individuals and Te Herenga has no representative authority as a collective group [22]. Membership of Te Herenga has fluctuated since its establishment in 2003 [23] but the current network spans Northland, Auckland, Waikato, Bay of Plenty, Gisborne, Hawkes Bay, Palmerston North, and Wellington, with some members located in the South Island (Kaupapa Kura Taiao, pers. comms, February 2022).

#### Māori Reference Groups

The EPA can assist in the formation of a Māori reference group to provide comment on an application. This ensures that the application has been assessed from a Māori perspective and is recommended for any application deemed to potentially have a high impact on Māori interests [24]. Māori reference groups are generally composed of three to five kaupapa Māori specialists sourced from relevant industry, business, research, iwi, and environmental sectors and possessing expertise in areas such as tikanga, mātauranga, science, environment and resource management, and business (Kaupapa Kura Taiao, pers. comms, February 2022; [25]). Although the EPA can help in forming a reference group, the cost of convening such a group is usually borne by the applicant (Kaupapa Kura Taiao, pers. comms, February 2022). Reference groups may consider more than one application or provide insight relevant to more than just the current application. One such reference group was convened in 2015 to assess a suite of biocontrol applications submitted by Manaaki Whenua Landcare Research. In its report, the group highlighted the importance of the principles of kaitiakitanga, manaakitanga, and whakapapa, as well as the importance of culturally valued species and the need for regionally specific engagement [26].

#### He Whetū Mārama and the mātauranga framework

He Whetū Mārama is the EPA's corporate statement, recognising the unique relationship and role of Māori in Aotearoa / New Zealand's environment and wellbeing [17]. It is guided by the four Treaty principles of partnership, protection, participation, and potential, and seeks to enable decision-making informed by Māori perspectives and productive relationships between Māori and the EPA [17].

The EPA has also recently created a framework for decision-makers to understand and appropriately handle mātauranga when it is given as evidence [27]. They envision such a framework as a waka hourua, a double hulled canoe of mātauranga and Western science travelling together in the same direction [27]. This ensures that Māori perspectives are not disregarded simply because they originate from a knowledge system other than Western science.

## 1.4.4 Regional councils/unitary authorities

As well as their collaborative involvement as part of the NBC, regional councils/unitary authorities are also involved as individual entities in the pest plant biocontrol process through their regional

leadership role under the Biosecurity Act 1993. Regional councils/unitary authorities organise the release and post-release monitoring of pest plant biocontrol agents within their respective regions. They are also generally the relationship-holders with mana whenua and relevant stakeholders in their region and so often assist Manaaki Whenua Landcare Research in conducting the required engagement for the EPA application process. There is no specific policy that outlines regional councils'/unitary authorities' obligations to Māori regarding biocontrol, but in general, as delegates from the Crown they have to take appropriate account of the Treaty principles, and as local authorities they must provide opportunities for Māori to contribute to decision-making processes (Local Government Act 2002 [28]). Many regional councils/unitary authorities also have internal policies and frameworks that outline their commitment to Māori.

## 1.5 Māori perspectives on pest plants, pest plant control, and biocontrol

There is no single Māori perspective on biocontrol, with different individuals, whanau, hapū, and iwi holding a variety of views. The following sections summarise te ao Māori perspectives that are documented in the published literature.

### 1.5.1 Pests and pest plants

There is no universal consensus on what makes a species a 'pest' [29]. No direct analogue exists for the word 'pest' in traditional te reo Māori, although there are kupu with comparable meanings [30]. Traditional Māori concepts of a 'pest' did not have the same connotation of inherent badness that is present in the English understanding of the term, and traits of 'pests' could be considered useful or even admirable in certain situations [30]. Pests in general, and pest plants specifically, can be thought of as something that disrupts the balance of what is conceptualised in te ao Māori as the natural order of the world [31] [32]. Mauri, the essence that sustains all life, is an essential aspect of the web of interconnections that makes up the natural world, and when pest plants impact the environment, those connections can be weakened or broken and the mauri begins to fade from that system [31] [32]. Māori views on pest plants therefore tend to be holistic and can reflect priorities based on cultural understanding. For instance, many Māori may place importance on covering Papatūānuku after she has been stripped bare, which means that abundant exotic plants dominating a site are not necessarily considered pests, as they may be thought of as healers of the otherwise bare and injured whenua [32].

### 1.5.2 Pest plant control

In addition to having a holistic view, Māori often tend to take a long-term view that seeks to ensure the health of the whenua is maintained for future generations to benefit from [32]. Acceptance of pest plant control methods can therefore depend on the cumulative impacts of their use over long time periods. Attitudes to pest control in general can also be influenced by factors such as family and societal well-being, individual and tribal tikanga, and to a lesser extent financial and Te Tiriti

considerations [33]. Māori respondents in studies on views around conservation and pest management have shown opposition to the 'do nothing' control approach but have also considered that human intervention should be a last resort, and ideally carried out in a way that mimics a naturally occurring process [34] [35] [36]. The desire for pest control to mimic a natural process means that although there is no one Māori view on the use of chemicals in the landscape, the use of herbicides to control pest plants can be a common concern, especially when used in areas used for harvesting rongoā [32]. Control methods can also be of concern to Māori if they are non-targeted [34], as can be the case for certain herbicides. Although some of the risks around herbicide use can be quantified by scientific testing, aspects that Western science typically does not consider such as wairua and whakapapa are important elements of Māori interaction and connection to the environment, and herbicides could impact these in ways that are not fully understood [32]. Approaches to pest plant control that utilise a purely Western scientific risk assessment can therefore be seen as inadequate by Māori [37].

### 1.5.3 Biocontrol

The tendency for Māori to favour using natural processes to manage pests is aligned well with the mechanism of biocontrol [32] [36]. There are accounts of early Māori utilising biocontrol as a tool, by using birds to control pest caterpillars in their crops [30]. Modern pest plant biocontrol uses exotic organisms to control exotic pests, and the non-native origin of pest plant biocontrol agents can be a barrier to accepting this method. The abundance of exotic species in an environment can be symbolic to Māori of colonisation, mirroring their experience of being overwhelmed by newcomers and suffering a subsequent loss of connection and identity [32]. While the introduction of new species to Aotearoa is not an inherently non-Māori practice, as the first Māori deliberately brought new species with them, it is the environmental impact and management of these more recent exotic species that is the issue [30] [32]. Therefore, for Māori, it must be demonstrated that biocontrol agents are safe before they can be used, but there can be mistrust that the government or Western scientific institutions will engage appropriately and take the wishes of the people into account [33] [36] [37].

The use of pest plant biocontrol can also have implications for whakapapa. Recently introduced exotic species have no whakapapa or presence in oral traditions [30] but introduced plants and their indigenous herbivores can be linked through whakapapa, as in one account of the whakapapa of kūmara which includes caterpillars that attack the plant and kiore that attack the harvested tubers [38]. Furthermore, a consideration for some individuals is the whakapapa of exotic plants held by indigenous peoples in the plant's whenua of origin. These elements indicate that the absence of whakapapa for recently introduced exotic species has a cultural heritage element rather than being solely about their biogeographical origins [30]. Indeed, the purpose of whakapapa is not to emulate phylogeny or reflect taxonomy, but to maintain a harmonious balance of the inter-relational web specific to a place [38]. There is therefore nothing preventing new species being incorporated into whakapapa, save that their introduction to Aotearoa occurred at a volume and rate far beyond the capacity of the existing systems to adapt to [38].

# 2. Engagement at the national level

Māori engagement around biocontrol at the national level primarily occurs through the EPA application process. Under the HSNO Act 1996, all persons exercising functions, powers, and duties under the Act are required to take into account the principles of the Treaty of Waitangi, as well as the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, valued flora and fauna, and other taonga (sections 8 and 6(d) of the HSNO Act 1996). The EPA therefore requires applicants to engage with Māori before they lodge their application, and advises the applicant of the level and type of engagement they need to participate in. This provides the opportunity to include and address any issues that are raised by Māori in the actual application. Until recently, pre-lodgement engagement for biocontrol applications has mainly involved sharing information with the Te Herenga network and inviting feedback, alongside local engagement through regional councils in areas where initial agent release is planned. Pre-lodgement engagement has also included presentations at hui and forums, face-to-face discussions, and information placed in Māori-focused newsletters or websites.

Māori also have the opportunity to provide feedback on final applications during the public submission period. Once the application has been lodged, the EPA notifies the public through their website, newspapers, and contacting of interested parties [39]. The public then has 30 working days to make a submission on the application, and submitters can choose whether they want to present their submission at a hearing [40].

## 2.1 Issues with engagement at the national level

In many ways, the EPA represents a good standard of investing in Māori relationships and incorporating Treaty principles in the decision-making process [14]. However, despite the initiatives, policies, and support that the EPA has provided to applicants and interested Māori stakeholders, there are still issues that are consistently raised during Māori engagement in the pre-lodgement and submission processes.

### 2.1.1 Non-response to pre-lodgement engagement and public submissions

Despite efforts to engage through Te Herenga and regional councils, most iwi, organisations, and individuals contacted during the pre-lodgement phase did not respond to the applicant. For 37 EPA applications lodged between 1999 and 2022, the response rate for pre-lodgement engagement ranged from 0% to 40%, with an average response rate of 8 ± 2% and an average of 5.6 ± 0.9 responses received per application. However, exact details of responses were difficult to determine for some applications, especially the older ones. Limited awareness of HSNO legislation and the role of the EPA may result in reluctance to participate in the application process [41], but the majority of contacted Māori were from the Te Herenga network, for which this is presumably not applicable.

During most attempts at engagement the Te Herenga network comprised between 80 to 170 members, so given the large pool of contacts a low response rate could be expected if an application was only deemed relevant to the interests of a select few. However, even instances of targeted communication with those having relevant industry interest have also failed to result in any responses (e.g., [42]). Non-responses during the pre-lodgement engagement can be perceived by the applicant as implicit approval, or an intention to wait until the submission period to engage [43]. However, these assumptions are not necessarily valid, and Māori that do engage with the application process emphasise that a lack of response does not mean that Māori have no concerns [44] [45]. An unexpressed concern has the same validity as an expressed concern [45], but if it is not raised through participation in the engagement process the applicant cannot address it. Interactive forms of engagement such as face-to-face meetings or discussions over the phone have a higher response rate compared to disseminating information through email or postal networks and asking for feedback, but such forms are typically not feasible at a national level due to number of parties involved and are therefore usually reserved for regional or local engagement.

Low numbers of Māori submissions have also been a cause for concern [46]. The percentage of Māori submissions among recorded public submissions on biocontrol applications ranged from 0% to 46%, with an average of 9 ± 2%. Of the total 51 recorded Māori submissions on all biocontrol applications, 26 (51%) were from Ngāi Tahu or an associated hapū. Ngāi Tahu is the principal mana whenua group for most of Te Waipounamu / the South Island, which likely contributes to their high number of submissions. As each mana whenua entity speaks only for itself, the variety of Māori perspectives among the public submissions is therefore lacking for many applications. Ideally, a breadth of mana whenua perspectives would be captured in the public submissions, as each mana whenua entity may have a different definition of what a restored ecosystem is within their rohe and may attach special value to a different suite of species [26].

### 2.1.2 Lack of capacity, competing demands for attention

Responses to pre-lodgement engagement and submissions on applications cannot be explained by a lack of interest. Rather, many mana whenua face constraints on their capacity, time, and resources that make engagement difficult [47] [48]. Several Māori respondents stated that they could not afford to participate in engagement at a national level due to limited resources and capacity, or because more important matters demanded their attention [49] [50]. Engagement with Māori is a requirement for all HSNO applications, not just those for biocontrol, and there are multiple other agencies besides the EPA that also request Māori engagement [51]. Mana whenua can therefore be inundated with requests for engagement and many of the engagement processes, such as public submissions on notified EPA applications, have a specific timeframe in which they must occur. Furthermore, if mana whenua feel that their views will not be adequately considered, there is little incentive to participate in any engagement process [47]. To address this, some applicants have supported mana whenua requests for remuneration, which both mitigates resource constraints and recognises the value of their perspective (e.g., [52]).

Some mana whenua have also suggested that the applicant could pay for a mana whenua-chosen independent consultant to assess applications [49]. Having the research peer-reviewed by someone

with a mātauranga background would address the capacity challenge of having to provide a thorough assessment of the research and how it addresses Māori concerns [53]. It would also have the benefit of ensuring that a Māori peer-review process occurred, something that a few respondents were concerned about [54] [55].

### 2.1.3 Limited local engagement beyond applicant's region and first release sites

Mana whenua want to be engaged with and notified when releases are planned near or within their rohe [49] [53] [56] [57] [58] [59]. However, beyond the Te Herenga network, local engagement during the application process has historically only occurred within the applicant's locale or, if different, the area intended for first release of the agent. This is despite most biocontrol agents being intended for eventual distribution throughout multiple regions of the country. For example, many biocontrol applications have historically been made by a single, region-specific applicant on behalf of the National Biocontrol Collective, so that multiple authorities can pool their resources and benefit from one application (Appendix 1). Releases of agents are therefore not intended to be restricted to the applicant's region, but this is often where the only local engagement takes place during the application process. Members of the NBC and Manaaki Whenua Landcare Research have acknowledged this issue in the past and sought to improve their local engagement practices [56] [60] as well as making the NBC itself the applicant, thereby making the national implications more explicit, but it remains an area of concern.

### 2.1.4 Māori not involved early enough in the process

The EPA's guidelines state that effective Māori engagement needs to be conducted early during the development of an application [17]. While Māori respondents appreciated being involved during the pre-lodging phase of an application, some felt that this was not early enough [52] [53] [54]. Several respondents wanted engagement to happen in the planning stage, before biocontrol as a method had been decided upon, or before the host-testing of an agent had been carried out [54] [59] [61] [62]. It was suggested that mana whenua involvement in planning a biocontrol programme would ensure inclusion and recognition of their values [59], and it might go some way to prevent expressed feelings of merely being a 'spectator' or a tokenistic part of the application process [53] [63]. The NBC has acknowledged that this is a shift that needs to occur. In addition to desiring involvement in the beginning stages of a biocontrol project, some Māori also wished to be more involved after the application had been approved, such as participating in the rearing and release of the agent and being informed of outcomes following the release [53] [58] [62] [64].

### 2.1.5 Availability and accessibility of information

As mentioned above in regard to capacity issues, providing a thorough assessment of an application can be challenging for Māori engaging with the application process. In addition to this, sometimes the information provided within the application is not deemed to be extensive or accessible enough to make an informed response [53] [64] [65] [66]. Besides the desire for more education on biocontrol

in general (e.g., [67]), specific areas where information was felt to be lacking were the role of alternative or complementary control methods in relation to biocontrol [68] [69] and the process of host-range/specificity testing [49] [70].

## 2.2 Māori perspectives from engagement with the EPA process

There is no singular Māori view on biocontrol, with each iwi, hapū, and whānau possessing a different perspective [17]. However, a few common themes have emerged over the years of Māori engagement during the application processes for biocontrol agents.

### 2.2.1 The principles of kaitiakitanga, manaakitanga, and whakapapa

Taonga such as air, water, soil, flora, and fauna are perceived by Māori as gifts from their tīpuna [71]. Māori have a responsibility as kaitiaki to preserve these gifts for future generations, protecting the mauri of the natural resources and environment [71] [72]. The emphasis of kaitiakitanga on providing for future generations means that Māori must take a long-term view when assessing environmental changes [26]. Exercising this long-term view in regard to individual biocontrol applications can be difficult, which is why long-term monitoring and data sharing is so important to kaitiaki Māori, and a consistent theme brought up in engagement surrounding biocontrol applications [26].

As the mauri and natural balance of the environment can be threatened by unnatural changes, such as the introduction of an exotic organism [49], introducing a biocontrol agent to Aotearoa / New Zealand can feel at odds with the principle of kaitiakitanga [42]. However, a successful biocontrol agent could provide a means to restore balance in degraded ecosystems, promoting environmental and community well-being in the present and future [26] [73]. Such an outcome would fall within the principles of kaitiakitanga. There is therefore a trade-off between the potential impact of a biocontrol agent on the mauri of an ecosystem and the current known impact of the target pest plant or animal on the mauri of that ecosystem. It is up to kaitiaki to decide their comfort levels around this trade-off and opinions are diverse [74].

Manaakitanga is the reciprocal process of providing support and hospitality which occurs between members of an iwi, hapū, or whānau, and visitors. Demonstrating manaakitanga enhances the mana of the hosts or providers, and as such it is a key cultural practice [26]. The ability to carry out manaakitanga relies upon kaitiakitanga and the successful maintenance of environmental balance [26]. Biocontrol therefore has the potential to impact upon manaakitanga, as an introduced biocontrol agent could either disrupt that balance or restore it to a more natural state [26].

Maintaining the balance of nature through kaitiakitanga also promotes taha wairua, spiritual health [73]. Biocontrol can therefore enhance taha wairua if the agent helps to protect the mauri and restore the balance of an environment [73]. Additionally, biocontrol can also promote taha hinengaro, mental health, if the outcomes of an agent's release (e.g., pest plant suppression) align with correct application of tikanga and mātauranga [73]. By the same token, biocontrol has the potential to

negatively affect taha wairua and taha hinengaro if Māori perceive it as threatening their role as kaitiaki or their exercise of tikanga or mātauranga.

Kaitiakitanga is part of a mātauranga Māori framework that uses whakapapa to explain the relationship between humans and the environment [26] [72]. Under this framework, Māori and native flora and fauna share a common genealogy, and as such are interdependent upon one another [72]. These whakapapa relationships form an interconnected web, so that an impact upon one species in the web will have flow-on effects to the rest of them. There is therefore a concern among Māori that the introduction of an exotic organism such as a biocontrol agent (i.e., one not sharing the same whakapapa) will disrupt their whakapapa relationships [72].

### 2.2.2 The importance of native and culturally valued taonga

One of the primary concerns consistently raised by Māori in the pre-lodgement engagement and submission process is the potential for the agent to attack or adversely affect native or culturally valued species [41] [43] [49] [50] [54] [56] [64] [67] [70] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85]. Māori consider these species as taonga, and as such they come under the protection principles of kaitiakitanga. Some respondents also placed value on non-native species, as in situations where the pest plant targeted for biocontrol was occasionally beneficial to Māori either as rongoā, soil enrichers and stabilisers, or as shelters or food sources for taonga [78] [26]. As kaitiaki, Māori need applicants to demonstrate that the biocontrol agent will not harm the mauri of taonga and their environment [72] [80] [86] [87]. This can be a challenge, as while physical impacts upon taonga are measurable, it is much harder to measure metaphysical impacts, such as the impact upon a species' mauri [49] [88]. Applicants can therefore have a hard time convincing Māori that biocontrol will not adversely impact native species if their perception of risk differs from the purely physical.

### 2.2.3 Lack of confidence in the evidence

Māori respondents want the applicant's research to be rigorous and provide the highest degree of certainty that the agent will not impact negatively upon the mauri of their taonga [41] [72] [84]. Concern has also been raised over the potential for agents to mutate or evolve into a new species [49], host-switch [41] [53] [77] [86], change their behaviour [78], or adapt to and feed upon a native species over time [43] [89]. The host-range testing conducted by the applicant addresses these concerns from a Western science perspective, but sometimes is not considered sufficient to address these concerns for Māori [41] [49] [53] [66] [83] [84] [90]. Host-range testing is carried out using internationally accepted standards, enabling researchers to identify and test the species most at risk of non-target impacts [5], although Māori may consider host-range testing insufficient if they perceive it to not include enough native species, and there is a desire for mana whenua to determine which taonga to include in the tests [62] [89] [90] [91] [92] . Māori have also emphasised that there is much we currently do not know about our ecosystems, and this needs to be properly accounted for in assessing the risks of a new species [68] [77]. Furthermore, the current method of host-range testing can be perceived as unsatisfactory because of its streamlined focus. To make it feasible, host-range testing only focuses on those potential host species that are most at risk, but the holistic Māori

worldview focuses on all direct and indirect relationships that a new species will have in an ecosystem [53] [63]. There can therefore be a disconnect between what is prioritised through Western scientific testing and what evidence is requested to address Māori concerns.

Uncertainty around the behaviour of biocontrol agents in new environments can make Māori wary [53] [78] [87]. Respondents consistently urge adherence to the precautionary principle [41] [67] [70] [75] [82] [83] [93], which is embedded in the HSNO Act 1996 and requires decision-makers to consider the need for caution in the presence of scientific uncertainty (section 7, HSNO Act 1996). Māori concerns over uncertainty are often raised by the use of certain language in the applications. Terms such as “negligible”, “highly unlikely”, or “improbable”, and phrases or statements such as “it suggests”, “quite host-plant specific”, “vast majority of native species are unlikely to be affected”, or “it is expected” are not reassuring to Māori and can make the science appear to be based on assumptions rather than empirical evidence [64] [84] [90] [94] [95] [96] [97]. Although the EPA does use and provide definition for some of these terms, without this definition and context the terms can cast doubt upon the certainty of the applicant’s research conclusions.

### 2.2.4 Past failures

Biocontrol is often viewed with caution or outright negativity due to past introductions of species with purported benefits that ended up being pests such as stoats, rabbits, possums, and ornamental plants [42] [43] [50] [53] [54] [69] [98]. Although relatively few of these introductions were attempts at biocontrol, the ones that were (e.g., stoats) caused devasting impacts that mana whenua are still dealing with today. Māori expressed concerns that agents would become pests themselves [42] [61] [67] [69] [80], and if that happened the applicant would not be held accountable, leaving Māori and other groups to deal with the problem [41] [57] [84]. There was also a more general concern that Aotearoa / New Zealand has too many introduced species already and introducing more for the purposes of biocontrol would further dilute the proportion of native species [86]. Such concerns are exacerbated when applicants propose introducing multiple agents for a single target species [46]. In the holistic Māori worldview of interconnected relationships within ecosystems, introductions of multiple agents are viewed cumulatively and therefore with caution [68]. There is a concern that impacts of introduced agents may compound upon each other, increasing cultural and environmental pressure in ecosystems that are already fragile [46].

### 2.2.5 Inherent undesirability vs. trade-offs

Some Māori respondents were inherently against the introduction of exotic organisms to Aotearoa / New Zealand regardless of their intended purpose [43] [53] [67] [75] [76] [77] [99], while others were less diametrically opposed, but still viewed the notion with general wariness (e.g., [41] [42] [50] [59] [70]). For those not fundamentally opposed to biocontrol, the inherent undesirability of introducing an exotic organism into Aotearoa / New Zealand could be outweighed by the benefits it would deliver, as long as it was environmentally safe. These benefits included economic or commercial gains, the reduction in the use of pesticides or chemicals, and the control of potentially devastating pests [42] [44] [53] [67] [77] [94] [100] [101] [102]. Some respondents recognised the benefits of reduced

pesticide use but believed this did not outweigh the perceived risks of introduced organisms in Aotearoa / New Zealand [67] [75].

### 2.2.6 The need for monitoring

Māori respondents consistently called for the establishment of monitoring programmes in the event the application was approved [41] [45] [55] [56] [68] [69] [78] [84] [85] [97] [103] [104] [105]. For some respondents this was because of a lack of confidence in the safety of the agent's introduction [68] [69] [84] [97] [104]. In addition to providing an indication of whether an agent might be having unexpected impacts, monitoring also helps Māori to exercise their functions of kaitiakitanga in their respective rohe [88] [106]. It is therefore generally seen as an essential part of biocontrol programmes, with a representative of Ngāi Tahu stating, "The way we see it… if you don't have the money to monitor post release, then you don't have the money for the project." [78].

## 2.3 Conclusion

The importance of meaningful Māori engagement through the EPA application process is emphasised by the principles, values, and concerns brought up by Māori responding to previous applications. Biocontrol has direct relevance to Māori, with potential implications for important cultural aspects such as kaitiakitanga, whakapapa, and taonga. Concerns around non-target impacts, past failures, lack of confidence in research and monitoring, and the introduction of more exotic species into the environment need to be addressed by applicants seeking to increase the comfort levels of Māori around biocontrol. However, adequately addressing these concerns cannot be achieved without an increased investment in meaningful Māori engagement.

As outlined in this section and in section 1.4.3.1, the EPA has many systems in place to ensure that Māori perspectives are included in the application process for introducing biocontrol agents to Aotearoa / New Zealand. These systems may represent important steps forward in improving Māori engagement around biocontrol at the national level, but there are still consistent issues that have yet to be resolved. Non-response of Māori to pre-lodgement engagement and calls for submissions, lack of mana whenua capacity and competing demands, little local engagement beyond the release site, lack of Māori involvement at an early enough stage in the process, and limited availability and accessibility of information all limit the number and diversity of Māori perspectives being considered in the biocontrol application process. Addressing these issues is an ongoing process that will take time and the involvement of multiple agencies throughout all stages of the biocontrol process. This report will provide recommendations for improving Māori engagement with biocontrol at the regional level, which is an important step towards tackling these issues and improving engagement at the national level.

# 3. Māori engagement at the regional level

Māori engagement about biocontrol at the regional level generally occurs through regional councils/unitary authorities. Additionally, regional councils/unitary authorities are expected to be the local relationship-holders with their region's mana whenua and to support them to engage in the national process, though there is a lack of clear messaging and guidance to do this. As mentioned in section 1.4.4, regional councils/unitary authorities have various Tiriti, statutory, and internal policy obligations to Māori, but none that address biocontrol specifically. To better understand engagement practices around biocontrol, a short survey was sent out to all other regional councils/unitary authorities through the Biosecurity Working Group in 2022 (Appendix 4). The survey enquired about the Māori engagement practices of the councils when submitting an application to the EPA, intending to release a new agent into their region, and intending to release an agent already present in the region. It also asked whose agreement was sought before agents were released within the region. Responses were received from 14 councils (all except West Coast Regional Council).

## 3.1 Regional level engagement for the purposes of submitting an EPA application

Ten of the 14 councils that responded to the survey answered the question about which Māori groups they would engage with when submitting an EPA application to import a biocontrol agent into the country. Six of these councils had been the main applicant on an application to the EPA in the past, so they answered based on prior experience. The other four councils answering the question had not been the main applicant before, so they answered hypothetically. The majority of these councils (67% of those with prior experience, 75% of those answering hypothetically) stated they have/would have engaged with all iwi within their region for the purposes of submitting an EPA application to import a biocontrol agent into the country (Fig. 3.1). The remaining councils (33% of those with prior experience, 25% of those answering hypothetically) have/would have only engaged with iwi whose rohe covered the intended release site (termed 'relevant rohe') (Fig. 3.1). The other four out of the 14 councils did not answer the question (or responded 'No' to all options), either because they were unsure or because they believed they had not been the main applicant on an application to the EPA in the past. However, all of these councils (Canterbury, Bay of Plenty, Marlborough, and Southland) have been main applicants in the past (in 2004, 2009, 2011, and 2012 respectively; Table A1) but the contact at these councils was either apparently unaware of this or unsure about the process they followed.

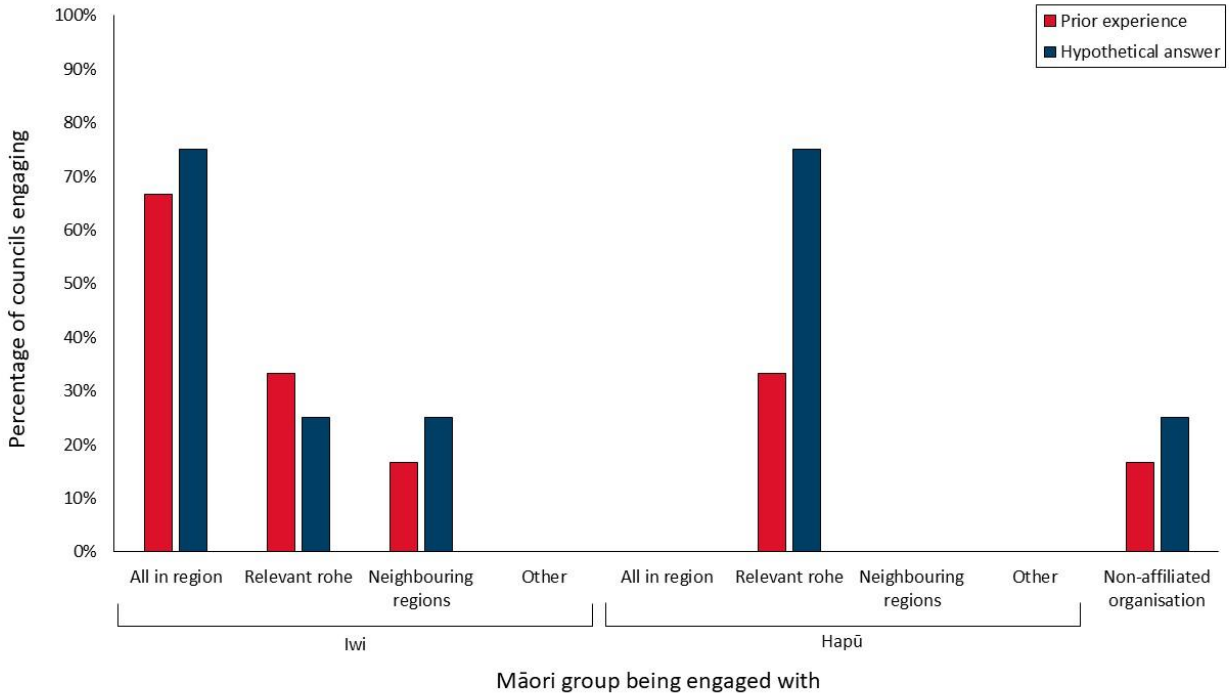


Figure 3.1 Percentage of councils that engage with different Māori groups for the purposes of submitting an application to the Environmental Protection Authority (EPA) to import a biocontrol agent into the country. Councils answered based on prior experience (n = 6) or hypothetically (n = 4).

All councils with prior experience as a main applicant engaged with Māori via email or letter, usually alongside other forms of engagement such as phone calls, face-to-face meetings, workshops, and presentations at hui (Fig. 3.2).

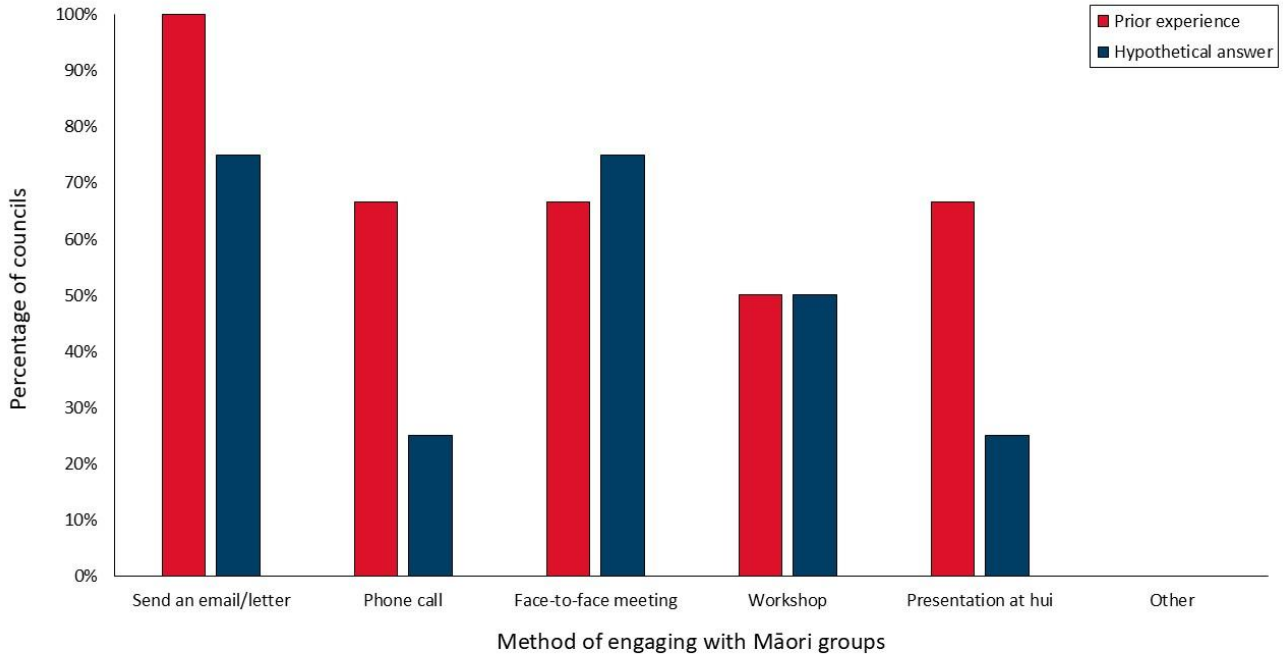


Figure 3.2 Percentage of councils that use different methods to engage with Māori groups for the purposes of submitting an application to the Environmental Protection Authority. Councils answered based on prior experience (n = 6) or hypothetically (n = 4).

## 3.2 Engagement for the purposes of releasing biocontrol agents within the region

13 of the 14 councils who responded to the survey answered the question about their engagement process when intending to release a biocontrol agent which had not been released in their region before. The contact at the remaining council was unsure of their process in this instance and did not answer the question. Ten of the 13 councils (77%) stated that they carry out engagement with a Māori group when intending to release a new biocontrol agent into the region, while the remaining three currently do not engage with any Māori groups in this instance. Of those engaging with Māori, most are only engaging with iwi or hapū with rohe covering the proposed release sites (Fig. 3.3).

All 14 councils answered the question about their engagement process when intending to release a biocontrol agent which had already been released in their region, or was otherwise already present. Only two of these councils (14%) carry out engagement with a Māori group in this instance.

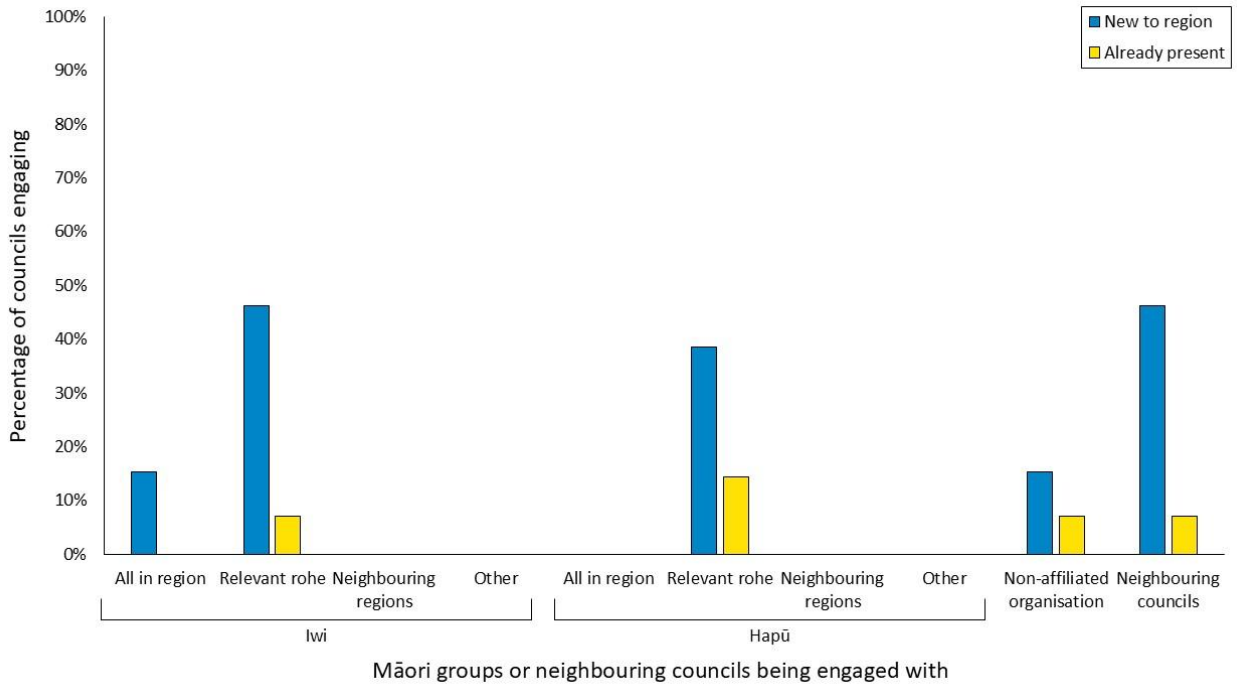


Figure 3.3 Percentage of councils engaging with different Māori groups or neighbouring councils when intending to release biocontrol agents that are new to (n = 13) or already present in their region (n = 14).

Councils engaging with Māori groups when intending to release biocontrol agents within their region use a variety of engagement methods (Fig. 3.4). Most councils send an email or letter to engage around release of an agent new to the region, but other more involved methods of engagement are also commonly used, particularly phone calls and face-to-face meetings.

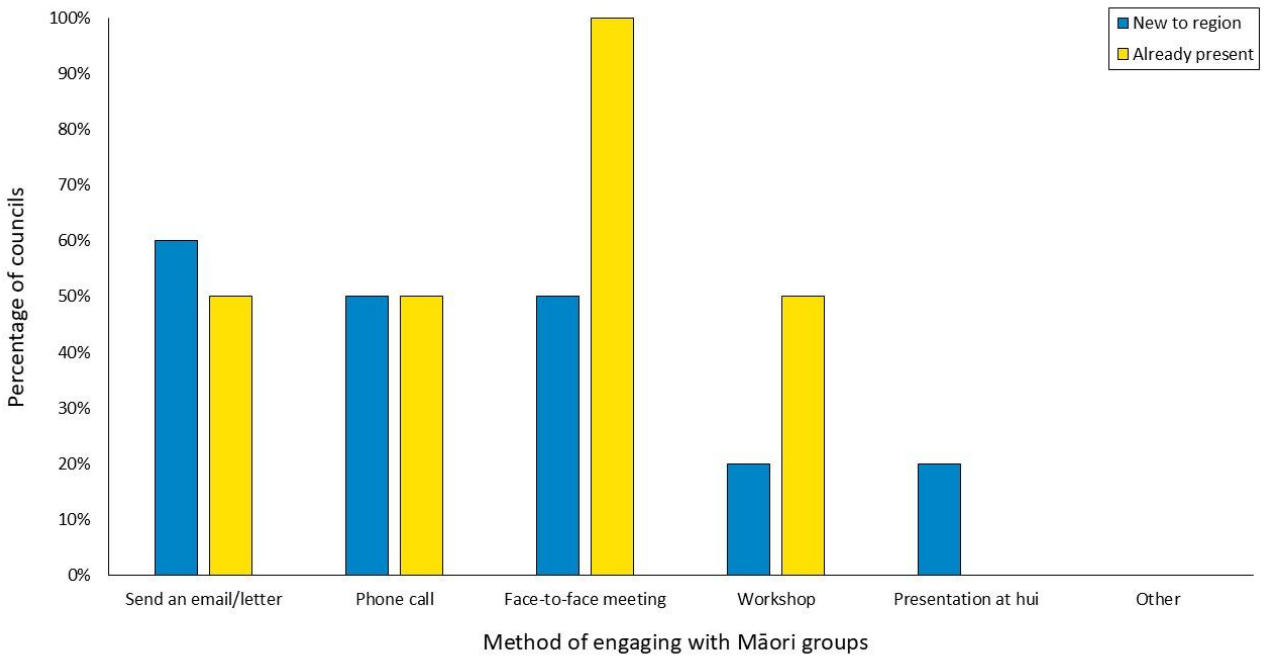


Figure 3.4 Percentage of councils using different methods to engage with Māori groups when intending to release biocontrol agents new to (n = 10), or already present in (n = 2), their region.

## 3.3 Obtaining approval for the release of agents within the region

13 of the 14 councils answered the question about which Māori groups they would obtain agreement from before releasing an agent which had not been released in their region before. The contact at the remaining council was unsure of their process in this instance and did not answer the question. Four of the 13 councils (31%) always obtain agreement from a Māori group before releasing a new agent into the region (Fig. 3.5). Three of these councils obtain the agreement from iwi and hapū whose rohe covers the release site (the fourth only has one iwi to engage with, so by default engages with all iwi in the region). Five out of the 13 councils (38%) sometimes obtain agreement from a Māori group when releasing a new agent, usually from iwi or hapū with rohe covering the release site. The remaining four councils currently do not obtain agreement from a Māori group before releasing a new agent into their region.

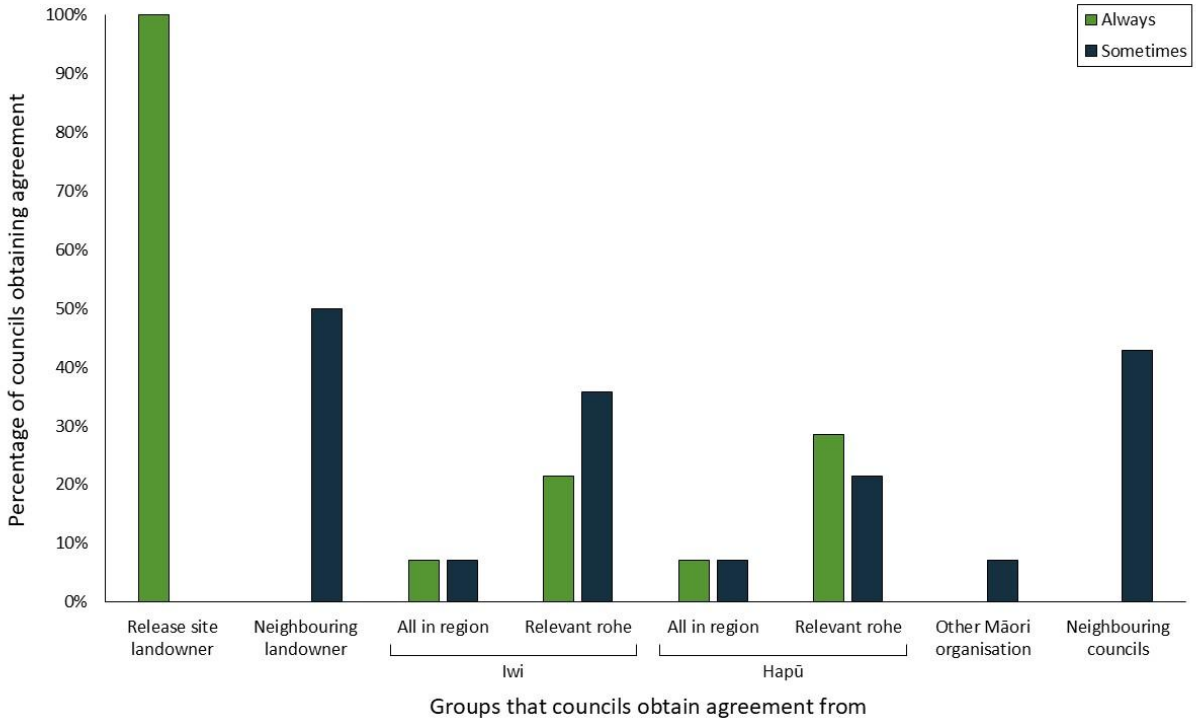


Figure 3.5 Percentage of councils (n = 14) obtaining agreement from different groups before releasing new biocontrol agents into their region.

Two out of 14 councils (14%) always obtain agreement from a Māori group before releasing an agent already present within their region (Fig. 3.6). One of these councils obtains agreement from iwi and hapū with relevant rohe (the other only has one iwi to engage with, so by default engages with all iwi in the region). Three other councils (21%) sometimes obtain agreement from an iwi or hapū with relevant rohe before releasing an already-present agent. The remaining nine councils currently do not obtain agreement from a Māori group before releasing an agent already present in their region.

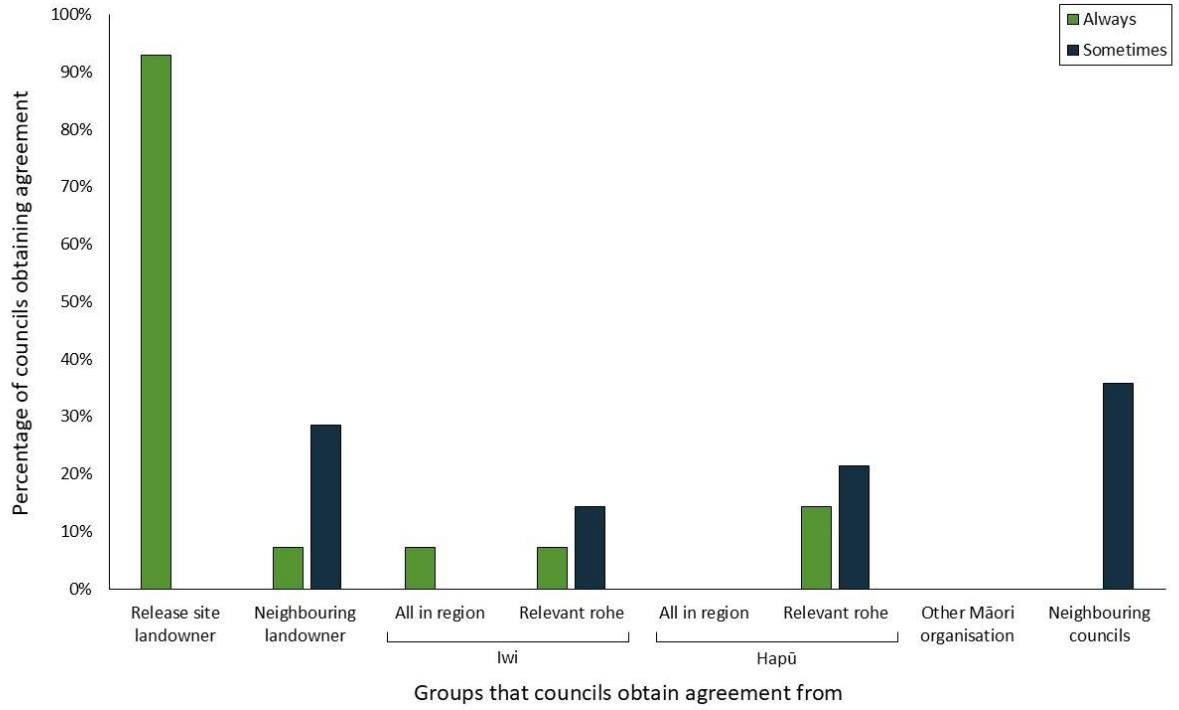


Figure 3.6 Percentage of councils (n = 14) obtaining agreement from different groups before releasing biocontrol agents already present in their region.

## 3.4 Conclusion

Overall, the approach to Māori engagement about biocontrol at the regional level appears to be ad hoc. The most consistent Māori engagement among councils occurs around the national level process of applying to the EPA to bring a new agent into the country, possibly because there are more explicit expectations and requirements around the process. Very few councils engage with all iwi in their region when planning to introduce new biocontrol agents into the region, and hardly any engage with Māori at all when intending to release agents already present in the region. Most engagement around agent releases is only occurring with those iwi or hapū whose rohe covers the intended release site. Similarly, if agreement is sought from Māori groups before releasing agents into the region, it is primarily sought from those groups with relevant rohe.

Capacity restraints contribute to the lack of region-wide engagement, given most councils have upwards of eight iwi entities in their region [107], limited resources, and generally only a few staff working on biocontrol. Lack of capacity on the part of Māori groups was also brought up in several comments by survey participants, with councils not wanting to waste the limited time and resources of iwi and hapū over something that may be of limited relevance to them. However, while only engaging with Māori groups with relevant rohe may cater to capacity restraints, the ability of biocontrol agents to disperse themselves around the landscape means that region-wide engagement is important for releasing biocontrol agents. As discussed in section 2.1.3, councils cannot assume that appropriate engagement has occurred during the EPA application and submission process. Given the issues surrounding Māori engagement around biocontrol at the national level and the ad

hoc nature of engagement at the regional level, it is entirely possible for an agent to be released into the rohe of an iwi without any engagement with that iwi having taken place. The inadequacy of past regional engagement with Māori groups was generally acknowledged by councils participating in the survey, and many commented that work was currently underway to improve engagement for the future. Although the engagement process presented in this report was developed specifically for Tāmaki Makaurau / Auckland's biocontrol programme, this approach should be considered by other councils. Similarly, the report's recommendations have broader relevance and potential for wider application to improve Māori engagement with biocontrol programmes across Aotearoa / New Zealand.

# 4. Engagement with Ngā Iwi Mana Whenua o Tāmaki Makaurau

## 4.1 Engagement to date

### 4.1.1 Engagement at the national level

Auckland Council recognises 19 regional mana whenua authorities [108]. Seven of these mana whenua (equating to 37% of Tāmaki Makaurau / Auckland mana whenua) have been documented as engaging with the EPA application process for biocontrol agents. Engagement by these seven mana whenua occurred by either responding to pre-lodgement engagement (86% of mana whenua, 76% of total engagement responses) or by making a post-lodgement submission on the application (57% of mana whenua, 24% of total engagement responses) (Table 4.1). These seven mana whenua are: Ngāti Whātua Ōrākei (engaged on five applications), Ngātiwai (4), Waikato-Tainui (4), Ngāti Pāoa (1), Ngāti Rehua Ngātiwai ki Aotea (1), Ngāti Te Ata (1), and Ngāti Whātua (1). Four of the 12 biocontrol applications that Tāmaki Makaurau / Auckland mana whenua have engaged on have related to agents designed to control pest insect targets, rather than pest plant targets. There are some fundamental differences in programmes targeting pest insects, and these are outside the scope of the current report.

Kaupapa Kura Taiao has engaged with Ngā Iwi Mana Whenua o Tāmaki Makaurau through Te Herenga and its predecessor the Māori National Network. The annual/bi-annual national network hui has been held in Tāmaki Makaurau / Auckland three times (2004, 2009, 2018), along with regional network hui and individual hui with certain mana whenua within Tāmaki Makaurau / Auckland. Currently, five members of Te Herenga's network are located in the Tāmaki Makaurau / Auckland region, some with connections to Te Tai Tokerau iwi and hapū (Kaupapa Kura Taiao, pers. comms, February 2022). While discussed on occasion, biocontrol has not been the sole topic of engagement, as the EPA's mandate covers a variety of issues, such as hazardous substances and genetically modified organisms.

Table 4.1 Summary of known engagement by Ngā Iwi Mana Whenua o Tāmaki Makaurau during the Environmental Protection Authority application process for the introduction of biocontrol agents to Aotearoa / New Zealand.

| Year | Applicant | Biocontrol agent | Target pest | Mana whenua engaging | Engagement type | Mana whenua position |
|---|---|---|---|---|---|---|
| 1999 | Hawke's Bay Pipfruit IFP Group 20 | Parasitoid wasp | Mealybug | Ngātiwai | Pre-lodgement | Unknown |
| 1999 | New Zealand Citrus Growers Inc & Avocado Industry Council | Parasitoid wasp | Thrips | Ngātiwai | Pre-lodgement | Unknown |
| 1999 | Auckland Regional Council | Gall fly | Mist flower | Ngātiwai | Post-lodgement | Opposed |
| | | | | Ngāti Whātua | Post-lodgement | Unknown |
| 2003 | Forest Research | Weevil | Buddleia | Waikato-Tainui | Pre-lodgement | Unknown |
| 2004 | Environment Canterbury | Leafroller butterfly | Boneseed | Ngāti Pāoa | Pre-lodgement | Not opposed |
| | | | | Ngāti Te Ata | Pre-lodgement | Unknown |
| | | | | Ngāti Whātua o Ōrākei | Post-lodgement | Conditional support |
| 2007 | Auckland Regional Council | Leaf beetle | Tradescantia | Ngātiwai | Pre-lodgement | Unknown |
| | | | | Ngāti Rehua-Ngāti Wai ki Aotea | Pre-lodgement | Unknown |
| 2009 | Environment Bay of Plenty | Lace bug | Woolly nightshade | Ngāti Whātua o Ōrākei | Pre-lodgement | Unknown |
| 2010 | Scion | Parasitoid wasp | Gum leaf skeletoniser | Waikato-Tainui | Pre-lodgement | Unknown |
| 2011 | Waikato Regional Council | Beetle | Moth plant | Ngāti Whātua o Ōrākei | Pre-lodgement | Unknown |
| | | | | Waikato-Tainui | Post-lodgement | Not stated |
| 2011 | Northland Regional Council | Rust fungus | Lantana | Ngāti Whātua o Ōrākei | Pre-lodgement | Unknown |
| 2011 | Auckland Council | Stem and tip beetles | Tradescantia | Waikato-Tainui | Pre-lodgement | Unknown |
| 2016 | Horticulture New Zealand Inc. | Parasitoid wasp | Tomato potato psyllid | Ngāti Whātua o Ōrākei | Pre-lodgement | Support |

### 4.1.2 Engagement at the regional level

Similar to other regional councils/unitary authorities, Auckland Council has historically engaged with mana whenua around biocontrol on an ad hoc basis. The last time Auckland Council acted as an applicant to the EPA for pest plant biocontrol was in 2011/2012, and there are no records of the extent to which the mana whenua of Tāmaki Makaurau / Auckland were engaged with during this application. Although there have been many releases of 27 different biocontrol agents in Tāmaki Makaurau / Auckland (Appendix 3), until recently there has been no consistent practice of mana whenua engagement for the release of new and existing biocontrol agents within the region. What engagement there was tended to be mana whenua-initiated, or as a side effect of other work programmes. This engagement tended to focus on individual mana whenua and specific agent release events, although in 2018 a general presentation was given to a forum of 13 mana whenua representatives on the role of pest plant biocontrol and its use in Tāmaki Makaurau / Auckland.

## 4.2 Interviews with Ngā Iwi Mana Whenua o Tāmaki Makaurau 2021-2023

Recognising the need for improved engagement with mana whenua around biocontrol, in 2020 Auckland Council hired contractors to conduct semi-structured interviews with each of the 19 mana whenua of Tāmaki Makaurau / Auckland in order to establish an engagement framework for future biocontrol work. Representatives from seven mana whenua were interviewed in late 2020/early 2021, but due to COVID and complications with the contractor the work fell through. It was decided to refresh the interview process and start again with an in-house approach. The aim of the interviews was to canvas Ngā Iwi Mana Whenua o Tamaki Makaurau views on the current regional biocontrol programme and discuss a new inclusive framework for biocontrol work going forward.

### 4.2.1 The interview process

During the period from 6 December 2021 to 7 November 2023 we interviewed mana whenua representatives from 18 of the 19 recognised mana whenua in Tāmaki Makaurau / Auckland. We held one interview session each with representatives from Te Kawerau ā Maki, Te Ākitai Waiohua, Te Ahiwaru Waiohua, Ngaati Whanaunga, Ngāti Tamaoho, Ngāti Maru, Ngāti Pāoa Trust Board, Te Patukirikiri, Ngā Maunga Whakahii, Te Uri o Hau, Waikato-Tainui, Ngāti Te Ata, Ngāti Whātua Ōrākei, Ngāti Manuhiri, Ngāti Tamaterā, Ngāi Tai ki Tāmaki, Ngātiwai, and Ngāti Rehua Ngāti Wai ki Aotea. Ngāti Pāoa Iwi Trust did not have the capacity to engage in the process and Te Rūnanga o Ngāti Whātua deferred to the positions of Ngāti Whātua Ōrākei, Nga Maunga Whakahii, and Te Uri o Hau. Each interview was conducted online through Microsoft Teams by a core team of three staff from Auckland Council, sometimes with one to two extra staff attending if they were the local relationship holders for the rohe of the particular mana whenua entity. The number of mana whenua representatives participating in the interview varied from one to six. Five of the mana whenua

representatives, each from a different mana whenua entity, had taken part in the earlier interview format with our contractors.

Each interview session lasted between one to two and a half hours and consisted of three sections (Appendix 5). In the first section the mana whenua representative was asked a series of questions about their views on pests, pest plant management, and biocontrol. In the second section Auckland Council's Senior Regional Advisor Pest Plants gave a presentation explaining biocontrol and its processes, benefits, and history of use in Tāmaki Makaurau / Auckland. Finally, in the third section the mana whenua representative discussed their thoughts around biocontrol, its use in their rohe, and what the next steps of engagement should look like, prompted by a selection of questions where necessary. The interviews were recorded and subsequently transcribed and summarised for common themes.

### 4.2.2 Definitions and examples of a ‘pest’

Several main themes emerged around the definition of a ‘pest’. The most commonly held view was that a pest is an organism that negatively impacts native species or ecosystems. Such negative impacts could be direct or indirect, and ranged from predation of or competition with native flora and fauna to increased fire risk, degradation of water and air quality, and provision of food for other ‘pest’ species. The negative impacts of a pest were not restricted to the physical realm either, with impacts on spiritual aspects of te ao Māori, such as mauri and whakapapa. In some cases, pest status was linked to the absence of positive impacts, alongside the presence of negative impacts. For some mana whenua representatives, a defining trait of pests was that they had few or no benefits, while for others an organism could both be a considered a pest and also provide some benefits. The positive and negative impacts of a species, while commonly talked about in relation to the environment, were also considered in terms of human activities such as asset management and traditional harvesting. There was acknowledgement that a species’ impacts could be context-dependent, and therefore a species could be viewed as both ‘pest’ and ‘non-pest’ in different situations, or by different people.

The provision of benefits pertaining to human use was commonly brought up as a factor in determining a species’ pest status. Species such as deer, pigs, or Pacific oysters that would otherwise be considered pests due to their negative impacts on the environment were exempted from pest status by some mana whenua representatives due to their value as a food source. Likewise, for some mana whenua representatives the pest status of some plants was influenced by whether they could be used for cultural practices such as rongoā or weaving. The non-pest status of these useful species was often tied into the idea that such species could be managed adequately by harvesting. As several mana whenua representatives defined pests as species that were in overabundance, harvesting enough of the useful species’ population to knock their numbers down would mean that they would therefore no longer be considered a pest.

The perceived dichotomy between a useful species and a pest was something that informed feelings towards the word pest itself. Several mana whenua representatives felt that ‘pest’ was either too negative or too binary a term, and that in labelling a species a pest you were essentially categorising it as something to get rid of, without value. This conflicted with their te ao Māori view of a holistic and

co-dependent world where everything has value, and nothing is to be discarded or wasted. According to one mana whenua representative, Auckland Council should be careful in attaching negative words such as ‘pest’ to species, as the words themselves carried an imbued vibration that could manifest unintended negative consequences. Multiple mana whenua representatives noted that there is no equivalent te reo kupu for ‘pest’, either because the concept is foreign to te ao Māori, or because there were no pests present in Aotearoa / New Zealand prior to the arrival of Europeans. Introduced species did comprise the majority of organisms that were specifically named as pests, and for several mana whenua representatives ‘pests’ were defined as exclusively foreign or exotic in origin. However, some mana whenua representatives reflected that native species could be considered pests in certain circumstances, such as pūkeko attacking plants in the māra.

When asked for examples of a pest, most mana whenua representatives named an animal pest first. Possums were the most commonly named non-plant pest, followed by rodents, mustelids, and humans. Although animal pests were predominantly first to spring to mind, only a few mana whenua representatives required prompting before mentioning plants as potential pest species. Gorse was the most commonly named pest plant, followed by ginger, pines, and woolly nightshade. Factors for considering pest status of plants in particular did not differ from those determining pest status in general, with usefulness and negative environmental and human impacts being key determiners. However, plants were more likely than animals to be associated with positive impacts on the environment, such as covering bare whenua and providing a nursery crop for native seedlings.

Table 4.2 Pest species mentioned by representatives from Tāmaki Makaurau / Auckland mana whenua in interviews.

| Animal/pathogen pests | # of mana whenua representatives mentioning pest | Plant pests | # of mana whenua representatives mentioning pest |
|---|---|---|---|
| Possums | 6 | Gorse | 7 |
| Humans | 5 | Ginger | 6 |
| Rats/rodents | 5 | Pine | 6 |
| Stoats/weasels/ferrets | 5 | Woolly nightshade | 6 |
| Rabbits | 4 | Pampas | 4 |
| Pigs | 3 | Privet | 4 |
| Wasps/hornets | 3 | Kikuyu | 3 |
| Cats | 2 | Asparagus spp. | 2 |
| Deer | 2 | Caulerpa* | 2 |
| Koi carp | 2 | Ragwort | 2 |
| Kauri dieback | 2 | Tradescantia | 2 |
| Myrtle rust | 2 | Alligator weed | 1 |
| Cattle | 1 | Fireweed | 1 |
| Fan worm | 1 | Giant reed | 1 |
| Fish | 1 | Honeysuckle | 1 |
| Goats | 1 | Jasmine | 1 |
| Magpies | 1 | Lantana | 1 |
| Mosquitoes | 1 | Mignonette vine | 1 |
| Pacific oysters | 1 | Moth plant | 1 |
| Pheasants | 1 | Old man’s beard | 1 |
| Pūkeko | 1 | Poa aquatica | 1 |
| Spiders | 1 | Rhamnus | 1 |
| | | Saltwater paspalum | 1 |
| | | Silver poplar | 1 |
| | | Spurge | 1 |
| | | Wattle | 1 |

* Caulerpa is technically an algae but is grouped with plants for simplicity.

## 4.2.3 The role of mana whenua in pest plant management

The main role of mana whenua Tāmaki Makaurau is as kaitiaki. Kaitiakitanga is the spiritual obligation for mana whenua to care for te taiao.

Only a few mana whenua were said to be actively involved in pest plant management. Constraints on money and capacity were the main barrier identified as preventing more active involvement in this

space. Where resources were available for pest management, several mana whenua prioritised managing pest animals over pest plants. Just over half the mana whenua interviewed were yet to complete the Treaty settlement process, and some mana whenua representatives thought the conclusion of that process would allow for future growth and increased resources in the pest plant management space. The lack of active involvement in pest plant management has meant that some mana whenua starting out in this space have faced a steep learning curve in developing skills and knowledge in pest plant identification and control methods.

The involvement of a mana whenua group in pest plant management was related in part to the type of land within their rohe, such as whether there were blocks of farmland or ngahere present. Where mana whenua-affiliated personnel carried out pest plant control, it was more commonly in relation to agricultural or horticultural assets (e.g., farms, nurseries). Some mana whenua members were employed to provide local and cultural knowledge and feedback on agency operations or policy in their capacity as mana whenua. Some were employed as contractors to control pest plants, but only a few mana whenua had operational kaitiaki teams, and these teams tended to focus on small areas or specific sites within their rohe. Where mana whenua lacked on-the-ground capacity, their involvement in pest plant management was focused around partnering with entities such as the Department of Conservation, community groups, or councils to participate in decision-making.

### 4.2.4 Views on pest plant control methods

All of the mana whenua representatives were concerned about the use of broad-spectrum herbicide sprays. Frequently raised concerns over their use included potential by-kill of native plants, runoff into waterways, accumulated leaching into soil, and human health risks. Several mana whenua representatives discussed their dislike of 1080, or the sprays used to control painted apple moth, suggesting a mental association between broad-spectrum herbicide sprays and aerially broadcast animal pesticides. Targeted herbicides, such as those used in cut and paste treatments, were often seen as acceptable alternatives to spraying, albeit still being in most instances less desirable than physical control methods. Several mana whenua representatives expressed concern over the spiritual impact of herbicides, with the artificial chemicals having the potential to kill the mauri of the surrounding environment, degrade Papatūānuku, and affect the vibrational level of rongoā. However, despite the general dislike for herbicides, many mana whenua representatives acknowledged that their iwi currently used or saw a need for them in certain situations, such as pest plant control on large, inaccessible, or primary production-focused land. In these cases, herbicides were often used grudgingly, and only because of a lack of feasible or cost-effective alternatives. A few mana whenua representatives had no problems with herbicides, as long as they were applied in accordance with the appropriate safety restrictions and regulations.

Manual control tended to be viewed favourably by mana whenua representatives. Manual control allowed for targeted killing of plants, was better understood as a control method, and protected the mauri of environment and people. Some mana whenua representatives also commented that it provided a cultural benefit that herbicides did not, not only by connecting those undertaking control efforts to their whenua, but also allowing them to reproduce methods that their ancestors would have used, and in doing so supporting tikanga. Aside from limited scalability and cost-effectiveness,

there were few negative impacts associated with manual control. Those that were mentioned were the potential to damage maunga and other culturally significant sites, especially if using machinery, and the potential to spread kauri dieback through soil disturbance.

Sometimes pest plant control itself was viewed with caution. Several mana whenua representatives expressed that they, or members of their iwi, believed that nature had the capacity to heal itself, and any human intervention could be viewed as arrogance or impatience. These views were informed in part by ancestral practices of rahui and migration, removing human presence from certain areas and allowing them to recorrect by themselves, or in communion with atua. In applying these views to pest plant management, human intervention can therefore be seen as unnecessary, as over long time periods the environment may be able to self-correct the imbalance caused by pest plants. Examples given by mana whenua representatives to support this included the shading or physical displacement of pest plant species by native trees, and the hypothesised eventual replacement of a current pest plant over generations by a more competitive species.

### 4.2.5 Concerns about biocontrol

A cautious view was held about biocontrol before a presentation was given by Auckland Council staff, and it was acknowledged that due to limited prior engagement by Auckland Council on this kaupapa, many interviewees did not have much if any prior knowledge on the topic. Most mana whenua representatives were, however, open to the possibility of using it within their rohe. Only a few were explicitly in favour of or opposed to biocontrol, with the rest still cautious but wanting to learn more. There was a recognition however that the mana whenua representatives' personal views on biocontrol were not necessarily congruous with the views of the rest of their iwi. Several noted that they had been reassured by the presentation as to the scientific rigour, potential efficacy, and usefulness of biocontrol. Despite the general openness to exploring the use of biocontrol further, mana whenua representatives also had many concerns about biocontrol that needed to be addressed before they would be comfortable with its use.

Most mana whenua representatives expressed concern or sought reassurance that native species or taonga would not be negatively impacted by biocontrol agents. The most common concern mana whenua representatives had was whether the biocontrol agent would be capable of switching to attack plants other than the target pest plant. This concern was often linked to the idea that hunger would force the agent to eat other plants once the target plant declined or disappeared completely. Although the presentation stressed the importance of host-specificity and that biocontrol does not eradicate its target, mana whenua representatives with this concern were sceptical that host-range testing included enough native plants and operated over long enough time periods to be sure that the biocontrol agent would not either immediately find a suitable native plant to eat or adapt and evolve to be able to eat previously unpreferred plants. Concern over such direct impacts on native plants was similarly matched by concern over the indirect impacts to the wider environment. Mana whenua representatives were concerned about the potential effects of the biocontrol agent on the food web and associated whakapapa if it became a food source for native animals, and the potential for the agent's actions to affect soil or water quality. As with the direct impacts, several mana whenua representatives were sceptical that the long-term effects of biocontrol agents on the wider

environment had been adequately considered in the release process, opening the possibility for unintended side-effects in the future.

In addition to concern over impacts on native species, multiple mana whenua representatives expressed an inherent dislike of the concept of controlling an exotic species by introducing another exotic species into the environment of Tāmaki Makaurau / Auckland. Concerns with introducing exotic species included the potential for exotic species to eventually replace all native species in natural areas, impact on whakapapa, and interfere with any tikanga prescribing sole use of traditional control methods on mana whenua land. The potential disruption of tikanga by biocontrol agents was linked to another concern brought up by several mana whenua representatives, that of being unable to control where biocontrol agents moved to. While the ability for agents to self-disperse is often seen as a benefit by biocontrol practitioners, these mana whenua representatives were concerned that it removed the option to use location-specific approaches to pest plant control. For example, if they wanted to only use manual methods of controlling pest plants at a culturally significant site, they had no way of preventing biocontrol agents from dispersing to that site from elsewhere in the region. Several concerns raised by a few mana whenua representatives were general to pest plant management rather than being issues exclusive to biocontrol. These included the risk of invasion by other pest plant species following biocontrol, the use of an interventionist approach, and the lack of efficiency of some biocontrol agents in achieving widespread pest plant reduction.

Other concerns that were raised dealt with the process of researching and releasing a biocontrol agent, rather than the effects of the agent itself. Several mana whenua representatives doubted that enough native plant species were used in the testing process and wanted reassurances that there were enough checks and balances in the system to prevent unsafe biocontrol agents from being released. The testing process was also criticised for a lack of indigenous involvement, both from indigenous peoples in the pest plants' native ranges and from Māori in Aotearoa / New Zealand. Additionally, mana whenua representatives questioned the adequacy and quantity of monitoring following agents' releases and wanted to know what would happen if something went wrong and the agent did have unintended impacts. Several mana whenua representatives noted that the presentation did not mention any examples of such an agent and wanted transparency as to whether any such negative examples of pest plant biocontrol existed.

## 4.2.6 Engagement with mana whenua in relation to biocontrol

### 4.2.6.1 Failure of past engagement

A common reflection across many of the kōrero was that Auckland Council and/or other agencies had not adequately engaged with mana whenua about biocontrol in the past. Many mana whenua representatives were unaware that so many biocontrol agents had been released in Tāmaki Makaurau / Auckland. In most instances this was due to a lack of engagement, but in a few cases, engagement had taken place, with the loss of knowledge occurring either due to subsequent change in mana whenua personnel, or as a result of the engagement happening too long ago to remember it well amidst competing demands for attention. Regardless, Auckland Council did not provide adequate information on a consistent enough basis to ensure that mana whenua were aware of what

was happening in the biocontrol space, and why it was relevant to them. More recent attempts at mana whenua engagement for biocontrol have also been viewed as falling short. Multiple mana whenua representatives took issue with Auckland Council approaching the Tūpuna Maunga Authority (TMA) for permission to release biocontrol agents on the maunga, saying that those decisions did not filter down to the individual mana whenua, and due to the changing roster of membership on the TMA board not all relevant mana whenua would get a say in the decision. Similarly, while Auckland Council has engaged with and received permission to release biocontrol agents from certain mana whenua with relevant rohe, multiple mana whenua representatives pointed out that they should have been included in such engagement as well, due to overlapping rohe and shared interests. Even for those mana whenua that had been engaged with and involved in a biocontrol release, the engagement had failed post-release, with mana whenua representatives unaware of the outcomes of the release. One mana whenua representative related that once the agency involved had got what they wanted in receiving permission to release the biocontrol agent, the iwi never heard from the agency again, leaving a bitter taste in their mouths and a disinclination to support such projects in the future.

Inadequate engagement was also noted at a national level. Several mana whenua representatives could recall being asked to provide feedback on applications to the Environmental Protection Authority (EPA) for the introduction of new biocontrol agents into Aotearoa / New Zealand. However, the EPA applications are large documents containing a lot of information, and mana whenua representatives lacked the time and/or background knowledge to respond to them adequately. As representatives for their iwi, they felt accountable to their people, including the next generations, and did not want to risk backlash by making a poorly informed decision on an agent that could have negative impacts. Other mana whenua representatives could not recall any engagement at the national level but stated that they would also have little capacity for such engagement. There was also dissatisfaction at being treated like a ‘tick in the box’, with some mana whenua representatives viewing the systemic lack of mana whenua engagement in bringing new agents to Aotearoa / New Zealand as a direct violation of rights guaranteed under Article II of Te Tiriti o Waitangi. These mana whenua representatives wanted partnership instead of engagement, with Māori being empowered decision-makers involved in the national process, or part of the National Biocontrol Collective, rather than just being treated as consultants at best.

## 4.2.6.2 Desire for future engagement

In order to move forward and avoid the engagement failures of the past, most mana whenua representatives expressed the importance of communication and relationship building. Establishment of a working relationship was seen as the first step towards effective engagement, with ongoing working relationships important for the mana whenua to have confidence in the people they are speaking to. In such relationships Auckland Council would work closely with mana whenua, helping to form connections and structures that would benefit the mana whenua long-term and not be reliant on a single relationship holder. Clear, open communication that is initiated early and continues consistently was deemed to be crucial for building relationships and engaging effectively, bringing mana whenua along in the process without any surprises or hidden agendas. The need for

continual, consistent communication was also highlighted by several mana whenua representatives' acknowledgment that proper engagement and investment in relationship building takes time. Communication was viewed as a reciprocal arrangement, with knowledge shared between mana whenua and Auckland Council and the opportunity for mātauranga to be implemented in the pest plant control space. Several mana whenua representatives also touched on the need for communication and engagement to be respectful, respecting the mana of each mana whenua entity as distinct from the collective, and asking mana whenua for their opinions and input rather than telling or forcing them towards a specific outcome.

In terms of improving engagement through actions more specific to biocontrol, most mana whenua representatives wanted to be made aware of all releases within their rohe. This encompassed awareness of past releases as well as any proposed releases in the future. For past releases, several mana whenua representatives expressed the desire to be shown around some release sites so they could see and get a better understanding of the agents in person. For future releases, mana whenua representatives wanted to be approached for feedback directly as individual mana whenua (i.e., not through a collective) and wanted assurance that their decision would be respected if they did not grant permission for the release to proceed. As well as direct engagement around specific releases, many mana whenua representatives also wanted future engagement to include general updates around biocontrol on a regular basis, with a desire from some representatives to make sure that the information was easily accessible and not held by a single person. These regular updates would include information on what Auckland Council was doing with biocontrol in the region, as well as what new developments, research, and opportunities were occurring at the national level. The Mana Whenua Kaitiaki Forum was suggested as a vehicle for the dissemination of these general updates, alongside Auckland Council's conservation portal website Tiaki Tāmaki Makaurau. The Mana Whenua Kaitiaki Forum is a joint operational mana whenua forum run by the Resilience and Infrastructure and Community Directorates, which provides Ngā Iwi Mana Whenua o Tāmaki Makaurau a collective voice on regional matters, allowing partnership with Auckland Council to advance Māori self-determination and integrate tikanga and mātauranga Māori into decision-making.

In addition to being kept informed on local, regional, and national activity in the biocontrol space, some mana whenua representatives wanted their iwi to be actively involved in biocontrol processes. These representatives considered that active participation would mean mana whenua would not have to wait for information to trickle back to them and would allow them opportunities to infuse the process with a Māori world view, correct tikanga, mātauranga, and Māori leadership. Suggested participation included an internship-like pathway for rangatahi, involvement in data collection and the post-release monitoring regime for releases within their rohe, research into new biocontrol agents, and the potential to conduct trial releases of biocontrol agents in their rohe. Support, funding, and the ability to participate without being required to endorse biocontrol were all considerations mentioned by mana whenua representatives when discussing this potential involvement.

In general, mana whenua representatives preferred one-on-one engagement to collective engagement through various forums. While recognising that collective forums had an important role to play, several mana whenua representatives stated that one-on-one engagement allowed for the

consideration and expression of mana whenua-specific views without having to compete against the voices of other mana whenua. The ability to ask specific questions and get direct answers was also brought up as a benefit of this type of engagement. It was also mentioned that emails were not the best form of engagement due to the sheer number of them that mana whenua representatives had to deal with, and that ideally, they would be followed up with direct or face-to-face engagement. However, there may still be some scenarios where collective discussions or joint decision-making between mana whenua and councils lead to more effective outcomes for biocontrol and broader pest management efforts, particularly considering the ability of most pest species and biocontrol agents to spread across rohe.

All mana whenua representatives left open the possibility their iwi would support biocontrol in the future, even those that were personally opposed to it. However, they identified the biggest barrier was a lack of prior engagement and partnership and accompanying trust and confidence in what the process involved. As one mana whenua representative put it "…how are we supposed to give you a fully informed coagulated tautoko, support for this when we're so far behind the eight ball?". Even if the mana whenua representatives' concerns were adequately addressed and their understanding furthered to the point where they were comfortable with releasing biocontrol agents, in most cases they would need to take a proposal for a release to the governing body or kaumatua of the iwi/hapū for approval. They would therefore be put in a position of having to explain biocontrol to others in the iwi/hapū, despite their own lack of expertise in this space. Several mana whenua representatives also raised the point that their people responded best to learning by doing, so the best way for others in their iwi/hapū to understand biocontrol was for them to be able to visit the testing facilities and see specific examples of successful release sites for themselves. This links into the desire for some mana whenua to be actively involved in the biocontrol space, providing an opportunity for visual/active learning without pressuring the mana whenua to support biocontrol. In general, mana whenua representatives wanted themselves and their iwi/hapū to be able to make a fully informed decision on whether to support biocontrol or not but did not consider that their current level of knowledge would allow them to do so.

## 4.3 Recommendations and next steps for Auckland Council

It is important to recognise that improving engagement and the involvement of mana whenua in the biocontrol programme will be a gradual process. While some improvements can be made straight away, for many mana whenua this is a new kaupapa, and Auckland Council cannot expect immediate support for biocontrol when mana whenua are only just learning about it. Trust and good relationships must be built gradually on a case-by-case basis. In addition to improving relationship building between Auckland Council and mana whenua, there were some key steps identified through the interview process for implementation in moving forward with the biocontrol programme.

### 4.3.1 Improving engagement practices with mana whenua around biocontrol

- Auckland Council to involve mana whenua in every step of the biocontrol process, both at the collective level (through relevant forums) and individually at the levels of specific rohe and release sites.
- Auckland Council to provide each mana whenua entity with a map of known biocontrol agents in their rohe, as well as a description of the agents and how well they are doing at each site.
- Auckland Council must directly inform mana whenua if they are proposing to release any biocontrol agents within their rohe, and not carry out the release if mana whenua are opposed to it.
- If mana whenua do permit the release of biocontrol agents in their rohe, Auckland Council should follow all appropriate tikanga for the release process and keep mana whenua informed with updates on the agent's progress throughout the years.
- Auckland Council should provide general updates on the status of the pest plant biocontrol programme annually or semi-annually. These updates may be best suited through the Environmental Services Mana Whenua Kaitiaki forum, but Auckland Council should also explore holding the relevant information on the Tiaki Tāmaki Makaurau conservation portal website.
- Auckland Council should identify and pursue opportunities for active mana whenua involvement in the biocontrol process. This may include engagement early in the process (e.g., input into target pest plant species prioritisation and host range testing species selection) as well as using mana whenua personnel to carry out post-release monitoring, conducting trial releases on mana whenua land, and establishing programmes for rangatahi to be paid for carrying out biocontrol work.
- Acknowledging that the rohe of mana whenua do not conform to regional boundaries, so Auckland Council should encourage, and where appropriate facilitate, engagement between mana whenua and neighbouring regional councils on relevant matters relating to biocontrol.

### 4.3.2 Increasing knowledge and addressing concerns of mana whenua around biocontrol

- Auckland Council should provide investment and opportunities for furthering the understanding and knowledge of mana whenua about biocontrol. Opportunities for learning and involvement in the process may include workshops, wānanga, guided visits to release sites, tours of containment facilities, and additional presentations to a wider audience. Auckland Council should involve Manaaki Whenua Landcare Research in some of these opportunities so that mana whenua can interact with biocontrol experts and be connected to the biocontrol research process.

- Auckland Council should provide opportunities for furthering the understanding and knowledge of mana whenua around pest plant control in general. Since pest plant control is a new kaupapa for many mana whenua, Auckland Council should provide support to increase knowledge of pest plant identification and impacts, and the available management options and control tools.
- Auckland Council should provide support for Māori-led initiatives exploring the cultural implications of pest plant biocontrol. In reviewing mana whenua engagement at the national and Tāmaki Makaurau / Auckland level, it is clear that the impacts of biocontrol on whakapapa, mauri, and tikanga are not well understood and cannot be addressed using a Western science perspective. Addressing the concerns that mana whenua have around these impacts requires a Māori-led approach, and so Auckland Council should support and advocate the need for such kaupapa.

### 4.3.3 Developments since the interview process

Auckland Council has already taken steps to improve Māori engagement in the biocontrol programme. As a result of the interview process, Auckland Council has adjusted its operational approach and now uses the recommendations from this report when releasing biocontrol agents. It is now standard practice to engage with mana whenua whose rohe overlaps with the release area, and releases only proceed if there is no opposition from those mana whenua. Mana whenua response has been mixed, with several releases having gone ahead with mana whenua agreement, and releases being halted in areas of mana whenua opposition. Auckland Council is also looking to increase opportunities for Māori involvement in biocontrol by running some training courses for kaitiaki and assisting Manaaki Whenua Landcare Research with funding and relational support to include kaitiaki in their planned non-target impact monitoring.

# 5. Conclusion

Māori engagement about biocontrol raises fairly consistent issues across national and regional scales. Non-response of mana whenua due to capacity challenges and competing demands, neglected or inconsistent relationships with agencies and local authorities, limited local engagement beyond the release site, lack of involvement at an early enough stage in the process, and limited availability and accessibility of information emerged as key issues through both the review of EPA applications and submissions and the interviews carried out with representatives of Ngā Iwi Mana Whenua o Tāmaki Makaurau. The historically ad hoc approach to mana whenua engagement about biocontrol by regional councils/unitary authorities indicates that the issues raised by specific respondents are likely faced by most mana whenua throughout Aotearoa / New Zealand. These engagement issues are by no means exclusive to biocontrol but given the concerned interest of many mana whenua in the potential outcomes of biocontrol, it is important that they are addressed.

As with issues surrounding engagement, concerns raised by Māori regarding biocontrol are consistent across national and regional levels. Responses to the EPA process and the interviews with Ngā Iwi Mana Whenua o Tāmaki Makaurau highlight that Māori tend to be concerned with biocontrol's potential impacts on native species and taonga, broader long-term environmental effects, introduction of exotic organisms into the environment, and disruption of key cultural principles such as tikanga and whakapapa. Failures of historical biocontrol have led to negative perceptions of the practice, and there is also doubt over the adequacy of the scientific testing and monitoring to determine the risk and eventuation of potential impacts. For many Māori biocontrol is a new kaupapa, and they are unfamiliar with the concepts and outcomes of its use. It is therefore possible that many of their concerns can be addressed through increased investment in opportunities to further their understanding of and involvement in the biocontrol process. There is also a need for Māori-led initiatives to explore the implications of biocontrol use on metaphysical aspects such as mauri and whakapapa. Without investing in furthering understanding of biocontrol, the current situation will continue at both a national and regional level, where many Māori are asked whether they approve or oppose biocontrol without being given adequate context and support to make a well-informed decision.

Moving forward, Auckland Council's pest plant biocontrol programme should continue to implement the recommendations of this report by deepening engagement with Ngā Iwi Mana Whenua o Tāmaki Makaurau, while also advocating for, and actively facilitating, improved practices at the national level and across other regions. By building strong relationships, communicating clearly and consistently, and actively involving mana whenua at all stages of the biocontrol process, Auckland Council has an opportunity to model strong Tiriti partnership in environmental management.

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[81] Environment Southland, "Application to import for release or to release from containment new organisms," 2012. Application code: APP201363: To import and release two weevils, *Berberidicola exaratus* and *Anthonomus kuscheli*, as biological control agents for Darwin's barberry (*Berberis darwinii*). [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP201363/6c1c373a3b/APP201363-Application.pdf

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[83] Ngāpuhi HSNO Komiti, "Submission on APP201955: To release from containment the parasitoid *Tamarixia triozae* to assist with the biological control of the tomato potato psyllid (*Bactericera cockerelli*)," Mar. 2016. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP201955/f4ffe39662/APP201955-APP201955-Combined-submissions-5-April.pdf

[84] Ngāpuhi HSNO Komiti, "Submission on APP202712: To introduce the horsetail weevil (*Grypus equiseti*) to control field horsetail (*Equisetum arvense*)," Mar. 2016. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP202712/61fbefb8e6/APP202712-Bundle-of-Submissions.pdf

[85] Tasman District Council, "Application form: to obtain approval to release new organisms," Sept. 2020. Application code: APP203875: To import and release 2 parasitoids, *Metoecus paradoxus* and *Volucella inanis*, as biological control agents for the invasive German and common wasps (*Vespula germanica* and *V. vulgaris*). [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203875/APP203875-Application.pdf

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[89] Scion, "Application form: to obtain approval to release new organisms," 2019. Application code: APP203853: To import and release the parasitoid wasp, *Pauesia nigrovaria*, as a biological control agent for the pest, the giant willow aphid (*Tuberolachnus salignus*). [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203853/66e04c0700/APP203853-Application.pdf

[90] Te Rūnanga o Ngāi Tahu, "Submission on APP201254 – Tomatoes New Zealand: Application to import for release the organism *Macrolophus pygmaeus* (*M. pygmaeus*) as a biological control agent for the control of greenhouse whitefly and other pests of greenhouse tomatoes," Feb. 2014. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP201254/71240fb03f/APP201254-APP201254-Submissions.pdf

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[92] Environmental Protection Authority, "Decision," 2019. Application code APP203631: To release a parasitoid wasp, *Eadya daenerys*, as a biological control agent for the Eucalyptus tortoise beetle (*Paropsis charybdis*). [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203631/e89902ab98/APP203631-Decision.pdf

[93] Nga Potiki Resource Management Unit, "Submission on application number: APP203336," 2018. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203336/b879900c05/APP203336-Submissions-Vol-3-of-6.pdf

[94] Te Rūnanga o Ngāi Tahu, "Submission on APP202663 – Application to import and release the moth *Lathronympha strigana* and the leaf beetle *Chrysolina abchasica* as biological control agents for the weed tutsan (*Hypericum androsaemum*)," Feb. 2016. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP202663/ef1acdb6de/APP202663-Submissions-compiled.pdf

[95] Te Rūnanga o Ngāi Tahu, "Submission on APP202887- Application to import and release the Arundo wasp (*Tetramisa romana*) and the Arundo scale insect (*Rhizaspidiotus donacis*) as biological control agents for the weed giant reed (*Arundo donax*)," Nov. 2016. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP202887/61da05e9e8/APP202887-APP202887-Bundle-of-Submissions.pdf

[96] Te Rūnanga o Ngāi Tahu, "Submission on APP203631 – To introduce a parasitoid wasp *Eadya daenerys* as a biological control agent for the Eucalyptus tortoise beetle," Nov. 2018. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203631/75857258da/Submissions-Bundle-Vol-3-of-3.pdf

[97] Te Rūnanga o Ngāi Tahu, "Submission on APP203631 – To introduce a parasitoid wasp *Eadya daenerys* as a biological control agent for the Eucalyptus tortoise beetle," 2018. Hearing presentation. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203631/4dc89d5ff2/Hearing-presentation-Te-Runanga-o-Ngai-Tahu.pdf

[98] Environmental Risk Management Authority, "Decision," 2001. Application code: NOR00001: To import for release the insects *Macrolabis pilosellae* (Binnie 1878), *Cheilosia urbana* (Meigen 1822) and *Cheilosia psilophthalma* (Becker 1894) for the purpose of biological control of hawkweeds, *Hieracium* spp. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/NOR00001/f4057e9c05/NOR00001.doc

[99] Environment Canterbury, "Application for approval to import for release or release from containment any new organism," 2004. Application code NOR03001: Import for release a South African moth, the boneseed leafroller (*Tortrix s.l.* sp. *chrysanthemoides*), which is a new organism, for the purpose of biological control of boneseed (*Chrysanthemoides monilifera* subsp. *monilifera*). [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/NOR03001/23d8f981a9/NOR03001.pdf

[100] West Coast Ragwort Control Trust, "Application for approval to import for release or release from containment any new organism," 2005. Application code: NOR05002: Approval is sought by the West Coast Ragwort Control Trust to import for release two new moths, *Cochylis atricapitana* (Tortricidae) and *Platyptilia isodactyla* (Pterophoridae), for the biological control of the pasture weed ragwort. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/NOR05002/1097089c99/NOR05002.pdf

[101] Te Rūnanga o Ngāi Tahu, "Submission on APP201710 – Release of *Limenitis glorifica* for control of Japanese honeysuckle," May 2013. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP201710/08ef96f1cf/APP201710-APP201710-Submission-Document.pdf

[102] Te Rūnanga o Ngāi Tahu, "Submission on APP202262 – To release privet lace bug," Mar. 2015. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP202262/9aa722c572/APP202262-Submissions.pdf

[103] Te Rūnanga o Ngāi Tahu, "Submission on APP202529 – Application to import and release the moth plant rust fungus as a biological control agent for the weed moth plant, *Araujia hortorum*," Oct. 2015. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP202529/56424dec59/APP202529-Submissions-bundle-Redacted3.pdf

[104] Te Rūnanga o Ngāi Tahu, "Submission on APP203667 – Application to import and release the beetle *Freudeita* cf *cupripennis* as a biological control agent for the weed moth plant, *Araujia hortorum*," Mar. 2019. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203667/8c745ba3c4/APP203667-Submissions.-Volume-3-of-3.pdf

[105] Te Rūnanga o Ngāi Tahu, "Submission on APP20875 – To release 2 parasitoids, *Metoecus paradoxus* and *Volucella inanis*, as biological control agents for the invasive German and common wasps," Nov. 2020. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203875/APP203875-Submissions-compilation.pdf

[106] Tomatoes New Zealand, "Application to import for release or to release from containment new organisms," 2013. Application code: APP201254: To import and release a biocontrol agent for the control of greenhouse whitefly. [Online]. Available: https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP201254/366638a10a/APP201254-EPA-BCA-application-Macrolophus-2013-FINAL.pdf

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# Appendix 1. Biocontrol release applications to the Environmental Protection Authority

**Table A1.** Summary of biocontrol release applications to the Environmental Protection Authority and number of Māori responses to the applications. Biocontrol release applications and associated documentation can be found at the EPA's website https://www.epa.govt.nz/industry-areas/new-organisms/biological-control-agents

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 1999 | NOR99001 | Hawke's Bay Pipfruit IFP Group 20 | I-I | *Pseudaphycus maculipennis* (parasitoid wasp) | *Pseudococcus viburni* (obscure mealybug) | HortResearch | HortResearch | 8 | 7 | 2 |
| 1999 | NOR99002 | New Zealand Citrus Growers Inc, Avocado Industry Council | I-I | *Thripobius javae* syn. *Thripobius semiluteus* (parasitoid wasp) | *Heliothrips haemorrhoidalis* (greenhouse thrips) | HortResearch | HortResearch | 8 | 7 | 2 |
| 1999 | NOR99004 | Auckland Regional Council | I-W | *Procecidochares alani* (mist flower gall fly) | *Ageratina riparia* (mist flower) | MWLR[d] | MWLR[d] | 4 | 14 | 2 |
| 2000 | NOR00001 | Hieracium Control Trust | I-W | *Macrolabis pilosellae* (Hieracium gall fly), *Cheilosia ruralis* syn. *Cheilosia urbana* (Hieracium root hover fly), *Cheilosia psilophthalma* (Hieracium crown hover fly) | *Hieracium* spp. (hawkweeds) | MWLR[d] | Applicant | 3 | 6 | 0 |

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 2003 | NOR02001 | Forest Research (pre-Scion) | I-W | *Cleopus confusus* (previously identified as *Cleopus japonicus)* (buddleia leaf weevil) | *Buddleja davidii* (buddleia) | Applicant | Applicant | 4 | 11 | 2 recorded |
| 2004 | NOR03001 | Environment Canterbury | I-W | *Tortrix* s.l. sp. "chrysanthemoides" (boneseed leafroller) | *Osteospermum moniliferum* subsp. *moniliferum* syn. *Chrysanthemoides monilifera* subsp. *monilifera* (boneseed) | MWLR[d] | MWLR[d], councils, Department of Conservation, mana whenua | 12 | 13 | 6 |
| 2005 | NOR05001 | AgResearch Ltd | I-I | *Microctonus aethiopoides* (parasitoid wasp) | *Sitona obsoletus* subsp. *obsoletus* syn. *Sitona lepidus* (clover root weevil) | AgResearch Ltd | AgResearch Ltd | 13 | 10 | None recorded |
| 2005 | NOR05002 | West Coast Ragwort Control Trust | I-W | *Cochylis atricapitana* (ragwort crown-boring moth), *Platyptilia isodactyla* (ragwort plume moth) | *Senecio jacobaea* (ragwort) | MWLR[d] | MWLR[d] | 16 | 7 | None recorded |
| 2006 | NOR05003 | Canterbury Broom Group | I-W | *Aceria genistae* (broom gall mite), *Agonopterix assimilella* (broom shoot moth), *Gonioctena olivacea* (broom leaf beetle) | *Cytisus scoparius* (wild broom) | MWLR[d] | Applicant | 11 | 13 | None recorded |

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 2006 | NOR06005 | Californian Thistle Action Group | I-W | *Ceratapion onopordi* (Californian thistle stem miner), *Cassida rubiginosa* (green thistle beetle) | *Cirsium arvense* (Californian thistle) | MWLR[d] | MWLR[d] | 12 | 58 | None recorded |
| 2007 | NOR07001 | Auckland Regional Council (NBC) | I-W | *Neolema oglobini* (Tradescantia leaf beetle) | *Tradescantia fluminensis* | MWLR[d] | MWLR[d] | 8 | 55 | None recorded |
| 2009 | NOR08003 | Environment Bay of Plenty (NBC) | I-W | *Gargaphia decoris* (woolly nightshade lace bug) | *Solanum mauritianum* (woolly nightshade) | MWLR[d] | MWLR[d] | 19 | 14 | 5 |
| 2010 | ERMA200281 | Scion (Gum Leaf Skeletoniser Stakeholder Group) | I-I | *Cotesia urabae* (parasitoid wasp) | *Uraba lugens* (gum leaf skeletoniser) | Scion | Scion | 13 | 10 | 0 |
| 2011 | ERMA200683 | Auckland Council (NBC) | I-W | *Lema basicostata* (Tradescantia stem beetle), *Neolema abbreviata* (Tradescantia tip beetle) | *Tradescantia fluminensis* | MWLR[d] | MWLR[d] | 6 | 11 | 0 |
| 2011 | ERMA200754 | Marlborough District Council (NBC) | P-W | *Uromyces pencanus* (rust fungus) | *Nassella neesiana* (Chilean needle grass) | MWLR[d] | Applicant | None recorded | Unknown | None recorded |
| 2011 | APP201039 | Waikato Regional Council (NBC) | I-W | *Colaspis argentinensis* (moth plant beetle) | *Araujia sericifera* syn. *Araujia hortorum* (moth plant) | MWLR[d] | MWLR[d] | 7 | 17 | 3 |

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 2011 | APP201171 | Northland Regional Council (NBC) | P-W | *Puccinia lantanae* (lantana blister rust), *Prospodium tuberculatum* (lantana leaf rust) | *Lantana camara* (lantana) | MWLR[d] | MWLR[d] | 7 | 11 | 0 |
| 2012 | APP201151 | Pipfruit NZ Inc | I-I | *Mastrus ridens* (parasitoid wasp) | *Cydia pomonella* (codling moth) | Plant & Food | Applicant & host tester | 12 | 5 | 1 |
| 2012 | APP201362 | Auckland Council (NBC) | P-W | *Kordyana* sp. (Tradescantia yellow leaf spot fungus) | *Tradescantia fluminensis* | MWLR[d] | Applicant & MWLR[d] | N/A | 11 | 1 |
| 2012 | APP201363 | Environment Southland (NBC) | I-W | *Anthonomus kuscheli* (Darwin's barberry flower weevil), *Berberidicola exaratus* (Darwin's barberry seed weevil) | *Berberis darwinii* (Darwin's barberry) | MWLR[d] | MWLR[d] | 5 | 10 | 1 |
| 2013 | APP201254 | Tomatoes New Zealand | I-I | *Macrolophus pygmaeus* (predatory mirid bug) | *Trialeurodes vaporariorum* (greenhouse whitefly) | None | None mentioned | 4 | 34 | 1 |
| 2013 | APP201710 | Greater Wellington Regional Council (NBC) | I-W | *Ladoga camilla* subsp. *glorifica* syn. *Limenitis glorifica* (Honshu white admiral butterfly) | *Lonicera japonica* (Japanese honeysuckle) | MWLR[d] | MWLR[d] | 6 | 11 | 2 |
| 2015 | APP202262 | Waikato Regional Council (NBC) | I-W | *Leptoypha hospita* (privet lace bug) | *Ligustrum lucidum* (tree privet), *Ligustrum sinense* (Chinese privet) | MWLR[d] | MWLR[d] & NBC | 0 | 7 | 2 |

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 2015 | APP202396 | Hawke's Bay Regional Council (NBC) | I-W | *Oberea shirahatai* (Japanese honeysuckle stem beetle) | *Lonicera japonica* (Japanese honeysuckle) | MWLR[d] | MWLR[d] & NBC | 2 | 9 | 1 |
| 2015 | APP202529 | Northland Regional Council (NBC) | P-W | *Puccinia araujiae* (moth plant rust fungus) | *Araujia sericifera* syn. *Araujia hortorum* (moth plant) | MWLR[d] | MWLR[d] & NBC | 0 | 37 | 1 |
| 2015 | APP202663 | Tutsan Control Group | I-W | *Lathronympha strigana* (tutsan moth), *Chrysolina abchasica* (tutsan leaf beetle) | *Hypericum androsaemum* (tutsan) | MWLR[d] | MWLR[d] & NBC | 0 | 13 | 1 |
| 2016 | APP201955 | Horticulture New Zealand Inc (consortium of horticulture groups and industry) | I-I | *Tamarixia triozae* (parasitoid wasp) | *Bactericera cockerelli* (tomato potato psyllid) | Plant and Food | Industry | 3 | 36 | 3 |
| 2016 | APP202712 | Rangitikei Horsetail Group | I-W | *Grypus equiseti* (field horsetail weevil) | *Equisetum arvense* (field horsetail) | MWLR[d] | MWLR[d] & NBC | 2 | 19 | 3 |
| 2016 | APP202887 | Northland Regional Council (NBC) | I-W | *Tetramesa romana* (giant reed gall wasp), *Rhizaspidiotus donacis* (giant reed scale) | *Arundo donax* (giant reed) | MWLR[d] | MWLR[d] & NBC | 0 | 18 | 1 |
| 2018 | APP203313 | Horizons Regional Council (NBC) | I-W | *Aceria vitalbae* (old man's beard mite) | *Clematis vitalba* (old man's beard) | MWLR[d] | MWLR[d] & NBC | 2 | 7 | 1 |

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 2018 | APP203336 | The Brown Marmorated Stink Bug Council | I-I | *Gryon japonicum* syn. *Trissolcus japonicus* (parasitoid wasp) | *Halyomorpha halys* (brown marmorated stink bug) | Plant & Food Research | None mentioned | 2 | 69 | 3 |
| 2018 | APP203542 | Horehound Biocontrol Group | I-W | *Wheeleria spilodactylus* (horehound plume moth), *Chamaesphecia mysiniformis* (horehound clearwing moth) | *Marrubium vulgare* (horehound) | MWLR[d] | MWLR[d] | 0 | 40 | 0 |
| 2018 | APP203631 | Scion | I-I | *Eadya daenerys* (parasitoid wasp) | *Paropsis charybdis* (eucalyptus tortoise beetle) | Scion | None mentioned | 2 | 27 | 1 |
| 2019 | APP203667 | Waikato Regional Council (NBC) | I-W | *Freudeita* cf. *cupripennis* (moth plant beetle) | *Araujia sericifera* syn. *Araujia hortorum* (moth plant) | MWLR[d] | MWLR[d] & NBC | 0 | 53 | 1 |
| 2019 | APP203853 | Scion | I-I | *Pauesia nigrovaria* (parasitoid wasp) | *Tuberolachnus salignus* (giant willow aphid) | Scion | Scion | 2 | 49 | 1 |
| 2020 | APP203875 | Tasman District Council (Vespula Biocontrol Action Group) | I-I | *Volucella inanis* (parasitoid hoverfly), *Metoecus paradoxus* (parasitoid beetle) | *Vespula vulgaris* (common wasp), *Vespula germanica* (German wasp) | MWLR[d] | MWLR[d] and Vespula Biocontrol Action Group | 1 | 30 | 1 |

| Date | Application | Applicant[a] | Biocontrol type[b] | Biocontrol agent | Target pest | NZ host-testing/science provider | Monitoring provider | Māori pre-lodgement responses | Post-lodgement submissions | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total | Māori[c] |
| 2022 | APP203934 | Horizons Regional Council (NBC) | I-W | *Trichilogaster acaciaelongifoliae* (bud-galling wasp) | *Acacia longifolia* (Sydney golden wattle) | MWLR[d] | MWLR[d] & NBC | ≥3 | 49 | 3 |

a) For applicants that have applied on behalf of a wider collective, the collective is listed in parentheses. NBC = National Biocontrol Collective

b) I = Insect, W = Weed, P = Pathogen

c) Note that some Māori individuals or organisations may have been missed if not specifically identified as Māori in their submission.

d) MWLR = Manaaki Whenua – Landcare Research

# Appendix 2. List of pest plant biocontrol agents deliberately imported into Aotearoa / New Zealand

**Table A2.** Pest plant biocontrol agents imported and released into Aotearoa / New Zealand and their status in Tāmaki Makaurau / Auckland.

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| Cinnabar moth | *Tyria jacobaeae* | 1926 | 1929-1932, 1980s | [1] [2] [3] | Established | Released in region, present |
| Gorse seed weevil | *Exapion ulicis* | 1926 | 1931-1946 | [1] [3] | Established | Present |
| Ragwort seedfly | *Botanophila jacobaeae* | 1928 | late 1930s | [1] [2] [4] | Established | Absent |
| Ragwort fly | *Botanophila seneciella* | 1928-1939 | late 1930s | [1] [2] | Did not establish | Absent |
| Lesser St John's wort beetle | *Chrysolina hyperici* | 1943 | 1943 | [1] [5] | Established | Probably absent |
| Mexican devil weed gall fly | *Procecidochares utilis* | 1958 | 1958 | [1] [3] | Established | Present |
| St John's wort gall midge | *Zeuxidiplosis giardi* | 1960-61 | 1960-61 | [2] [5] [6] | Established | Absent |
| Greater St John's wort beetle | *Chrysolina quadrigemina* | 1965 | 1965 | [1] [5] [6] | Established | Absent |
| Nodding thistle receptacle weevil | *Rhinocyllus conicus* | 1972 | 1973 | [1] [3] | Established | Present |
| Californian thistle gall fly | *Urophora cardui* | 1975, 1994, 1996 | 1975, 1990s | [1] | Established | Absent |
| Alligator weed beetle | *Agasicles hygrophila* | 1981 | early 1980s | [1] [3] | Established | Present |

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| Alligator weed beetle | *Disonycha argentinensis* | 1981 | early 1980s | [2] [4] | Failed to establish | Released in region, absent |
| Alligator weed moth | *Arcola malloi* | 1982, 1983, 1984, 1987 | 1980s | [1] [3] | Established | Released in region, present |
| Californian thistle leaf beetle | *Lema cyanella* | 1981, 1990 | 1983, 1990s | [1] [3] [7] [8] | Established | Released in region, present |
| Nodding thistle crown weevil | *Trichosirocalus* spp. | 1982 | late 1980s, early 1990s | [1] | Established | Released in region, presence unknown |
| Ragwort flea beetle | *Longitarsus jacobaeae* | 1981 | late 1980s, early 1990s | [1] [3] | Established | Released in region, present |
| Gorse spider mite | *Tetranychus lintearius* | 1988, 1993 | 1989-1990, 1993 | [1] [3] | Established | Released in region, present |
| Nodding thistle gall fly | *Urophora solstitialis* | 1989, 1992 | early 1990s | [1] | Established | Released in region, presence unknown |
| Broom seed beetle | *Bruchidius villosus* | 1985 | 1990s | [1] | Established | Unknown |
| Californian thistle flea beetle | *Altica carduorum* | 1990s | 1990s | [1] | Failed to establish | Released in region, absent |
| Gorse pod moth | *Cydia ulicetana* | 1989 | 1990s | [1] | Established | Released in region, presence unknown |
| Gorse soft shoot moth | *Agonopterix ulicetella* syn. *Agonopterix umbellana* | 1983, 1990 | 1990s | [1] [3] [6] [8] | Established | Released in region, present |

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| Gorse thrips | *Sericothrips staphylinus* | 1989, 2001 | 1990s, post-2001 | [1] [3] [4] | Established | Released in region, present |
| Broom psyllid | *Arytainilla spartiophila* | 1992 | 1994 | [1] | Established | Unknown |
| Gorse hard shoot moth | *Scythris grandipennis* | 1992 | 1994 | [1] [4] [8] | Failed to establish | Absent |
| Heather beetle | *Lochmaea suturalis* | 1992 | 1996 | [1] [4] | Established | Absent |
| Old man's beard leaf fungus | *Calophoma clematidina* syn. *Phoma clematidina* | 1990 | 1996 | [1] [6] | Failed to establish | Absent |
| Old man's beard leaf miner | *Phytomyza vitalbae* | 1994 | 1996-1997 | [1] [4] [14] | Established | Unknown, recorded in the past |
| Mist flower fungus | *Entyloma ageratinae* | 1998 | 1998 | [1] [3] [4] [9] | Established | Released in region, present |
| Scotch thistle gall fly | *Urophora stylata* | 1997, 1999 | 1998 | [1] [3] [4] [10] | Established | Released in region, present |
| Old man's beard sawfly | *Monophadnus spinolae* | 1997 | 1998, 2019 | [4] [6] [11] [12] | Established | Absent |
| Gorse colonial hard shoot moth | *Pempelia genistella* | 1995, 1999 | 1998, 1999 | [1] [6] [9] [13] | Established | Released in region, absent |
| Hieracium gall wasp | *Aulacidea subterminalis* | 1997 | 1999 | [1] [4] [14] | Established | Absent |
| Hieracium plume moth | *Oxyptilus pilosellae* | 1996 | 1999 | [4] [6] [8] [14] | Failed to establish | Absent |
| Hieracium crown hover fly | *Cheilosia psilophthalma* | late 1990s, 2001 | 1999-2002 | [4] [6] [8] [15] | Failed to establish | Absent |
| Hieracium root hover fly | *Cheilosia ruralis* syn. *Cheilosia urbana* | late 1990s, 2001 | 1999-2002 | [1] [4] [15] | Failed to establish | Absent |

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| Mist flower gall fly | *Procecidochares alani* | 2000 | early 2000s | [1] [3] [16] | Established | Released in region, present |
| Hieracium gall midge | *Macrolabis pilosellae* | 1990s, 2001 | 2002 | [1] [4] | Established | Absent |
| Buddleia leaf weevil | *Cleopus confusus* (previously identified as *Cleopus japonicus*) | 1993 | 2006 | [3] [4] [6] [17] [18] | Established | Present |
| Ragwort plume moth | *Platyptilia isodactylus* | 2005 | 2006 | [4] [6] [8] [19] | Established | Released in region, present |
| Ragwort crown-boring moth | *Cochylis atricapitana* | 2005 | 2006, 2007 | [4] [6] [19] | Failed to establish | Released in region, absent |
| Boneseed leafroller | *Tortrix* s. l. sp. "chrysanthemoides" | 2006 | 2007 | [4] [6] [7] [20] | Established | Released in region, presence unknown |
| Broom shoot moth | *Agonopterix assimilella* | 2006 | 2007 | [4] [6] [8] | Unknown | Absent |
| Green thistle beetle | *Cassida rubiginosa* | 2006 | 2007 | [6] | Established | Released in region, probably absent |
| Broom gall mite | *Aceria genistae* | 2006 | 2008 | [4] [6] [8] | Established | Probably absent |
| Broom leaf beetle | *Gonioctena olivaceae* | 1995 | 2008 | [4] [6] [8] [17] | Established | Probably absent |
| Californian thistle stem miner | *Ceratapion onopordi* | 2006 | 2008 | [6] | Unknown | Absent |
| Woolly nightshade lace bug | *Gargaphia decoris* | 2010 | 2010 | [3] [4] [6] [21] [22] | Established | Released in region, present |
| Tradescantia leaf beetle | *Neolema oglobini* | 2007 | 2011 | [3] [4] [6] [8] [23] | Established | Released in region, present |

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| Tradescantia stem beetle | *Lema basicostata* | 2009 | 2012 | [4] [8] | Established | Released in region, present |
| Tradescantia tip beetle | *Neolema abbreviata* | 2009 | 2013 | [4] [8] | Established | Released in region, present |
| Darwin's barberry seed weevil | *Berberidicola exaratus* | 2012 | 2015 | [4] | Established | Absent |
| Honshu white admiral butterfly | *Ladoga camilla* subsp. *glorifica* syn. *Limenitis glorifica* | 2010 | 2015 | [4] [8] [24] | Established | Released in region, absent |
| Lantana leaf rust | *Prospodium tuberculatum* | 2013 | 2015 | [3] [4] [25] | Established | Present |
| Lantana blister rust | *Puccinia lantanae* | 2013 | 2015 | [4] [8] [25] | Failed to establish | Absent |
| Privet lace bug | *Leptoypha hospita* | 2013 | 2015 | [3] [4] [8] | Established | Released in region, present |
| Field horsetail weevil | *Grypus equiseti* | 2013 | 2017 | [4] | Established | Absent |
| Giant reed gall wasp | *Tetramesa romana* | 2015 | 2017 | [4] [26] | Established | Released in region, unknown |
| Tutsan beetle | *Chrysolina abchasica* | 2014 | 2017 | [4] [8] | Unknown | Released in region, presence unknown |
| Tutsan moth | *Lathronympha strigana* | 2014 | 2017 | [4] [8] | Unknown | Probably absent |
| Horehound clearwing moth | *Chamaesphecia mysiniformis* | 2018 | 2018 | [8] [27] | Established | Absent |
| Horehound plume moth | *Wheeleria spilodactylus* | 2018 | 2018 | [8] [27] | Established | Absent |

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| Japanese honeysuckle stem beetle | *Oberea shirahatai* | 2010 | 2018 | [4] | Released, unknown | Absent |
| Tradescantia yellow leaf spot fungus | *Kordyana brasiliensis* | 2017 | 2018 | [3] [4] [8] [28] | Established | Released in region, present |
| Moth plant beetle | *Freudeita cupripennis* | 2010, 2018 | 2019 | [3] [8] | Established | Released in region, present |
| Giant reed scale | *Rhizaspidiotus donacis* | 2016 | 2021 | [8] | Probably established | Released in region, presence unknown |
| Old man's beard mite | *Aceria vitalbae* | 2011-19 | 2021 | [12] | Established | Unknown |
| Sydney golden wattle gall wasp | *Trichilogaster acaciaelongifoliae* | 2022 | 2022 | [29] | Established | Absent |
| Chilean needle grass rust | *Uromyces pencanus* strain UP27 | 2021 | 2024 | [30] | Unknown | Absent |
| Darwin's barberry flower weevil | *Anthonomus kuscheli* | 2012 | Not yet released | [4] | Not released | Absent |
| Black margined loosestrife beetle | *Neogalerucella calmariensis* | Approved, import status unknown | Not yet released | [31] | Not released | Absent |
| Golden loosestrife beetle | *Neogalerucella pusilla* | Approved, import status unknown | Not yet released | [32] | Not released | Absent |
| Purple loosestrife root borer | *Hylobius transversovittatus* | Approved, import status unknown | Not yet released | [32] | Not released | Absent |
| Purple loosestrife | *Nanophyes marmoratus* | Approved, import | Not yet released | [32] | Not released | Absent |

| Common name | Scientific name | Year of import | Year of release | Reference[a] | Status in Aotearoa / New Zealand | Status in Tāmaki Makaurau / Auckland |
|---|---|---|---|---|---|---|
| flower bud weevil | | status unknown | | | | |
| Darwin's barberry rust | *Puccinia berberidis-darwinii* | Approved, import status unknown | Not yet released | [32] | Not released | Absent |

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# Appendix 3. Rate of deliberate pest plant biocontrol agent releases in Tāmaki Makaurau / Auckland

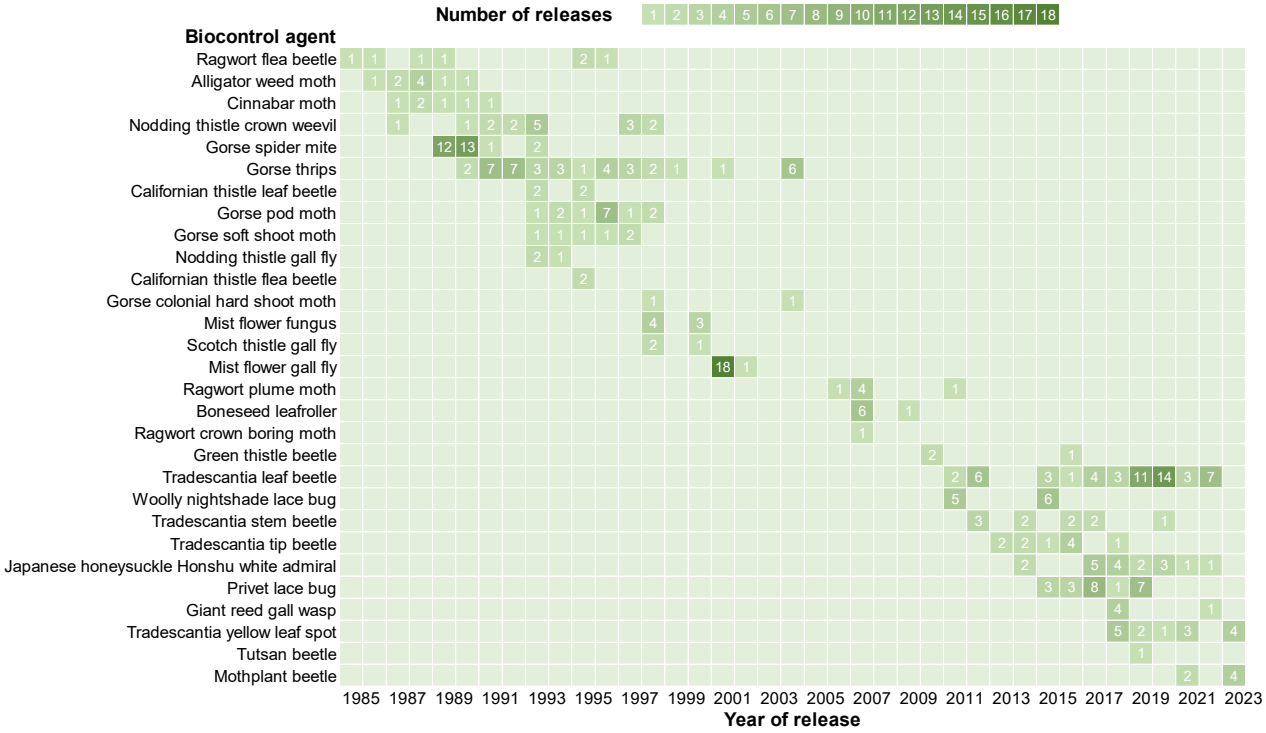


**Figure A3.** Heat map of pest plant biocontrol agent releases within Tāmaki Makaurau / Auckland between 1985-2023. Data taken from Auckland Council's internal database; Ruru.

# Appendix 4. Survey for councils in the Biosecurity Working Group

Questionnaire – Engagement practices around biocontrol

1. *a) If you are required to engage in Māori consultation **for the purposes of submitting an EPA application to bring a biocontrol agent into the country**, who do you engage with?*

| | Yes | No | N/A |
|---|---|---|---|
| All iwi in your region | ☐ | ☐ | ☐ |
| Those iwi in your region whose rohe covers proposed release sites | ☐ | ☐ | ☐ |
| Iwi in neighbouring regions | ☐ | ☐ | ☐ |
| Some other subset of iwi (please provide details in comments section) | ☐ | ☐ | ☐ |
| All hapū in your region | ☐ | ☐ | ☐ |
| Those hapū in your region whose rohe covers proposed release sites | ☐ | ☐ | ☐ |
| Hapū in neighbouring regions | ☐ | ☐ | ☐ |
| Some other subset of hapū (please provide details in comments section) | ☐ | ☐ | ☐ |
| Other iwi- or hapū-unaffiliated Māori organisation | ☐ | ☐ | ☐ |

| Comments: |
|---|
| |

*b) How do you carry out this engagement?*

| | Yes | No | N/A |
|---|---|---|---|
| Send an email/letter | ☐ | ☐ | ☐ |
| Phone call | ☐ | ☐ | ☐ |
| Face-to-face meeting | ☐ | ☐ | ☐ |
| Workshop | ☐ | ☐ | ☐ |
| Presentation at hui | ☐ | ☐ | ☐ |
| Other (please provide details in comments section) | ☐ | ☐ | ☐ |

| Comments: |
|---|
| |

2. *a) If you are intending to release a biocontrol agent into your region **that has not been released there before**, who do you engage with?*

| | Yes | No | N/A |
|---|---|---|---|
| All iwi in your region | ☐ | ☐ | ☐ |
| Those iwi in your region whose rohe covers proposed release sites | ☐ | ☐ | ☐ |
| Iwi in neighbouring regions | ☐ | ☐ | ☐ |
| Some other subset of iwi (please provide details in comments section) | ☐ | ☐ | ☐ |
| All hapū in your region | ☐ | ☐ | ☐ |
| Those hapū in your region whose rohe covers proposed release sites | ☐ | ☐ | ☐ |
| Hapū in neighbouring regions | ☐ | ☐ | ☐ |

| | | | |
|---|---|---|---|
| Some other subset of hapū (please provide details in comments section) | ☐ | ☐ | ☐ |
| Other iwi- or hapū-unaffiliated Māori organisation | ☐ | ☐ | ☐ |
| Neighbouring regional councils | ☐ | ☐ | ☐ |
| Comments: | | | |

*b) How do you carry out this engagement?*

| | Yes | No | N/A |
|---|---|---|---|
| Send an email/letter | ☐ | ☐ | ☐ |
| Phone call | ☐ | ☐ | ☐ |
| Face-to-face meeting | ☐ | ☐ | ☐ |
| Workshop | ☐ | ☐ | ☐ |
| Presentation at hui | ☐ | ☐ | ☐ |
| Other (please provide details in comments section) | ☐ | ☐ | ☐ |
| Comments: | | | |

*c) Whose agreement do you obtain before releasing the agent?*

| | Yes, always | Sometimes | No | N/A |
|---|---|---|---|---|
| Public/private owners of the land at the release site | ☐ | ☐ | ☐ | ☐ |
| Neighbouring landowners to the release site | ☐ | ☐ | ☐ | ☐ |
| Iwi whose rohe covers the release site | ☐ | ☐ | ☐ | ☐ |
| Hapū whose rohe covers the release site | ☐ | ☐ | ☐ | ☐ |
| Iwi within the entire region of release | ☐ | ☐ | ☐ | ☐ |
| Hapū within the entire region of release | ☐ | ☐ | ☐ | ☐ |
| Neighbouring regional councils | ☐ | ☐ | ☐ | ☐ |
| Other (please provide details in comments section) | ☐ | ☐ | ☐ | ☐ |
| Comments: | | | | |

3. *a) If you are intending to release a biocontrol agent into your region **that has already been released there before, or is already present**, who do you engage with?*

| | Yes | No | N/A |
|---|---|---|---|
| All iwi in your region | ☐ | ☐ | ☐ |
| Those iwi in your region whose rohe covers proposed release sites | ☐ | ☐ | ☐ |
| Iwi in neighbouring regions | ☐ | ☐ | ☐ |
| Some other subset of iwi (please provide details in comments section) | ☐ | ☐ | ☐ |
| All hapū in your region | ☐ | ☐ | ☐ |
| Those hapū in your region whose rohe covers proposed release sites | ☐ | ☐ | ☐ |
| Hapū in neighbouring regions | ☐ | ☐ | ☐ |
| Some other subset of hapū (please provide details in comments section) | ☐ | ☐ | ☐ |

| | | | |
|---|---|---|---|
| Other iwi- or hapū-unaffiliated Māori organisation | ☐ | ☐ | ☐ |
| Neighbouring regional councils | ☐ | ☐ | ☐ |

| |
|---|
| Comments: |

*b) How do you carry out this engagement?*

| | Yes | No | N/A |
|---|---|---|---|
| Send an email/letter | ☐ | ☐ | ☐ |
| Phone call | ☐ | ☐ | ☐ |
| Face-to-face meeting | ☐ | ☐ | ☐ |
| Workshop | ☐ | ☐ | ☐ |
| Presentation at hui | ☐ | ☐ | ☐ |
| Other (please provide details in comments section) | ☐ | ☐ | ☐ |

| |
|---|
| Comments: |

*c) Whose agreement do you obtain before releasing the agent?*

| | Yes, always | Sometimes | No | N/A |
|---|---|---|---|---|
| Public/private owners of the land at the release site | ☐ | ☐ | ☐ | ☐ |
| Neighbouring landowners to the release site | ☐ | ☐ | ☐ | ☐ |
| Iwi whose rohe covers the release site | ☐ | ☐ | ☐ | ☐ |
| Hapū whose rohe covers the release site | ☐ | ☐ | ☐ | ☐ |
| Iwi within the entire region of release | ☐ | ☐ | ☐ | ☐ |
| Hapū within the entire region of release | ☐ | ☐ | ☐ | ☐ |
| Neighbouring regional councils | ☐ | ☐ | ☐ | ☐ |
| Other (please provide details in comments section) | ☐ | ☐ | ☐ | ☐ |

| |
|---|
| Comments: |

# Appendix 5. Semi-structured interview format

**Section 1**

DEFINITIONS OF PESTS AND PEST PLANTS:

**1.1.** Does the term pest have a specific meaning to you or your rohe?

**1.2.** If someone were to talk about a pest, what would that mean to you?

a. Do you have any examples of a pest?

b. Why do you consider it a pest?

**1.3.** What do you consider a pest plant to be?

a. Please explain why it is a pest? (unless obviously answered)

**1.4.** What is your iwi's role in pest plant management?

*THOUGHTS ON PEST PLANT CONTROL METHODS:*

**2.1.** What are your thoughts on the following widely used pest plant control methods?

a. Herbicides? Stump treatment and spraying

b. Manual control?

c. The use of these methods in agricultural vs. native ecosystem settings?

*DEFINITION OF BIOCONTROL:*

**3.1.** What does the term 'biocontrol' mean to you?

**3.2.** How do you think biocontrol could be used to control pest plants?

**3.3.** Do you know of any examples of pest plant biocontrol that has taken place in the Tāmaki Makaurau region or perhaps anywhere else?

a. What did you think about the biocontrol release?

b. Do you remember how you first heard about it?

**Section 2**

*PRESENTATION BY THE SENIOR REGIONAL ADVISOR PEST PLANTS*

Encompassing the definition of biocontrol, key concepts, host-specificity, reasons for use, role of Auckland Council and history of biocontrol in Tāmaki Makaurau / Auckland.

**Section 3**

*EXPERIENCE WITH BIOCONTROL:*

**4.1.** Do you know if there have been any releases in your rohe in the past?

**4.2.** Has your iwi ever been involved in any kind of biocontrol mahi? i.e. EPA process, regional level, and national level

4.2.a. If yes:

i. What was your iwi's experience like?

ii. What mahi was that?

iii. How were you involved?

*THOUGHTS ON BIOCONTROL:*

**5.1.** Please explain how your iwi views using biocontrol to control pest plants.

a. for your rohe?

b. for the region?

c. for New Zealand?

**5.2.** What would you need from council for your iwi to feel comfortable with the use of biocontrol in your rohe, Auckland and New Zealand?

**5.3.** If Auckland Council wanted to use biocontrol for a pest plant, how would your iwi like to be involved?

a. At the National level—research, bringing new agents into NZ, selecting plants for control etc.—context of biocontrol.

b. At the Auckland level— information of new releases into the region, monitoring progress, etc.—operations within Auckland Region.

c. At the rohe level—processes for biocontrol agent selection, site selection, releasing, monitoring, etc.— operations within your rohe.

**5.4.** Earlier on we asked what your iwi's role in pest plant management was, considering this discussion do you have anything further you would like to add?

*THOUGHTS ON THE INTERVIEW PROCESS:*

**6.** In this discussion is there anything that you feel we have missed and should be included? Do you have any feedback or suggestion of improvement to this process?

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