

Considering a pest free Kawau Island

Pest free Kawau Island webinar

We held a webinar on Wednesday 30 August to discuss the Pest free Kawau Island feasibility report. You can download the full report or a summary at our webpage: www.aucklandcouncil.govt.nz/kawau-island

You can watch our full webinar, including a presentation on the findings of the feasibility report and questions and answers, at this link: www.youtube.com/watch?v=dhEaddbe13I

A number of questions were submitted before and during the webinar. This document covers the questions that we were not able to answer on the night.

Access to property

Is it proposed inhabitants and bach owners don't visit the island during the operation?

No, this is not proposed. Inhabitants and bach owners will still be able to visit and live on the island.

Please explain what "Access to all properties is a necessary condition to ensure the successful eradication of rats from Kawau" means for land owners. Will those islanders who are opposed, be forced to allow access onto their properties to people involved in the programme under the (Biosecurity Act 1993); and have no control over who accesses their properties or whether they are in residence or not?

We want to find ways to work with people to find the best possible way for managing their property should this operation go ahead and would work with property owners on property management plans tailored to their situation. We have worked with numerous property owners on various operations, with people's different approaches. Our goal is to minimise disruption and find an agreement beneficial for both the project and the property owners.

We acknowledge that there are powers to access private property under the biosecurity act if agreement cannot be found, however, **this would be a last resort**. We would like to reiterate that our preference is to come to an agreement, such as who could come onto the property (eg. trusted community member.) We committed to finding a solution for each property owner. This project presents significant and exciting opportunities, and we want to make sure we can make it work.

Please detail what an individual property agreement looks like. Is it the same as an easement over the property?

AND

Will this apply in perpetuity?

This agreement is intended to specify key information around the property itself (e.g map of the title, number of dwellings, access points) along with details that will help shape the method(s) of control for that property. This could include information around companion animals, organic waste/ composting, inorganic rubbish piles and any existing control methods. It will also detail agreed access permissions including who is permitted to access the property and contact preference. The agreement is likely to be phased and in the

first instance, would be for the duration of the eradication period but there will also need to be a requirement for ongoing monitoring. This agreement is not in perpetuity and will not be recorded against the title in the same way that an easement is.

Following successful eradication, regular checks would need to be made across the island to make sure no pests have made their way back, but this would not need to be on every property. If an incursion occurs, then we would want to form agreements with the landowners where the incursion was taking place. We could utilise powers under the Biosecurity Act to gain access, but again this would be a last resort and only if absolutely necessary.

Are property management agreements mandatory, what if some property owners don't want poison hand laid/scattered all over their properties and in their house roofs etc.?

Property management agreements are not mandatory, but are definitely our preference. The control methods outlined in the feasibility report give us the best chance of success, but depending on the particulars of a property we may be able to agree on methods that suit both parties.

What happens if we say NO, but majority agree? Will you go ahead only on their properties or the whole island regards of landowners wishes?

Our intention is to work with each individual property owner to address their concerns and explore options that may be acceptable. For an eradication to be successful, it needs to have adequate coverage across rat territories which can be small. This will likely mean that if the project goes ahead based on the very high levels of landowner support then it will likely involve every property.

Biodiversity

If your proposed programme is safe to the native bird population, are you prepared to put up a bond?

The proposed approach has been and will continue to be reviewed by the Department of Conservation Island Eradication Advisory Group to ensure alignment with feasibility principles and with prior successful eradication projects. A bond has not factored into prior eradication programmes but in keeping with a focus on biodiversity outcomes, [Natural Environment Targeted Rate](#) (NETR) investment will continue to support ongoing restoration efforts.

Will we see a rise in bird numbers on Kawau after eradication, given that Hauturu didn't experience such an increase?

In contrast to Hauturu, that just had kiore (*Rattus exulans*) and feral cats, Kawau has ship rats, Norway rats, stoats, possums, feral cats and wallabies. This suite of species is far more destructive. They modify habitat, reduce invertebrate abundance, and prey on eggs, chicks, and adults. We would expect to see much greater recovery on Kawau and the reestablishment of many species including bellbird. That said, as the diversity of native fauna improves, some species could decline in abundance due to habitat changes or competition such as grey warbler and eastern rosella.

Biosecurity

Will residents who live on the Island be free to come and go as they do now during and after the proposed pest eradication, including doing their normal shopping, doctors and dentist trips etc? What restrictions could be brought into force with the Bio security Act 1993?

Yes, residents will be free to come and go as usual. Speaking from the Rakino experience, the island was open for "business as usual" for the entire eradication and post eradication. There was never a time when residents weren't able to go to the island.

No additional restrictions are expected to be put in place for Kawau residents that could impact their normal journeys. We will be working with Camp Bentzon to manage bookings for visiting outdoors education groups during this time. Biosecurity information will be available at Sandspit about the pests to be aware of and how to check for them in any goods being transported by residents to help keep pests off Kawau. The Biosecurity Act would not be used to prevent movement of people. There may be some disruptions to landowners' activities on days where operations are occurring on or near their properties, but we expect they would be short in duration and would not prevent them from being on their properties.

How are you going to manage outside boats landing on Kawau Island as regards Biosecurity during and after the proposed pest eradication operation, they can come from anywhere not just the Auckland region and Kawau island is a very popular destination?

Education and targeted messaging is important to raise awareness amongst boat owners and users. This will leverage off the work done by the Pest Free Hauraki Gulf campaign, a partnership between Auckland Council and DOC. The campaign has run for a number of years promoting simple messages asking people to Check Clean Close - helping boats stay free of pests, and closing containers properly to help keep the Gulf pest free. This campaign is supported by signage at public wharves, boat ramps and marinas and regular communications. Commercial transport operators going to the island must have a pest free warrant and most that service or charter to Kawau already do. www.doc.govt.nz/pestfreehaurakigulf

Can you explain which biosecurity measures to prevent reinvasion will be voluntary and which will be compulsory?

The main compulsory measure is that all commercial vessel operators transporting goods or people to any Hauraki Gulf Island must have a Pest Free Warrant from council. That requires them to make sure that passengers are aware of what they should do and to not carry items may be harbouring pests. If a sailing (public or private) is inspected by a biosecurity advisor and they are concerned that a pest may be stowing away, then they can give instructions on what needs to be done to get the gear safely to the island without any stowaway pests. Other biosecurity actions, like taking gear to the island in containers that can be sealed against rodents (like fish bins), are voluntary but of course strongly encouraged.

On the island, there will be ongoing surveillance to make sure no pests have got back to the island. That surveillance would largely be done in agreement with the landowner, but there may be occasions that workers would need access to land, particularly if there was a confirmed or suspected incursion. Property Management Plans would specify access requirements and monitoring tools that will be required to ensure any incursions are detected quickly. This is likely to include trail cameras, tracking tunnels, indicator dogs and observations by the community. Observations by the community are of course voluntary but a key surveillance tool, nonetheless.

Response kits - Who will check them, deploy and respond?

Auckland Council will be the lead agency in an incursion response, unless perhaps it was strictly confined to a DOC reserve. Auckland Council will check that the equipment for a response is in good working order and available should it be needed. A Coordinated Incident Management System (CIMS) approach and plan would be used to manage the response and deploy resources required. Council and DOC staff plus island volunteers would be the first responders and pest control contractors may be brought in if an incursion was big enough.

Community involvement and representation

Given that KIRRA has proven to be biased by not supporting the publication of the full spectrum of views held by Kawau Islanders, what plans, if any, are there for Kawau Islanders to be represented on the Governance Committee?

The feedback process, which is currently underway and closes on Thursday 21 September, is requesting input from Kawau Island landowners and stakeholders on:

- what level of community representation and voice you would like to see incorporated into the project
- how you think community representation should be chosen

We will compile your feedback and present this to the proposals governing group to determine process.

Will you be looking for volunteers to help with eradication when it starts? I am excited for the opportunity to improve nature for future generations!

Yes! If the project proceeds, as well as the need for volunteers there would also be demand for local project employment opportunities before, during and after an eradication operation.

Where has this (supporters changing their position) been factored in (in the report)? Is there a cut off or percentage support that is needed for the project to go ahead?

AND

What proportion of landowners are needed for the project to go ahead/implement last resort powers under the biosecurity act?

It's recognised that the report is a point in time and that the level of support for the project will change. The purpose statement notes that the release of this report marks an interim step in what must be regarded as an ongoing assessment of feasibility, which will have further review points prior to any decision to move ahead with project delivery. Feedback in response to this proposal will be used to reassess social license and level of support. We don't have a threshold for cut-off at this point in time, this is something that will need to be considered by the governance group.

Will Islanders be resurveyed as to their support for the project now that the report has been released and they have seen / read / heard more details in the actual report / webinar / research?

The process for receiving feedback on the feasibility report will provide an opportunity to review the level of support for the current proposal. The report on this feedback that will be presented to governance will address any changes with regards to social license since the feasibility report has been released.

Effects on non-target species

If you consider Penny Fisher, of Landcare Research, statements regarding use of brodifacoum at Tāwharanui in 2004 and the effects on dotterals, then how would the proposed project impact the hard won Kawau dotteral population?

The majority of dotterel habitat on Kawau is at Vivian Bay where bait would be hand spread - so bait would not be on the beach. Further mitigation options might be considered. Aerial applications and mitigations have also greatly improved since the 2004 Tāwharanui operation. The 2009 eradication of pests from Rangitoto and Motutapu island successfully included several extra mitigations to protect dotterel. Brodifacoum does accumulate in the environment, as it is doing now on Kawau, and an eradication operation would see the end of ongoing use of brodifacoum in the environment.

If a kiwi, weka, or wallaby get the bait, will it kill them? If so, how long will it take for them to die? AND

While non-target species may recover over time, can you speak to the potential mortality rate for a likely short-term eradication of rats?

Brodifacoum is not intended to be used on wallabies for an eradication effort as explained in the feasibility report; see section 7.1 for the proposed methodology.

We do not have data on times to death for birds. Tony Beauchamp stated in the webinar, "We expect, as has happened in all of the eradications where weka have been involved with brodifacoum, that we will lose a certain proportion of the birds. Primarily due to secondary poisoning, and that's essentially from eating the rats, not from eating the bait itself. As a consequence of that, we generally have taken at least 100 birds off an island as a backstop for that activity. Virtually every time this has happened, a proportion of the natural population has not been affected by brodifacoum . . . Weka populations can rebound quickly, as has been seen on Kāpiti Island. . . When Weka were initially released on Kawau in the 1980s, they spread over the island very quickly. While the loss of individual weka is regrettable, we believe that the population will recover."

Mitigation for weka has been successful on other islands such as Rakitu, Rotoroa, Mokoia and Kapiti during past rat eradications, and weka thrive on all these islands today. For the species most at risk, weka and pāteke, we would take some into captivity to protect them during the operation, as has been done successfully in a number of past operations. Kiwi differ in their foraging behaviour and the population is not anticipated to be at risk and this has been the case on other Island eradication projects.

The present ongoing use of toxins on Kawau already poses a risk to these populations. If the project were to be successful, there would be no need for continued toxin use, removing the risk to non-target species long-term.

In summary, we will use best practice for island eradications, building on successfully managed projects from around the Hauraki Gulf, New Zealand, and the world. We have not yet documented an operational plan, but that will lay out all the other mitigations in detail and will be publicly available in due course.

Whether or how you will isolate and remove some at risk populations of Weka, pāteke and others?

Captive management of these species has been undertaken for other pest eradication projects and the methods for this are well developed. The article 'Managing non-target wildlife mortality whilst using rodenticides to eradicate invasive rodents on islands' (Castano et. al, 2022) outlines the protocols used for

Weka in one particular project. This article is behind a paywall but please email kawauislandproject@aucklandcouncil.govt.nz for a copy.

We expect, as has happened in all of the eradications where Weka have been involved with brodifacoum, that we will lose a certain proportion of the birds. This is primarily due to secondary poisoning as a result of Weka eating the dead rats, not from eating the bait itself.

Why might the risk to avian populations on Kawau be different to Little Barrier?

While the bird populations and forest structure are different on both islands, we don't anticipate major differences in risk to avian populations but may review this answer when one of our subject matter experts is back in the office.

Rumour has it that if Weka were removed from the Island prior to an aerial drop that local Iwi would stop their return/reintroduction. Can you please confirm or deny this and if you don't know find out?

This is as you have already mentioned, a rumour and nothing more.

Environment

Can you please explain why the fire risk is higher now - when wallabies are keeping vegetation low - than when wallabies are removed and plants are growing understorey?

Many native plant species currently missing from Kawau's forest understorey are fire-resistant. As they regenerate, the island will slowly revert to a coastal broadleaf forest which is naturally less flammable. Humidity and soil moisture levels will also improve, further reducing the risk of ignition. Biodiversity recovery and the re-establishment of ecosystem processes are expected to result in a more resilient ecosystem that can better withstand future climate change impacts.

Why is a rāhui not proposed, when Ulva Island which is under another poisoning campaign has a 6 month min (or until poison free), no take of fish and shellfish, 1 km off the shore?

Any future decision relating to placing rāhui would be the decision of Ngāti Manuhiri as mana whenua of this rohe.

Funding and budget

What budget was set for the project feasibility study and work done to date?

The total project expenditure for 2023/2024 to conclude the feasibility assessment phase includes:

- project coordination costs
- the development of a weed management assessment (still being drafted)
- the preparation of the feasibility assessment
- ongoing engagement with island residents to support the socialisation of the study.

This comes to a total of \$269,935 and does not include costs for supporting ongoing pest control efforts on the island prior to eradication. Auckland Council paid Island Conservation \$90,000, excluding GST, specifically to undertake a feasibility study, discuss the proposed project with every property owner possible and some key stakeholders, and then produce the feasibility report and continue community engagement. This was funded by our programme partner Predator Free 2050 Limited. Island Conservation subsidised the report.

What ongoing maintenance costs are expected?

As outlined in section 14.1 of the feasibility report, council anticipates a cost of around \$375,000 per annum to maintain Kawau's future pest free status.

How will the project be funded – for capital?

As outlined in section 14.1 of the feasibility report, the project has \$1.4M committed through Auckland Council's existing Natural Environment Targeted Rate, and a further \$1.3M through Predator Free 2050 Ltd. The remaining funds are yet to be secured through third party providers and there will also be support in kind from Department of Conservation that will help reduce project costs.

How will the project be funded for ongoing maintenance?

The ongoing biosecurity management costs will primarily be funded through council's existing Natural Environment Targeted Rate but may also have contributions from partners such as Predator Free NZ 2050.

Will this result in a targeted rates levy on all island properties?

Auckland Council is not proposing an additional targeted rate specifically for the Kawau Island eradication project.

Who is responsible for securing the funding?

The questions and answers above speak to this in greater detail including who is responsible for the costs associated with ongoing biosecurity measures post eradication. With regards to the eradication programme, Auckland Council is leading the funding strategy including securing of funding from third party funders and philanthropists.

There is significant budget in place for equipment, including laptops, printers, white boards and office furniture, firearms, a vehicle, GPS units, VHF radios, PPE, thermal scopes, and tools totalling over \$360,000. What arrangements are in place for disposal and recovery of costs associated with equipment after the operation is completed?

These costs will support all three phases of the operation which include wallabies in year one, followed by rats, stoats, rodents and possums in year two and then the subsequent verification or monitoring phase in year three. The equipment will be kept for ongoing monitoring and incursion requirements, not just for Kawau Island but to support any biosecurity management response efforts for the wider Hauraki Gulf. Any surplus equipment will either be redistributed to other projects managed by council or the community, or may be sold. Note that council may have some of these items already in stock and so may not need to purchase all of this equipment, but the potential cost is captured here for completeness.

Who pays is there is biosecurity incursion or reinfestation? Who will pay for this on Kawau if the project goes ahead?

Auckland Council will need to ensure budget is available for ongoing biosecurity management including surveillance and the risk of incursions. The source of the funding may be a combination of the existing Natural Environment Targeted Rate and potentially other funders, such as Predator Free NZ 2050.

Where is the budget for sweeping the island using drones or helicopters with a thermal camera?

Please see appendix 2 of the feasibility report for a budget breakdown for Kawau Multi species pest eradication and ongoing biosecurity.

- Pg. 66 Thermal scopes - \$39,000
- Pg. 67 Aerial and drone services for detection - \$48,000

We will continue to review the potential use of these tools as we develop the operational plan and ongoing surveillance plans.

General

Were the landowners interviewed that were against pest-eradication also in favour of introducing other “cute” pests, such as rabbits, to Kawau?

Introduction of other pest animals to Kawau did not come up in conversations. However, the Hauraki Gulf Controlled Area specifies that no person shall move or allow to be moved any pest rabbit or hare to or within the Hauraki Gulf Controlled Area. See <https://www.aucklandcouncil.govt.nz/environment/what-you-can-do-for-environment/Documents/RPMP-islands-section.pdf>

Do you think the impact of feral cats on weka and kiwi could increase dramatically if rats are removed without simultaneously controlling feral cats.

Feral cats are present on the island, but community feedback and sightings indicate there are low numbers. They are also not listed as a target species for eradication, but as noted in the feasibility report, if there is sufficient community support for the removal of feral cats, the scope of the project going forward may be changed to include this species. We cannot discount the possibility feral cats needs to be factored into the proposed project.

It is possible that unowned cats could be eliminated through secondary poisoning from the rat eradication operation, but as evidenced by other operations some individuals are expected to survive. These individuals could repopulate the island and have a greater impact on native species than currently. This risk could be minimised by trapping any surviving unowned cats and continuing ongoing efforts to ensure all pet cats on the island are desexed. Island residents are already eligible for free desexing and microchipping. We would look to work with the SPCA on responsible pet ownership engagement that promotes this services. We may require assistance to get animals to mainland vets, as there is no on-island vet.

May we have this feasibility report and document peer reviewed by Auckland Council at Council expense, please?

Auckland Council had the report peer reviewed by:

- Department of Conservation's Island Eradication Advisory Group
- A Wallaby Technical Advisory Group
- Predator Free New Zealand 2050
- Ngāti Manuhiri Settlement Trust
- Pohutukawa Trust.

Will Pohutukawa Trust be engaged to lead this work?

If we are given approval to proceed with operational planning, a procurement plan for operational delivery will need to be developed. Council will definitely continue talking to the Pohutukawa Trust about what role they take in the operation.

Will the works needed for rat baiting, etc be openly advertised and competitively tendered?

Auckland Council will be required to work in accordance with its procurement policy which usually includes a competitive market process for projects of this size to ensure value for money and ability to deliver. The tender process may be open or given the small number of companies and organisations with relevant experience may be sent only to those that would have the capability to deliver it.

Has the proposed Kawau Island pest eradication project been presented to the Government agencies involved with the new Hauraki Gulf marine protection areas for consultation?

The proposal has been presented to the Hauraki Gulf Forum who is the statutory body working to restore the mauri of Tīkapa Moana, Te Moananui-ō-Toi, the Hauraki Gulf Marine Park. They are responsible for producing the State of our Gulf 2023 report and were advocates for the establishment of protection areas in the Hauraki Gulf. The proposal has been peer reviewed through the Department of Conservation Island Eradication Advisory Group and other DOC staff, but not the Ministry of Oceans and Fisheries as they do not have jurisdiction on island eradications.

If the programme goes ahead, when will it start and when is it intended that it will finish?

If the project received approval to proceed to operational planning phase in October 2023, and an operational plan was approved by April, it would be conceivable that the first phase of delivery could commence in winter 2025. We are unable to commit to fixed timelines, however, as critical factors can change during operational planning and a detailed operational plan has not been yet to be drafted. Durations associated with the delivery of each phase are detailed in section 7 of the feasibility assessment.

Can you advise when, in any of the discussions that have taken place with the Kawau Community, has it been stated that the toxin poisons intended to be used for the eradication process are not just Brodifacoum (as we had been led to believe) but according to the Feasibility Study it will also include the use of both Cyanide and 1080 Poison?

If the use of cyanide or ground-based 1080 is required, this would only be on the properties where landowners were supportive of its use, and these methods were discussed with landowners where those methods might be used. The project team needed to leave as many tools in the toolbox as possible to ensure the operation is successful.

When and how was that part (use of Cyanide and 1080) of the killing programme conveyed as part of the accurate picture of what would be involved should eradication proceed?

Island conservation accurately summarised what was involved in an eradication project. Face-to-face and video conference calls (Zoom, Microsoft Teams) were the most effective ways to accurately describe what would be involved. Imparting the details associated with eradication, the impacts, and the costs and benefits that it might have over the phone or via email has been difficult, and most landowners preferred an in-person meeting. A range of tools and techniques for any eradication project has been discussed, but more often than not, it is the main eradication methods that landowners focused on and queried as that is what will impact individuals the most.

The feasibility report claims, “If a decision is made to proceed, it is expected that some individuals will try and influence the decision by targeting politicians or senior staff.” What specific form of “targeting” of politicians or staff is being warned about here?

This statement is an opinion of the author and relates to the potential for political pressure to be placed at various stages of the project, including leading up to delivery should approval be given to proceed.

Who develops the operational plan? I have heard that it is only DOC, AC and Ngāti Manuhiri. Surely not - where are the landowner and business representatives as the groups who are primarily impacted?

The operational plan will be produced by eradication experts contracted by council, who will help guide the project's delivery to ensure the eradication has the best chance of success. Input from local environmental groups, businesses and landowners will continue to be sought to influence operational planning.

Why is there no mention of trapping under possum controls?

Trapping is not intended as a primary tool because, as demonstrated by other eradication projects such as Maungatautari and Tāwharanui, the application of rodent bait is expected to eliminate possums. However, at least two dogs and dog handlers will be retained to locate and remove individuals if Kawau proves the exception. The final phase of control could include trapping, which would be detailed in an operational plan.

There is a statement that the project will present opportunities for Māori to reengage in the Management of Kawau and retain determination over its future. What does this mean?

The specific sentence is as follows:

"However, it is worth noting that the proposed project presents opportunities for Māori to reengage in the management of Kawau and retain some determination over its future."

This statement refers to potential opportunities for Ngāti Manuhiri as mana whenua to be involved throughout the project lifecycle. In the ongoing feasibility phase, this would include the provision of a cultural impacts assessment and if approval is given to proceed, be part of the working group who provide input into the detailed operational design phase. Further consideration around delivery opportunities is yet to be made. These elements are of a general nature and irrespective of land tenure although there is also opportunity for involvement in specific projects on DOC/ Council land (e.g. interpretation, conservation work). This was in no way intended to mean that mana whenua would be 'managing' Kawau.

Methodology

Worst case scenario how many distributions and/or drops of toxin would there be?

Two, possibly three applications. You can find more information in section 7.2 of the full feasibility report regarding the number of distributions and the proposed eradication strategy.

How can you ensure that wind drift can be avoided? 'Non residential' areas are very close to so many of our properties and we are totally reliant on water coming from our roof areas into water storage tanks.

There are a number of factors to ensure there is no wind drift from aerial applications into residential areas. A clearly defined buffer zone (which is to be confirmed but will be a minimum of 50 metres from any building) will be established where an aerial operation stops, and the ground-based operation starts. Directional swath and deflector buckets also reduce the chance of bait scatter. Weather and wind strength are other considerations. For example a settled weather window is needed for an aerial operation. Precision GPS bait application systems such as TracMap have a GPS map of the area intended for bait application. This includes the exclusion zones, loaded into the helicopter's TracMap system, which is connected to the on/off switch for the applicator bucket. To summarise from this article <https://predatorfreenz.org/stories/tracmap-goes-global>, bait spreading will only occur if a number of requirements are met:

- the pilot has switched the spread switch on
- TracMap detects that the helicopter is inside the application zone AND
- the helicopter is outside any exclusion zones (eg. a stream within the application area which has been tagged for exclusion)
- it is not over any previous coverage (so rate of application is very accurately controlled)
- the helicopter is within 4m of the designated flight zone (no gaps in application)
- the helicopter is travelling faster than 15 knots (this is a safety feature, so that if there is an incident that means the helicopter is hovering and the pilot's attention is engaged, application is automatically stopped until the incident is sorted)
- If there is no GPS fix, the system also shuts off.

When the helicopters and drones are employed spreading the Brodifarccoum (Pestoff20R) how much of the poison is expected to hang around in the Kanuka canopy rather than fall to the floor

The pellets are small and travelling at high velocity out of the bucket. Most of them will bounce through the branches and reach the ground but a small proportion will get caught up in the canopy. Most of these will come down in the first strong wind after the baiting. Rats are arboreal (they spend time in the canopy) so having some bait in the tree tops is actually beneficial. Uneaten bait in the canopy will weather quickly and fall to the ground through the action of wind and rain.

Have you considered that by removing wallabies first the resulting response in ground cover vegetation could cause rat numbers to increase dramatically and therefore make them harder to eradicate?

Despite a suggestion that more food available might mean more rats and thus fewer birds, when wallabies were eradicated from Rangitoto and Motutapu there was no noticeable increase in the rat population. Kawau will be a multi-species eradication programme, which will also target rats, possums, and stoats, meaning that the outcomes will not be out of balance. We are confident that our preferred methods will be able to eliminate the rats.

If the operation is being done in more than one stage, then what are the stages and how many months will be involved in carrying out each stage?

This depends on several factors such as the methods used and property access arrangements. Wallabies would need to be removed first because they would eat rat bait and potentially create gaps where rats could survive.

- Phase One: Removing wallabies is expected to take at least 12 months but potentially longer.
- Phase two: Rats stoats, and possums (following wallaby removal). Rats, stoats and possums would be targeted during winter when there is less food and reduced breeding. Two to three applications of bait across all parts of the island would be undertaken to eradicate rats and possums. This would take 2-3 months over the winter period. Bait may be retained in bait stations for a longer period, but this would be defined in individual property management plans. Possibly for up to 4 months. This could be extended if survivors are detected but the hope is that this would not be the case.

After the operation, monitoring for surviving possums, stoats and rats would be undertaken with detection dogs and other surveillance tools utilised, but the length of this phase will depend on detections and further planning.

What restrictions will apply during each stage?

We would not imagine any restrictions on residents/landowners would be imposed during each phase, but small voluntary changes from residents will help ensure the overall project's success. An example of how resident's everyday activities can help the project succeed is managing alternative food sources for rodents on your property, such as food waste, rubbish, fruit and nut tree crops.

When will the use of toxin poisons start and finish?

We cannot confirm fixed timelines at this stage as critical factors can change operational planning and a detailed operational plan is yet to be drafted. This will be shared when complete.

If there was the budget and resources, would you consider alternative eradication methods to widespread poison such as I have mentioned in my opening statement, example auto trapping, shooting?

To date, alternative methods such as hunting and self-resetting traps have proven useful for population knockdown or control, but not for eradication, particularly with rodents. For example, a trial of self-re-

setting traps and single-kill DOC200 traps on Goat Island (9.3ha, 2 devices per hectare) were deployed from August 2016 to October 2017. The trapping network did knock down rodent numbers in the first 100 days. However, kill numbers decreased over time and could not offset the population growth rate and reinvasion, preventing eradication. Additionally, when rat numbers are slowly declining, there is more abundant alternative food sources so rats will be less likely to interact with a trap.

<https://predatorfreenz.org/research/self-resetting-traps/>

During a 2022 rat pilot at Kennedy Point on Waiheke Island, rats could not be eliminated using traps only but were a useful control tool. For a ground-based bait station operation to remove rats on Kawau, it would require at least 1,040km of marked trails and 52,000 baiting points. To establish the grid, it would take a team of 60 extremely fit and committed people a lengthy period of time to cut and mark the trails and then to fill and keep refilling bait stations. It would be less likely to succeed than the methods proposed.

Will you consider a slightly different model for partial pest management that doesn't include mass poisoning or leg traps?

The proposal is for the eradication of wallabies, rats, possums and stoats from Kawau Island as opposed to sustained management. For 100% removal of rats, the use of anti-coagulant Brodifacoum is currently the only toxin that would maximise the chance of eradication success. Anti-coagulants are currently being used widely on Kawau. An eradication operation would see the end of its ongoing use. The use of leg traps has not been ruled in or out (with the exception of gin traps which are banned), however, the concerns of the community will be taken into account if the project is given approval to proceed to detailed operational planning.

Is it correct that because of the recognised cruelty and inhumaneness of Gin Traps, their use is restricted and that an exemption will be required to enable them to be used?

AND

Why was the use of Gin Traps not part of the accurate picture conveyed of what would be involved should eradication proceed?

There is no intention to use gin traps on the island, as they have been banned for many years. A detailed operational plan has not been drafted while we are in the feasibility stage.

Please confirm that the hard jawed Victor traps are not being proposed for use on Kawau?

The use of Victor leg traps (hard- or soft-jawed) for wallabies and possums hasn't been ruled in or out and a detailed operational plan has yet to be drafted while we remain in the feasibility stage. If they are used, they would not be the primary control method. Concerns of landowners and community feedback will be taken into account as part of the summary that is presented to governance.

Which traps are you referring to in 13.4 (of the feasibility report)?

A range of live traps are being considered and welfare considerations would be central to the decision on what trap types are used. This will be further explored in the detailed operational planning phase.

Does nobody amongst any of the panellists, care about the inhumanity of the processes that you are proposing to be used here, or does it not matter how you kill these animals and that it is just the end result that matters?

The team are very cognisant of the impact of the methods we use. We aim to use approved best practice methods. We hope that by eradicating pests from the island we will stop the regular ongoing use of toxins on the island that is the current situation.

Will an SEA overlay will be imposed on Kawau if the island becomes pest free?

Significant Ecological Area (SEA) status is not linked to the pest eradication. Auckland Council is required to implement national direction and its legislated responsibilities. Regardless of the project proposal to remove pest species from Kawau Island, Auckland Council is required to review the Auckland Unitary Plan after 10 years (anticipated in 2026) and to implement the recent National Policy Statement for Indigenous Biodiversity (NPS:IB). Both of these involve the regionwide assessment and review of indigenous biodiversity and the current SEA provisions. Council does not yet have a timeline for undertaking the required review.

Pets

How can we ensure that dog owners keep their dogs confined on private properties and not able to roam and hunt protected species such as kiwi?

If the proposal goes ahead, we will work with dog owners, the Department of Conservation and the SPCA on a responsible pet ownership campaign. This could include running programmes such as 'Lead the way', which empowers dog owners to know how to act to protect both the wildlife and their dog. There is kiwi avoidance training that could be offered as well.

You mentioned about people keeping their dogs on the mainland for a while. What about those permanent residents that have dogs/cats/chickens full time on the island? How do you propose to keep them safe?

AND

How are you going to protect our pets, eg dogs, cats and chickens?

It will be completely up to the pet owner if they want to keep pet dogs on the mainland or not, during a winter rodent operation. Pets, chickens, and livestock have been successfully managed during other island eradication projects. Caution would be required with pets during the operational period and any special considerations would be detailed in individual property management plans and worked through with pet owners. Every pet is different, and their owners will have the best idea of how to look after them. They might need to be kept inside, walked on a lead or controlled in a manner so they cannot eat bait or scavenge carcasses during the rodent operation. Please also see the above question.

Members of the community have suggested various options to keep pets safe and the project team would work closely with pet owners to ensure they are happy with the level of mitigation to keep their pet safe. Communication as to when and where baiting is happening will be key so pet owners can take extra care with their pets. Chickens will also need special consideration along with the pet goats and Island alpacas.

Toxins

Brodifacoum has been banned in Canada, USA and now the UK. Why not NZ?

Brodifacoum is available for use by professionals, such as those that would be managing this project, in those countries. In New Zealand, the Environmental Protection Authority is reviewing the unrestricted use of second-generation anti-coagulants by consumers.

Please advise on the kill time using Brodifacoum?

For rodents, after ingesting a lethal dose of cereal bait containing brodifacoum, death generally follows within two to seven days.

Wallabies will not be targeted using brodifacoum. It is recommended that wallabies be removed in the first phase as part of a split treatment operation to avoid the risk of wallabies consuming and reducing the accessibility of bait, intended for other target species (rats and possums). Wallabies will principally be targeted through hunting and trapping.

How will you address this inhumane process?

The team are very cognisant of the impact of toxins, but they are the best option that we have to achieve eradication. Acute toxins that kill very quickly are not suitable for rat eradication. Wallabies will principally be targeted through hunting and trapping.

Do you have a better alternative?

For 100% removal of rats, the use of anti-coagulant Brodifacoum is currently the only toxin that maximises eradication success. Anti-coagulants are currently being used widely on Kawau. An eradication operation would see the end of its ongoing use.

It seems rain events and moisture can impact the effectiveness of the toxin. This makes a winter distribution difficult. Over what time frame is it proposed to distribute Pestoff 20R?

In New Zealand, we specifically target rodents in winter when breeding slows down and they are hungry. Application of bait generally is done by taking advantage of fine weather windows during the winter. Brodifacoum, the active ingredient in the rat bait, is practically insoluble in water so does not degrade unless the bait does.

Baits not consumed by rats or possums are broken down both by the presence of soil micro-organisms capable of degrading brodifacoum and consumption by invertebrates, which have a different physiology to mammals and are not affected by the active ingredient. Soil type, rainfall and temperature all influence degradation time and it is standard procedure to monitor bait breakdown during an operation.

The eradication targeting rats would be undertaken over the winter months ideally within the period June to August. Bait may be retained in bait stations for a longer period but this would be defined in individual property management plans.

How long will the Pestoff 20R remain active under and in our houses?

Rodent bait would be inside secured bait stations under houses sheds and if applicable, roof spaces & basements for approximately 4 months. This could be extended if survivors are detected but the hope is that this would not be the case.

Given the amount of rainfall we get in winter, how much of the Brodifacoum is expected to be washed into our surrounding sea?

In New Zealand, we specifically target rodents in winter when breeding slows down and they are hungry. Application of bait generally is done taking advantage of fine weather windows during the winter. Brodifacoum the active ingredient in the rat bait is practically insoluble in water so does not degrade unless the bait does. Ultimately, the intent is for the bait to break down by weathering and soil microbial activity. The risk of bait accidentally entering the marine environment would be minimised by the use of precision GPS and deflector spreading equipment whereby bait is spread in only one direction. If baits do end up in the sea, there is no evidence based on monitoring completed elsewhere that the human food chain or marine life would be adversely affected.

Long term benefits for coastal ecosystems around Kawau are anticipated from the removal of rats, wallabies, possums and stoats. Decreased erosion, recovery of seabird populations and ecosystem processes will improve and increase the productivity of nearby marine rocky reef habitats.

Has the Ministry of Health (MoH) been advised or consulted at all of the proposed pest eradication project for Kawau Island and the use of Brodifacoum and possible use of Cyanide and 1080?

Under the Hazardous Substances and New Organisms (HSNO) Act 1996, permission is required whenever a specified vertebrate toxic agent (VTA) is proposed to be applied to any catchment area from which water is drawn for human consumption, or any other place where a risk to public health may be created by the application of the VTA (eg. any place to which the public normally has access like parks). The Environmental Protection Authority (EPA) has delegated permission functions to the Ministry of Health, so we will follow the application process, if the project is approved, to proceed to an operational planning phase. Applicable VTA's are 1080 and cyanide products.

The Resource Management (Exemption) Regulations 2017 established the discharge of brodifacoum is exempt when discharged for the purpose of killing vertebrate pests, and the discharge is onto an island of New Zealand other than North Island or South Island. We work with the MoH regarding our aerial 1080 operations in the Hunua and so are well-versed with their expectations and would likely reach out to them about the brodifacoum operation regardless, as you suggest.

What agency will be accountable if there is harm to either humans or companion animals during the proposed pest eradication operation?

That would depend on the result of the investigation, but we are extremely confident there is no risk to human life.

Is it correct that Brodifacoum poisoning works by setting off an internal bleeding process, and that the animals who ingest that poison will die a slow and lingering deaths, with their last days being spent in agony?

The anti-coagulant brodifacoum is a blood-thinning agent, it interferes with the synthesis of vitamin K-dependent clotting factors (hence vitamin K is the antidote). Brodifacoum is already in use across Kawau, and an eradication operation would see the end of its ongoing use. It is not thought to cause agony.

Wallabies

What is the current wallaby population on Kawau? Has brodifacoum been previously used to kill wallaby and if so, what is the lethal dosage required?

Wallabies are widespread across Kawau Island and less dense in some areas than others due to control efforts by the Pohutukawa Trust. The exact numbers are unknown, but the Pohutukawa Trust Hunters estimate the population to be approximately 1200. Historically Brodifacoum has been used in New Zealand for wallaby control. It is not intended to be used on wallabies for the proposed eradication effort on Kawau Island as explained in the feasibility report section 7.1, with hunting the primary control method. It is not presently registered for wallaby control in NZ.

Would you consider putting in predator proof fences for large areas where residents all agree they want the wallaby's gone given the large % that want wallaby's gone?

Retaining a wild population of wallabies on the island will not achieve the outcome of protecting Kawau and the mainland from the impact and threat of wallabies which is why we are intending to eradicate them from the island. Section 9.3 of the Feasibility report speaks to consideration given to wallabies in captive management. The project team has also been in contact with MPI, the authority that issues permits for wallabies in captivity, to obtain information on the containment standards and permit process and look at what support might be required for applications by interested parties.

Could you please talk about the trapping and whether the wallabies are found in the trap and killed, or die there due to injury or starvation?

If traps are used, they will be restricted to capture the last remaining animals that have avoided other techniques. Traps to be considered for this could include enclosure style, drop nets, or other restraining types and this would be detailed in an operational plan. The effective use of traps will follow the relevant legislation and best practices. Regardless of the trap used, the Animal Welfare Act 1999 and guidelines will be followed, including inspecting traps daily and remote monitoring if available. All trapped animals will be dealt with humanely in accordance with this. We have an obligation to care for the animal in the trap within 24 hours of that animal being caught in the trap. The Act requires us to do so in a way that ensures the animal does not suffer unnecessary pain or distress.

Water supplies

Can we have more robust scientific evidence provided regarding impact on our water supplies from shallow bores/open wells and waterways than you have provided, please?

AND

Can you give assurances that Kawau Island drinking water will not be contaminated with the widespread use of poison, tank water supplies as well as any bores or other water supplies used. Will birds and or rats be able to transport the Brodifacoum up on our house roofs?

The article 'Invasive rodent eradication on islands: assessment and mitigation of human exposure to rodenticides' (Catasano et. al 2022), outlines the perceived risk to water ways.

"Primary exposure of humans through drinking water contaminated with rodenticide bait has been identified as a 'perceived' risk in several proposed rodent eradication programs. . . due to the low likelihood of a true exposure pathway becoming present. Brodifacoum has very low solubility in water and residues in freshwater and seawater have rarely been recorded. Monitoring of freshwater after aerial applications in New Zealand of cereal pellet bait containing 20 ppm brodifacoum on Red Mercury Island (Morgan and Wright 1996), Lady Alice Island (Ogilvie et al. 1997), Maungatautari (217 water samples tested), Little Barrier Island, and Rangitoto/Motutapu Islands (Fisher et al. 2010) found no detectable brodifacoum."

This article is behind a paywall but please email kawauislandproject@aucklandcouncil.govt.nz for a copy.

Brodifacoum is practically insoluble in water so the risk to water supplies is negligible effectively. The reason that we would treat the residential areas by hand is because of perceived risks, not an actual risk of contamination. Brodifacoum baits are made of cereal and when they break down the brodifacoum binds to the sediment, where it's broken down by microbial action in the soil. It doesn't travel through the soil more than a few centimetres, so water bores and artesian water sources are safe. We may advise residents that extract water from streams to store enough water for the period of the operation, but once again just to address perceived risks rather than actual. There is minimal risk from a shallow water bore and there's been plenty of testing of water supplies after, and during projects, that have shown that the risks are not of concern.